Hi-G ITALIA

RELAYS - SOLID STATES - SENSORS - TIMERS

High Performance - Hermetically Sealed Switching Devices

MIL AQAP 2120

IMQ ISO 9001:2000

CECC ISO 9001:2000

www.higrelays.it

Hi-G ITALIA
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Hi-G ITALIA
Ultraminiature Relays

Hi-G Italia has more than 30 years experience in manufacturing high quality hermetically sealed relays to meet military and aerospace specifications and applications.
Hi-G Italia, with a range of relays up to 10 Amperes switching has one of the largest range of Mil and CECC qualified relays products in the world.

Hi-G Italia offers a completely interfaced and fully integrated organisation with a total capability for manufacturing and design, with ful1y equipped and up .to date test and reliability laboratories, ca1ibration facilities, purchasing, sales, distribution, administration etc… al1 harmonised in a Qua1ity System that is approved and qualified to ISO 9000 and AQAP.

Production facilities are designed for maximum cleanliness. This includes a dust control room where relays are assembled under laminar flow benches and a white room (class 1000) where operations such as cleaning, testing and sealing are performed.

Hi-G Italia hermetically sealed relays offers the following benefits

- SPDT, DPDT and 4PDT configurations
- Exceptiona1 tolerance to shock and vibration
- Leak-free sealing and extended life expectancy
- Sensitive from 25 to 500 milliwatts
- Wide selection of coil resistance's, terminations and mounting, including SMD

The catalogue is divided into the following main product groups

- Commercial and Industrial types
- Radio frequency types
- Military types
- CECC types
- Customized Relays (by request)

Warranty: We guarantee our products for 24 months from de1ivery, providing material as supp1ied to the specifications listed on this catalogue, has not been modified, either electrica1ly or mechanica1ly. Modification of materials will void warranty and / or return policies.

Specifications noted herein are subjected to change without notice.

GENERAL INFORMATION

APPROVALS

MIL

CECC (CENELEC Electronic Components Committee) – All relays supplied with this registered Mark, have been subject to rigid inspection for quality conformance and a comprehensive schedule of test and acceptance requirements, under the surveillance of the independent inspectorate: OVE
All relays supplied with Military Specification reference, have been subject to rigid inspection for quality conformance and a comprehensive schedule of test and acceptance requirements, in accordance to National military standard (NK-2C) and specification (i.e. Mil-PRF-39016), under the surveillance of the Italian MINISTRY of DEFENCE, D.G. TELEDIFE (previously TELECOMDIFE)

MAIN PRODUCT SELECTION

The catalogue is divided in to four main product groups: Qualified or compliant **Military** Types and Qualified **CECC** Types, **Commercial** Types and **RF** Types.
The Relay Selector Chart on next page will enable you to easily choose the relay that is the best suited to meet your particular requirements.

MILITARY and CECC QUALIFIED RELAYS
Hi-G Italia offers a complete selection of **CECC** and **Military** relays qualified to or complaint with the latest specifications, providing excellent reliability. Our relays are used world-wide in military and aerospace systems, civil aviation, satellites, including navigation control systems, engine management and control equipment. Where individual requirements demand design and testing that is not available within the military and CECC specifications listed here, Hi-G Italia has the capability to modify existing devices to meet those needs.

COMMERCIAL and INDUSTRIAL RELAYS
Hi-G Italia offers a wide variety of commercial, industrial and special design relays, to meet the needs of customers whose applications require the advantages of qualified relay type, but who are unable to find a device within the military and CECC specifications. These devices operate reliably under extreme environmental conditions and are designed to survive where other competitive relays may not.

RADIO FREQUENCY RELAYS
Although al Hi-G Italia relays can be used to switch radio frequency loads, the RF types provides the user with switching poles terminated with coaxial cable. Two-pole devices are available with either one or both sets of poles cabled. When only one set of poles is cabled on a two-pole relay, the other set is available for use with pin or hook termination.

CUSTOM RELAYS
Hi-G Italia has the capability to provide custom design relays upon customer requirements. These relays include a multitude of mounting (Brackets, Insulator Pads, Spreaders and Stand-offs), terminations and electrical parameters, with selective testing at our own laboratories.

Note:
All relays can be shipped with certificate of conformance and test data record for individual relay or batches of relays, upon customer requirement.

GENERAL INFORMATION
SELECTION CHART

Series	Series Types	Enclosure	Contacts		Nominal Coil Voltage or Current	Operating Power at P.I. (mW)	Applicable Specification Approvals				
							MILITARY		Compliance	CECC	
			Arrangement	Rating			Mil-PRF-39016/	Mil-PRF-28776/	Mil-R-5757/	16101-	16207-
(I) MA	MA	TO-5	DPDT	1A / 28Vdc	5…30,0 Vdc	130	9				
	MA-D				5…26,5 Vdc		15				
	MA-DD					150	20				
	MA-T					130		1			
MA2					5…30,0 Vdc					003	
MCA				2A / 28Vdc	5…26,5 Vdc	150					
(I) MS	MS			1A / 28Vdc	5…48,0 Vdc	60	11				
	MS-D						16				
	MS-DD					70	21				
	MS-T					60		3			
MS2					5…48,0 Vdc					004	
(I) 1MA	1MA		SPDT		5…26,5 Vdc	100	7				
	1MA-D						23				
	1MA-DD					120	24				
	1MA-T					100		5			
1MA1					5…26,5 Vdc					005	
(I) 1MS	1MS				5…40,0 Vdc	50	10				
	1MS-D						25				
	1MS-DD					40	26				
	1MS-T					50		4			
1MS1					5…40,0 Vdc					006	
(I) MGA	MGA	CUBIC .100 GRID	DPDT		5…26,5 Vdc	130	17				
	MGA-D						18				
	MGA-DD					150	19				
MGAE	MGAE				5…28,0 Vdc	130					801
	MGAE-D										
	MGAE-DD					150					
MGA2	MGA2/D2				5…28,0 Vdc	140					007
(I) MGS	MGS				5…48,0 Vdc	60	41				
	MGS-D						42				
	MGS-DD						43				
MGSE	MGSE				5…48,0 Vdc						802
	MGSE-D										
	MGSE-DD										
MGS2	MGS2/D2				5…48,0 Vdc						008
I2K		½ CC	DPDT	2A / 28Vdc	5…26,5 Vdc	250	6				
2K					5…48,0 Vdc						
2K-6600					5…48,0 Vdc					007,014 021	
KA	2KA				5…48,0 Vdc	100					
HA	2HA			5A / 28Vdc	5…48,0 Vdc	300					
B	2B	CC		2A / 28Vdc	6…76,0 Vdc	250					
	2BR				26,5..115 Vac	370					
2B-6660				3A / 28Vdc	6…76,0 Vdc	250				008	
2B-7506				2A / 28Vdc	6…26,5 Vdc				10		
BA	2BA		DPDT		6…26,5 Vdc	100					
BK	1BK		SPDT		3,8…70,6 mA	25					
	2BK		DPDT		4,8…89,2 mA	40					
BN	1BN		SPDT	5A / 28Vdc	6…76,0 Vdc	280					
	2BN		DPDT								
BC	1BC		SPDT	2A / 28Vdc	3,2…70,6 mA	25					
	2BC		DPDT		4,0…90,0 mA	40					
2BC-7201			DPDT		4,0…90,0 mA				13		
BCN	1BCN		SPDT	5A / 28Vdc	6…40,0 Vdc	80					
	2BCN		DPDT								
4B			4PDT	2A / 28Vdc	6….115 Vdc	400					
T	2T		DPDT	10A / 28Vdc	6…115 Vdc	500					
	2TR				12....220 Vac						
2T-7188					6…120 Vdc				23		
RFK	RFK	½ CC	SPDT	2A / 28Vdc	6…26,5 Vdc	250					
	2RFK		DPDT								
RFB	RFB	CC	SPDT		6…76,5 Vdc						
	2RFB		DPDT								
RFBC	RFBC		SPDT		4,0….89,2 mA	40					
	2RFBC		DPDT								

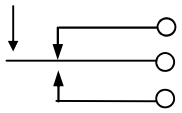
GENERAL INFORMATION
RELAY TERMINOLOGY and SIMBOLS

Armature — The moving magnetic member of an electromagnetic relay structure.

Capacitance — The maximum allowable capacitive coupling between two specified test points.

Coil Voltage (maximum) — The maximum coil voltage which can be applied to the coil over the temperature range, without damaging the coil.

Contact (Form C) — Break before Make, or Transfer.



Contact Bounce — Intermittent and undesired opening of closed contacts or closing of open contacts, of a relay.

Contact Bounce Time — For a contact which is closing (opening) its circuit, the time internal between the instant when the contact circuit first closes (opens) and the instant when the circuit is finally closed (opened).

Carry Current — The amount of current which can safely flow through closed contacts, when the contacts are opened and closed with no load applied.

Cycle — One opening and one closure of a contact set.

DPDT — Double Pole Double Throw relay.

Drop-out Value — A monostable relay drops out when it changes from an energized to an unenergised condition.

Isolation — The value of insulation resistance, dielectric strength and capacitance measured between the input and outputs. The leakage of an RF signal between mutually isolated points.

Low level Load — Load level which will have minimal effect on contact life and performance.

Nominal Coil Voltage — The coil voltage at which the relay is intended to operate.

Operate Time — The interval of time between the application of the operate value and the first closing (or opening) of the contact circuit.

Pick-up (Pull-in) Value — As the current or voltage on an unoperated relay is increased, the minimum value at which all contacts will change state.

Release Time — The interval of time between the application of the release value and the first opening (or closing) of the contact circuit.

SPDT — Single Pole Double Throw relay.

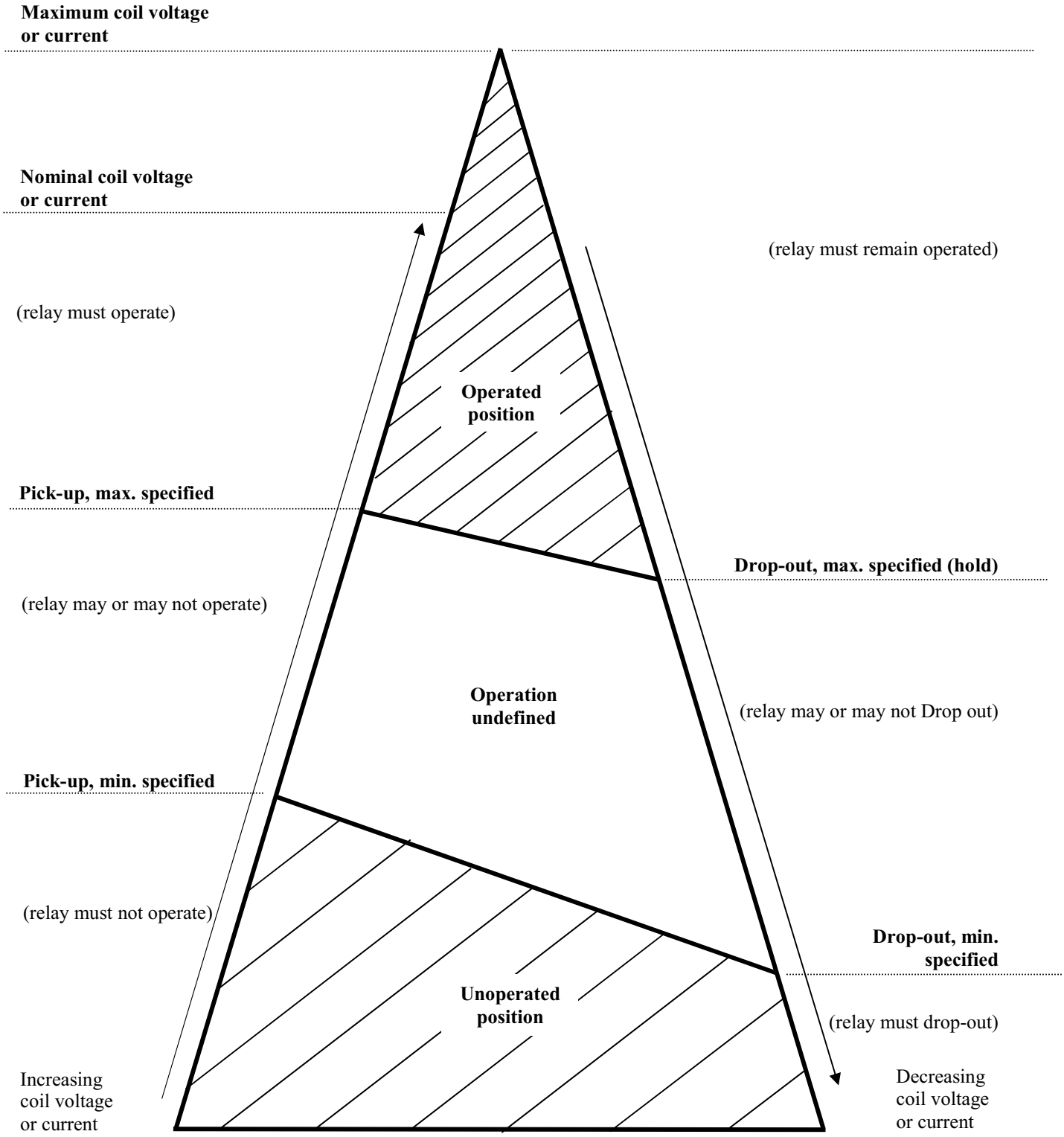
Crosstalk — The electrical coupling between a closed contact circuit and other open or closed contacts on the same relay or switch, expressed in decibel down from the signal level.

Contact Stabilisation Time — The interval of time, following operate or release time, to reach and maintain the static contact resistance value of the relay. It is the sum of the contact bounce time and the time for dynamic contact resistance to stabilise to the static contact resistance.

VSWR — Voltage Standing Wave Radio. A measurement of the reflected RF signal.

GENERAL INFORMATION

RELATIONSHIP OF RELAY PERFORMANCE TO DEFINITIONS



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CROSS REFERENCE
Hi-G vs Military and CECC Part Number

Hi-G Italia manufactures its products in accordance with MIL-PRF-39016 and MIL-PRF-28776 specifications, under the supervision of the Italian Ministry of Defence "TELEDIFE"; furthermore manufactures some of its products in total compliance to MIL-R-5757 specifications. The part following is a cross reference calling for the suggested equivalence between the Military Designation, the Hi-G Italia part number and, where available the CECC specification. For the part number of CECC qualified relays, please use the CECC reference specification number or contact our sales department.

Examples:

MILITARY DESIGNATION	Hi-G Part. No.
MIL-PRF-39016/17-025L	IMGAP-5A
MIL-PRF-39016/17-025M	IMGAP-5B

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-28776/1				
28776/1-013	L or M	IMAWT-5A or B		
28776/1-014	L or M	IMAWT-6A or B		
28776/1-015	L or M	IMAWT-9A or B		
28776/1-016	L or M	IMAWT-12A or B		
28776/1-017	L or M	IMAWT-18A or B		
28776/1-018	L or M	IMAWT-26A or B		
28776/1-019	L or M	IMAPT-5A or B		
28776/1-020	L or M	IMAPT-6A or B		
28776/1-021	L or M	IMAPT-9A or B		
28776/1-022	L or M	IMAPT-12A or B		
28776/1-023	L or M	IMAPT-18A or B		
28776/1-024	L or M	IMAPT-26A or B		
28776/1-025	L or M	IMACT-5A or B		
28776/1-026	L or M	IMACT-6A or B		
28776/1-027	L or M	IMACT-9A or B		
28776/1-028	L or M	IMACT-12A or B		
28776/1-029	L or M	IMACT-18A or B		
28776/1-030	L or M	IMACT-26A or B		
28776/1-031	L or M	IMACT-5AS or BS		
28776/1-032	L or M	IMACT-6AS or BS		
28776/1-033	L or M	IMACT-9AS or BS		
28776/1-034	L or M	IMACT-12AS or BS		
28776/1-035	L or M	IMACT-18AS or BS		
28776/1-036	L or M	IMACT-26AS or BS		
MIL-PRF-28776/3				
28776/3-017	L or M	IMSWT-5A or B		
28776/3-018	L or M	IMSWT-6A or B		
28776/3-019	L or M	IMSWT-9A or B		
28776/3-020	L or M	IMSWT-12A or B		
28776/3-021	L or M	IMSWT-18A or B		
28776/3-022	L or M	IMSWT-26A or B		
28776/3-023	L or M	IMSWT-36A or B		
28776/3-024	L or M	IMSWT-48A or B		
28776/3-025	L or M	IMSPT-5A or B		
28776/3-026	L or M	IMSPT-6A or B		
28776/3-027	L or M	IMSPT-9A or B		
28776/3-028	L or M	IMSPT-12A or B		
28776/3-029	L or M	IMSPT-18A or B		
28776/3-030	L or M	IMSPT-26A or B		
28776/3-031	L or M	IMSPT-36A or B		
28776/3-032	L or M	IMSPT-48A or B		
28776/3-033	L or M	IMSCT-5A or B		
28776/3-034	L or M	IMSCT-6A or B		
28776/3-035	L or M	IMSCT-9A or B		
28776/3-036	L or M	IMSCT-12A or B		
28776/3-037	L or M	IMSCT-18A or B		
28776/3-038	L or M	IMSCT-26A or B		
28776/3-039	L or M	IMSCT-36A or B		
28776/3-040	L or M	IMSCT-48A or B		
28776/3-041	L or M	IMSCT-5AS or BS		
28776/3-042	L or M	IMSCT-6AS or BS		
28776/3-043	L or M	IMSCT-9AS or BS		
28776/3-044	L or M	IMSCT-12AS or BS		
28776/3-045	L or M	IMSCT-18AS or BS		
28776/3-046	L or M	IMSCT-26AS or BS		
28776/3-047	L or M	IMSCT-36AS or BS		
28776/3-048	L or M	IMSCT-48AS or BS		
MIL-PRF-28776/4				
28776/4-017	L or M	I1MSWT-5A or B		
28776/4-018	L or M	I1MSWT-6A or B		
28776/4-019	L or M	I1MSWT-9A or B		
28776/4-020	L or M	I1MSWT-12A or B		
28776/4-021	L or M	I1MSWT-18A or B		
28776/4-022	L or M	I1MSWT-26A or B		
28776/4-023	L or M	I1MSWT-32A or B		
28776/4-024	L or M	I1MSWT-40A or B		
28776/4-025	L or M	I1MSPT-5A or B		
28776/4-026	L or M	I1MSPT-6A or B		
28776/4-027	L or M	I1MSPT-9A or B		
28776/4-028	L or M	I1MSPT-12A or B		
28776/4-029	L or M	I1MSPT-18A or B		
28776/4-030	L or M	I1MSPT-26A or B		
28776/4-031	L or M	I1MSPT-32A or B		
28776/4-032	L or M	I1MSPT-40A or B		
28776/4-033	L or M	I1MSCT-5A or B		
28776/4-034	L or M	I1MSCT-6A or B		
28776/4-035	L or M	I1MSCT-9A or B		
28776/4-036	L or M	I1MSCT-12A or B		
28776/4-037	L or M	I1MSCT-18A or B		
28776/4-038	L or M	I1MSCT-26A or B		
28776/4-039	L or M	I1MSCT-32A or B		
28776/4-040	L or M	I1MSCT-40A or B		

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-28776/4		**(Continued)**		
28776/4-041	L or M	I1MSCT-5AS or BS		
28776/4-042	L or M	I1MSCT-6AS or BS		
28776/4-043	L or M	I1MSCT-9AS or BS		
28776/4-044	L or M	I1MSCT-12AS or BS		
28776/4-045	L or M	I1MSCT-18AS or BS		
28776/4-046	L or M	I1MSCT-26AS or BS		
28776/4-047	L or M	I1MSCT-32AS or BS		
28776/4-048	L or M	I1MSCT-40AS or BS		
MIL-PRF-28776/5				
28776/5-013	L or M	I1MAWT-5A or B		
28776/5-014	L or M	I1MAWT-6A or B		
28776/5-015	L or M	I1MAWT-9A or B		
28776/5-016	L or M	I1MAWT-12A or B		
28776/5-017	L or M	I1MAWT-18A or B		
28776/5-018	L or M	I1MAWT-26A or B		
28776/5-019	L or M	I1MAPT-5A or B		
28776/5-020	L or M	I1MAPT-6A or B		
28776/5-021	L or M	I1MAPT-9A or B		
28776/5-022	L or M	I1MAPT-12A or B		
28776/5-023	L or M	I1MAPT-18A or B		
28776/5-024	L or M	I1MAPT-26A or B		
28776/5-025	L or M	I1MACT-5A or B		
28776/5-026	L or M	I1MACT-6A or B		
28776/5-027	L or M	I1MACT-9A or B		
28776/5-028	L or M	I1MACT-12A or B		
28776/5-029	L or M	I1MACT-18A or B		
28776/5-030	L or M	I1MACT-26A or B		
28776/5-031	L or M	I1MACT-5AS or BS		
28776/5-032	L or M	I1MACT-6AS or BS		
28776/5-033	L or M	I1MACT-9AS or BS		
28776/5-034	L or M	I1MACT-12AS or BS		
28776/5-035	L or M	I1MACT-18AS or BS		
28776/5-036	L or M	I1MACT-26AS or BS		
MIL-PRF-39016/6			**16101-007**	**16101-014**
39016/6-104	L or M	I2K-104A or B	16101-007-18-06-01	16101-014-17-06-01
39016/6-105	L or M	I2K-105A or B	16101-007-18-06-02	16101-014-17-06-02
39016/6-106	L or M	I2K-106A or B	16101-007-18-06-05	N / A
39016/6-107	L or M	I2K-107A or B	16101-007-18-15-01	N / A
39016/6-108	L or M	I2K-108A or B	16101-007-18-15-05	N / A
39016/6-109	L or M	I2K-109A or B	16101-007-18-01-02	16101-014-17-01-02
39016/6-110	L or M	I2K-110A or B	16101-007-18-01-05	N / A
39016/6-111	L or M	I2K-111A or B	16101-007-12-06-01	16101-014-11-06-01
39016/6-112	L or M	I2K-112A or B	16101-007-12-06-02	16101-014-11-06-02
39016/6-113	L or M	I2K-113A or B	16101-007-12-06-05	N / A
39016/6-114	L or M	I2K-114A or B	16101-007-12-15-01	N / A
39016/6-115	L or M	I2K-115A or B	16101-007-12-15-05	N / A
39016/6-116	L or M	I2K-116A or B	16101-007-12-01-02	16101-014-11-01-02
39016/6-117	L or M	I2K-117A or B	16101-007-12-01-05	N / A
39016/6-118	L or M	I2K-118A or B	16101-007-03-06-01	16101-014-02-06-01
39016/6-119	L or M	I2K-119A or B	16101-007-03-06-02	16101-014-02-06-02
39016/6-120	L or M	I2K-120A or B	16101-007-03-06-05	N / A
39016/6-121	L or M	I2K-121A or B	16101-007-03-15-01	N / A
39016/6-122	L or M	I2K-122A or B	16101-007-03-15-05	N / A
39016/6-123	L or M	I2K-123A or B	16101-007-03-01-02	16101-014-02-01-02
39016/6-124	L or M	I2K-124A or B	16101-007-03-01-05	N / A
39016/6-125	L or M	I2K-125A or B	16101-007-18-15-02	N / A
39016/6-126	L or M	I2K-126A or B	16101-007-12-15-02	N / A
39016/6-127	L or M	I2K-127A or B	16101-007-03-15-02	N / A
39016/6-128	L or M	I2K-128A or B	N / A	N / A
39016/6-129	L or M	I2K-129A or B	16101-007-18-01-01	16101-014-17-01-01
39016/6-130	L or M	I2K-130A or B	16101-007-12-01-01	16101-014-11-01-01
39016/6-131	L or M	I2K-131A or B	16101-007-03-01-01	16101-014-02-01-01
39016/6-132	L or M	I2K-132A or B	16101-007-01-06-01	16101-014-01-06-01
39016/6-133	L or M	I2K-133A or B	16101-007-01-06-02	16101-014-01-06-02
39016/6-134	L or M	I2K-134A or B	16101-007-01-06-05	N / A
39016/6-135	L or M	I2K-135A or B	16101-007-01-15-01	N / A
39016/6-136	L or M	I2K-136A or B	16101-007-01-15-02	N / A
39016/6-137	L or M	I2K-137A or B	16101-007-01-15-05	N / A
39016/6-138	L or M	I2K-138A or B	16101-007-01-01-01	16101-014-01-01-01
39016/6-139	L or M	I2K-139A or B	16101-007-01-01-02	16101-014-01-01-02
39016/6-140	L or M	I2K-140A or B	16101-007-01-01-05	N / A
39016/6-141	L or M	I2K-141A or B	N / A	N / A
39016/6-142	L or M	I2K-142A or B	N / A	N / A
39016/6-143	L or M	I2K-143A or B	N / A	N / A
39016/6-144	L or M	I2K-144A or B	N / A	N / A
39016/6-145	L or M	I2K-145A or B	N / A	N / A
39016/6-146	L or M	I2K-146A or B	N / A	N / A
39016/6-147	L or M	I2K-147A or B	N / A	N / A
39016/6-148	L or M	I2K-148A or B	N / A	N / A
39016/6-149	L or M	I2K-149A or B	N / A	N / A
39016/6-150	L or M	I2K-150A or B	N / A	N / A
39016/6-151	L or M	I2K-151A or B	N / A	N / A

CROSS REFERENCE

Hi-G vs Military and CECC Part Number

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-39016/6		**(Continued)**		
39016/6-152	L or M	I2K-152A or B	N / A	N / A
39016/6-204	L or M	I2K-204A or B	16101-007-18-06-01	16101-014-17-06-01
39016/6-205	L or M	I2K-205A or B	16101-007-18-06-02	16101-014-17-06-02
39016/6-206	L or M	I2K-206A or B	16101-007-18-06-05	N / A
39016/6-207	L or M	I2K-207A or B	16101-007-18-15-01	N / A
39016/6-208	L or M	I2K-208A or B	16101-007-18-15-05	N / A
39016/6-209	L or M	I2K-209A or B	16101-007-18-01-02	16101-014-17-01-02
39016/6-210	L or M	I2K-210A or B	16101-007-18-01-05	N / A
39016/6-211	L or M	I2K-211A or B	16101-007-12-06-01	16101-014-11-06-01
39016/6-212	L or M	I2K-212A or B	16101-007-12-06-02	16101-014-11-06-02
39016/6-213	L or M	I2K-213A or B	16101-007-12-06-05	N / A
39016/6-214	L or M	I2K-214A or B	16101-007-12-15-01	N / A
39016/6-215	L or M	I2K-215A or B	16101-007-12-15-05	N / A
39016/6-216	L or M	I2K-216A or B	16101-007-12-01-02	16101-014-11-01-02
39016/6-217	L or M	I2K-217A or B	16101-007-12-01-05	N / A
39016/6-218	L or M	I2K-218A or B	16101-007-03-06-01	16101-014-02-06-01
39016/6-219	L or M	I2K-219A or B	16101-007-03-06-02	16101-014-02-06-02
39016/6-220	L or M	I2K-220A or B	16101-007-03-06-05	N / A
39016/6-221	L or M	I2K-221A or B	16101-007-03-15-01	N / A
39016/6-222	L or M	I2K-222A or B	16101-007-03-15-05	N / A
39016/6-223	L or M	I2K-223A or B	16101-007-03-01-02	16101-014-02-01-02
39016/6-224	L or M	I2K-224A or B	16101-007-03-01-05	N / A
39016/6-225	L or M	I2K-225A or B	16101-007-18-15-02	N / A
39016/6-226	L or M	I2K-226A or B	16101-007-12-15-02	N / A
39016/6-227	L or M	I2K-227A or B	16101-007-03-15-02	N / A
39016/6-228	L or M	I2K-228A or B	N / A	N / A
39016/6-229	L or M	I2K-229A or B	16101-007-18-01-01	16101-014-17-01-01
39016/6-230	L or M	I2K-230A or B	16101-007-12-01-01	16101-014-11-01-01
39016/6-231	L or M	I2K-231A or B	16101-007-03-01-01	16101-014-02-01-01
39016/6-232	L or M	I2K-232A or B	16101-007-01-06-01	16101-014-01-06-01
39016/6-233	L or M	I2K-233A or B	16101-007-01-06-02	16101-014-01-06-02
39016/6-234	L or M	I2K-234A or B	16101-007-01-06-05	N / A
39016/6-235	L or M	I2K-235A or B	16101-007-01-15-01	N / A
39016/6-236	L or M	I2K-236A or B	16101-007-01-15-02	N / A
39016/6-237	L or M	I2K-237A or B	16101-007-01-15-05	N / A
39016/6-238	L or M	I2K-238A or B	16101-007-01-01-01	16101-014-01-01-01
39016/6-239	L or M	I2K-239A or B	16101-007-01-01-02	16101-014-01-01-02
39016/6-240	L or M	I2K-240A or B	16101-007-01-01-05	N / A
39016/6-241	L or M	I2K-241A or B	N / A	N / A
39016/6-242	L or M	I2K-242A or B	N / A	N / A
39016/6-243	L or M	I2K-243A or B	N / A	N / A
39016/6-244	L or M	I2K-244A or B	N / A	N / A
39016/6-245	L or M	I2K-245A or B	N / A	N / A
39016/6-246	L or M	I2K-246A or B	N / A	N / A
39016/6-247	L or M	I2K-247A or B	N / A	N / A
39016/6-248	L or M	I2K-248A or B	N / A	N / A
39016/6-249	L or M	I2K-249A or B	N / A	N / A
39016/6-250	L or M	I2K-250A or B	N / A	N / A
39016/6-251	L or M	I2K-251A or B	N / A	N / A
39016/6-252	L or M	I2K-252A or B	N / A	N / A
MIL-PRF-39016/7			**16101-005**	
39016/7-013	L or M	I1MAW-5A or B	16101-005-01-01	
39016/7-014	L or M	I1MAP-5A or B	16101-005-01-02	
39016/7-015	L or M	I1MAW-6A or B	16101-005-02-01	
39016/7-016	L or M	I1MAP-6A or B	16101-005-02-02	
39016/7-017	L or M	I1MAW-9A or B	16101-005-03-01	
39016/7-018	L or M	I1MAP-9A or B	16101-005-03-02	
39016/7-019	L or M	I1MAW-12A or B	16101-005-04-01	
39016/7-020	L or M	I1MAP-12A or B	16101-005-04-02	
39016/7-021	L or M	I1MAW-18A or B	16101-005-05-01	
39016/7-022	L or M	I1MAP-18A or B	16101-005-05-02	
39016/7-023	L or M	I1MAW-26A or B	16101-005-06-01	
39016/7-024	L or M	I1MAP-26A or B	16101-005-06-02	
39016/7-025	L or M	I1MAC-5A or B	16101-005-01-03	
39016/7-026	L or M	I1MAC-6A or B	16101-005-02-03	
39016/7-027	L or M	I1MAC-9A or B	16101-005-03-03	
39016/7-028	L or M	I1MAC-12A or B	16101-005-04-03	
39016/7-029	L or M	I1MAC-18A or B	16101-005-05-03	
39016/7-030	L or M	I1MAC-26A or B	16101-005-06-03	
39016/7-031	L or M	I1MAC-5AS or BS	N / A	
39016/7-032	L or M	I1MAC-6AS or BS	N / A	
39016/7-033	L or M	I1MAC-9AS or BS	N / A	
39016/7-034	L or M	I1MAC-12AS or BS	N / A	
39016/7-035	L or M	I1MAC-18AS or BS	N / A	
39016/7-036	L or M	I1MAC-26AS or BS	N / A	
MIL-PRF-39016/9			**16101-003**	
39016/9-013	L or M	IMAW-5A or B	16101-003-01-01	
39016/9-014	L or M	IMAW-6A or B	16101-003-02-01	
39016/9-015	L or M	IMAW-9A or B	16101-003-03-01	
39016/9-016	L or M	IMAW-12A or B	16101-003-04-01	
39016/9-017	L or M	IMAW-18A or B	16101-003-05-01	
39016/9-018	L or M	IMAW-26A or B	16101-003-06-01	
39016/9-019	L or M	IMAP-5A or B	16101-003-01-02	
39016/9-020	L or M	IMAP-6A or B	16101-003-02-02	
39016/9-021	L or M	IMAP-9A or B	16101-003-03-02	
39016/9-022	L or M	IMAP-12A or B	16101-003-04-02	
39016/9-023	L or M	IMAP-18A or B	16101-003-05-02	
39016/9-024	L or M	IMAP-26A or B	16101-003-06-02	
39016/9-051	L or M	IMAW-30A or B	16101-003-08-01	
39016/9-052	L or M	IMAP-30A or B	16101-003-08-02	
39016/9-057	L or M	IMAC-5A or B	16101-003-01-03	
39016/9-058	L or M	IMAC-6A or B	16101-003-02-03	
39016/9-059	L or M	IMAC-9A or B	16101-003-03-03	
39016/9-060	L or M	IMAC-12A or B	16101-003-04-03	
39016/9-061	L or M	IMAC-18A or B	16101-003-05-03	
39016/9-062	L or M	IMAC-26A or B	16101-003-06-03	
39016/9-063	L or M	IMAC-30A or B	16101-003-08-03	
39016/9-071	L or M	IMAC-5AS or BS	16101-003-01-09	
39016/9-072	L or M	IMAC-6AS or BS	16101-003-02-09	
39016/9-073	L or M	IMAC-9AS or BS	16101-003-03-09	
39016/9-074	L or M	IMAC-12AS or BS	16101-003-04-09	
39016/9-075	L or M	IMAC-18AS or BS	16101-003-05-09	
39016/9-076	L or M	IMAC-26AS or BS	16101-003-06-09	

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-39016/9		**(Continued)**		
39016/9-077	L or M	IMAC-30AS or BS	16101-003-08-09	
39016/9-085	L or M	IMACG-5A or B	N / A	
39016/9-086	L or M	IMACG-6A or B	N / A	
39016/9-087	L or M	IMACG-9A or B	N / A	
39016/9-088	L or M	IMACG-12A or B	N / A	
39016/9-089	L or M	IMACG-18A or B	N / A	
39016/9-090	L or M	IMACG-26A or B	N / A	
39016/9-091	L or M	IMACG-30A or B	N / A	
39016/9-099	L or M	IMACG-5AS or BS	N / A	
39016/9-100	L or M	IMACG-6AS or BS	N / A	
39016/9-101	L or M	IMACG-9AS or BS	N / A	
39016/9-102	L or M	IMACG-12AS or BS	N / A	
39016/9-103	L or M	IMACG-18AS or BS	N / A	
39016/9-104	L or M	IMACG-26AS or BS	N / A	
39016/9-105	L or M	IMACG-30AS or BS	N / A	
39016/9-106	L or M	IMAC-5AS2 or BS2	16101-003-01-06	
39016/9-107	L or M	IMAC-6AS2 or BS2	16101-003-02-06	
39016/9-108	L or M	IMAC-9AS2 or BS2	16101-003-03-06	
39016/9-109	L or M	IMAC-12AS2 or BS2	16101-003-04-06	
39016/9-110	L or M	IMAC-18AS2 or BS2	16101-003-05-06	
39016/9-111	L or M	IMAC-26AS2 or BS2	16101-003-06-06	
39016/9-112	L or M	IMAC-30AS2 or BS2	16101-003-08-06	
MIL-PRF-39016/10			**16101-006**	
39016/10-017	L or M	I1MSW-5A or B	16101-006-01-01	
39016/10-018	L or M	I1MSP-5A or B	16101-006-01-02	
39016/10-019	L or M	I1MSW-6A or B	16101-006-02-01	
39016/10-020	L or M	I1MSP-6A or B	16101-006-02-02	
39016/10-021	L or M	I1MSW-12A or B	16101-006-04-01	
39016/10-022	L or M	I1MSP-12A or B	16101-006-04-02	
39016/10-023	L or M	I1MSW-26A or B	16101-006-06-01	
39016/10-024	L or M	I1MSP-26A or B	16101-006-06-02	
39016/10-025	L or M	I1MSW-32A or B	16101-006-07-01	
39016/10-026	L or M	I1MSP-32A or B	16101-006-07-02	
39016/10-027	L or M	I1MSW-40A or B	16101-006-08-01	
39016/10-028	L or M	I1MSP-40A or B	16101-006-08-02	
39016/10-029	L or M	I1MSW-9A or B	16101-006-03-01	
39016/10-030	L or M	I1MSP-9A or B	16101-006-03-02	
39016/10-031	L or M	I1MSW-18A or B	16101-006-05-01	
39016/10-032	L or M	I1MSP-18A or B	16101-006-05-02	
39016/10-033	L or M	I1MSC-5A or B	16101-006-01-03	
39016/10-034	L or M	I1MSC-6A or B	16101-006-02-03	
39016/10-035	L or M	I1MSC-12A or B	16101-006-04-03	
39016/10-036	L or M	I1MSC-26A or B	16101-006-06-03	
39016/10-037	L or M	I1MSC-32A or B	16101-006-07-03	
39016/10-038	L or M	I1MSC-40A or B	16101-006-08-03	
39016/10-039	L or M	I1MSC-9A or B	16101-006-03-03	
39016/10-040	L or M	I1MSC-18A or B	16101-006-05-03	
39016/10-041	L or M	I1MSC-5AS or BS	N / A	
39016/10-042	L or M	I1MSC-6AS or BS	N / A	
39016/10-043	L or M	I1MSC-12AS or BS	N / A	
39016/10-044	L or M	I1MSC-26AS or BS	N / A	
39016/10-045	L or M	I1MSC-32AS or BS	N / A	
39016/10-046	L or M	I1MSC-40AS or BS	N / A	
39016/10-047	L or M	I1MSC-9AS or BS	N / A	
39016/10-048	L or M	I1MSC-18AS or BS	N / A	
MIL-PRF-39016/11			**16101-004**	
39016/11-017	L or M	IMSW-5A or B	16101-004-01-01	
39016/11-018	L or M	IMSP-5A or B	16101-004-01-02	
39016/11-019	L or M	IMSW-6A or B	16101-004-02-01	
39016/11-020	L or M	IMSP-6A or B	16101-004-02-02	
39016/11-021	L or M	IMSW-12A or B	16101-004-04-01	
39016/11-022	L or M	IMSP-12A or B	16101-004-04-02	
39016/11-023	L or M	IMSW-26A or B	16101-004-06-01	
39016/11-024	L or M	IMSP-26A or B	16101-004-06-02	
39016/11-025	L or M	IMSW-36A or B	16101-004-07-01	
39016/11-026	L or M	IMSP-36A or B	16101-004-07-02	
39016/11-027	L or M	IMSW-48A or B	16101-004-08-01	
39016/11-028	L or M	IMSP-48A or B	16101-004-08-02	
39016/11-029	L or M	IMSW-9A or B	16101-004-03-01	
39016/11-030	L or M	IMSP-9A or B	16101-004-03-02	
39016/11-031	L or M	IMSW-18A or B	16101-004-05-01	
39016/11-032	L or M	IMSP-18A or B	16101-004-05-02	
39016/11-033	L or M	IMSC-5A or B	16101-004-01-03	
39016/11-034	L or M	IMSC-6A or B	16101-004-02-03	
39016/11-035	L or M	IMSC-12A or B	16101-004-04-03	
39016/11-036	L or M	IMSC-26A or B	16101-004-06-03	
39016/11-037	L or M	IMSC-36A or B	16101-004-07-03	
39016/11-038	L or M	IMSC-48A or B	16101-004-08-03	
39016/11-039	L or M	IMSC-9A or B	16101-004-03-03	
39016/11-040	L or M	IMSC-18A or B	16101-004-05-03	
39016/11-041	L or M	IMSC-5AS or BS	16101-004-01-09	
39016/11-042	L or M	IMSC-6AS or BS	16101-004-02-09	
39016/11-043	L or M	IMSC-12AS or BS	16101-004-04-09	
39016/11-044	L or M	IMSC-26AS or BS	16101-004-06-09	
39016/11-045	L or M	IMSC-36AS or BS	16101-004-07-09	
39016/11-046	L or M	IMSC-48AS or BS	16101-004-08-09	
39016/11-047	L or M	IMSC-9AS or BS	16101-004-03-09	
39016/11-048	L or M	IMSC-18AS or BS	16101-004-05-09	
MIL-PRF-39016/15				
39016/15-029	L or M	IMAWD-6A or B		
39016/15-030	L or M	IMAWD-9A or B		
39016/15-031	L or M	IMAWD-12A or B		
39016/15-032	L or M	IMAWD-18A or B		
39016/15-033	L or M	IMAWD-26A or B		
39016/15-034	L or M	IMAWD-5A or B		
39016/15-035	L or M	IMAPD-6A or B		
39016/15-036	L or M	IMAPD-9A or B		
39016/15-037	L or M	IMAPD-12A or B		
39016/15-038	L or M	IMAPD-18A or B		
39016/15-039	L or M	IMAPD-26A or B		
39016/15-040	L or M	IMAPD-5A or B		
39016/15-065	L or M	IMAWDG-6A or B		

Hi-G ITALIA S.r.l.
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SS. Appia Km. 56.420
Fax: + 39 069698688
Cisterna di Latina - Italy

CROSS REFERENCE

Hi-G vs Military and CECC Part Number

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-39016/15		**(Continued)**		
39016/15-066	L or M	IMAWDG-9A or B		
39016/15-067	L or M	IMAWDG-12A or B		
39016/15-068	L or M	IMAWDG-18A or B		
39016/15-069	L or M	IMAWDG-26A or B		
39016/15-070	L or M	IMAWDG-5A or B		
39016/15-077	L or M	IMACD-6A or B		
39016/15-078	L or M	IMACD-9A or B		
39016/15-079	L or M	IMACD-12A or B		
39016/15-080	L or M	IMACD-18A or B		
39016/15-081	L or M	IMACD-26A or B		
39016/15-082	L or M	IMACD-5A or B		
39016/15-089	L or M	IMACDG-6A or B		
39016/15-090	L or M	IMACDG-9A or B		
39016/15-091	L or M	IMACDG-12A or B		
39016/15-092	L or M	IMACDG-18A or B		
39016/15-093	L or M	IMACDG-26A or B		
39016/15-094	L or M	IMACDG-5A or B		
39016/15-101	L or M	IMACD-6AS or BS		
39016/15-102	L or M	IMACD-9AS or BS		
39016/15-103	L or M	IMACD-12AS or BS		
39016/15-104	L or M	IMACD-18AS or BS		
39016/15-105	L or M	IMACD-26AS or BS		
39016/15-106	L or M	IMACD-5AS or BS		
39016/15-113	L or M	IMACDG-6AS or BS		
39016/15-114	L or M	IMACDG-9AS or BS		
39016/15-115	L or M	IMACDG-12AS or BS		
39016/15-116	L or M	IMACDG-18AS or BS		
39016/15-117	L or M	IMACDG-26AS or BS		
39016/15-118	L or M	IMACDG-5AS or BS		
39016/15-125	L or M	IMACD-6AS2 or BS2		
39016/15-126	L or M	IMACD-9AS2 or BS2		
39016/15-127	L or M	IMACD-12AS2 or BS2		
39016/15-128	L or M	IMACD-18AS2 or BS2		
39016/15-129	L or M	IMACD-26AS2 or BS2		
39016/15-130	L or M	IMACD-5AS2 or BS2		
MIL-PRF-39016/16				
39016/16-017	L or M	IMSWD-5A or B		
39016/16-018	L or M	IMSWD-6A or B		
39016/16-019	L or M	IMSWD-12A or B		
39016/16-020	L or M	IMSWD-26A or B		
39016/16-021	L or M	IMSWD-36A or B		
39016/16-022	L or M	IMSWD-48A or B		
39016/16-023	L or M	IMSWD-9A or B		
39016/16-024	L or M	IMSWD-18A or B		
39016/16-025	L or M	IMSPD-5A or B		
39016/16-026	L or M	IMSPD-6A or B		
39016/16-027	L or M	IMSPD-12A or B		
39016/16-028	L or M	IMSPD-26A or B		
39016/16-029	L or M	IMSPD-36A or B		
39016/16-030	L or M	IMSPD-48A or B		
39016/16-031	L or M	IMSPD-9A or B		
39016/16-032	L or M	IMSPD-18A or B		
39016/16-033	L or M	IMSCD-5A or B		
39016/16-034	L or M	IMSCD-6A or B		
39016/16-035	L or M	IMSCD-12A or B		
39016/16-036	L or M	IMSCD-26A or B		
39016/16-037	L or M	IMSCD-36A or B		
39016/16-038	L or M	IMSCD-48A or B		
39016/16-039	L or M	IMSCD-9A or B		
39016/16-040	L or M	IMSCD-18A or B		
39016/16-041	L or M	IMSCD-5AS or BS		
39016/16-042	L or M	IMSCD-6AS or BS		
39016/16-043	L or M	IMSCD-12AS or BS		
39016/16-044	L or M	IMSCD-26AS or BS		
39016/16-045	L or M	IMSCD-36AS or BS		
39016/16-046	L or M	IMSCD-48AS or BS		
39016/16-047	L or M	IMSCD-9AS or BS		
39016/16-048	L or M	IMSCD-18AS or BS		
MIL-PRF-39016/17			**16207-801**	**16207-007**
39016/17-025	L or M	IMGAP-5A or B	16207-801-ABA0Y-E3 or E5	16207-007-Y-A-2O-0
39016/17-026	L or M	IMGAP-6A or B	16207-801-BBA0Y-E3 or E5	16207-007-Y-B-2O-0
39016/17-027	L or M	IMGAP-9A or B	16207-801-CBA0Y-E3 or E5	16207-007-Y-C-2O-0
39016/17-028	L or M	IMGAP-12A or B	16207-801-DBA0Y-E3 or E5	16207-007-Y-D-2O-0
39016/17-029	L or M	IMGAP-18A or B	16207-801-EBA0Y-E3 or E5	16207-007-Y-E-2O-0
39016/17-030	L or M	IMGAP-26A or B	16207-801-GBA0Y-E3 or E5	16207-007-Y-G-2O-0
39016/17-031	L or M	IMGAC-5A or B	16207-801-AOA0Y-E3 or E5	16207-007-Y-A-4O-0
39016/17-032	L or M	IMGAC-6A or B	16207-801-BOA0Y-E3 or E5	16207-007-Y-B-4O-0
39016/17-033	L or M	IMGAC-9A or B	16207-801-COA0Y-E3 or E5	16207-007-Y-C-4O-0
39016/17-034	L or M	IMGAC-12A or B	16207-801-DOA0Y-E3 or E5	16207-007-Y-D-4O-0
39016/17-035	L or M	IMGAC-18A or B	16207-801-EOA0Y-E3 or E5	16207-007-Y-E-4O-0
39016/17-036	L or M	IMGAC-26A or B	16207-801-GOA0Y-E3 or E5	16207-007-Y-G-4O-0
39016/17-037	L or M	IMGAC-5AW or BW	16207-801-AOP0Y-E3 or E5	16207-007-Y-A-4P-0
39016/17-038	L or M	IMGAC-6AW or BW	16207-801-BOP0Y-E3 or E5	16207-007-Y-B-4P-0
39016/17-039	L or M	IMGAC-9AW or BW	16207-801-COP0Y-E3 or E5	16207-007-Y-C-4P-0
39016/17-040	L or M	IMGAC-12AW or BW	16207-801-DOP0Y-E3 or E5	16207-007-Y-D-4P-0
39016/17-041	L or M	IMGAC-18AW or BW	16207-801-EOP0Y-E3 or E5	16207-007-Y-E-4P-0
39016/17-042	L or M	IMGAC-26AW or BW	16207-801-GOP0Y-E3 or E5	16207-007-Y-G-4P-0
39016/17-043	L or M	IMGACG-5A or B	16207-801-AOJ0Y-E3 or E5	16207-007-Y-A-4J-0
39016/17-044	L or M	IMGACG-6A or B	16207-801-BOJ0Y-E3 or E5	16207-007-Y-B-4J-0
39016/17-045	L or M	IMGACG-9A or B	16207-801-COJ0Y-E3 or E5	16207-007-Y-C-4J-0
39016/17-046	L or M	IMGACG-12A or B	16207-801-DOJ0Y-E3 or E5	16207-007-Y-D-4J-0
39016/17-047	L or M	IMGACG-18A or B	16207-801-EOJ0Y-E3 or E5	16207-007-Y-E-4J-0
39016/17-048	L or M	IMGACG-26A or B	16207-801-GOJ0Y-E3 or E5	16207-007-Y-G-4J-0
39016/17-049	L or M	IMGACG-5AW or BW	16207-801-AOK0Y-E3 or E5	16207-007-Y-A-4K-0
39016/17-050	L or M	IMGACG-6AW or BW	16207-801-BOK0Y-E3 or E5	16207-007-Y-B-4K-0
39016/17-051	L or M	IMGACG-9AW or BW	16207-801-COK0Y-E3 or E5	16207-007-Y-C-4K-0
39016/17-052	L or M	IMGACG-12AW or BW	16207-801-DOK0Y-E3 or E5	16207-007-Y-D-4K-0
39016/17-053	L or M	IMGACG-18AW or BW	16207-801-EOK0Y-E3 or E5	16207-007-Y-E-4K-0
39016/17-054	L or M	IMGACG-26AW or BW	16207-801-GOK0Y-E3 or E5	16207-007-Y-G-4K-0
MIL-PRF-39016/18			**16207-801**	**16207-007**
39016/18-025	L or M	IMGAPD-5A or B	16207-801-ABA1Y-E3 or E5	16207-007-Y-A-2O-1
39016/18-026	L or M	IMGAPD-6A or B	16207-801-BBA1Y-E3 or E5	16207-007-Y-B-2O-1

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-39016/18		**(Continued)**		
39016/18-027	L or M	IMGAPD-9A or B	16207-801-CBA1Y-E3 or E5	16207-007-Y-C-2O-1
39016/18-028	L or M	IMGAPD-12A or B	16207-801-DBA1Y-E3 or E5	16207-007-Y-D-2O-1
39016/18-029	L or M	IMGAPD-18A or B	16207-801-EBA1Y-E3 or E5	16207-007-Y-E-2O-1
39016/18-030	L or M	IMGAPD-26A or B	16207-801-GBA1Y-E3 or E5	16207-007-Y-G-2O-1
39016/18-031	L or M	IMGACD-5A or B	16207-801-AOA1Y-E3 or E5	16207-007-Y-A-4O-1
39016/18-032	L or M	IMGACD-6A or B	16207-801-BOA1Y-E3 or E5	16207-007-Y-B-4O-1
39016/18-033	L or M	IMGACD-9A or B	16207-801-COA1Y-E3 or E5	16207-007-Y-C-4O-1
39016/18-034	L or M	IMGACD-12A or B	16207-801-DOA1Y-E3 or E5	16207-007-Y-D-4O-1
39016/18-035	L or M	IMGACD-18A or B	16207-801-EOA1Y-E3 or E5	16207-007-Y-E-4O-1
39016/18-036	L or M	IMGACD-26A or B	16207-801-GOA1Y-E3 or E5	16207-007-Y-G-4O-1
39016/18-037	L or M	IMGACD-5AW or BW	16207-801-AOP1Y-E3 or E5	16207-007-Y-A-4P-1
39016/18-038	L or M	IMGACD-6AW or BW	16207-801-BOP1Y-E3 or E5	16207-007-Y-B-4P-1
39016/18-039	L or M	IMGACD-9AW or BW	16207-801-COP1Y-E3 or E5	16207-007-Y-C-4P-1
39016/18-040	L or M	IMGACD-12AW or BW	16207-801-DOP1Y-E3 or E5	16207-007-Y-D-4P-1
39016/18-041	L or M	IMGACD-18AW or BW	16207-801-EOP1Y-E3 or E5	16207-007-Y-E-4P-1
39016/18-042	L or M	IMGACD-26AW or BW	16207-801-GOP1Y-E3 or E5	16207-007-Y-G-4P-1
39016/18-043	L or M	IMGACDG-5A or B	16207-801-AOJ1Y-E3 or E5	16207-007-Y-A-4J-1
39016/18-044	L or M	IMGACDG-6A or B	16207-801-BOJ1Y-E3 or E5	16207-007-Y-B-4J-1
39016/18-045	L or M	IMGACDG-9A or B	16207-801-COJ1Y-E3 or E5	16207-007-Y-C-4J-1
39016/18-046	L or M	IMGACDG-12A or B	16207-801-DOJ1Y-E3 or E5	16207-007-Y-D-4J-1
39016/18-047	L or M	IMGACDG-18A or B	16207-801-EOJ1Y-E3 or E5	16207-007-Y-E-4J-1
39016/18-048	L or M	IMGACDG-26A or B	16207-801-GOJ1Y-E3 or E5	16207-007-Y-G-4J-1
39016/18-049	L or M	IMGACDG-5AW or BW	16207-801-AOK1Y-E3 or E5	16207-007-Y-A-4K-1
39016/18-050	L or M	IMGACDG-6AW or BW	16207-801-BOK1Y-E3 or E5	16207-007-Y-B-4K-1
39016/18-051	L or M	IMGACDG-9AW or BW	16207-801-COK1Y-E3 or E5	16207-007-Y-C-4K-1
39016/18-052	L or M	IMGACDG-12AW or BW	16207-801-DOK1Y-E3 or E5	16207-007-Y-D-4K-1
39016/18-053	L or M	IMGACDG-18AW or BW	16207-801-EOK1Y-E3 or E5	16207-007-Y-E-4K-1
39016/18-054	L or M	IMGACDG-26AW or BW	16207-801-GOK1Y-E3 or E5	16207-007-Y-G-4K-1
MIL-PRF-39016/19			**16207-801**	
39016/19-025	L or M	IMGAPDD-5A or B	16207-801-ABA2Y-E3 or E5	
39016/19-026	L or M	IMGAPDD-6A or B	16207-801-BBA2Y-E3 or E5	
39016/19-027	L or M	IMGAPDD-9A or B	16207-801-CBA2Y-E3 or E5	
39016/19-028	L or M	IMGAPDD-12A or B	16207-801-DBA2Y-E3 or E5	
39016/19-029	L or M	IMGAPDD-18A or B	16207-801-EBA2Y-E3 or E5	
39016/19-030	L or M	IMGAPDD-26A or B	16207-801-GBA2Y-E3 or E5	
39016/19-031	L or M	IMGACDD-5A or B	16207-801-AOA2Y-E3 or E5	
39016/19-032	L or M	IMGACDD-6A or B	16207-801-BOA2Y-E3 or E5	
39016/19-033	L or M	IMGACDD-9A or B	16207-801-COA2Y-E3 or E5	
39016/19-034	L or M	IMGACDD-12A or B	16207-801-DOA2Y-E3 or E5	
39016/19-035	L or M	IMGACDD-18A or B	16207-801-EOA2Y-E3 or E5	
39016/19-036	L or M	IMGACDD-26A or B	16207-801-GOA2Y-E3 or E5	
39016/19-037	L or M	IMGACDD-5AW or BW	16207-801-AOP2Y-E3 or E5	
39016/19-038	L or M	IMGACDD-6AW or BW	16207-801-BOP2Y-E3 or E5	
39016/19-039	L or M	IMGACDD-9AW or BW	16207-801-COP2Y-E3 or E5	
39016/19-040	L or M	IMGACDD-12AW or BW	16207-801-DOP2Y-E3 or E5	
39016/19-041	L or M	IMGACDD-18AW or BW	16207-801-EOP2Y-E3 or E5	
39016/19-042	L or M	IMGACDD-26AW or BW	16207-801-GOP2Y-E3 or E5	
39016/19-043	L or M	IMGACDDG-5A or B	16207-801-AOJ2Y-E3 or E5	
39016/19-044	L or M	IMGACDDG-6A or B	16207-801-BOJ2Y-E3 or E5	
39016/19-045	L or M	IMGACDDG-9A or B	16207-801-COJ2Y-E3 or E5	
39016/19-046	L or M	IMGACDDG-12A or B	16207-801-DOJ2Y-E3 or E5	
39016/19-047	L or M	IMGACDDG-18A or B	16207-801-EOJ2Y-E3 or E5	
39016/19-048	L or M	IMGACDDG-26A or B	16207-801-GOJ2Y-E3 or E5	
39016/19-049	L or M	IMGACDDG-5AW or BW	16207-801-AOK2Y-E3 or E5	
39016/19-050	L or M	IMGACDDG-6AW or BW	16207-801-BOK2Y-E3 or E5	
39016/19-051	L or M	IMGACDDG-9AW or BW	16207-801-COK2Y-E3 or E5	
39016/19-052	L or M	IMGACDDG-12AW or BW	16207-801-DOK2Y-E3 or E5	
39016/19-053	L or M	IMGACDDG-18AW or BW	16207-801-EOK2Y-E3 or E5	
39016/19-054	L or M	IMGACDDG-26AW or BW	16207-801-GOK2Y-E3 or E5	
MIL-PRF-39016/20				
39016/20-007	L or M	IMAWDD-5A or B		
39016/20-008	L or M	IMAWDD-6A or B		
39016/20-009	L or M	IMAWDD-9A or B		
39016/20-010	L or M	IMAWDD-12A or B		
39016/20-011	L or M	IMAWDD-18A or B		
39016/20-012	L or M	IMAWDD-26A or B		
39016/20-037	L or M	IMAPDD-5A or B		
39016/20-038	L or M	IMAPDD-6A or B		
39016/20-039	L or M	IMAPDD-9A or B		
39016/20-040	L or M	IMAPDD-12A or B		
39016/20-041	L or M	IMAPDD-18A or B		
39016/20-042	L or M	IMAPDD-26A or B		
39016/20-049	L or M	IMACDD-5A or B		
39016/20-050	L or M	IMACDD-6A or B		
39016/20-051	L or M	IMACDD-9A or B		
39016/20-052	L or M	IMACDD-12A or B		
39016/20-053	L or M	IMACDD-18A or B		
39016/20-054	L or M	IMACDD-26A or B		
39016/20-061	L or M	IMACDD-5AS or BS		
39016/20-062	L or M	IMACDD-6AS or BS		
39016/20-063	L or M	IMACDD-9AS or BS		
39016/20-064	L or M	IMACDD-12AS or BS		
39016/20-065	L or M	IMACDD-18AS or BS		
39016/20-066	L or M	IMACDD-26AS or BS		
39016/20-073	L or M	IMACDD-5AS2 or BS2		
39016/20-074	L or M	IMACDD-6AS2 or BS2		
39016/20-075	L or M	IMACDD-9AS2 or BS2		
39016/20-076	L or M	IMACDD-12AS2 or BS2		
39016/20-077	L or M	IMACDD-18AS2 or BS2		
39016/20-078	L or M	IMACDD-26AS2 or BS2		
39016/20-079	L or M	IMACDDG-5A or B		
39016/20-080	L or M	IMACDDG-6A or B		
39016/20-081	L or M	IMACDDG-9A or B		
39016/20-082	L or M	IMACDDG-12A or B		
39016/20-083	L or M	IMACDDG-18A or B		
39016/20-084	L or M	IMACDDG-26A or B		
39016/20-091	L or M	IMACDDG-5AS or BS		
39016/20-092	L or M	IMACDDG-6AS or BS		
39016/20-093	L or M	IMACDDG-9AS or BS		
39016/20-094	L or M	IMACDDG-12AS or BS		
39016/20-095	L or M	IMACDDG-18AS or BS		
39016/20-096	L or M	IMACDDG-26AS or BS		

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SS. Appia Km. 56.420
Fax: + 39 069698688
Cisterna di Latina - Italy

REV. 10/2006

CROSS REFERENCE

Hi-G vs Military and CECC Part Number

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-39016/21				
39016/21-007	L or M	IMSWDD-5A or B		
39016/21-008	L or M	IMSWDD-6A or B		
39016/21-009	L or M	IMSWDD-9A or B		
39016/21-010	L or M	IMSWDD-12A or B		
39016/21-011	L or M	IMSWDD-18A or B		
39016/21-012	L or M	IMSWDD-26A or B		
39016/21-019	L or M	IMSPDD-5A or B		
39016/21-020	L or M	IMSPDD-6A or B		
39016/21-021	L or M	IMSPDD-9A or B		
39016/21-022	L or M	IMSPDD-12A or B		
39016/21-023	L or M	IMSPDD-18A or B		
39016/21-024	L or M	IMSPDD-26A or B		
39016/21-029	L or M	IMSWDD-36A or B		
39016/21-030	L or M	IMSWDD-48A or B		
39016/21-031	L or M	IMSPDD-36A or B		
39016/21-032	L or M	IMSPDD-48A or B		
39016/21-033	L or M	IMSCDD-5A or B		
39016/21-034	L or M	IMSCDD-6A or B		
39016/21-035	L or M	IMSCDD-9A or B		
39016/21-036	L or M	IMSCDD-12A or B		
39016/21-037	L or M	IMSCDD-18A or B		
39016/21-038	L or M	IMSCDD-26A or B		
39016/21-039	L or M	IMSCDD-36A or B		
39016/21-040	L or M	IMSCDD-48A or B		
39016/21-041	L or M	IMSCDD-5AS or BS		
39016/21-042	L or M	IMSCDD-6AS or BS		
39016/21-043	L or M	IMSCDD-9AS or BS		
39016/21-044	L or M	IMSCDD-12AS or BS		
39016/21-045	L or M	IMSCDD-18AS or BS		
39016/21-046	L or M	IMSCDD-26AS or BS		
39016/21-047	L or M	IMSCDD-36AS or BS		
39016/21-048	L or M	IMSCDD-48AS or BS		
MIL-PRF-39016/23				
39016/23-013	L or M	I1MAWD-5A or B		
39016/23-014	L or M	I1MAWD-6A or B		
39016/23-015	L or M	I1MAWD-9A or B		
39016/23-016	L or M	I1MAWD-12A or B		
39016/23-017	L or M	I1MAWD-18A or B		
39016/23-018	L or M	I1MAWD-26A or B		
39016/23-019	L or M	I1MAPD-5A or B		
39016/23-020	L or M	I1MAPD-6A or B		
39016/23-021	L or M	I1MAPD-9A or B		
39016/23-022	L or M	I1MAPD-12A or B		
39016/23-023	L or M	I1MAPD-18A or B		
39016/23-024	L or M	I1MAPD-26A or B		
39016/23-025	L or M	I1MACD-5A or B		
39016/23-026	L or M	I1MACD-6A or B		
39016/23-027	L or M	I1MACD-9A or B		
39016/23-028	L or M	I1MACD-12A or B		
39016/23-029	L or M	I1MACD-18A or B		
39016/23-030	L or M	I1MACD-26A or B		
39016/23-031	L or M	I1MACD-5AS or BS		
39016/23-032	L or M	I1MACD-6AS or BS		
39016/23-033	L or M	I1MACD-9AS or BS		
39016/23-034	L or M	I1MACD-12AS or BS		
39016/23-035	L or M	I1MACD-18AS or BS		
39016/23-036	L or M	I1MACD-26AS or BS		
MIL-PRF-39016/24				
39016/24-013	L or M	I1MAWDD-5A or B		
39016/24-014	L or M	I1MAWDD-6A or B		
39016/24-015	L or M	I1MAWDD-9A or B		
39016/24-016	L or M	I1MAWDD-12A or B		
39016/24-017	L or M	I1MAWDD-18A or B		
39016/24-018	L or M	I1MAWDD-26A or B		
39016/24-019	L or M	I1MAPDD-5A or B		
39016/24-020	L or M	I1MAPDD-6A or B		
39016/24-021	L or M	I1MAPDD-9A or B		
39016/24-022	L or M	I1MAPDD-12A or B		
39016/24-023	L or M	I1MAPDD-18A or B		
39016/24-024	L or M	I1MAPDD-26A or B		
39016/24-025	L or M	I1MACDD-5A or B		
39016/24-026	L or M	I1MACDD-6A or B		
39016/24-027	L or M	I1MACDD-9A or B		
39016/24-028	L or M	I1MACDD-12A or B		
39016/24-029	L or M	I1MACDD-18A or B		
39016/24-030	L or M	I1MACDD-26A or B		
39016/24-031	L or M	I1MACDD-5AS or BS		
39016/24-032	L or M	I1MACDD-6AS or BS		
39016/24-033	L or M	I1MACDD-9AS or BS		
39016/24-034	L or M	I1MACDD-12AS or BS		
39016/24-035	L or M	I1MACDD-18AS or BS		
39016/24-036	L or M	I1MACDD-26AS or BS		
MIL-PRF-39016/25				
39016/25-017	L or M	I1MSWD-5A or B		
39016/25-018	L or M	I1MSWD-6A or B		
39016/25-019	L or M	I1MSWD-12A or B		
39016/25-020	L or M	I1MSWD-26A or B		
39016/25-021	L or M	I1MSWD-32A or B		
39016/25-022	L or M	I1MSWD-40A or B		
39016/25-023	L or M	I1MSWD-9A or B		
39016/25-024	L or M	I1MSWD-18A or B		
39016/25-025	L or M	I1MSPD-5A or B		
39016/25-026	L or M	I1MSPD-6A or B		
39016/25-027	L or M	I1MSPD-12A or B		
39016/25-028	L or M	I1MSPD-26A or B		
39016/25-029	L or M	I1MSPD-32A or B		
39016/25-030	L or M	I1MSPD-40A or B		
39016/25-031	L or M	I1MSPD-9A or B		
39016/25-032	L or M	I1MSPD-18A or B		
39016/25-033	L or M	I1MSCD-5A or B		
39016/25-034	L or M	I1MSCD-6A or B		
39016/25-035	L or M	I1MSCD-12A or B		
39016/25-036	L or M	I1MSCD-26A or B		

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-39016/25		**(Continued)**		
39016/25-037	L or M	I1MSCD-32A or B		
39016/25-038	L or M	I1MSCD-40A or B		
39016/25-039	L or M	I1MSCD-9A or B		
39016/25-040	L or M	I1MSCD-18A or B		
39016/25-041	L or M	I1MSCD-5AS or BS		
39016/25-042	L or M	I1MSCD-6AS or BS		
39016/25-043	L or M	I1MSCD-12AS or BS		
39016/25-044	L or M	I1MSCD-26AS or BS		
39016/25-045	L or M	I1MSCD-32AS or BS		
39016/25-046	L or M	I1MSCD-40AS or BS		
39016/25-047	L or M	I1MSCD-9AS or BS		
39016/25-048	L or M	I1MSCD-18AS or BS		
MIL-PRF-39016/26				
39016/26-017	L or M	I1MSWDD-5A or B		
39016/26-018	L or M	I1MSWDD-6A or B		
39016/26-019	L or M	I1MSWDD-12A or B		
39016/26-020	L or M	I1MSWDD-26A or B		
39016/26-021	L or M	I1MSWDD-32A or B		
39016/26-022	L or M	I1MSWDD-40A or B		
39016/26-023	L or M	I1MSWDD-9A or B		
39016/26-024	L or M	I1MSWDD-18A or B		
39016/26-025	L or M	I1MSPDD-5A or B		
39016/26-026	L or M	I1MSPDD-6A or B		
39016/26-027	L or M	I1MSPDD-12A or B		
39016/26-028	L or M	I1MSPDD-26A or B		
39016/26-029	L or M	I1MSPDD-32A or B		
39016/26-030	L or M	I1MSPDD-40A or B		
39016/26-031	L or M	I1MSPDD-9A or B		
39016/26-032	L or M	I1MSPDD-18A or B		
39016/26-033	L or M	I1MSCDD-5A or B		
39016/26-034	L or M	I1MSCDD-6A or B		
39016/26-035	L or M	I1MSCDD-12A or B		
39016/26-036	L or M	I1MSCDD-26A or B		
39016/26-037	L or M	I1MSCDD-32A or B		
39016/26-038	L or M	I1MSCDD-40A or B		
39016/26-039	L or M	I1MSCDD-9A or B		
39016/26-040	L or M	I1MSCDD-18A or B		
39016/26-041	L or M	I1MSCDD-5AS or BS		
39016/26-042	L or M	I1MSCDD-6AS or BS		
39016/26-043	L or M	I1MSCDD-12AS or BS		
39016/26-044	L or M	I1MSCDD-26AS or BS		
39016/26-045	L or M	I1MSCDD-32AS or BS		
39016/26-046	L or M	I1MSCDD-40AS or BS		
39016/26-047	L or M	I1MSCDD-9AS or BS		
39016/26-048	L or M	I1MSCDD-18AS or BS		
MIL-PRF-39016/41			**16207-802**	**16207-008**
39016/41-033	L or M	IMGSC-5A or B	16207-802-AOA0Y-E3 or E5	16207-008-Y-A-4O-0
39016/41-034	L or M	IMGSC-6A or B	16207-802-BOA0Y-E3 or E5	16207-008-Y-B-4O-0
39016/41-035	L or M	IMGSC-12A or B	16207-802-DOA0Y-E3 or E5	16207-008-Y-D-4O-0
39016/41-036	L or M	IMGSC-26A or B	16207-802-GOA0Y-E3 or E5	16207-008-Y-G-4O-0
39016/41-037	L or M	IMGSC-36A or B	N / A	16207-008-Y-H-4O-0
39016/41-038	L or M	IMGSC-48A or B	N / A	16207-008-Y-K-4O-0
39016/41-039	L or M	IMGSC-9A or B	16207-802-COA0Y-E3 or E5	16207-008-Y-C-4O-0
39016/41-040	L or M	IMGSC-18A or B	16207-802-EOA0Y-E3 or E5	16207-008-Y-E-4O-0
39016/41-041	L or M	IMGSP-5A or B	16207-802-ABA0Y-E3 or E5	16207-008-Y-A-2O-0
39016/41-042	L or M	IMGSP-6A or B	16207-802-BBA0Y-E3 or E5	16207-008-Y-B-2O-0
39016/41-043	L or M	IMGSP-12A or B	16207-802-DBA0Y-E3 or E5	16207-008-Y-D-2O-0
39016/41-044	L or M	IMGSP-26A or B	16207-802-GBA0Y-E3 or E5	16207-008-Y-G-2O-0
39016/41-045	L or M	IMGSP-36A or B	N / A	16207-008-Y-H-2O-0
39016/41-046	L or M	IMGSP-48A or B	N / A	16207-008-Y-K-2O-0
39016/41-047	L or M	IMGSP-9A or B	16207-802-CBA0Y-E3 or E5	16207-008-Y-C-2O-0
39016/41-048	L or M	IMGSP-18A or B	16207-802-EBA0Y-E3 or E5	16207-008-Y-E-2O-0
39016/41-049	L or M	IMGSC-5AW or BW	16207-802-AOP0Y-E3 or E5	16207-008-Y-A-4P-0
39016/41-050	L or M	IMGSC-6AW or BW	16207-802-BOP0Y-E3 or E5	16207-008-Y-B-4P-0
39016/41-051	L or M	IMGSC-12AW or BW	16207-802-DOP0Y-E3 or E5	16207-008-Y-D-4P-0
39016/41-052	L or M	IMGSC-26AW or BW	16207-802-GOP0Y-E3 or E5	16207-008-Y-G-4P-0
39016/41-053	L or M	IMGSC-36AW or BW	N / A	16207-008-Y-H-4P-0
39016/41-054	L or M	IMGSC-48AW or BW	N / A	16207-008-Y-K-4P-0
39016/41-055	L or M	IMGSC-9AW or BW	16207-802-COP0Y-E3 or E5	16207-008-Y-C-4P-0
39016/41-056	L or M	IMGSC-18AW or BW	16207-802-EOP0Y-E3 or E5	16207-008-Y-E-4P-0
39016/41-057	L or M	IMGSCG-5A or B	16207-802-AOJ0Y-E3 or E5	16207-008-Y-A-4J-0
39016/41-058	L or M	IMGSCG-6A or B	16207-802-BOJ0Y-E3 or E5	16207-008-Y-B-4J-0
39016/41-059	L or M	IMGSCG-12A or B	16207-802-DOJ0Y-E3 or E5	16207-008-Y-D-4J-0
39016/41-060	L or M	IMGSCG-26A or B	16207-802-GOJ0Y-E3 or E5	16207-008-Y-G-4J-0
39016/41-061	L or M	IMGSCG-36A or B	N / A	16207-008-Y-H-4J-0
39016/41-062	L or M	IMGSCG-48A or B	N / A	16207-008-Y-K-4J-0
39016/41-063	L or M	IMGSCG-9A or B	16207-802-COJ0Y-E3 or E5	16207-008-Y-C-4J-0
39016/41-064	L or M	IMGSCG-18A or B	16207-802-EOJ0Y-E3 or E5	16207-008-Y-E-4J-0
39016/41-065	L or M	IMGSCG-5AW or BW	16207-802-AOK0Y-E3 or E5	16207-008-Y-A-4K-0
39016/41-066	L or M	IMGSCG-6AW or BW	16207-802-BOK0Y-E3 or E5	16207-008-Y-B-4K-0
39016/41-067	L or M	IMGSCG-12AW or BW	16207-802-DOK0Y-E3 or E5	16207-008-Y-D-4K-0
39016/41-068	L or M	IMGSCG-26AW or BW	16207-802-GOK0Y-E3 or E5	16207-008-Y-G-4K-0
39016/41-069	L or M	IMGSCG-36AW or BW	N / A	16207-008-Y-H-4K-0
39016/41-070	L or M	IMGSCG-48AW or BW	N / A	16207-008-Y-K-4K-0
39016/41-071	L or M	IMGSCG-9AW or BW	16207-802-COK0Y-E3 or E5	16207-008-Y-C-4K-0
39016/41-072	L or M	IMGSCG-18AW or BW	16207-802-EOK0Y-E3 or E5	16207-008-Y-E-4K-0
MIL-PRF-39016/42			**16207-802**	**16207-008**
39016/42-033	L or M	IMGSCD-5A or B	16207-802-AOA1Y-E3 or E5	16207-008-Y-A-4O-1
39016/42-034	L or M	IMGSCD-6A or B	16207-802-BOA1Y-E3 or E5	16207-008-Y-B-4O-1
39016/42-035	L or M	IMGSCD-12A or B	16207-802-DOA1Y-E3 or E5	16207-008-Y-D-4O-1
39016/42-036	L or M	IMGSCD-26A or B	16207-802-GOA1Y-E3 or E5	16207-008-Y-G-4O-1
39016/42-037	L or M	IMGSCD-36A or B	N / A	16207-008-Y-H-4O-1
39016/42-038	L or M	IMGSCD-48A or B	N / A	16207-008-Y-K-4O-1
39016/42-039	L or M	IMGSCD-9A or B	16207-802-COA1Y-E3 or E5	16207-008-Y-C-4O-1
39016/42-040	L or M	IMGSCD-18A or B	16207-802-EOA1Y-E3 or E5	16207-008-Y-E-4O-1
39016/42-041	L or M	IMGSPD-5A or B	16207-802-ABA1Y-E3 or E5	16207-008-Y-A-2O-1
39016/42-042	L or M	IMGSPD-6A or B	16207-802-BBA1Y-E3 or E5	16207-008-Y-B-2O-1
39016/42-043	L or M	IMGSPD-12A or B	16207-802-DBA1Y-E3 or E5	16207-008-Y-D-2O-1
39016/42-044	L or M	IMGSPD-26A or B	16207-802-GBA1Y-E3 or E5	16207-008-Y-G-2O-1
39016/42-045	L or M	IMGSPD-36A or B	N / A	16207-008-Y-H-2O-1
39016/42-046	L or M	IMGSPD-48A or B	N / A	16207-008-Y-K-2O-1
39016/42-047	L or M	IMGSPD-9A or B	16207-802-CBA1Y-E3 or E5	16207-008-Y-C-2O-1

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CROSS REFERENCE
Hi-G vs Military and CECC Part Number

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-39016/42		**(Continued)**		
39016/42-048	L or M	IMGSPD-18A or B	16207-802-EBA1Y-E3 or E5	16207-008-Y-E-2O-1
39016/42-049	L or M	IMGSCD-5AW or BW	16207-802-AOP1Y-E3 or E5	16207-008-Y-A-4P-1
39016/42-050	L or M	IMGSCD-6AW or BW	16207-802-BOP1Y-E3 or E5	16207-008-Y-B-4P-1
39016/42-051	L or M	IMGSCD-12AW or BW	16207-802-DOP1Y-E3 or E5	16207-008-Y-D-4P-1
39016/42-052	L or M	IMGSCD-26AW or BW	16207-802-GOP1Y-E3 or E5	16207-008-Y-G-4P-1
39016/42-053	L or M	IMGSCD-36AW or BW	N / A	16207-008-Y-H-4P-1
39016/42-054	L or M	IMGSCD-48AW or BW	N / A	16207-008-Y-K-4P-1
39016/42-055	L or M	IMGSCD-9AW or BW	16207-802-COP1Y-E3 or E5	16207-008-Y-C-4P-1
39016/42-056	L or M	IMGSCD-18AW or BW	16207-802-EOP1Y-E3 or E5	16207-008-Y-E-4P-1
39016/42-057	L or M	IMGSCDG-5A or B	16207-802-AOJ1Y-E3 or E5	16207-008-Y-A-4J-1
39016/42-058	L or M	IMGSCDG-6A or B	16207-802-BOJ1Y-E3 or E5	16207-008-Y-B-4J-1
39016/42-059	L or M	IMGSCDG-12A or B	16207-802-DOJ1Y-E3 or E5	16207-008-Y-D-4J-1
39016/42-060	L or M	IMGSCDG-26A or B	16207-802-GOJ1Y-E3 or E5	16207-008-Y-G-4J-1
39016/42-061	L or M	IMGSCDG-36A or B	N / A	16207-008-Y-H-4J-1
39016/42-062	L or M	IMGSCDG-48A or B	N / A	16207-008-Y-K-4J-1
39016/42-063	L or M	IMGSCDG-9A or B	16207-802-COJ1Y-E3 or E5	16207-008-Y-C-4J-1
39016/42-064	L or M	IMGSCDG-18A or B	16207-802-EOJ1Y-E3 or E5	16207-008-Y-E-4J-1
39016/42-065	L or M	IMGSCDG-5AW or BW	16207-802-AOK1Y-E3 or E5	16207-008-Y-A-4K-1
39016/42-066	L or M	IMGSCDG-6AW or BW	16207-802-BOK1Y-E3 or E5	16207-008-Y-B-4K-1
39016/42-067	L or M	IMGSCDG-12AW or BW	16207-802-DOK1Y-E3 or E5	16207-008-Y-D-4K-1
39016/42-068	L or M	IMGSCDG-26AW or BW	16207-802-GOK1Y-E3 or E5	16207-008-Y-G-4K-1
39016/42-069	L or M	IMGSCDG-36AW or BW	N / A	16207-008-Y-H-4K-1
39016/42-070	L or M	IMGSCDG-48AW or BW	N / A	16207-008-Y-K-4K-1
39016/42-071	L or M	IMGSCDG-9AW or BW	16207-802-COK1Y-E3 or E5	16207-008-Y-C-4K-1
39016/42-072	L or M	IMGSCDG-18AW or BW	16207-802-EOK1Y-E3 or E5	16207-008-Y-E-4K-1
MIL-PRF-39016/43			**16207-802**	
39016/43-033	L or M	IMGSCDD-5A or B	16207-802-AOA2Y-E3 or E5	
39016/43-034	L or M	IMGSCDD-6A or B	16207-802-BOA2Y-E3 or E5	
39016/43-035	L or M	IMGSCDD-9A or B	16207-802-COA2Y-E3 or E5	
39016/43-036	L or M	IMGSCDD-12A or B	16207-802-DOA2Y-E3 or E5	
39016/43-037	L or M	IMGSCDD-18A or B	16207-802-EOA2Y-E3 or E5	
39016/43-038	L or M	IMGSCDD-26A or B	16207-802-GOA2Y-E3 or E5	
39016/43-041	L or M	IMGSPDD-5A or B	16207-802-ABA2Y-E3 or E5	
39016/43-042	L or M	IMGSPDD-6A or B	16207-802-BBA2Y-E3 or E5	
39016/43-043	L or M	IMGSPDD-9A or B	16207-802-CBA2Y-E3 or E5	
39016/43-044	L or M	IMGSPDD-12A or B	16207-802-DBA2Y-E3 or E5	
39016/43-045	L or M	IMGSPDD-18A or B	16207-802-EBA2Y-E3 or E5	
39016/43-046	L or M	IMGSPDD-26A or B	16207-802-GBA2Y-E3 or E5	
39016/43-049	L or M	IMGSCDD-5AW or BW	16207-802-AOP2Y-E3 or E5	
39016/43-050	L or M	IMGSCDD-6AW or BW	16207-802-BOP2Y-E3 or E5	
39016/43-051	L or M	IMGSCDD-9AW or BW	16207-802-COP2Y-E3 or E5	
39016/43-052	L or M	IMGSCDD-12AW or BW	16207-802-DOP2Y-E3 or E5	
39016/43-053	L or M	IMGSCDD-18AW or BW	16207-802-EOP2Y-E3 or E5	
39016/43-054	L or M	IMGSCDD-26AW or BW	16207-802-GOP2Y-E3 or E5	
39016/43-057	L or M	IMGSCDDG-5A or B	16207-802-AOJ2Y-E3 or E5	
39016/43-058	L or M	IMGSCDDG-6A or B	16207-802-BOJ2Y-E3 or E5	
39016/43-059	L or M	IMGSCDDG-9A or B	16207-802-COJ2Y-E3 or E5	
39016/43-060	L or M	IMGSCDDG-12A or B	16207-802-DOJ2Y-E3 or E5	
39016/43-061	L or M	IMGSCDDG-18A or B	16207-802-EOJ2Y-E3 or E5	
39016/43-062	L or M	IMGSCDDG-26A or B	16207-802-GOJ2Y-E3 or E5	
39016/43-065	L or M	IMGSCDDG-5AW or BW	16207-802-AOK2Y-E3 or E5	
39016/43-066	L or M	IMGSCDDG-6AW or BW	16207-802-BOK2Y-E3 or E5	
39016/43-067	L or M	IMGSCDDG-9AW or BW	16207-802-COK2Y-E3 or E5	
39016/43-068	L or M	IMGSCDDG-12AW or BW	16207-802-DOK2Y-E3 or E5	
39016/43-069	L or M	IMGSCDDG-18AW or BW	16207-802-EOK2Y-E3 or E5	
39016/43-070	L or M	IMGSCDDG-26AW or BW	16207-802-GOK2Y-E3 or E5	
MIL-R-5757/10				
5757/10-015		2B-7506-015		
5757/10-016		2B-7506-016		
5757/10-022		2B-7506-022		
5757/10-035		2B-7506-035		
5757/10-036		2B-7506-036		
5757/10-037		2B-7506-037		
5757/10-038		2B-7506-038		
5757/10-039		2B-7506-039		
5757/10-040		2B-7506-040		
5757/10-043		2B-7506-043		
5757/10-044		2B-7506-044		
5757/10-052		2B-7506-052		
5757/10-053		2B-7506-053		
5757/10-054		2B-7506-054		
5757/10-059		2B-7506-059		
5757/10-060		2B-7506-060		
5757/10-067		2B-7506-067		
MIL-R-5757/13				
5757/13-083		2BC-7201-083		
5757/13-084		2BC-7201-084		
5757/13-085		2BC-7201-085		
5757/13-086		2BC-7201-086		
5757/13-087		2BC-7201-087		
5757/13-088		2BC-7201-088		
5757/13-089		2BC-7201-089		
5757/13-090		2BC-7201-090		
5757/13-091		2BC-7201-091		
5757/13-092		2BC-7201-092		
5757/13-093		2BC-7201-093		
5757/13-094		2BC-7201-094		
5757/13-095		2BC-7201-095		
5757/13-096		2BC-7201-096		
5757/13-097		2BC-7201-097		
5757/13-098		2BC-7201-098		
5757/13-099		2BC-7201-099		
5757/13-100		2BC-7201-100		
5757/13-101		2BC-7201-101		
5757/13-102		2BC-7201-102		
5757/13-103		2BC-7201-103		
5757/13-104		2BC-7201-104		
5757/13-105		2BC-7201-105		
5757/13-106		2BC-7201-106		
5757/13-107		2BC-7201-107		
5757/13-108		2BC-7201-108		
5757/13-109		2BC-7201-109		
5757/13-110		2BC-7201-110		

MILITARY DESIGNATION		HiG PART No	CECC DESIGNATION	
MIL-PRF-5757/13		**(Continued)**		
5757/13-111		2BC-7201-111		
5757/13-112		2BC-7201-112		
5757/13-113		2BC-7201-113		
5757/13-114		2BC-7201-114		
5757/13-115		2BC-7201-115		
5757/13-116		2BC-7201-116		
5757/13-117		2BC-7201-117		
5757/13-118		2BC-7201-118		
5757/13-119		2BC-7201-119		
5757/13-120		2BC-7201-120		
5757/13-121		2BC-7201-121		
5757/13-122		2BC-7201-122		
5757/13-123		2BC-7201-123		
5757/13-124		2BC-7201-124		
5757/13-125		2BC-7201-125		
5757/13-126		2BC-7201-126		
5757/13-127		2BC-7201-127		
5757/13-128		2BC-7201-128		
5757/13-129		2BC-7201-129		
5757/13-130		2BC-7201-130		
5757/13-131		2BC-7201-131		
5757/13-132		2BC-7201-132		
5757/13-133		2BC-7201-133		
5757/13-134		2BC-7201-134		
5757/13-135		2BC-7201-135		
5757/13-136		2BC-7201-136		
5757/13-137		2BC-7201-137		
5757/13-138		2BC-7201-138		
5757/13-139		2BC-7201-139		
5757/13-140		2BC-7201-140		
5757/13-141		2BC-7201-141		
5757/13-142		2BC-7201-142		
5757/13-143		2BC-7201-143		
MIL-R-5757/23				
5757/23-001		2T-7188-001		
5757/23-002		2T-7188-002		
5757/23-003		2T-7188-003		
5757/23-004		2T-7188-004		
5757/23-005		2T-7188-005		
5757/23-006		2T-7188-006		
5757/23-007		2T-7188-007		
5757/23-008		2T-7188-008		
5757/23-009		2T-7188-009		
5757/23-010		2T-7188-010		
5757/23-011		2T-7188-011		
5757/23-012		2T-7188-012		
5757/23-013		2T-7188-013		
5757/23-014		2T-7188-014		
5757/23-015		2T-7188-015		
5757/23-016		2T-7188-016		
5757/23-017		2T-7188-017		
5757/23-018		2T-7188-018		
5757/23-019		2T-7188-019		
5757/23-020		2T-7188-020		
5757/23-026		2T-7188-026		
5757/23-027		2T-7188-027		
5757/23-028		2T-7188-028		
5757/23-029		2T-7188-029		
5757/23-030		2T-7188-030		
5757/23-031		2T-7188-031		
5757/23-032		2T-7188-032		
5757/23-033		2T-7188-033		
5757/23-034		2T-7188-034		
5757/23-036		2T-7188-036		
5757/23-037		2T-7188-037		
5757/23-038		2T-7188-038		
5757/23-039		2T-7188-039		
5757/23-040		2T-7188-040		
5757/23-041		2T-7188-041		
5757/23-042		2T-7188-042		

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TO-5 CASE RELAY
DPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I MA

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid improvements, to provide a most versatile element to the circuit designer.

The following construction features ensure the highest reliability in extreme environments:

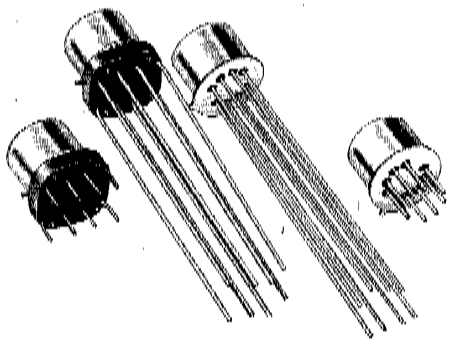
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **IMA*** Basic Relay, 2 form C, DPDT
- **IMA*D** Basic Relay combined with an internal diode for coil transient suppression
- **IMA*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **IMA*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression

MIL-PRF-39016/9, 15 & 20
MIL-PRF-28776/1



Environmental and Physical Specifications

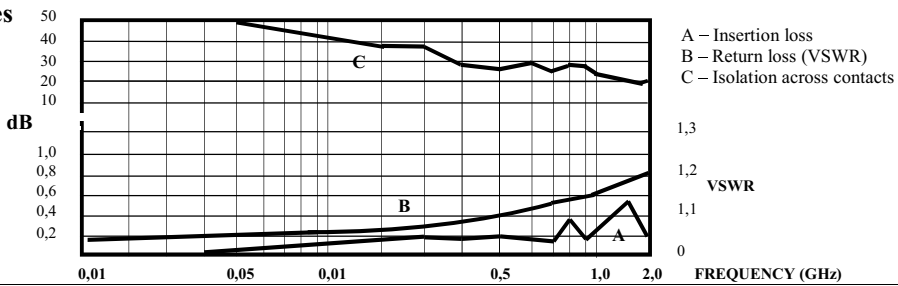
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,09 oz. (2,55 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	1,5 ms. max. Series: IMA*	4,0 ms. max. Series: IMA*D, IMA*DD	7,5 ms. max. Series: IMA*T
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	130 mW at pick-up, 450 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: IMA*D, IMA*DD, IMA*T		
Negative Coil Transient	1,0 Vdc max. Series: IMA*D, IMA*DD, IMA*T		
Transistor Characteristics at 25 °C (Series IMA*T)	Emitter-Base Voltage (Vebo)		6,0 Vdc min.
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 10 µA)		70 Vdc min.
	Base Turn-Off Voltage		0,3 Vdc max.

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
DPDT

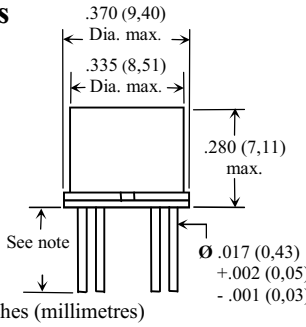
• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I MA

Typical Characteristics (over the Temperature range. Unless otherwise noted)

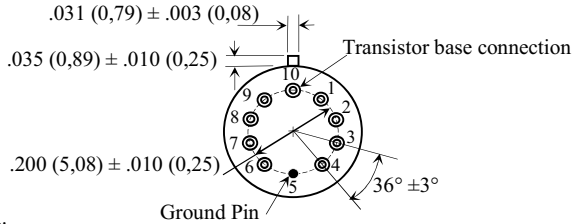
Description	Meas.	Series Types		Coil Voltage Code 5	6	9	12	18	26	30 (IMA only)
Coil Voltage	Vdc	IMA*, IMA*D, IMA*DD, IMA*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5	30,0
		IMA*, IMA*D, IMA*DD, IMA*T	Max.	5,8	8,0	12,0	16,0	24,0	32,0	36,0
Coil Resistance at 25°C	Ω	IMA*, IMA*D, IMA*T	± 10%	50	98	220	390	880	1560	2500
		IMA*DD		39	78					-
Coil Current at 25°C	mAdc	IMA*DD	Min.	93,2	58,3	33,0	25,6	17,5	14,8	-
			Max.	128,2	78,3	42,9	32,8	22,1	18,5	-
		IMA*T	Min.	82,2	52,9	35,3	26,6	17,9	14,7	-
			Max.	112,1	69,9	47,4	35,8	24,0	19,8	-
Pick-up Voltage	Vdc	IMA*, IMA*D, IMA*T	Max.	3,5	4,5	6,8	9,0	13,5	18,0	22,0
		IMA*DD	Max.	4,0	5,0	7,8	10,0	14,5	19,0	-
Drop-Out Voltage	Vdc	IMA*, IMA*D, IMA*T	Min.	0,14	0,18	0,35	0,41	0,59	0,89	1,0
			Max.	2,3	3,2	4,9	6,5	10,0	13,0	16,0
		IMA*DD	Min.	0,6	0,7	0,8	0,9	1,1	1,4	-
			Max.	2,8	3,4	5,3	6,5	10,0	13,0	-
Base Current to Turn-on	mAdc	IMA*T (limit for base / emitter current to 15 mA max.)	Min.	3,00	2,04	1,36	1,03	0,68	0,50	-

Outline Dimensions



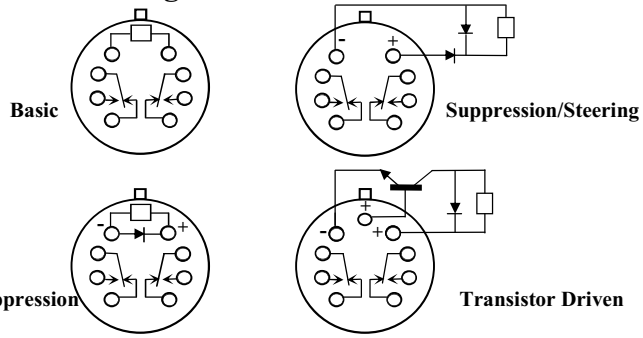
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations
Basic, Suppressed and Transistor Driven



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only
- Ground pin is optional

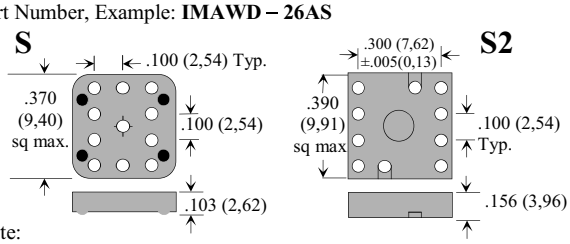
Schematic Diagrams



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" or "**S2**"to Part Number, Example: **IMAWD – 26AS**



Note:
- Dimensions are in inches (millimetres)
- Pad type S2 is not used on military qualified MA*T series

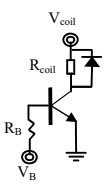
Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Failure Rate (Reliability Level)

3 Tr ON: Ib = 0,5 to 3,00 mA,
Tr OFF: V_B = 0,3 Vdc max.

4 $R_B = \frac{V_B - 0,7}{I^*_{Bsat}}$ $I^*_{Bsat} = \frac{V_{coil} - 0,4}{5R_{coil}}$



Military Suffix	Hi-G Italia Suffix	FR % / 10.000 cycles
L	A	3,0
M	B	1,0

How to Order, (Part Numbering System)

I MA W D G - 26 A S

Series
- C - Wire terminal
- P - Pin terminal
- W - Long wire terminal

- Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven

Spreader Pad (optional)

Reliability levels A or B (note 2)

Coil Voltage Code

Ground Pin (optional)

TO-5 CASE RELAY
SENSITIVE DPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I MS

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid versions, to provide a most versatile element to the circuit designer. The following construction features ensure the highest reliability in extreme environments:

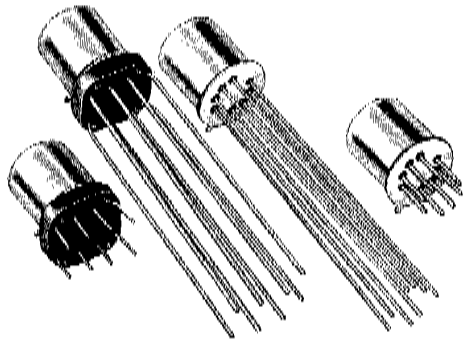
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **IMS*** Basic Relay, 2 form C, DPDT
- **IMS*D** Basic Relay combined with an internal diode for coil transient suppression
- **IMS*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **IMS*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression

MIL-PRF-39016/11, 16 & 21
MIL-PRF-28776/3



Environmental and Physical Specifications

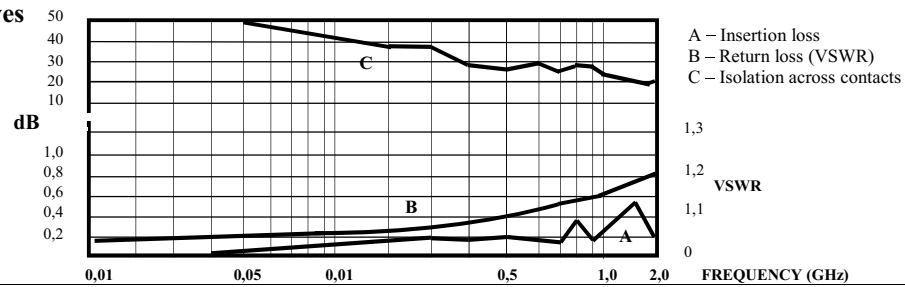
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,15 oz. (4,25 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max.		
Release Time	2,0 ms. max. Series: IMS*	7,5 ms. max. Series: IMS*D, IMS*DD, IMS*T	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: IMS*D, IMS*DD, IMS*T		
Negative Coil Transient	1,0 Vdc max. Series: IMS*D, IMS*DD, IMS*T		
Transistor Characteristics at 25 °C (Series IMS*T)	Emitter-Base Voltage (Vebo)		6,0 Vdc min.
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 10 µA)		70 Vdc min.
	Base Turn-Off Voltage		0,3 Vdc max.

Figure 1 – Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
SENSITIVE DPDT

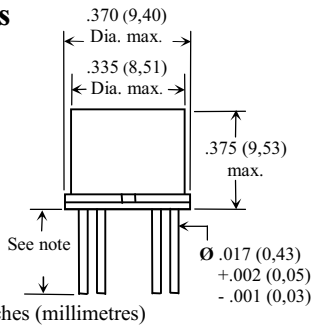
• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I MS

Typical Characteristics (over the Temperature range. Unless otherwise noted)

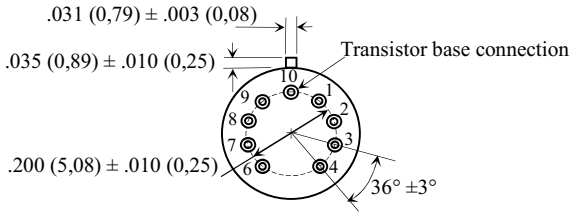
Description	Meas	Series Types		Coil Voltage Code 5	6	9	12	18	26	36	48
Coil Voltage	Vdc	IMS*, IMS*D, IMS*DD, IMS*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5	36,0	48,0
		IMS*, IMS*D, IMS*DD, IMS*T	Max.	7,0	10,0	15,0	20,0	30,0	40,0	57,0	75,0
Coil Resistance at 25°C	Ω	IMS*, IMS*D, IMS*T	± 10%	100	200	400	850	1600	3300	6500	11000
		IMS*DD		64	125						
Coil Current at 25°C	mAdc	IMS*DD	Min.	56,8	36,3	18,1	11,7	9,6	7,0	4,9	3,9
			Max.	78,1	48,9	23,6	15,0	12,2	8,8	6,1	4,8
		IMS*T	Min.	43,5	26,4	19,7	12,2	9,7	6,9	4,8	3,7
			Max.	59,3	35,4	25,8	16,7	13,1	9,5	6,4	5,1
Pick-up Voltage	Vdc	IMS*, IMS*D	Max.	3,5	4,5	6,8	9,0	13,5	18,0	27,0	36,0
		IMS*DD	Max.	3,7	4,8	8,0	11,0	14,5	19,0	27,2	34,8
		IMS*T	Max.	3,6		7,8				27,0	36,0
Drop-Out Voltage	Vdc	IMS*, IMS*D, IMS*T	Min.	0,12	0,18	0,35	0,41	0,59	0,89	1,25	1,60
			Max.	2,5	3,2	4,9	6,5	10,0	13,0	19,0	26,0
		MS*DD	Min.	0,7	0,8	0,9	1,0	1,1	1,3	1,7	2,0
			Max.	2,6	3,0	4,5	5,8	9,0	13,0	19,0	26,0
Base Current to Turn-on	mAdc	IMS*T (limit for base / emitter current to 15 mA max.)	Min.	1,50	1,00	0,75	0,47	0,38	0,24	0,17	0,13

Outline Dimensions



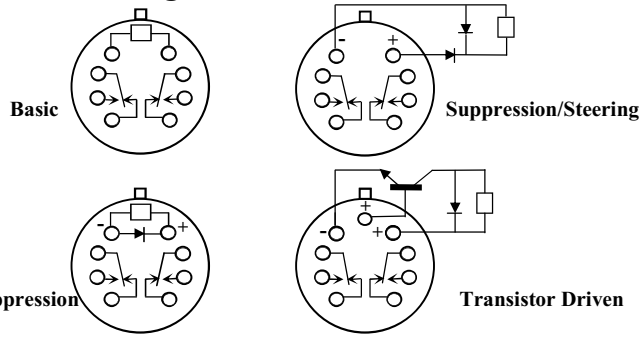
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations
Basic, Suppressed and Transistor Driven



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only

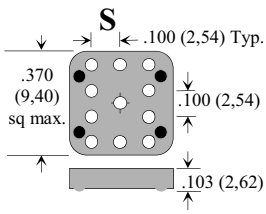
Schematic Diagrams



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" to Part Number, Example: **IMSWD – 26AS**



Note:
- Dimensions are in inches (millimetres)

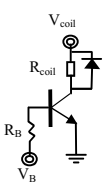
Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Failure Rate (Reliability Level)

3 Tr ON: Ib = 0,13 to 1,50 mA,
Tr OFF: V_B = 0,3 Vdc max.

4 $R_B = \frac{V_B - 0,7}{I^*_{Bsat}}$ $I^*_{Bsat} = \frac{V_{coil} - 0,4}{5R_{coil}}$



Military Suffix	Hi-G Italia Suffix	FR % / 10.000 cycles
L	A	3,0
M	B	1,0

How to Order, (Part Numbering System)

I MS W D - 26 A S

Series
- C - Wire terminal
- P - Pin terminal
- W - Long wire terminal

- Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven

Coil Voltage Code

Reliability levels A or B (note 2)

Spreader Pad (optional)

Hi-G ITALIA S.r.l.
Tel: + 39 06 9699666
SS. Appia Km. 56.420
Fax: + 39 069698688
Cisterna di Latina - Italy

REV. 07/2007

TO-5 CASE RELAY
SPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I 1MA

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities, contact configurations and hybrid versions, to provide a most versatile element to the circuit designer.

The following construction features ensure the highest reliability in extreme environments:

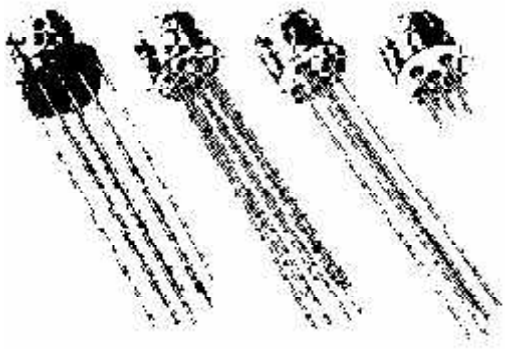
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 1 form C, SPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **I1MA*** Basic Relay, 1 form C, SPDT
- **I1MA*D** Basic Relay combined with an internal diode for coil transient suppression
- **I1MA*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **I1MA*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression

MIL-PRF-39016/7, 23 & 24
MIL-PRF-28776/5



Environmental and Physical Specifications

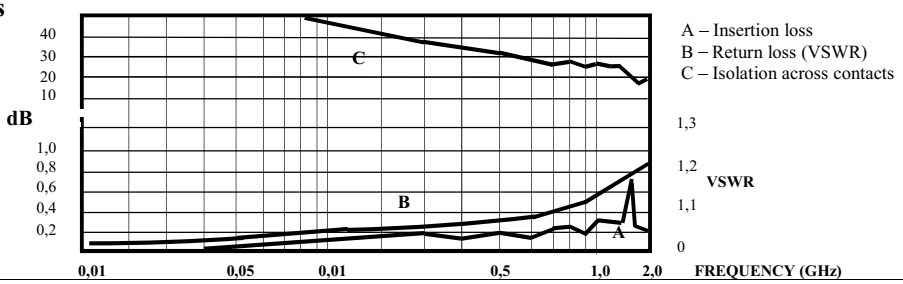
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g^2 / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,08 oz. (2,27 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	2,0 ms. max. Series: I1MA*	4,0 ms. max. Series: I1MA*D, I1MA*DD, I1MA*T	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	300 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	100 mW at pick-up, 400 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: I1MA*D, I1MA*DD, I1MA*T		
Negative Coil Transient	1,0 Vdc max. Series: I1MA*D, I1MA*DD, I1MA*T		
Transistor Characteristics at 25 °C (Series I1MA*T)	Emitter-Base Voltage (Vebo)		6,0 Vdc min.
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 10 µA)		70 Vdc min.
	Base Turn-Off Voltage		0,3 Vdc max.

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
SPDT

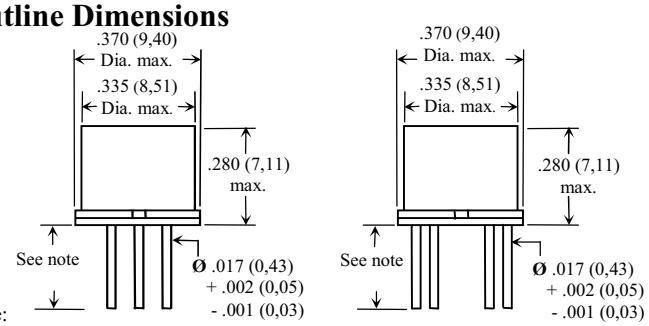
• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I 1MA

Typical Characteristics (over the Temperature range. Unless otherwise noted)

Description	Meas.	Series Types		Coil Voltage Code 5	6	9	12	18	26
Coil Voltage	Vdc	I1MA*, I1MA*D, I1MA*DD, I1MA*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5
		I1MA*, I1MA*D, I1MA*DD, I1MA*T	Max.	5,8	8,0	12,0	16,0	24,0	32,0
Coil Resistance at 25°C	Ω	I1MA*, I1MA*D, I1MA*T	±10 %	63	125	280	500	1130	2000
		I1MA*DD		50	98				
Coil Current at 25°C	mAdc	I1MA*DD	Min.	72,7	46,3	25,9	20,0	13,6	11,5
			Max.	100	62,4	33,7	25,6	17,2	14,4
		I1MA*T	Min.	66,6	42,0	28,0	20,9	13,8	11,5
			Max.	89,6	55,5	38,1	28,1	18,8	15,5
Pick-up Voltage	Vdc	I1MA*, I1MA*D	Max.	3,7	4,5	6,8	9,0	13,5	18,0
		I1MA*DD	Max.	4,5	5,5	7,8	10,0	14,5	19,0
		I1MA*T	Max.	3,9	5,2				
Drop-Out Voltage	Vdc	I1MA*, I1MA*D, I1MA*DD, I1MA*T	Min.	0,15	0,18	0,35	0,40	0,58	0,89
			Max.	2,4	2,8	4,2	5,6	8,4	10,4
Base Current to Turn-on	mAdc	I1MA*T (limit for base / emitter current to 15 mA max.)	Min.	2,38	1,60	1,07	0,80	0,53	0,40

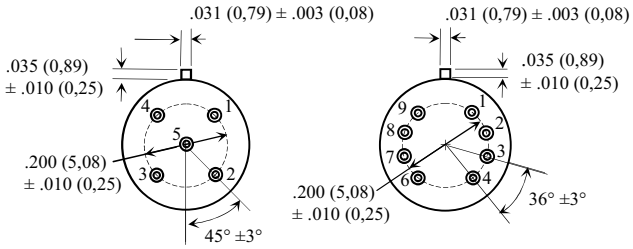
Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

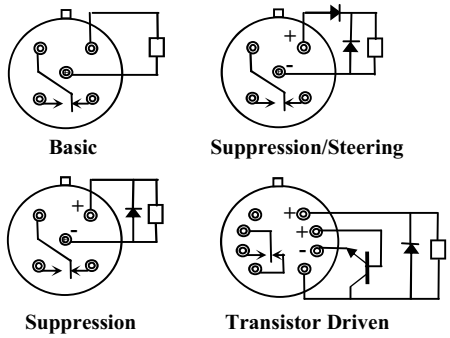
Terminal Locations

Basic and Suppressed **Transistor Driven**



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only

Schematic Diagrams

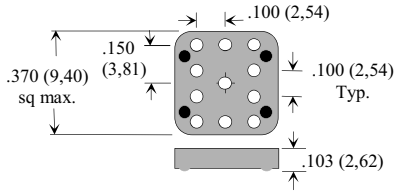


Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" to Part Number, Example: **I1MAWD - 26S**

S



Note:
-Dimensions are in inches (millimetres)
-Pad Type S is used on series: I1MA*, I1MA*D, I1MA*DD, I1MA*T

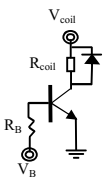
Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Failure Rate (Reliability Level)

3 Tr ON: Ib = 0,4 to 2,38 mA,
Tr OFF: V_B = 0,3 Vdc max.

4 $R_B = \frac{V_B - 0{,}7}{I^*_{Bsat}}$ $I^*_{Bsat} = \frac{V_{coil} - 0{,}4}{5R_{coil}}$



Military Suffix	Hi-G Italia Suffix	FR % / 10.000 cycles
L	A	3,0
M	B	1,0

How to Order, (Part Numbering System)

I 1MA W D - 26 A S

Series

C - Wire terminal
P - Pin terminal
W - Long wire terminal

- Basic

D - Diode Suppression
DD - Suppression/Steering
T - Transistor Driven

Spreader Pad (optional)

Reliability levels A or B (note 2)

Coil Voltage Code

Hi-G ITALIA S.r.l.
Tel: + 39 06 9699666
SS. Appia Km. 56.420
Fax: + 39 069698688
Cisterna di Latina - Italy

REV. 07/2007

TO-5 CASE RELAY
SENSITIVE SPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I 1MS

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities, contact configurations and hybrid improvement, to provide a most versatile element to the circuit designer.

The following construction features ensure the highest reliability in extreme environments:

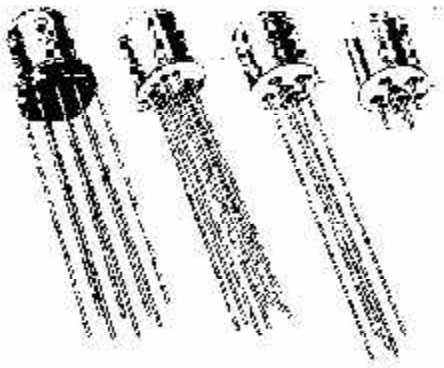
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 1 form C, SPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **I1MS*** Basic Relay, 1 form C, SPDT
- **I1MS*D** Basic Relay combined with an internal diode for coil transient suppression
- **I1MS*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **I1MS*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression

MIL-PRF-39016/10, 25 & 26
MIL-PRF-28776/4



Environmental and Physical Specifications

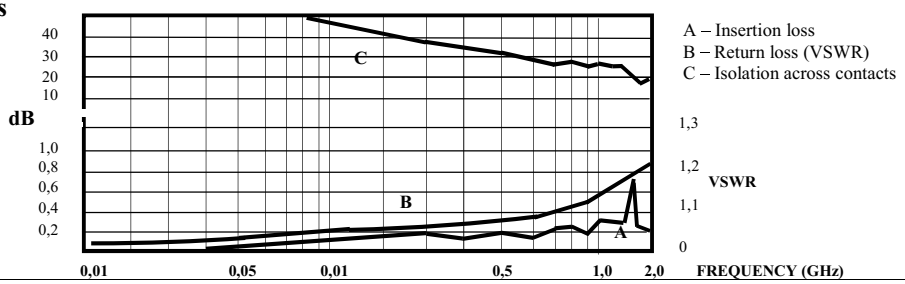
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,10 oz. (2,84 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max. Series: I1MS*, I1MS*D, I1MS*DD	3,5 ms. max. Series: I1MS*T	
Release Time	2,5 ms. max. Series: I1MS*	7,5 ms. max. Series: I1MS*D, I1MS*DD, I1MS*T	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	300 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	40 mW at pick-up, 200 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: I1MS*D, I1MS*DD, I1MS*T		
Negative Coil Transient	1,0 Vdc max. Series: I1MS*D, I1MS*DD, I1MS*T		
Transistor Characteristics at 25 °C (Series I1MS*T)	Emitter-Base Voltage (Vebo)	6,0 Vdc min.	
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 10 µA)	70 Vdc min.	
	Base Turn-Off Voltage	0,3 Vdc max.	

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
SENSITIVE SPDT

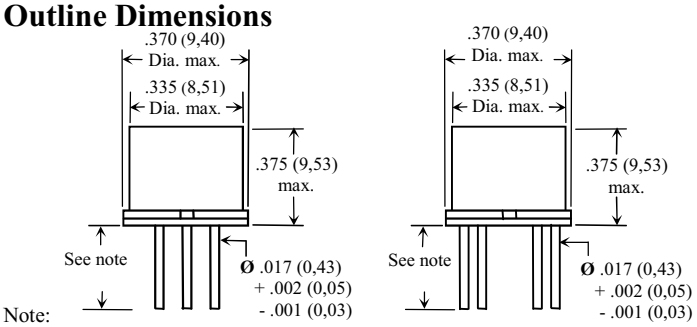
• Basic • Suppression • Suppression/Steering • Transistor Driven

Series I 1MS

Typical Characteristics (over the Temperature range. Unless otherwise noted)

Description	Meas.	Series Types		Coil Voltage Code 5	6	9	12	18	26	32	40
Coil Voltage	Vdc	I1MS*, I1MS*D, I1MS*DD, I1MS*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5	32,0	40,0
		I1MS*, I1MS*D, I1MS*DD, I1MS*T	Max.	8,0	11,0	12,0	22,0	24,0	45,0	57,0	75,0
Coil Resistance at 25°C	Ω	I1MS*, I1MS*D, I1MS*T	± 10%	125	255	630	1025	2300	4000	6500	11000
		I1MS*DD		100	200						
Coil Current at 25°C	mAdc	I1MS*DD	Min.	36,3	22,7	11,5	9,7	6,7	5,7	4,3	3,2
			Max.	50,0	30,6	15,0	12,5	8,5	7,2	5,4	4,0
		I1MS*T	Min.	34,7	21,2	11,8	10,1	6,7	5,7	4,2	3,1
			Max.	47,8	27,7	16,8	13,6	9,1	7,7	5,8	4,3
Pick-up Voltage	Vdc	I1MS*, I1MS*D	Max.	3,7	4,5	6,8	9,0	13,5	18,0	24,0	30,0
		I1MS*DD	Max.	4,5	5,5	7,8	10,0	14,5	19,0	21,0	27,0
		I1MS*T	Max.	3,6	4,8					24,0	30,0
Drop-Out Voltage	Vdc	I1MS*, I1MS*D, I1MS*T	Min.	0,15	0,18	0,35	0,40	0,58	0,89	1,0	1,3
			Max.	2,0	2,8	4,2	5,6	8,4	10,4	15,0	18,7
		I1MS*DD	Min.	0,15	0,18	0,35	0,40	0,58	0,89	0,95	1,28
			Max.	2,4	2,8	4,2	5,6	8,4	10,4	12,6	15,7
Base Current to Turn-on	mAdc	I1MS*T (limit for base / emitter current to 15 mA max.)	Max.	1,2	0,78	0,48	0,39	0,26	0,20	0,16	0,13

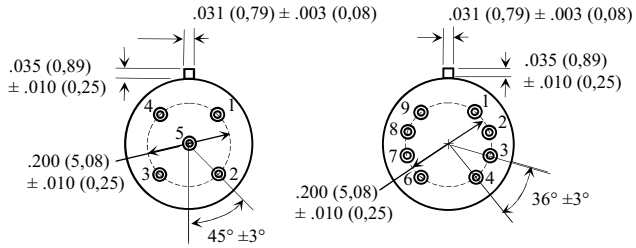
Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

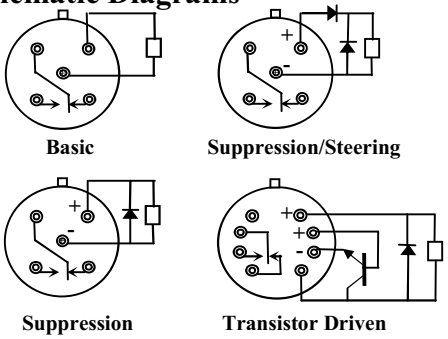
Terminal Locations

Basic and Suppressed **Transistor Driven**



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only

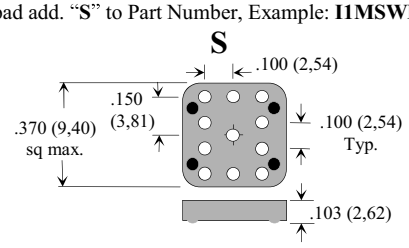
Schematic Diagrams



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" to Part Number, Example: **I1MSWD - 26S**



Note:
-Dimensions are in inches (millimetres)
-Pad Type S is used on series: I1MS*, I1MS*D, I1MS*DD, I1MS*T

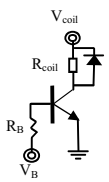
Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Failure Rate (Reliability Level)

3 Tr ON: Ib = 0,13 to 1,2 mA,
Tr OFF: V_B = 0,3 Vdc max.

4 $R_B = \frac{V_B - 0,7}{I^*_{Bsat}}$ $I^*_{Bsat} = \frac{V_{coil} - 0,4}{5R_{coil}}$



Military Suffix	Hi-G Italia Suffix	FR % / 10.000 cycles
L	A	3,0
M	B	1,0

How to Order, (Part Numbering System)

I 1MS W D - 26 A S

Series

C - Wire terminal
P - Pin terminal
W - Long wire terminal

- Basic

D - Diode Suppression
DD - Suppression/Steering
T - Transistor Driven

Coil Voltage Code

Reliability levels A or B (note 2)

Spreader Pad (optional)

Hi-G ITALIA S.r.l.
Tel: + 39 06 9699666
SS. Appia Km. 56.420
Fax: + 39 069698688
Cisterna di Latina - Italy

REV. 10/2006

100 GRID TERMINAL RELAY
DPDT

• Basic • Suppression • Suppression/Steering

Series I MGA

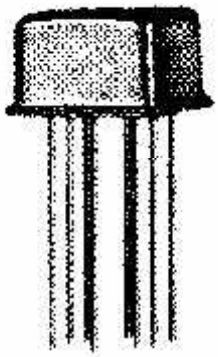
Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MA series TO-5 relays construction.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

MIL-PRF-39016/17, 18 & 19



Series Types (note 1)

- **IMGA*** Basic Relay, 2 form C, DPDT
- **IMGA*D** Basic Relay combined with an internal diode for coil transient suppression
- **IMGA*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection

Environmental and Physical Specifications

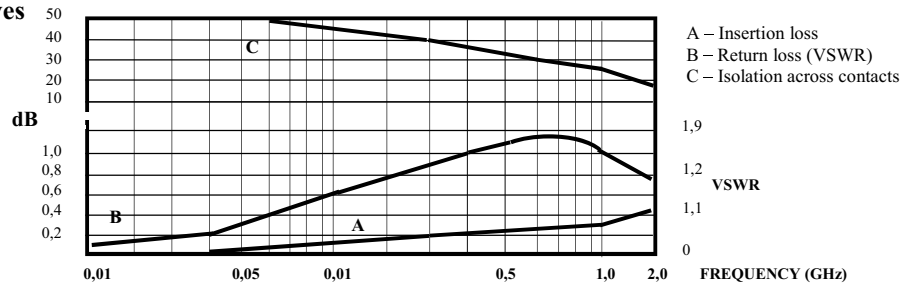
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,09 oz. (2,55 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	1,5 ms. max. Series: IMGA*	4,0 ms. max. Series: IMGA*D, IMGA*DD	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	130 mW at pick-up, 500 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: IMGA*D, IMGA*DD		
Negative Coil Transient	1,0 Vdc max. Series: IMGA*D, IMGA*DD		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY
DPDT

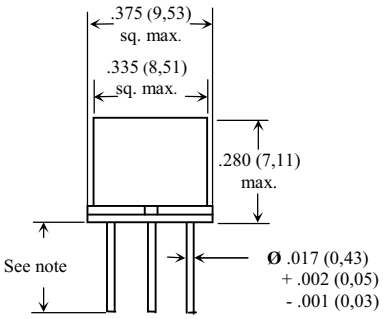
• Basic • Suppression • Suppression/Steering

Series I MGA

Typical Characteristics (over the Temperature range. Unless otherwise noted)

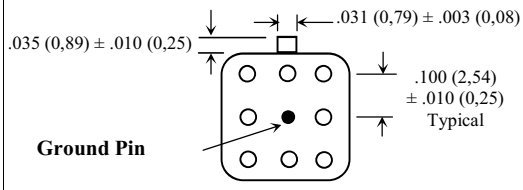
Coil Voltage Code	Series Types	Coil Voltage Vdc Rated	Coil Voltage Vdc Max.	Coil Resistance Ω at 25°C ± 10%	Coil Current mA, at 25°C Min.	Coil Current mA, at 25°C Max.	Pick-up Voltage Vdc Max.	Drop-out Voltage Vdc Max.	Drop-out Voltage Vdc Min.
5	IMGA*, IMGA*D	5,0	5,8	50	-	-	3,5	2,3	0,14
	IMGA*DD			39	93,2	128,2	4,0	2,8	0,6
6	IMGA*, IMGA*D	6,0	8,0	98	-	-	4,5	3,2	0,18
	IMGA*DD			78	58,3	78,3	5,0	3,4	0,7
9	IMGA*, IMGA*D	9,0	12,0	220	-	-	6,8	4,9	0,35
	IMGA*DD				33,0	42,9	7,8	5,3	0,8
12	IMGA*, IMGA*D	12,0	16,0	390	-	-	9,0	6,5	0,41
	IMGA*DD				25,6	32,8	10,0		0,9
18	IMGA*, IMGA*D	18,0	24,0	880	-	-	13,5	10,0	0,59
	IMGA*DD				17,5	22,1	14,5		1,1
26	IMGA*, IMGA*D	26,5	32,0	1560	-	-	18,0	13,0	0,89
	IMGA*DD				14,8	18,5	19,0		1,4

Outline Dimensions



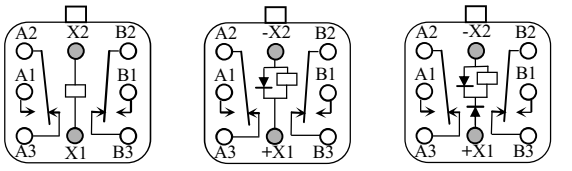
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Wire Terminal = .500 (12,7) min.
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations



Note:
- Viewed from terminals
- Ground pin is optional
- Dimensions are shown in inches (millimetres)

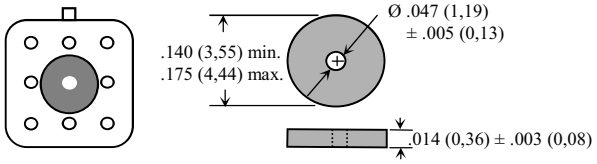
Schematic Diagrams



Note:
Schematics are viewed from terminals, numbers are for references only

Mounting Pad

Relays can be supplied with a mounting pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**W**" to Part Number. Example: **IMGACD - 26W**



Note: Dimensions are in inches (millimetres)

Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Failure Rate (Reliability Level)

Military Suffix	Hi-G Italia Suffix	FR % / 10.000 cycles
L	A	3,0
M	B	1,0

How to Order, (Part Numbering System)

I MGA C D G - 26 A W

- Series
- C - Wire terminal
- P - Pin terminal
- - Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven
- Spacer Pad (optional)
- Reliability levels A or B (note 2)
- Coil Voltage Code
- Ground Pin (optional)

100 GRID TERMINAL RELAY SENSITIVE DPDT

• Basic • Suppression • Suppression/Steering

Series I MGS

Product Description

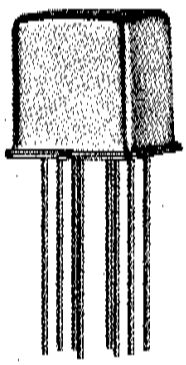
A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MS series TO-5 relays construction.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

MIL-PRF-39016/41, 42 & 43



Series Types (note 1)

- **IMGS*** Basic Relay, 2 form C, DPDT
- **IMGS*D** Basic Relay combined with an internal diode for coil transient suppression
- **IMGS*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection

Environmental and Physical Specifications

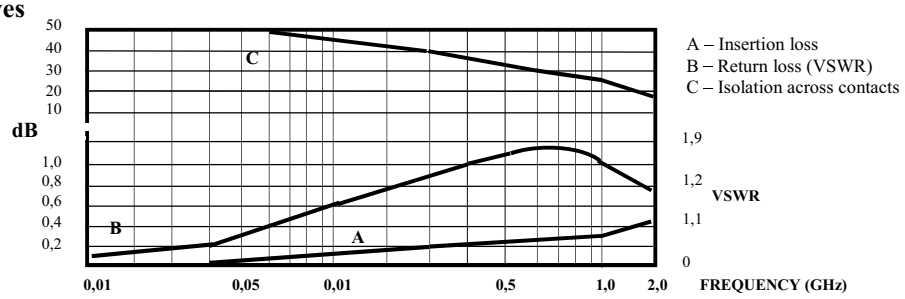
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,15 oz. (4,30 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max.		
Release Time	2,5 ms. max. Series: IMGS*	7,5 ms. max. Series: IMGS*D, IMGS*DD	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: IMGS*D, IMGS*DD		
Negative Coil Transient	1,0 Vdc max. Series: IMGS*D, IMGS*DD		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY SENSITIVE DPDT

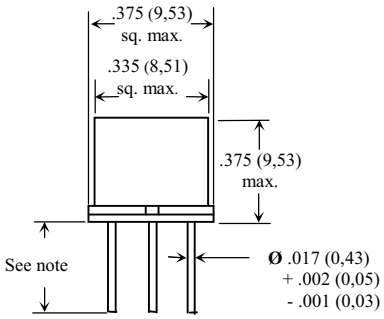
• Basic • Suppression • Suppression/Steering

Series I MGS

Typical Characteristics (over the Temperature range. Unless otherwise noted)

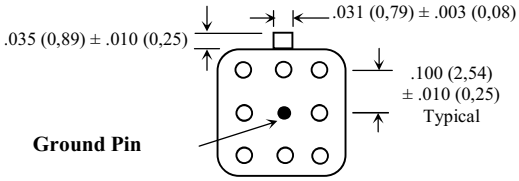
Coil Voltage Code	Series Types	Coil Voltage Vdc Rated	Coil Voltage Vdc Max.	Coil Resistance Ω at 25°C ± 10%	Coil Current mA, at 25°C Min.	Coil Current mA, at 25°C Max.	Pick-up Voltage Vdc Max.	Drop-out Voltage Vdc Max.	Drop-out Voltage Vdc Min.
5	IMGS*, IMGS*D	5,0	7,0	100	-	-	3,5	2,5	0,12
	IMGS*DD			64	56,8	78,1	3,7	2,6	0,7
6	IMGS*, IMGS*D	6,0	10,0	200	-	-	4,5	3,2	0,18
	IMGS*DD			125	36,3	48,9	4,8	3,0	0,8
9	IMGS*, IMGS*D	9,0	15,0	400	-	-	6,8	4,9	0,35
	IMGS*DD				18,1	23,6	8,0	4,5	0,9
12	IMGS*, IMGS*D	12,0	20,0	800	-	-	9,0	6,5	0,41
	IMGS*DD				12,5	16,0	11,0	5,8	1,0
18	IMGS*, IMGS*D	18,0	30,0	1600	-	-	13,5	10,0	0,59
	IMGS*DD				9,6	12,2	14,5	9,0	1,1
26	IMGS*, IMGS*D	26,5	40,0	3200	-	-	18,0	13,0	0,89
	IMGS*DD				7,2	9,0	19,0		1,3
36	IMGS*, IMGS*D	36,0	57,0	6500	-	-	27,0	19,0	1,25
	IMGS*DD				4,9	6,1	27,2		1,7
48	IMGS*, IMGS*D	48,0	75,0	11000	-	-	36,0	26,0	1,6
	IMGS*DD				3,9	4,8	34,8		2,0

Outline Dimensions



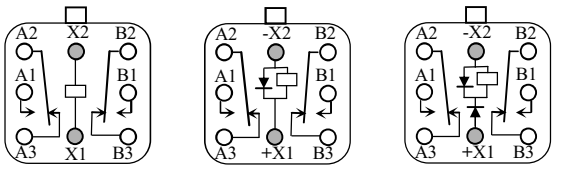
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Wire Terminal = .500 (12,7) min.
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations



Note:
- Viewed from terminals
- Ground pin is optional
- Dimensions are shown in inches (millimetres)

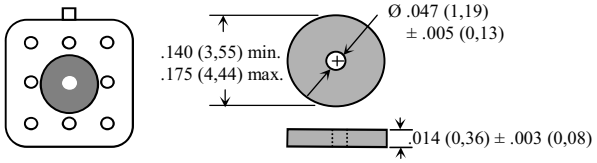
Schematic Diagrams



Note:
Schematics are viewed from terminals, numbers are for references only

Mounting Pad

Relays can be supplied with a mounting pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**W**" to Part Number. Example: **IMGSCD - 26W**



Note: Dimensions are in inches (millimetres)

Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Failure Rate (Reliability Level)

Military Suffix	Hi-G Italia Suffix	FR % / 10.000 cycles
L	A	3,0
M	B	1,0

How to Order, (Part Numbering System)

I MGS C D G - 26 A W

- Series
- C - Wire terminal
- P - Pin terminal
- - Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven
- Spacer Pad (optional)
- Reliability levels A or B (note 2)
- Coil Voltage Code
- Ground Pin (optional)

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

Series I 2K

Product Description

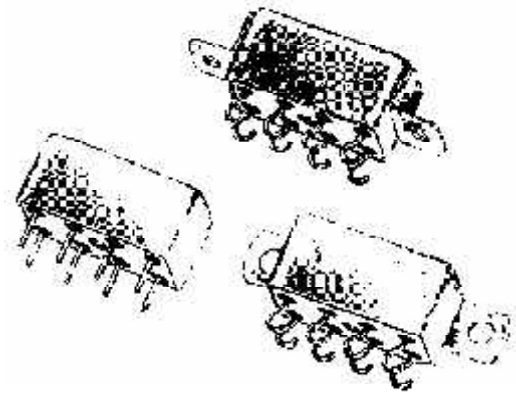
A complete series of half crystal can hermetically sealed relays manufactured and qualified to the referenced Military specification.
The leading relay design in military and commercial application is represented in Hi-G Italia I2K series relay. The product advanced design provides superior performance in the environmental and operational requirements of today's sophisticated equipment.
Volume production coupled with continuing qualification programs, ensure product consistency and the highest degree of reliability.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional immunity to shock and vibration.

Series Type

- **I2K** 2 form C, DPDT

MIL-PRF-39016/6



Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,46 oz. (13,0 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart			
Contact Rating	**Contact Load**	**Type 1**	**Type 2**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	2 A / 28 Vdc	2 A / 28 Vdc	100.000
		0,3 A / 115 Vac, 60 and 400 Hz	0,1 A / 115 Vac, 60 and 400 Hz	100.000
	Overload	4 A / 28 Vdc	4 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	0,50 A / 28 Vdc (200 mH)	100.000
	Lamp	0,16 A / 28 Vdc	0,16 A / 28 Vdc	100.000
Contact Resistance	0,05 Ω max. initial, 0,1 Ω max. after life high level, 0,15 Ω max. after low level			
Operate Time	4,0 ms. max. at 25°C			
Release Time	4,0 ms. max. at 25°C			
Contact Bounce	2,0 ms. max. at 25°C			
Contact Stabilisation Time	2,0 ms. max. at 25°C			
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		350 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc			
Intercontact Capacitance	2,5 pF between contacts			
Sensitivity	250 mW at pick-up, 1 W typical at nominal rated coil voltage, at 25 °C			

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

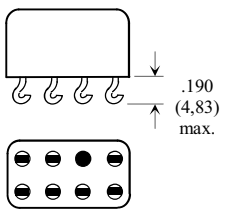
Series I 2K

Typical Characteristics (over the Temperature range. Unless otherwise noted)

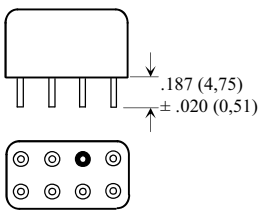
Terminal Codes				Mounting Styles	Load Rating	Coil Voltage (Vdc)		DC Coil Resistance (Ω)	Pick-up (Vdc)	Drop-out (Vdc)	
Wire Lead (PI)	Solder Lug (L)	Wire Lead (SP)	Wire Lead (W)			Max.	Nom.	±10% at 25°C	Max	Max.	Min.
141	104	105	106	B							
	107	125	108	C							
	128			D	Type 1						
142	129	109	110	None							
	149			E							
241	204	205	206	B		32,0	26,5	700	18,0	14,0	1,00
	207	225	208	C							
	228			D	Type 2						
242	229	209	210	None							
	249			E							
143	111	112	113	B							
	114	126	115	C	Type 1						
144	130	116	117	None							
	150			E							
243	211	212	213	B		15,0	12,0	160	9,0	5,8	0,50
	214	226	215	C	Type 2						
244	230	216	217	None							
	250			E							
145	118	119	120	B							
	121	127	122	C	Type 1						
146	131	123	124	None							
	151			E							
245	218	219	220	B		7,5	6,0	40	4,5	2,9	0,25
	221	227	222	C	Type 2						
246	231	223	224	None							
	251			E							
147	132	133	134	B							
	135	136	137	C	Type 1						
148	138	139	140	None							
	152			E							
247	232	233	234	B		6,0	5,0	27	3,8	2,4	0,21
	235	236	237	C	Type 2						
248	238	239	240	None							
	252			E							

Terminal Styles

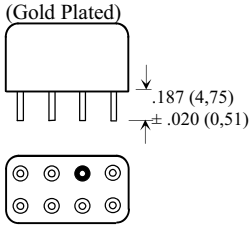
L Solder Lug



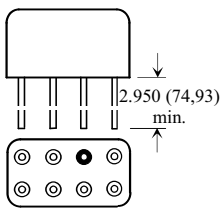
SP Wire Lead Solder Pin



PI Wire Lead Plug in (Gold Plated)

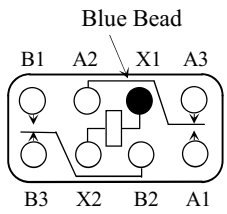


W Wire Lead



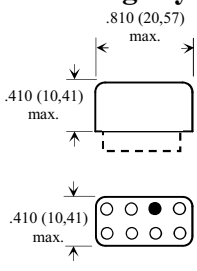
Note:
- Dimensions are shown in inches (millimetres).
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagram

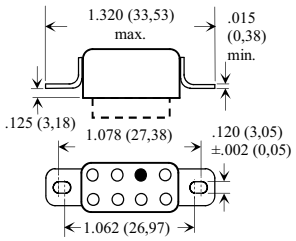


Note:
- Schematic is viewed from terminals

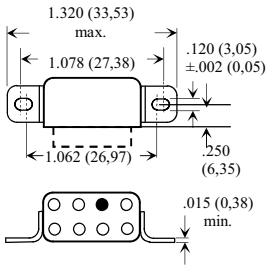
Mounting Styles



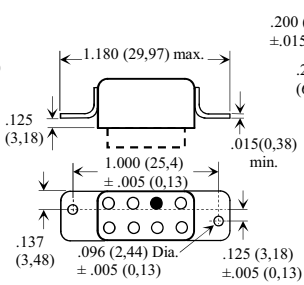
NONE



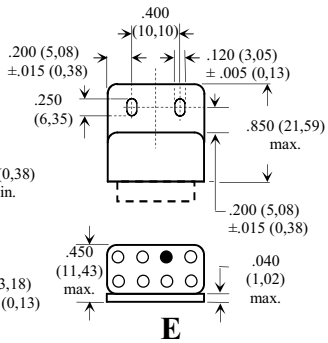
B



C



D



E

Note: Dimensions are shown in inches (millimetres)

Note:
1 Failure Rate (Reliability Level)

Military Suffix	Hi-G Italia Suffix	FR % / 10.000 cycles
L	A	3,0
M	B	1,0

How to Order, (Part Numbering System)

I 2K - 104 A

- Series
- Terminal Code
- Reliability levels A or B (note 1)

FULL SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

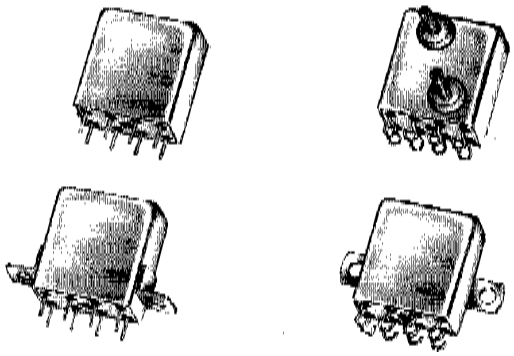
Series 2B-7506

Product Description

A complete series of full crystal can hermetically sealed relays manufactured in compliance to the referenced Military specification.
The leading relay design in military and commercial application is represented in Hi-G Italia 2B-7506 series relay. The product advanced design provides superior performance in the environmental and operational requirements of today's sophisticated equipment.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional immunity to shock and vibration.

COMPLIANT TO MIL-R-5757/10



Series Type

- **2B-7506** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,8 oz. (22,68 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart			
Contact Rating	**Type Load**	**Contact Load**		**Cycles min.**
		High Level	**Low Level**	
(Note: All ratings with grounded case)	Resistive	2 A / 28 Vdc	10 to 50 µA / 10 to 50 mV	100.000
		0,3 A / 115 Vac, 60 and 400 Hz	N/A	100.000
	Overload	4 A / 28 Vdc	N/A	100
	Inductive	1 A / 28 Vdc (200 mH)	N/A	100.000
	Lamp	0,1 A / 28 Vdc	N/A	100.000
Contact Resistance	0,05 Ω max. initial, 0,1 Ω max. after life high level, 0,15 Ω max. after low level			
Operate Time	6,0 ms. Max.			
Release Time	6,0 ms. Max.			
Contact Bounce	High Level 1,0 ms. max., Low Level 2,0 msec. max.			
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level			
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc			
Intercontact Capacitance	2,5 pF between contacts			
Sensitivity	1,0 W max. at nominal rated coil voltage, at 25 °C			

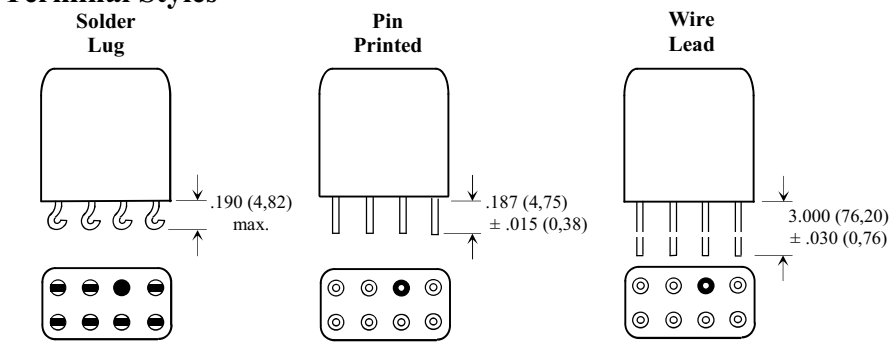
FULL SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

Series 2B-7506

Typical Characteristics (over the Temperature range. Unless otherwise noted)

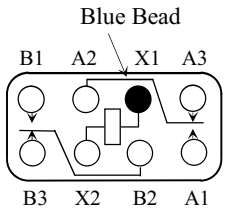
Mounting Styles: Low Level Contacts		Mounting Styles: High Level Contacts					Terminal Styles	Coil Resistance Ω ± 10% at 25°C	OPERATE PARAMETERS: Coil Voltage Vdc		P.I. Vdc	D.O. Vdc	
Stud	B	Side	Stud	A	B	None			Max.	Nom.	Max.	Max.	Min
						-052	Solder Lug	675	32,0	26,5	18,0	14,0	1,5
						-053	Wire Lead	675	32,0	26,5	18,0	14,0	1,5
						-054	Pin	675	32,0	26,5	18,0	14,0	1,5
-015		-035	-037	-039	-043		Solder Lug	675	32,0	26,5	18,0	14,0	1,5
-016		-036	-038				Wire Lead	675	32,0	26,5	18,0	14,0	1,5
	-022			-040	-044		Pin	675	32,0	26,5	18,0	14,0	1,5
				-067		-060	Pin	194	14,7	12,0	8,9	6,0	0,32
						-059	Pin	44	7,3	6,0	4,2	3,0	0,14

Terminal Styles



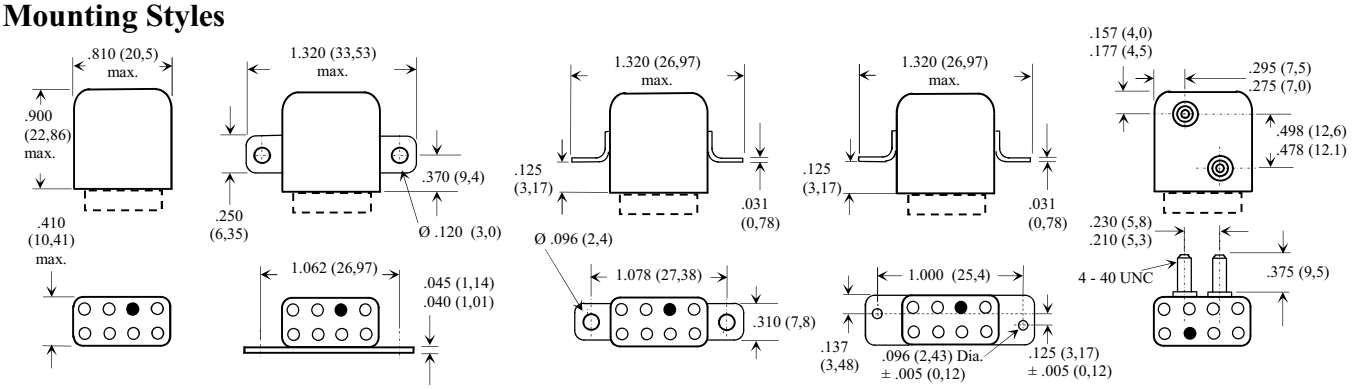
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) ± .002 (0,05)

Schematic Diagram



Note:
- Schematic are viewed from terminals

Mounting Styles



NO MOUNT **SIDE** **BRACKET A** **BRACKET B** **STUD**

Note:
- Dimensions are shown in inches (millimetres)

How to Order, (Part Numbering System)

2B-7506 - 015 P

Series Type

Dash number (see characteristics table)

Insulating pad (optional) See half crystal series

Note:
- Relays compliant to MIL-R-5757/10 are designated 2B-7506 and applicable dash numbers coincide with Hi-G Italia dash numbers

FULL SIZE CRYSTAL CAN RELAY
2 AMPERE SENSITIVE

Series 2BC-7201

Product Description

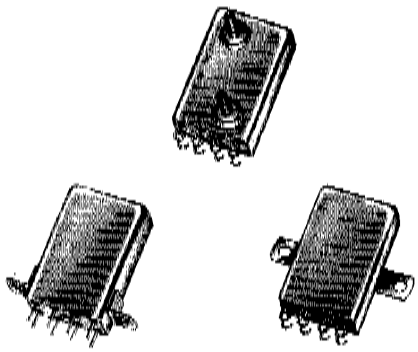
A complete series of full crystal can hermetically sealed relays manufactured in compliance to the referenced Military specification.
The leading relay design in military and commercial application is represented in Hi-G Italia 2BC-7201 series relay. The product advanced design provides superior performance in the environmental and operational requirements of today's sophisticated equipment.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional immunity to shock and vibration.

Series Type

- **2BC-7201** 2 form C, DPDT

COMPLIANT TO MIL-R-5757/13



Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	15 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	1,1 oz. (31,19 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level Resistive Inductive Lamp	10 to 50 µA / 10 to 50 mV 2 A / 28 Vdc 0,3 A / 115 Vac, 60 and 400 Hz 0,75 A / 28 Vdc (200 mH) 0,1 A / 28 Vdc	100.000 100.000 100.000 100.000 100.000
Contact Resistance	0,05 Ω max. initial, 0,1 Ω max. after life high level, 0,15 Ω max. after low level		
Operate Time	15,0 ms. max.		
Release Time	10,0 ms. max.		
Contact Bounce	2,0 ms. max.		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level	350 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	1,0 W max. at nominal rated coil voltage, at 25 °C		

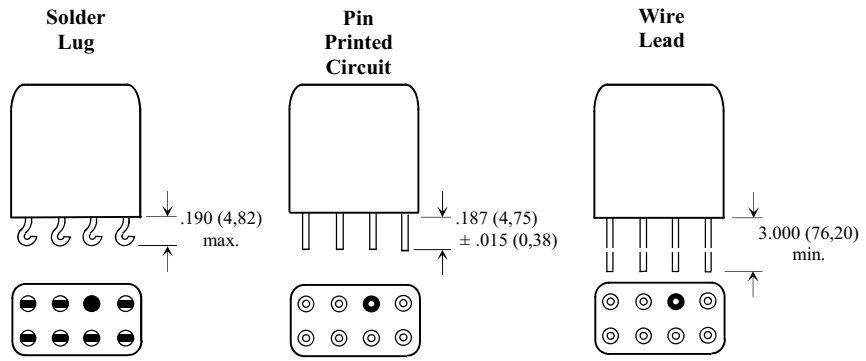
FULL SIZE CRYSTAL CAN RELAY
2 AMPERE SENSITIVE

Series 2BC-7201

Typical Characteristics

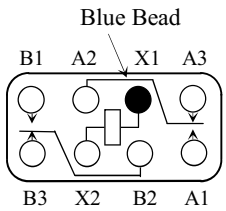
TERMINAL	Lug	Lug	Lug	Lug	Pin	Wire	Coil Resistance Ω ± 10% at 25°C	OPERATE PARAMETERS			
MOUNTING	Flange A	Flange B	Bracket	Stud	Flange A	Stud		Coil Current mAdc Nom.	Pull-in mAdc Max.	Drop-out mAdc Max.	Drop-out mAdc Min.
	-083	-104	-134	-114	-093	-124	20	90,0	45,0	22,5	4,5
	-084	-105	-135	-115	-094	-125	100	40,0	20,0	10,0	2,0
					-095		200	28,4	14,2	10,0	1,4
	-085	-106	-136	-116	-096	-126	500	18,0	9,0	4,5	0,9
	-086	-107	-137	-117	-097	-127	1000	13,0	6,5	3,1	0,65
	-087	-108	-138	-118	-098	-128	1500	11,0	5,2	2,6	0,52
	-088	-109	-139	-119	-099	-129	2000	9,0	4,5	2,2	0,50
	-089	-110	-140	-120	-100	-130	2500	8,0	4,0	2,0	0,40
	-090	-111	-141	-121	-101	-131	5000	6,0	2,8	1,4	0,30
	-091	-112	-142	-122	-102	-132	8000	5,0	2,3	1,1	0,23
	-092	-113	-143	-123	-103	-133	10000	4,0	2,0	1,0	0,20

Terminal Styles



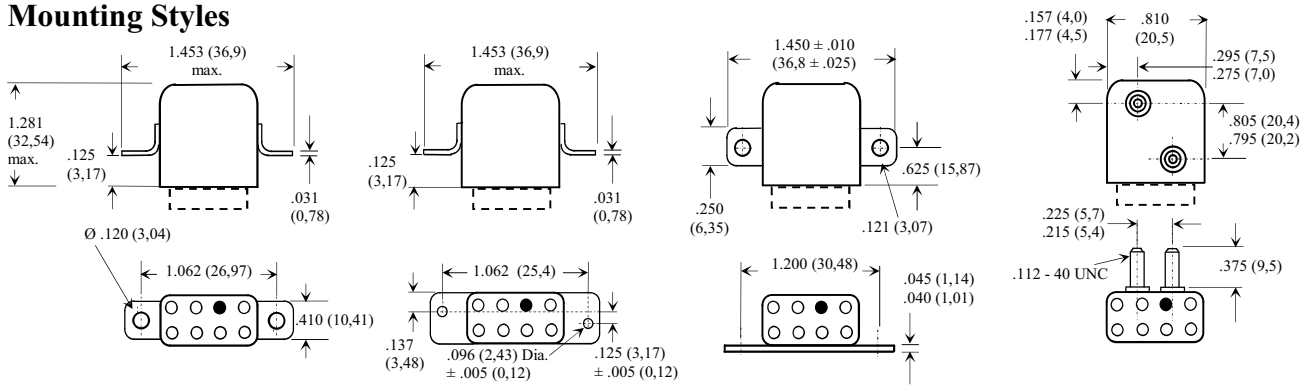
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) ± .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

Mounting Styles



Note: **FLANGE A** **FLANGE B** **BRACKET** **STUD**
- Dimensions are shown in inches (millimetres)

How to Order, (Part Numbering System)

2BC-7201 - 096 P

Series Type

Dash number (see characteristics table)

Spacer Pad (Optional). See half crystal type

Note: Relays compliant to MIL-R-5757/13 are designated 2BC-7201 and applicable dash numbers coincide with Hi-G Italia dash numbers

CRYSTAL CAN RELAY
10 AMPERE DC COIL

Series 2T-7188

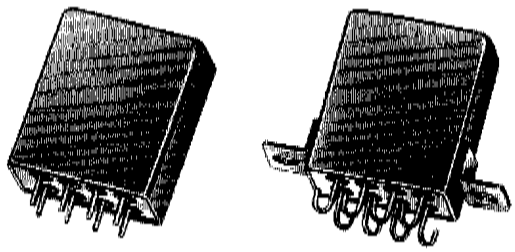
Product Description

The economical approach to high current switching in a relay design for commercial and military applications. Through unique design innovations, this device incorporates an optimised magnetic structure and massive contact switching paths in less than 0.65 cubic inches. With proven switching characteristics of 10 amperes in excess of 100.000 operations under all environments, it performs in a wide variety of switching applications.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- 10 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating

COMPLIANT TO MIL-R-5757/23



Series Types

- **2T-7188** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	17 g
Sealing	All welded, Hermetic
Weight	2,0 oz. (56,70 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Resistive	10 A / 28 Vdc	50.000
		5 A / 115Vac, 400 Hz	50.000
		3 A / 115 Vac, 60 Hz	50.000
	Inductive	6 A / 28 Vdc (200 mH)	50.000
	Lamp	1 A / 28 Vdc	50.000
	Motor	3 A / 28 Vdc	50.000
Contact Resistance	0,01 Ω max. initial		
Operate Time	15,0 ms. max. at 25°C		
Release Time	15,0 ms. max. at 25°C		
Contact Bounce	5,0 ms. max. at 25°C, normally close contacts	5,0 ms. max. at 25°C, normally open contacts	
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Sensitivity	1,9 W typical at nominal rated coil voltage, at 25 °C		

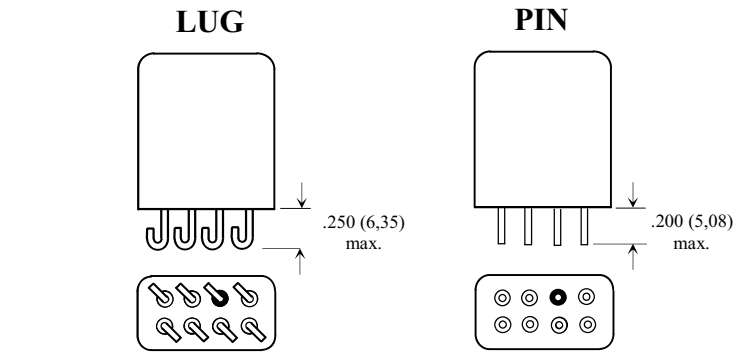
CRYSTAL CAN RELAY
10 AMPERE DC COIL

Series 2T-7188

Typical Characteristics (over the Temperature range. Unless otherwise noted)

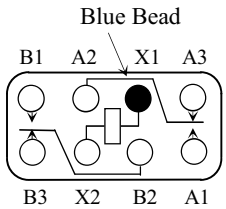
Mounting & Terminal Styles						Coil Voltage Vdc		Coil Resistance Ω ± 10% at 25°C	Pick-up Vdc	Drop-out Vdc	
Raised Lug	Flush Lug	Raised Pin	Flush Pin	Plain Pin	Laydown Lug	Max	Nom.		Max.	Min.	Max.
-001	-002	-003	-004	-005	-031	32,0	26,5	300	18,0	1,5	7,0
-006	-007	-008	-009	-010	-032	16,0	12,0	75	9,0	0,5	5,0
-011	-012	-013	-014	-015	-033	9,0	6,0	19	4,5	0,25	2,5
-016	-017	-018	-019	-020	-034	52,0	48,0	1200	36,0	2,0	20,0
-026	-027	-028	-029	-030	-036	122,0	120,0	7500	90,0	5,0	50,0
-037	-038	-039	-040	-041	-042	24,0	18,0	170	13,5	0,75	7,5

Terminal Styles



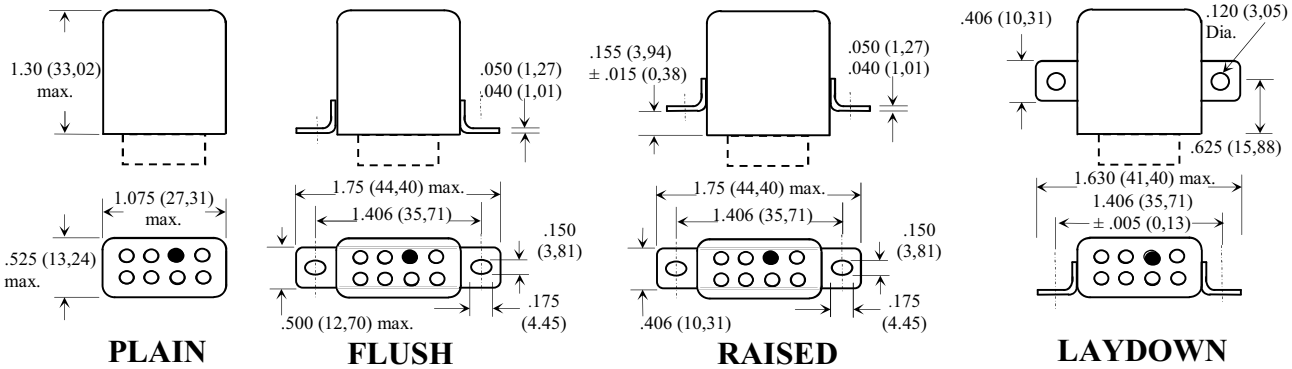
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .050 (1,27) ± .002 (0,05)

Schematic Diagrams



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres).

How to Order, (Part Numbering System)

2T-7188 - 001

Series Type

Dash number (see characteristics table)

Note: Relays compliant to MIL-R-5757/23 are designated 2T-7188 and applicable dash numbers coincide with Nuova Hi-G Italia dash numbers

TO-5 CASE RELAY
DPDT

Series MA2

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid improvements, to provide a most versatile element to the circuit designer.

The following construction features ensure the highest reliability in extreme environments:

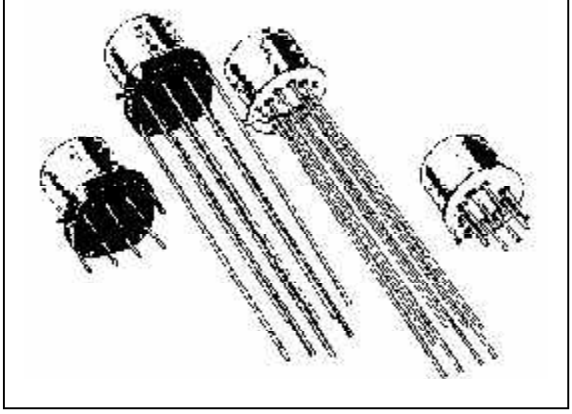
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Type

- **MA2** 2 form C, DPDT

CECC 16101 - 003



Environmental and Physical Specifications

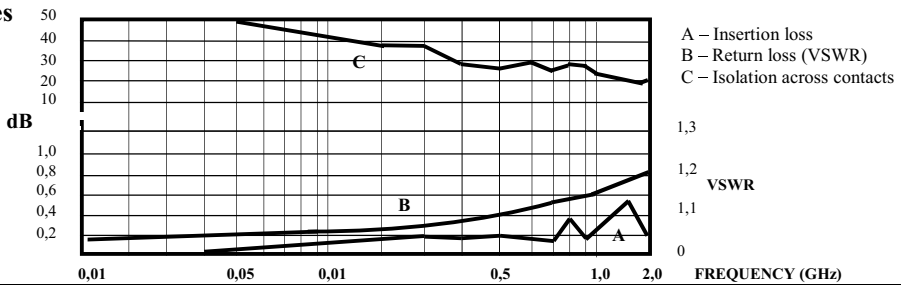
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 2000 Hz, 1,5 amplitude peak
Bump	40 g, 6 ms.
Sealing	All welded, Hermetic
Weight	0,11 oz. (3,00 grams) max.
Finish	Bright tin lead plated terminations and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level Resistive Resistive overload Inductive	10 mA / 30 mV 1 A / 28 Vdc 2 A / 28 Vdc 100 mA / 28 Vdc (320 mH)	1.000.000 100.000 100 100.000
Contact Resistance	0,1 Ω max. initial, 0,3 Ω max. after life		
Operate Time	2,5 ms. max.		
Release Time	2,0 ms. max.		
Contact Bounce	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level		
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	130 mW at pick-up, 500 mW at nominal rated coil voltage, at 25 °C		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



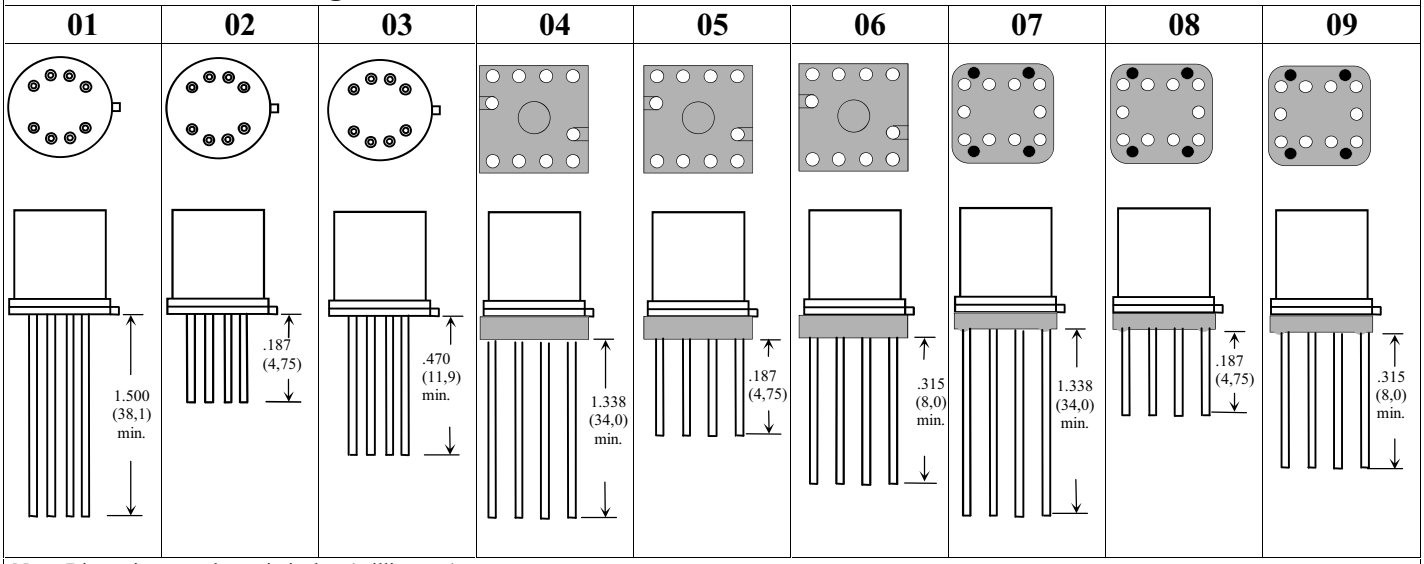
TO-5 CASE RELAY
DPDT

Series MA2

Typical Characteristics

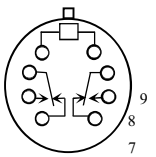
Coil Variant Code	Coil Voltage [Vdc]		Coil resistance [Ω]	Operated Voltage [Vdc] Max. at		Release Voltage Vdc			
						Non-release at		Must-release at	
	Rated	Max.	± 10% at 25 °C	25°C	125°C	25°C	125°C	25°C	- 65°C
01	5,0	5,8	50	2,7	3,5	1,4	2,3	0,22	0,14
02	6,0	8,0	98	3,5	4,5	2,0	3,2	0,28	0,18
03	9,0	12,0	220	5,3	6,8	3,0	4,9	0,54	0,35
04	12,0	16,0	390	7,0	9,0	4,0	6,5	0,63	0,41
05	18,0	24,0	880	10,5	13,5	6,0	10,0	0,91	0,59
06	26,5	32,0	1560	14,2	18,0	8,0	13,0	1,37	0,89
07	28,0	29,0	1560	15,0	21,0	7,0	8,0	1,2	1,0
08	30,0	36,0	2500	17,7	22,0	10,0	16,0	1,5	1,0

Terminal and Mounting Variants



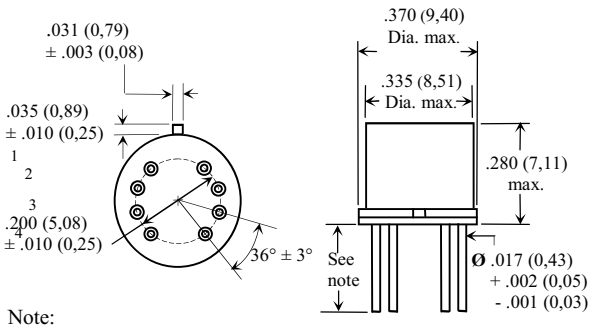
Note: Dimensions are shown in inches (millimetres)

Schematic Diagram



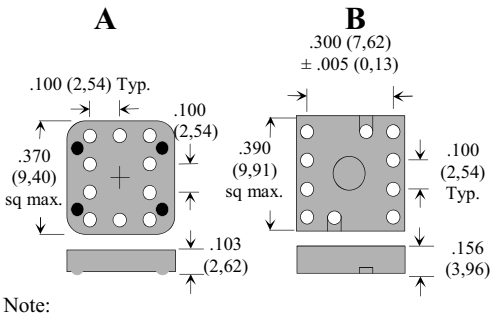
Note:
- Schematics are viewed from terminals.

Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)
- For terminations, see Terminal and Mounting Variants

Spreader Pads



Note:
- Spreader Pad type A: material 30% glass filled nylon
- Spreader Pad type B: material Diallyl Phthalate
- Dimensions are shown in inches (millimetres)

How to Order

CECC 16101 - 003 - 06 - 02

- CECC 16101 — CECC Specification No.
- 003 — Type Code (CECC registration No.)
- 06 — Coil Variant Code
- 02 — Terminal and Mounting Variant

TO-5 CASE RELAY SENSITIVE DPDT

Series MS2

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid improvements, to provide a most versatile element to the circuit designer.

The following construction features ensure the highest reliability in extreme environments:

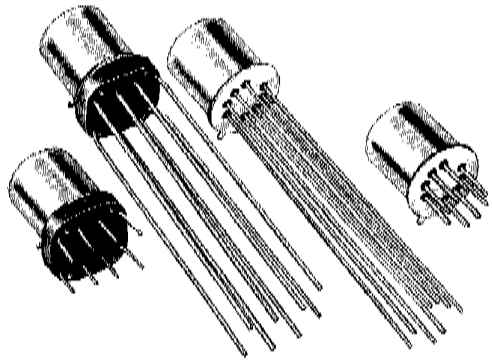
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Type

- **MS2** 2 form C, DPDT

CECC 16101 - 004



Environmental and Physical Specifications

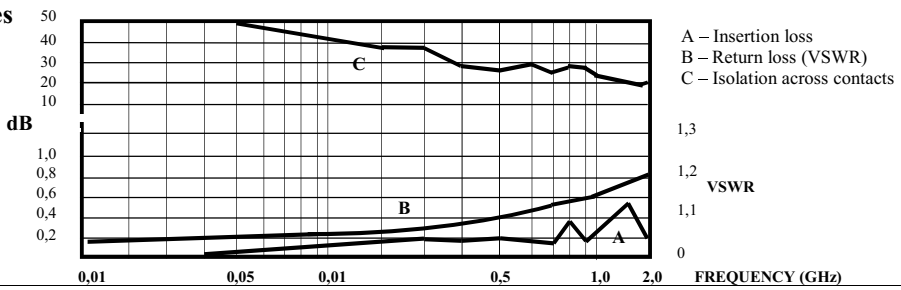
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 2000 Hz, 1,5 amplitude peak
Bump	40 g, 6 ms.
Sealing	All welded, Hermetic
Weight	0,12 oz. (3,50 grams) max.
Finish	Bright tin lead plated terminations and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level Resistive Resistive overload Inductive	10 mA / 30 mV 1 A / 28 Vdc 2 A / 28 Vdc 100 mA / 28 Vdc (320 mH)	1.000.000 100.000 100 100.000
Contact Resistance	0,1 Ω max. initial, 0,3 Ω max. after life		
Operate Time	4,5 ms. max.		
Release Time	2,5 ms. max.		
Contact Bounce	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level		
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



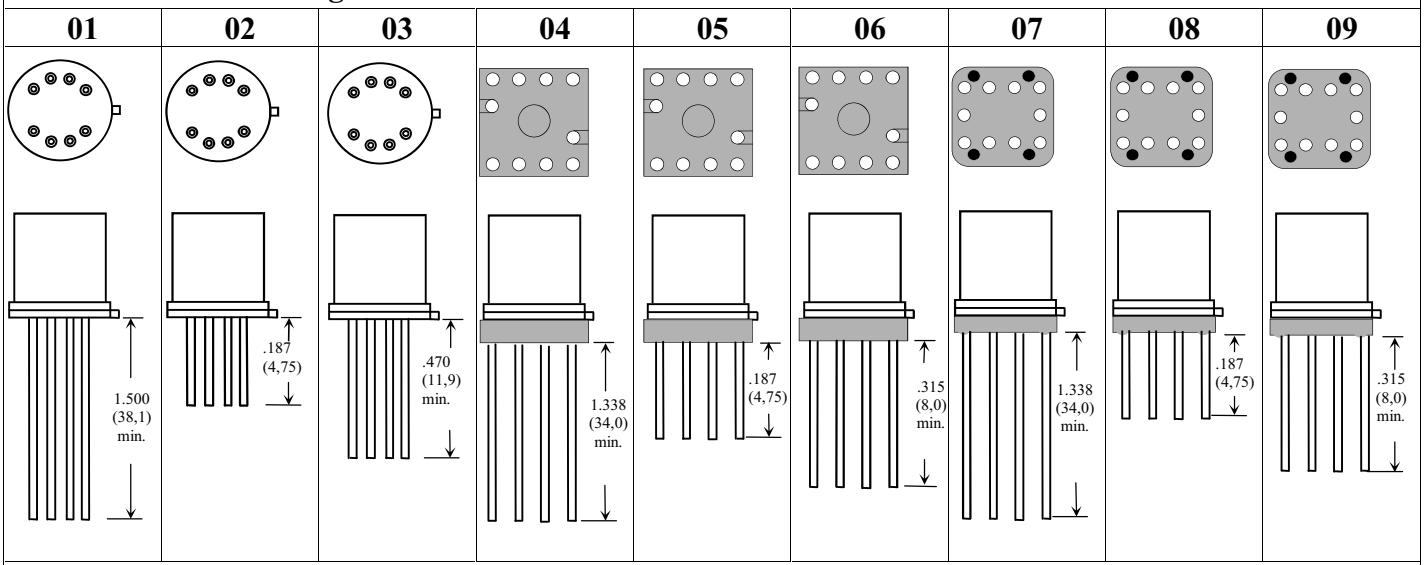
TO-5 CASE RELAY SENSITIVE DPDT

Series MS2

Typical Characteristics

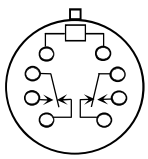
Coil Variant Code	Coil Voltage Vdc		Coil resistance Ω	Operated Voltage V dc Max. at		Release Voltage Vdc			
						Non-release at		Must-release at	
	Rated	Max.	± 10% at 25 °C	25°C	125°C	25°C	125°C	25°C	- 65°C
01	5,0	7,5	100	2,6	3,5	1,4	2,5	0,23	0,12
02	6,0	10,0	200	3,4	4,5	2,0	3,2	0,28	0,18
03	9,0	15,0	400	4,85	6,8	3,0	4,9	0,55	0,35
04	12,0	20,0	850	7,0	9,0	4,0	6,5	0,64	0,41
05	18,0	30,0	1600	9,8	13,5	6,0	10,0	0,92	0,59
06	26,5	40,0	3300	14,0	18,0	8,0	13,0	1,40	0,89
07	36,0	57,0	6500	20,0	27,0	10,0	19,0	1,80	1,25
08	48,0	75,0	11000	25,8	36,0	13,0	26,0	2,40	1,60

Terminal and Mounting Variants



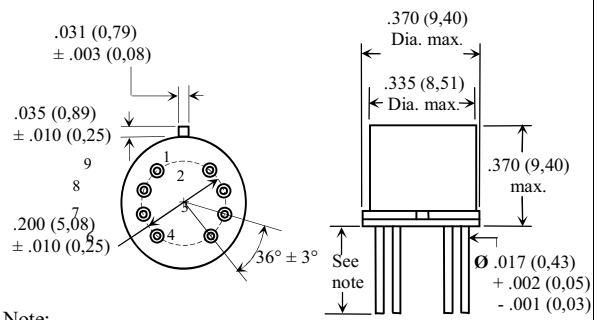
Note: Dimensions are shown in inches (millimetres)

Schematic Diagram



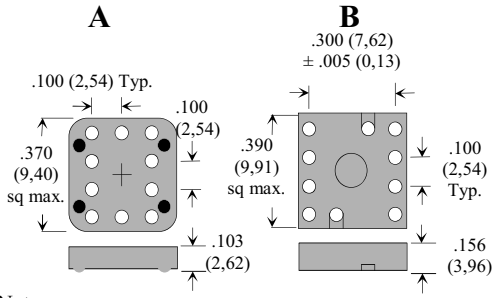
Note:
- Schematics are viewed from terminals.

Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)
- For terminations, see Terminal and Mounting Variants

Spreader Pads



Note:
- Spreader Pad type A: material 30% glass filled nylon
- Spreader Pad type B: material Diallyl Phthalate
- Dimensions are shown in inches (millimetres)

How to Order

CECC 16101 - 004 - 06 - 02

- CECC 16101 — CECC Specification No.
- 004 — Type Code (CECC registration No.)
- 06 — Coil Variant Code
- 02 — Terminal and Mounting Variant

TO-5 CASE RELAY
SPDT

Series 1MA1

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid improvements, to provide a most versatile element to the circuit designer.

The following construction features ensure the highest reliability in extreme environments:

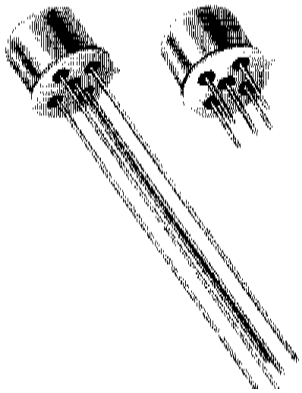
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 1 form C, SPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Type

- **1MA1** 1 form C, SPDT

CECC 16101 - 005



Environmental and Physical Specifications

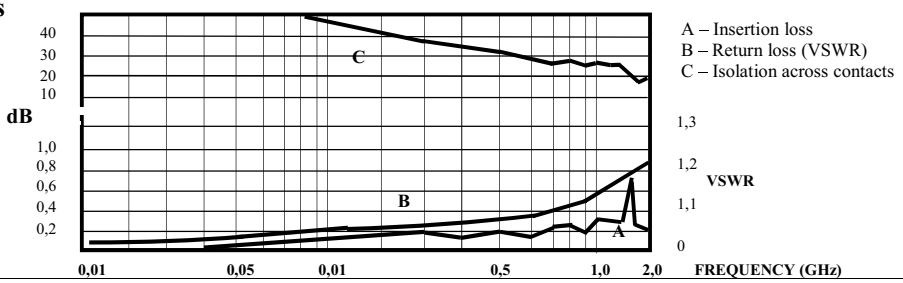
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 2000 Hz, 1,5 amplitude peak
Bump	40 g, 6 ms.
Sealing	All welded, Hermetic
Weight	0,11 oz. (3,00 grams) max.
Finish	Bright tin lead plated terminations and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level Resistive Resistive overload Inductive	10 mA / 30 mV 1 A / 28 Vdc 2 A / 28 Vdc 100 mA / 28 Vdc (320 mH)	1.000.000 100.000 100 100.000
Contact Resistance	0,1 Ω max. initial, 0,3 Ω max. after life		
Operate Time	2,5 ms. max.		
Release Time	2,0 ms. max.		
Contact Bounce	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level		
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	100 mW at pick-up, 400 mW at nominal rated coil voltage, at 25 °C		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
SPDT

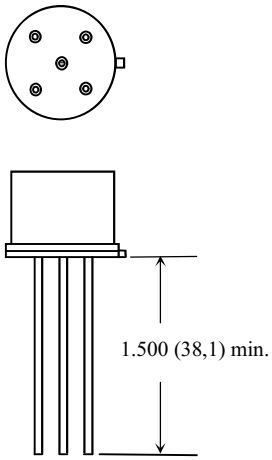
Series 1MA1

Typical Characteristics

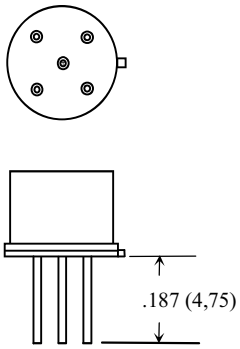
Coil Variant Code	Coil Voltage Vdc		Coil resistance Ω	Operated Voltage V dc Max. at		Release Voltage Vdc			
						Non-release at		Must-release at	
	Rated	Max.	± 10% at 25 °C	25°C	125°C	25°C	125°C	25°C	- 65°C
01	5,0	6,0	63	2,8	3,7	1,7	2,4	0,23	0,15
02	6,0	8,0	125	3,5	4,5	2,0	2,8	0,28	0,18
03	9,0	12,0	280	5,3	6,8	3,0	4,2	0,54	0,35
04	12,0	16,0	500	7,0	9,0	4,0	5,6	0,63	0,40
05	18,0	24,0	1130	10,5	13,5	6,0	8,4	0,91	0,58
06	26,5	32,0	2000	14,2	18,0	8,0	10,4	1,37	0,89

Terminal Variants

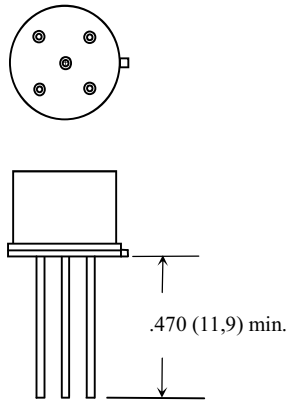
01



02

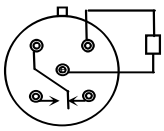


03



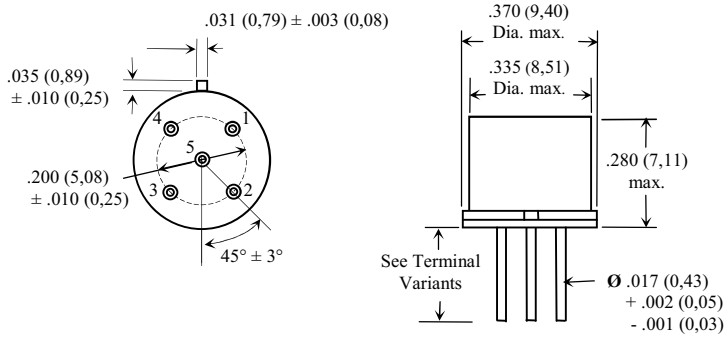
Note: Dimensions are shown in inches (millimetres)

Schematic Diagram



Note:
- Schematics are viewed from terminals

Outline Dimensions



Note:
-Dimensions are shown in inches (millimetres)

How to Order

CECC 16101 - 005 - 06 - 02

- CECC 16101 — CECC Specification No.
- 005 — Type Code (CECC registration No.)
- 06 — Coil Variant Code
- 02 — Terminal and Mounting Variant

TO-5 CASE RELAY SENSITIVE SPDT

Series 1MS1

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid improvements, to provide a most versatile element to the circuit designer.

The following construction features ensure the highest reliability in extreme environments:

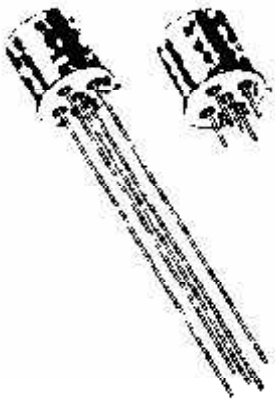
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 1 form C, SPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Type

- **1MS1** 1 form C, SPDT

CECC 16101 - 006



Environmental and Physical Specifications

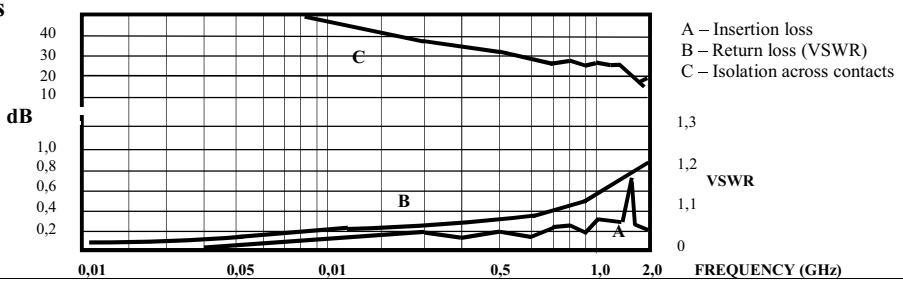
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 2000 Hz, 1,5 amplitude peak
Bump	40 g, 6 ms.
Sealing	All welded, Hermetic
Weight	0,12 oz. (3,50 grams) max.
Finish	Bright tin lead plated terminations and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level Resistive Resistive overload Inductive	10 mA / 30 mV 1 A / 28 Vdc 2 A / 28 Vdc 100 mA / 28 Vdc (320 mH)	1.000.000 100.000 100 100.000
Contact Resistance	0,1 Ω max. initial, 0,3 Ω max. after life		
Operate Time	4,5 ms. max.		
Release Time	3,0 ms. max.		
Contact Bounce	2,0 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level		
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	50 mW at pick-up, 200 mW at nominal rated coil voltage, at 25 °C		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY SENSITIVE SPDT

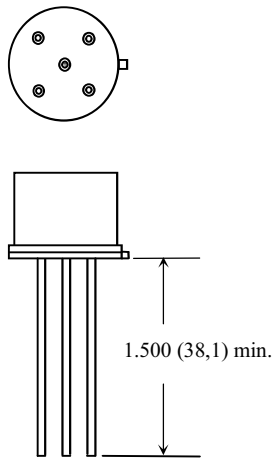
Series 1MS1

Typical Characteristics

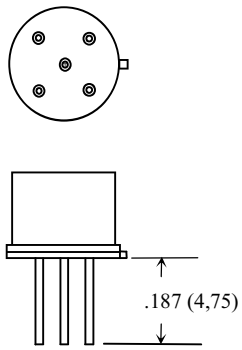
Coil Variant Code	Coil Voltage Vdc		Coil resistance Ω	Operated Voltage V dc Max. at		Release Voltage Vdc			
						Non-release at		Must-release at	
	Rated	Max.	± 10% at 25 °C	25°C	125°C	25°C	125°C	25°C	- 65°C
01	5,0	8,0	125	2,8	3,7	1,4	2,4	0,23	0,15
02	6,0	11,0	255	3,5	4,5	2,0	2,8	0,28	0,18
03	9,0	16,0	630	5,3	6,8	3,0	4,2	0,54	0,35
04	12,0	22,0	1025	7,0	9,0	4,0	5,6	0,63	0,40
05	18,0	33,0	2300	10,5	13,5	6,0	8,4	0,91	0,58
06	26,5	45,0	4000	14,2	18,0	8,0	10,4	1,37	0,89
07	32,0	57,0	6500	18,7	24,0	10,6	15,0	1,59	1,0
08	40,0	75,0	11000	23,3	30,0	13,3	18,7	2,0	1,3

Terminal Variants

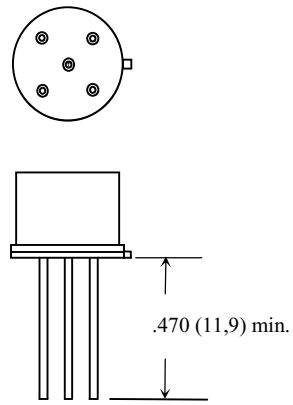
01



02

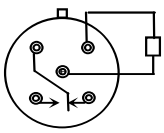


03



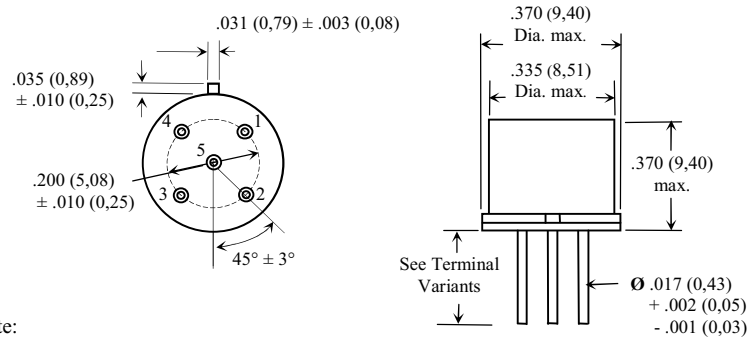
Note: Dimensions are shown in inches (millimetres)

Schematic Diagram



Note:
- Schematics are viewed from terminals

Outline Dimensions



Note:
-Dimensions are shown in inches (millimetres)

How to Order

CECC 16101 - 006 - 06 - 02

CECC Specification No.

Type Code (CECC registration No.)

Coil Variant Code

Terminal and Mounting Variant

100 GRID TERMINAL RELAY DPDT

• Basic • Suppression

Series MGA2

Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MA series TO-5 relays construction.

The following construction features ensure the highest reliability in extreme environments:

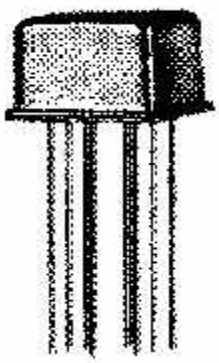
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types

- **MGA2** Basic Relay, 2 form C, DPDT
- **MGAD2** Basic Relay combined with an internal diode for coil transient suppression

CECC 16207 - 007



Environmental and Physical Specifications

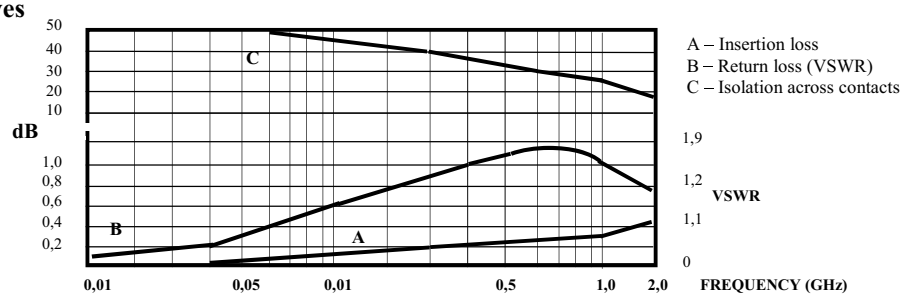
Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 3000 Hz, 2,5 amplitude peak
Vibration (random)	$0{,}2g^2$ / Hz, 20 to 2000 Hz
Bump	40 g, 6 ms., half sine wave
Sealing	All welded, Hermetic
Weight	0,09 oz. (2,55 grams) max.
Finish	Bright tin lead plated terminations and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	30 µA / 30 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	0,1 A / 28 Vdc	100.000
	Intermediate	0,1 A / 28 Vdc	50.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive overload	0,4 A / 28 Vdc (320 mH)	100
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	1,5 ms. max. Series: MGA2	4,0 ms. max. Series: MGAD2	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	250 Vrms min., 60 Hz, all points at 26.000 mt.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	140 mW at pick-up, 500 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MGAD2		
Negative Coil Transient	1,0 Vdc max. Series: MGAD2		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY
DPDT

• Basic • Suppression

Series MGA2

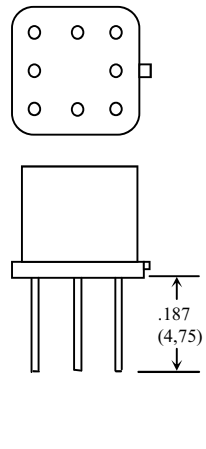
Typical Characteristics

Identification letter of the Coil	Coil Voltage Vdc		Coil resistance Ω	Must Operated Voltage Vdc		Release Voltage Vdc				Coil Transient Suppression Code No. *
						Max.		Min.		
	Rated	Max.	± 10% at 23°C	23°C	125°C	23°C	125°C	23°C	- 65°C	
A	5,0	5,8	50	2,7	3,5	1,4	2,3	0,22	0,14	1
B	6,0	8,0	98	3,5	4,5	2,0	3,2	0,28	0,18	1
C	9,0	12,0	220	5,3	6,8	3,0	4,9	0,54	0,35	1
D	12,0	16,0	390	7,0	9,0	4,0	6,5	0,63	0,41	1
E	18,0	24,0	880	10,5	13,5	6,0	10,0	0,91	0,59	1
G	28,0	29,0	1560	14,2	18,0	8,0	13,0	1,37	0,89	1

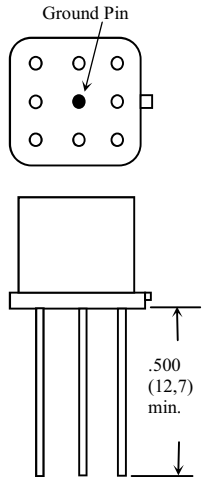
Note: - * Without the Coil Transient Suppression Diode, the Code Number is 0

Terminal and Mounting Variants

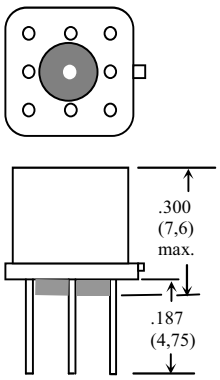
2 O



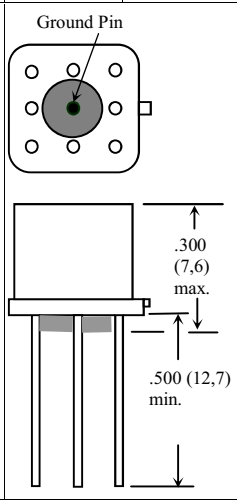
4 O **4 J***



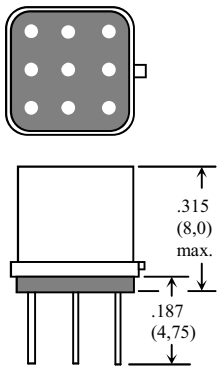
2 P



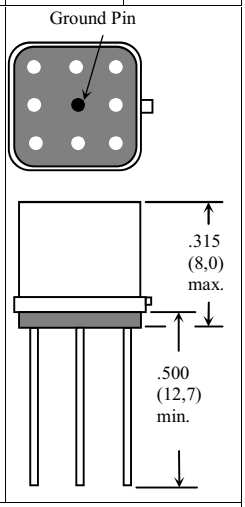
4 P **4 K***



2 T

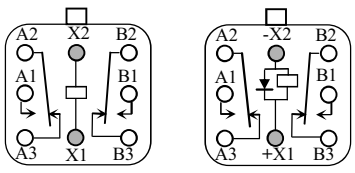


4 T **4 L***



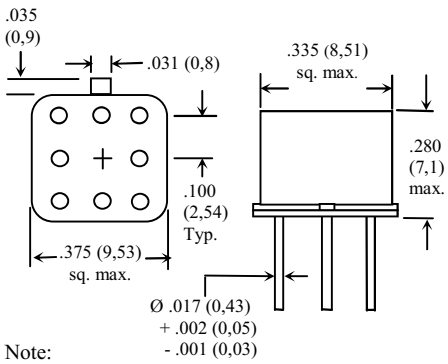
Note: Dimensions are shown in inches (millimetres)
* - Relay with ground Pin

Schematic Diagrams



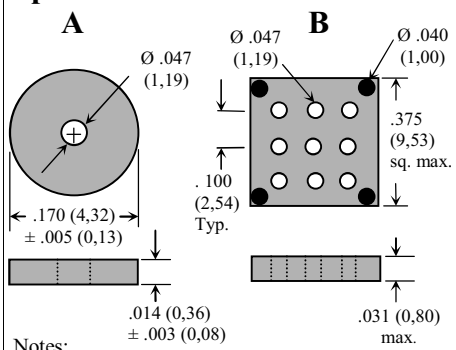
Note:
- Schematics are viewed from terminals
- Diagram references are not marked on the relay

Outline Dimensions



Note:
Dimensions are shown in inches (millimetres)

Spacer Pads



Notes:
- Spacer Pad type A: material Polyester
- Spacer Pad type B: Diallyl Phthalate
- Dimensions are shown in inches (millimetres)

How to Order

CECC 16207 - 007 Y A 2 P 1

CECC Specification No.	
Type Code (CECC registration No.)	
Assessment Level	
Coil Variant Code (Identification letter, see table)	
	Coil transient suppression
	Mounting Variant
	Terminal Variant

100 GRID TERMINAL RELAY SENSITIVE DPDT

• Basic • Suppression

Series MGS2

Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MA series TO-5 relays construction.

The following construction features ensure the highest reliability in extreme environments:

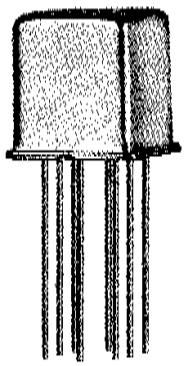
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types

- **MGS2** Basic Relay, 2 form C, DPDT
- **MGSD2** Basic Relay combined with an internal diode for coil transient suppression

CECC 16207 - 008



Environmental and Physical Specifications

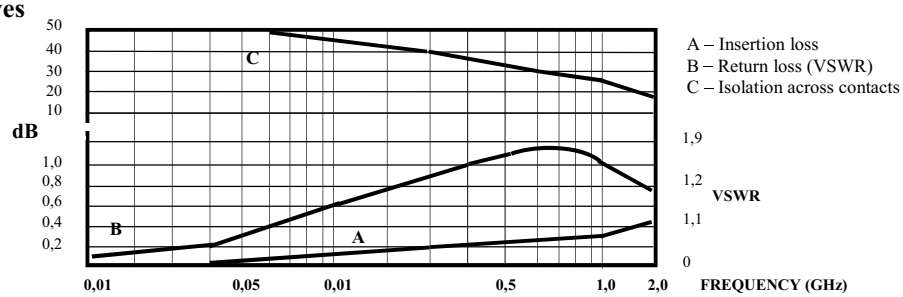
Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 3000 Hz, 2,5 amplitude peak
Vibration (random)	$0{,}2g^2$ / Hz, 20 to 2000 Hz
Bump	40 g, 6 ms., half sine wave
Sealing	All welded, Hermetic
Weight	0,15 oz. (4,30 grams) max.
Finish	Bright tin lead plated terminations and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	30 µA / 30 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	0,1 A / 28 Vdc	100.000
	Intermediate	0,1 A / 28 Vdc	50.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive overload	0,4 A / 28 Vdc (320 mH)	100
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max.		
Release Time	2,5 ms. max. Series: MGS2	7,5 ms. max. Series: MGSD2	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	250 Vrms min., 60 Hz, all points at 26.000 mt.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MGSD2		
Negative Coil Transient	1,0 Vdc max. Series: MGSD2		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY
SENSITIVE DPDT

• Basic • Suppression

Series MGS2

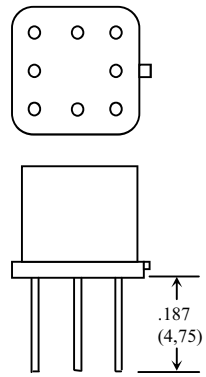
Typical Characteristics

Identification letter of the Coil	Coil Voltage Vdc		Coil resistance Ω	Must Operated Voltage Vdc		Release Voltage Vdc				Coil Transient Suppression Code No. *
						Max.		Min.		
	Rated	Max.	± 10% at 23°C	23°C	125°C	23°C	125°C	23°C	- 65°C	
A	5,0	7,5	100	2,6	3,5	1,4	2,5	0,23	0,12	1
B	6,0	10,0	200	3,4	4,5	2,0	3,2	0,28	0,18	1
C	9,0	15,0	400	4,85	6,8	3,0	4,9	0,55	0,35	1
D	12,0	20,0	800	7,0	9,0	4,0	6,5	0,64	0,41	1
E	18,0	30,0	1600	9,8	13,5	6,0	10,0	0,92	0,59	1
G	28,0	40,0	3200	14,0	18,0	8,0	13,0	1,4	0,89	1
H	36,0	57,0	6500	20,0	27,0	10,0	19,0	1,8	1,25	1
K	48,0	75,0	11000	25,8	36,0	13,0	26,0	2,4	1,60	1

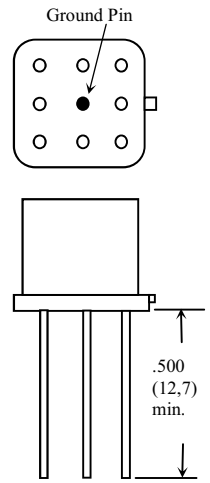
Note: - * Without the Coil Transient Suppression Diode, the Code Number is 0

Terminal and Mounting Variants

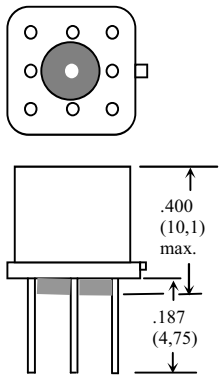
2 O



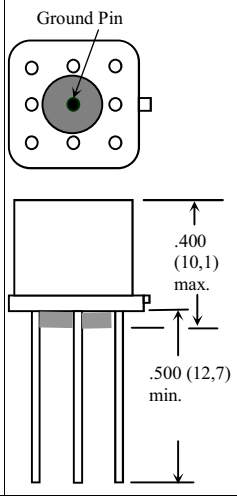
4 O **4 J***



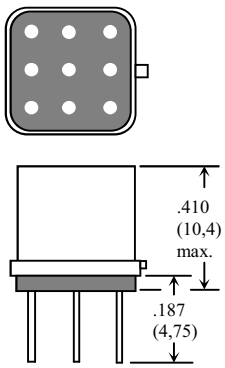
2 P



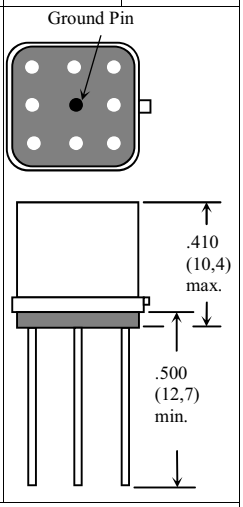
4 P **4 K***



2 T

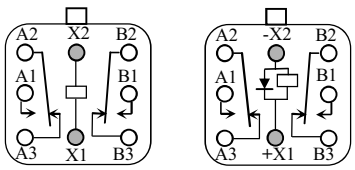


4 T **4 L***



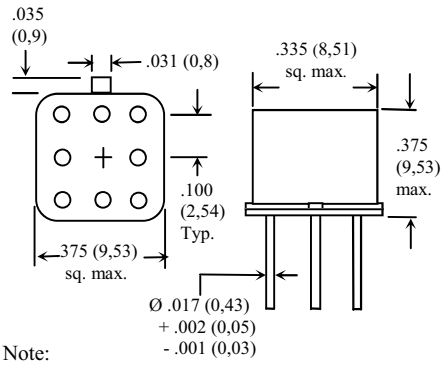
Note: Dimensions are shown in inches (millimetres)
* - Relay with ground Pin

Schematic Diagrams



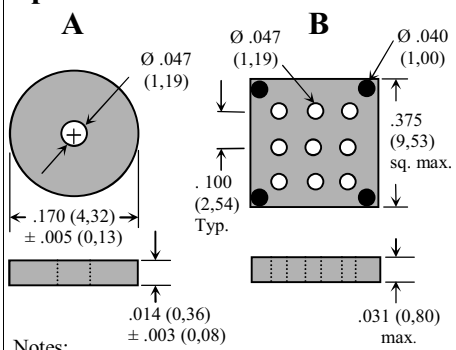
Note:
- Schematics are viewed from terminals
- Diagram references are not marked on the relay

Outline Dimensions



Note:
Dimensions are shown in inches (millimetres)

Spacer Pads



Notes:
- Spacer Pad type A: material Polyester
- Spacer Pad type B: Diallyl Phthalate
- Dimensions are shown in inches (millimetres)

How to Order

CECC 16207 - 008 Y A 2 P 1

- CECC Specification No.
- Type Code (CECC registration No.)
- Assessment Level
- Coil Variant Code (Identification letter, see table)
- Coil transient suppression
- Mounting Variant
- Terminal Variant

100 GRID TERMINAL RELAY
DPDT

• Basic • Suppression • Suppression/Steering

Series MGAE

Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MA series TO-5 relays construction and are provided for the operation in military and/or commercial equipment and/or installations with increased mechanical and environmental requirements.

The following construction features ensure the highest reliability in extreme environments:

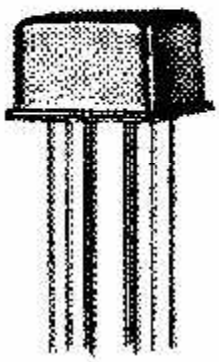
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types

- **MGAE** Basic Relay, 2 form C, DPDT
- **MGAED** Basic Relay combined with an internal diode for coil transient suppression
- **MGAEDD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection

CECC 16207 - 801



Environmental and Physical Specifications

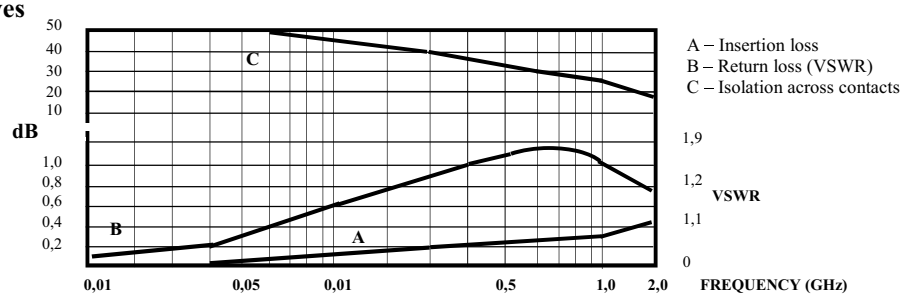
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 3000 Hz, 2,0 amplitude peak
Vibration (random)	$0{,}2g^2$ / Hz, 20 to 2000 Hz
Bump	40 g, 6 ms., half sine wave
Sealing	All welded, Hermetic
Weight	0,09 oz. (2,55 grams) max.
Finish	Case: bright tin lead plated Terminations: bright tin lead and gold plated

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 10 to 30 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	0,1 A / 28 Vdc	100.000
	Intermediate	0,1 A / 28 Vdc	50.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive overload	0,4 A / 28 Vdc (320 mH)	100
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	1,5 ms. max. Series: MGAE	4,0 ms. max. Series: MGAED, MGAEDD	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,5 ms. max.		
Dielectric Strength	500 Vrms min., 50÷60 Hz, all points at sea level	250 Vrms min., 50÷60 Hz, all points at 25.000 mt.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	140 mW at pick-up, 500 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MGAED, MGAEDD		
Negative Coil Transient	1,0 Vdc max. Series: MGAED, MGAEDD		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY
DPDT

• Basic • Suppression • Suppression/Steering

Series MGAE

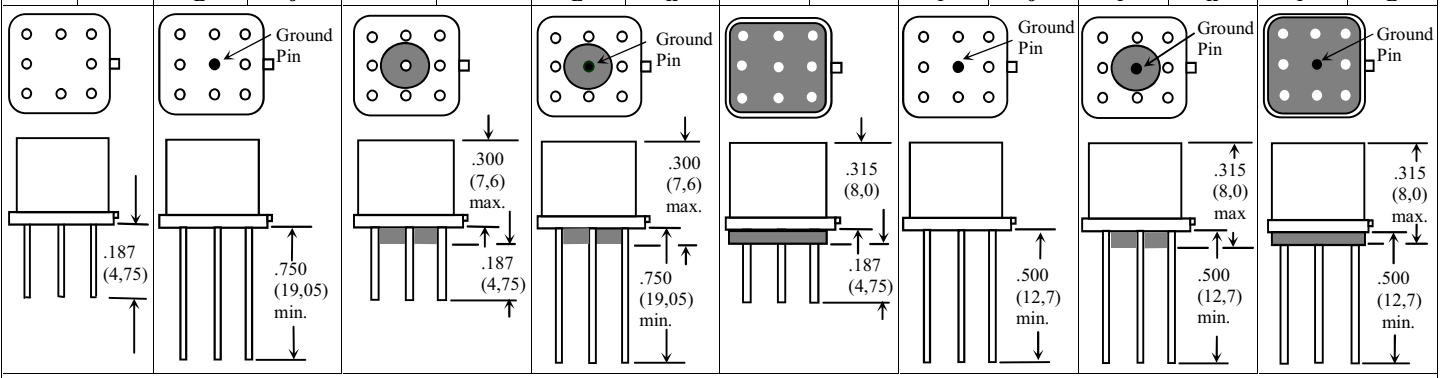
Typical Characteristics

Identification letter of the Coil	Coil Voltage Vdc		Coil resistance Ω	Must Operated Voltage Vdc		Release Voltage Vdc				Special Attributes Code No. (*)
						Max.		Min.		
	Rated	Max.	± 10% at 23°C	23°C	125°C	23°C	125°C	23°C	- 65°C	
A	5,0	5,8	50	2,7	3,5	1,4	2,3	0,22	0,14	0 or 1
B	6,0	8,0	98	3,5	4,5	2,0	3,2	0,28	0,18	0 or 1
C	9,0	12,0	220	5,3	6,8	3,0	4,9	0,54	0,35	0 or 1
D	12,0	16,0	390	7,0	9,0	4,0	6,5	0,63	0,41	0 or 1
E	18,0	24,0	880	10,5	13,5	6,0	10,0	0,91	0,59	0 or 1
G	28,0	32,0	1560	14,2	18,0	8,0	13,0	1,37	0,89	0 or 1
A	5,0	5,8	39	3,2	4,0	2,3	2,8	0,6	0,6	2
B	6,0	8,0	78	4,0	5,0	2,8	3,4	0,7	0,7	2
C	9,0	12,0	220	6,3	7,8	4,2	5,3	0,9	0,8	2
D	12,0	16,0	390	8,0	10,0	5,2	6,5	1,1	0,9	2
E	18,0	24,0	880	11,5	14,5	7,3	10,0	1,4	1,1	2
G	28,0	32,0	1560	15,2	19,0	9,5	13,0	1,8	1,4	2

Note: *Without transient suppression, code "0", with transient suppression, code "1", with transient suppression and reverse polarity protection, code "2"

Terminal (T) and Mounting (M) Variants

T	M	T	M	T	M	T	M	T	M	T	M	T	M	T	M
B	*A*	Without ground pin		*B*	*P*	Without ground pin		*B*	*T*	Without ground pin					
		D	*A*			*D*	*P*			*O*	*A*	*O*	*P*	*O*	*T*
		E	*A*			*E*	*P*			*P*	*A*	*P*	*P*	*P*	*T*
C	*A*	With ground pin		*C*	*P*	With ground pin		*C*	*T*	With ground pin					
		D	*J*			*D*	*K*			*O*	*J*	*O*	*K*	*O*	*L*
		E	*J*			*E*	*K*			*P*	*J*	*P*	*K*	*P*	*L*

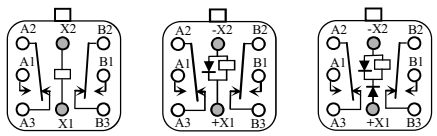


Note: Dimensions are shown in inches (millimetres)

CODE	TERMINAL
B	Pins, tinned
C	Pins, gold plated
D	Leads 19,05 mm, tinned
E	Leads 19,05 mm, gold plated
O	Leads 12,7 mm, tinned
P	Leads 12,7 mm, gold plated

CODE	MOUNTING VARIANT
J	Ground pin
K	Ground pin with mounting pad round 0,36 mm
L	Ground pin with pad grid 2,54 mm, H = 0,8 mm
A	Without mounting hardware accessories
P	Mounting pad round, H = 0,36 mm
T	Pad grid 2,54 mm, H = 0,8 mm

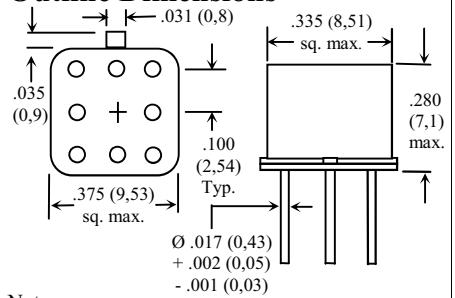
Schematic Diagrams



Basic | Suppression | Suppression/ Steering

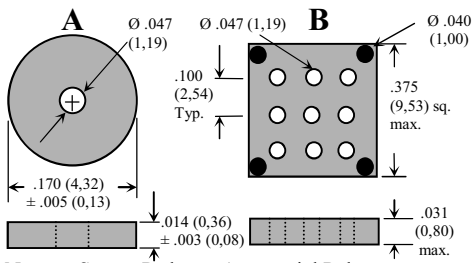
Notes:
- Schematics are viewed from terminals
- Diagram references are not marked on the relay

Outline Dimensions



Note:
Dimensions are shown in inches (millimetres)

Spacer Pads



Notes: - Spacer Pad type A: material Polyester
- Spacer Pad type B: Diallyl Phthalate
- Dimensions are shown in inches (millimetres)

Failure rate level	
Code	*Failures per 1 million cycles*
E3	**3**
E5	**1**
E6	**0,1**
E7	**0,01**

How to Order

CECC 16207- 801 A B P 1 Y E5

- CECC number
- Type Code (CECC registration No.)
- Coil Voltage (Identification letter)
- Terminals (Identification letter)
- Mounting (Identification letter)
- Special attributes (Identification No. code)
- Assessment level
- Failure rate level (Identification code)

100 GRID TERMINAL RELAY SENSITIVE DPDT

• Basic • Suppression • Suppression/Steering

Series MGSE

Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MA series TO-5 relays construction and are provided for the operation in military and/or commercial equipment and/or installations with increased mechanical and environmental requirements.

The following construction features ensure the highest reliability in extreme environments:

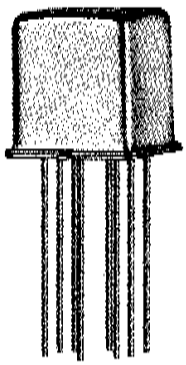
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types

- **MGSE** Basic Relay, 2 form C, DPDT
- **MGSED** Basic Relay combined with an internal diode for coil transient suppression
- **MGSEDD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection

CECC 16207 - 802



Environmental and Physical Specifications

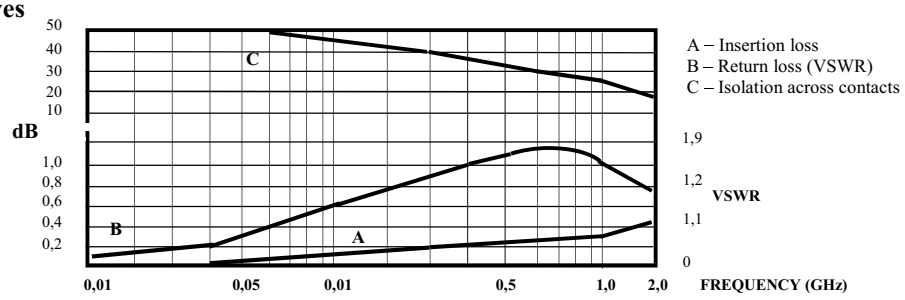
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms., half sine wave
Vibration (sinusoidal)	30 g, 10 to 3000 Hz, 2,0 amplitude peak
Vibration (random)	$0{,}2g^2$ / Hz, 20 to 2000 Hz
Bump	40 g, 6 ms., half sine wave
Sealing	All welded, Hermetic
Weight	0,15 oz. (4,30 grams) max.
Finish	Case: bright tin lead plated Terminations: bright tin lead and gold plated

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 10 to 30 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	0,1 A / 28 Vdc	100.000
	Intermediate	0,1 A / 28 Vdc	50.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive overload	0,4 A / 28 Vdc (320 mH)	100
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max.		
Release Time	2,5 ms. max. Series: MGSE	7,5 ms. max. Series: MGSED, MGSEDD	
Contact Bounce	1,5 ms. max.		
Contact Stabilisation Time	2,5 ms. max.		
Dielectric Strength	500 Vrms min., 50÷60 Hz, all points at sea level	250 Vrms min., 50÷60 Hz, all points at 25.000 mt.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MGSED, MGSEDD		
Negative Coil Transient	1,0 Vdc max. Series: MGSED, MGSEDD		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY
SENSITIVE DPDT

Series MGSE

• Basic • Suppression • Suppression/Steering

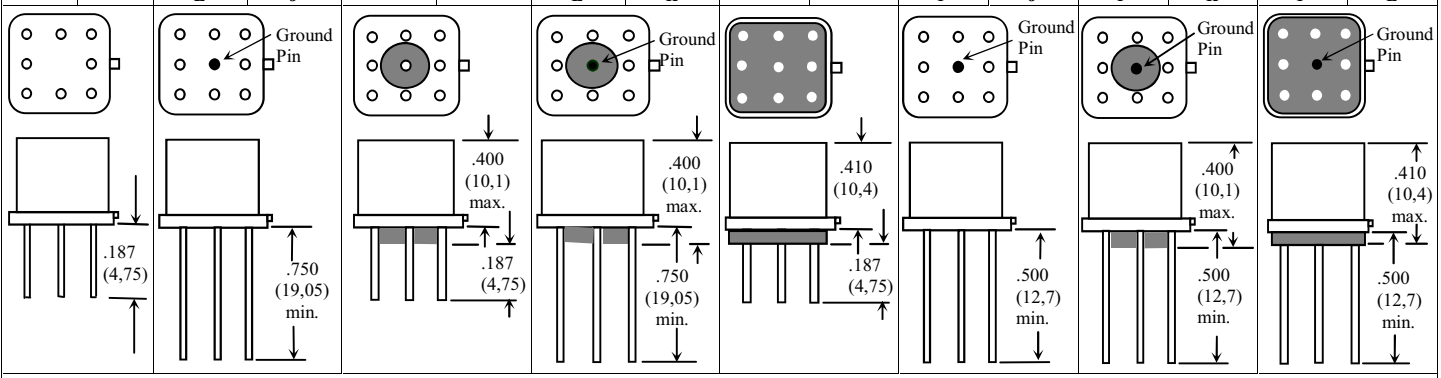
Typical Characteristics

Identification letter of the Coil	Coil Voltage [Vdc]		Coil resistance [Ω]	Must Operated Voltage [Vdc]		Release Voltage [Vdc]				Special Attributes Code No. (*)
						Max.		Min.		
	Rated	Max.	± 10% at 23°C	23°C	125°C	23°C	125°C	23°C	- 65°C	
A	5,0	7,5	100	2,7	3,5	1,4	2,5	0,22	0,12	0 or 1
B	6,0	10	200	3,5	4,5	2,0	3,2	0,28	0,18	0 or 1
C	9,0	15	400	5,0	6,8	3,0	4,9	0,54	0,35	0 or 1
D	12,0	20	800	7,0	9,0	4,0	6,5	0,63	0,41	0 or 1
E	18,0	30	1600	10,0	13,5	6,0	10,0	0,91	0,59	0 or 1
G	28,0	40	3200	14,2	18,0	8,0	13,0	1,4	0,89	0 or 1
A	5,0	7	64	3,0	4,0	2,3	2,8	0,8	0,6	2
B	6,0	10	125	4,0	5,0	2,5	3,0	0,9	0,7	2
C	9,0	15	400	6,1	8,0	4,0	4,5	1,0	0,8	2
D	12,0	20	800	8,0	11,0	5,0	5,8	1,3	1,0	2
E	18,0	30	1600	11,5	14,5	7,0	9,0	1,4	1,1	2
G	28,0	40	3200	15,2	19,0	10,5	13,0	1,8	1,4	2

Note: *Without transient suppression, code "0", with transient suppression, code "1", with transient suppression and reverse polarity protection, code "2"

Terminal (T) and Mounting (M) Variants

T	M	T	M	T	M	T	M	T	M	T	M	T	M	T	M
B	*A*	Without ground pin		*B*	*P*	Without ground pin		*B*	*T*	Without ground pin					
		D	*A*			*D*	*P*			*O*	*A*	*O*	*P*	*O*	*T*
		E	*A*			*E*	*P*			*P*	*A*	*P*	*P*	*P*	*T*
C	*A*	With ground pin		*C*	*P*	With ground pin		*C*	*T*	With ground pin					
		D	*J*			*D*	*K*			*O*	*J*	*O*	*K*	*O*	*L*
		E	*J*			*E*	*K*			*P*	*J*	*P*	*K*	*P*	*L*

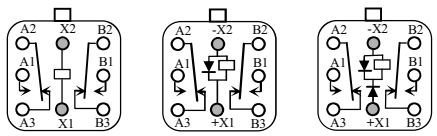


Note: Dimensions are shown in inches (millimetres)

CODE	TERMINAL
B	Pins, tinned
C	Pins, gold plated
D	Leads 19,05 mm, tinned
E	Leads 19,05 mm, gold plated
O	Leads 12,7 mm, tinned
P	Leads 12,7 mm, gold plated

CODE	MOUNTING VARIANT
J	Ground pin
K	Ground pin with mounting pad round 0,36 mm
L	Ground pin with pad grid 2,54 mm, H = 0,8 mm
A	Without mounting hardware accessories
P	Mounting pad round, H = 0,36 mm
T	Pad grid 2,54 mm, H = 0,8 mm

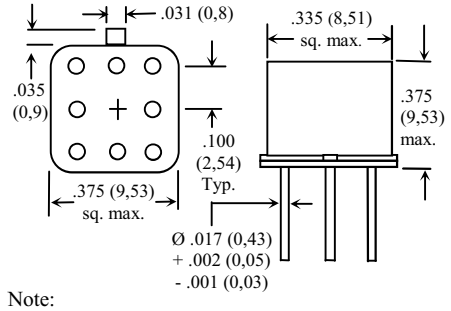
Schematic Diagrams



Basic | Suppression | Suppression/ Steering

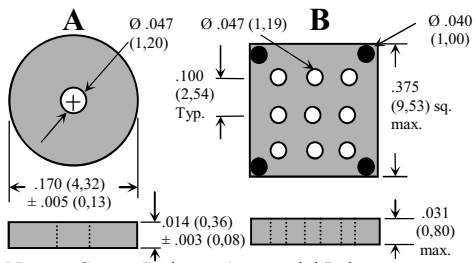
Notes:
- Schematics are viewed from terminals
- Diagram references are not marked on the relay

Outline Dimensions



Note:
Dimensions are shown in inches (millimetres)

Spacer Pads



Notes: - Spacer Pad type A: material Polyester
- Spacer Pad type B: Diallyl Phthalate
- Dimensions are shown in inches (millimetres)

Failure rate level	
Code	*Failures per 1 million cycles*
E3	**3**
E5	**1**
E6	**0,1**
E7	**0,01**

How to Order

CECC 16207- 802 A B P 1 Y E5

- CECC number
- Type Code (CECC registration No.)
- Coil Voltage (Identification letter)
- Terminals (Identification letter)
- Mounting (Identification letter)
- Special attributes (Identification No. code)
- Assessment level
- Failure rate level (Identification code)

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

Series 2K-6600

Product Description

A complete series of half crystal can hermetically sealed relays manufactured and qualified to the referenced CECC specifications. The leading relay design in military and commercial application is represented in Hi-G Italia 2K-6600 series relay. The product advanced design provides superior performance in the environmental and operational requirements of today's sophisticated equipment. Volume production coupled with continuing qualification programs, ensure product consistency and the highest degree of reliability.
The following construction features ensure the highest reliability in extreme environments:

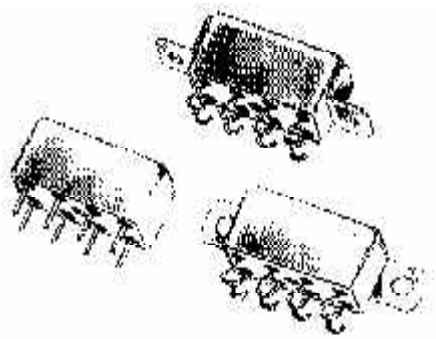
- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional immunity to shock and vibration.

Series Type

- **2K-6600** 2 form C, DPDT

Contact Category		
Code	**Light Duty Contact**	**Types**
01	0,01 mA, 5 Vdc max.	007, 014, 021
02	0,01 mA, 0,01 Vdc max.	021

CECC 16101 – 007 **(SEE NOTE *)**
16101 – 014
16101 – 021



Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	50 g, 11 ms., half sine wave
Vibration (sinusoidal)	20 g, 10 to 2000 Hz, 1,5 amplitude peak
Bump	40 g, 6 ms.
Sealing	All welded, Hermetic
Weight	0,46 oz. (13,0 grams) max.
Finish	Bright tin lead plated terminals and case

* NOTE:	- 007	ITALIAN FACTORY SPECIFICATION
	- 014	GERMAN / FRENCH FACTORY SPECIFICATION
	- 021	UK FACTORY SPECIFICATION
A part from the range and a few environmental tests, all specs. are identical. Nuova Hi-G Italia is the only company qualified to each / all country specs.		

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max. at 25°C		
Release Time	4,0 ms. max. at 25°C		
Contact Bounce	2,5 ms. max. at 25°C. Series: 007, 014	3,0 msec. max. at 25°C. Series: 021	
Dielectric Strength	500 Vrms min., 60 Hz, all points, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF typical		
Sensitivity	250 mW at pick-up, 1,0 W max., at nominal rated coil voltage, at 25 °C		

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

Series 2K-6600

Typical Characteristics

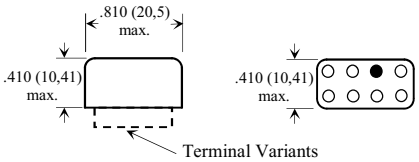
CECC Spec.	Coil Variant Code	Coil Voltage Vdc		Coil resistance Ω	Operated Voltage Vdc Max. at		Release Voltage Vdc			
							Non-release at		Must-release at	
		Rated	Max.	± 10% at 25 °C	25°C	125°C	25°C	125°C	25°C	- 65°C
007	01	5,0	6,0	27	2,7	3,8	1,65	2,4	0,29	0,21
	02	6,0	7,0	37	-	5,0	-	2,5	-	0,40
	03		7,5	40	3,2	4,5	2,0	2,9	0,35	0,25
	04		7,2	40	3,6	-	-	-	0,30	-
	05			42	3,6	-	-	-	0,30	-
	06		7,0	47,5 (±15%)	-	5,0	-	2,5	-	0,40
	07		7,2	60	3,6	-	-	-	0,30	-
	08	12,0	14,0	120	7,2	-	3,6	-	1,2	-
	09		14,4	150	6,5	-	-	-	0,75	-
	10			150	7,2	-	-	-	0,60	-
	11		14,0	150	-	10,0	-	5,0	-	0,8
	12		15,0	160	6,4	9,0	4,0	5,8	0,70	0,50
	13		14,0	190 (±15%)	-	10,0	-	5,0	-	0,8
	14		14,4	210	7,2	-	-	-	0,6	-
	15			320	7,2	-	-	-	0,6	-
	16	26,5	32,0	675	13,5	-	-	-	1,5	-
	17		30,0	700	-	22,0	-	12,0	-	1,5
	18		32,0	700	13,5	18,0	8,0	14,0	1,5	1,0
	19		30,0	935 (±15%)	-	22,0	-	12,0	-	1,5
	20	28,0	29,0	700	-	21,0	-	8,0	-	1,0
	21			935 (±15%)	-	21,0	-	8,0	-	1,0
	22	48,0	62,0	2500	25,0	-	-	-	2,5	-
	23		57,6	2500	28,8	-	-	-	2,4	-
	24		55,0	2600 (±15%)	-	40,0	-	20,0	-	2,5
	25		57,6	2800	28,8	-	-	-	2,4	-
	26			3500	28,8	-	-	-	2,4	-
	27	24,0	32,0	675	14,4	-	-	-	1,2	-
	28			830	14,4	-	-	-	1,2	-
	29			1250	14,4	-	-	-	1,2	-
	30			700	14,4	-	-	-	1,2	-
	31	5,0	-	40	3,0	-	-	-	0,25	-
	32	20,0	24,0	700	12,0	-	-	-	1,0	-
	33	6,0	7,2	40	3,3	-	-	-	0,35	-
014	01	5,0	6,0	27	2,7	3,8	1,65	2,4	0,29	0,21
	02	6,0	7,5	37	3,2	4,5	2	2,9	0,35	0,25
	06			47,5	3,5	4,5	2	2,9	0,35	0,25
	11	12,0	15	150	6,4	9	4	5,8	0,7	0,5
	13			190	7,0	9	4	5,8	0,7	0,5
	17	26,5	32	700	13,5	18	8	12	1,5	1
	19			935	14,5	19	8	12	1,5	1
	20	28,0		700	13,5	18	8	12	1,5	1
	21			935	14,5	19	8	12	1,5	1
	24	48,0	55	2600	28	36	16	23	2,8	2
021	01	6,0	7,2	40	3,6	-	-	-	0,3	-
	02			42	3,6	-	-	-	0,3	-
	03			60	3,6	-	-	-	0,3	-
	04	12,0	14,4	150	7,2	-	-	-	0,6	-
	05			210	7,2	-	-	-	0,6	-
	06			320	7,2	-	-	-	0,6	-
	07	24,0	32,0	675	14,4	-	-	-	1,2	-
	08			830	14,4	-	-	-	1,2	-
	09			1250	14,4	-	-	-	1,2	-
	10	48,0	57,6	2500	28,8	-	-	-	2,4	-
	11			2800	28,8	-	-	-	2,4	-
	12			3500	28,8	-	-	-	2,4	-
	13	5,0	6,0	40	3,0	-	-	-	0,25	-
	14	24,0	32,0	700	14,4	-	-	-	1,2	-
	15	20,0	24,0	700	10,6	-	-	-	1,0	-

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

Series 2K-6600

Mounting Variants (007)

01



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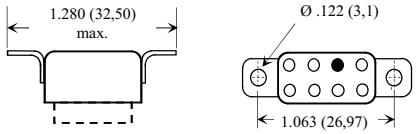

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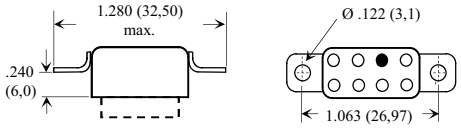

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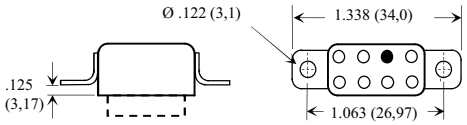

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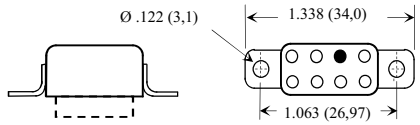

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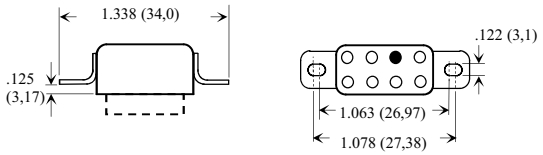

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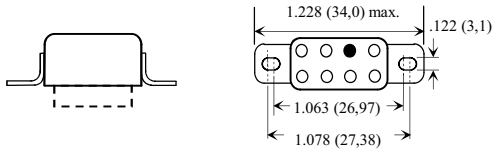

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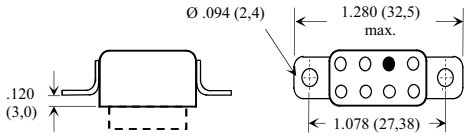

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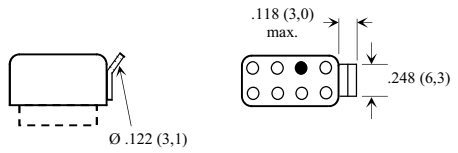
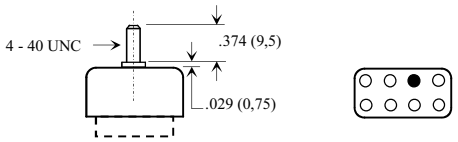


Mounting Variants (007)

10



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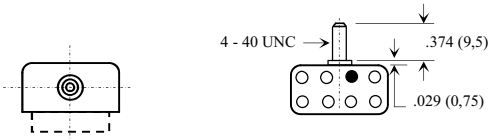

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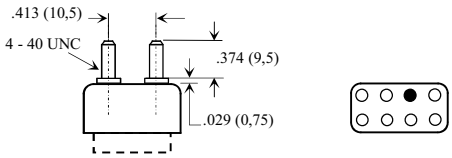

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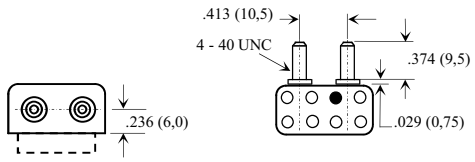

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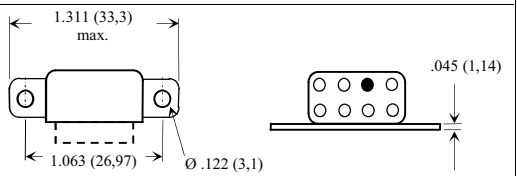

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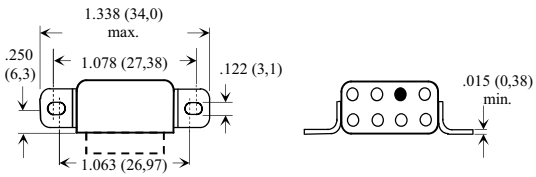

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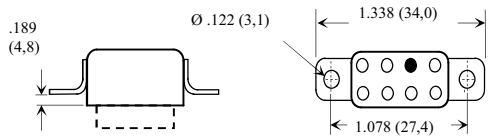

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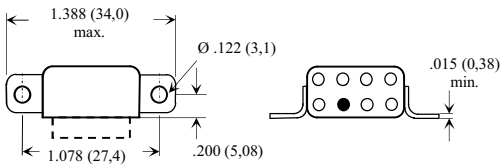


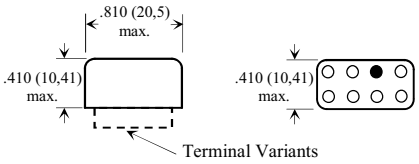
Note:
- Can dimensions shown in ref. 01, apply to all variants
- Dimensions are in inches (millimetres), tolerance ± 0,25 unless otherwise stated

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

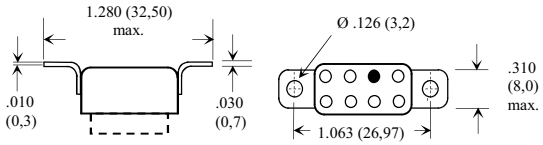
Series 2K-6600

Mounting Variants (014)

01



02



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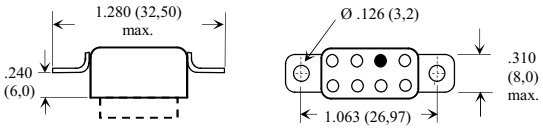

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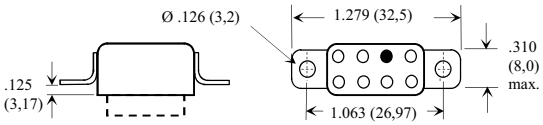

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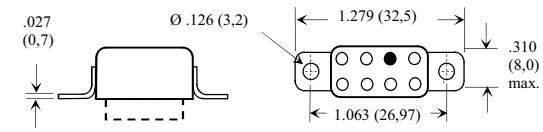

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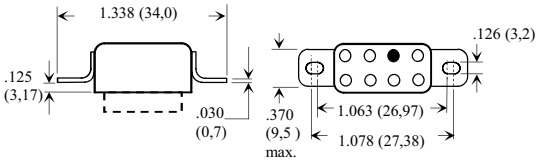
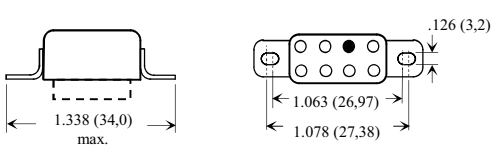


Mounting Variants (014)

07



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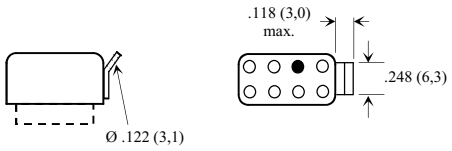

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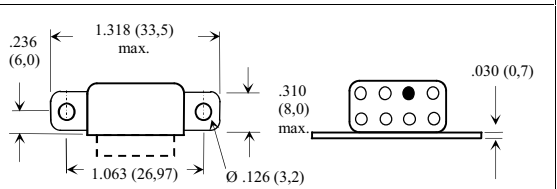

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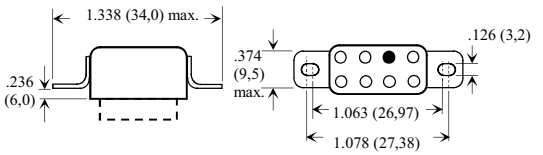

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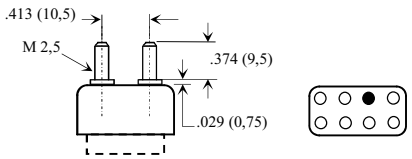

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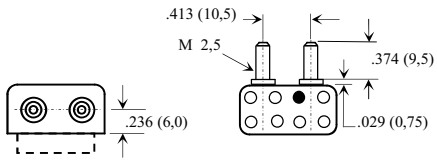

Mounting Variants (021)

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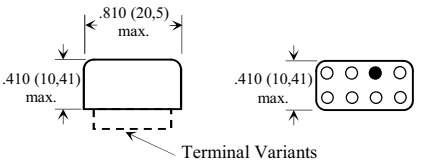

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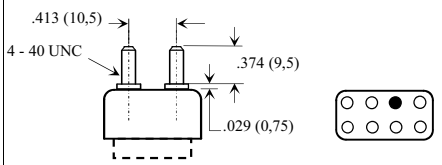

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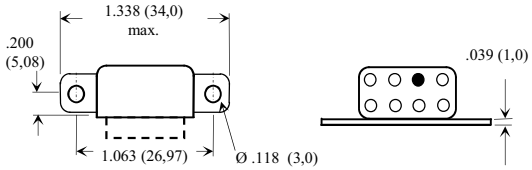
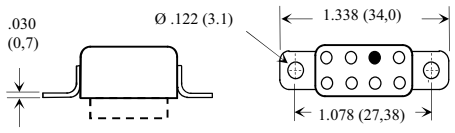
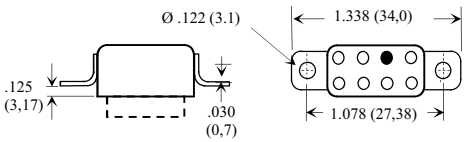


Mounting Variants (021)

04



05



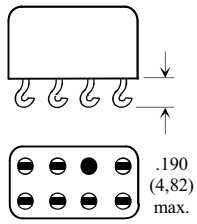
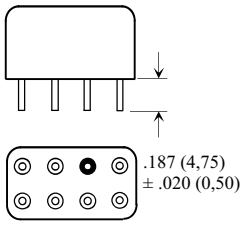
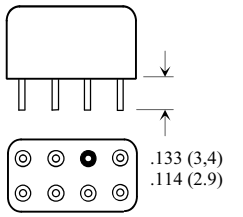
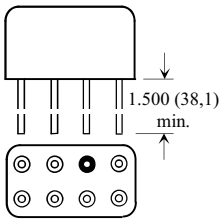
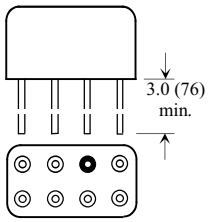
Note:

- Can dimensions shown in ref. 01, apply to all variants
- Dimensions are in inches (millimetres), tolerance ± 0,25 unless otherwise stated

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

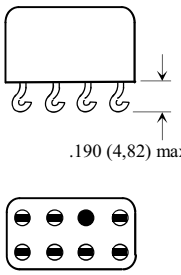
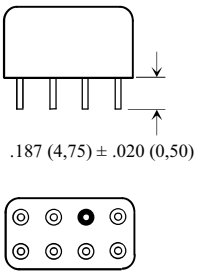
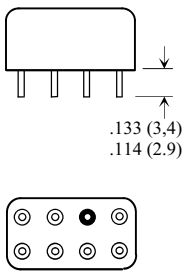
Series 2K-6600

Terminal Variants (007)

01	02	03	04	05
				

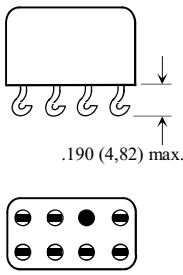
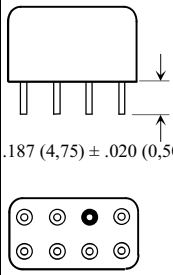
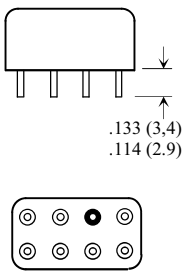
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,07) - .002 (0,05)

Terminal Variants (014)

01	02	03
		

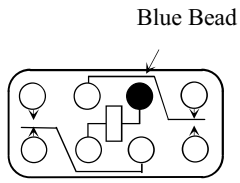
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08)
  Terminal diameter is .030 (0,76) + .003 (0,07) - .002 (0,05)

Terminal Variants (021)

11	12	13
		

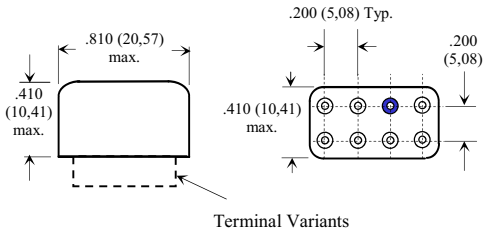
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08)
  Terminal diameter is .030 (0,76) + .003 (0,07) - .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

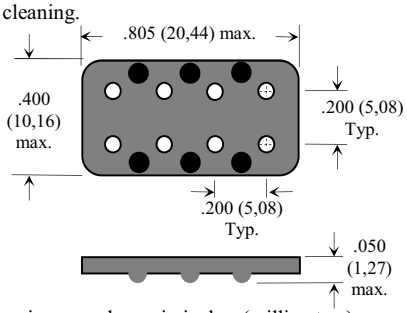
Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)

Spacer Pad

Relays can be supplied with a spacer pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning.



Note:
- Dimensions are shown in inches (millimetres)

How to Order

CECC 16101 - 021 - 01 - 15 - 04 - 12 P

CECC Specification No.	Spacer Pad (optional, only for 007 & 014)
Type Code (CECC registration No.)	Terminal Variant
Contact Code (applicable only for 021)	Mounting Variant
Coil Variant	

NOTE

FULL SIZE CRYSTAL CAN RELAY
3 AMPERE DPDT

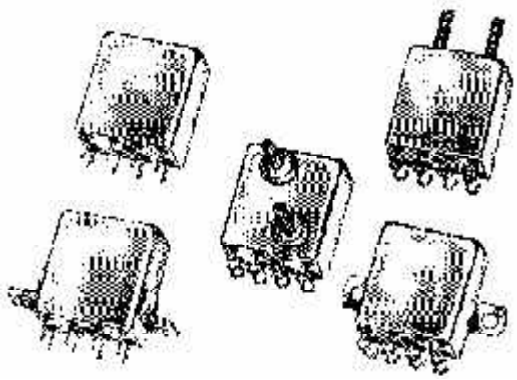
Series 2B-6660

Product Description

This standard size crystal can hermetically sealed relay series, offers switching capability of low level signals up to 3 amperes under the most extreme environmental conditions, manufactured and qualified to the referenced CECC specifications.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 3 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating

CECC 16101 – 008



Series Type

- **2B-6660** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	50 g, 11 ms., half sine wave
Vibration (sinusoidal)	20 g, 10 to 2000 Hz, 1,5 amplitude peak
Bump	40 g, 6 ms.
Sealing	All welded, Hermetic
Weight	0,70 oz. (20,0 grams) max.
Finish	Bright tin lead plated terminals and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	3 A / 28 Vdc	100.000
	Overload	6 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial, 0,2 Ω max. after life		
Operate Time	6,5 ms. max. at 25°C		
Release Time	3,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF typical		
Sensitivity	250 mW at pick-up, 1,2 W max., at nominal rated coil voltage, at 25 °C		

Typical Characteristics

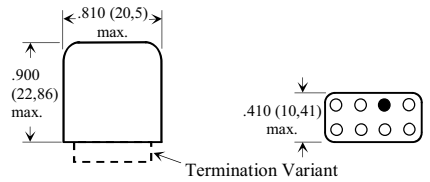
Coil Variant Code	Coil Voltage Vdc		Coil resistance Ω	Operate Voltage V dc Max. at		Release Voltage Vdc			
						Non-release at		Must-release at	
	Rated	Max.	± 10% at 25°C	25°C	125°C	25°C	125°C	25°C	-65°C
01	6,0	7,0	30	-	5,0	-	2,5	-	0,4
02		7,2	35	3,6	-	-	-	0,30	-
03		7,2	40	3,1	-	-	-	0,50	-
04		7,3	44	-	4,2	-	-	-	0,14
05	12,0	14,0	145	-	10,0	-	5,0	-	0,8
06		14,4	160	6,3	-	-	-	0,75	-
07		14,7	194	-	8,9	-	-	-	0,32
08		14,4	200	7,2	-	-	-	0,60	-
09	24,0	32,0	675	14,4	-	-	-	1,2	-
10	26,5	32,0	675	-	18,0	-	14,0	-	1,5
11		32,0	675	13,0	-	-	-	1,5	-
12		30,0	700	-	22,0	-	12,0	-	1,5
13	48,0	55,0	2300	-	40,0	-	20,0	-	2,9
14		57,6	2450	28,3	-	-	-	2,4	-
15		58,0	2500	25,0	-	-	-	2,5	-
16	76,0	90,0	5000	35,0	-	-	-	3,0	-

FULL SIZE CRYSTAL CAN RELAY
3 AMPERE DPDT

Series 2B-6660

Mounting Variants

01



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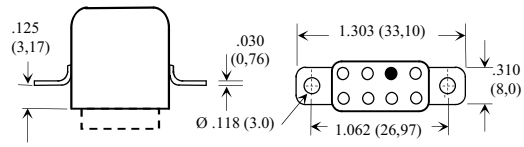

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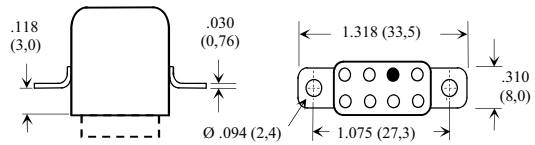

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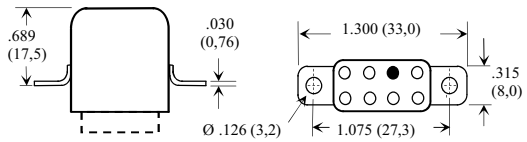

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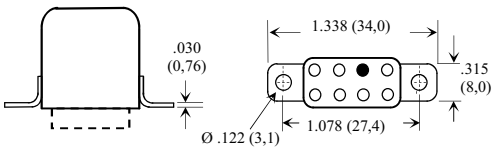

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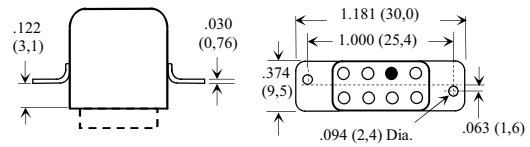

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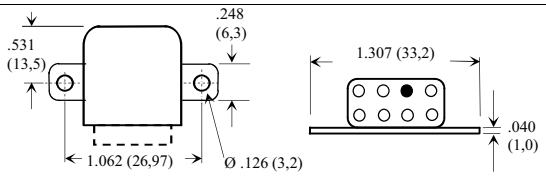

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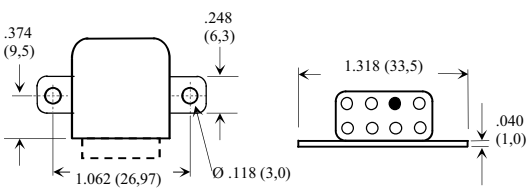

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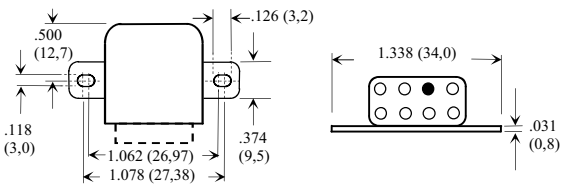
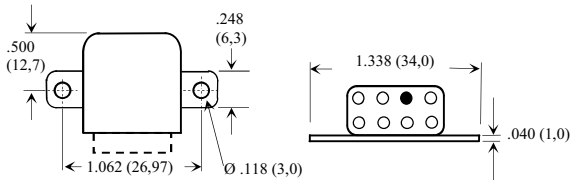


Mounting Variants

10



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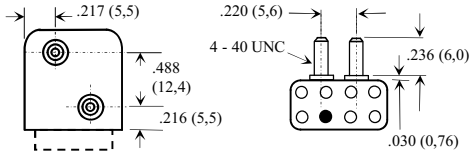

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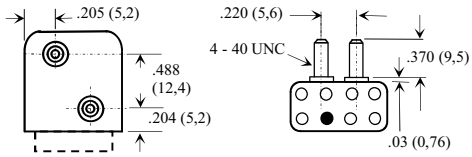

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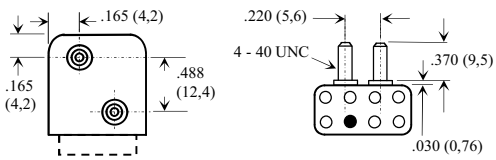

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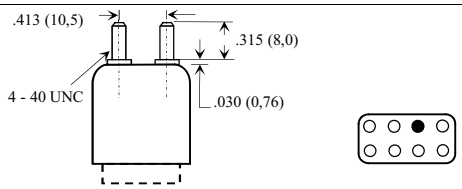

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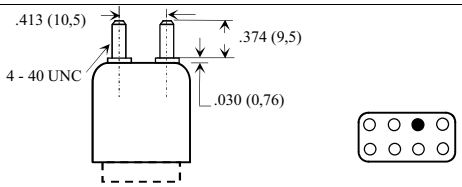

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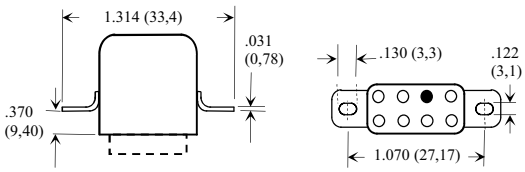

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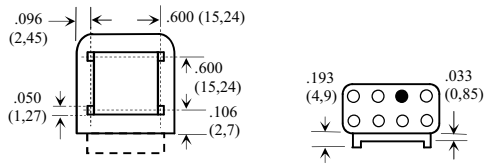


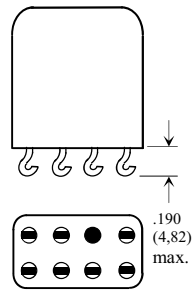
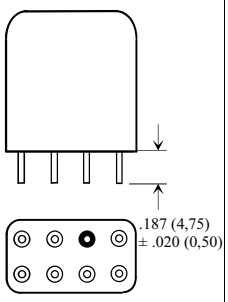
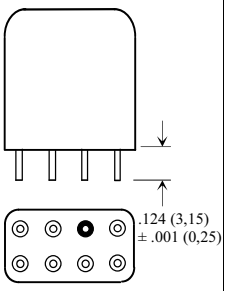
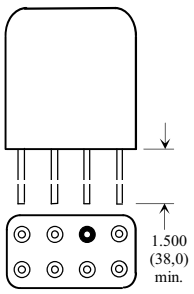
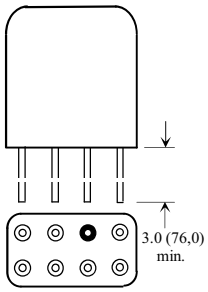
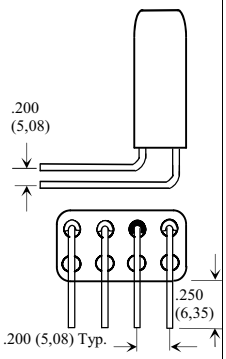
Note:

- Dimensions are in inches (millimetres), tolerance ± 0.25 unless otherwise stated
- Can dimensions shown in ref. 01, apply to all variants

FULL SIZE CRYSTAL CAN RELAY
3 AMPERE DPDT

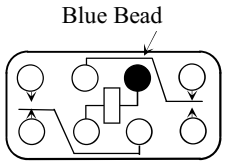
Series 2B-6660

Terminal Variants

01	02	03	04	05	06
					

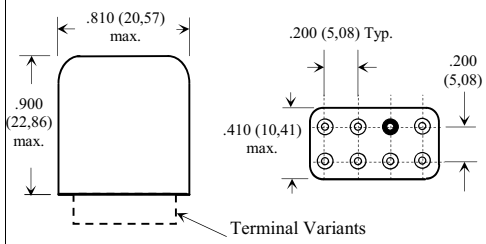
Note:
- Dimensions are shown in inches (millimetres)
- Terminal diameter is .030 (0,76) + .003 (0,07) – .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

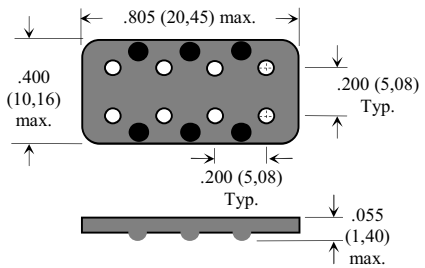
Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)

Spacer Pad

Relays can be supplied with a spacer pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning.



Note:
- Dimensions are shown in inches (millimetres)

How to Order

CECC 16101 - 008 - 16 - 09 - 01 P

- CECC Specification No.
- Type Code (CECC registration No.)
- Coil Variant Code
- Spacer Pad (optional)
- Terminal Variant
- Mounting Variant

NOTE

TO-5 CASE RELAY
DPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series MA

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid improvements, to provide a most versatile element to the circuit designer.

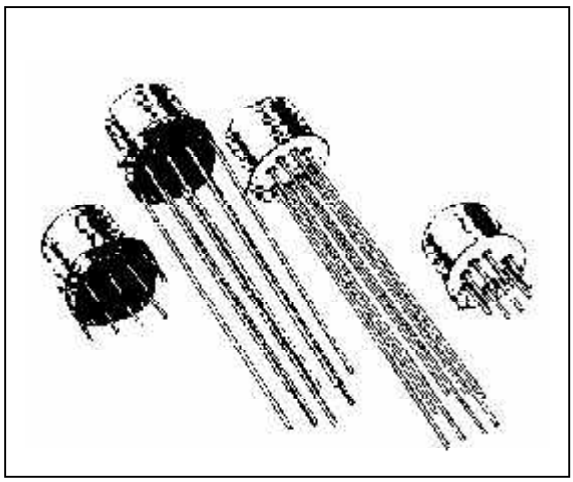
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **MA*** Basic Relay, 2 form C, DPDT
- **MA*D** Basic Relay combined with an internal diode for coil transient suppression
- **MA*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **MA*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression



Environmental and Physical Specifications

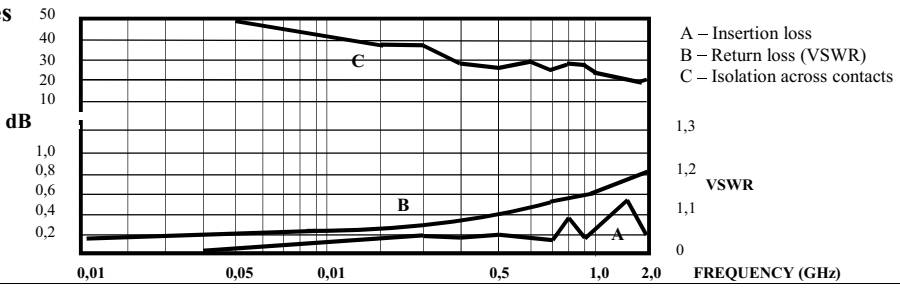
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,09 oz. (2,55 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	1,5 ms. max. Series: MA*	4,0 ms. max. Series: MA*D, MA*DD	7,5 ms. max. Series: MA*T
Contact Bounce	1,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	130 mW at pick-up, 450 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MA*D, MA*DD, MA*T		
Negative Coil Transient	1,0 Vdc max. Series: MA*D, MA*DD, MA*T		
Transistor Characteristics at 25 °C (Series MA*T)	Emitter-Base Voltage (Vebo)		6,0 Vdc min.
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 100 µA)		80 Vdc min.
	Base Turn-Off Voltage		0,3 Vdc min.

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
DPDT

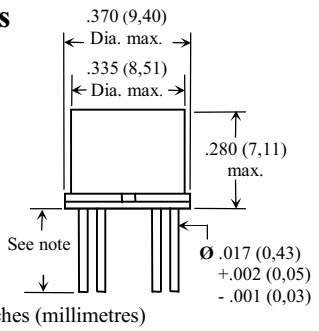
• Basic • Suppression • Suppression/Steering • Transistor Driven

Series MA

Typical Characteristics

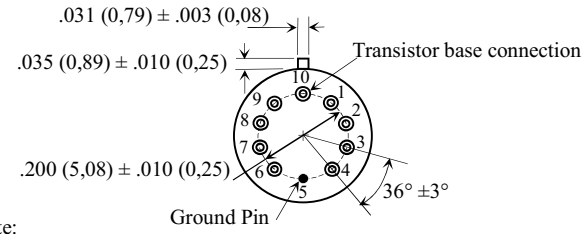
Description	Meas.	Series Types		Coil Voltage Code 5	6	9	12	18	26	30 (MA only)
Coil Voltage	Vdc	MA*, MA*D, MA*DD, MA*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5	30,0
		MA*, MA*D, MA*DD, MA*T	Max.	5,8	8,0	12,0	16,0	24,0	32,0	36,0
Coil Resistance at 25°C	Ω	MA*, MA*D, MA*T	± 10%	50	98	220	390	880	1560	2500
		MA*DD		39	78					-
Coil Current at 25°C	mAdc	MA*DD	Min.	93,2	58,3	33,0	25,6	17,5	14,8	-
			Max.	128,2	78,3	42,9	32,8	22,1	18,5	-
		MA*T	Min.	82,2	52,9	35,3	26,6	17,9	14,7	-
			Max.	112,1	69,9	47,4	35,8	24,0	19,8	-
Pick-up Voltage at 25°C	Vdc	MA*, MA*D, MA*T	Typ.	2,7	3,5	5,3	7,0	10,5	14,2	17,7
		MA*DD	Typ.	3,2	4,0	6,3	8,0	11,5	15,2	-
Drop-Out Voltage at 25°C	Vdc	MA*, MA*D, MA*T	Min.	0,22	0,28	0,54	0,63	0,91	1,37	1,50
			Max.	1,4	2,0	3,0	4,0	6,0	8,0	10,0
		MA*DD	Min.	0,6	0,7	0,9	1,1	1,4	1,8	-
			Max.	2,3	2,8	4,2	5,2	7,3	9,5	-
Base Current to Turn-on	mAdc	MA*T (limit for base / emitter current to 15 mA max.)	Max.	3,00	2,04	1,36	1,03	0,68	0,50	-

Outline Dimensions



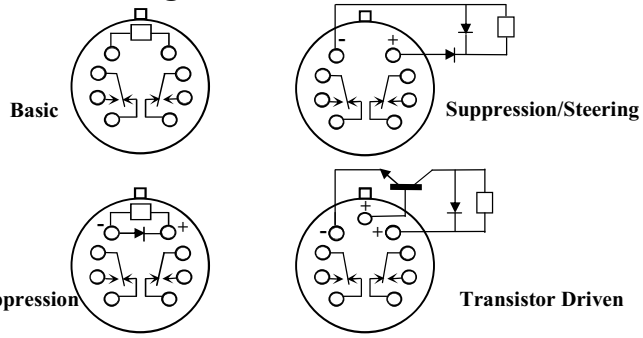
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations
Basic, Suppressed and Transistor Driven



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only
- Ground pin is optional

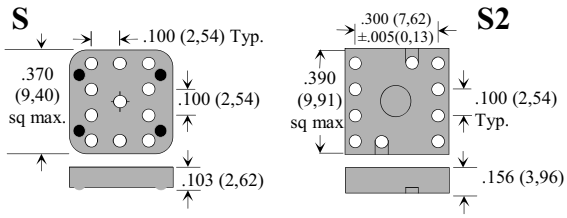
Schematic Diagrams



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" or "**S2**"to Part Number, Example: **MAWD - 26S**



Note:
-Dimensions are in inches (millimetres)

Note:

1 " * " Indicates Terminal Variants: C, P or W

How to Order, (Part Numbering System)

MA W D G - 26 S

Series
- C - Wire terminal
- P - Pin terminal
- W - Long wire terminal

- - Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven

Spreader Pad (optional)

Coil Voltage Code

Ground Pin (optional)

TO-5 CASE RELAY
SENSITIVE DPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series MS

Product Description

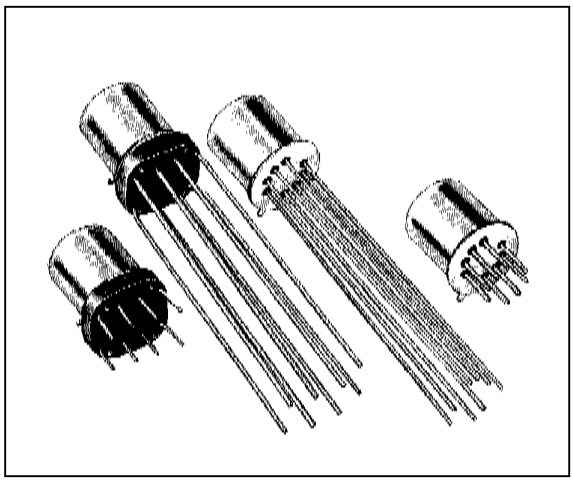
A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid versions, to provide a most versatile element to the circuit designer. The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **MS*** Basic Relay, 2 form C, DPDT
- **MS*D** Basic Relay combined with an internal diode for coil transient suppression
- **MS*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **MS*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression



Environmental and Physical Specifications

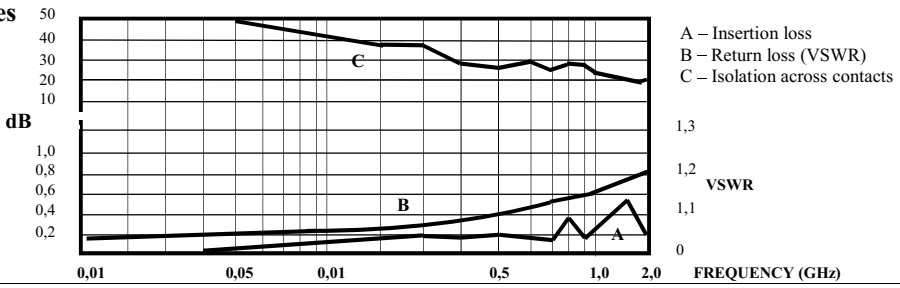
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,15 oz. (4,25 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max.		
Release Time	2,0 ms. max. Series: MS*	7,5 ms. max. Series: MS*D, MS*DD, MS*T	
Contact Bounce	1,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MS*D, MS*DD, MS*T		
Negative Coil Transient	1,0 Vdc max. Series: MS*D, MS*DD, MS*T		
Transistor Characteristics at 25 °C (Series MS*T)	Emitter-Base Voltage (Vebo)		6,0 Vdc min.
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 100 µA)		80 Vdc min.
	Base Turn-Off Voltage		0,3 Vdc min.

Figure 1 – Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
SENSITIVE DPDT

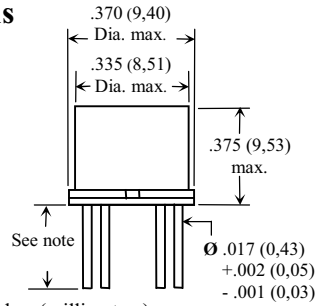
• Basic • Suppression • Suppression/Steering • Transistor Driven

Series MS

Typical Characteristics

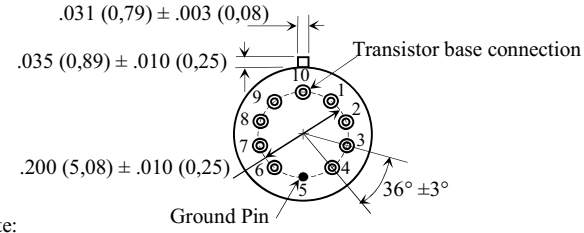
Description	Meas	Series Types		Coil Voltage Code 5	6	9	12	18	26	36	48
Coil Voltage	Vdc	MS*, MS*D, MS*DD, MS*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5	36,0	48,0
		MS*, MS*D, MS*DD, MS*T	Max.	7,0	10,0	15,0	20,0	30,0	40,0	57,0	75,0
Coil Resistance at 25°C	Ω	MS*, MS*D, MS*T	± 10%	100	200	400	850	1600	3300	6500	11000
		MS*DD		64	125						
Coil Current at 25°C	mAdc	MS*DD	Min.	56,8	36,3	18,1	11,7	9,6	7,0	4,9	3,9
			Max.	78,1	48,9	23,6	15,0	12,2	8,8	6,1	4,8
		MS*T	Min.	43,5	26,4	19,7	12,2	9,7	6,9	4,8	3,7
			Max.	59,3	35,4	25,8	16,7	13,1	9,5	6,4	5,1
Pick-up Voltage at 25°C	Vdc	MS*, MS*D	Typ.	2,6	3,4	4,85	7,0	9,8	14,0	20,0	25,8
		MS*DD	Typ.	2,9	4,0	6,1	7,8	11,3	15,2	21,7	27,8
		MS*T	Typ.	2,8	3,8	5,2	7,4	10,0	14,2	20,0	25,8
Drop-Out Voltage at 25°C	Vdc	MS*, MS*D, MS*T	Min.	0,22	0,28	0,54	0,63	0,91	1,37	1,8	2,4
			Max.	1,4	2,0	3,0	4,0	6,0	8,0	10,0	13,0
		MS*DD	Min.	0,8	0,9	1,1	1,3	1,5	1,7	2,3	2,8
			Max.	2,2	2,5	3,6	4,6	7,0	10,8	14,7	19,8
Base Current to Turn-on	mAdc	MS*T (limit for base / emitter current to 15 mA max.)	Max.	1,50	1,00	0,75	0,47	0,38	0,24	0,17	0,13

Outline Dimensions



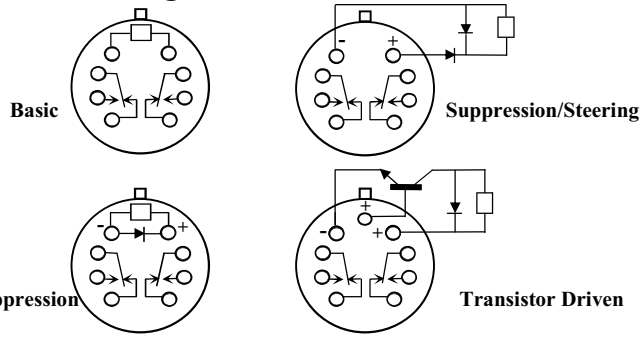
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations
Basic, Suppressed and Transistor Driven



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only
- Ground pin is optional

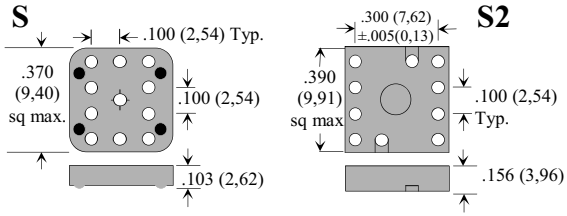
Schematic Diagrams



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" or "**S2**"to Part Number, Example: **MSWD - 26S**



Note:
-Dimensions are in inches (millimetres)

Note:

1 " * " Indicates Terminal Variants: C, P or W

How to Order, (Part Numbering System)

MS W D G - 26 S

Series
- C - Wire terminal
- P - Pin terminal
- W - Long wire terminal
- - Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven

Spreader Pad (optional)

Coil Voltage Code

Ground Pin (optional)

TO-5 CASE RELAY
SPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series 1MA

Product Description

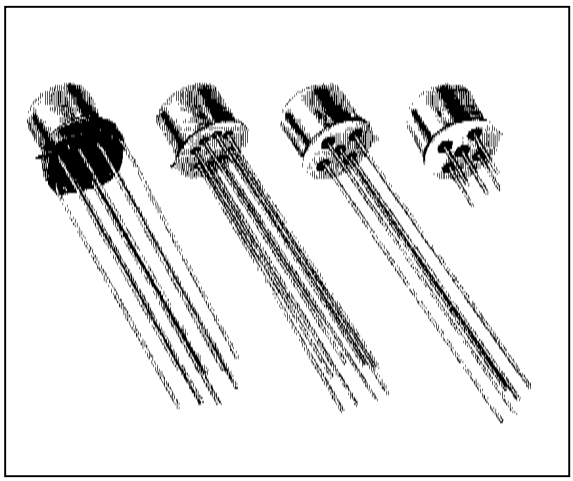
A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid versions, to provide a most versatile element to the circuit designer. The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 1 form C, SPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **1MA*** Basic Relay, 1 form C, SPDT
- **1MA*D** Basic Relay combined with an internal diode for coil transient suppression
- **1MA*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **1MA*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression



Environmental and Physical Specifications

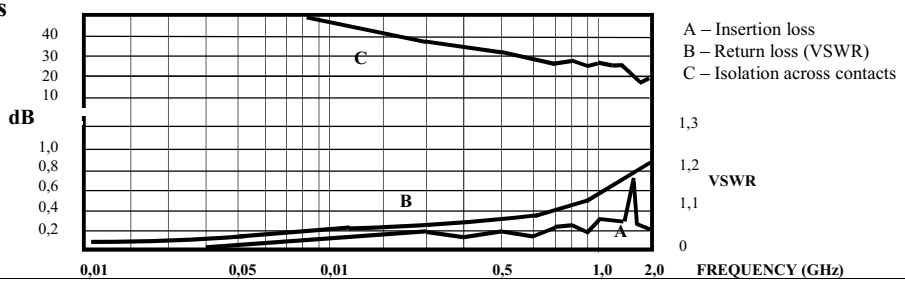
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,08 oz. (2,27 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	2,0 ms. max. Series: 1MA*	4,0 ms. max. Series: 1MA*D, 1MA*DD, 1MA*T	
Contact Bounce	1,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	300 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	100 mW at pick-up, 400 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: 1MA*D, 1MA*DD, 1MA*T		
Negative Coil Transient	1,0 Vdc max. Series: 1MA*D, 1MA*DD, 1MA*T		
Transistor Characteristics at 25 °C (Series 1MA*T)	Emitter-Base Voltage (Vebo)		6,0 Vdc min.
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 10 µA)		70 Vdc min.
	Base Turn-Off Voltage		0,3 Vdc max.

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
SPDT

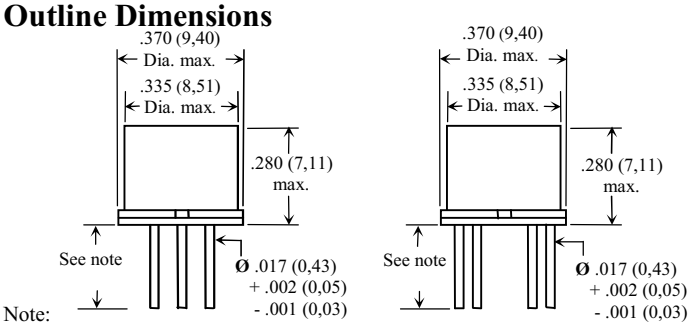
• Basic • Suppression • Suppression/Steering • Transistor Driven

Series 1MA

Typical Characteristics

Description	Meas.	Series Types		Coil Voltage Code 5	6	9	12	18	26
Coil Voltage	Vdc	1MA*, 1MA*D, 1MA*DD, 1MA*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5
		1MA*, 1MA*D, 1MA*DD, 1MA*T	Max.	5,8	8,0	12,0	16,0	24,0	32,0
Coil Resistance at 25°C	Ω	1MA*, 1MA*D, 1MA*T	±10 %	63	125	280	500	1130	2000
		1MA*DD		50	98				
Coil Current at 25°C	mAdc	1MA*DD	Min.	72,7	46,3	25,9	20,0	13,6	11,5
			Max.	100	62,4	33,7	25,6	17,2	14,4
		1MA*T	Min.	66,6	42,0	28,0	20,9	13,8	11,5
			Max.	89,6	55,5	38,1	28,1	18,8	15,5
Pick-up Voltage at 25°C	Vdc	1MA*, 1MA*D	Typ.	2,8	3,5	5,3	7,0	10,5	14,2
		1MA*DD	Typ.	3,5	4,1	6,3	8,0	11,6	15,4
		1MA*T	Typ.	3,0	3,8	5,6	7,2	10,7	14,4
Drop-Out Voltage at 25°C	Vdc	1MA*, 1MA*D, 1MA*DD, 1MA*T	Min.	1,7	2,0	3,0	4,0	6,0	8,0
			Max.	0,23	0,28	0,47	0,62	0,91	1,25
Base Current to Turn-on	mAdc	1MA*T (limit for base / emitter current to 15 mA max.)	Max.	2,38	1,60	1,07	0,80	0,53	0,40

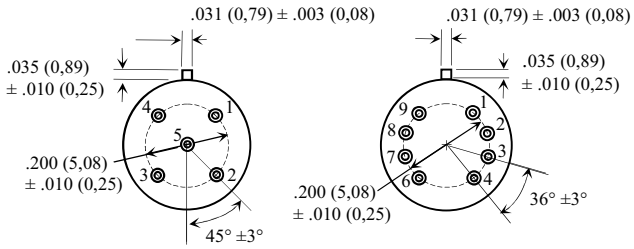
Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

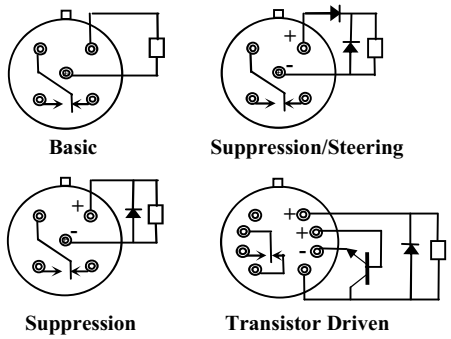
Terminal Locations

Basic and Suppressed **Transistor Driven**



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only

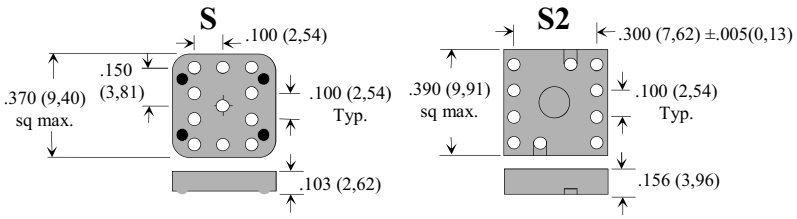
Schematic Diagrams



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" or "**S2**" to Part Number, Example: **1MAWD - 26S**



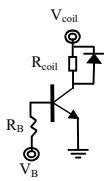
Note:
-Dimensions are in inches (millimetres)
-Pad Type S2 is used only on series 1MA*T
-Pad Type S is used on series: 1MA*, 1MA*D, 1MA*DD, 1MA*T

Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Tr ON: Ib = 0,4 to 2,38 mA,
Tr OFF: V_B = 0,3 Vdc max.

3 $R_B = \frac{V_B - 0,7}{I^*_{Bsat}}$ $I^*_{Bsat} = \frac{V_{coil} - 0,4}{5R_{coil}}$



How to Order, (Part Numbering System)

1MA W D - 26 S

Series
- C - Wire terminal
- P - Pin terminal
- W - Long wire terminal

- Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven

Coil Voltage Code

Spreader Pad (optional)

Hi-G ITALIA S.r.l. SS. Appia Km. 56.420 Cisterna di Latina - Italy
Tel: + 39 06 9699666 Fax: + 39 069698688

REV. 07/2007

TO-5 CASE RELAY
SENSITIVE SPDT

• Basic • Suppression • Suppression/Steering • Transistor Driven

Series 1MS

Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Available in a variety of sensitivities contact configurations and hybrid improvement, to provide a most versatile element to the circuit designer.

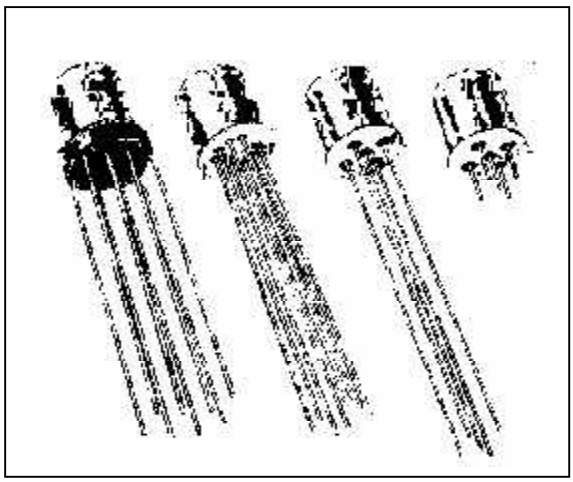
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 1 form C, SPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

Series Types (note 1)

- **1MS*** Basic Relay, 1 form C, SPDT
- **1MS*D** Basic Relay combined with an internal diode for coil transient suppression
- **1MS*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection
- **1MS*T** Basic Relay incorporating an internal transistor driver and diode for coil transient suppression



Environmental and Physical Specifications

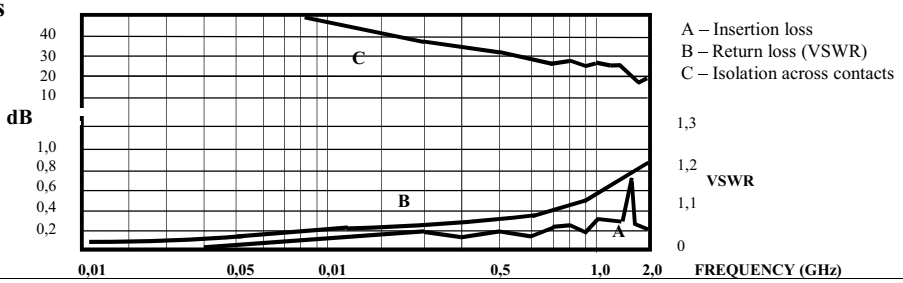
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,10 oz. (2,84 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max. Series: 1MS*, 1MS*D, 1MS*DD	3,5 ms. max. Series: 1MS*T	
Release Time	2,5 ms. max. Series: 1MS*	7,5 ms. max. Series: 1MS*D, 1MS*DD, 1MS*T	
Contact Bounce	1,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	300 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,7 pF typical		
Sensitivity	40 mW at pick-up, 200 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: 1MS*D, 1MS*DD, 1MS*T		
Negative Coil Transient	1,0 Vdc max. Series: 1MS*D, 1MS*DD, 1MS*T		
Transistor Characteristics at 25 °C (Series 1MS*T)	Emitter-Base Voltage (Vebo)		6,0 Vdc min.
	Collector-Base Breakdown Voltage (Vcbo) (Ic = 10 µA)		70 Vdc min.
	Base Turn-Off Voltage		0,3 Vdc max.

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



TO-5 CASE RELAY
SENSITIVE SPDT

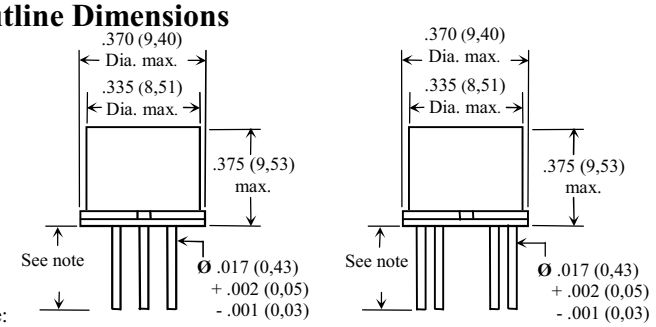
Series 1MS

• Basic • Suppression • Suppression/Steering • Transistor Driven

Typical Characteristics

Description	Meas.	Series Types		Coil Voltage Code 5	6	9	12	18	26	32	40
Coil Voltage	Vdc	1MS*, 1MS*D, 1MS*DD, 1MS*T	Nom.	5,0	6,0	9,0	12,0	18,0	26,5	32,0	40,0
		1MS*, 1MS*D, 1MS*DD, 1MS*T	Max.	8,0	11,0	12,0	22,0	24,0	45,0	57,0	75,0
Coil Resistance at 25°C	Ω	1MS*, 1MS*D, 1MS*T	± 10%	125	255	630	1025	2300	4000	6500	11000
		1MS*DD		100	200						
Coil Current at 25°C	mAdc	1MS*DD	Min.	36,3	22,7	11,5	9,7	6,7	5,7	4,3	3,2
			Max.	50,0	30,6	15,0	12,5	8,5	7,2	5,4	4,0
		1MS*T	Min.	34,7	21,2	11,8	10,1	6,7	5,7	4,2	3,1
			Max.	47,8	27,7	16,8	13,6	9,1	7,7	5,8	4,3
Pick-up Voltage at 25°C	Vdc	1MS*, 1MS*D	Typ.	2,8	3,5	5,3	7,0	10,5	14,2	18,7	23,3
		1MS*DD	Typ.	3,5	4,1	6,3	8,0	11,6	15,4	17,0	22,0
		1MS*T	Typ.	2,6	3,5	5,4	6,6	9,8	12,8	18,7	23,3
Drop-Out Voltage at 25°C	Vdc	1MS*, 1MS*D, 1MS*T	Min.	0,22	0,28	0,54	0,63	0,91	1,37	1,60	2,10
			Max.	1,7	2,0	3,0	4,0	6,0	8,0	10,6	13,3
		1MS*DD	Min.	0,23	0,28	0,54	0,63	0,91	1,37	1,5	2,0
			Max.	1,7	2,0	3,0	4,0	6,0	8,0	9,0	11,2
Base Current to Turn-on	mAdc	1MS*T (limit for base / emitter current to 15 mA max.)	Min.	1,2	0,78	0,48	0,39	0,26	0,20	0,16	0,13

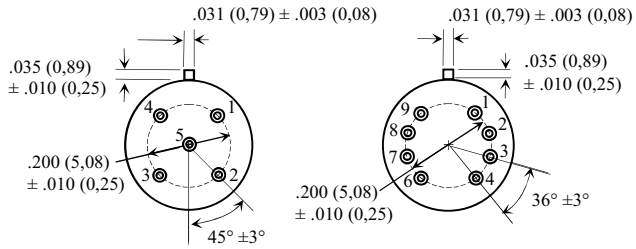
Outline Dimensions



Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

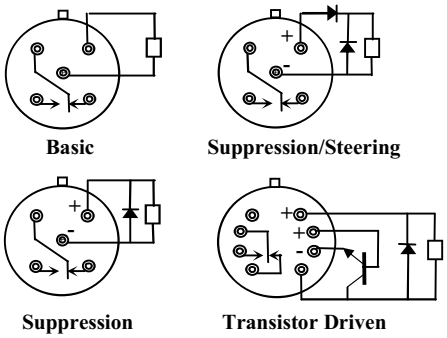
Terminal Locations

Basic and Suppressed **Transistor Driven**



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only

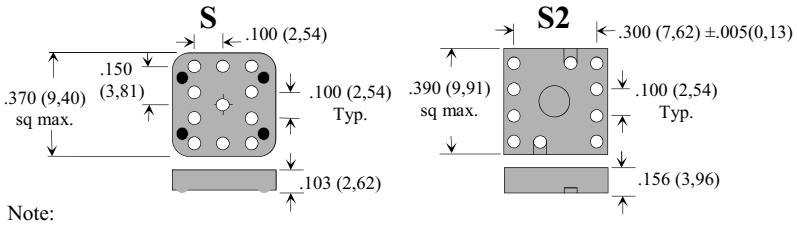
Schematic Diagrams



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" or "**S2**" to Part Number, Example: **1MSWD - 26S**



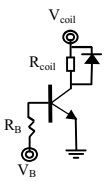
Note:
-Dimensions are in inches (millimetres)
-Pad Type S2 is used only on series 1MS*T
-Pad Type S is used on series: 1MS*, 1MS*D, 1MS*DD, 1MS*T

Note:

1 " * " Indicates Terminal Variants: C, P or W

2 Tr ON: Ib = 0,13 to 1,2 mA,
Tr OFF: V_B = 0,3 Vdc max.

3 $R_B = \frac{V_B - 0,7}{I^*_{Bsat}}$ $I^*_{Bsat} = \frac{V_{coil} - 0,4}{5R_{coil}}$



How to Order, (Part Numbering System)

1MS W D - 26 S

Series
- C - Wire terminal
- P - Pin terminal
- W - Long wire terminal

- Basic
- D - Diode Suppression
- DD - Suppression/Steering
- T - Transistor Driven

Coil Voltage Code

Spreader Pad (optional)

100 GRID TERMINAL RELAY
DPDT

• Basic • Suppression • Suppression/Steering

Series MGA

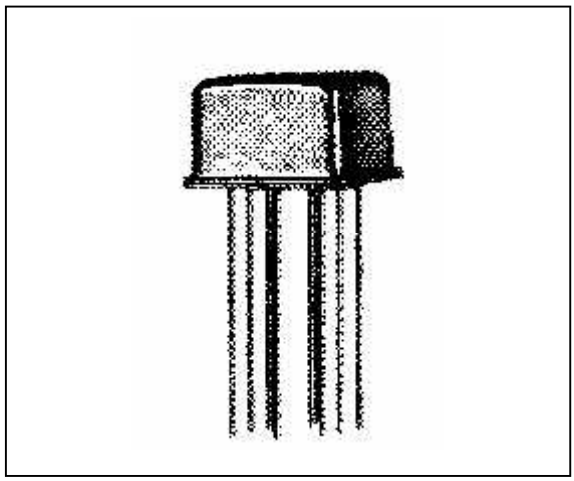
Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MA series TO-5 relays construction.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- SMD terminal style available
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).



Series Types (note 1)

- **MGA*** Basic Relay, 2 form C, DPDT
- **MGA*D** Basic Relay combined with an internal diode for coil transient suppression
- **MGA*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection

Environmental and Physical Specifications

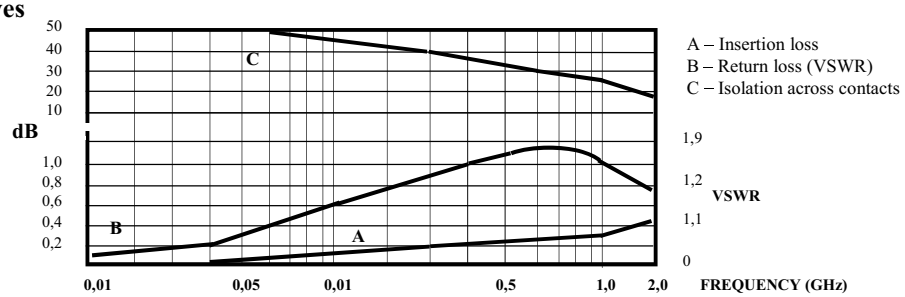
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,09 oz. (2,55 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	2,0 ms. max.		
Release Time	1,5 ms. max. Series: MGA*	4,0 ms. max. Series: MGA*D, MGA*DD	
Contact Bounce	1,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	130 mW at pick-up, 500 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MGA*D, MGA*DD		
Negative Coil Transient	1,0 Vdc max. Series: MGA*D, MGA*DD		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY
DPDT

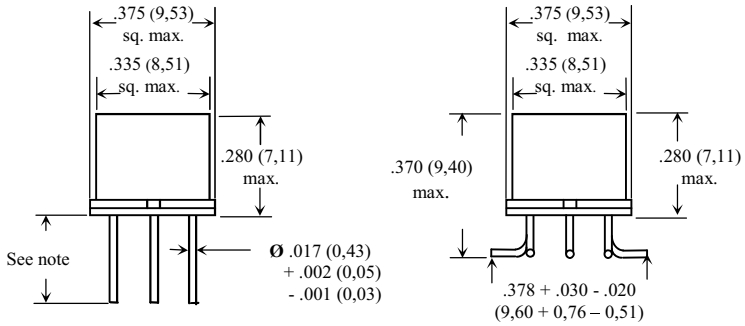
• Basic • Suppression • Suppression/Steering

Series MGA

Typical Characteristics

Coil Voltage Code	Series Types	Coil Voltage Vdc Rated	Coil Voltage Vdc Max.	Coil Resistance Ω at 25°C ± 10%	Coil Current mA, at 25°C Min.	Coil Current mA, at 25°C Max.	Pick-up Voltage Vdc, at 25°C Typ.	Drop-out Voltage Vdc, at 25°C Max.	Drop-out Voltage Vdc, at 25°C Min.
5	MGA*, MGA*D	5,0	5,8	50	-	-	2,7	1,4	0,22
	MGA*DD			39	93,2	128,2	3,2	2,3	0,6
6	MGA*, MGA*D	6,0	8,0	98	-	-	3,5	2,0	0,28
	MGA*DD			78	58,3	78,3	4,0	2,8	0,7
9	MGA*, MGA*D	9,0	12,0	220	-	-	5,3	3,0	0,54
	MGA*DD				33,0	42,9	6,3	4,2	0,9
12	MGA*, MGA*D	12,0	16,0	390	-	-	7,0	4,0	0,63
	MGA*DD				25,6	32,8	8,0	5,2	1,1
18	MGA*, MGA*D	18,0	24,0	880	-	-	10,5	6,0	0,91
	MGA*DD				17,5	22,1	11,5	7,3	1,4
26	MGA*, MGA*D	26,5	32,0	1560	-	-	14,2	8,0	1,37
	MGA*DD				14,8	18,5	15,2	9,5	1,8

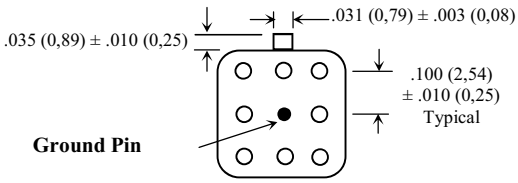
Outline Dimensions



(**S**) SMD Terminal

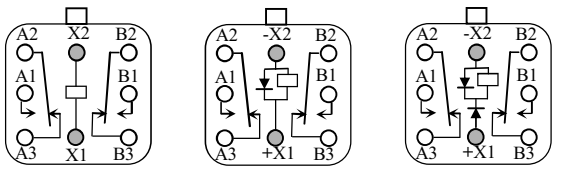
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Wire Terminal = .500 (12,7) min.
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations



Note:
- Viewed from terminals
- Ground pin is optional
- Dimensions are shown in inches (millimetres)

Schematic Diagrams

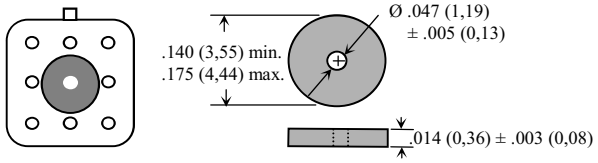


Basic Suppression Suppression/Steering

Note:
Schematics are viewed from terminals, numbers are for references only

Mounting Pad

Relays can be supplied with a mounting pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**W**" to Part Number. Example: **MGACD-26W**



Note: Dimensions are in inches (millimetres)

Note:

1 " * " Indicates Terminal Variants: C, P or S

How to Order, (Part Numbering System)

MGA C D G -26 W

Series
C - Wire Terminal
P - Pin Terminal
S - SMD Terminal
- Basic
D - Diode Suppression
DD - Suppression/Steering
Spacer Pad (optional)
Coil Voltage code
Ground Pin (optional)

100 GRID TERMINAL RELAY SENSITIVE DPDT

• Basic • Suppression • Suppression/Steering

Series MGS

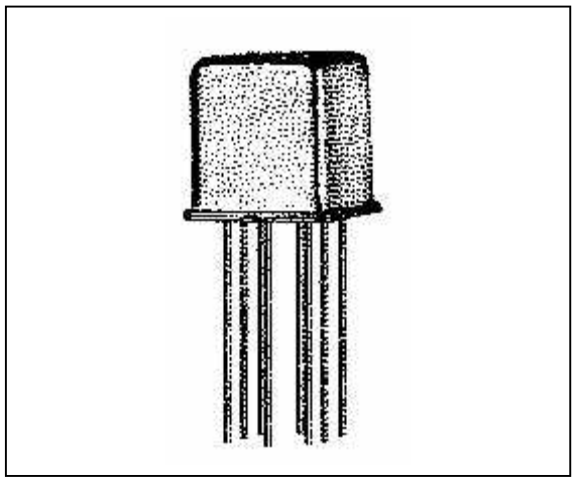
Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MS series TO-5 relays construction.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- SMD terminal style available
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).



Series Types (note 1)

- **MGS*** Basic Relay, 2 form C, DPDT
- **MGS*D** Basic Relay combined with an internal diode for coil transient suppression
- **MGS*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection

Environmental and Physical Specifications

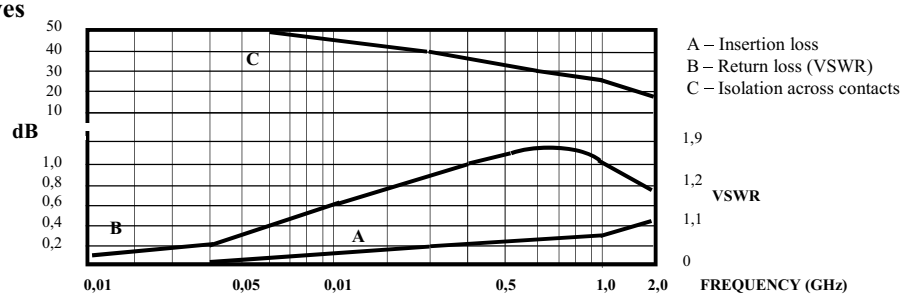
Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4 g² / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,15 oz. (4,30 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 to 50 µA / 10 to 50 mV	1.000.000
	Resistive	1 A / 28 Vdc	100.000
		250 mA / 115Vac, 60 and 400 Hz (Case not grounded)	100.000
		100 mA / 115 Vac, 60 and 400 Hz	100.000
	Resistive overload	2 A / 28 Vdc	100
	Inductive	200 mA / 28 Vdc (320 mH)	100.000
	Lamp	100 mA / 28 Vdc	100.000
Contact Resistance	0,1 Ω max. initial, 0,2 Ω max. after life		
Operate Time	4,0 ms. max.		
Release Time	2,5 ms. max. Series: MGS*	7,5 ms. max. Series: MGS*D, MGS*DD	
Contact Bounce	1,5 ms. max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level	125 Vrms min., 60 Hz, all points at 70.000 ft.	
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	0,4 pF typical		
Sensitivity	60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C		
Diode P.I.V.	100 Vdc min. Series: MGS*D, MGS*DD		
Negative Coil Transient	1,0 Vdc max. Series: MGS*D, MGS*DD		

Figure 1 - Radio Frequency Curves

Note:
Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.



100 GRID TERMINAL RELAY SENSITIVE DPDT

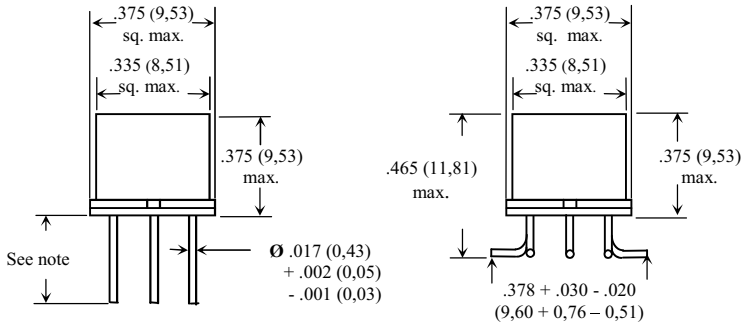
• Basic • Suppression • Suppression/Steering

Series MGS

Typical Characteristics

Coil Voltage Code	Series Types	Coil Voltage Vdc Rated	Coil Voltage Vdc Max.	Coil Resistance Ω at 25°C ± 10%	Coil Current mA, at 25°C Min.	Coil Current mA, at 25°C Max.	Pick-up Voltage Vdc, at 25°C Typ.	Drop-out Voltage Vdc, at 25°C Max.	Drop-out Voltage Vdc, at 25°C Min.
5	MGS*, MGS*D	5,0	7,5	100	-	-	2,6	1,4	0,23
	MGS*DD			64	56,8	78,1	2,9	2,2	0,8
6	MGS*, MGS*D	6,0	10,0	200	-	-	3,4	2,0	0,28
	MGS*DD			125	36,3	48,9	4,0	2,5	0,9
9	MGS*, MGS*D	9,0	15,0	400	-	-	4,85	3,0	0,55
	MGS*DD				18,1	23,6	6,1	3,6	1,1
12	MGS*, MGS*D	12,0	20,0	800	-	-	7,0	4,0	0,64
	MGS*DD				12,5	16,0	7,8	4,6	1,3
18	MGS*, MGS*D	18,0	30,0	1600	-	-	9,8	6,0	0,92
	MGS*DD				9,6	12,2	11,3	7,0	1,5
26	MGS*, MGS*D	26,5	40,0	3200	-	-	14,0	8,0	1,4
	MGS*DD				7,2	9,0	15,2	10,8	1,7
36	MGS*, MGS*D	36,0	57,0	6500	-	-	20,0	10,0	1,8
	MGS*DD				4,9	6,1	21,7	14,7	2,3
48	MGS*, MGS*D	48,0	75,0	11000	-	-	25,8	13,0	2,4
	MGS*DD				3,9	4,8	27,8	19,8	2,8

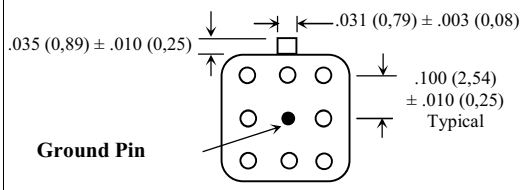
Outline Dimensions



(**S**) SMD Terminal

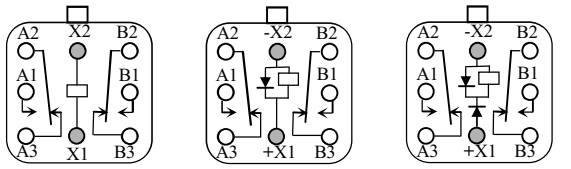
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Wire Terminal = .500 (12,7) min.
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations



Note:
- Viewed from terminals
- Ground pin is optional
- Dimensions are shown in inches (millimetres)

Schematic Diagrams

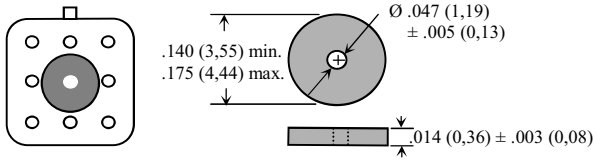


Basic Suppression Suppression/Steering

Note:
Schematics are viewed from terminals, numbers are for references only

Mounting Pad

Relays can be supplied with a mounting pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**W**" to Part Number. Example: **MGSCD-26W**



Note: Dimensions are in inches (millimetres)

Note:

1 " * " Indicates Terminal Variants: C, P or S

How to Order, (Part Numbering System)

MGS C D G -26 W

Series
- C - Wire Terminal
- P - Pin Terminal
- S - SMD Terminal

- - Basic
- D - Diode Suppression
- DD - Suppression/Steering

Spacer Pad (optional)
Coil Voltage code
Ground Pin (optional)

TO-5 CASE RELAY
DPDT, HIGH CURRENT

Series MCA

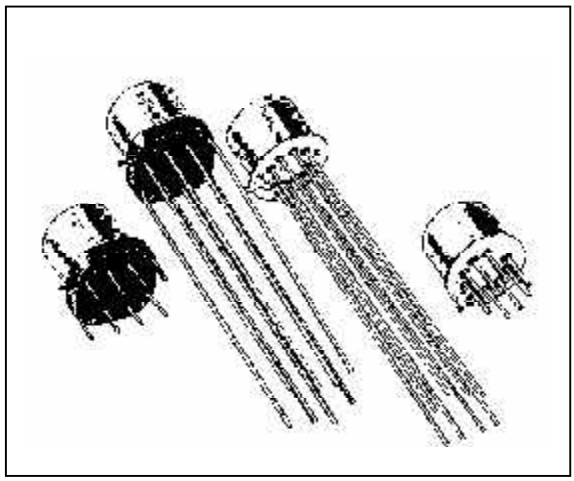
Product Description

A series of ultra miniature hermetically sealed relays constructed in a transistor style case, providing superior performance and established reliability characteristics. Designed for high density PCB mounting is available in a variety of sensitivities. Contact configurations and material improvements to provide a most versatile element to the circuit designer especially for resistive load rated at 2 amperes.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- 500 mA to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

Series Type (note 1)

- **MCA*** 2 form C, DPDT



Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	75 g, 6 ms.
Vibration (sinusoidal)	30 g, 10 to 2000 Hz, 1,5 amplitude peak
Sealing	All welded, Hermetic
Weight	0,09 oz. (2,55 grams) max.
Finish	Bright tin lead plated terminations and case

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Resistive	500 mA to 2 A / 28 Vdc (note 2)	100.000
		500 mA / 115Vac, 60 and 400 Hz (Case not grounded)	50.000
		250 mA / 115 Vac, 60 and 400 Hz	50.000
	Resistive overload	2,5 A / 28 Vdc	100
	Inductive	280 mA / 28 Vdc (320 mH)	50.000
Contact Resistance	0,2 Ω max. initial, 0,35 Ω max. after life		
Operate Time	3,5 ms. max.		
Release Time	2,5 ms. max.		
Contact Bounce	2,0 ms. Max.		
Dielectric Strength	500 Vrms min., 60 Hz, all points at sea level		
Insulation Resistance	10.000 MΩ min. all points at 500 Vdc		
Sensitivity	150 mW at pick-up, 500 mW at nominal rated coil voltage, at 25 °C		

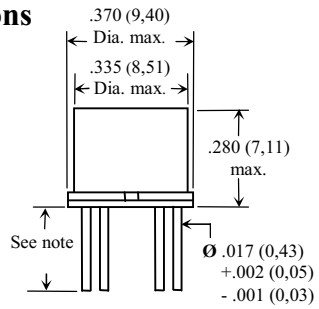
TO-5 CASE RELAY
DPDT, HIGH CURRENT

Series MCA

Typical Characteristics

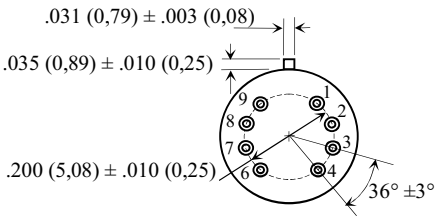
Coil Voltage Code	Coil Voltage [Vdc]		Coil resistance [Ω]	Operated Voltage [Vdc] Max. at		Release Voltage Vdc			
						Non-release at		Must-release at	
	Rated	Max.	± 10% at 25 °C	25 °C	125 °C	25 °C	125 °C	25 °C	- 65 °C
5	5,0	5,8	50	3,0	4,2	1,5	2,5	0,20	0,14
6	6,0	8,0	98	3,8	4,8	2,3	3,5	0,28	0,18
9	9,0	12,0	220	5,5	7,0	3,2	5,1	0,54	0,35
12	12,0	16,0	390	8,0	10,0	4,2	6,8	0,65	0,43
18	18,0	24,0	880	11,0	14,0	6,4	10,4	0,91	0,59
26	26,5	32,0	1560	14,5	18,2	8,2	13,3	1,4	0,9

Outline Dimensions



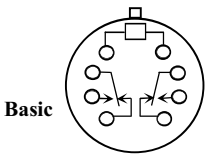
Note:
- Dimensions are shown in inches (millimetres)
- Terminal Variants: - (**C**) Standard Wire Terminal = .500 (12,7) min,
  - (**W**) Long Wire Terminal = 1.500 (38,1) min,
  - (**P**) Pin Terminal = .187 ± .010 (4,75 ± 0,25)

Terminal Locations



Note:
- Dimensions are shown in inches (millimetres)
- Viewed from terminals, numbers are for reference only

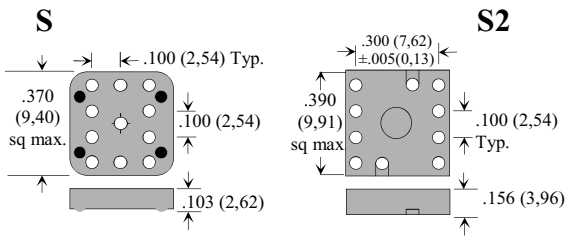
Schematic Diagram



Note: Schematics are viewed from terminals

Spreader Pads

Relays can be supplied with a spreader pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**S**" or "**S2**"to Part Number, Example: **MCAW - 26S**



Note:
-Dimensions are in inches (millimetres)

Note:

1 " * " Indicates Terminal Variants: C, P or W
2 Not suitable for use below 500 mA resistive

How to Order, (Part Numbering System)

MCA W - 26 S

- Series
- C - Wire terminal
- P - Pin terminal
- W - Long wire terminal
- Coil Voltage Code
- Spreader Pad (optional)

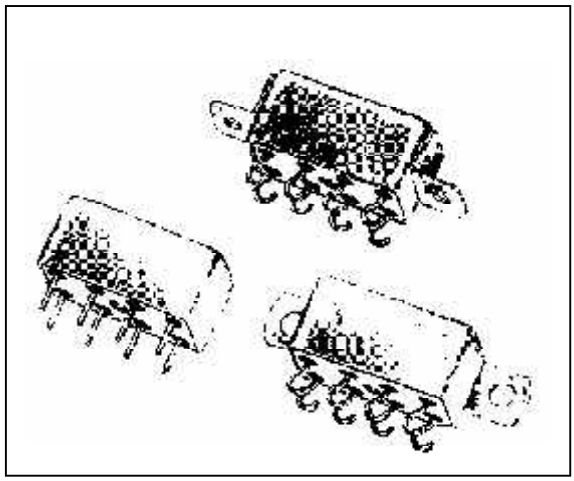
HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

Series 2K

Product Description

The leading relay design in military and commercial application is represented in Hi-G Italia 2K series relay. The products advanced design provides superior performance in the environmental and operational requirements of today's sophisticated equipment.
Volume production coupled ensure product consistency and the highest degree of the reliability.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional immunity to shock and vibration.



Series Type

- **2K** 2 form C, DPDT

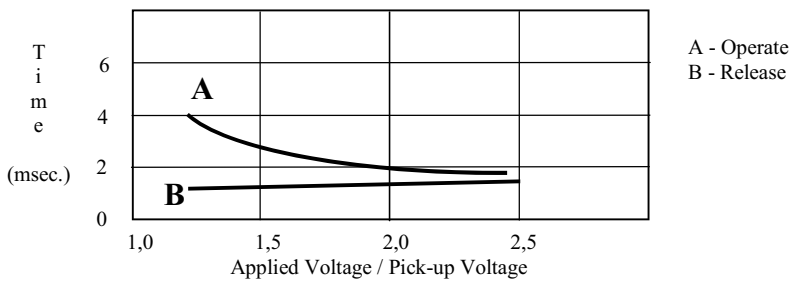
Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,35 oz. (10,0 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	4,0 ms. max. at 25°C		
Release Time	2,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	250 mW at pick-up, 660 mW typical at nominal rated coil voltage, at 25 °C		

Figure 1 - Operate & Release Time curves vs. Applied Voltage



Note:
Typical characteristics are based on factory knowledge. Test to ensure compliance, are not performed.

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE DPDT

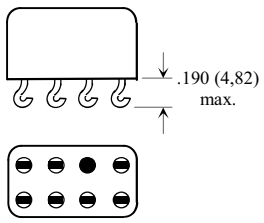
Series 2K

Typical Characteristics

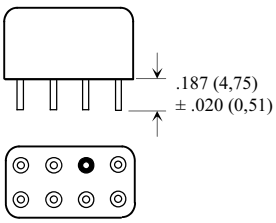
Voltage Code	Coil Voltage		Coil Resistance ± 10% at 25°C	Pick-up Vdc Max. at 25°C	Drop-out Vdc Min. at 25°C
	Nominal	Max.			
105	5,0	6,0	39	3,7	0,3
106	6,0	7,2	40	3,3	0,35
109	9,0	10,8	78	4,5	0,45
112	12,0	14,4	160	6,5	0,75
114	14,0	16,8	300	8,5	0,9
118	18,0	21,5	530	11,4	1,2
124	24,0	29,0	870	17,5	1,4
126	26,5	32,0	700	13,5	1,5
136	36,0	43,0	1960	26,0	2,2
148	48,0	57,0	2500	25,0	2,5

Terminal Styles

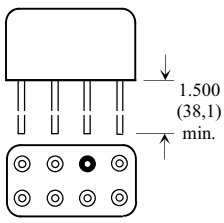
1 Solder Lug



2 Plug in

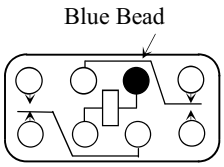


4 Wire Lead



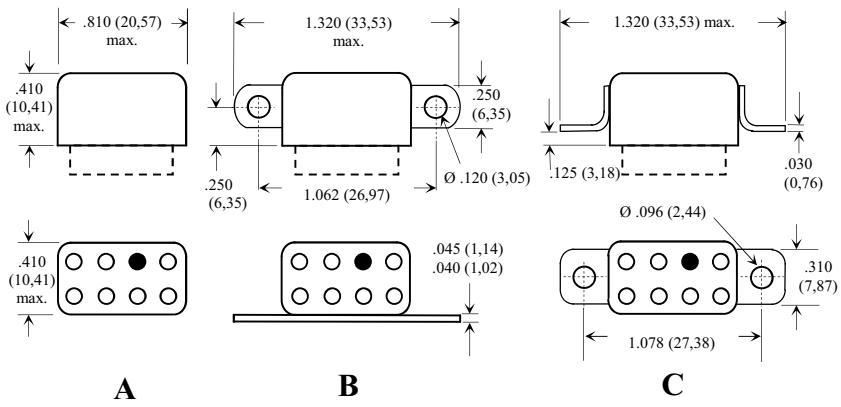
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

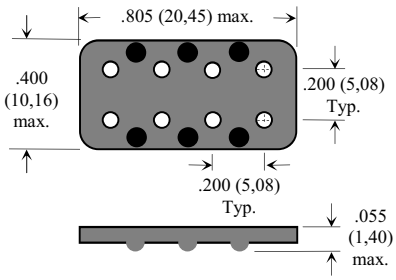
Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

Insulating Pad

Relays can be supplied with a insulating pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**P**" to Part Number. Example: **2K-2A-126 P**



Note:
-Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2K - 2 A - 126 P

Series	
Terminal Style	Insulating Pad (optional)
Mounting Style	Voltage Code

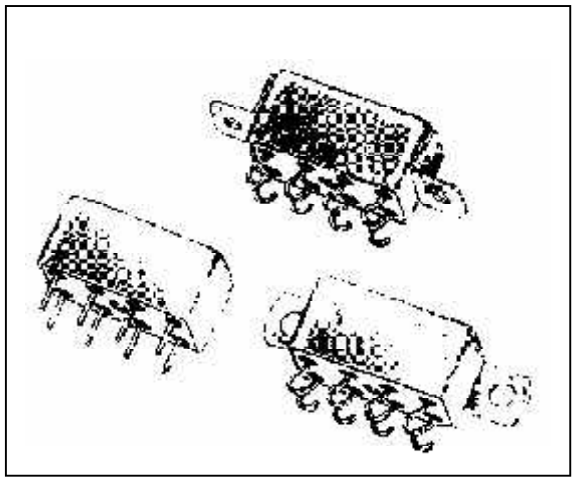
HALF SIZE CRYSTAL CAN RELAY
2 AMPERE SENSITIVE

Series KA

Product Description

Innovation and versatility of design has allowed Hi-G Italia to achieve this improved sensitivity of our basic military qualified product. The product reflects an improved magnetic circuit powering our standard contact structure to levels of 2 amperes. The internal structures reflect and conform to the latest military specifications and are supported by a continuing qualification program. Product performance, reliability and sensitivity are reflected in this unique device and provide the design engineer with a tool for improved circuit design.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional immunity to shock and vibration.



Series Type

- **2KA** 2 form C, DPDT

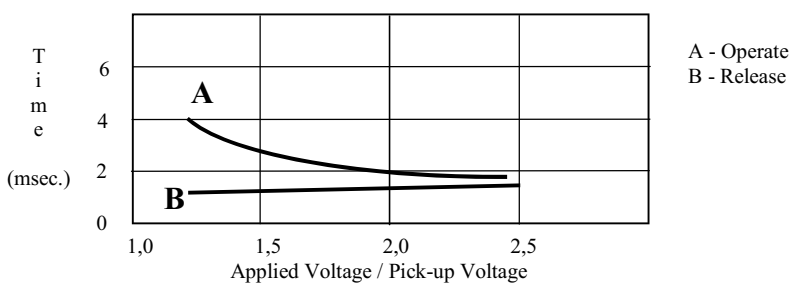
Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	0,40 oz. (11,3 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	5,0 ms. max. at 25°C		
Release Time	3,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	100 mW at pick-up, 280 mW typical at nominal rated coil voltage, at 25 °C		

Figure 1 - Operate & Release Time curves vs. Applied Voltage



Note:
Typical characteristics are based on factory knowledge. Test to ensure compliance, are not performed.

HALF SIZE CRYSTAL CAN RELAY
2 AMPERE SENSITIVE

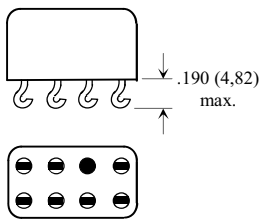
Series KA

Typical Characteristics

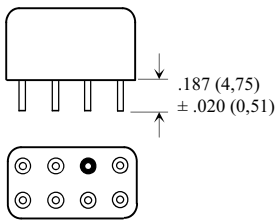
Voltage Code	Coil Voltage		Coil Resistance ± 10% at 25°C	Pick-up Vdc Max. at 25°C	Drop-out Vdc Min. at 25°C
	Nominal	Max.			
105	5,0	6,0	90	3,7	0,25
106	6,0	7,2	130	3,6	0,35
112	12,0	14,0	520	7,2	0,7
118	18,0	21,0	1100	11,0	1,0
124	24,0	29,0	2070	17,5	1,4
126	26,5	32,0	2070	14,4	1,4
136	36,0	43,0	4550	26,0	2,2
148	48,0	57,6	8300	28,8	2,8

Terminal Styles

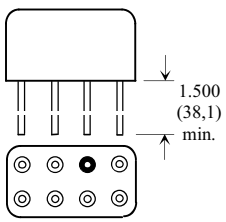
1 Solder Lug



2 Plug in

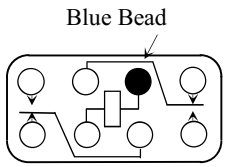


4 Wire Lead



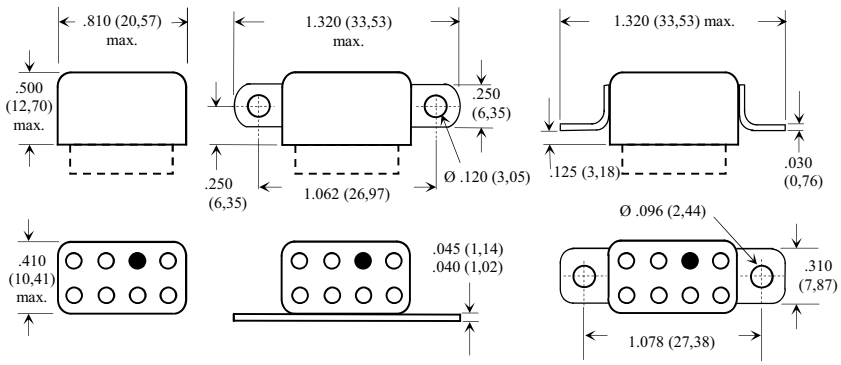
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

Mounting Styles

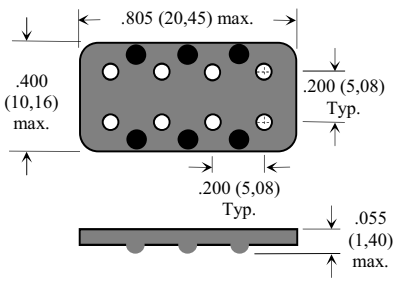


A **B** **C**

Note:
- Dimensions are shown in inches (millimetres)

Insulating Pad

Relays can be supplied with a insulating pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**P**" to Part Number. Example: **2KA-2A-126 P**



Note:
-Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2KA - 2 A - 126 P

- Series
- Terminal Style
- Mounting Style
- Voltage Code
- Insulating Pad (optional)

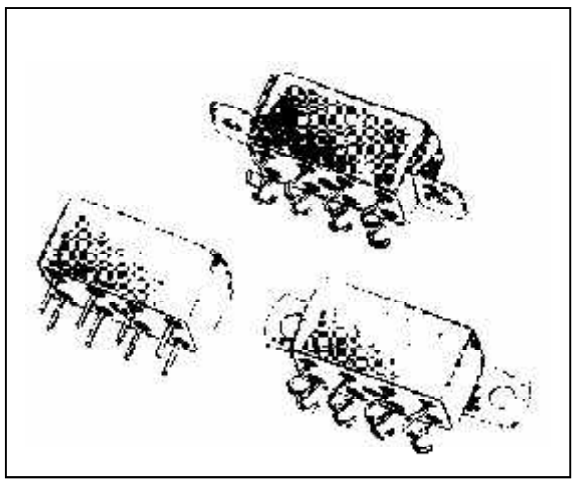
HALF SIZE CRYSTAL CAN RELAY
5 AMPERE DPDT

Series HA

Product Description

A proven variation of our standard half size crystal can relay incorporates improved current carrying paths to provide 5 ampere switching.
The design is supported by our standard qualified military relays and their continued testing programs, together with the latest metallurgical innovations in contact materials and current carrying members. Reliability, product consistency and low cost are maintained through our volume production techniques.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- 5 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional immunity to shock and vibration.



Series Type

- **2HA** 2 form C, DPDT

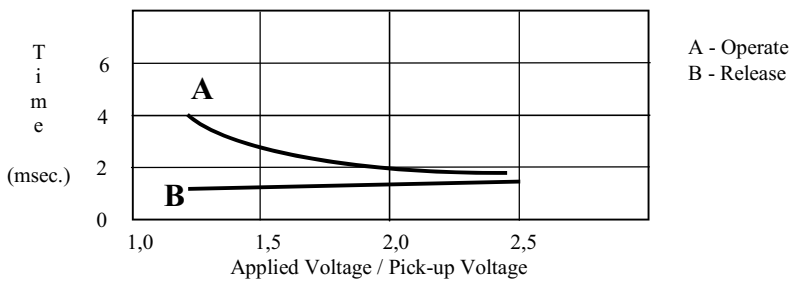
Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	0,35 oz. (10,0 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Resistive	5 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	10 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	4,0 ms. max. at 25°C		
Release Time	3,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	300 mW at pick-up, 1,4 W at nominal rated coil voltage, at 25 °C		

Figure 1 - Operate & Release Time curves vs. Applied Voltage



Note:
Typical characteristics are based on factory knowledge. Test to ensure compliance, are not performed.

HALF SIZE CRYSTAL CAN RELAY
5 AMPERE DPDT

Series HA

Typical Characteristics

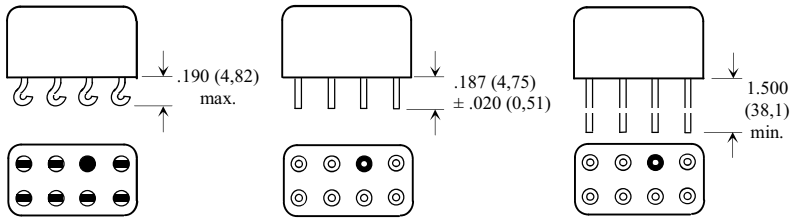
Voltage Code	Coil Voltage		Coil Resistance ± 10% at 25°C	Pick-up Vdc Max. at 25°C	Drop-out Vdc Min. at 25°C
	Nominal	Max.			
105	5,0	6,0	18	3,6	0,25
106	6,0	7,2	40	3,5	0,35
112	12,0	14,4	150	6,7	0,75
124	24,0	29,0	400	17,0	1,4
126	26,5	32,0	600	13,4	1,5
136	36,0	43,0	900	26,0	2,2
148	48,0	57,0	1600	34,0	2,8

Terminal Styles

1 Solder Lug

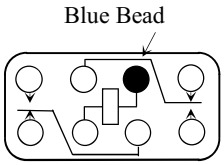
2 Plug in

4 Wire Lead



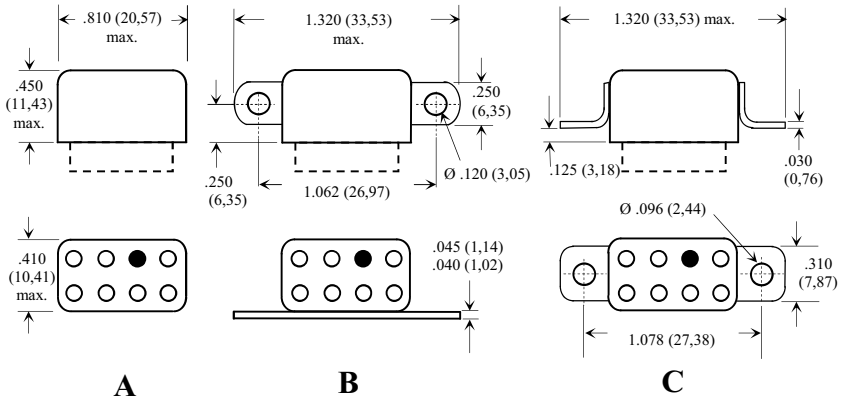
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

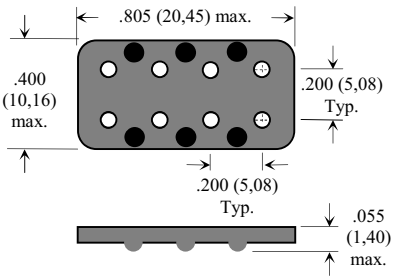
Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

Insulating Pad

Relays can be supplied with a insulating pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "**P**" to Part Number. Example: **2HA-2A-126 P**



Note:
-Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2HA - 2 A - 126 P

- Series
- Terminal Style
- Mounting Style
- Voltage Code
- Insulating Pad (optional)

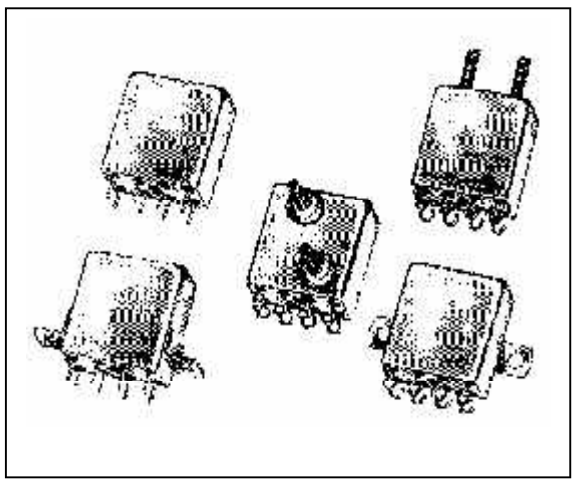
FULL SIZE CRYSTAL CAN RELAY
2 AMPERE DC or AC COIL

Series B

Product Description

This standard size crystal can relay series, offers switching capability of low level signals up to 2 amperes under the most extreme environmental conditions.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensure maximum internal cleanliness
- Low level up to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- DC or AC coil.



Series Types

- **2B** Basic Relay, 2 form C, DPDT
- **2BR** Basic Relay with an internal bridge diode, for AC operation

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	1,0 oz. (28,35 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	1 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	6,0 ms. max. at 25°C, Series B	7,0 ms. max. at 25°C, Series BR	
Release Time	3,0 ms. max. at 25°C, Series B	10,0 ms. max. at 25°C, Series BR	
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	250 mW at pick-up, 1,6 W typical at nominal rated coil voltage, at 25 °C		

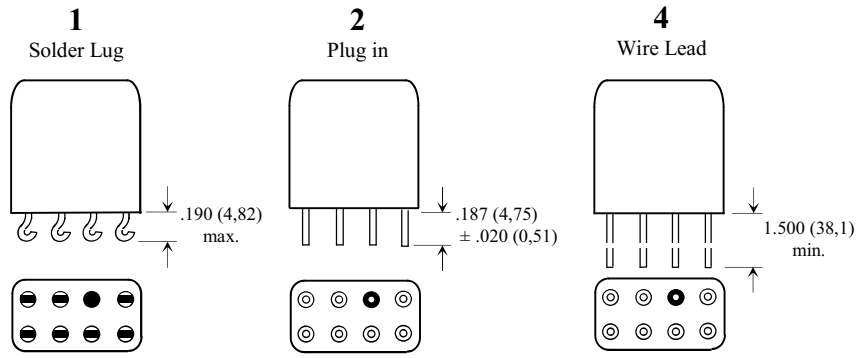
FULL SIZE CRYSTAL CAN RELAY
2 AMPERE DC or AC COIL

Series B

Typical Characteristics

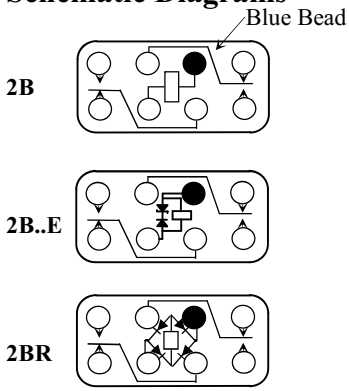
Series Types	Voltage Code	Coil Voltage [Vdc]		Coil Resistance [Ω] ± 10% at 25°C	Pick-up [Vdc] Max. at 25°C	Drop-out [Vdc] Min. at 25°C	Coil Suppression [Vdc]
		Nominal	Max.				
2B	106	6,0	7,2	40	3,1	0,5	47
	112	12,0	14,4	160	6,3	0,75	47
	126	26,5	32,0	675	13,0	1,5	47
	148	48,0	58,0	2500	25,0	2,5	109
	176	76,0	90,0	5000	35,0	3,0	109
2BR	126	26,5	32,0	600	15,0	2,0	
	148	48,0	58,0	2000	28,0	3,0	
Note:	176	76,0	90,0	3500	44,0	4,0	
AC operation, 60 to 400 Hz	215	115,0	125,0	10000	66,0	5,0	

Terminal Styles



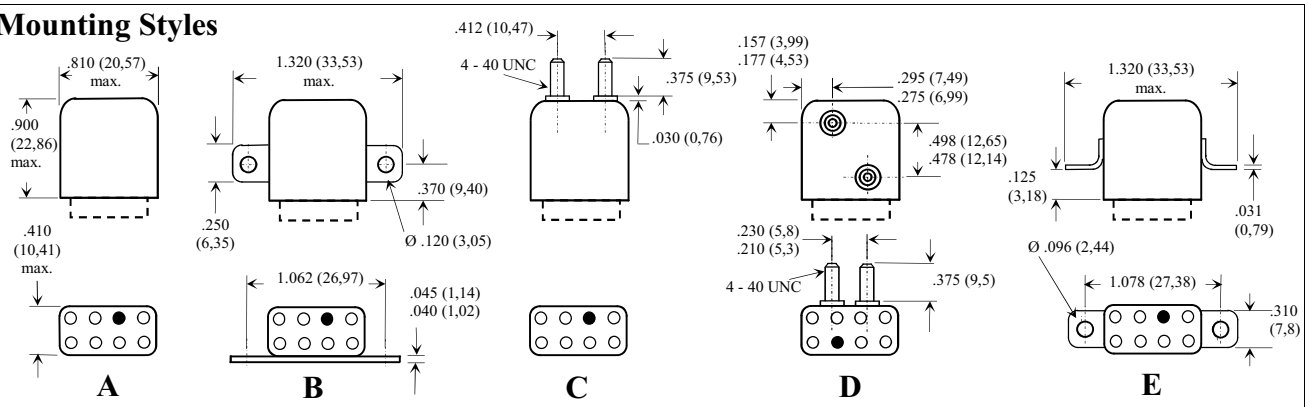
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagrams



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

AC Operation	**2BR**	**- 2**	**A**	**- 126**	**P**	
DC Operation	**2B**	**- 2**	**A**	**- 126**	**P**	**E**

Series	With internal voltage suppressor
Terminal Style	Insulating Pad (optional)
Mounting Style	Voltage Code

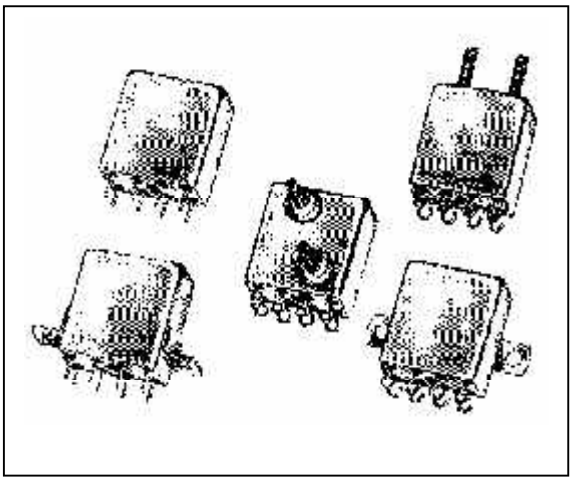
FULL SIZE CRYSTAL CAN RELAY SENSITIVE 100 MILLIWATT

Series BA

Product Description

This ultra sensitive full size crystal can relay series offers switching capability of low level signals up to 2 amperes under the most extreme environmental conditions. It is low coil sensitivity and high contact current carrying capacity makes these relays ideal for a variety of applications. In a unique design, motor efficiency and the proven contact structure of qualified relays, offers sensitivities from 100 milliwatts with low level switching up to 2 amperes, low profile, proven designs and wide selection of coil values to provide the designer with a consistent high quality product for today's and tomorrow design.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensure maximum internal cleanliness
- Low level up to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating



Series Type

- **2BA** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	15 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	1,0 oz. (28,35 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	1 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	6,5 ms. max. at 25°C		
Release Time	4,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	100 mW at pick-up, 300 mW typical at nominal rated coil voltage, at 25 °C		

FULL SIZE CRYSTAL CAN RELAY
SENSITIVE 100 MILLIWATT

Series BA

Typical Characteristics

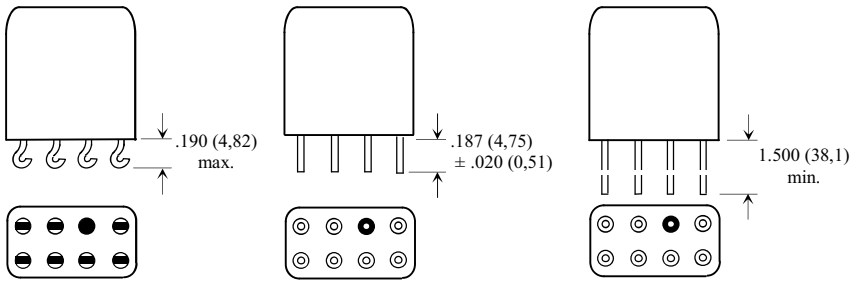
Voltage Code	Coil Voltage [Vdc] Nominal	Coil Voltage [Vdc] Max.	Coil Resistance [Ω] ± 10% at 25°C	Pick-up [Vdc] Max. at 25°C	Drop-out [Vdc] Min. at 25°C	Coil Suppression [Vdc]
106	6,0	7,2	120	3,5	0,5	47
112	12,0	14,4	480	7,0	1,0	47
126	26,5	32,0	2250	15,0	2,0	47

Terminal Styles

1 Solder Lug

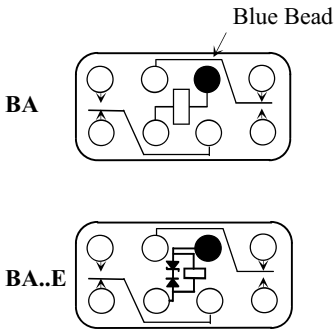
2 Plug in

4 Wire Lead



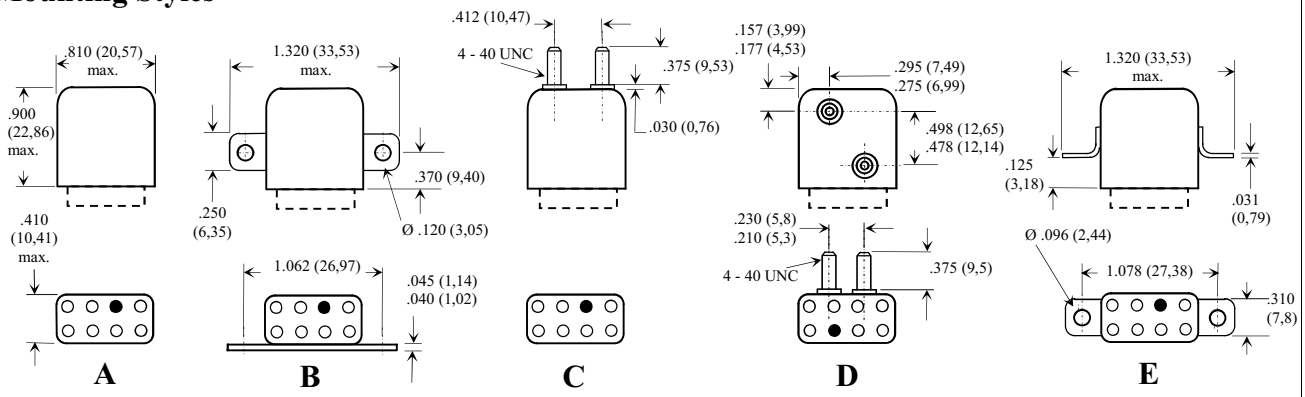
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2BA - 2 A - 126 P E

Series	With internal voltage suppressor
Terminal Style	Insulating Pad (optional)
Mounting Style	Voltage Code

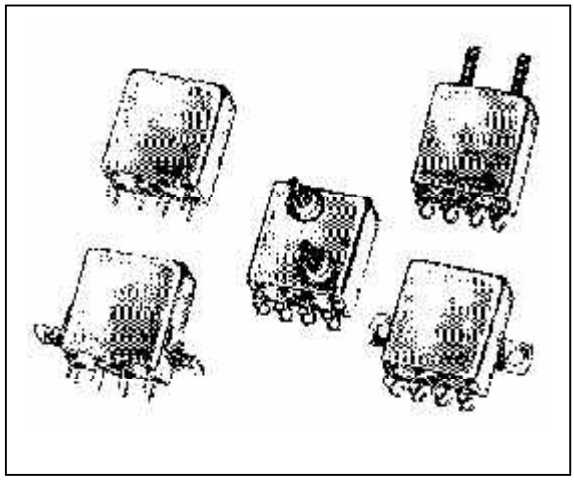
FULL SIZE CRYSTAL CAN RELAY SENSITIVE 25 and 40 MILLIWATT

Series BK

Product Description

This ultra sensitive full size crystal can relay series, offers switching capability of low level signals up to 2 amperes under the most extreme environmental conditions. It is low coil sensitivity and high contact current carrying capacity makes these relays ideal for a variety of applications. In a unique design, motor efficiency and the proven contact structure of qualified relays, offer sensitivities from 25 milliwatts with low level switching to 2 amperes, low profile, proven designs and wide selection of coil values to provide the designer with a consistent high quality product for today's and tomorrow design.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 1 or 2 form C, SPDT or DPDT contacts, special metal alloy with gold plating



Series Types

- **1BK** 1 form C, SPDT
- **2BK** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	1,0 oz. (28,35 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	8,0 ms. max. at 25°C		
Release Time	4,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	Series 1BK: 25 mW at pick-up, 110 mW typical at nominal rated coil voltage, at 25 °C Series 2BK: 40 mW at pick-up, 160 mW typical at nominal rated coil voltage, at 25 °C		

FULL SIZE CRYSTAL CAN RELAY
SENSITIVE 25 and 40 MILLIWATT

Series BK

Typical Characteristics

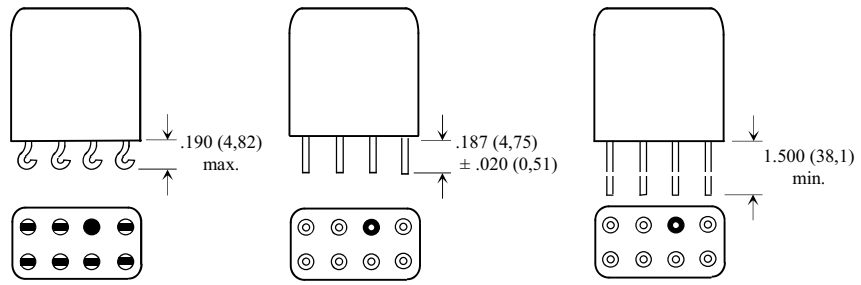
Series Type 2BK - DPDT – 40 mW						Series Type 1BK - SPDT – 25 mW			
Voltage Code	Coil Resistance at 25°C ± 10%	Nominal Coil Voltage Vdc	Nominal Coil Current mA	Pick-up mA Max. at 25°C	Drop-out mA Min. at 25°C	Nominal Coil Voltage Vdc	Nominal Coil Current mA	Pick-up mA Max. at 25°C	Drop-out mA Min. at 25°C
101	20	1,8	89,2	44,6	4,5	1,4	70,6	35,3	3,5
102	30	2,2	73,0	36,5	3,7	1,8	57,6	28,8	2,9
103	50	2,8	56,6	28,3	2,8	2,2	44,6	22,3	2,3
104	75	3,5	46,2	23,1	2,3	2,8	36,6	18,3	1,8
105	100	4,0	40,0	20,0	2,0	3,2	31,6	15,8	1,6
106	200	5,7	28,4	14,2	1,4	4,5	22,4	11,2	1,2
107	300	7,0	23,0	11,5	1,2	5,5	18,2	9,1	0,90
109	500	9,0	17,8	8,9	0,90	7,1	14,2	7,1	0,70
112	875	12,0	13,5	6,8	0,70	9,4	10,7	5,4	0,54
113	1000	12,6	12,6	6,3	0,64	10,0	10,0	5,0	0,50
118	2000	18,0	8,9	4,5	0,50	14,2	7,1	3,6	0,36
120	2500	20,0	8,0	4,0	0,40	15,8	6,3	3,2	0,32
128	5000	28,0	5,6	2,8	0,30	22,5	4,5	2,3	0,23
135	7000	32,0	4,8	2,4	0,24	28,0	3,8	1,9	0,18

Terminal Styles

1 Solder Lug

2 Plug in

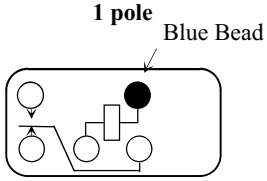
4 Wire Lead



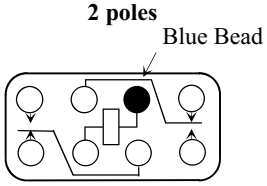
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagrams

1 pole

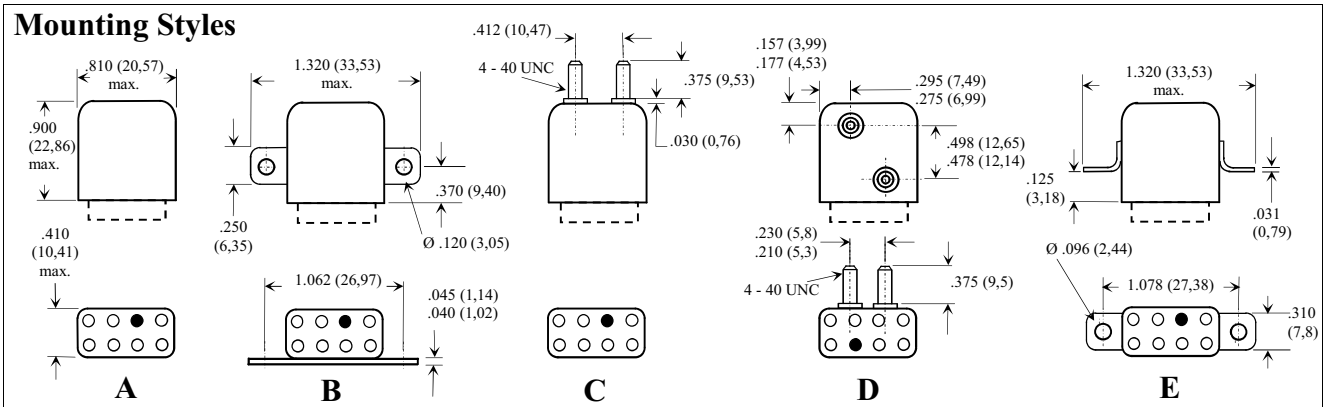


2 poles



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2BK - 2 A - 128 P

- Series
- Terminal Style
- Mounting Style
- Voltage Code
- Insulating Pad (optional)

FULL SIZE CRYSTAL CAN RELAY SENSITIVE 25 and 40 MILLIWATT

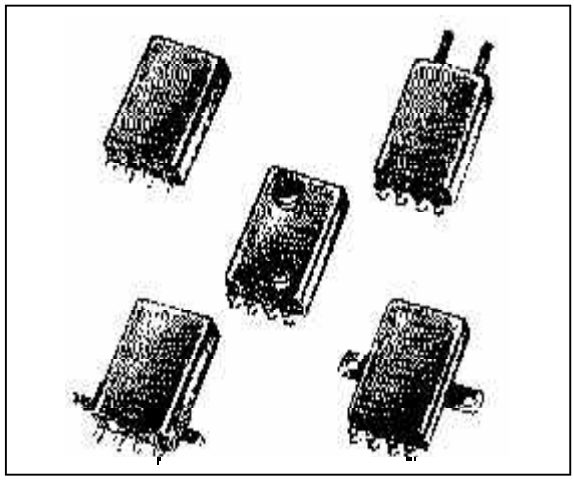
Series BC

Product Description

This ultra sensitive full size crystal can relay series, offers switching capability of low level signals up to 2 amperes under the most extreme environmental conditions. It is low coil sensitivity and high contact current carrying capacity makes these relays ideal for a variety of applications. In a unique design, motor efficiency and the proven contact structure of qualified relays, offer sensitivities from 25 milliwatts with low level switching to 2 amperes, low profile, proven designs and wide selection of coil values to provide the designer with a consistent high quality product for today's and tomorrow design.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 1 or 2 form C, SPDT or DPDT contacts, special metal alloy with gold plating



Series Types

- **1BC** 1 form C, SPDT
- **2BC** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	1,0 oz. (28,35 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	15,0 ms. max. at 25°C		
Release Time	3,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	Series 1BC: 25 mW at pick-up, 110 mW typical at nominal rated coil voltage, at 25 °C Series 2BC: 40 mW at pick-up, 160 mW typical at nominal rated coil voltage, at 25 °C		

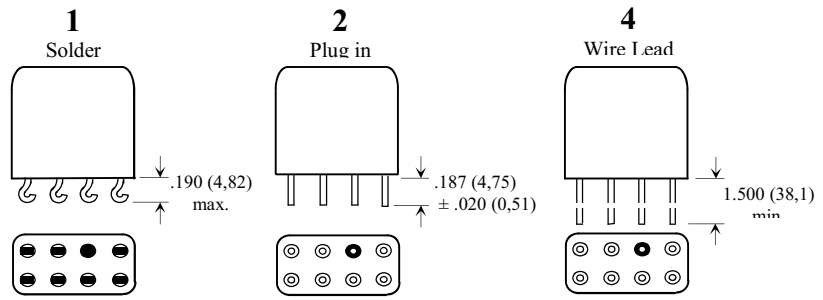
FULL SIZE CRYSTAL CAN RELAY
SENSITIVE 25 and 40 MILLIWATT

Series BC

Typical Characteristics

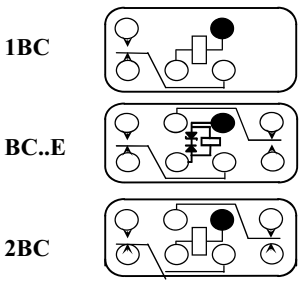
Series Type 2BC - DPDT – 40 mW						Series Type 1BC - SPDT – 25 mW				
Voltage Code	Coil Resistance [Ω] at 25°C ± 10%	Nominal Coil Voltage [Vdc]	Nominal Coil Current [mA]	Pick-up [mA] Max. at 25°C	Drop-out [mA] Min. at 25°C	Nominal Coil Voltage [Vdc]	Nominal Coil Current [mA]	Pick-up [mA] Max. at 25°C	Drop-out [mA] Min. at 25°C	Coil Suppression [Vdc]
101	20	1,8	90,0	45,0	4,5	1,4	70,6	35,3	3,5	23
102	30	2,2	73,0	36,5	3,7	1,8	60,0	30,0	2,9	23
103	50	2,8	56,6	28,3	2,8	2,2	44,6	22,3	2,3	23
104	75	3,5	46,6	23,3	2,3	2,8	37,3	18,6	1,8	23
105	100	4,0	40,0	20,0	2,0	3,2	32,0	16,0	1,6	23
106	200	5,7	28,5	14,2	1,4	4,5	22,4	11,2	1,2	23
107	300	7,0	23,3	11,6	1,2	5,5	18,2	9,1	0,90	47
109	500	9,0	18,0	9,0	0,90	7,1	14,2	7,1	0,70	47
112	875	12,0	13,7	6,8	0,70	9,4	10,7	5,4	0,54	47
113	1000	12,6	12,6	6,5	0,65	10,0	10,0	5,0	0,50	47
118	2000	18,0	9,0	4,5	0,50	14,2	7,1	3,6	0,36	47
120	2500	20,0	8,0	4,0	0,40	15,8	6,3	3,2	0,32	47
128	5000	28,0	5,6	2,8	0,30	22,5	4,5	2,3	0,23	47
135	8000	36,0	4,5	2,3	0,23	29,0	3,6	1,7	0,18	109
140	10000	40,0	4,0	2,0	0,20	32,0	3,2	1,6	0,16	109

Terminal Styles



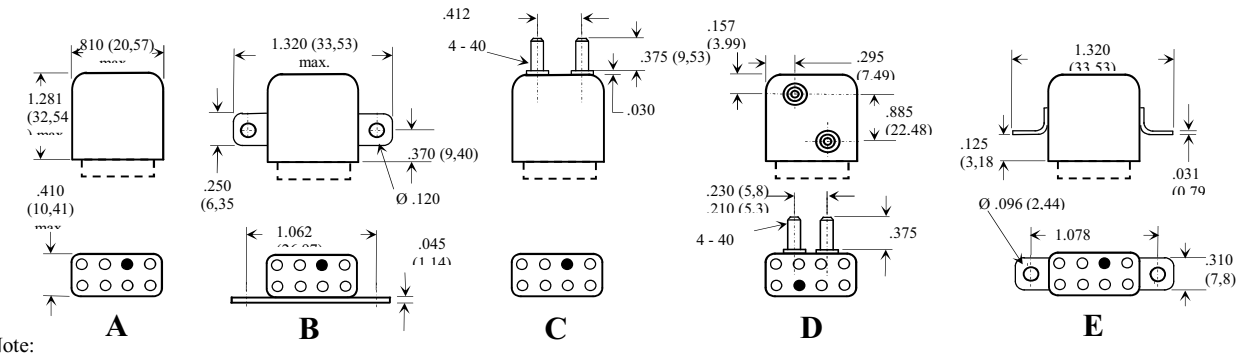
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagrams



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2BC - 2 A - 128 P E

Series	With internal voltage suppressor
Terminal Style	Insulating Pad (optional)
Mounting Style	Voltage Code

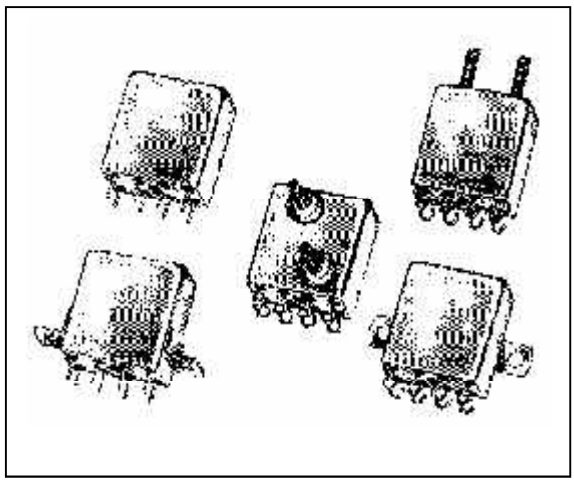
FULL SIZE CRYSTAL CAN RELAY
5 AMPERE

Series BN

Product Description

An innovation in design with emphasis on material technology developments have allowed Nuova Hi-G Italia to manufacture this high sensitivity 5 amperes crystal can relay. The selection of contacts and all current currying parts, have resulted in this highly reliable, sensitive, full hermetically sealed workhouse.
This relay meets all the switching and environmental conditions of demanding military environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- 5 amperes switching
- 1 or 2 form C, SPDT or DPDT contacts, special metal alloy with gold plating.



Series Types

- **1BN** 1 form C, SPDT
- **2BN** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	1,0 oz. (28,35 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Resistive	5 A / 28 Vdc	100.000
		3 A / 115Vac, 400 Hz	100.000
		2 A / 115 Vac, 60 Hz	100.000
	Overload	10 A / 28 Vdc	100
	Inductive	1 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,02 Ω max. initial		
Operate Time	6,0 ms. max. at 25°C		
Release Time	3,0 ms. max. at 25°C		
Contact Bounce	2,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, between contact to case, 500 Vrms min., 60 Hz, between contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	280 mW at pick-up, 1,3 W typical at nominal rated coil voltage, at 25 °C		

FULL SIZE CRYSTAL CAN RELAY
5 AMPERE

Series BN

Typical Characteristics

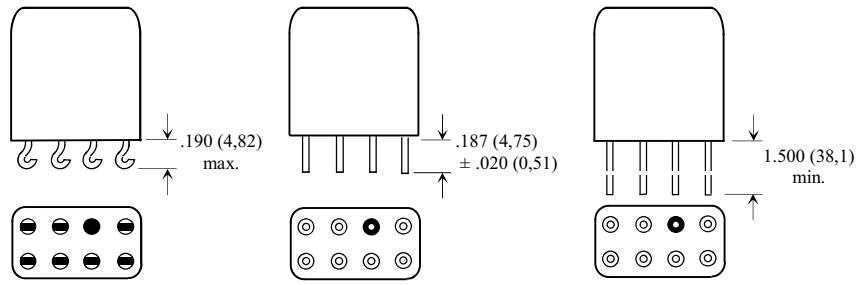
Voltage Code	Coil Voltage [Vdc] Nominal	Coil Voltage [Vdc] Max.	Coil Resistance [Ω] ± 10% at 25°C	Pick-up [Vdc] Max. at 25°C	Drop-out [Vdc] Min. at 25°C	Coil Suppression [Vdc]
106	6,0	7,2	35	3,1	0,5	47
112	12,0	14,4	140	6,3	0,75	47
126	26,5	32,0	600	13,0	1,5	47
148	48,0	58,0	2200	25,0	2,5	109
176	76,0	90,0	4400	35,0	3,0	109

Terminal Styles

1 Solder Lug

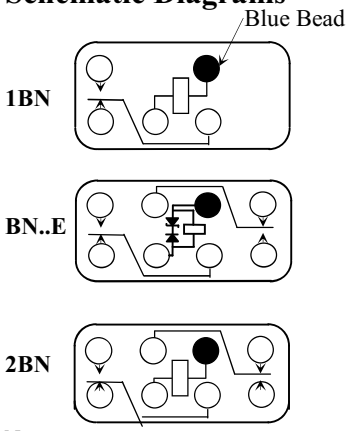
2 Plug in

4 Wire Lead



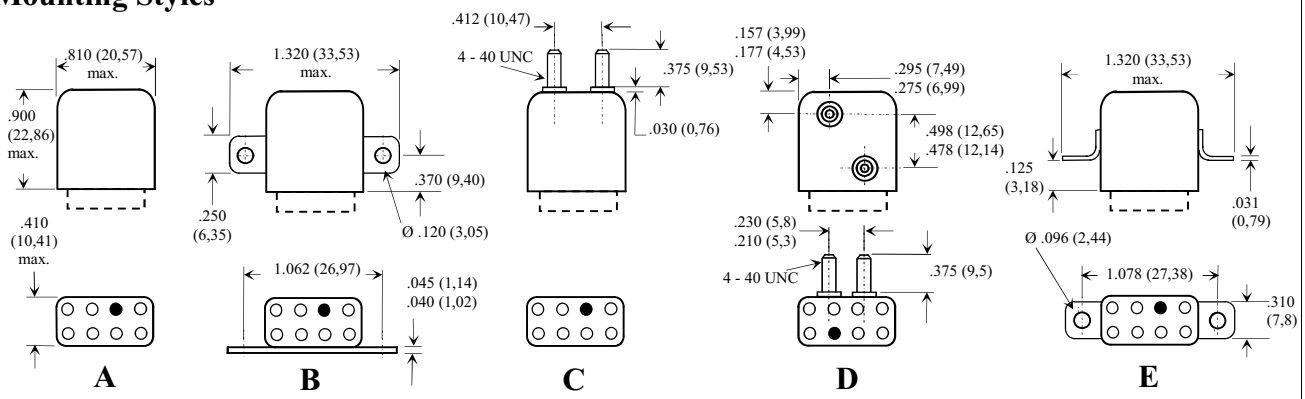
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagrams



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2BN - 2 A - 126 P E

Series	With internal voltage suppressor
Terminal Style	Insulating Pad (optional)
Mounting Style	Voltage Code

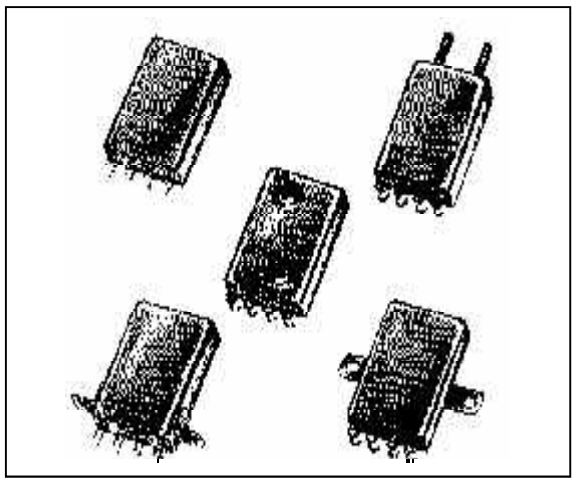
FULL SIZE CRYSTAL CAN RELAY
5 AMPERE SENSITIVE

Series BCN

Product Description

An innovation in design with emphasis on material technology developments have allowed Hi-G Italia to manufacture this high sensitivity 5 amperes crystal can relay. The selection of contacts and all current currying parts, have resulted in this highly reliable, sensitive, full hermetically sealed workhouse.
This relay meets all the switching and environmental conditions of demanding military environments:

- All welded relay construction
- Cleaning and sealing techniques ensure maximum internal cleanliness
- 5 amperes switching
- 1 or 2 form C, SPDT or DPDT contacts, special metal alloy with gold plating.



Series Types

- **1BCN** 1 form C, SPDT
- **2BCN** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	1,0 oz. (28,35 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Resistive	5 A / 28 Vdc	100.000
		3 A / 115Vac, 400 Hz	100.000
		2 A / 115 Vac, 60 Hz	100.000
	Overload	10 A / 28 Vdc	100
	Inductive	1 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,02 Ω max. initial		
Operate Time	15,0 ms. max. at 25°C		
Release Time	4,0 ms. max. at 25°C		
Contact Bounce	2,0 msc. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, between contact to case, 500 Vrms min., 60 Hz, between contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	80 mW at pick-up, 320 mW typical at nominal rated coil voltage, at 25 °C		

FULL SIZE CRYSTAL CAN RELAY
5 AMPERE SENSITIVE

Series BCN

Typical Characteristics

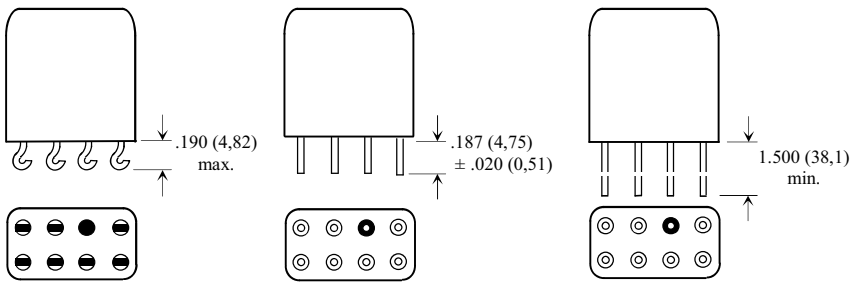
Coil Voltage Code	Nominal Coil Voltage [Vdc]	Nominal Coil Current [mA]	Coil Resistance [Ω] at 25°C ± 10%	Pick-up [mA] Max. at 25°C	Drop-out [mA] Min. at 25°C	Coil Suppression [Vdc]
106	6,0	54,5	110	27,3	3,0	47
112	12,0	26,7	450	13,4	1,4	47
128	28,0	11,2	2500	5,6	0,6	47
140	40,0	8,0	5000	4,0	0,4	109

Terminal Styles

1 Solder Lug

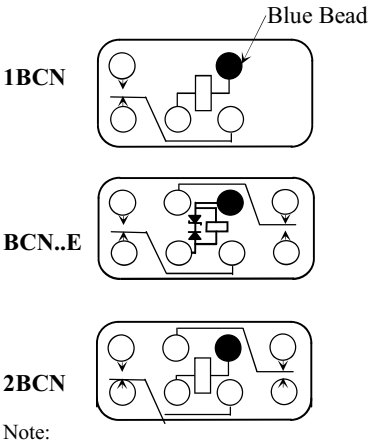
2 Plug in

4 Wire Lead



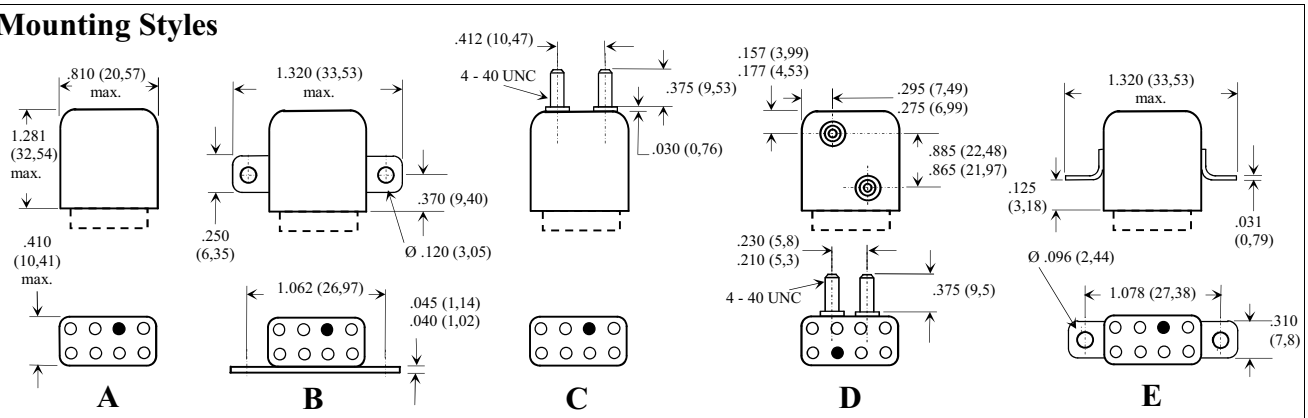
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagrams



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

2BCN - 2 A - 128 P E

Series	With internal voltage suppressor
Terminal Style	Insulating Pad (optional) see half crystal series
Mounting Style	Voltage Code

FOUR POLES CRYSTAL CAN RELAY 2 AMPERE

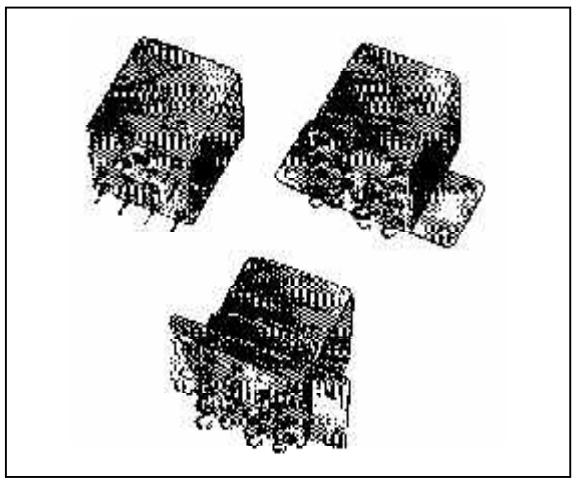
Series 4B

Product Description

A four poles relay design, compatible with the popular 0.2 grid pin spacing. The design employs a common actuator system to each of the four double poles, double throw contacts, and provides reliable simultaneous operation of each pole. Powered by a wide latitude of coil resistance providing sensitivity of 100 milliwatts per contacts. Switching capabilities from low level to 2 amperes. Environmental stability to the extreme temperatures.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 4 form C, 4PDT contacts, special metal alloy with gold plating



Series Type

- **4B** 4 form C, 4PDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	1,0 oz. (28,35 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level	10 mA / 30 mV	1.000.000
	Resistive	2 A / 28 Vdc	100.000
		1 A / 115Vac, 400 Hz	100.000
		0,3 A / 115 Vac, 60 Hz	100.000
	Overload	4 A / 28 Vdc	100
	Inductive	0,75 A / 28 Vdc (200 mH)	100.000
Contact Resistance	0,05 Ω max. initial		
Operate Time	6,0 ms. max. at 25°C		
Release Time	4,0 ms. max. at 25°C		
Contact Bounce	3,0 ms. max. at 25°C		
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	400 mW at pick-up, 1,2 W typical at nominal rated coil voltage, at 25 °C		

FOUR POLES CRYSTAL CAN RELAY
2 AMPERE

Series 4B

Typical Characteristics (over the Temperature range. Unless otherwise noted)

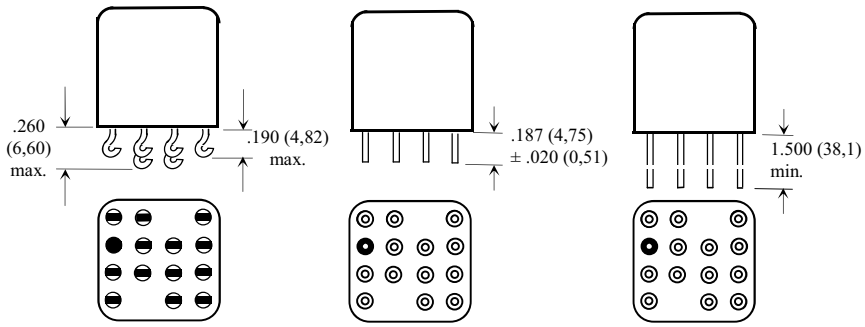
Voltage Code	Coil Voltage		Coil Resistance ± 10% at 25°C	Pick-up Vdc Max. at 25°C	Drop-out Vdc Min. at 25°C
	Nominal	Max.			
106	6,0	7,2	30	3,5	0,5
112	12,0	14,4	125	7,0	1,0
126	26,5	32,0	570	15,0	2,0
148	48,0	58,0	2000	28,0	3,0
176	76,0	90,0	4500	44,0	4,0
215	115,0	125,0	9500	66,0	5,0

Terminal Styles

1 Solder Lug

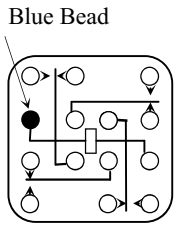
2 Plug in

4 Wire Lead



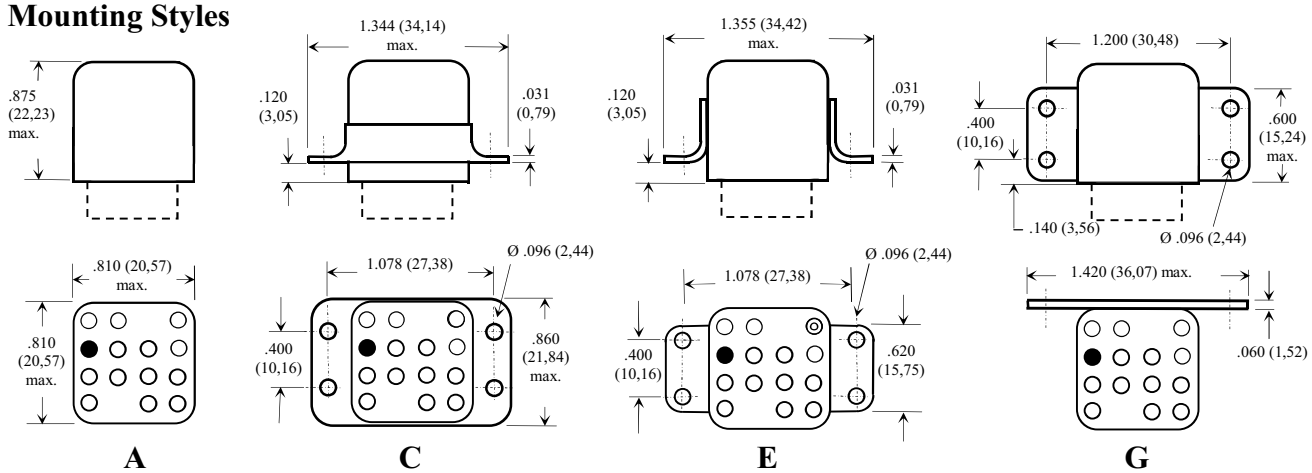
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .030 (0,76) + .003 (0,08) - .002 (0,05)

Schematic Diagram



Note:
- Schematics are viewed from terminals

Mounting Styles



A **C** **E** **G**

Note:
- Dimensions are shown in inches (millimetres)

How to Order (Part Numbering System)

4B - 2 A - 126

Series — Terminal Style — Mounting Style — Voltage Code

CRYSTAL CAN RELAY
10 AMPERE DC or AC COIL

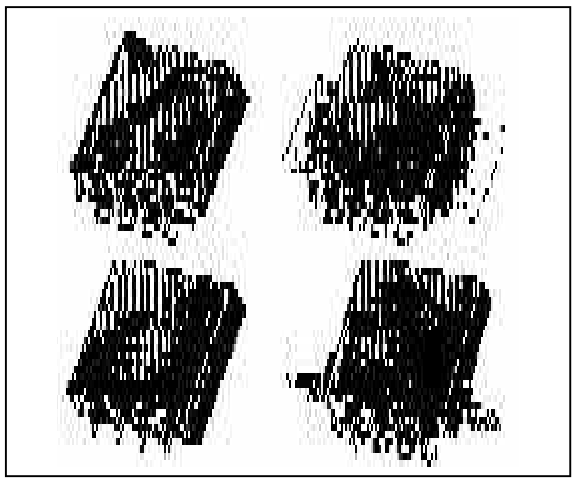
Series T

Product Description

The economical approach to high current switching in a relay design for commercial and military applications. Through unique design innovations, this device incorporates an optimized magnetic structure and massive contact switching paths in less than 0.65 cubic inches. With proven switching characteristics of 10 amperes in excess of 100.000 operations under all environments, it performs in a wide variety of switching applications.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- 10 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating



Series Types

- **2T** Basic Relay, 2 form C, DPDT
- **2T..E** Basic Relay with internal voltage suppressor
- **2TR** Basic Relay combined with internal bridge diode, for AC operation

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic
Weight	2,0 oz. (56,70 grams) max.

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Resistive	10 A / 28 Vdc	100.000
		5 A / 115Vac, 400 Hz	100.000
		3 A / 115 Vac, 60 Hz	100.000
	Inductive	6 A / 28 Vdc (200 mH)	50.000
Contact Resistance	0,01 Ω max. initial		
Operate Time	13,0 ms. Max. at 25°C		
Release Time	13,0 ms. Max. at 25°C, Series T	16,0 ms. max. at 25°C, Series TR	
Contact Bounce	5,0 ms. Max. at 25°C, normally close contacts	5,0 ms. Max. at 25°C, normally open contacts	
Dielectric Strength	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Sensitivity	500 mW at pick-up, 1,7 W typical at nominal rated coil voltage, at 25 °C		

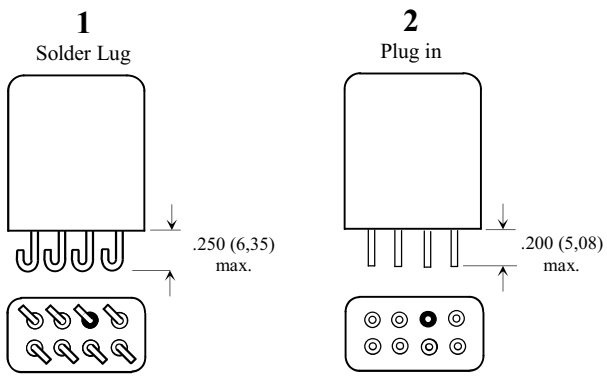
CRYSTAL CAN RELAY
10 AMPERE DC or AC COIL

Series T

Typical Characteristics

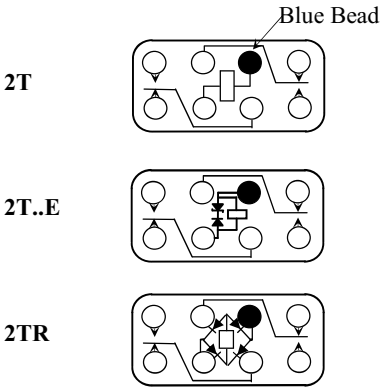
Series Types	Voltage Code	Coil Voltage [Vdc]		Coil Resistance [Ω] ± 10% at 25°C	Pick-up [Vdc] Max. at 25°C	Drop-out [Vdc] Min. at 25°C	Coil Suppression [Vdc]
		Nominal	Max.				
2T	106	6,0	7,2	22	3,3	0,5	47
	112	12,0	14,4	90	6,7	1,0	47
	126	26,5	32,0	330	13,0	2,0	47
	215	115,0	125,0	7500	63,0	5,0	134
2TR	112	12,0	14,0	90	8,0	1,0	
	124	24,0	32,0	330	14,5	2,0	
Note:	215	115,0	125,0	7500	66,0	7,0	
AC operation, 60 to 400 Hz	320	220,0	250,0	25000	120,0	10,0	

Terminal Styles



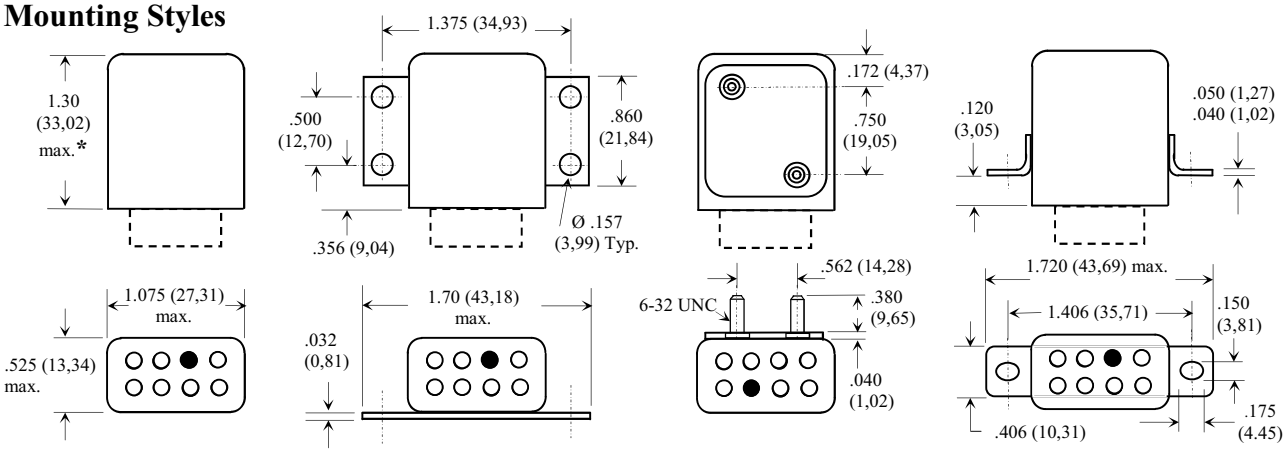
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08). Terminal diameter is .050 (1,27) ± .002 (0,05)

Schematic Diagrams



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres).
- " * " 2TR and 2T..E series types: 1.34 (34,03) max.

How to Order (Part Numbering System)

AC Operation	**2TR**	**- 2**	**A**	**- 126**	
DC Operation	**2T**	**- 2**	**A**	**- 126**	**E**

Series

Terminal Style

Mounting Style

Voltage Code

With internal voltage suppressor

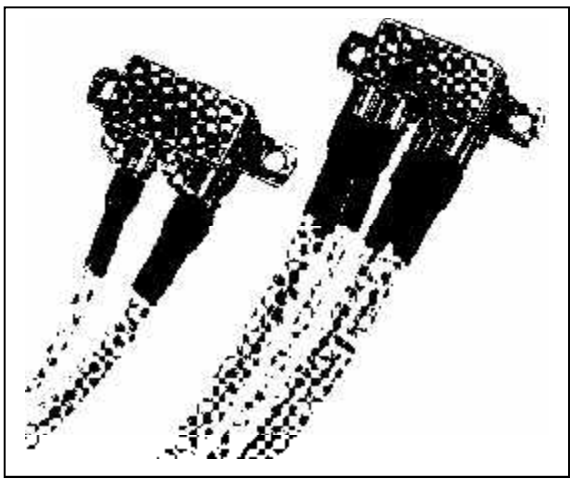
HALF SIZE CRYSTAL CAN RADIO FREQUENCY RELAY 75 WATT

Series RFK

Product Description

This series of coaxial terminated hermetically sealed relays have been designed to provide reliable switching functions in the most demanding radio frequency applications. The use of 2K relays in the basic construction, has been coupled with a unique and improved termination network to insure faultless performance under severe environmental conditions.
The design concepts employed in each of this series have been time tested through thousands of hours testing and millions of field operations to provide the highest degree of reliability.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes auxiliary switching
- 1 or 2 form C, RF contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional shock and vibration immunity
- Coax interconnections
- 200 watt RF carry capability
- 75 watt RF switching capability
- Terminated with 6 inches length RG 196A/u Teflon cable.



Series Types

- **RFK** 1 form C, SPDT
- **2RFK** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
	Resistive	2 A / 28 Vdc (aux)	100.000
		75 Watts RF Switching, 200 Watts carry (cold switching)	100.000
Contact Resistance	0,05 Ω max. initial aux. Contact		
Operate Time	4,0 ms. max. at 25°C		
Release Time	2,0 ms. max. at 25°C		
Dielectric Strength	500 Vrms, 60 Hz, all mutually insulated points, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Sensitivity	250 mW at pick-up, at 25 °C		

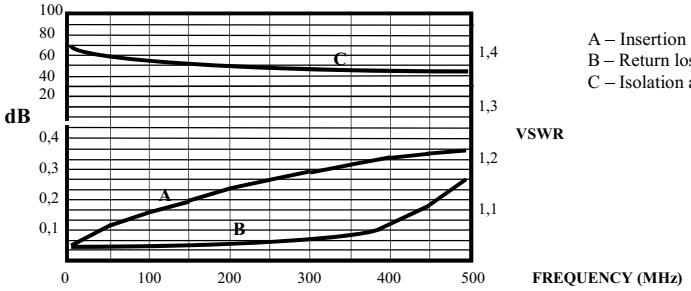
Frequency range	0 to 500 MHz (derated characteristics to 1000 MHz)	
	Typical at 100 MHz	Typical at 500 MHz
Voltage Standing Wave Ratio (VSWR)	< 1,1 : 1	< 1,2 : 1
Insertion Loss	0,16 dB	0,5 dB
Crosstalk	50 dB	40 dB
Power Switching	75 Watts	50 Watts
Power Handling	200 Watts max.	
Characteristic Impedance	50 or 75 Ω (other impedances available on special order)	

Figure 1 – Radio Frequency Curves

Note:

Typical characteristics are based on factory knowledge. Test to ensure compliance, are not performed.

Values shown are in a 50 Ω impedance coaxial system.



A – Insertion loss
B – Return loss (VSWR)
C – Isolation across contacts (Crosstalk)

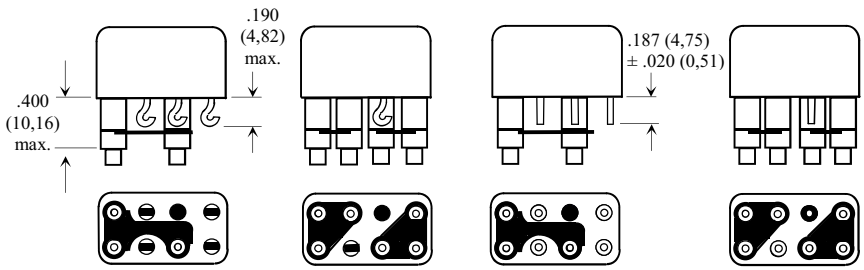
HALF SIZE CRYSTAL CAN RADIO FREQUENCY RELAY 75 WATT

Series RFK

Typical Characteristics

Voltage Code	Coil Voltage		Coil Resistance ± 10% at 25°C	Pick-up Vdc Max. at 25°C	Drop-out Vdc Min. at 25°C
	Nominal	Max.			
106	6,0	7,2	40	3,3	0,3
112	12,0	14,4	150	6,5	0,7
126	26,5	32,0	675	13,5	1,5

Terminal Styles

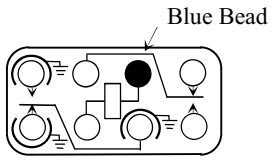


- 1 - - 2 -

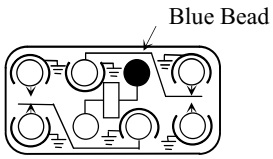
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08), all headers. Aux. Terminal diameter is .030 (0,76) all headers

Schematic Diagrams

1 Pole RF, 1 Pole aux.

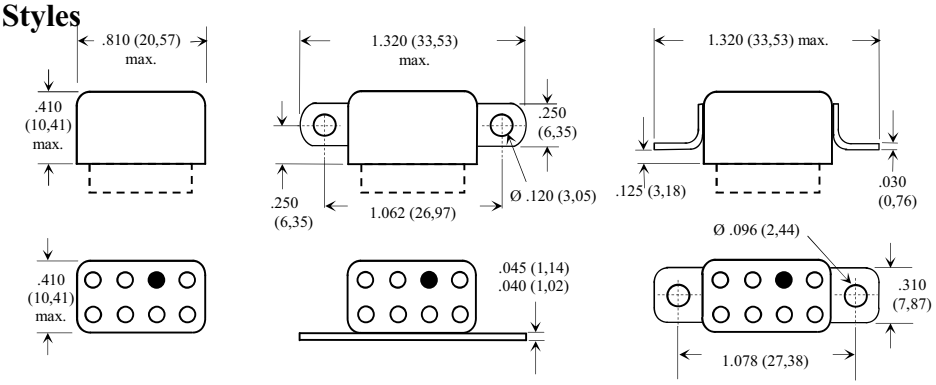


2RF Poles



Note:
- Schematics are viewed from terminals

Mounting Styles



A B C

Note:
- Dimensions are shown in inches (millimetres)

Note:

Contact factory for other cable types and lengths

How to Order (Part Numbering System)

1 Pole	RFK	- 2	A	- 126	
2 Poles	2RFK	- 2	A	- 126	
Series Type		Terminal Style		Mounting Style	Voltage Code

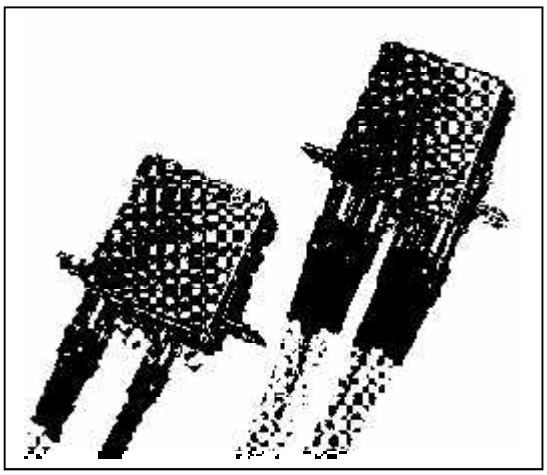
CRYSTAL CAN
RADIO FREQUENCY RELAY
75 WATT

Series RFB

Product Description

This series of coaxial terminated hermetically sealed relays have been designed to provide reliable switching functions in the most demanding radio frequency applications. The use of 2B relays in the basic construction, has been coupled with a unique and improved termination network to insure faultless performance under severe environmental conditions.
The design concepts employed in each of this series have been time tested through thousands of hours testing and millions of field operations to provide the highest degree of reliability.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes auxiliary switching
- 1 or 2 form C, RF contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional shock and vibration immunity
- Coax interconnections
- 200 watt RF carry capability
- 75 watt RF switching capability
- Terminated with 6 inches length RG 196A/u Teflon cable.



Series Types

- **RFB** 1 form C, SPDT
- **2RFB** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	20 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
	Resistive	2 A / 28 Vdc (aux)	100.000
		75 Watts RF Switching, 200 Watts carry (cold switching)	100.000
Contact Resistance	0,05 Ω max. initial aux. Contact		
Operate Time	6,0 ms. max. at 25°C		
Release Time	3,0 ms. max. at 25°C		
Dielectric Strength	500 Vrms, 60 Hz, all mutually insulated points, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Sensitivity	250 mW at pick-up, at 25 °C		

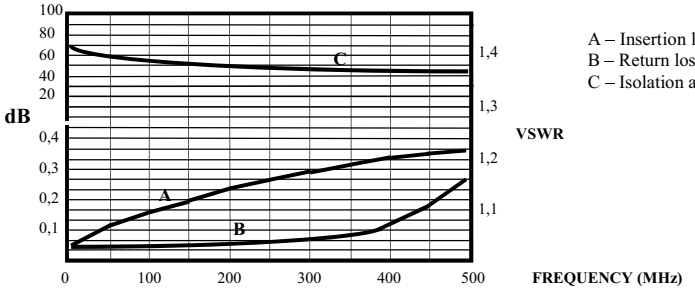
Frequency range	0 to 500 MHz (derated characteristics to 1000 MHz)	
	Typical at 100 MHz	Typical at 500 MHz
Voltage Standing Wave Ratio (VSWR)	< 1,1 : 1	< 1,2 : 1
Insertion Loss	0,16 dB	0,5 dB
Crosstalk	50 dB	40 dB
Power Switching	75 Watts	50 Watts
Power Handling	200 Watts max.	
Characteristic Impedance	50 or 75 Ω (other impedances available on special order)	

Figure 1 – Radio Frequency Curves

Note:

Typical characteristics are based on factory knowledge. Test to ensure compliance, are not performed.

Values shown are in a 50 Ω impedance coaxial system.



A – Insertion loss
B – Return loss (VSWR)
C – Isolation across contacts (Crosstalk)

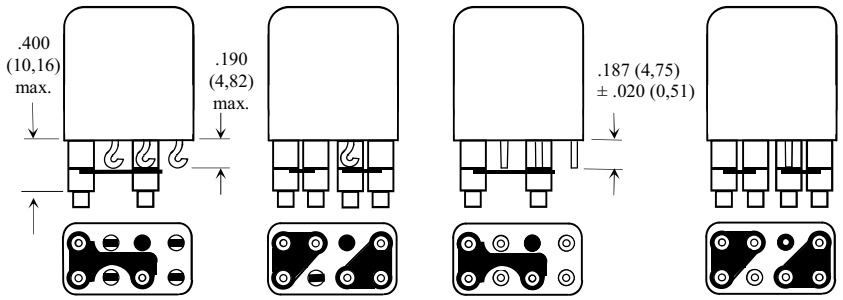
CRYSTAL CAN
RADIO FREQUENCY RELAY
75 WATT

Series RFB

Typical Characteristics

Voltage Code	Coil Voltage		Coil Resistance ± 10% at 25°C	Pick-up Vdc Max. at 25°C	Drop-out Vdc Min. at 25°C
	Nominal	Max.			
106	6,0	7,2	40	3,1	0,5
112	12,0	14,4	160	6,3	0,7
126	26,5	32,0	675	13,0	1,5
148	48,0	58,0	2500	25,0	2,5
176	76,0	90,0	5000	35,0	3,0

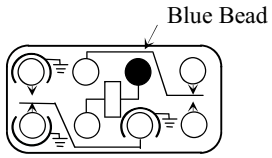
Terminal Styles



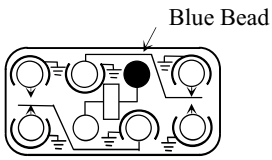
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08), all headers. Aux. Terminal diameter is .030 (0,76) all headers

Schematic Diagrams

1 Pole RF, 1 Pole aux.

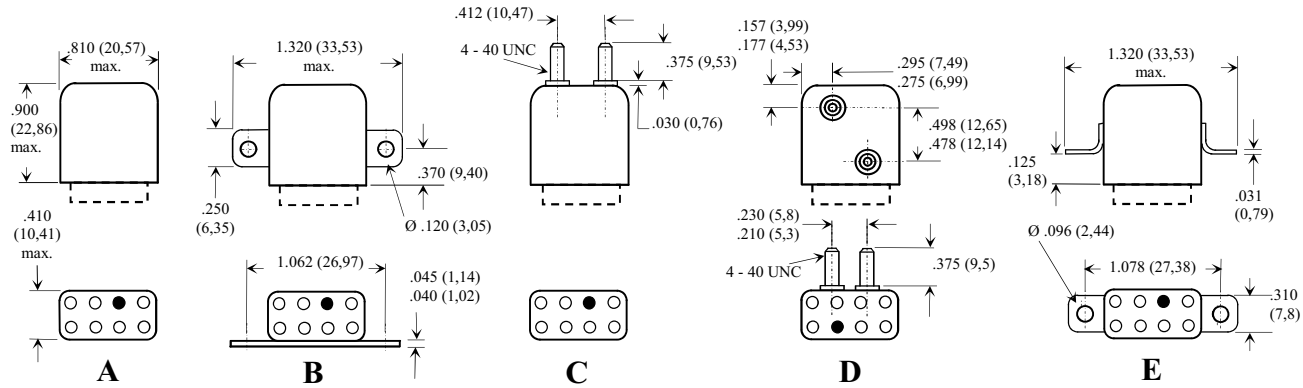


2RF Poles



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

Note:

Contact factory for other cable types and lengths

How to Order (Part Numbering System)

1 Pole	**RFB**	**- 2**	**A**	**- 126**	
2 Poles	**2RFB**	**- 2**	**A**	**- 126**	
Series Type					Voltage Code
Terminal Style					Mounting Style

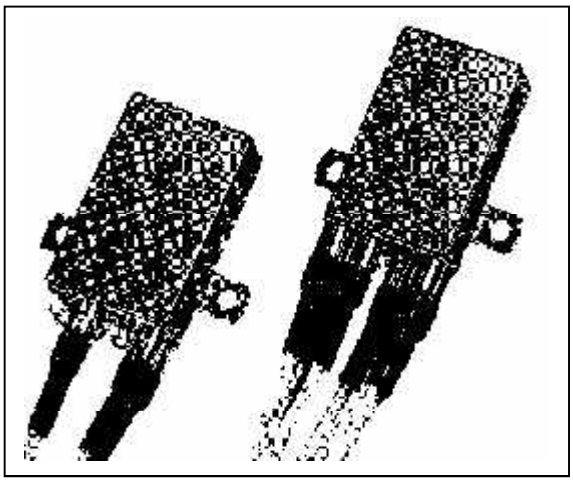
CRYSTAL CAN
RADIO FREQUENCY RELAY
75 WATT, 40 MilliWatts SENSITIVE

Series RFBC

Product Description

This series of coaxial terminated hermetically sealed relays have been designed to provide reliable switching functions in the most demanding radio frequency applications. The use of 2BC relays in the basic construction, has been coupled with a unique and improved termination network to insure faultless performance under severe environmental conditions.
The design concepts employed in each of this series have been time tested through thousands of hours testing and millions of field operations to provide the highest degree of reliability.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes auxiliary switching
- 1 or 2 form C, RF contacts, special metal alloy with gold plating
- Frame, armature designs and force / mass ratio provides exceptional shock and vibration immunity
- Coax interconnections
- 200 watt RF carry capability
- 75 watt RF switching capability
- Terminated with 6 inches length RG 196A/u Teflon cable.



Series Types

- **RFBC** 1 form C, SPDT
- **2RFBC** 2 form C, DPDT

Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 ms.
Vibration (sinusoidal)	15 g, 10 to 2000 Hz
Acceleration	30 g
Sealing	All welded, Hermetic

Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
	Resistive	2 A / 28 Vdc (aux)	100.000
		75 Watts RF Switching, 200 Watts carry (cold switching)	100.000
Contact Resistance	0,05 Ω max. initial aux. Contact		
Operate Time	15,0 ms. max. at 25°C		
Release Time	3,0 ms. max. at 25°C		
Dielectric Strength	500 Vrms, 60 Hz, all mutually insulated points, at sea level		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Sensitivity	40 mW at pick-up, at 25 °C		

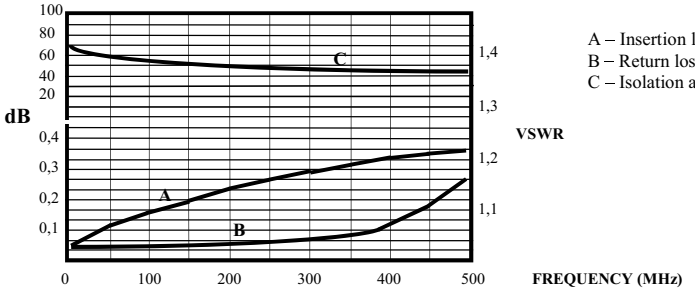
Frequency range	0 to 500 MHz (derated characteristics to 1000 MHz)	
	Typical at 100 MHz	Typical at 500 MHz
Voltage Standing Wave Ratio (VSWR)	< 1,1 : 1	< 1,2 : 1
Insertion Loss	0,16 dB	0,5 dB
Crosstalk	50 dB	40 dB
Power Switching	75 Watts	50 Watts
Power Handling	200 Watts max.	
Characteristic Impedance	50 or 75 Ω (other impedances available on special order)	

Figure 1 – Radio Frequency Curves

Note:

Typical characteristics are based on factory knowledge. Test to ensure compliance, are not performed.

Values shown are in a 50 Ω impedance coaxial system.



A – Insertion loss
B – Return loss (VSWR)
C – Isolation across contacts (Crosstalk)

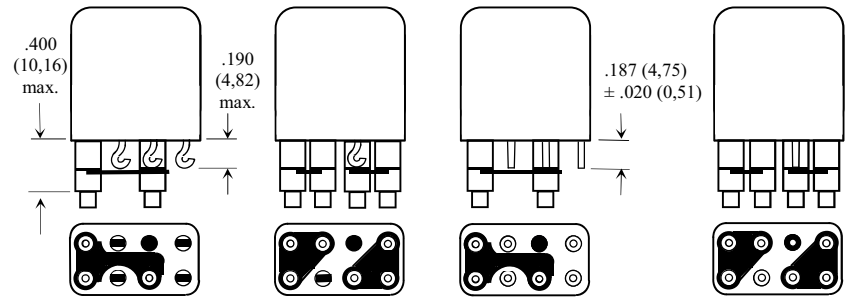
CRYSTAL CAN
RADIO FREQUENCY RELAY
75 WATT, 40 MilliWatts SENSITIVE

Series RFBC

Typical Characteristics

Voltage Code	Coil Resistance ± 10% at 25°C	Nominal Rated Coil		Pick-up mA Max. at 25°C	Drop-out mA Min. at 25°C
		Voltage (Vdc)	Current (mA)		
101	20	1,8	89,2	44,6	4,5
102	30	2,2	73,0	36,5	3,7
103	50	2,8	56,6	28,3	2,8
104	75	3,5	46,2	23,1	2,3
105	100	4,0	40,0	20,0	2,0
106	200	5,7	28,4	14,2	1,4
107	300	7,0	23,0	11,5	1,2
109	500	9,0	17,8	8,9	0,9
112	875	12,0	13,5	6,8	0,7
113	1000	12,6	12,6	6,5	0,6
118	2000	18,0	8,9	4,5	0,5
120	2500	20,0	8,0	4,0	0,4
128	5000	28,0	5,6	2,8	0,3
135	8000	36,0	4,5	2,3	0,2
140	10000	40,0	4,0	2,0	0,2

Terminal Styles

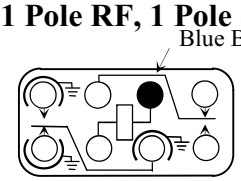


- 1 - - 2 -

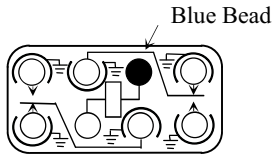
Note:
- Dimensions are shown in inches (millimetres)
- Terminal spacing is .200 (5,08), all headers. Aux. Terminal diameter is .030 (0,76) all headers

Schematic Diagrams

1 Pole RF, 1 Pole aux.

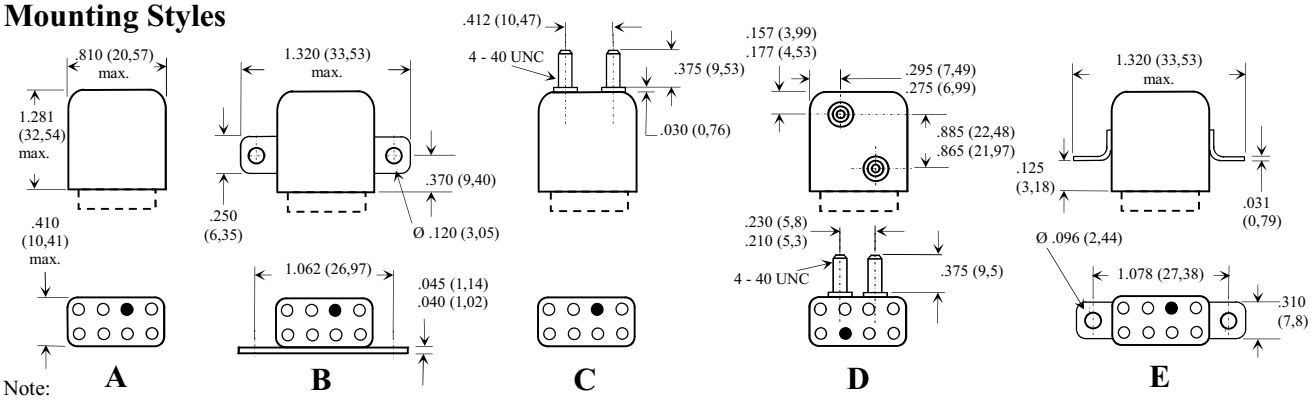


2RF Poles



Note:
- Schematics are viewed from terminals

Mounting Styles



Note:
- Dimensions are shown in inches (millimetres)

Note:

Contact factory for other cable types and lengths

How to Order (Part Numbering System)

1 Pole	**RFBC**	**- 2**	**A**	**- 128**	
2 Poles	**2RFBC**	**- 2**	**A**	**- 128**	
Series Type		Terminal Style			Voltage Code / Mounting Style

2 AMPERE — 1/2 CRYSTAL CAN RELAY COIL TRANSIENT SUPPRESSED

2K-7940

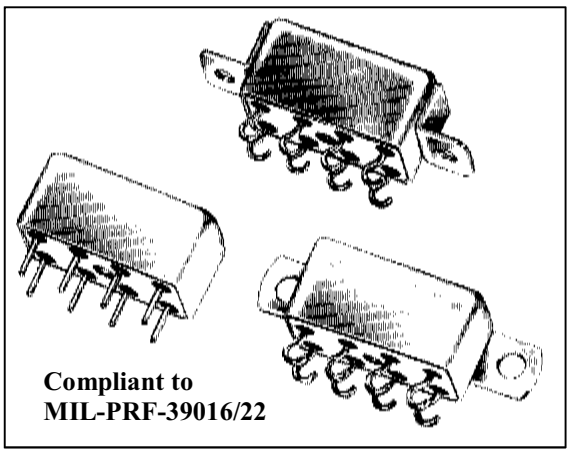
Product Description

A series of half crystal can hermetically sealed relays manufactured in compliance to the referenced Military specification.
Non polarized, non latching hermetically sealed relay with bifilar coil. The product's advanced design provides superior performance in the environmental and operational requirements of today's sophisticated equipment. Volume production coupled ensure product consistency and the highest degree of reliability.
The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 2 amperes switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- Frame, armature design and force / mass ratio provides exceptional immunity to shock and vibration.

Series Type

- **2K-7940** 2 form C, DPDT



Environmental and Physical Specifications

Temperature (Ambient)	- 65°C to + 125°C
Shock	100 g, 6 msec.
Vibration (sinusoidal)	30 g, 10 to 3000 Hz
Vibration (random)	0,4g / Hz, 50 to 2000 Hz
Acceleration	50 g
Sealing	All welded, Hermetic
Weight	0,46 oz. (13,0 grams) max.

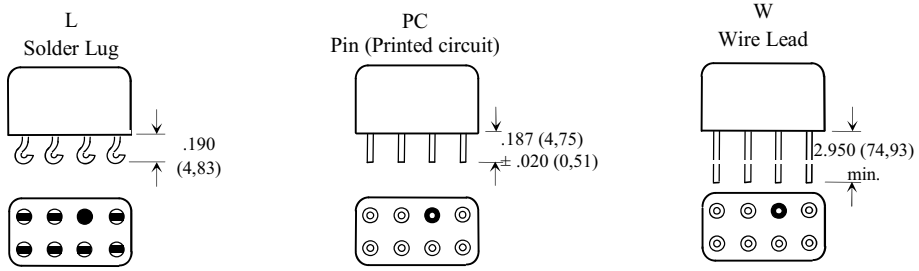
Electrical Characteristics (over the Temperature range. Unless otherwise noted)

Coil Data	See Typical Characteristics chart		
Contact Rating	**Type Load**	**Contact Load**	**Cycles min.**
(Note: All ratings with grounded case)	Low Level Resistive Overload Inductive Lamp	10 to 50 µA / 10 to 50 mV dc or peak ac 2 A / 28 Vdc 0,1 A / 115 Vac, 60 & 400 Hz 4 A / 28 Vdc 0.5 A / 28 Vdc (200 mH) 0,16 A / 28 Vdc	1.000.000 100.000 100.000 100 100.000 100.000
Contact Resistance	0,05Ω max. initial, 0,1Ω max. after life, 0,15 ohm max. after low level		
Operate Time	5,0 ms max.		
Release Time	5,0 ms max.		
Contact Bounce	2,0 ms max.		
Contact Stabilization Time	2,5 ms max.		
Dielectric Strenght	1.000 Vrms min., 60 Hz, all points, 500 Vrms min. between open contacts and coil to case, at sea level 350 Vrms min., 60 Hz, all points at 70,000 ft.		
Insulation Resistance	1.000 MΩ min. all points at 500 Vdc		
Intercontact Capacitance	2,5 pF between contacts		
Sensitivity	250 mW at pull-in, 1 W at nominal rated coil voltage, at 25°C		

2 AMPERE — 1/2 CRYSTAL CAN RELAY COIL TRANSIENT SUPPRESSED

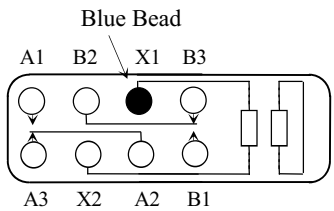
2K-7940

Terminal Style



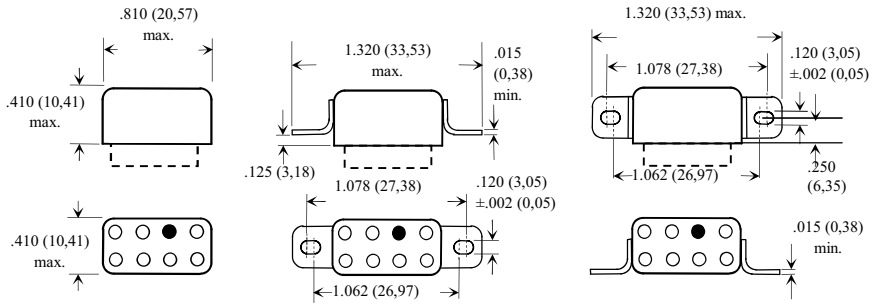
Note:
Dimensions are shown in inches (millimetres)
Terminal Spacing is .200 (5,08)
Terminal diameter is .030 (0,76) + .003 (0,07) - .002 (0,05)

Schematic Diagram



Note:
Schematics are viewed from terminals

Mounting Style



Note:
Dimensions are shown in inches (millimetres)
Terminal Spacing is .200 (5,08)
Terminal diameter is .030 (0,76) + .003 (0,07) - .002 (0,05)

Note:

Failure rate reliability level

Military Suffix	Hi-G Suffix	FR % / 10000 cycles
L	A	3,0
M	B	1,0

Typical Characteristics at 25°C

Terminals			Mount	Coil Voltage Vdc		DC Coil Resistance ±10% @ 25°C	Operate Characteristics - Over the Temperature Range		
Solder Lug	Plug-in	Wire Lead		Max.	Nom.		Pick Up Vdc Max.	Dropout Vdc Min.	Max. Coil Transient Voltage
004	005	006	B	32,0	26,5	700	20,0	1,0	48,0
007	-	008	C						
-	009	010	NONE						
011	012	013	B	15,0	12,0	160	9,6	0,5	24,0
014	-	015	C						
-	016	017	NONE						

How to Order (Part Numbering System)

	2K-7940	- 004	A	

Series

Dash number (see characteristics table)

Reliability levels A or B

Hi-G ITALIA
Solid State Relays Index

TO-5 CASE
SOLID STATE RELAY
40 V AC or DC/50mA

CSS-5-1
C.O.T.S.
M28750/5

FEATURES:

- Transformer isolation
- High switching speed
- TTL compatible
- AC or DC switching
- Hermetic TO-5 package

ELECTRICAL SPECIFICATIONS:

Input Data:

Input voltage range: 4.0 to 7 V dc.

Rated turn-on voltage: 5.0 V dc.

Rated turn-off voltage: 1.0 V dc maximum.

Input current: 22 mA dc maximum at rated voltage.

Turn-on time: 10 microseconds maximum at rated voltage.

Turn-off time: 15 microseconds maximum from rated voltage.

Output Data:

Rated output current: See Graph.

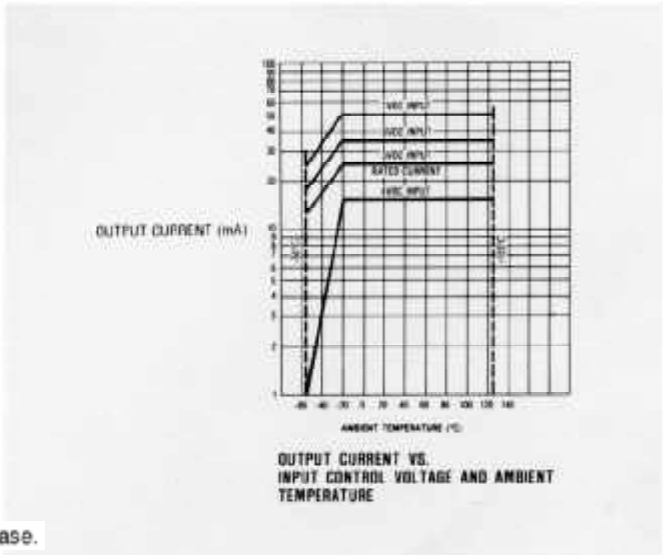
Rated output voltage: ±40 V, ac or dc.

Output voltage drop: 0.5 V dc maximum

Output leakage current: 100 microamperes maximum at rated voltage.

Overload: 0.01 joule surge, 1 percent duty cycle.

DC offset voltage: ±10 milivolts.



OUTPUT CURRENT VS.
INPUT CONTROL VOLTAGE AND AMBIENT TEMPERATURE

Electrical Data:

Dielectric withstanding voltage: 1,000 V ac (P-P), 60Hz, all terminals to case.

Insulation resistance: 100 megohms at 500 V dc. all terminals to case.

Isolation: 10 picofarads tested at 1 kHz.

Power dissipation: 140 milliwatts maximum at rated voltage.

ENVIRONMENTAL DATA:

Temperature (operating and storage): −55° C to +125° C.

Shock (specified pulse): MIL-STD-202, method 213, test condition F (1500 G's).

Vibration: MIL-STD-202, method 204, test condition H, except peak value shall be 100 G's (10 to 2,000 Hz)

Salt spray (corrosion): In accordance with MIL-STD-750, method 1041.

PHYSICAL DATA:

Terminal strength (MIL-STD-202, method 211):

Pull test: Test condition A. 1 pound pull.

Bend test: Test condition C, ½ pound load.

Twist test: Test condition D.

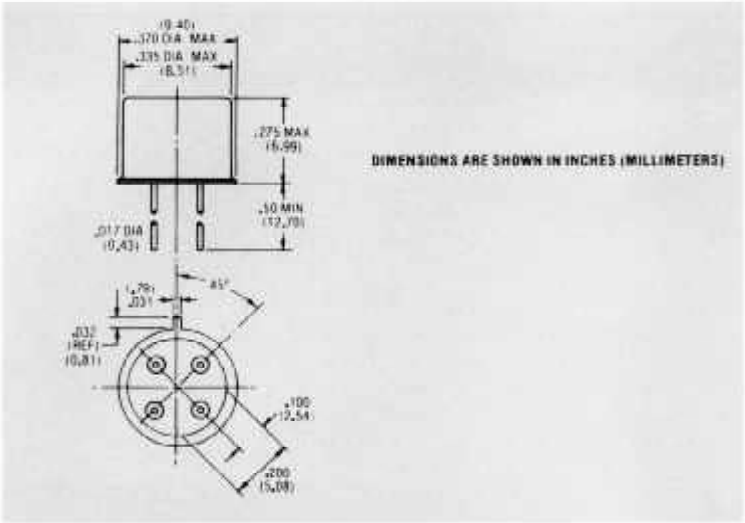
Weight: 5 grams (.18 ounce) typical.

Seal: Hermetic, 10^{-8} ATM CM^3/S.

SPECIAL NOTES:

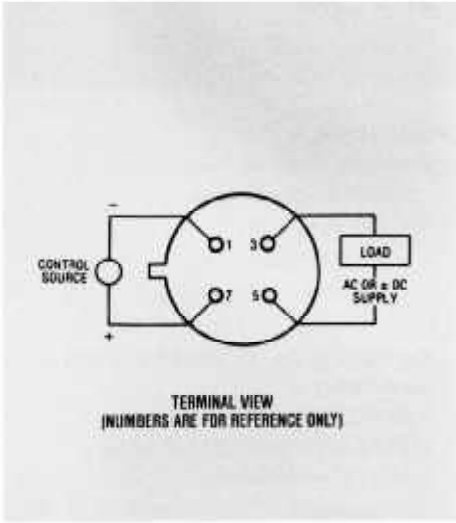
- Reversing polarity of input may cause permanent damage.
- Input must be a step function. Rise or fall time, as applicable, not to exceed 100μ seconds.
- Inductive loads must be diode supressed.
- For any control voltage, the maximum load current value shown on graph must not be exceeded. Attempting to draw currents in excess of these curves can cause permanent damage.

MECHANICAL SPECIFICATIONS



DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)

WIRING DIAGRAM



TERMINAL VIEW
(NUMBERS ARE FOR REFERENCE ONLY)

TO-5 CASE
SOLID STATE RELAY
40 Vdc/250mA Output

CSS-6-1
C.O.T.S.
M28750/6

FEATURES:

- Transformer isolation
- High switching speed
- TTL compatible
- Hermetic TO-5 package

ELECTRICAL SPECIFICATIONS:

Input Data:

Input voltage range: 4.0 to 7 V dc.

Rated turn-on voltage: 5.0 V dc.

Rated turn off voltage: 1.0 V dc maximum.

Input current: 22 mA V dc maximum at rated voltage.

Turn-on time: 10 microseconds maximum at rated voltage.

Turn-off time: 15 microseconds maximum from rated voltage.

Output Data:

Rated output current: See Graph.

Rated output voltage: 40 V dc.

Output voltage drop: 0.5 V dc maximum

Output leakage current: 100 microamperes maximum at rated voltage.

Overload: 1.5 × rating for 5 ms, 1 percent duty cycle.

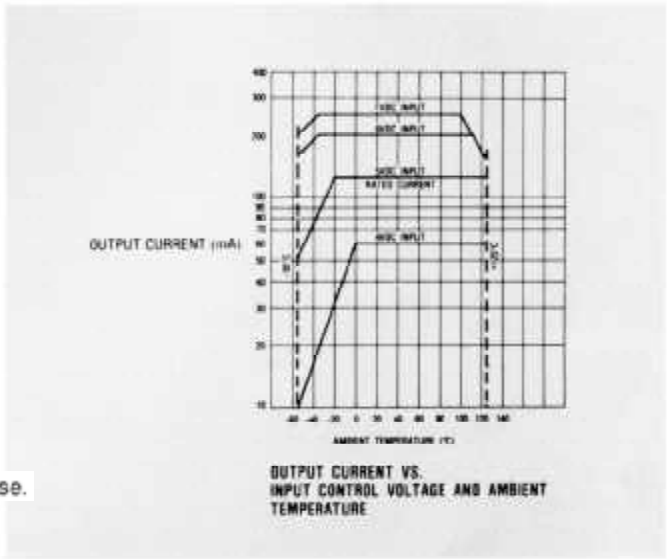
Electrical Data:

Dielectric withstanding voltage: 1,000 V ac (P-P), 60Hz, all terminals to case.

Insulation resistance: 100 megohms at 500 V dc, all terminals to case.

Isolation: 10 picofarads tested at 1 kHz.

Power dissipation: 260 milliwatts maximum at rated voltage.



OUTPUT CURRENT VS.
INPUT CONTROL VOLTAGE AND AMBIENT TEMPERATURE

ENVIRONMENTAL DATA:

Temperature (operating and storage): −55° C to +125° C.

Shock (specified pulse): MIL-STD-202, method 213, test condition F (1500 G's).

Vibration: MIL-STD-202, method 204, test condition H, except peak value shall be 100 G's (10 to 2,000 Hz).

Salt spray (corrosion): In accordance with MIL-STD-750, method 1041.

PHYSICAL DATA:

Terminal strength (MIL-STD-202, method 211):

Pull test: Test condition A, 1 pound pull.

Bend test: Test condition C, ½ pound load.

Twist test: Test condition D.

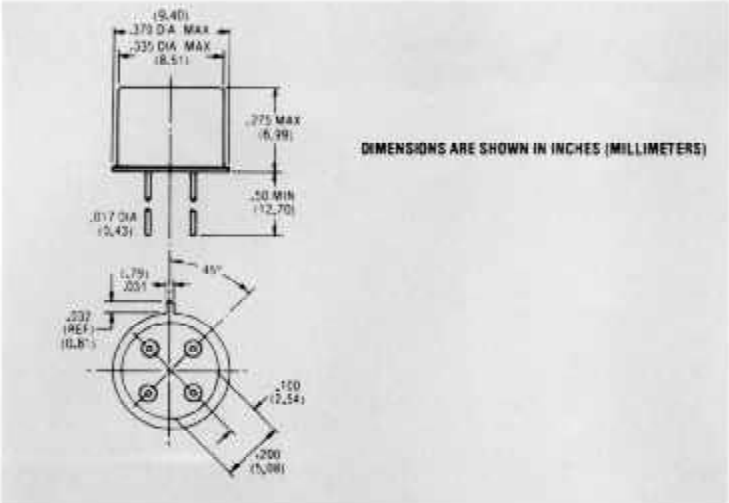
Weight: 5 grams (.18 ounce) typical.

Seal: Hermetic, 10^{-8} ATM CM^3/S.

SPECIAL NOTES:

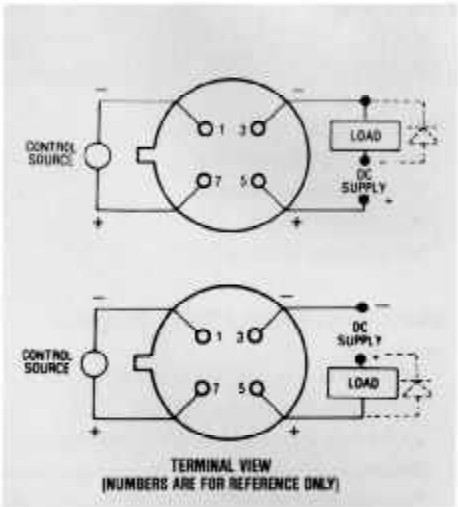
- Reversing polarity of input or output may cause permanent damage.
- Input must be a step function. Rise or fall time, as applicable, not to exceed 100μ seconds.
- Inductive loads must be diode supressed.
- For any control voltage, the maximum load current value shown on graph must not be exceeded. Attempting to draw currents in excess of these curves can cause permanent damage.

MECHANICAL SPECIFICATIONS



DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)

WIRING DIAGRAM



TO-5 CASE
SOLID STATE RELAY
250 Vdc/100mA Output

CSS-7-1
C.O.T.S.
M28750/7

FEATURES:

- Transformer isolation
- High switching speed
- TTL compatible
- Hermetic TO-5 package

ELECTRICAL SPECIFICATIONS:

Input Data:

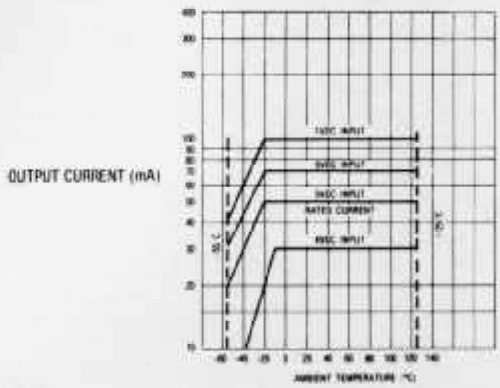
Input voltage range: 4.0 to 7 V dc.
Rated turn-on voltage: 5.0 V dc.
Rated turn-off voltage: 1.0 V dc maximum.
Input current: 22 mA dc maximum at rated voltage.
Turn-on time: 10 microseconds maximum at rated voltage.
Turn-off time: 75 microseconds maximum from rated voltage.

Output Data:

Rated output current: See Graph.
Rated Output voltage: 250 V dc.
Output voltage drop: 0.5 V dc maximum
Output leakage current: 200 microamperes maximum at rated voltage.
Overload: 1.5 × rating for 5 ms, 1 percent duty cycle.

Electrical Data:

Dielectric withstanding voltage: 1,000 V ac (P-P), 60Hz, all terminals to case.
Insulation resistance: 100 megohms at 500 V dc, all terminals to case.
Isolation: 10 picofarads tested at 1 kHz.
Power dissipation: 160 milliwatts maximum at rated voltage.



OUTPUT CURRENT VS
INPUT CONTROL VOLTAGE AND AMBIENT
TEMPERATURE

Environmental Data:

Temperature (operating and storage): −55° C to +125° C.
Shock (specified pulse): MIL-STD-202, method 213, test condition F (1500 G's).
Vibration: MIL-STD-202, method 204, test condition H, except peak value shall be 100 G's (10 to 2,000 Hz).
Salt spray (corrosion): In accordance with MIL-STD-750, method 1041.

Physical Data:

Terminal strength (MIL-STD-202, method 211):

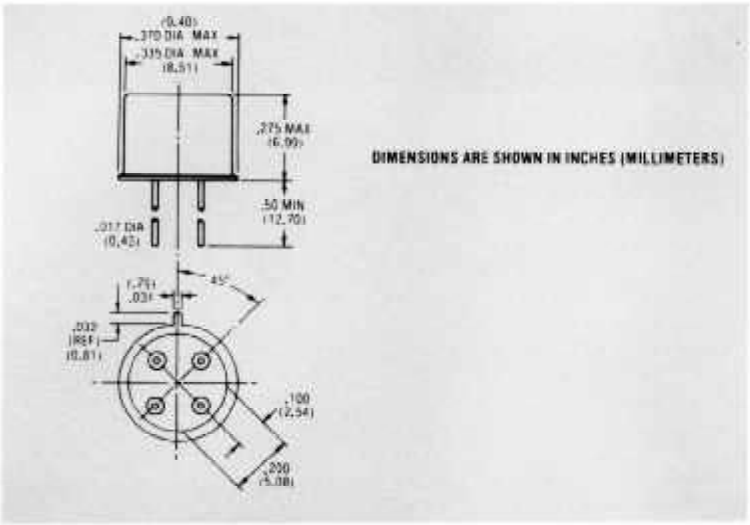
Pull test: Test condition A, 1 pound pull.
Bend test: Test condition C, ½ pound load.
Twist test: Test condition D.

Weight: 5 grams (.18 ounce) typical.
Seal: Hermetic, 10^{-8} ATM CM^3/S.

SPECIAL NOTES:

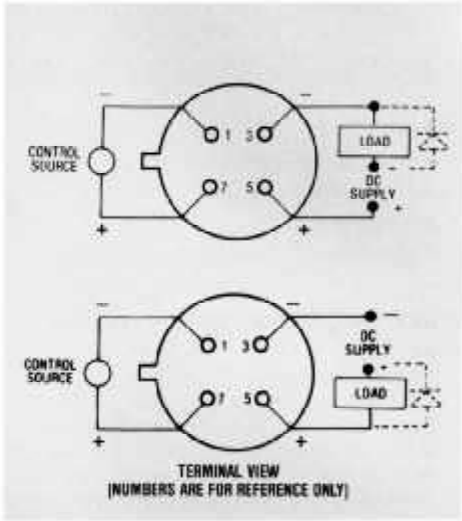
- Reversing polarity of input or output may cause permanent damage.
- Input must be a step function. Rise or fall time, as applicable, not to exceed 100μ seconds.
- Inductive loads must be diode supressed.
- For any control voltage, the maximum load current value shown on graph must not be exceeded. Attempting to draw currents in excess of these curves can cause permanent damage.

MECHANICAL SPECIFICATIONS



DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)

WIRING DIAGRAM



TERMINAL VIEW
(NUMBERS ARE FOR REFERENCE ONLY)

SOLID STATE RELAY

50 Vdc/600mA

CSS-8-1
C.O.T.S.
M28750/8

FEATURES:

- 1000 V rms optical isolation
- High switching speed
- Hermetically sealed-low profile DIP pkg
- Logic compatible input

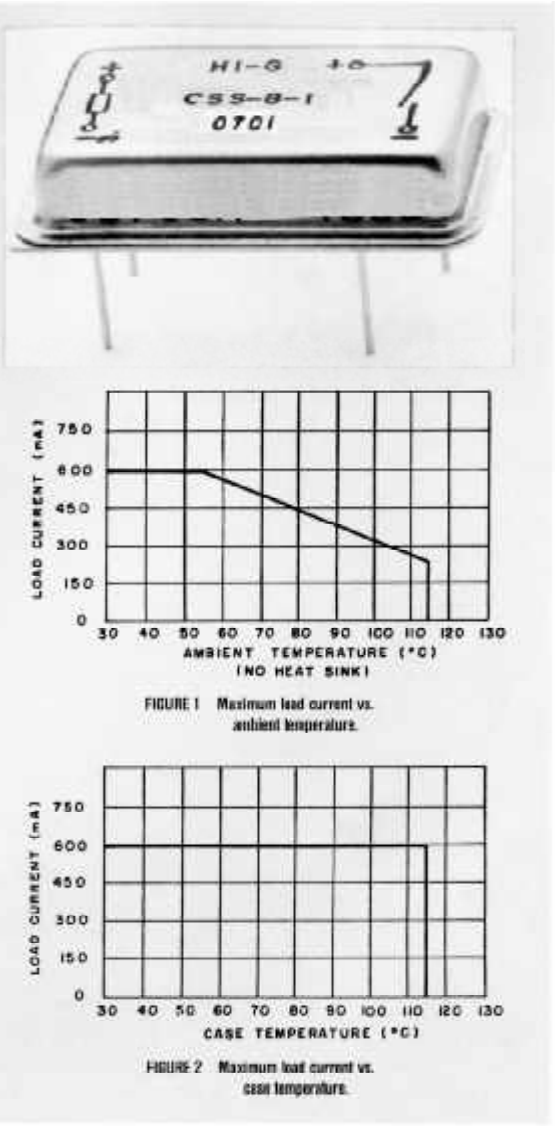


FIGURE 1 Maximum load current vs. ambient temperature.

FIGURE 2 Maximum load current vs. case temperature.

ELECTRICAL SPECIFICATIONS:

Input Data:

Input voltage range: 3.0 V dc to 16.0 V dc.

Rated turn-on voltage: 3.0 V dc.

Rated turn-off voltage: 1.0 V dc maximum.

Input current: 18 mA dc maximum.

Turn-on time: 50 microseconds maximum.

Turn-off time: 150 microseconds maximum.

Output Data: (At 25° C unless otherwise specified.)

Rated output current: See Figures 1 and 2.

Rated output voltage: 50 V dc maximum.

Output voltage drop: 1.4 V dc maximum.

Output leakage current: 60 microamperes maximum.

Electrical Data:

Dielectric withstanding voltage: 1,000 V ac rms, 60Hz, all terminals to case.

Insulation resistance: 100 megohms minimum at 500 V dc.

Isolation: 5 picofarads maximum.

Power dissipation: 1.14 watts maximum.

Environmental Data:

Temperature:

Operating: −65° C to +125° C.
Storage: −65° C to +150° C.

Shock (specified pulse): MIL-STD-202, method 213, test condition I (100 G's).

Vibration: MIL-STD-883, method 2007, test condition B (50 G's) except frequency shall be 10 to 3,000 Hz

Acceleration: 5,000 G's, Y1 axis, MIL-STD-883, method 2001, test condition A.

Electromagnetic interference: Maximum broadband conducted emission on power lines with 30 V dc, 0.5 ampere resistive load during steady-state and switiching conditions.

Physical Data:

Weight: 5 grams (typical).

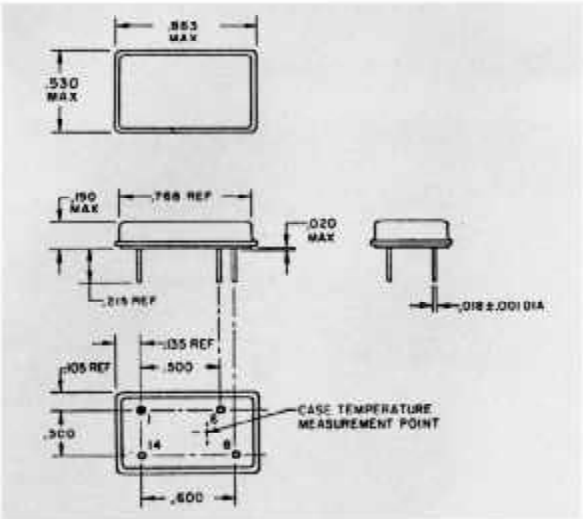
Terminal strength: 1 pound pull minimum

Seal: Hermetic, 10^{-8} ATM CM^3/S.

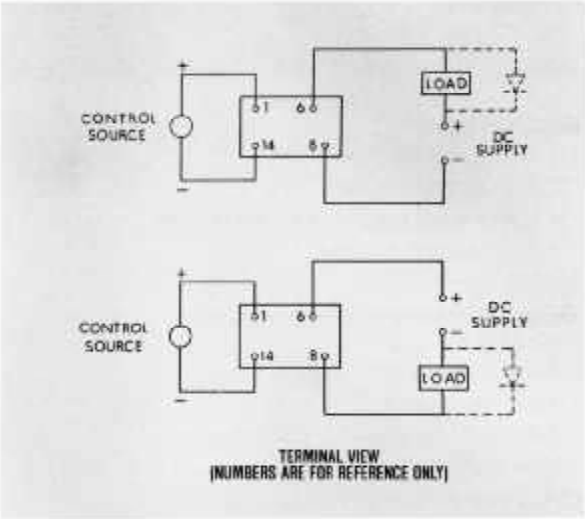
SPECIAL NOTES:

- Reversing polarity of output may cause permanent damage.
- Inductive loads must be diode supressed.

MECHANICAL SPECIFICATIONS



WIRING DIAGRAM



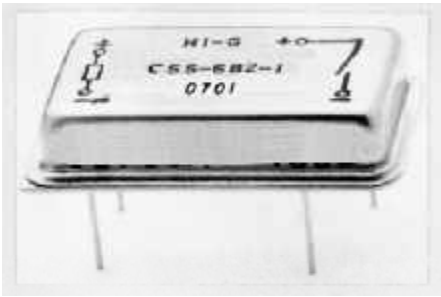
AC SOLID STATE RELAY

1A / 250 Vrms (2A with heatsink)

CSS-682-1
C.O.T.S.
M28750/9

FEATURES:

- 1500 Vrms optical isolation
- Zero voltage turn-on
- TTL compatible input
- Low minimum output current
- Extremely low EMI
- Hermetically sealed low profile



ELECTRICAL SPECIFICATIONS
(-55°C to +110°C unless otherwise specified)

Input Data:

Input voltage range:	3.8-32 Vdc
Assured turn-on voltage (max):	3.8 Vdc
Assured turn-off voltage (min):	1.5 Vdc
Input Current (max) (see fig.):	18 mAdc
Reverse voltage protection:	-32 Vdc

Output Data:

Rated output current (max) (see fig.):	2 A
Rated output voltage:	20-250 Vrms
Output voltage drop @1A (see fig.)	1.5 Vrms
Off-state leakage current @250 Vrms/400Hz (max):	1 mA
Transient voltage (peak):	500 V
Frequency:	40-440Hz
Turn-on time (max):	1/2 cycle
Turn-off time (max):	1 cycle
dV/dt (min) (see fig.):	200 V/µs
Zero voltage turn-on window (peak, max):	±15 V
Junction Temperature (T_J Max) @Rated Current	130°C
Thermal resistance (max.), junction to ambient	65°C/W
Thermal resistance (max.), junction to case	15°C/W
Load power factor (min)	0.2

Electrical Data:

Dielectric Withstanding voltage (min)	1500 Vrms
Insulation resistance (min) @500 Vdc	$10^9\Omega$
Input to Output Capacitance	10 pF

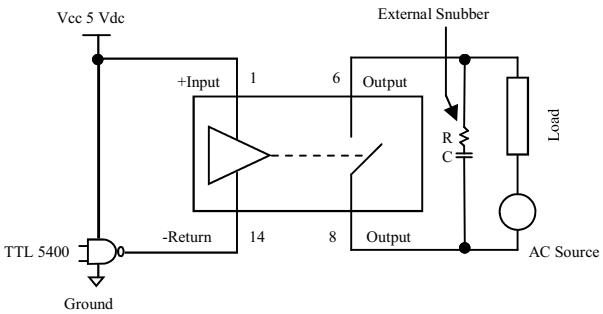
ENVIRONMENTAL DATA:

Ambient temperature (operating):	-55°C to +110°C
Ambient temperature (storage):	-55°C to +125°C
Vibration:	20 g, 10 to 2000 Hz
Shock:	1500 g, 0.5ms pulse
Acceleration:	5000 g

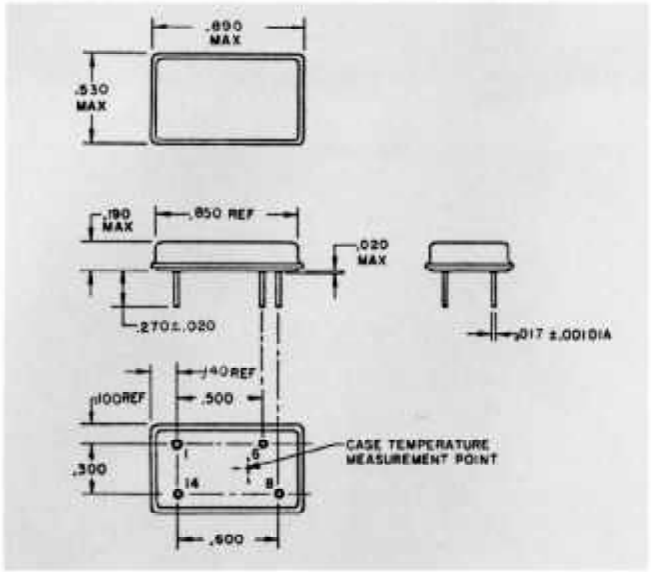
MECHANICAL SPECIFICATIONS

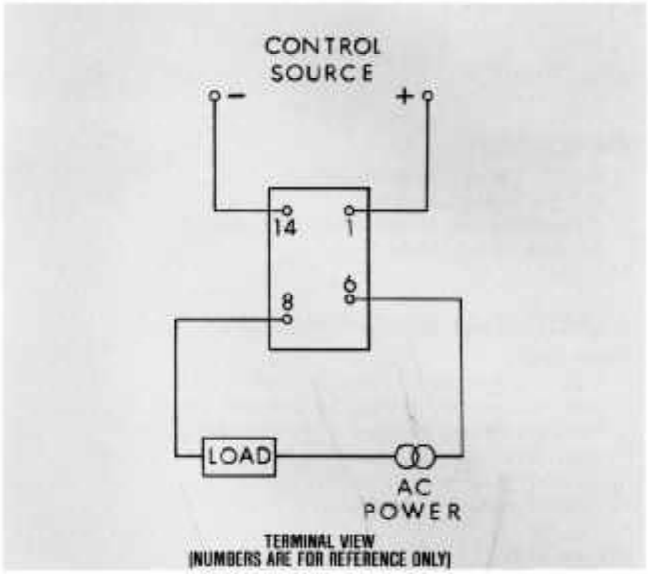
Weight: 175 oz (5 grams) max
Materials:
Head: Kovar
Terminals: Kovar, gold plated
Cover: Nickel

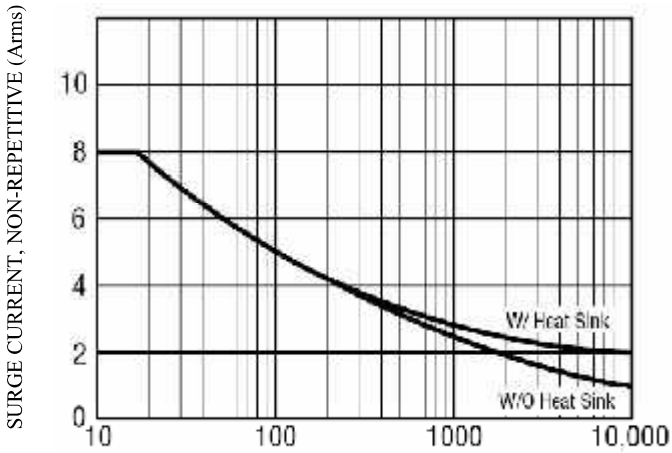
WIRING DIAGRAM



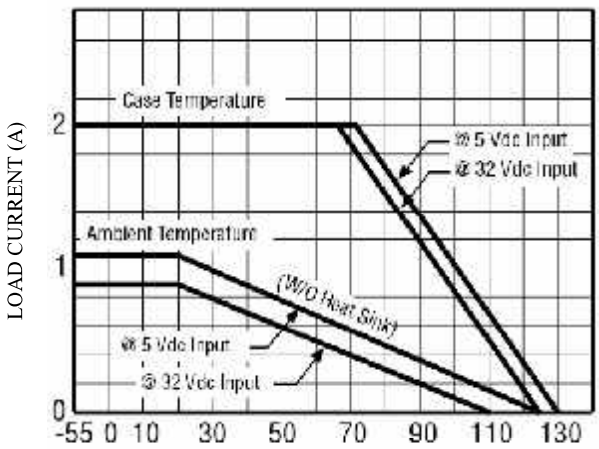
R = 100 Ω 1/2 W - C = 0.01µF (600 V)
(source impedance = 50 Ω)



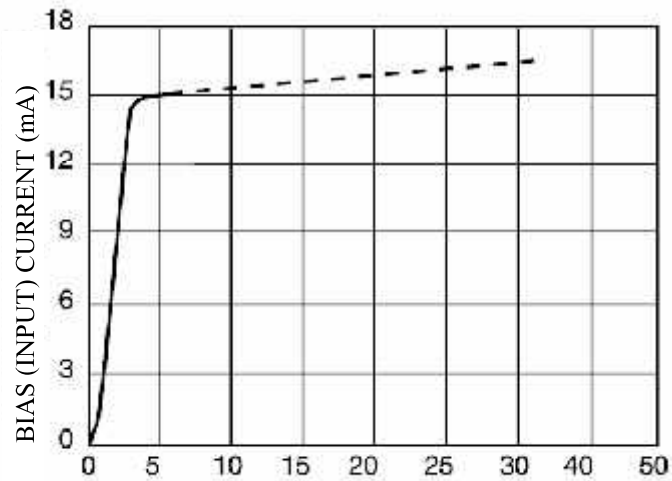




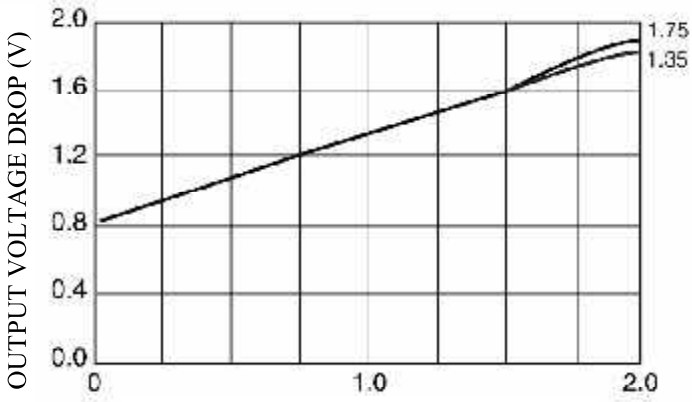
SURGE CURRENT DURATION (ms)



TEMPERATURE (°C)



INPUT VOLTAGE (Vdc)



LOAD CURRENT (A)

SOLID STATE RELAY

220 Vac (45-440Hz)/25A

CSS-10-1/CSS-10-2
C.OT.S.
M28750/10-001Y
M28750/10-002Y

FEATURES:

- 1500 Vac Optical Isolation
- Zero voltage turn-on
- Hermetically sealed
- Logic compatible input

ELECTRICAL SPECIFICATIONS:

Input Data:

Input voltage range: 4.0 to 32.0 V dc.
Rated turn-on voltage: 4.0 V dc minimum
Rated turn-off voltage: 1.0 V dc maximum.
Input current: 16 mA maximum at 32 V dc.

Turn-on time: $\frac{1}{2 \text{ (line frequency)}}$ maximum.

Turn-off time: $\frac{1}{\text{(line frequency)}}$ maximum.

Transient voltage: MIL-STD-704A, curve 1, 80 V, 50 ms maximum.

Output Data:

Output voltage range: 25 to 250 V ac 45-440 Hz.
Rated output current: 25 amperes, ac maximum (see figures 1 and 2).
Rated output voltage: 220 volts maximum, 45-440 Hz.
Output voltage drop: 1.5 volts rms maximum.
Output leakage current: 10 mA, ac maximum at 208 V ac, 400 Hz.
Transient voltage: MIL-STD-704A, curve 1.
Overload: 80 amperes. Relays shall be cycled 10 times, turned on and turned off for a 1 +0.1 second interval each cycle. A 30 second cool down period is permitted between each cycle. The input current shall be as specified. The turn-on and turn-off times shall be monitored.
DC offset voltage: 150 millivolts maximum.
Waveform distortion: 4 volts rms maximum from 10% to 100% rated output current.
Initial turn-on:
-001 ± 15 volts peak maximum.
-002 ± 40 volts peak maximum.

Electrical Data:

Dielectric withstanding voltage: 1,500 V ac maximum at 60 Hz, all terminal to case.
Insulation resistance: 100 megohms minimum at 500 V dc.
Isolation: 20 picofarads maximum.
Power dissipation: 38 watts maximum.

ENVIRONMENTAL DATA:

Temperature:
Operation: -55° C to +110° C.
Storage: -55° C to +125° C.
Shock (specified pulse): MIL-STD-202, method 213, test condition I (100 G's)
Vibration: 30 G's, 10 to 3,000 Hz.
Salt spray (corrosion): In accordance with method 1041 of MIL-STD-750.

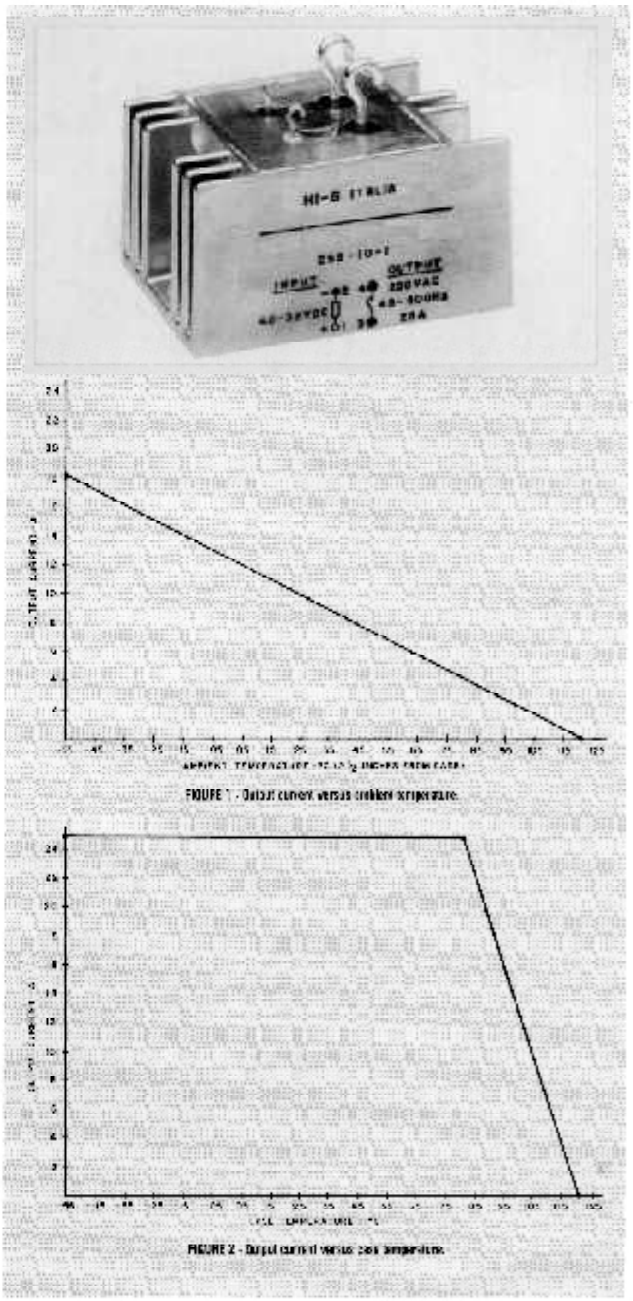


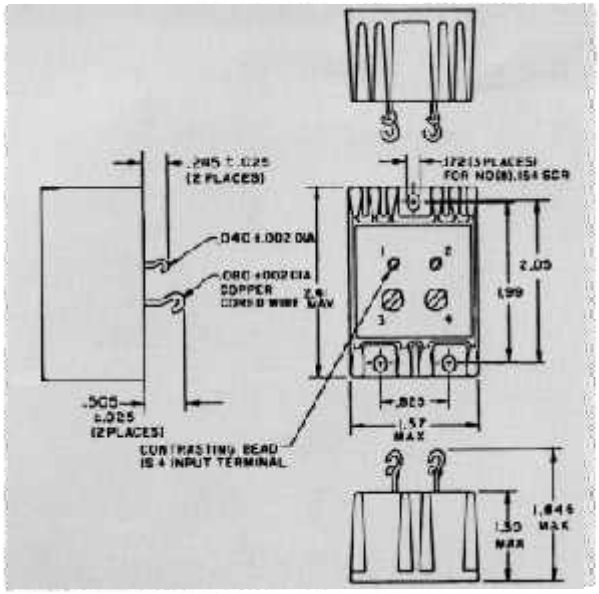
FIGURE 1 - Output current versus ambient temperature.

FIGURE 2 - Output current versus case temperature.

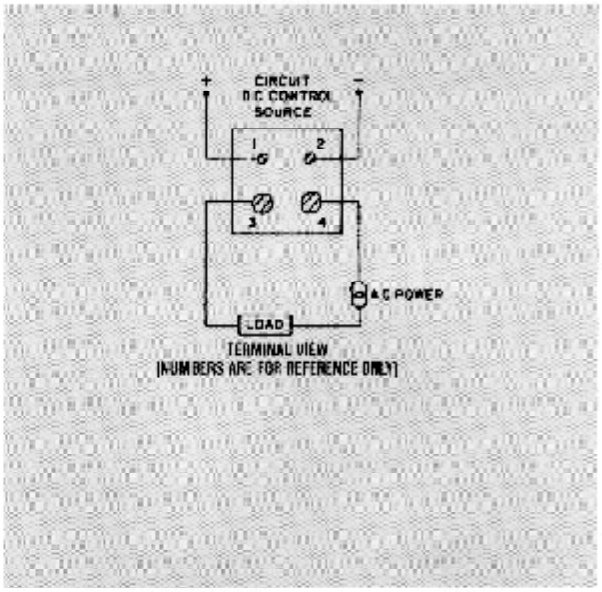
PHYSICAL DATA:

Weight: 6 ounces maximum.
Seal: Hermetic, 10^{-5} ATM C³/S.
Terminals:
Terminal strength: 5 pounds pull.

MECHANICAL SPECIFICATIONS



WIRING DIAGRAM



Part Number	C.O.T.S.	Zero Crossing Window
CSS-10-1	M28750/10-001Y	15 V pk max.
CSS-10-2	M28750/10-002Y	40 V pk max.

AC SOLID STATE RELAY

10A / 250 Vrms

CSS-602-1

FEATURES:

- 1500 Vrms optical isolation
- Zero voltage turn-on
- Zero current turn-off
- TTL compatible input
- Low minimum output current
- Extremely low EMI
- Custom power package with screw terminal

ELECTRICAL SPECIFICATIONS
(-55°C to +95°C unless otherwise specified)
Input Data:

Input voltage range:	3.8-32 Vdc
Assured turn-on voltage:	3.8 Vdc
Assured turn-off voltage:	1 Vdc
Input Current (max):	16 mAdc
Reverse voltage protection:	-32 Vdc

Output Data:

Rated output current (max):	10 A
Rated output voltage:	25-250 Vrms
Output voltage drop @10A (see fig.)	1.5 Vrms
Off-state leakage current @240 Vrms/400Hz, +85°C:	9 mA
Transient voltage (peak):	500 V
Frequency:	45-440Hz
Turn-on time (max):	1/2 cycle
Turn-off time (max):	1 cycle
dV/dt @25°C (min):	200 V/µs
Zero voltage turn-on window (peak, max):	±15 V
Junction Temperature (T_J Max) @Rated Current	110°C
Thermal resistance (max.), junction to ambient	11.5°C/W
Thermal resistance (max.), junction to case	2°C/W
Fusing I^2T, 1 ms (max)	150A^2s
Load power factor (min)	0.2

Electrical Data:

Dielectric Withstanding voltage (min)	1500 Vrms
Insulation resistance (min) @500 Vdc	$10^8\Omega$
Input to Output Capacitance	15 pF
Power dissipation (max)	1.5W/A

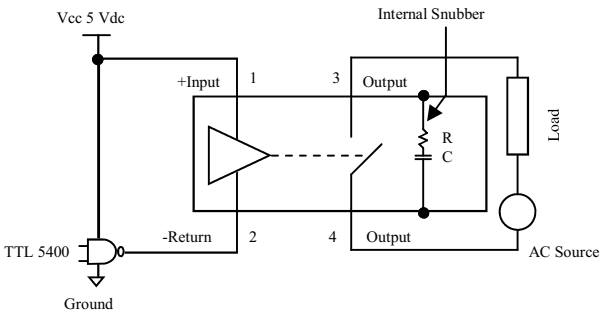
ENVIRONMENTAL DATA:

Ambient temperature (operating):	-55°C to +95°C
Ambient temperature (storage):	-55°C to +110°C
Vibration:	30 g, 78 to 2000 Hz
Shock:	100 g, 6ms pulse
Acceleration:	100 g

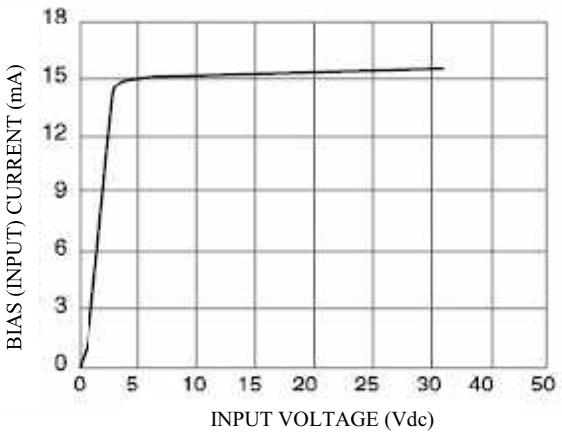
MECHANICAL SPECIFICATIONS

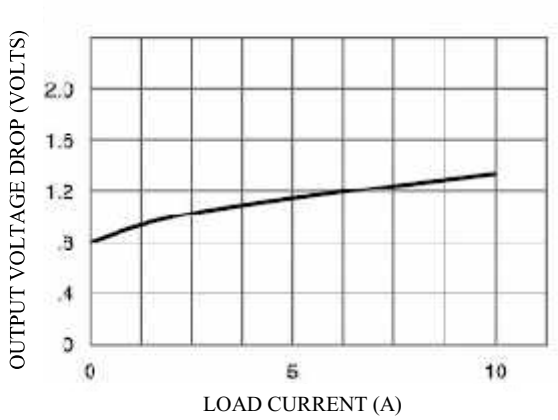
Weight: 3 oz (85 grams) max
Materials:
Case: Plastic, self-extinguishing, epoxy filled
Terminals: Brass, nickel plated
Base plate: Aluminum
Screw Torque: 180 in./oz. (max)

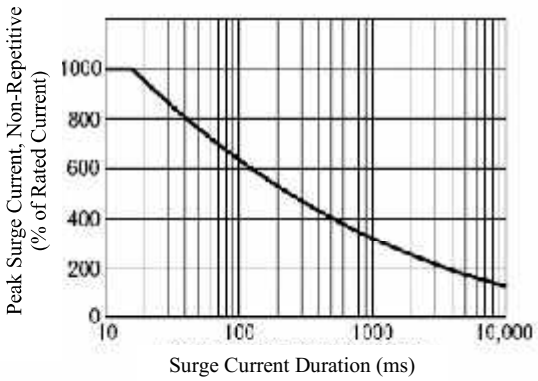
WIRING DIAGRAM

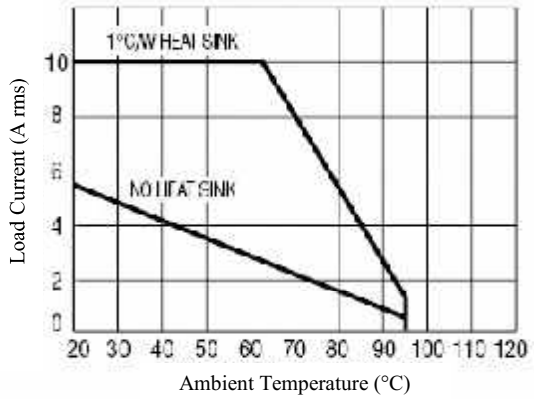


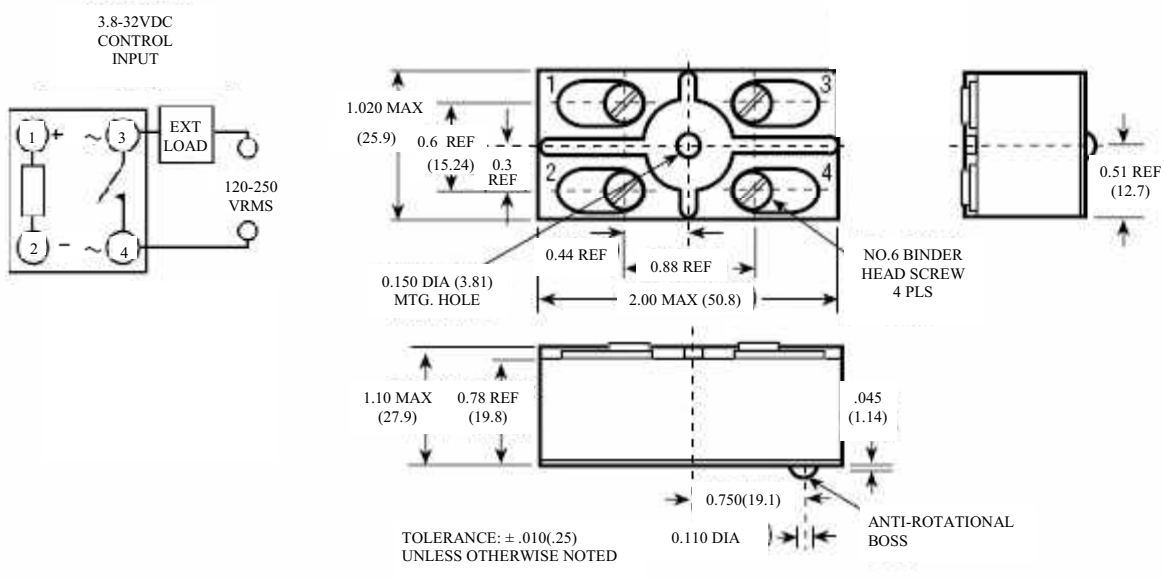
Terminal numbers for reference only











Circuit diagram shown on part is terminal view

Hi-G ITALIA
Sensors & Regulators Index

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Tel: + 39 06 9699666 Fax: + 39 069698688

DC VOLTAGE SENSOR

1310

DESCRIPTION:

The Hi-G 1310 Series DC Voltage Sensor is essentially a voltage monitoring device operating a snap-action transistor circuit with low drift and inherent temperature compensation. This device will either open or close a circuit when a predetermined voltage is present at the input. By using a Hi-G electro-mechanical relay as the output of the voltage sensor, a positive switching action can be achieved with very close difference between pull-in and drop-out voltages.

The unit is potted and hermetically sealed and are designed to meet the environmental requirements of airborne applications and MIL-R-83726 .

ELECTRICAL SPECIFICATIONS

Pull-In Voltage: Any voltage level between 10 to 150 VDC.

Drop-Out Voltage: 0 to 0.5 volts below pull-in voltage.

Current Drain: 15 mA max. @ 25° C.

Accuracy: ±2½% of set point over temperature range.

Maximum Allowable Applied Voltage: 150% of specified pull-in voltage.

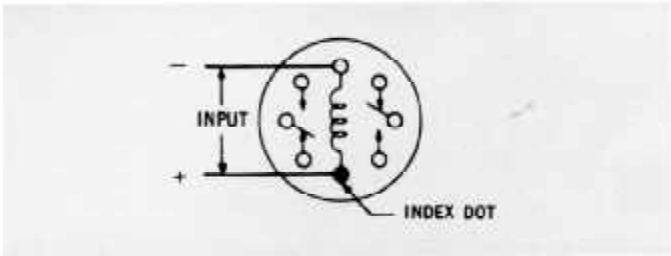
Auxiliary Voltage: None required.

Operate and Release Times: 50 milliseconds maximum over the temperature range.

Contact Arrangements: 2PDT.

Contact Rating: 2 amperes resistive at 30 volts DC, 0.3 amperes resistive at 115 volts RMS, 400 Hz.

WIRING DIAGRAM



ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: -55° C to +125° C

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 milliseconds duration.

Insulation Resistance: 1000 Megohms, minimum at 500 volts DC, all terminals to case.

Dielectric Strength: 1000 volts RMS, 60 Hz at sea level, all terminals to case.

Sealing: Hermetic, 1.3 inches of mercury.

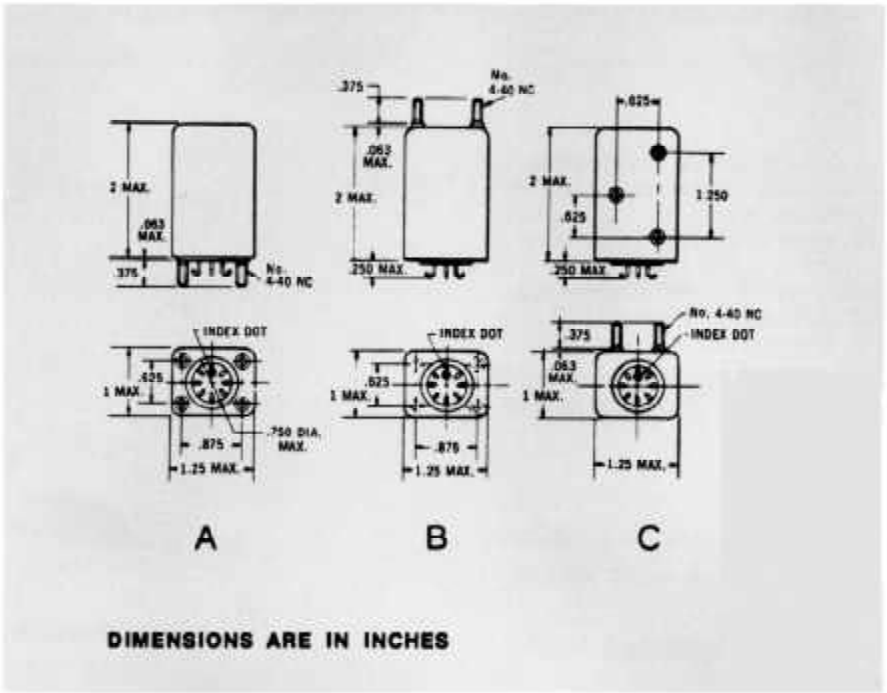
Life: 100,000 operations minimum

Weight: 3.5 oz. max.

OPTIONS:

- Solid-State Output
- Two Stage Sensing (Voltage Band)
- Up to 10 A Relay Output
- Controlled Drop-out Differential
- Operate with Auxiliary Control Voltage
- Time Delay on Trip Point
- Tighter Accuracy
- Different Package, Header, Mounting

MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Example: **Hi-G Part Number**

1310 — 2 — A — 24.5

- 1310 — MODEL NUMBER
- 2 — 2PDT
- A — MOUNTING
- 24.5 — PULL-IN VOLTAGE

AC VOLTAGE LEVEL SENSOR

1350

DESCRIPTION:

The Hi-G 1350 Series AC Voltage Sensor energizes a relay when the monitored power line voltage reaches a predetermined level. This rugged unit with reliable solid-state design, provides precise, repeatable operation over a wide temperature range.

The input voltage is fed into a temperature compensated comparator circuit. When the input reaches the pre-set level, transistor amplifiers switch the output relay. This output may control any external devices, process, or warning system to protect expensive equipment.

The unit is potted and hermetically sealed and is designed to meet the environmental requirements of airborne applications and MIL-R-83726 .

ELECTRICAL SPECIFICATIONS

Pull-In Voltage: Any voltage level between 50 to 150 VAC in 1.0 volt increments.

Drop-Out Voltage: 0 to 3.0 V max. (1.5 V nom.) below pull-in voltage.

Current Drain: 100 mA max. @ 25°C.

Accuracy: ±2½% of set point over temperature range.

Maximum Allowable Applied Voltage: 150% of specified pull-in voltage.

Auxiliary Voltage: None required.

Operate and Release Times: 50 milliseconds maximum over the temperature range.

Contact Arrangements: 2PDT.

Contact Rating: 2 amperes resistive at 30 volts DC, 0.3 amperes resistive at 115 volts RMS, 400 Hz.

ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: -55°C to +125°C

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 milliseconds duration.

Insulation Resistance: 1000 megohms, minimum at 500 volts DC, all terminals to case.

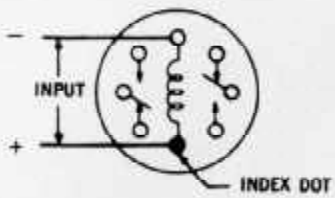
Dielectric Strength: 1000 volts RMS, 60 Hz at sea level, all terminals to case.

Sealing: Hermetic, 1.3 inches of mercury.

Life: 100,000 operations minimum

Weight: 3.5 oz. max.

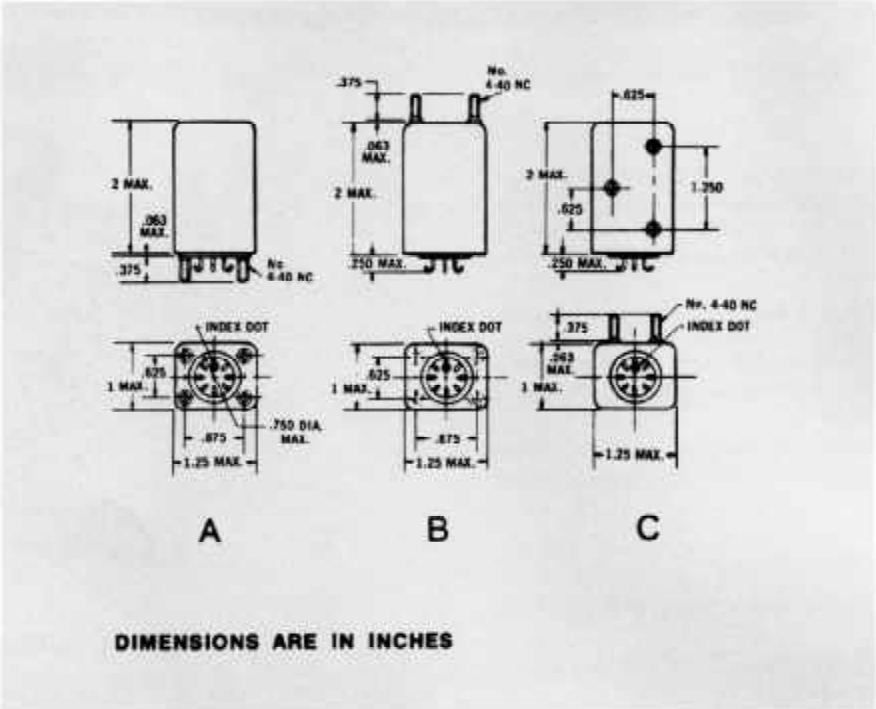
WIRING DIAGRAM



OPTIONS:

- Solid-State Output
- Two Stage Sensing (Voltage Band)
- Up to 10 A Relay Output
- 3 Phase AC Version Available
- Controlled Drop-out Differential
- Operate with Auxiliary Control Voltage
- Under and Over Voltage Trip
- Time Delay on Trip Point
- Tighter Accuracy
- Lower Trip Points
- Different Packages, Mounting & Header

MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Example: **Hi-G Part Number**

1350 — 2 — A — 100.0

- 1350 — MODEL NUMBER
- 2 — 2PDT
- A — MOUNTING
- 100.0 — PULL-IN VOLTAGE

PHASE SENSOR

1400

DESCRIPTION:

P-Type For Static Load
With the line voltages and frequency within operating limits, P-Type units will energize only when input phases are in sequence A - B - C. They will de-energize only when power is removed. The P-Type unit is best suited to applications where static loads are used and where regenerated voltage will not be present if a phase opens.

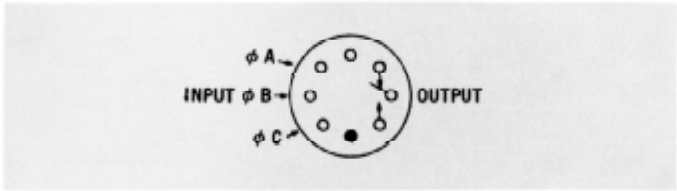
Q-Type For Motor Loads
Q-Type units perform the same function as the P-Type since they will energize only when input phases are in sequence A - B - C. In addition, the unit will de-energize when any phase is disconnected or grounded provided the voltage input to the unit is below 50% of the nominal phase-to-phase voltage input. Q-Type units are suitable for motor loads where a regenerated voltage is produced.

No Neutral Connection
Neither P- or Q-Type units require connection to neutral leg.

For high-current applications, phase sensors are used with slave relays having heavy duty contact ratings.

All units are hermetically sealed and designed to meet the environmentals requirements of airborne and MIL-R-83726.

WIRING DIAGRAM



ELECTRICAL SPECIFICATIONS

Input Data:
Voltage: 115 or 208 VAC
Frequency: 60 or 400 Hz

Operate Time: 75 milliseconds maximum

Release Time: 100 milliseconds maximum

Contacts: 1PDT

Contact Rating: 2 amperes resistive at 30 volts DC. 0.5 ampere inductive at 30 volts DC. 0.25 ampere resistive or inductive at 115 volts, 60 or 400 Hz.

ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: -55°C to +85°C

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 millisecond duration.

Insulation Resistance: 1000 megohms, minimum at 500 volts DC, all terminals to case.

Dielectric Strength: 1000 volts RMS, 60 Hz, at sea level, all terminals to case.

Life: 100,000 operations min.

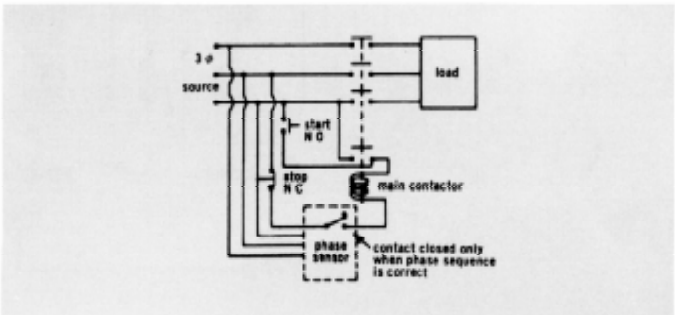
OPTIONS:

- Frequency 50 Hz
- Contact Rating to 10 A
- Higher Voltages
- Different Packages, Header & Mounting

APPLICATIONS:

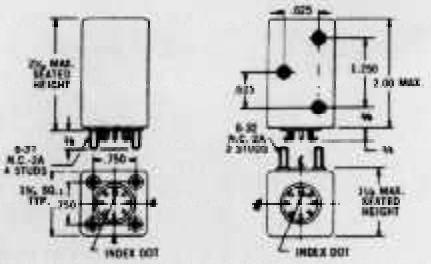
- Motor Protection
- Brown-out Protection
- Power Supply Sequencing
- Air Conditioner Protection
- Ground Support Equip. Protection

TYPICAL APPLICATIONS CONNECTIONS



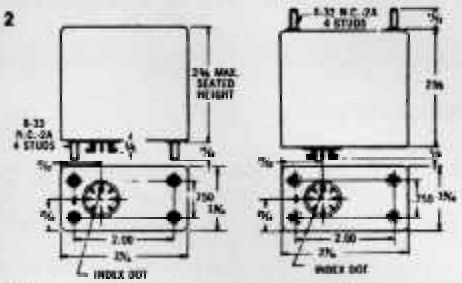
MECHANICAL SPECIFICATIONS

FIGURE 1



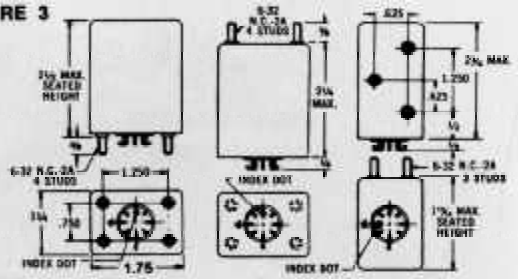
MOUNTING: A C
TYPE 1408

FIGURE 2



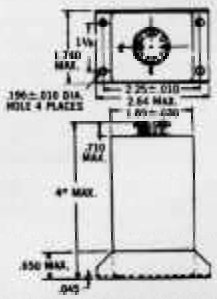
MOUNTING: A B
TYPE 1437

FIGURE 3



MOUNTING: A B C
TYPES 1407, 1409, 1410, 1438, 1408"B" revision only

FIGURE 4



MOUNTING: B
TYPES 1439, 1440

HOW TO ORDER:

Basic Model No.	Load Type	Line to Line Voltage ±10%	Frequency ±10%	Max. Power Required	Mounting Style Fig.
1407	P	115V	60 Hz	4 W	3
1408	P	115V	400 Hz	4 W	1 or 3
1409	P	208V	60 Hz	6 W	3
1410	P	208V	400 Hz	6 W	3
1437	Q	115V	60 Hz	6 W	2
1438	Q	115V	400 Hz	6 W	3
1439	Q	208V	60 Hz	9 W	4
1440	Q	208V	400 Hz	9 W	4

Example: **Hi-G Part Number**

1408 — 1 A

TYPE — MOUNTING

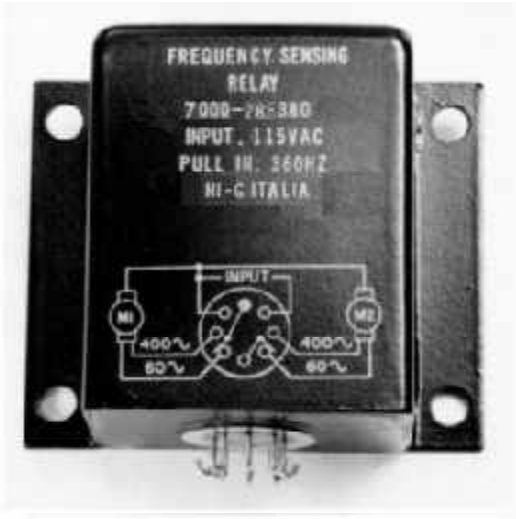
OUTPUT 1PDT

FREQUENCY SENSOR

7000

DESCRIPTION:

The Series 7000 Frequency Sensor utilizes an integrated circuit digital logic design to determine, cycle by cycle, whether a given input signal is within a predetermined frequency pass band.



ELECTRICAL SPECIFICATIONS

Input Voltage: 95 to 135 VAC

Frequency Range: 320 to 480 Hz

Accuracy: ±2%

Contact: SPDT or DPDT

Contact Rating:
4 A at 30 VDC Res.
2 A at 115 VAC 400 Hz Res.

Current Drain: 150 mA maximum

Hystersis: .5% from Trip Point

ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: -55°C to +85°C

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 milliseconds duration.

Insulation Resistance: 1000 megohms, minimum at 500 volts DC, all terminals to case.

Dielectric Strength: 1000 volts RMS, 60 Hz, all terminals to case.

Sealing: Hermetic, 1.3 inches of mercury.

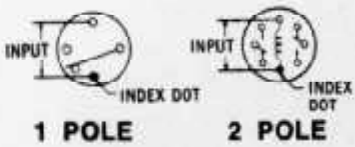
Life: 100,000 operations minimum.

Weight: 8.5 oz. max.

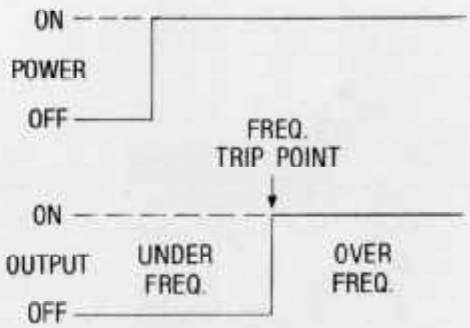
OPTIONS:

- 60 Hz Sensing
- 50 Hz Sensing
- Dual Trip Points
- Tighter Accuracy
- Different Packages
- Higher Temperature Range
- Up to 4 PDT
- 10 A Contacts

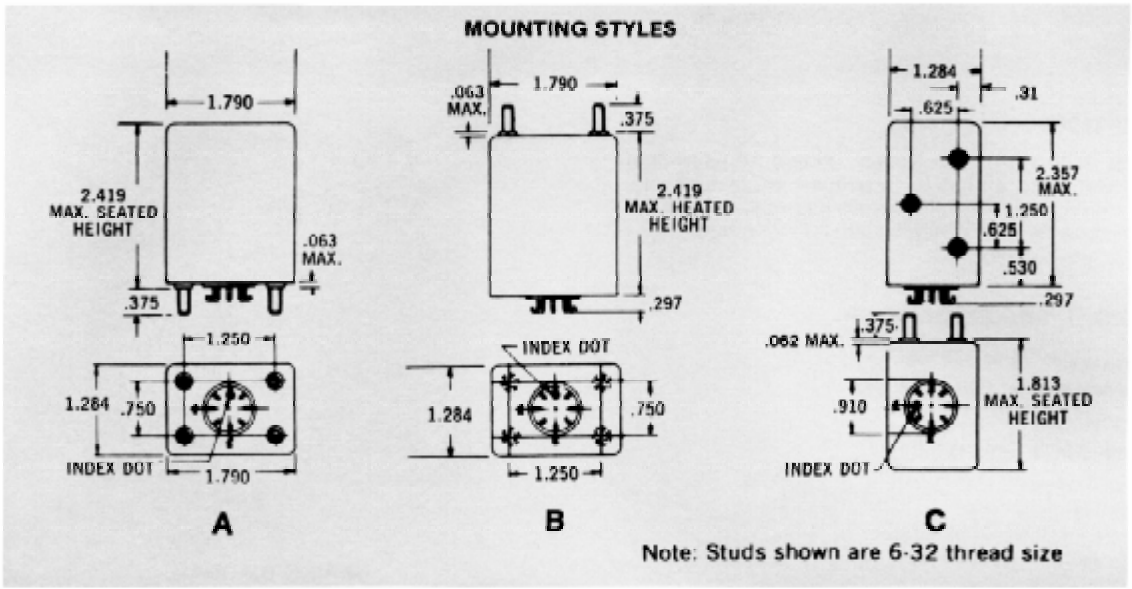
WIRING DIAGRAM



TIMING DIAGRAM



MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Example: **Hi-G Part Number**

7000 — 2 B — 380

MODEL — 7000

CONTACT FORM — 2

MOUNTING — B

FREQUENCY TRIP POINT — 380

A typical 7000-2B-380 consists of a DPDT contacts, mounting style B, 380 Hz trip point -55°C to 85°C.

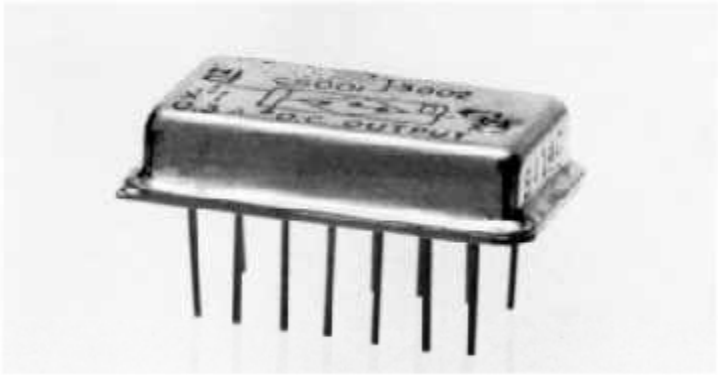
Hi-G ITALIA
Timers Index

DELAY ON OPERATE-FIXED SOLID STATE OUTPUT

C6001
C.O.T.S.
M83726/13

FEATURES:

- Reverse Polarity Protection
- 300 mA Output Current
- CMOS Digital Design
- Voltage Surge Protection



ELECTRICAL SPECIFICATIONS:

Timing delay: Fixed time — 50 milliseconds to 600 seconds.

Timing accuracy: ±10 percent of the nominal timing under all conditions of input voltage and environmental extremes.

Recycle characteristics:

Before time out: A power interruption of 10 ms or more will initiate a new timing cycle.

After time out: A power interruption of 10 ms or more will initiate a new timing cycle.

Input Data:

Input voltage: 28 V dc nominal; range 18 to 31 V dc.

Current drain: 10 milliamperes maximum, plus load current.

Reverse polarity protection: The timer will not be damaged or operate when input voltage polarity is reversed.

Output Data:

Configuration: SPSTNO — Solid state switch closure to ground.

Load ratings:

Resistive: 300 milliamperes @ 25°C, derated to 100 milliamperes @ +125°C. Minimum load current of 10 milliamperes is required.

Inductive: Three MIL-R-5757/9 relays. (Any relay with 26.5 V dc coil voltage).

Lamp load: Two MS25237-327 lamps per MIL-L-6363.

Inductive load, ac: Three MIL-R-39016/6 relays.

Load suppression: Suppression for inductive loads for output protection is provided within the unit.

Voltage drop: 2.5 volts maximum at -55°C and +25°C, 2.0 volts maximum at +125°C.

Leakage current: 1 microampere maximum at 25°C, 10 microamperes maximum at +125°C.

Insulation resistance: 1,000 megohms minimum @ 500 V dc. ①

Dielectric withstanding voltage: 500 V rms. 60 Hz. (sea level). ①

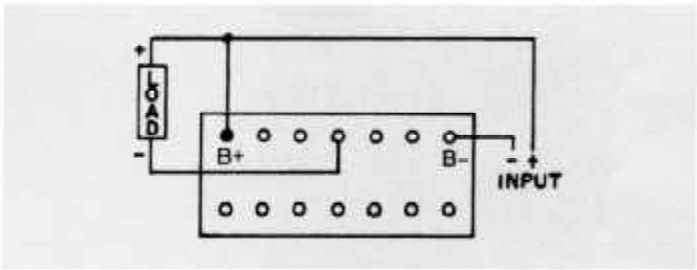
Transients:

Voltage surge: Per MIL-STD-704A, figure 9, limit 1, for cateogry B equipment.

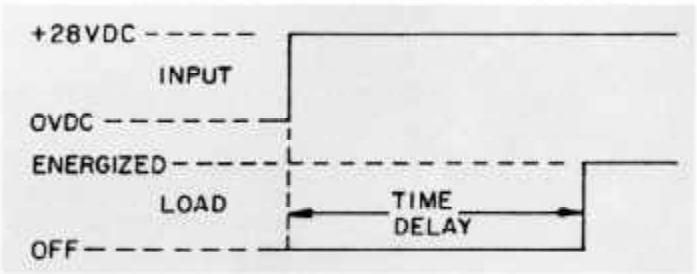
Self-generated spikes: ±10 V.

①Measured between all terminals tied together to the case.

WIRING DIAGRAM



TIMING DIAGRAM



ENVIRONMENTAL SPECIFICATIONS:

Temperature range: -55° to -125°C.

Altitude: 80,000 feet

Shock: 150 G's for 11 ±1 ms half-sine wave.

Vibration (sinusoidal): 10-80 Hz at 0.06 inch DA. 80-3,000 Hz at 20 G's.

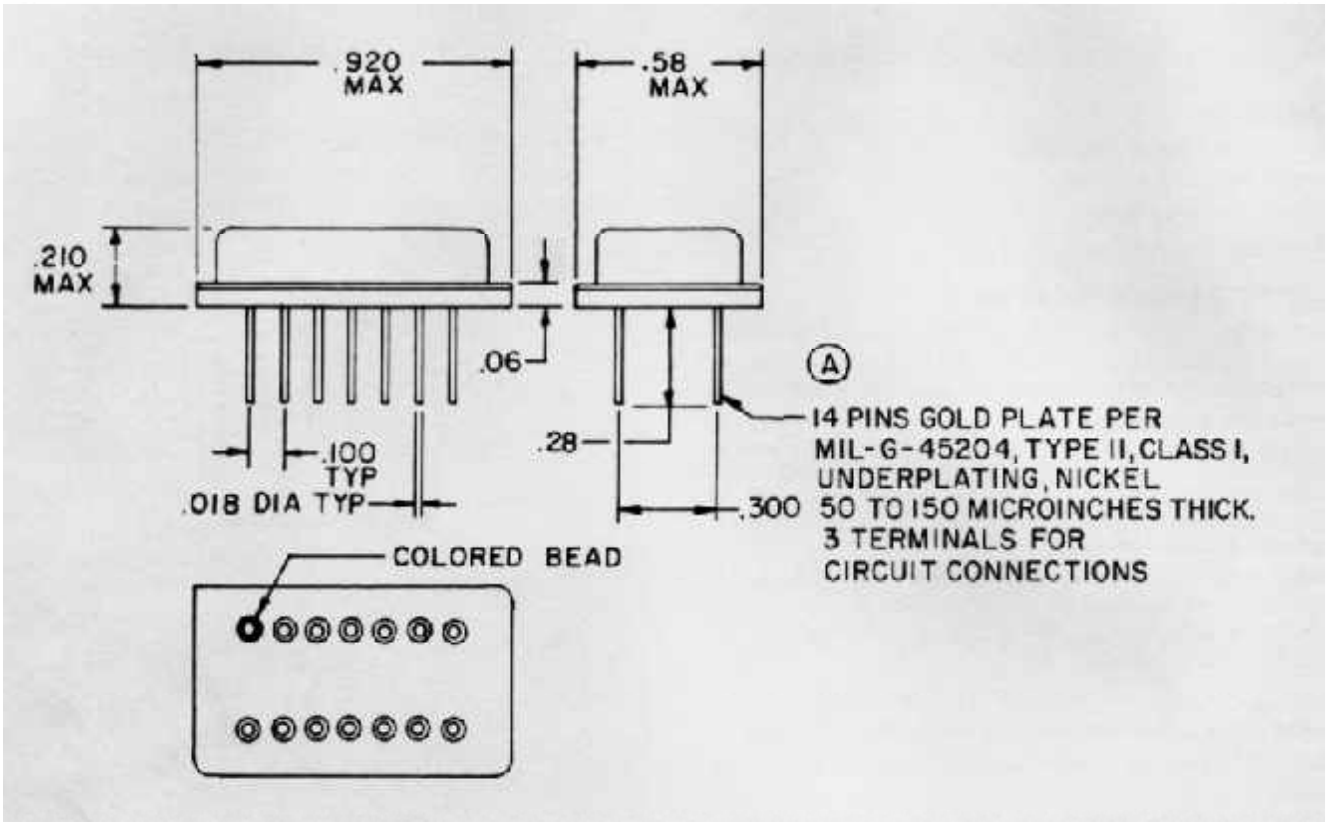
Seal: MIL-STD-202, method 112, condition C.

Weight: 12 grams max.

SPECIAL NOTES:

- Always consult military latest spec. for changes and additional information.
- Pin 10 is active — do not connect
- Load is connected between B+ and terminal designated. Delay begins upon application of power to terminals (B+ and (B-).

MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Timing Code Determination: The timing code consists of four digits and denotes time in milliseconds. The first three digits are significant figures and the last digit is the number of zeros to follow. Thus 100 milliseconds is coded 1000; 1.1 seconds is 1101 (1100 milliseconds), and 60 seconds is 6002 (60,000 milliseconds).

Example: **Hi-G Part Number**

C6001 — 6002

C6001 — MODEL NUMBER

6002 — TIMING CODE

These numbers designate a Solid-State Output Timer with 60 seconds (60,000 milliseconds) time delay operation at 28 VDC.

DELAY ON OPERATE-FIXED RELAY OUTPUT

C6600
C.O.T.S.
M83726/7

FEATURES:

- Reverse Polarity Protection
- Transient Protection

ELECTRICAL SPECIFICATIONS:

Timing Range: .06 to 300 s

Tolerance: ±10% plus ±10 ms

Input Data:

Range of voltage: 18 to 31 V dc

Maximum current at 25°C & 28 V dc: 80 millamperes

Recycle time (after time out): Power must be applied for 10 milliseconds or 1% of the nominal time delay, whichever is greater, after which an interruption of 10 milliseconds will insure a loss in timing no greater than 10%.

Recycle (before time out): Power must be removed for 50 milliseconds or 5% of the nominal time delay, whichever is greater, to insure a loss in timing no greater than 10%.

Output Data:

Output form: 2 PDT; 2 Form C

Output Rating:

Type of Load	Life (Cycles)	28 VDC	Amperes 115 VAC - 1 Phase 60 & 400 Hz
Resistive	100,000	2.0	0.3
Inductive	100,000	1.0	0.3
Lamp	100,000	0.1	0.1

Contact voltage:
Initial — 0.150 volts maximum
After life test — 0.200 volts maximum

Insulation resistance: 1,000 megohms at 500 V dc between case and pins connected together.

Dielectric strength: 1,000 volts rms at 60 hertz at sea level between case and pins connected together.

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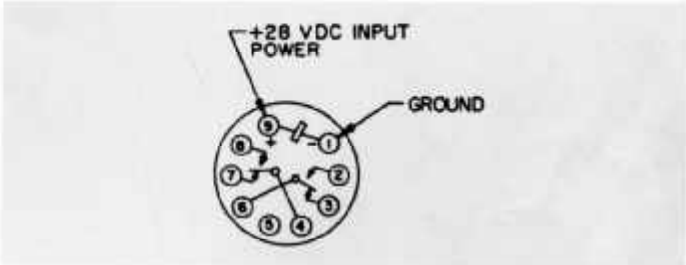
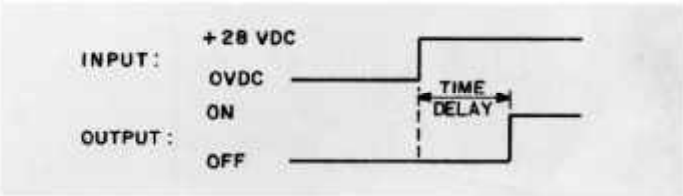
WIRING DIAGRAM



TIMING DIAGRAM



ENVIRONMENTAL SPECIFICATIONS:

Temperature: -65°C to +125°C.

Altitude: 80,000 feet

Shock: 50 G's for 11 ±1 millisecond, MIL-STD-202 Method 213, Condition A. Contact Opening: 10 microseconds maximum duration monitor per Method 310 or MIL-STD-202.

Vibration (sinusoidal): 10-80 Hz at 0.06" peak double amplitude, 80-3000 Hz at 20 G's

Acceleration: 50 G's steady state no opening of closed contacts

PHYSICAL DATA:

Dimensions and configuration: (See reverse side.)

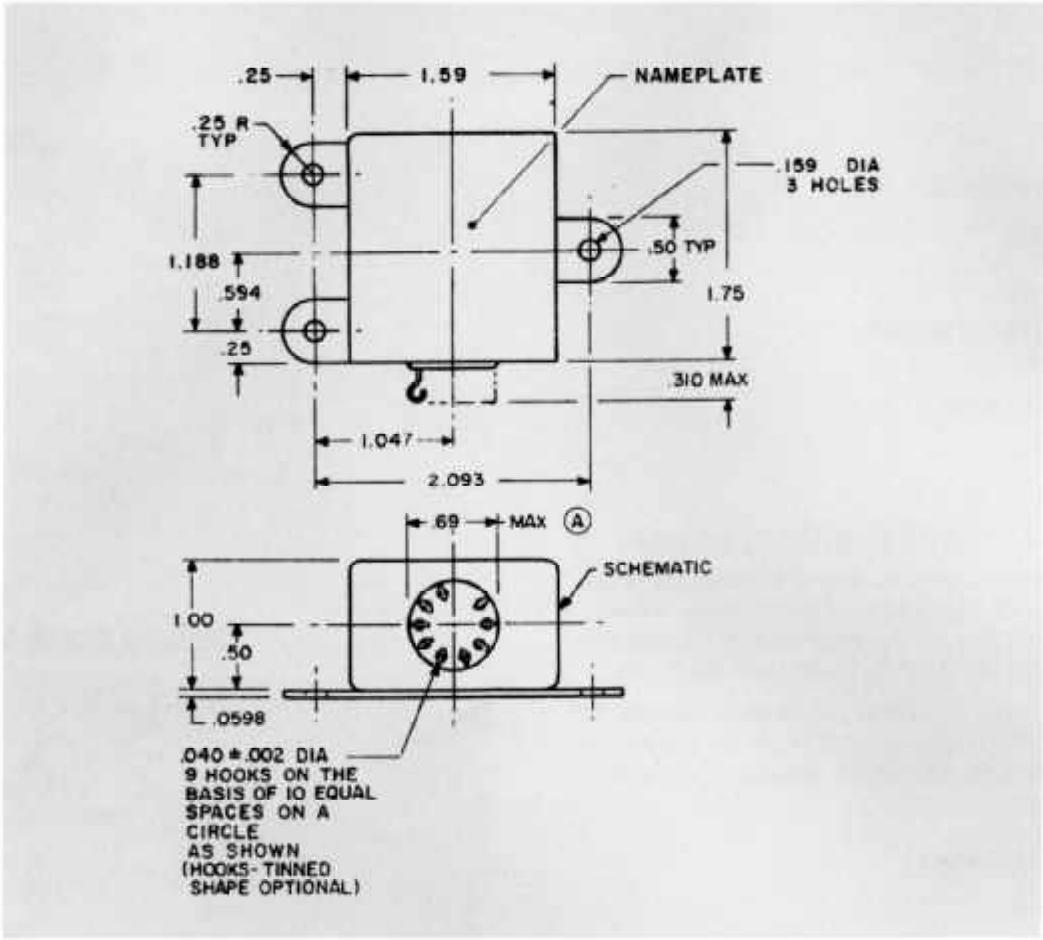
Weight: 0.25 pounds maximum

Terminal strength: 3 ±0.5 pounds pull maximum

SPECIAL NOTES:

- Always consult latest military spec. for changes and additional information.

MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Timing Code Determination: The timing code consists of four digits and denotes time in milliseconds. The first three digits are significant figures and the last digit is the number of zeros to follow. Thus 100 milliseconds is coded 1000; 1.1 seconds is 1101 (1100 milliseconds), and 60 seconds is 6002 (60,000 milliseconds).

Example: **Hi-G Part Number**

C6600 — 6002

MODEL NUMBER — TIMING CODE

These numbers designate a Solid-State Output Timer with 60 seconds (60,000 milliseconds), time delay operation at 28 VDC.

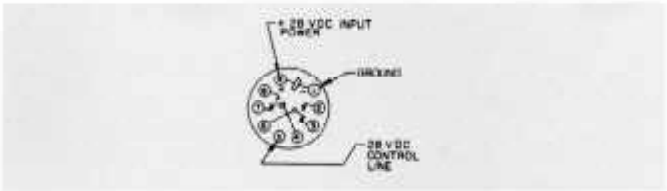
DELAY ON RELEASE-FIXED RELAY OUTPUT

C6700
C.O.T.S.
M83726/8

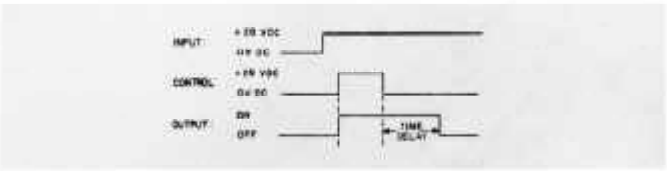
FEATURES:

- Reverse Polarity Protection
- Transient Protection Per MIL-STD-704

WIRING DIAGRAM



TIMING DIAGRAM



ELECTRICAL SPECIFICATIONS:

Timing Range: .1 to 300s

Tolerance: ±10% plus ±10 ms

Input Data:

Range of voltage:

Input Power: 18 to 31 V dc

Control Line Power: 18 to 31 V dc

Recycle (before time out): Control power must remain off at least 25 milliseconds or 1% of the nominal time delay, whichever is greater, after which reapplication of control power for 25 milliseconds minimum will recyle the timer with a loss in timing no greater than 10%.

Recycle (before time out): Reapplication and subsequent removal of control power will recycle the timer. Control power must be applied for 25 milliseconds or 1% of the total time delay, whichever is greater.

Output Data:

Output form: 2 PDT; 2 Form C

Output Rating:

Type of Load	Life (Cycles)	28 VDC	Amperes 115 VAC - 1 Phase 60 & 400 Hz
Resistive	100,000	2.0	0.3
Inductive	100,000	1.0	0.3
Lamp	100,000	0.1	0.1

Contact voltage drop:

Initial — 0.150 volts maximum

After life test — 0.200 volts maximum

Insulation resistance: 1,000 megohms at 500 V dc between case and pins connected together.

Dielectric strength: 1,000 volts rms at 60 hertz at sea level between case and pins connected together.

DESCRIPTION

Apply input power. Upon application of control power, the ouptut will energize. Removal of control signal initiates delay period.

ENVIRONMENTAL SPECIFICATIONS:

Temperature: -65°C to +125°C.

Altitude: 80,000 feet

Shock: 50 G's for 11 ±1 milliseconds MIL-STD-202 Method 213A, Condition A. Contact Opening: 10 micro-seconds maximum duration monitor per Method 310 or MIL-STD-202.

Vibration (sinusoidal): 10-80 Hz at 0.06" peak double amplitude, 80-3000 Hz at 20 G's

Acceleration: 50 G's steady state no opening of closed contacts

PHYSICAL DATA:

Dimensions and configuration: (See reverse side.)

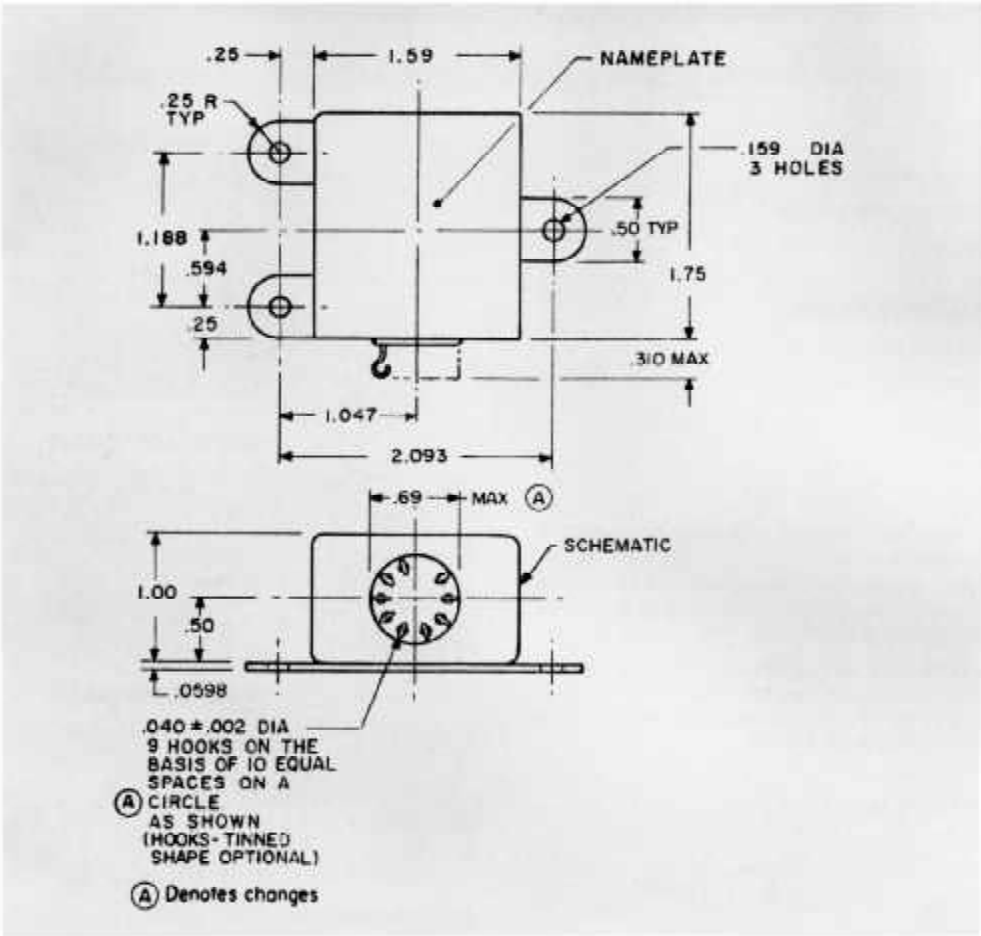
Weight: 0.25 pounds maximum

Terminal strength: 3 ±0.5 pounds pull maximum

SPECIAL NOTE:

Always consult latest military spec. for any changes and additional information.

MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Timing Code Determination: The timing code consists of four digits and denotes time in milliseconds. The first three digits are significant figures and the last digit is the number of zeros to follow. Thus 100 milliseconds is coded 1000; 1.1 seconds is 1101 (1100 milliseconds), and 60 seconds is 6002 (60,000 milliseconds).

Example: **Hi-G Part Number**

C 6700 — 6002

MODEL NUMBER — TIMING CODE

These numbers designate a Solid-State Output Timer with 60 seconds (60,000 milliseconds), time delay operation at 28 VDC.

DELAY ON RELEASE-FIXED RELAY OUTPUT

5600

FEATURES:

- Reverse Polarity Protection
- CMOS Digital Design
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600 s

Tolerance: ±10% or ±15 ms whichever is greater.

Repeatability: ±1%

Operate Time: Rated 2 and 5 A, 10 ms max. 10 A, 20 ms max.

Recycle Time: 10 ms max.

Reset Time: 20 ms maximum.

Input Data:

Input voltage: 18 to 31 V dc

Control: 10 to 31 V dc. Ground common to aux. power line. 10 volts minimum must be applied for a minimum duration of 20 milliseconds to energize output and initiate the timing circuit.

Current Drain: (at 25°C at 28 VDC).

Control Line: 15 mA typical, 25 mA maximum

Input: 25 mA max. after time delay period and see table below for during time period.

Configuration	2 & 5 A	10 A
1 PDT	100 mA	150 mA
2 PDT	150 mA	240 mA

OUTPUT DATA:

Specified Rating	Amperes at 30 VDC Res.	Ind.	Amperes at 115 V 400 Hz Res.	Ind.
2 A	2	1	1	0.3
5 A	5	1.5	3	1
10 A	10	5	5	3

ENVIRONMENTAL SPECIFICATIONS:

Temperature: -55°C to +85°C or -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's 11 ±1 milliseconds duration.

Insulation Resistance: 1000 Megohms at 500 VDC.

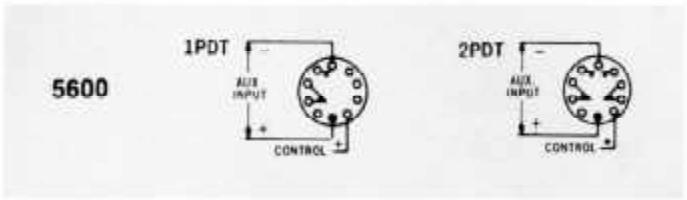
Dielectric Strength: 1000 V RMS, 60 Hz at Sea Level. All terminals to case.

Sealing: Hermetic 1.3 inches mercury.

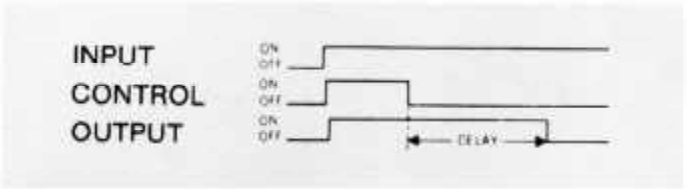
Life: 2 and 5 A rated — 100,000 operations minimum. 10 A rated 50,000 operations minimum.

Weight: 8.5 oz. max.

WIRING DIAGRAM



TIMING DIAGRAM



Apply input power. Upon application of control power, the ouptut will energize. Remove control power and initiate delay period.

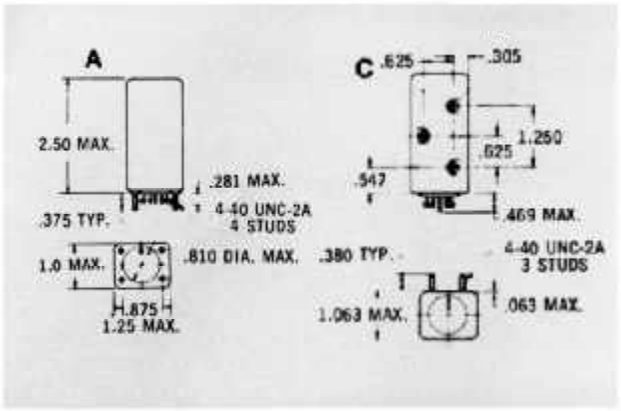
OPTIONS:

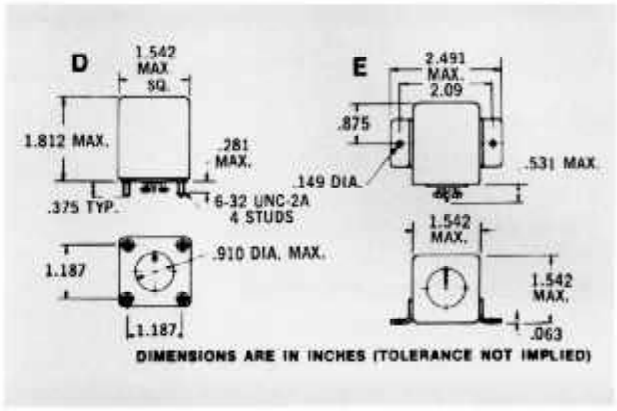
- Tighter Tolerances
- Extended Delay Times
- Modified Header and Mounting
- Different Aux. Voltages
- Different Control Line
- Input 115 VAC, 60 Hz or 400 Hz

SPECIAL NOTES:

- 10 volts minimum must be applied for a minimum duration of 20ms to energize output and initiate the timing circuit.
- Units rated at 10A have a minimum time delay of 100ms.

MECHANICAL SPECIFICATIONS





HOW TO ORDER:

Series Fixed	Contact Configu-ration	Rating	Temperature Range	Available Enclosure
5601	1PDT	2A	-55°C to +85°C	A-C-D-E
5602	2PDT	2A	-55°C to +85°C	A-C-D-E
5605	1PDT	5A	-55°C to +85°C	D-E
5606	2PDT	5A	-55°C to +85°C	D-E
5610	1PDT	10A	-55°C to +85°C	D-E
5611	2PDT	10A	-55°C to +85°C	D-E
5621	1PDT	2A	-55°C to +125°C	A-C-D-E
5622	2PDT	2A	-55°C to +125°C	A-C-D-E
5625	1PDT	5A	-55°C to +125°C	D-E
5626	2PDT	5A	-55°C to +125°C	D-E

The part number for a Hi-G Time Delay Module consists of three elements: The series number (from the Table), a letter signifying mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus 50 milliseconds would be coded 0500. 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

Example: **Hi-G Part Number**

5621 — A — 1003

SERIES

MOUNTING STYLE

ZEROS MULTIPLIER

TIME IN MILLISECONDS

DELAY ON RELEASE ADJUSTABLE TIMING RELAY OUTPUT

5700

FEATURES:

- Customer Adjustable Timing
- Reverse Polarity Protection
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600s

Tolerance: ±10% or ±15 ms whichever is greater.
Repeatability: ± 1%

Operate Time: Rated 2 and 5 A, 10 ms max. 10 A , 20 ms max.
Recycle Time: 10 ms max.

Reset Time: 20 ms maximum.

Input Data:

Input voltage: 18 to 31 V dc

Control: 10 to 31 V dc. Ground common to aux. power line. 10 volts minimum must be applied for a minimum duration of 20 milliseconds to energize output and initiate the timing circuit.

Current Drain: (at 25°C at 28 VDC).

Control Line: 15 mA typical, 25 mA maximum

Input: 25 mA max. after time delay period and see table below for during time period.

Configuration	2 & 5 A	10 A
1 PDT	100 mA	150 mA
2 PDT	150 mA	240 mA

OUTPUT DATA:

Specified Rating	Amperes at 30 VDC Res.	Ind.	Amperes at 115 V 400 Hz Res.	Ind.
2 amps	2	1	1	0.3
5 amps	5	1.5	3	1
10 amps	10	5	5	3

ENVIRONMENTAL SPECIFICATIONS:

Temperature: -55°C to +85°C or -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G 11 ±1 milliseconds duration.

Insulation Resistance: 1000 Megohms at 500 VDC.

Dielectric Strength: 1000 V RMS, 60 Hz at sea level, all terminals to case.

Sealing: Hermetic 1.3 inches mercury.

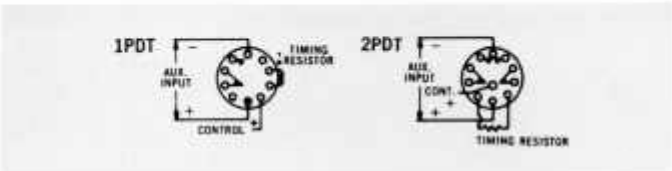
Life: 2 and 5 A rated — 100,000 operations minimum. 10 A rated 50,000 operations minimum.

Weight: 8.5 oz. max.

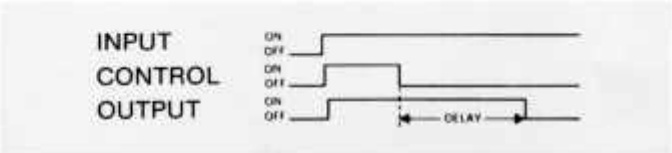
SPECIAL NOTES:

- 10 V dc minimum must be applied for a minimum duration of 20ms to energize output and initiate timing.
- Units rated at 10A have a minimum time delay of 100ms.

WIRING DIAGRAM



TIMING DIAGRAM



Apply input power. Upon application of control power, the ouptut will energize. Remove control power and initiate delay period.

OPTIONS:

- Tighter Tolerances
- Modified Header and Mounting
- Extended Delays
- Different Input Voltages
- Different Control Line Voltages
- Input 115 VAC, 60 Hz or 400 Hz

ADJUSTABLE TIMING FORMULA:

The resistance required to obtain timing within this range is determined by using the formula:

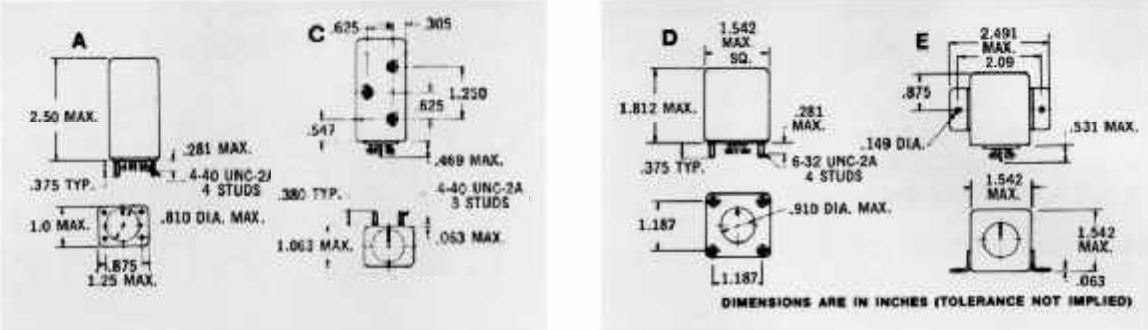
Rx = 400K (T/Tmax.) — 40K
Rx = External Res. in OHMS

T = Desired time in seconds
Tmax. = Maximum time (code)

A high quality deposited carbon ±1%, .1w (min.) resistor is recommended for external resistance.

See Note 1.

MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Series Adjustable	Contact Configuration	Rating	Temperature Range	Available Enclosure
5701	1PDT	2A	-55°C to +85°C	A-C-D-E
5702	2PDT	2A	-55°C to +85°C	A-C-D-E
5705	1PDT	5A	-55°C to +85°C	D-E
5706	2PDT	5A	-55°C to +85°C	D-E
5710	1PDT	10A	-55°C to +85°C	D-E
5711	2PDT	10A	-55°C to +85°C	D-E
5721	1PDT	2A	-55°C to +125°C	A-C-D-E
5722	2PDT	2A	-55°C to +125°C	A-C-D-E
5725	1PDT	5A	-55°C to +125°C	D-E
5726	2PDT	5A	-55°C to +125°C	D-E

Hi-G Adjustable Time Delay Modules cover one decade, e.g., 62 milliseconds to 620 milliseconds; you may select any decade that best suits your application within the range of 50 milliseconds to 240 seconds. (Of course, longer ranges are available on special order.) The upper decade limit is Tmax. in the timing formula and is the timing code number in the part number described in the following paragraph.

The part number for a Hi-G Time Delay Module consists of three elements: The series number (from the Table), a letter signifying mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus 50 milliseconds would be coded 0500, 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

A typical part number for an adjustable timing module is 5722-C-1102; this is a DC unit in the -55° C to +125° C temperature range with a 2PDT contact arrangement, in a Style C mounting, and with a time delay of 11 seconds.

Example: **Hi-G Part Number**

5722 — C — 1102

SERIES — MOUNTING — TIMING CODE

NOTE 1:

The time delay may be extended beyond the normal "decade" range of above formula by increasing the timing resistance "RX", beyond standard **360k** Max value up to a maximum value of **1.160 M.** However, the tolerance and repeatability are not tested and therefore not guaranteed at this high "RX" value. Also, some slight non-linearity between Rx and desired time delay will occur.

DELAY ON OPERATE-FIXED SOLID STATE OUTPUT

1800

FEATURES:

- Hermetic Package
- CMOS Digital Design
- 300 mA Output
- Reverse Polarity Protection
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600 s

Tolerance: ±10% or 10 ms whichever is greater

Repeatability: ±0.1%

Recycle Time: 10 ms

Recovery Time: 20 ms

Input Data:

Input voltage: 18-31 V dc

Current drain: 10 mA plus load current

Output Data:

Output form: SPSTNO - Solid-state switch closure to ground.

Output rating: 300 mA (25°C)
100 mA (125°C)

Minimum load: 10 mA

Saturation voltage: 2.5 V maximum

Leakage: 1 uA 25°C
10 uA 125°C

ENVIRONMENTAL SPECIFICATIONS:

Temperature range: 1811 -55°C to +85°C.
1821 -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's. 11 ±1 milliseconds duration.

Insulation resistance: 1000 megohms at 500 VDC, all terminals to case.

Dielectric strength: 500 V RMS, 60 Hz, all terminals to case.

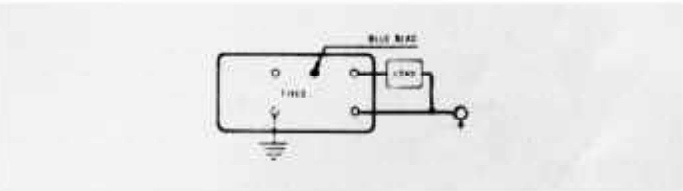
Sealing: Hermetic, 1.3 inches mercury.

Life: Over 1,000,000 operations.

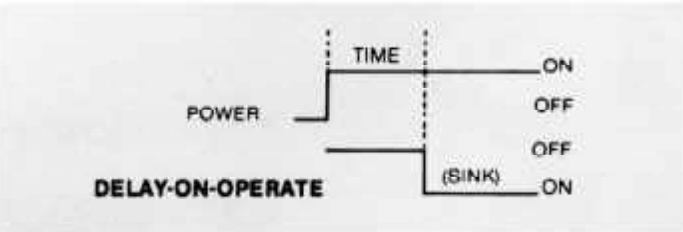
OPTIONS:

- ±5% tolerance range
- Header and mounting configuration

WIRING DIAGRAM



TIMING DIAGRAM

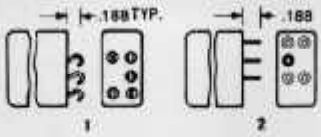


SPECIAL NOTES:

- Blank pin is active and must not be connected.

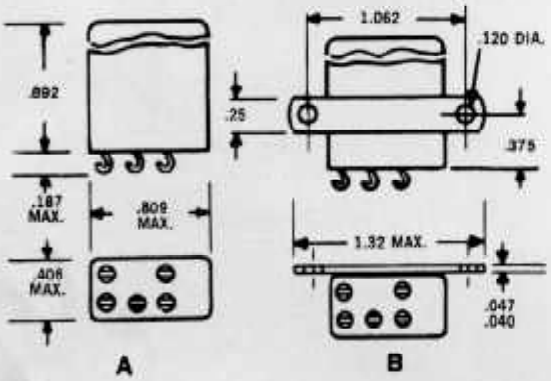
MECHANICAL SPECIFICATIONS

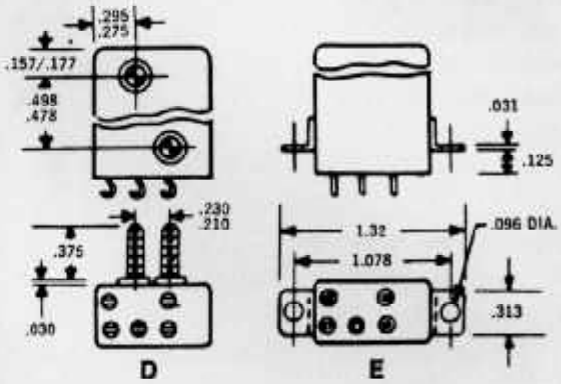
HEADER STYLES



Note: Terminal spacing 0.2 inches all headers with terminal dia. 0.03 inch.

MOUNTING STYLES





Note: Studs shown are 4-40 thread size.
DIMENSIONS IN INCHES — TOLERANCE NOT IMPLIED

HOW TO ORDER:

A typical part number for the Hi-G Solid-State Timing Module is 1811-1A-1002, this is a fixed timing module designed to operate in the -55°C to +85°C temperature range, with hook terminals and a style A mounting, and a delay of 10 seconds.

Timing Code Determination: The timing code consists of four digits and denotes time in milliseconds. The first three digits are significant figures and the last digit is the number of zeros to follow. Thus 100 milliseconds is coded 1000; 1.1 seconds is 1101 (1100 milliseconds), and 60 seconds is 6002 (60,000 milliseconds).

Example: **Hi-G Part Number**

1811 — 1A — 1002

SERIES HEADER STYLE

TIMING CODE

MOUNTING STYLE

DELAY ON OPERATE
SOLID STATE OUTPUT

6150

FEATURES:

- Hermetic Package
- 300 mA Load
- Reverse Polarity Protection
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: .05 to 600s

Tolerance: ±10%

Repeatability: ±0.1%

Recycle Time: 10 ms

Recovery Time: 20 ms

Input Data:

Input voltage: 18 to 31 V dc

Current drain: 10 mA plus load current

Output Data:

Output form: SPSTNO Solid-state switch with closure to ground.

Output rating: 300 mA (25°C)
280 mA (85°C)

Maximum load: 100 mA (125° C)

Saturation voltage: 2.5 V maximum

Leakage: 1 uA (25°C)
10 uA (125°C)

ENVIRONMENTAL SPECIFICATIONS:

Temperature range: –55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz

Shock: 50 G's 11 ±1 milliseconds duration

Dielectric: 500V RMS, 60 Hz at seal level, all terminals to case

Insulation resistance: 1,000 megohms at 500 V dc all terminals to case.

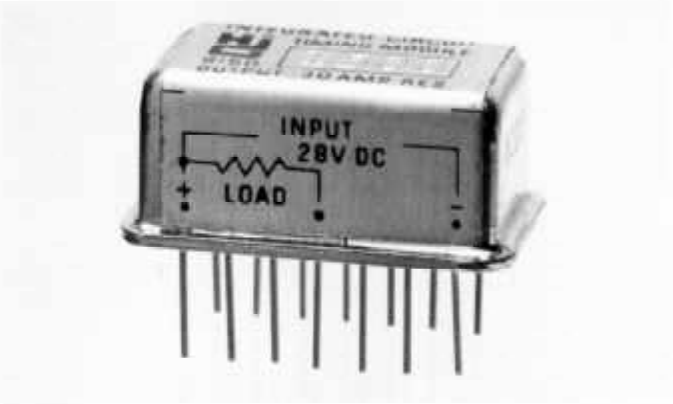
Sealing: Hermetic 1.3 inches mercury

Life: Over 1,000,000 operations

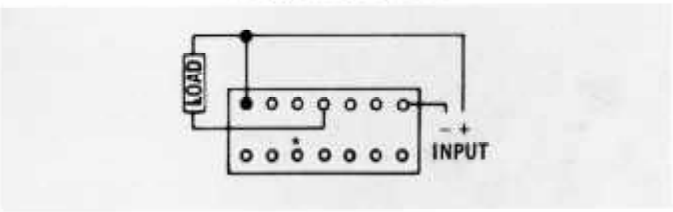
Weight: 0.3 oz. max.

OPTIONS:

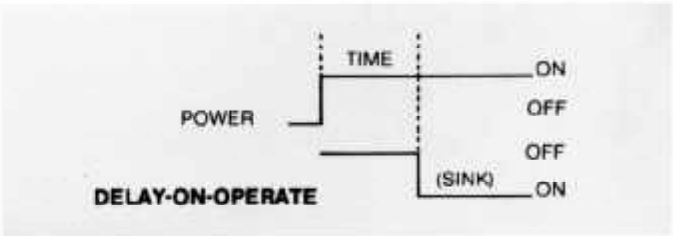
- Timing Range
- Higher Input Voltages
- Plastic Packages
- Tighter Tolerances
- Special Testing
- Lower profile metal housing, 0.210 max



WIRING DIAGRAM



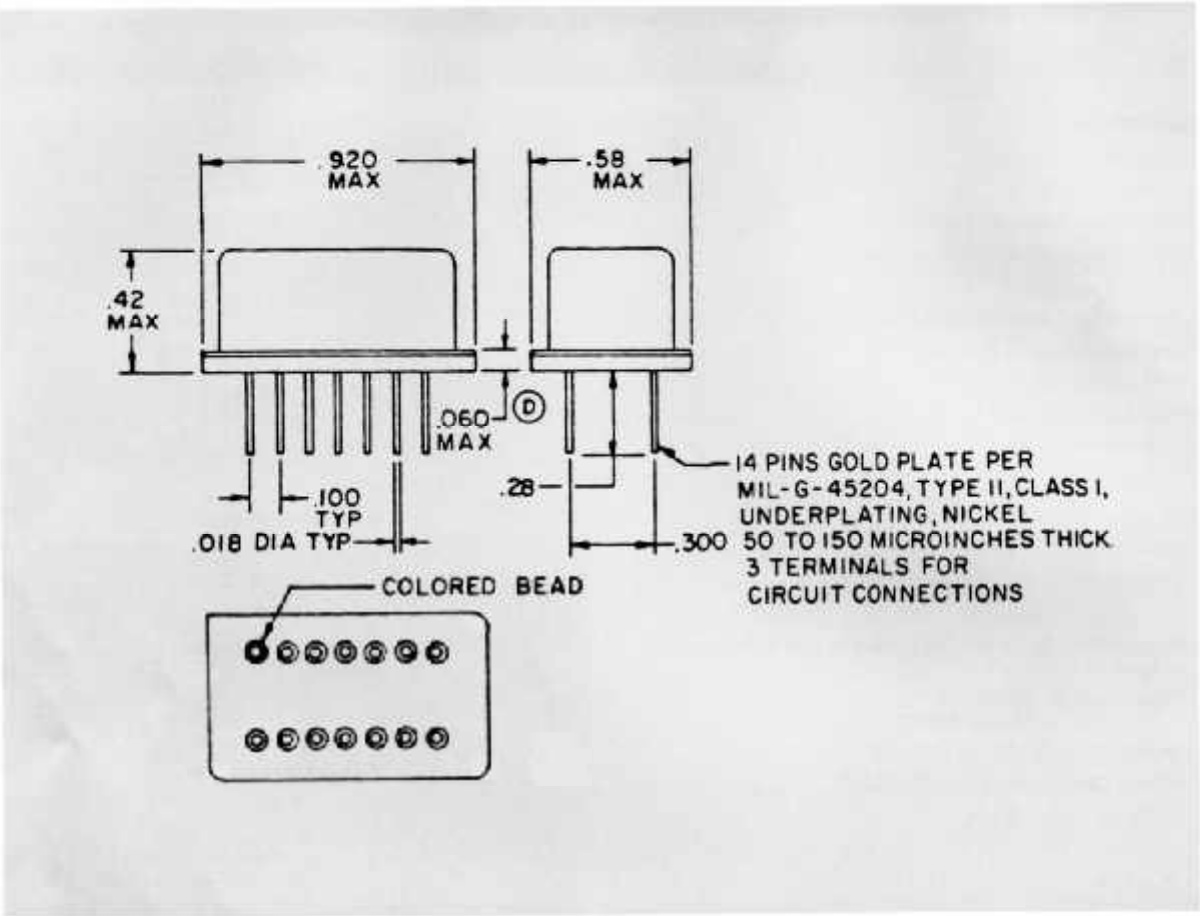
TIMING DIAGRAM



SPECIAL NOTES:

- Pin 10 is active — DO NOT CONNECT.
- Load is connected between B+ and terminal designated. Delay begins upon application of power to terminals (B+ and B–).

MECHANICAL SPECIFICATIONS



HOW TO ORDER:

Timing Code Determination: The timing code consists of four digits and denotes time in milliseconds. The first three digits are significant figures and the last digit is the number of zeros to follow. Thus 100 milliseconds is coded 1000; 1.1 seconds is 1101 (1100 milliseconds), and 60 seconds is 6002 (60,000 milliseconds).

Example: **Hi-G Part Number**

6150 — 6002

MODEL NUMBER — TIMING CODE

This number designate a Solid-State Output Timer with 60 seconds (60,000 milliseconds), time delay operation at 28 VDC.

DELAY ON OPERATE ADJUSTABLE SOLID STATE OUTPUT

1900

FEATURES:

- Adjustable Timing
- Hermetic Package
- Reverse Polarity Protection
- CMOS Digital Design
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 240s

Tolerance: ±10% or 10 ms whichever is greater

Repeatability: ±0.1%

Recycle Time: 10 ms

Recovery Time: 20 ms

Input Data:

Input voltage: 18 to 31 V dc

Current drain: 10 mA plus load current

Output Data:

Output form: SPSTNO Solid state switch closure to ground.

Output rating: 300 mA (25°C)
100 mA (125°C)

Saturation voltage: 2.5 V maximum

Leakage: 1 uA (25°C)
10 uA (125°C)

ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: 1911 -55°C to +85°C
1921 -55°C to +125°C

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 milliseconds duration.

Insulation resistance: 1000 megohms at 500 VDC, all terminals to case.

Dielectric strength: 500 V RMS, 60 Hz at sea level, all terminals to case.

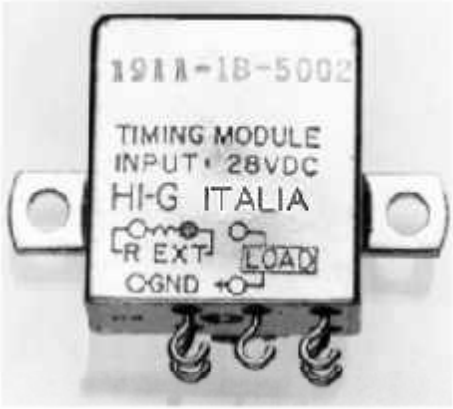
Sealing: Hermetic, 1.3 inches mercury.

Life: Over 1,000,000 operations.

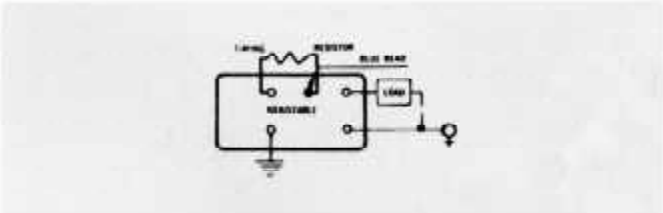
Weight: 1 oz. max.

OPTIONS:

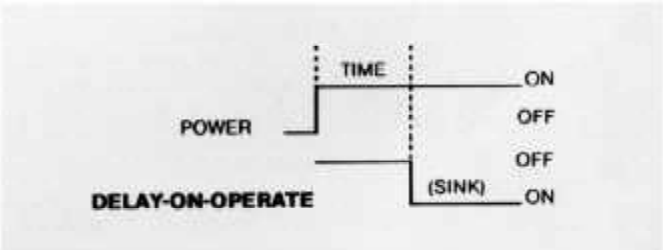
- Header and mounting configuration
- Tighter tolerances



WIRING DIAGRAM



TIMING DIAGRAM

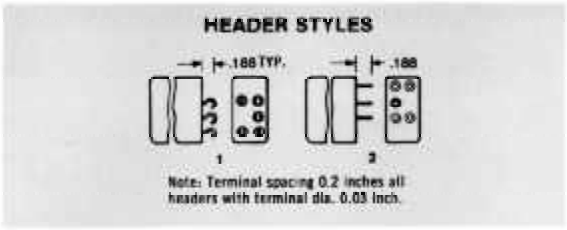


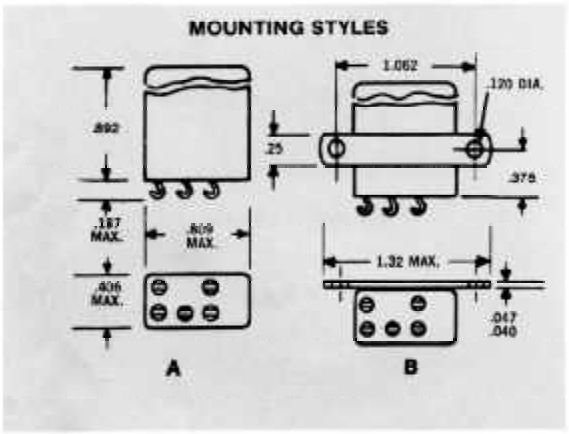
SPECIAL NOTES:

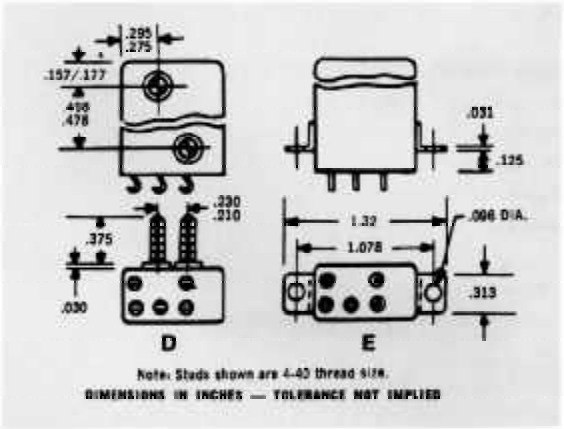
- **ADJUSTABLE TIMING FORMULA**
  The resistance required to obtain timing within this range is determined by using the formula:
  Rx = 400K (T/T max.) — 40K
  Rx = External Res. in OHMS
  T = Desired time in seconds
  T max. = Maximum time (code)
  A high quality deposited carbon 1%, .1W (min.) resistor is recommended for external resistance.

See Note 1.

MECHANICAL SPECIFICATIONS







HOW TO ORDER:

Hi-G Adjustable Time Delay Modules cover one decade, e.g., 62 milliseconds to 620 milliseconds; you may select any decade that best suits your application within the range of 50 milliseconds to 240 seconds. (Of course, longer ranges are available on special order.) The upper decade limits is T max. in the timing formula and is the timing code number in the part number described in the following paragraph.

The part number for a Hi-G Time Delay Module consists of four elements: The series number, Header Style, a letter signifying mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus 50 milliseconds would be coded 0500, 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

A typical part number for an adjustabale timing module is 1921-1A-1102; this is a DC unit in the -55°C to +125°C temperature range with a hooked pins in a Style A mounting, and with a time delay range of 1.1 to 11 seconds.

Example: **Hi-G Part Number**

1921 — 1A — 1102

SERIES
HEADER STYLE
TIMING CODE
MOUNTING

NOTE 1:

The time delay may be extended beyond the normal "decade" range of above formula by increasing the timing resistance "RX", beyond standard 400k Max value up to a maximum value of 1.2 M. However, the tolerance and repeatability are not tested and therefore not guaranteed at this high "RX" value. Also, some slight non-linearity between Rx and desired time delay will occur.

DELAY ON OPERATE-FIXED RELAY OUTPUT

2400

FEATURES:

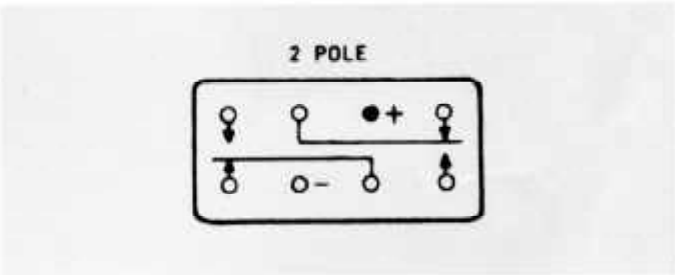
- Hermetic Package
- Reverse Polarity Protection
- Built to MIL-R-83726 Environmentals
- CMOS Digital Design

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600s
Tolerance: ±10% or 10 ms whichever is greater
Repeatability: ± 1%
Recycle Time: 10 ms
Recovery Time: 20 ms
Input Data:
Input voltage: 18 to 31 V dc
Current drain: 85 mA maximum at 31 V dc (25°C)

Output Data:
Output form: 2 PDT
Output rating: 2 A at 30 V dc Res.
.125 A 115V, 400 Hz Res.
Transient protection: 80 V dc for 50 ms

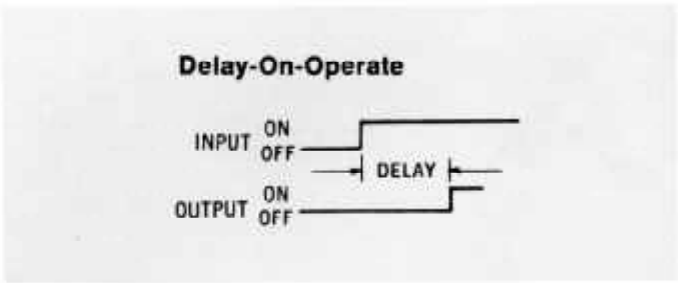
WIRING DIAGRAM



ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: 2401 Series -55°C to +85°C. 2402 Series -55°C to +125°C.
Vibration: 20 G's, 10 to 2000 Hz.
Shock: 50 G's, 11 ±1 milliseconds duration.
Insulation resistance: 1000 megohms at 500 VDC, all terminals to case.
Dielectric strength: 500 V RMS, 60 Hz at sea level, all terminals to case.
Sealing: Hermetic, 1.3 inches mercury.
Life: 100,000 operations minimum.
Weight: 1.2 oz. maximum.

TIMING DIAGRAM

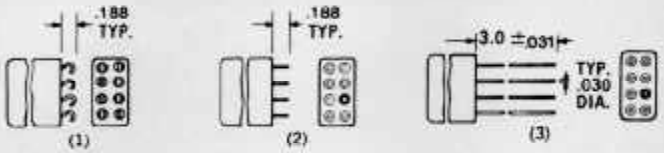


OPTIONS:

- Timing tolerances
- Mounting and header styles
- Input voltages different

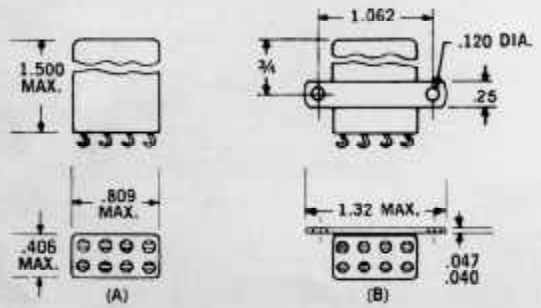
MECHANICAL SPECIFICATIONS

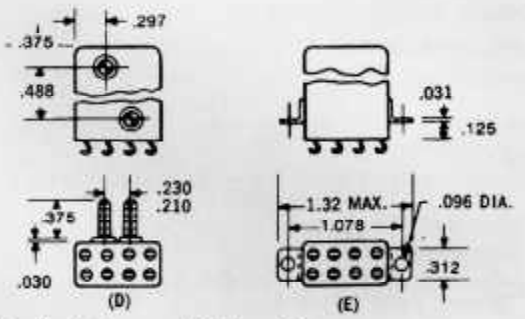
HEADER STYLES



NOTE: Terminal Spacing .2 inches, all headers. Terminal Diameter .030 inches, all headers.

MOUNTING STYLES



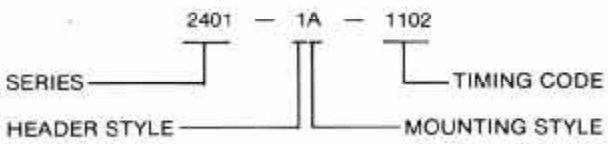


Note: Studs shown are 4-40 Thread Size.
DIMENSIONS ARE IN INCHES (TOLERANCE NOT IMPLIED)

HOW TO ORDER:

The part number for a Hi-G miniature time delay module consists of four elements: the series number, the header style, the mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus. 0500 would be 50 milliseconds, 1101 is the code for 1.1 seconds, and 5002 would be 50 seconds. A typical part number for the Hi-G miniature delay module is 2401-1A-1102; this is a time delay module designed to operate in the -55°C to +85° C temperature range, hook terminals, style A mounting, and a delay of 11 seconds.

Example: **Hi-G Part Number**



DELAY ON OPERATE-FIXED RELAY OUTPUT

1600

FEATURES:

- AC/DC Input
- Up to 10 A Loads
- CMOS Digital Design
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600s

Tolerance: ±10% or 10 ms whichever is greater

Repeatability: ± 1%

Recycle Time: 10 ms (DC input), 50ms (AC input)

Recovery Time: 10ms (DC input), 50ms (AC input)

Input data voltage: 18 to 31 V dc, 105 to 125 VAC 400 Hz

Current Drain:

	DC, 10 A	AC or DC, 4 A
Current Drain at 25°C at 28 Volts DC	135 mA maximum	1-pole: 100mA maximum; 2-pole: 150mA maximum; 3 and 4 pole: 200mA maximum

Output Data:

Contact Rating at 30 Volts DC	10 A Resistive 5 A Inductive	4 A Resistive 1 A Inductive
Contact Rating at 115 Volts, 400 Hz	5 A Resistive 3 A Inductive	2 A Resistive 1 A Inductive

ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: -55°C to +85°C or -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 milliseconds duration.

Insulation resistance: 1000 megohms at 500 volts DC, all terminals to case.

Dielectric strength: 1000 volts RMS, 60 Hz at sea level, all terminals to case.

Sealing: Hermetic, 1.3 inches mercury.

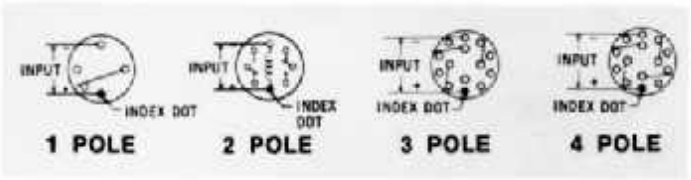
Life: 100,000 operations minimum.

Weight: 4 A unit: 4.5 oz. max.
10 A unit: 8.5 oz. max.

OPTIONS:

- Extended time delays
- Tighter tolerances
- Modified header and mounting
- 115 VAC 60 Hz Input

WIRING DIAGRAM



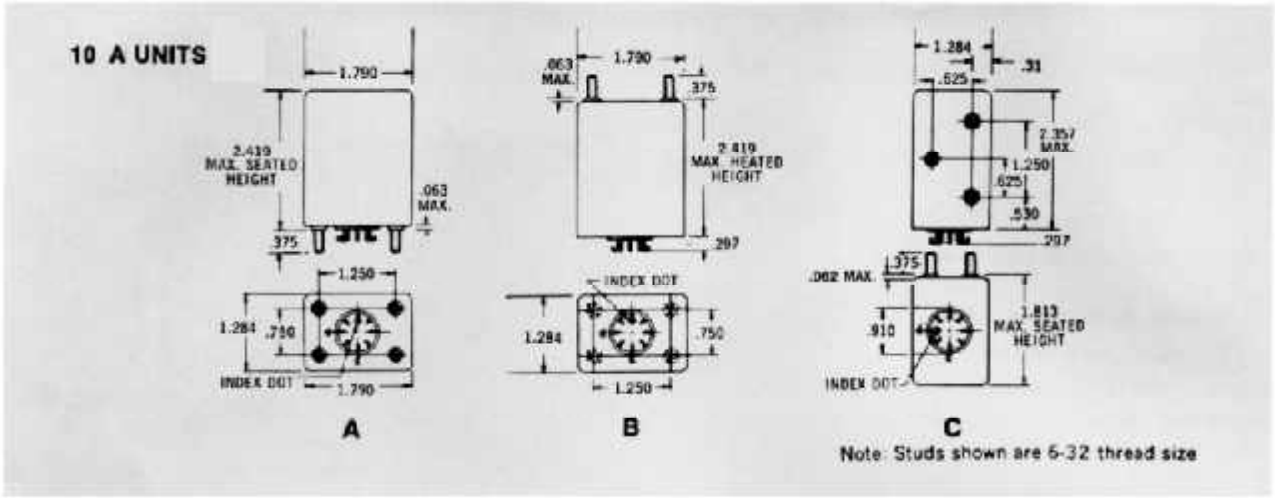
4A SERIES

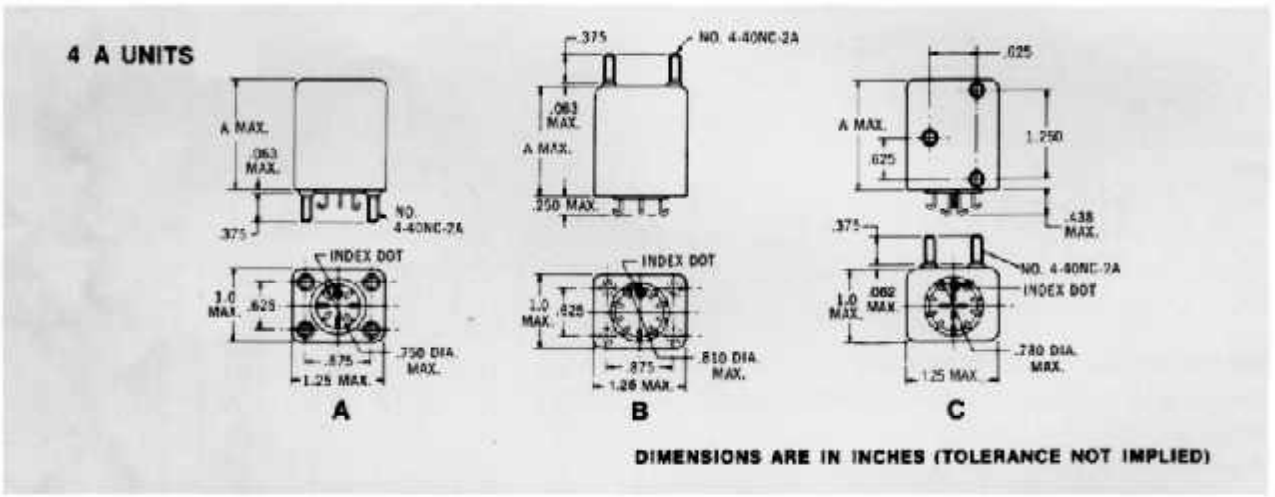
Series	Input	Temperature Range	Housing Length (Dim. "A")	Contact Arrangement
1601	DC	-55°C to +85°C	1.656	1PDT
1602	DC	-55°C to +85°C	1.656	2PDT
1603	DC	-55°C to +85°C	2.00	3PDT
1604	DC	-55°C to +85°C	2.00	4PDT
1621	DC	-55°C to +125°C	1.656	1PDT
1622	DC	-55°C to +125°C	1.656	2PDT
1623	DC	-55°C to +125°C	2.00	3PDT
1624	DC	-55°C to +125°C	2.00	4PDT
1651	AC	-55°C to +85°C	2.00	1PDT
1652	AC	-55°C to +85°C	2.00	2PDT
1653	AC	-55°C to +85°C	2.375	3PDT
1654	AC	-55°C to +85°C	2.375	4PDT
1671	AC	-55°C to +125°C	2.00	1PDT
1672	AC	-55°C to +125°C	2.00	2PDT
1673	AC	-55°C to +125°C	2.375	3PDT
1674	AC	-55°C to +125°C	2.375	4PDT

10A SERIES

1610	DC	-55°C to +85°C	2.419	1PDT
1620	DC	-55°C to +85°C	2.419	2PDT

MECHANICAL SPECIFICATIONS





HOW TO ORDER:

The part number for a Hi-G Time Delay Module consists of three elements: The series number (from the Table), a letter signifying mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus 50 milliseconds would be coded 0500, 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

A typical part number for an adjustable timing module is 1622-C-1102; this is a DC unit in the -55°C to +125°C temperature range with a 2PDT contact arrangement, in a Style C mounting, and with a time delay of 11 seconds.

Example: **Hi-G Part Number**

1622 — C — 1102

SERIES — MOUNTING — TIMING CODE

DELAY ON OPERATE ADJUSTABLE TIMING RELAY OUTPUT

1700

FEATURES:

- Customer Adjustable
- up to 10 A Loads
- CMOS Digital Design
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600s

Tolerance: ±10% or 10 ms whichever is greater

Repeatability: ± 1%

Recycle Time: 10 ms (DC input), 50ms (AC input)

Recovery Time: 10ms (DC input), 50ms (AC input)

Input data voltage: 18 to 31 V dc, 105 to 125 VAC 400 Hz

Current Drain:

	DC, 10 A	AC or DC, 4 A
Current Drain at 25°C at 28 Volts DC	135 mA maximum	1-pole: 100mA maximum; 2-pole: 150mA maximum; 3 and 4 pole: 200mA maximum

Output Data:

Contact Rating at 30 Volts DC	10 A, Resistive 5 A, Inductive	4 A Resistive 1 A Inductive
Contact Rating at 115 Volts, 400 Hz	5 A, Resistive 3 A, Inductive	2 A Resistive 1 A Inductive

ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: -55°C to +85°C or -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 milliseconds duration.

Insulation resistance: 1000 megohms at 500 volts DC, all terminals to case.

Dielectric strength: 1000 volts RMS, 60 Hz at sea level, all terminals to case.

Sealing: Hermetic, 1.3 inches mercury.

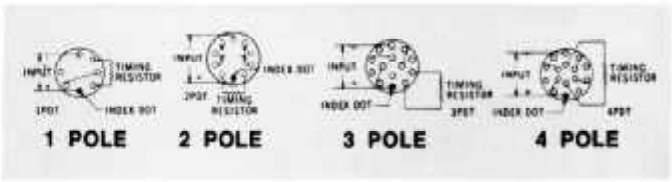
Life: 100,000 operations minimum.

Weight: 4 A unit 4.5 oz. max.
10 A unit 8.5 oz. max.

OPTIONS:

- Tighter tolerances
- Modified header and mounting
- Extended Timing range
- 115 VAC 60 Hz

WIRING DIAGRAM



4A SERIES

Series	Input	Temperature Range	Housing Length (Dim. "A")	Contact Arrange-ment
1701	DC	-55°C to +85°C	1.656	1PDT
1702	DC	-55°C to +85°C	1.656	2PDT
1703	DC	-55°C to +85°C	2.00	3PDT
1704	DC	-55°C to +85°C	2.00	4PDT
1721	DC	-55°C to +125°C	1.656	1PDT
1722	DC	-55°C to +125°C	1.656	2PDT
1723	DC	-55°C to +125°C	2.00	3PDT
1724	DC	-55°C to +125°C	2.00	4PDT
1751	AC	-55°C to +85°C	2.00	1PDT
1752	AC	-55°C to +85°C	2.00	2PDT
1753	AC	-55°C to +85°C	2.375	3PDT
1754	AC	-55°C to +85°C	2.375	4PDT
1771	AC	-55°C to +125°C	2.00	1PDT
1772	AC	-55°C to +125°C	2.00	2PDT
1773	AC	-55°C to +125°C	2.375	3PDT
1774	AC	-55°C to +125°C	2.375	4PDT

10A SERIES

1710	DC	-55°C to +85°C	2.419	1PDT
1720	DC	-55°C to +85°C	2.419	2PDT

ADJUSTABLE TIMING FORMULA

The resistance required to obtain timing within this range is determined by using the formula:

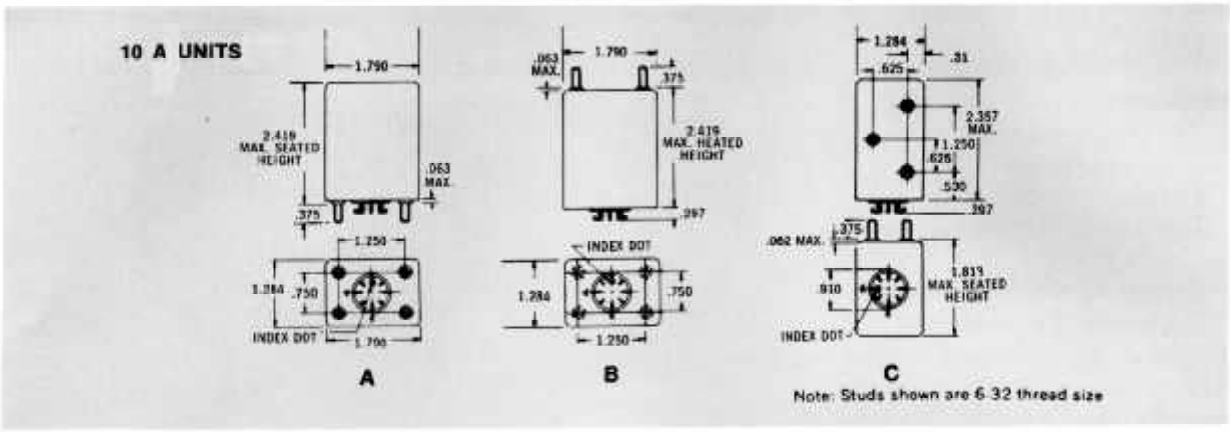
Rx = 400K (T/T max.) — 40K
Rx = External Res. in OHMS

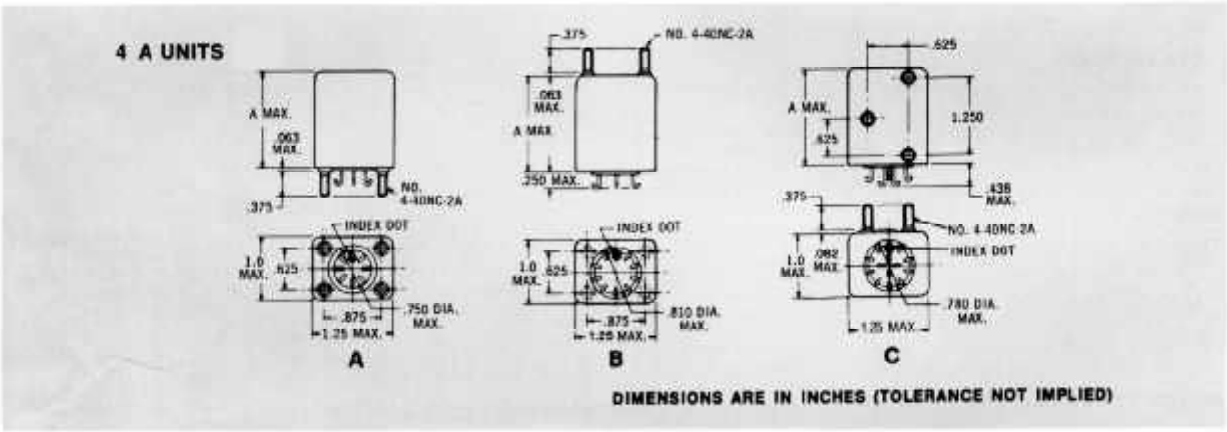
T = Desired time in seconds
T max. = Maximum time (code)

A high quality deposited carbon ±1%, .1W (min. resistor is recommended for external resistance).

See Note 1.

MECHANICAL SPECIFICATIONS





HOW TO ORDER:

Hi-G Adjustable Time Delay Modules cover one decade, e.g., 62 milliseconds to 620 milliseconds; you may select any decade that best suits your application within the range of 50 milliseconds to 240 seconds. (Of course, longer ranges are available on speical order.) The upper decade limit is T max. in the timing formula and is the timing code number in the part number described in the following paragraph.

The part number for a Hi-G Time Delay Module consists of three elements: The series number (from the Table), a letter signifying mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus 50 milliseconds would be coded 0500, 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

A typical part number for an adjustable timing module is 1722-C-1102; this is a DC unit in the -55°C to +125°C temperature range with a 2PDT contact arrangement, in a Style C mounting, and with a time delay of 11 seconds.

Example: **Hi-G Part Number**

1722 — C — 1102

SERIES — MOUNTING — TIMING CODE

NOTE 1:

The time delay may be extended beyond the normal "decade" range of above formula by increasing the timing resistance "RX", beyond standard 360k Max value up to a maximum value of 1.160 M. However, the tolerance and repeatability are not tested and therefore not guaranteed at this high "RX" value. Also, some slight non-linearity between Rx and desired time delay will occur.

INTERVAL TIMER-FIXED RELAY OUTPUT

4600

FEATURES:

- AC/DC Inputs
- Reverse Polarity Protection
- Built to MIL-R-83726

ELECTRICAL SPECIFICATIONS:

Timing Range: 100 ms to 600 s

Tolerance: ±10% **Repeatability:** ±1%

Recycle Time: 10 ms (DC), 50 ms (AC)
Operate Time: 4 Amp rated units: 10 ms maximum, 10 Amp rated units: 20 ms maximum.

Input Data:

Input voltage: 18 to 31 V dc, 105 to 125 VAC 400 Hz

Current Drain:

	DC, 10 A	AC or DC, 4 A
Current Drain at 25°C at 28 Volts DC	135 mA maximum	1-pole: 100mA maximum; 2-pole: 150mA maximum; 3 and 4 pole: 200mA maximum

Output Data:

Contact Rating at 30 Volts DC	10 A, Resistive 5 A, Inductive	4 A Resistive 1 A Inductive
Contact Rating at 115 Volts, 400 Hz	5 A, Resistive 3 A, Inductive	2 A Resistive 1 A Inductive

ENVIRONMENTAL SPECIFICATIONS:

Temperature: -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's 11 ±1 milliseconds duration.

Sealing: Hermetic, 1.3 inches mercury.

Insulation Resistance: 1000 Megohms at 500 VDC.

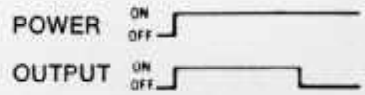
Dielectric Strength: 1000 V RMS, 60 Hz at Sea Level, all terminals to case.

Life: 4 Amps rated — 100,000 operations min. 10 A rated — 50,000 operations min.

Weight: 4 A unit, 4.5 oz. max.
10 A unit 8.5 oz. max.

WIRING DIAGRAM

TIMING DIAGRAM

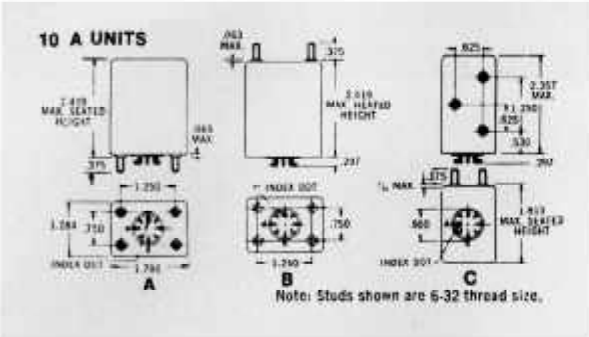


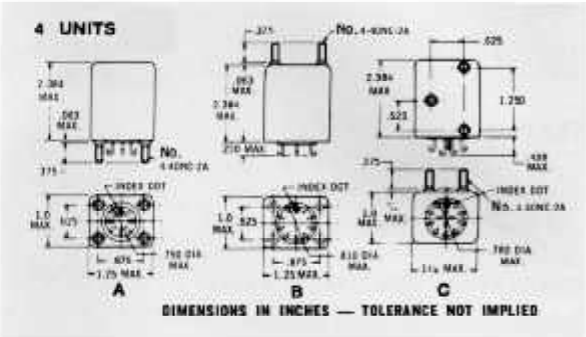
Apply power and the output will energize. After time-out, the output will revert to de-energized state. Remove and reapply input to cycle

OPTIONS:

- 60 Hz Operation
- Tighter Tolerances
- Modified header and mounting
- Extended Timing Range

MECHANICAL SPECIFICATIONS





HOW TO ORDER:

Type	Series	Contacts	Rating
DC	4610	1PDT	10 Amp
	4611	2PDT	10 Amp
	4621	1PDT	4 Amp
	4622	2PDT	4 Amp
	4624	4PDT	4 Amp
AC	4671	1PDT	4 Amp
	4672	2PDT	4 Amp
	4674	4PDT	4 Amp

The part number for a Hi-G Time Delay Module consists of three elements: The series number (from the Table), a letter signifying mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus 100 milliseconds would be coded 1000, 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

Example: **Hi-G Part Number**

4610 — B — 1003

SERIES

MOUNTING

ZEROS MULTIPLIER

TIME IN MILLISECONDS

INTERVAL TIMER ADJUSTABLE TIMING RELAY OUTPUT

4700

FEATURES:

- Customer Adjustable Timing
- Reverse Polarity Protection
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600s

Tolerance: ±10% **Repeatability:** ±1%

Recycle Time: 10 ms (DC), 50 ms (AC)

Operate Time: 4 A rated units: 10 ms maximum, 10 A rated units: 20 ms maximum.

Input data voltage: 18 to 31 V dc, 105 to 125 VAC 400 Hz

Current Drain:

	DC, 10 A	AC or DC, 4 A
Current Drain at 25°C at 28 Volts DC	135 mA maximum	1-pole: 100mA maximum; 2-pole: 150mA maximum; 3 and 4 pole: 200mA maximum

Output Data:

Contact Rating at 30 Volts DC	10 A Resistive 5 A Inductive	4 A Resistive 1 A Inductive
Contact Rating at 115 Volts, 400 Hz	5 A Resistive 3 A Inductive	2 A Resistive 1 A Inductive

ENVIRONMENTAL SPECIFICATIONS:

Temperature: -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's 11 ±1 milliseconds duration.

Sealing: Hermetic, 1.3 inches mercury.

Insulation Resistance: 1000 Megohms at 500 VDC

Dielectric Strength: 1000 V RMS, 60 Hz at Sea Level, all terminals to case.

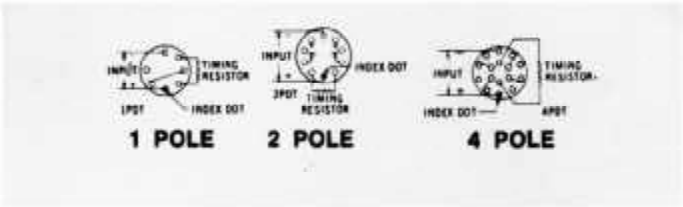
Life: 4 A rated — 100,000 operations min. 10 A rated — 50,000 operations min.

Weight: 4 A unit 4.5 oz. max.
10 A unit 8.5 oz. max.

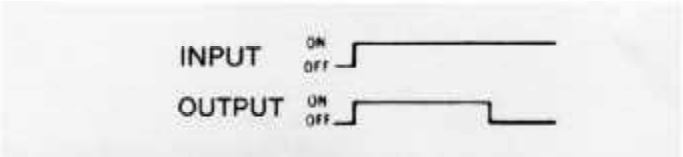
OPTIONS:

- 60 Hz Operation
- Tighter Tolerances
- Modified Header and Mounting
- Extended Timing Range

WIRING DIAGRAM



TIMING DIAGRAM



Apply power and the output will energize. After time-out, the output will revert to de-energized state. Remove and reapply input to recycle.

SPECIAL NOTES:

- **ADJUSTABLE TIMING FORMULA:**
  The resistance required to obtain timing within this range is determined by using the formula:

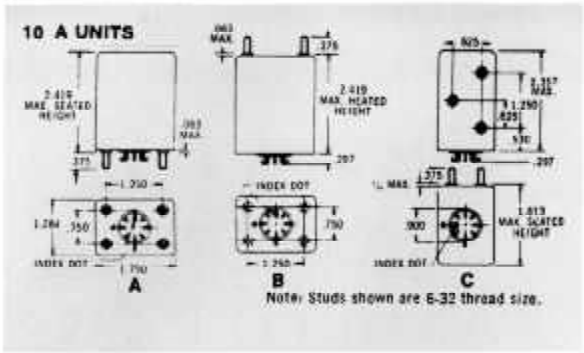
  Rx = 400K (T/Tmax.) — 40K
  Rx = External Res. in OHMS

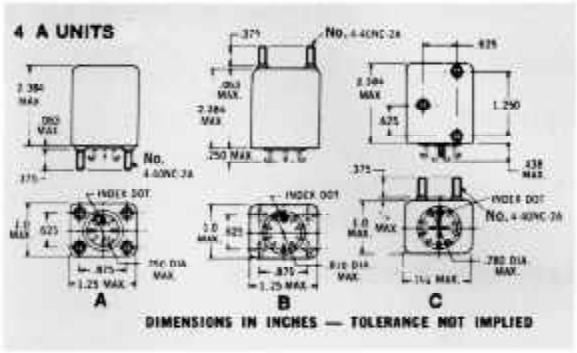
  T = Desired time in seconds
  Tmax. = Maximum time (code)

  A high quality deposited carbon ±1%, .1W (min.) resistor is recommended for external resistance.

  See Note 1.

MECHANICAL SPECIFICATIONS





HOW TO ORDER:

Type	Series	Contacts	Rating
DC	4710	1PDT	10 Amp
	4711	2PDT	10 Amp
	4721	1PDT	4 Amp
	4722	2PDT	4 Amp
	4724	4PDT	4 Amp
AC	4771	1PDT	4 Amp
	4772	2PDT	4 Amp
	4774	4PDT	4 Amp

Hi-G Adjustable Time Delay Modules cover one decade, e.g., 62 milliseconds to 620 milliseconds; you may select any decade that best suits your application within the range of 50 milliseconds to 240 seconds. (Of course, longer ranges are available on special order.) The upper decade limits is Tmax. in the timing formula and is the timing code number in the part number described in the following paragraph.

The part number for a Hi-G Time Delay Module consists of three elements: The series number (from the Table), a letter signifying mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus 50 milliseconds would be coded 0500, 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

A typical part number for an adjustable timing module is 4722-C-1102; this is a DC unit in the -55°C to +125°C temperature range with a 2PDT contact arrangement, in a Style C mounting, and with a time delay of 11 seconds.

Example: **Hi-G Part Number**

4722 — C — 1102

SERIES — MOUNTING — TIMING CODE

Note 1:
The time delay may be estende beyond the normal "decade" range of above formula by increasing the timing resistance, "Rx", beyond standard 360K max value up to a maximum value of 1.160M.
However, the tolerance and repeatability are not tested and therefore not guaranteed at this high "Rx" value.
Also, some slight non-linearity between Rx and desired time delay will occur.

INTERVAL TIMER-FIXED SOLID STATE OUTPUT

4800

FEATURES:

- Hermetic Package
- Built to MIL-R-83726 Environmentals

ELECTRICAL SPECIFICATIONS:

Timing Range: 50 ms to 600s

Tolerance: ±10%

Repeatability: ±2%

Recycle Time: 10 ms

Input Data:

Input voltage: 18 to 31 V dc

Current drain: 40mA maximum

Output Data:

Output form: SPST-NO

Output rating: 300 mA (25° C)
200 mA (125° C)

Saturation voltage: 1.0 volt 500 mA (25°C)

Leakage: 10 uA (125°C)

ENVIRONMENTAL SPECIFICATIONS:

Temperature Range: -55° C to +85° C
-55° C to +125° C

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's 11 ±1 milliseconds duration.

Sealing: Hermetic, 1.3 inches mercury.

Insulation resistance: 1000 megohms at 500 VDC.

Dielectric strength: 500 V RMS, 60 Hz at sea level, all terminals to case.

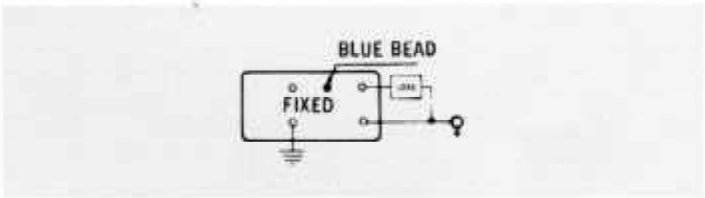
Life: Over 1,000,000 operations

Weight: 2 oz. max.

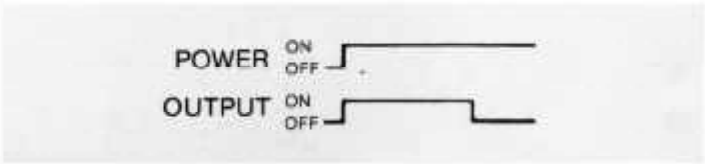
OPTIONS:

- Tighter timing tolerances
- Relay output
- Different package, mounting, and header
- AC input

WIRING DIAGRAM



TIMING DIAGRAM



Apply power and the output will energize. After time-out, the output will revert to de-energized state. Remove and reapply power to recycle.

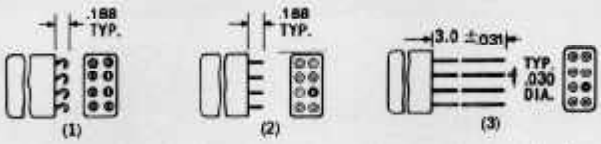
SPECIAL NOTES:

TIMING TEMPERATURE RANGE, SERIES 4800

Series	Timing Range	Temperature Range
4801	10 ms to 600 s	-55°C to +85°C
4851	10 ms to 600 s	-55°C to +125°C

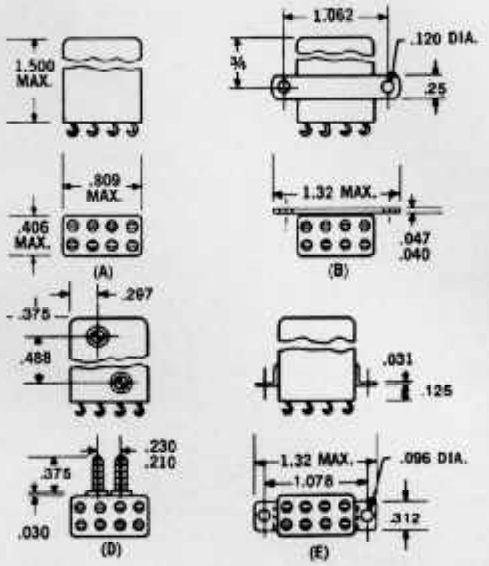
MECHANICAL SPECIFICATIONS

HEADER STYLES



NOTE: Terminal Spacing .2 inches, all headers. Terminal Diameter .030 inches, all headers.

MOUNTING STYLES

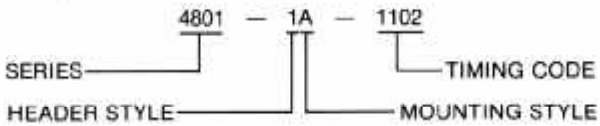


Note: Studs shown are 4-40 Thread Size.
DIMENSIONS ARE IN INCHES (TOLERANCE NOT IMPLIED)

HOW TO ORDER:

The part number for a Hi-G miniature time delay module consists of four elements: the series number, the header style, the mounting style, and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus, 0500 would be 50 milliseconds, 1101 is the code for 1.1 seconds, and 5002 would be 50 seconds. A typical part number for the Hi-G miniature delay module is 4801-1A-1102; this is a time delay module designed to operate in the -55°C to +85°C temperature range, hooked terminals, style A mounting, providing a delay of 11 seconds.

Example: **Hi-G Part Number**



FLASHER/REPEAT-CYCLE TIMER-FIXED SOLID STATE OUTPUT

2600

FEATURES:

- All Solid-State
- Digital Timing
- Reverse Polarity Protection
- Transient/Surge Protection

ELECTRICAL SPECIFICATIONS:

Timing: "On" Time (.05 to 600s)
"Off" Time (.05 to 600s)

Duty Cycle: $D.C. = \frac{T\ on}{T\ on\ \&\ T\ off}$

Frequency: $f = \frac{1}{T\ on\ \&\ T\ off}$
(Flash Rate)

Tolerance: ±10%

Repeatability: ±0.1%

Input Data:
Input voltage: 18 to 31 V dc
Current drain: 30 mA @ 28 V dc

Output Data:
Output: 28 V dc
Vin (dc) — 1.5 V dc @ 100mA
Load: 300 mA max.

ENVIRONMENTAL SPECIFICATIONS:

Operating temperature: -55°C to +125°C.

Vibration: 20 G's, 10 to 2000 Hz.

Shock: 50 G's, 11 ±1 milliseconds duration.

Insulation Resistance: 1000 Megohms at 500 VDC.

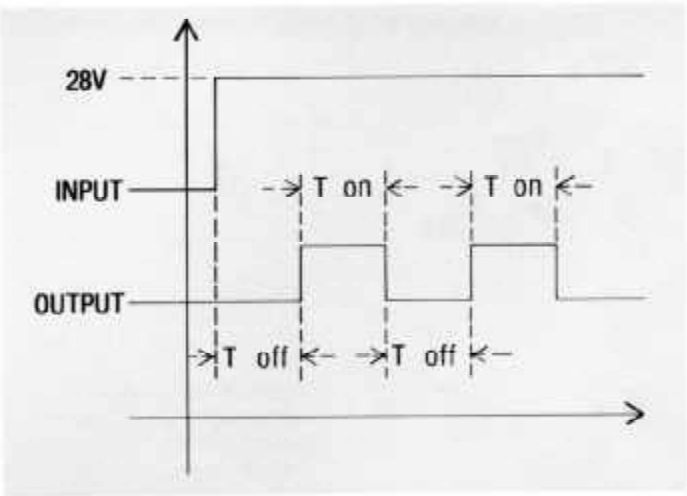
Dielectric Strength: 1000 V RMS, 60 Hz at Sea Level. All terminals tied together to case.

Sealing: Hermetic 1.3 inches mercury.

Life: Over 1.000.000 operations.

Weight: 8 oz. max.

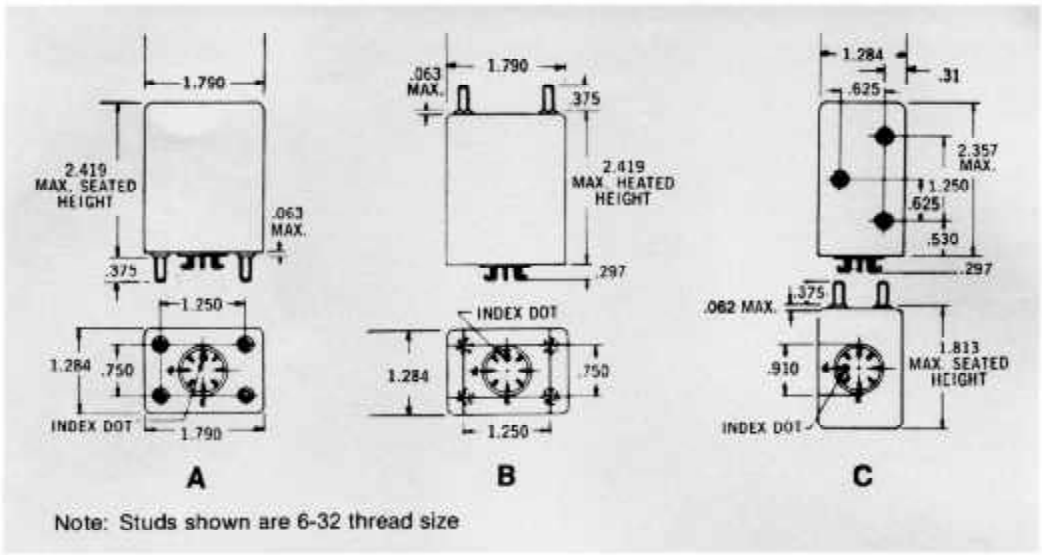
TIMING DIAGRAM



OPTIONS AVAILABLE:

- Higher output rating
- Output sink to ground
- Control line
- AC operation
- Adj. "on" & "off" time
- Relay output to 10 A
- Alternate packaging
- Initial cycle "on"
- Extended timing ranges

MECHANICAL SPECIFICATIONS



Note: Studs shown are 6-32 thread size

HOW TO ORDER:

Series	Initial Timing Cycle
2601 2602	OFF ON

The part number consists of four elements: The series number, a letter signifying mounting style and the timing code numbers. The first timing is the "ON" time and the second is "OFF" time. The timing code number consist of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus, 50 milliseconds would be coded 0500, 1.1 seconds would read 1101, and 1 minute (60 seconds) would be 6002.

Example: **Hi-G Part Number**

2601 — A — 2001 — 1001

- 2601 — SERIES
- A — MOUNTING STYLE
- 2001 — "ON" TIME IN MILLISECONDS
- 1001 — "OFF" TIME IN MILLISECONDS

HYBRID TIMING MODULE
DELAY ON OPERATE-FIXED

Series FBP-O

DESCRIPTION.
Hi-G FBP-O timers incorporate the most modern digital timing techniques. These timers offer superior timing accuracy, long term timing stability and wide range of delays in a compact package. FBP-O series combine an electronic timing circuit based on microcontroller and an electromechanical relay for a good current-carriyng capacity and the best response of electronic circuits. Delays from 50ms up to 10^6s can be specified for this timing module. The electronic circuit has a voltage regulator circuit that permits the use of unregulated power sources, in the specified range. The devices include a reverse polarity protection.

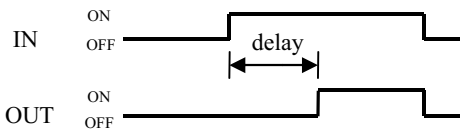
FEATURES:
- Digital design
- High timing accuracy
- Hermetic package
- Reverse Polarity Protection

ELECTRICAL SPECIFICATIONS
Time delay 50ms to 10^6s
Tolerance ± 5%
DPDT, 2A
Reset Time: 3ms
Recycle Time: 4ms
Recovery Time: 4ms

ENVIRONMENTAL DATA:

Ambient temperature (operating):	-40°C to +85°C
Ambient temperature (storage):	-40°C to +110°C
Vibration:	20 g, 10 to 2000 Hz
Shock:	100 g, 6ms
Acceleration:	30 g
Sealing:	Hermetic, 1.3 inches mercury
Weight:	3 oz. (85,05g) maximum

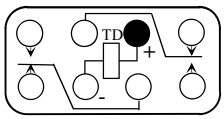
TIMING DIAGRAM



ELECTRICAL DATA:

Consumption:	380 mW Max
Dielectric Strenght (min):	1000 Vrms , 60Hz at sea level, all terminals to case
Insulation resistance (min) @500 Vdc	$10^9\Omega$, all terminals to case
Reverse polarity protection	500 Vdc

SCHEMATIC DIAGRAM



Note : Schematic is viewed from terminals

OUTPUT DATA:

Output form:	DPDT contacts
Output rating:	
Low level 10mA/30mV	1.000.000 Cycles min.
2A at 28Vdc Resistive	100.000 Cycles min.
1A at 115Vac, 400Hz Resistive	100.000 Cycles min.
0,3A at 115Vac, 60Hz Resistive	100.000 Cycles min.
Overload 4A at 28Vdc Resistive	100 Cycles min.
Inductive 0,75A at 28Vdc (200mH)	100.000 Cycles min.
Numbers of poles	2 form C

COIL VOLTAGE

Voltage Code	min.[V]	Max.[V]
G	12	14
H	18	21
I	24	31

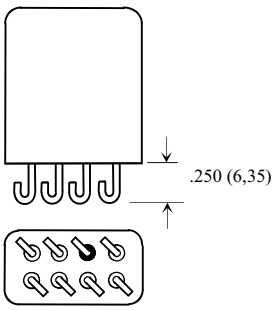
These values are valid in all the temperature range.

HYBRID TIMING MODULE
DELAY ON OPERATE-FIXED

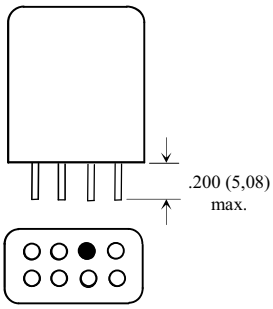
Series FBP-O

TERMINAL STYLES

1
Solder lug

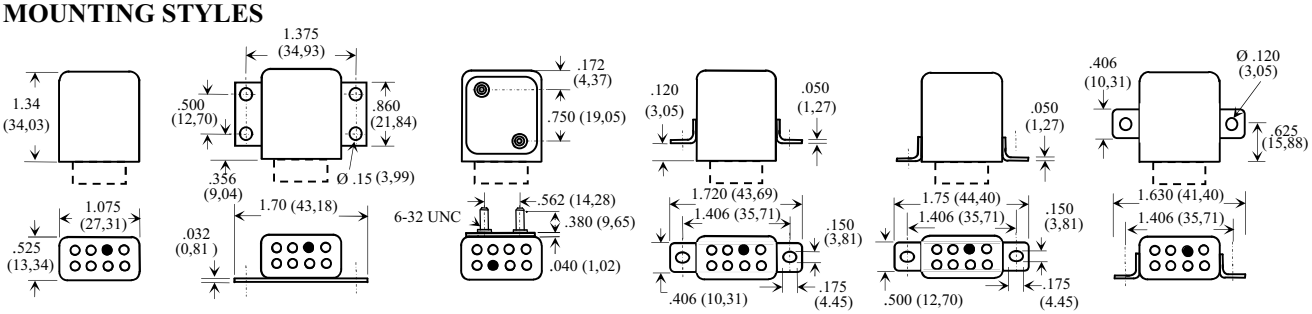


2
Plug in



Note :
Dimensions are shown in inches (millimetres); Terminal spacing is .200 (5,08).; Terminal diameter is .050 (1,27) ± .002 (0,05).

MOUNTING STYLES

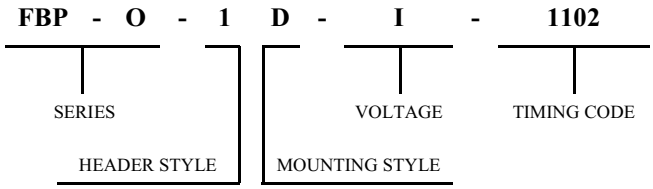


A **B** **C** **D** **E** **F**

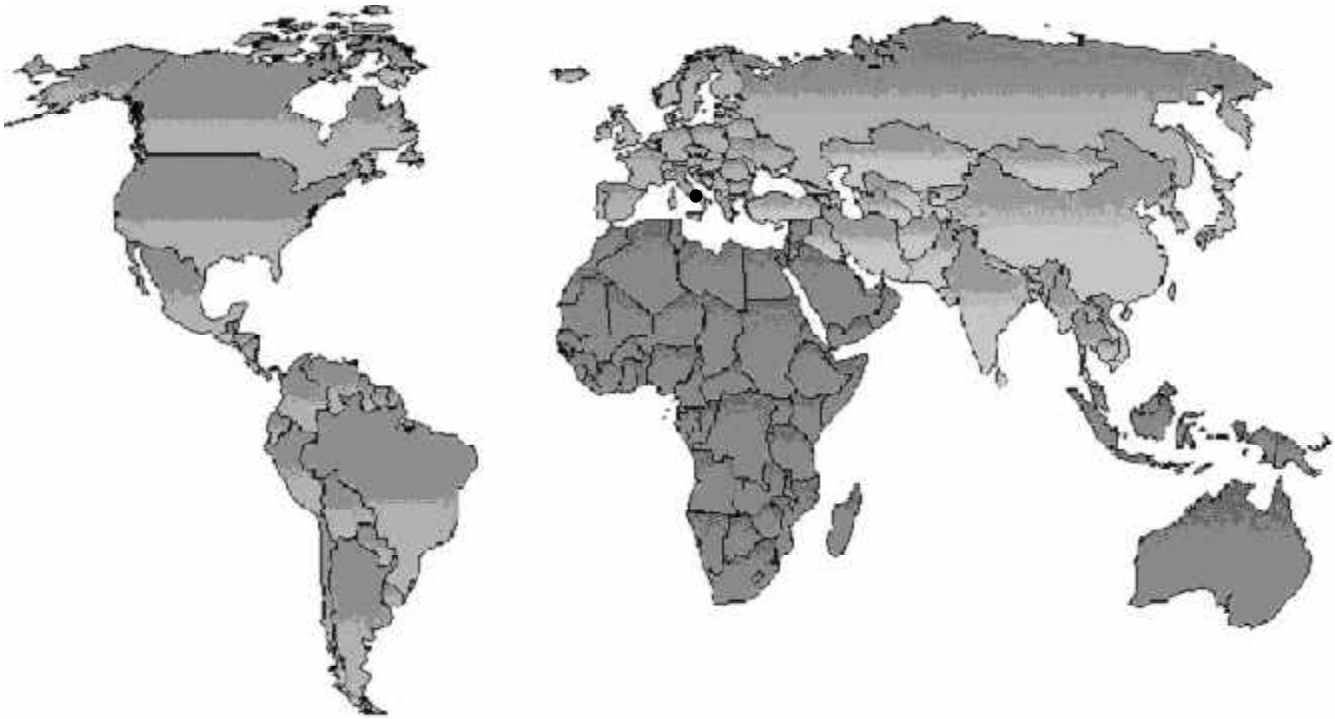
HOW TO ORDER.

The part number for a Hi-G miniature time delay module consists of five elements: the series, the type, the header style with the mounting style, the coil voltage and the timing code number. The timing code number consists of four digits and gives the time in milliseconds. The first three digits are the significant figures and the last digit is the number of zeros following the significant figures; thus, 0500 would be 50 milliseconds, 1101 is the code for 1.1 seconds, and 5002 would be 50seconds.

Example:



Hi-G ITALIA
MAIN AREA SALES OFFICE



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