Siemens Matsushita Components

EMC-Components

Feed-Through Capacitors
Feed-Through Filters
in Solderless MKP Technology

Data Book Supplement

Vakatseite

1 General

MeshContact is a solderless technology newly developed by Siemens Matsushita Components. It allows uniform concentric contacting of MKP capacitor winds, avoiding the thermal stress caused by soldering. The result is even better insertion loss, high insulation resistance plus compact, small casing.

Basically, feed- through components can be used to suppress interference in all electrical installations and equipment. The new series is also ideal for telephone switching systems and base stations and, through broadband suppression effective into the GHz region, prevents interference pulses from entering equipment from outside through the power supply network and vice versa.

There is now a building- block system available in this new technology for feed- through capacitors and filters, allowing fast and attractively priced solutions to be implemented. Interim ratings can be produced to order for special applications.

Feed- through elements fitted into a shielding wall

Selector guide

Diameter	Voltage range	Capacitance range
30 mm	up to 75 A	0,1 ... 1 µF
55 mm	up to 500 A	0,5 ... 4,7 µF

In feed- through capacitors the conductor carrying the load current is connected concentrically to one electrode and passes through the center of the capacitor. The other electrode makes concentric contact with the capacitor case.

Feed- through capacitors are designed to be effective from low frequency to far above 300 MHz. The low- loss winding with high- stability contact to the leads at its face ends is enclosed in a metal case with either a threaded stud at one end or an external thread.

Feed- through filters have π filter circuits consisting of two equal shunt capacitors and one ferro-magnetic inductor connected in series. Due to the concentric arrangement of the components, high attenuation values are obtained for frequencies up to and exceeding 1 GHz.

Safety note!

If feed- through elements with high capacitances are used, protective measures (e.g. protective earthing) in accordance with equipment/system regulations (product standards) are required!

2 Mounting instructions

To fully utilize their RF characteristics, feed- through components must be fitted directly into the shielding wall. The component case must make perfect and unbroken (RF- tight!) contact with the shielding. This can be best achieved by screwing them into a threaded hole or bushing, so that good electrical contact is made by the flanks of the thread.

As an alternative, feed- through elements can be screwed into feed- through holes in a shielding wall and held by a retaining nut. Contact between the case and the shielding wall is produced by the contact surface on the thread.

The connecting line must be attached by fixing it between two countered nuts in order to avoid exposing the component to torque loads (use two spanners).

NOTE

Due to the danger of exposing the feed throughs to mechanical loads caused by shock and vibration, it is not permissible to use rigid copper bars as connecting elements.

Construction

- Building- block system
- MKP technology (dry, self- healing)
  Dielectric: polypropylene, metallized
- Metal case with synthetic resin terminals
- For central screw fixing

Features

- Compact dimensions
- Variable current rating and capacitance through building- block system
- High attenuation
- Simple fitting
- High contact reliability through central screw fixing

Applications

Broadband interference suppression for ac/dc supply lines, e.g. in

- shielded rooms
- telephone exchanges, base stations
- electrical machines and systems
- power supplies

Terminals

- Threaded studs

Marking

Manufacturer, ordering code, EMI suppression class, rated capacitance, rated voltage, rated current, climatic category, circuit diagram, date of manufacture (MM.YY)

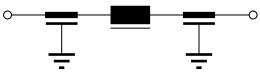
Standards

Feed- through capacitors comply with EN 133 200
Feed- through filters comply with EN 133 400

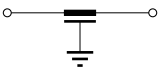
Safety information

Due to the high capacitance ratings protective measures (e.g. protective earthing) in accordance with equipment/system regulations are required.

Circuit diagrams



Feed- through filters



Feed- through capacitors

Feed- through capacitors ∅ 30 mm

I_R	C_R	V_R		V_P	Termi-nal	Dimensions (mm)		Ordering code
A	µF	Vac	Vdc	Vdc		∅ × l	l_1	
25	0,1	250	600	3000	M6	∅ 30 × 55	110	B85121- A2104- A250
	0,5	250	600	2500	M6	∅ 30 × 55	110	B85121- A2504- A250
	1,0	250	600	2000	M6	∅ 30 × 55	110	B85121- A2105- A250
75	0,1	250	600	3000	M6	∅ 30 × 55	110	B85121- A2104- A750
	0,5	250	600	2500	M6	∅ 30 × 55	110	B85121- A2504- A750
	1,0	250	600	2000	M6	∅ 30 × 55	110	B85121- A2105- A750

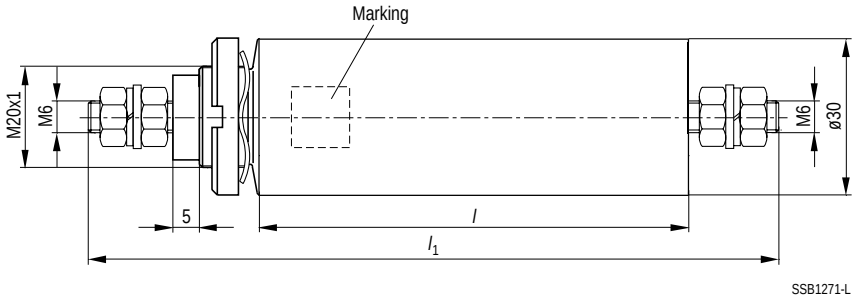
Insertion loss (dB); typical values at 50 Ω

Capacitance C_R	10 kHz	100 kHz	1 MHz	10 MHz	100 MHz	1 GHz
0,1 µF	0	5	20	40	60	70
0,5 µF	2	15	35	40	80	> 90
1,0 µF	5	25	45	50	85	> 90

General technical data

Capacitance tolerance: ±20 %
IEC climatic category: 40/085/56 (– 40 °C/ + 85 °C, 56 days damp heat test)
Screw cap fixing: standard M20 × 1

Dimensional drawing



Feed- through capacitors ∅ 55 mm

I_R	C_R	V_R		V_P	Termi-nal	Dimensions (mm)		Ordering code
A	µF	Vac	Vdc	Vdc	M	∅ × l	l_1	
63	0,5	250	600	3000	M6	55 × 30	100	B85121- A2504- A630
	1,0	250	600	2500	M6	55 × 30	100	B85121- A2105- A630
	2,0	250	600	2500	M6	55 × 60	130	B85121- A2205- A630
	4,7	250	600	2000	M6	55 × 60	130	B85121- A2475- A630
100	0,5	250	600	3000	M8	55 × 30	110	B85121- A2504- A101
	1,0	250	600	2500	M8	55 × 30	110	B85121- A2105- A101
	2,0	250	600	2500	M8	55 × 60	140	B85121- A2205- A101
	4,7	250	600	2000	M8	55 × 60	140	B85121- A2475- A101
200	0,5	250	600	3000	M10	55 × 30	120	B85121- A2504- A201
	1,0	250	600	2500	M10	55 × 30	120	B85121- A2105- A201
	2,0	250	600	2500	M10	55 × 60	150	B85121- A2205- A201
	4,7	250	600	2000	M10	55 × 60	150	B85121- A2475- A201

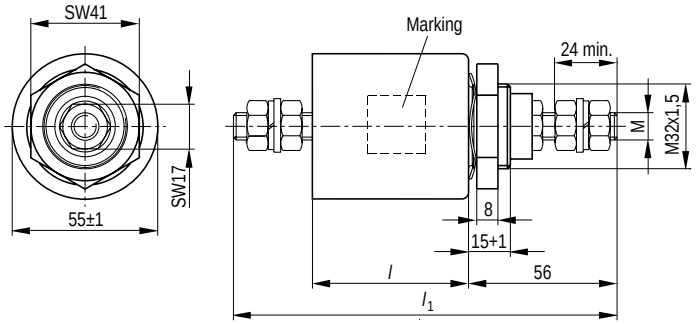
Insertion loss (dB); typical values at 50 Ω

Capacitance C_R	10 kHz	100 kHz	1 MHz	10 MHz	100 MHz	1 GHz
0,5 µF	2	15	35	40	80	> 90
1,0 µF	5	25	45	50	85	> 90
2,0 µF	10	30	50	55	> 90	> 90
4,7 µF	15	35	55	65	> 90	> 90

General technical data

Capacitance tolerance:	±20 %
IEC climatic category:	40/085/56 (– 40 °C/ + 85 °C, 56 days damp heat test)
Screw cap fixing	standard M32 × 1,5; special fixing M27 × 1,5 possible.

Dimensional drawing



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Feed- through filters ∅ 30 mm

I_R	C_R	V_R		V_P	Termi-nal	Dimensions (mm)		Ordering code
A	µF	Vac	Vdc	Vdc		∅ × l	l_1	
25	2 × 0,1	250	600	3000	M6	30 × 81	130	B85321- A2204- A250
	2 × 0,5	250	600	2000	M6	30 × 81	130	B85321- A2105- A250
	2 × 1,0	250	500	1700	M6	30 × 81	130	B85321- A2205- A250
75	2 × 0,1	250	600	3000	M6	30 × 81	130	B85321- A2204- A750
	2 × 0,5	250	600	2000	M6	30 × 81	130	B85321- A2105- A750
	2 × 1,0	250	500	1700	M6	30 × 81	130	B85321- A2205- A750

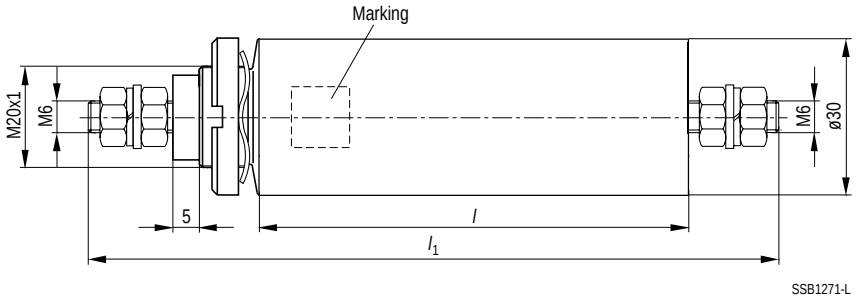
Insertion loss (dB); typical values at 50 Ω, load- independed

Capacitance C_R	10 kHz	100 kHz	1 MHz	10 MHz	100 MHz	1 GHz
2 × 0,1 µF	2	10	25	70	> 100	> 100
2 × 0,5 µF	5	25	45	80	> 100	> 100
2 × 1,0 µF	10	30	60	90	> 100	> 100

General technical data

Capacitance tolerance: ±20 %
IEC climatic category: 40/085/56 (– 40 °C/ + 85 °C, 56 days damp heat test)
screw cap fixing: standard M20 × 1

Dimensional drawing



Feed- through filters ∅ 55 mm

I_R	C_R	V_R		V_P	Termi-nal	Dimensions (mm)		Ordering code
A	µF	Vac	Vdc	Vdc	M	∅ × l	l_1	
63 A	2 × 0,5 µF	250	600	3000	M6	55 × 100	166	B85321- A2105- A630
	2 × 1,0 µF	250	600	2500	M6	55 × 100	166	B85321- A2205- A630
	2 × 2,0 µF	250	600	2500	M6	55 × 100	166	B85321- A2405- A630
	2 × 4,7 µF	250	600	1650	M6	55 × 100	166	B85321- A2945- A630
100 A	2 × 0,5 µF	250	600	3000	M8	55 × 100	180	B85321- A2105- A101
	2 × 1,0 µF	250	600	2500	M8	55 × 100	180	B85321- A2205- A101
	2 × 2,0 µF	250	600	2500	M8	55 × 100	180	B85321- A2405- A101
	2 × 4,7 µF	250	600	1650	M8	55 × 100	180	B85321- A2945- A101
200 A	2 × 0,5 µF	250	600	3000	M10	55 × 100	185	B85321- A2105- A201
	2 × 1,0 µF	250	600	2500	M10	55 × 100	185	B85321- A2205- A201
	2 × 2,0 µF	250	600	2500	M10	55 × 100	185	B85321- A2405- A201
	2 × 4,7 µF	250	600	1650	M10	55 × 100	185	B85321- A2945- A201
300 A	2 × 0,5 µF	250	600	3000	M12	55 × 100	195	B85321- A2105- A301
	2 × 1,0 µF	250	600	2500	M12	55 × 100	195	B85321- A2205- A301
	2 × 2,0 µF	250	600	2500	M12	55 × 100	195	B85321- A2405- A301
	2 × 4,7 µF	250	600	1650	M12	55 × 100	195	B85321- A2945- A301
400 A	2 × 0,5 µF	250	600	3000	M16	55 × 130	245	B85321- A2105- A401
	2 × 1,0 µF	250	600	2500	M16	55 × 130	245	B85321- A2205- A401
	2 × 2,0 µF	250	600	2500	M16	55 × 130	245	B85321- A2405- A401
	2 × 4,7 µF	250	600	1650	M16	55 × 130	245	B85321- A2945- A401
500 A	2 × 0,5 µF	250	600	3000	M18	55 × 130	250	B85321- A2105- A501
	2 × 1,0 µF	250	600	2500	M18	55 × 130	250	B85321- A2205- A501
	2 × 2,0 µF	250	600	2500	M18	55 × 130	250	B85321- A2405- A501
	2 × 4,7 µF	250	600	1650	M18	55 × 130	250	B85321- A2945- A501

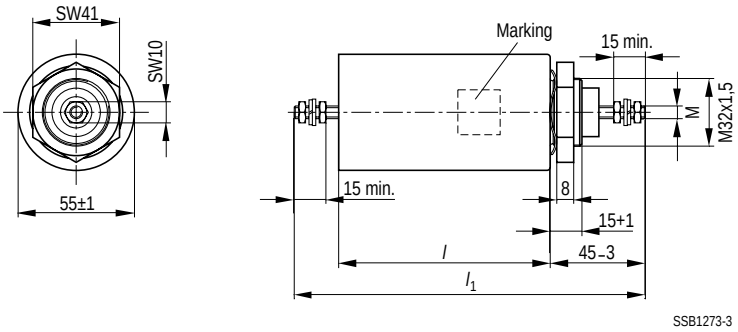
Insertion loss (dB); typical values at 50 Ω, load- independed

Capacitance C_R	10 kHz	100 kHz	1 MHz	10 MHz	100 MHz	1 GHz
2 × 0,5 µF	5	25	45	80	> 100	> 100
2 × 1,0 µF	10	30	60	> 100	> 100	> 100
2 × 2,0 µF	15	35	70	> 100	> 100	> 100
2 × 4,7 µF	25	40	90	> 100	> 100	> 100

General technical data

Capacitance tolerance:	±20 %
IEC climatic category:	40/085/56 (– 40 °C/ + 85 °C, 56 days damp heat test)
Screw cap fixing:	standard M32 × 1,5 special fixing M27 × 1,5 possible for filters up to 300 A.

Dimensional drawing



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