NTC THERMISTOR

disc

QUICK REFERENCE DATA

Resistance value at + 25 °C	3,3 Ω to 470 kΩ (E6 series)
$B_{25/85}$ value	2675 to 4650 K
Maximum dissipation	0,5 W
Dissipation factor	8,5 mW/K
Thermal time constant	≈ 17 s
Operating temperature range	
at zero power	−25 to + 125 °C
at maximum power	0 to + 55 °C

APPLICATION

Temperature compensation and temperature sensing.

DESCRIPTION

The thermistor has a negative temperature coefficient, it consists of a disc with two tinned copper wires. It is grey lacquered and colour coded, but not insulated.

MECHANICAL DATA

Outlines

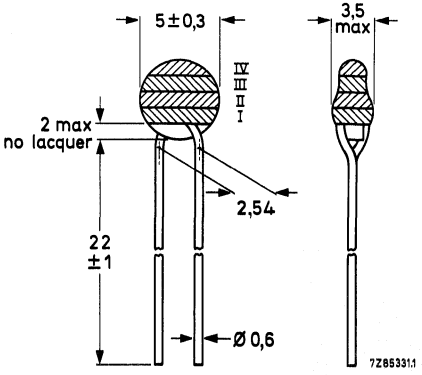

Fig. 1.

PACKAGING

500 thermistors in a cardboard box.

Marking

The thermistors are marked with three or four colour bands in accordance with Fig. 1 and Table 1.

Mass

0,25 g approximately.

Mounting

In any position by soldering.

Robustness of terminations

Tensile strength	10 N
Bending	5 N

Soldering

Solderability	max. 240 °C, max. 4 s
→ Resistance to heat	max. 265 °C, max. 11 s

Impact

Free fall	1 m

Flammability

Not inflammable according to IEC as described by TC50 (1979), needle flame.

Resistance to solvents

According to IEC 68-2-45, resistant to R113 at T_{amb}.

ELECTRICAL DATA

Unless otherwise specified, measured according to IEC publication 539.

Resistance at 25 °C	see Table 1
$B_{25/85}$ values	see Table 1
Temperature coefficient	see Table 1
Maximum dissipation*	0,5 W
Dissipation factor *	≈ 8,5 mW/K V/K
Thermal time constant*	≈ 17 s
Operating temperature range	
at zero power	−25 to + 125 °C
at maximum power, see Fig. 2	0 to + 55 °C

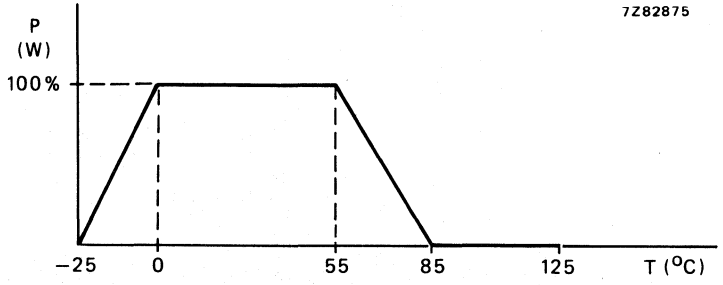

Fig. 2 Derating curve.

* Measured in the measuring set described in the French norm NF C93-271, and clamped at 10 mm from the body.

Table 1 Catalogue number 2322 642 6....

suffix of catalogue number	R_{25}	$B_{25/85}$ ± 5%	temperature coefficient	colour code (see Marking)			
							*
	Ω	K	%/K	I	II	III	IV
.338	3,3	2675	−3,0	orange	orange	gold	
.478	4,7	2750	−3,1	yellow	violet	gold	
.688	6,8	2800	−3,2	blue	grey	gold	
.109	10	2875	−3,2	brown	black	black	
.159	15	2950	−3,3	brown	green	black	
.229	22	3025	−3,4	red	red	black	
.339	33	3100	−3,5	orange	orange	black	
.479	47	3150	−3,5	yellow	violet	black	
.689	68	3225	−3,6	blue	grey	black	
.101	100	3300	−3,7	brown	black	brown	
.151	150	3375	−3,8	brown	green	brown	
.221	220	3475	−3,9	red	red	brown	
.331	330	3575	−4,0	orange	orange	brown	
.471	470	3650	−4,1	yellow	violet	brown	
.681	680	3725	−4,2	blue	grey	brown	
.102	1 000	3825	−4,3	brown	black	red	
.152	1 500	3975	−4,5	brown	green	red	
.222	2 200	4125	−4,6	red	red	red	
.332	3 300	4250	−4,8	orange	orange	red	
.472	4 700	4350	−4,9	yellow	violet	red	
.682	6 800	4400	−5,0	blue	grey	red	
.103	10 000	4275	−4,8	brown	black	orange	
.153	15 000	4200	−4,7	brown	green	orange	
.223	22 000	4275	−4,8	red	red	orange	
.333	33 000	4350	−4,9	orange	orange	orange	
.473	47 000	4400	−5,0	yellow	violet	orange	
.683	68 000	4450	−5,1	blue	grey	orange	
.104	100 000	4500	−5,2	brown	black	yellow	
.154	150 000	4550	−5,2	brown	green	yellow	
.224	220 000	4600	−5,3	red	red	yellow	
.334	330 000	4625	−5,3	orange	orange	yellow	
.474	470 000	4650	−5,4	yellow	violet	yellow	

* Replace dot in catalogue number (9th digit) by:
2 for a tolerance of 10% on R_{25}, band IV is silver.
3 for a tolerance of 5% on R_{25}, band IV is gold.

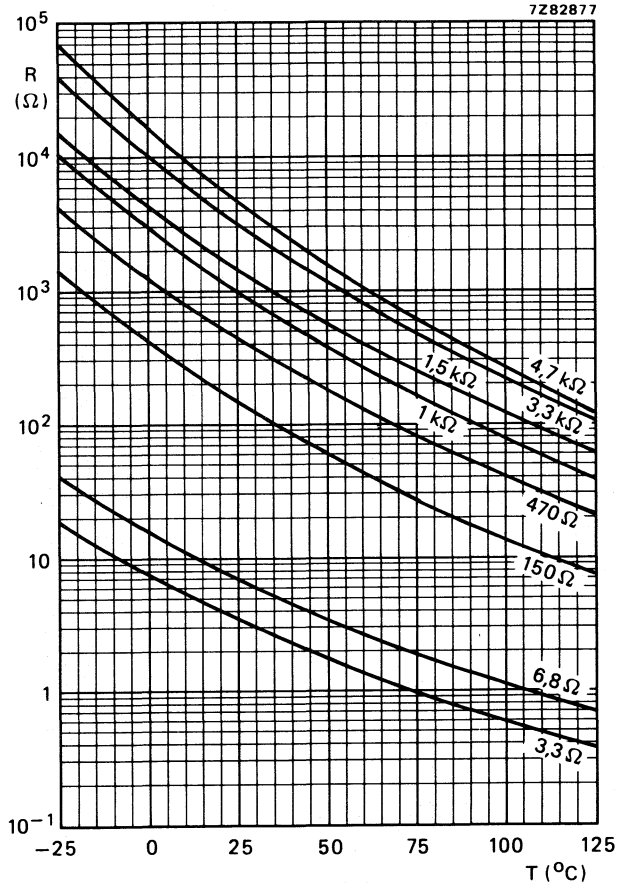

Fig. 3 Typical resistance/temperature characteristic.

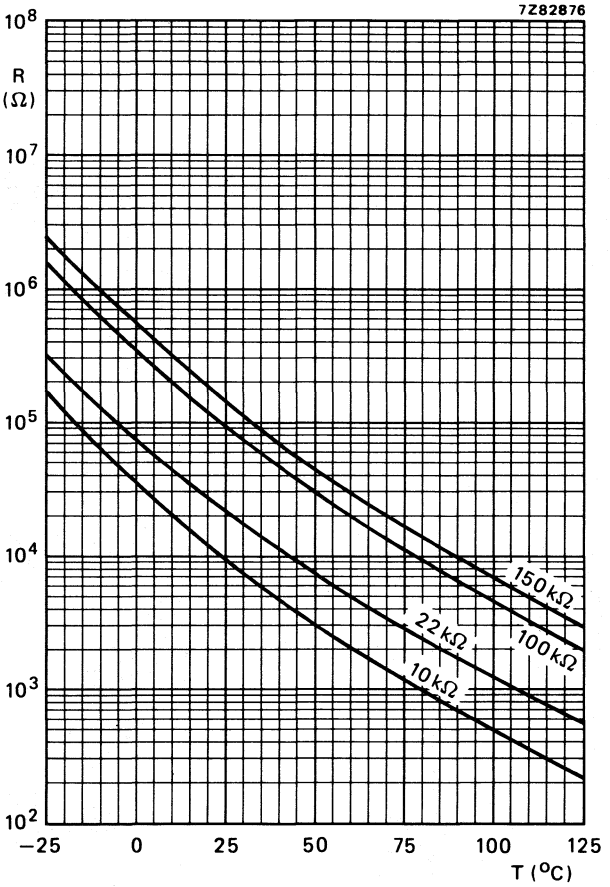

Fig. 4 Typical resistance/temperature characteristic.

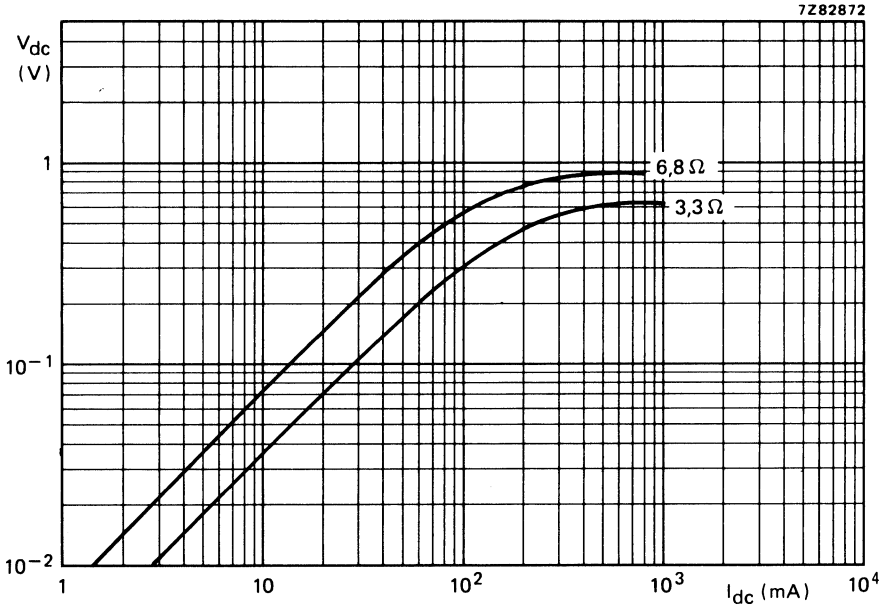

Fig. 5 Typical voltage/current characteristic, T_{amb} = + 25 °C, still air.

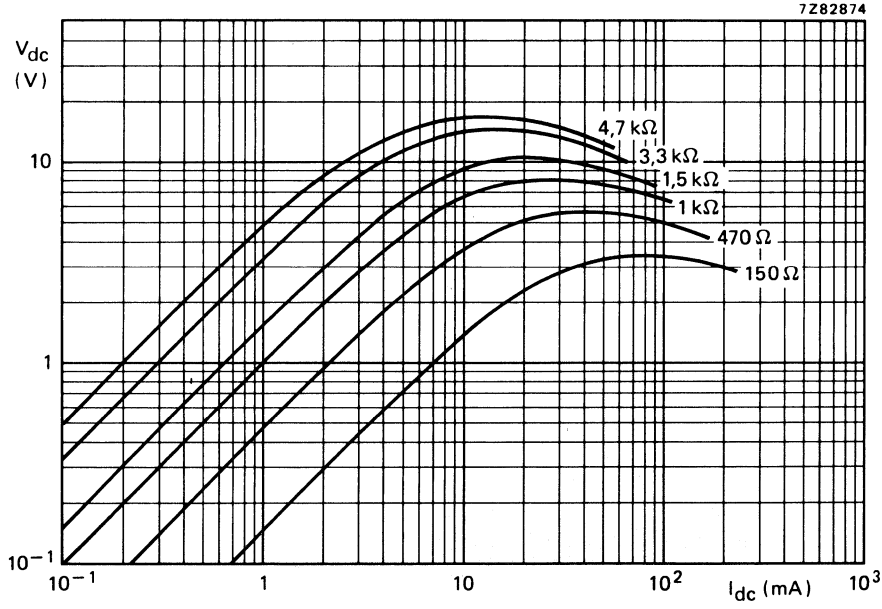

Fig. 6 Typical voltage/current characteristic, T_{amb} = + 25 °C, still air.

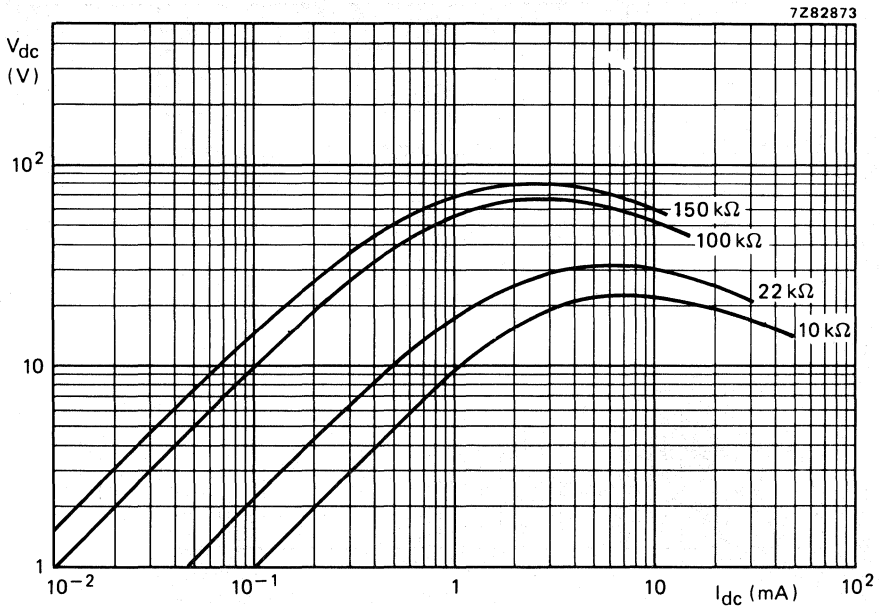

Fig. 7 Typical voltage/current characteristic, T_{amb} = + 25 °C, still air.

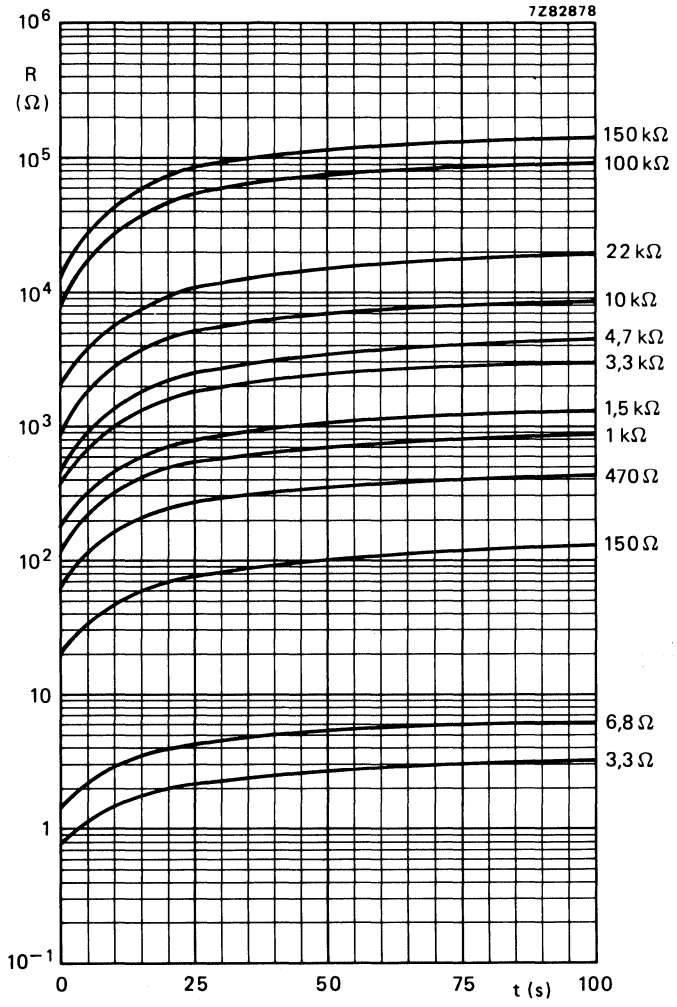

Fig. 8 Typical resistance/cooling time characteristic, T_{amb} = + 25 °C, still air, T_{start} = + 85 °C.

NTC THERMISTORS

with mounting stud

QUICK REFERENCE DATA

Resistance value at +25 °C	3,3 Ω to 470 kΩ (E6 series)
$B_{25/85}$-value	2675 to 4650 K
Maximum dissipation	0,5 W
Dissipation factor	25 mW/K
Thermal time constant	20 s
Operating temperature range	
at zero power	−25 to +100 °C
at maximum power	0 to +55 °C

APPLICATION

Suitable for all kinds of applications, especially when a good insulation and/or a good thermal contact with the chassis is required.

DESCRIPTION

Disc thermistor with negative temperature coefficient mounted in the head of aluminium screws M4 and with two solid tinned copper wires.

MECHANICAL DATA

Outline drawing

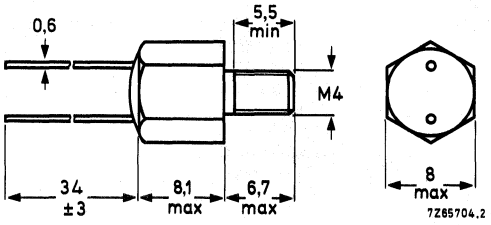

Fig. 1.

Marking

The last 4 digits of the catalogue number are printed on the stud according to Table 1.

Mass

1,5 g approx.

Mounting

By means of a washer and M4 nut supplied with the device.
Applied torque shall not exceed 1,2 Nm. Leads to be soldered.

Robustness of terminations

Tensile strength	10 N
Bending	5 N
Torque applied on screw	1,2 Nm max.

Soldering

Solderability	max. 240 °C, max. 4 s
Resistance to heat	max. 240 °C, max. 4 s

PACKAGING

100 thermistors in a cardboard box.

ELECTRICAL DATA

Maximum dissipation	0,5 W
Dissipation factor *	25 mW/K
Thermal time constant *	20 s approx.
Heat capacity	0,5 J/K approx.
Operating temperature range	
at zero power	−25 to + 100 °C
at maximum power	0 to + 55 °C
Dielectric withstanding voltage between terminals and screw	min. 100 V r.m.s.
Insulation resistance between terminals and screw at 100 V d.c.	min. 100 MΩ

See further Table 1.

For typical resistance/temperature and voltage/current characteristics, see pages 184/186 (type 2322 642 6....).

* Measured when screw mounted on an aluminium heatsink of 100 cm^2, thickness 1,5 mm, in still air, T_{amb} = + 25 °C.

Table 1 Catalogue number 2322 642 7....

suffix of catalogue number		R_{25}	$B_{25/85}$ value ± 5%	temperature coefficient at 25 °C
tol. 5%	tol. 10%	Ω	K	%/K
3338	2338	3,3	2675	−3,0
3478	2478	4,7	2750	−3,1
3688	2688	6,8	2800	−3,2
3109	2109	10	2875	−3,2
3159	2159	15	2950	−3,3
3229	2229	22	3025	−3,4
3339	2339	33	3100	−3,5
3479	2479	47	3150	−3,5
3689	2689	68	3225	−3,6
3101	2101	100	3300	−3,7
3151	2151	150	3375	−3,8
3221	2221	220	3475	−3,9
3331	2331	330	3575	−4,0
3471	2471	470	3650	−4,1
3681	2681	680	3725	−4,2
3102	2102	1 000	3825	−4,3
3152	2152	1 500	3975	−4,5
3222	2222	2 200	4125	−4,6
3332	2332	3 300	4250	−4,8
3472	2472	4 700	4350	−4,9
3682	2682	6 800	4400	−5,0
3103	2103	10 000	4275	−4,8
3153	2153	15 000	4200	−4,7
3223	2223	22 000	4275	−4,8
3333	2333	33 000	4350	−4,9
3473	2473	47 000	4400	−5,0
3683	2683	68 000	4450	−5,0
3104	2104	100 000	4500	−5,1
3154	2154	150 000	4550	−5,1
3224	2224	220 000	4600	−5,2
3334	2334	330 000	4625	−5,2
3474	2474	470 000	4650	−5,2