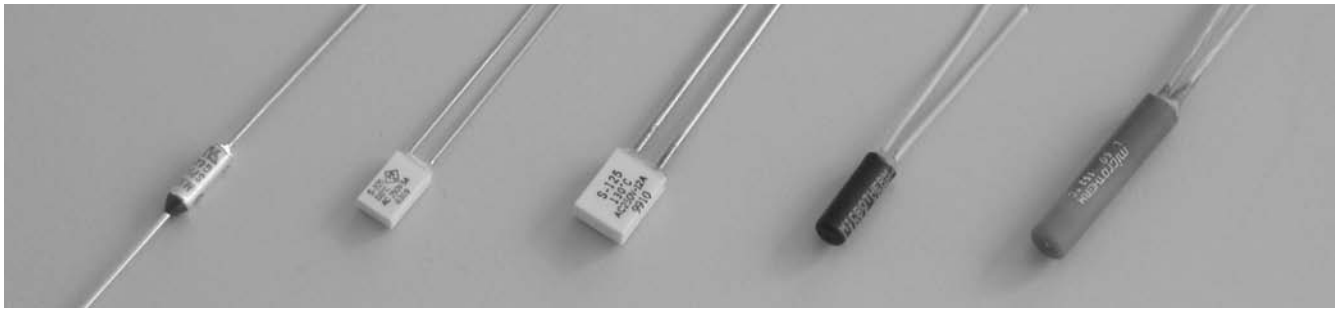
THERMAL LINKS TL



DESCRIPTION

Thermal links (TL) are components which will automatically open a circuit and switch off an appliance, if the permissible operating temperature of the appliance is exceeded.

The nominal response temperature can only be set by the manufacturer. In order to repair the circuit, the complete thermal link must be replaced.

Thermal links have a solid, dust and dirt-tight housing.

INSTALLATION TIPS

To ensure loss-free heat transfer, installation or mounting should be directly onto the heat source. When soldering onto the electrical connections, care must be taken to provide appropriate heat-sinking (e.g. heat-conducting pliers). A thermal link cannot be repaired. In case of replacement, it is important to use only the same link with the same characteristics, and it must be installed or mounted in exactly the same way.

Thermal links are partly sealed against varnish. Connections: wire, push-on terminals or connections formed to specification, e.g. flexible leads, on request.

APPLICATIONS

As a thermal link (TL) in electrical appliances and equipment, electrical plant and machinery.

They react to ambient temperature and are, under certain conditions, sensitive to current at rated levels. Self-heating by current passing through the thermal link must be taken into consideration. Thermal links with forced air cooling are suited for higher current ratings. Please ask.

To avoid possible damage of the thermal link, it is advisable to use sealing resins, impregnation fluids or cleaning solvents only after having consulted the manufacturer.

CANTHERM
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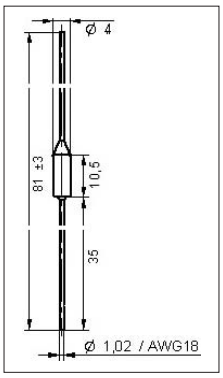
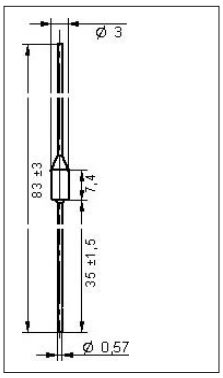
Version:
S = short 25.4 x 35 mm
L = long 35 x 35 mm



SDJ1 10 A SDJ2 15 A — 250 V/AC Dy

Type	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF
Temperature Tf °C	66	72	77	84	91	98	100	104	110	119	128	141
Temperature Tc °C	42	50	55	60	67	76	78	80	86	95	106	117
Temperature Tm °C	110	115	120	125	135	140	138	150	140	170	155	171
Type	**DF**	**DF**	**DF**	**DF**	**DF**	**DF**	**DF**	**DF**				
Temperature Tf °C	144	152	170	184	192	216	228	240				
Temperature Tc °C	120	128	146	160	162	191	193	200				
Temperature Tm °C	250	176	300	300	290	241	300	290				

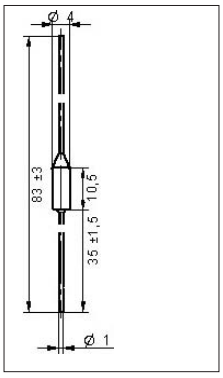
Version:
01 = 35 x 35 mm



S3M1 5 A — 250 V/AC Td

Type	E7F	E7F	E7F	E7F	E7F	E7F	E7F	E7F	E7F	E7F	E7F	E7F
Temperature Tf °C	70	77	84	93	98	100	110	117	121	128	144	152
Temperature Tc °C	50	52	59	68	73	73	85	92	96	103	119	127
Temperature Tm °C	125	125	125	140	140	130	140	140	150	150	175	175
Type	**E7F**	**E7F**	**E7F**	**E7F**	**E7F**							
Temperature Tf °C	167	172	184	190	205							
Temperature Tc °C	142	142	159	160	175							
Temperature Tm °C	200	200	200	270	300							

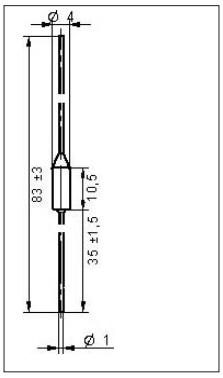
Version:
00 = 18 x 35 mm
01 = 35 x 35 mm



S3M1 10 A — 250 V/AC Td

Type	E4A	E4A	E4A	E4A	E4A	E4A	E4A	E4A	E4A	E4A	E4A	E4A
Temperature Tf °C	70	72	77	84	93	98	100	104	110	117	121	128
Temperature Tc °C	50	47	52	59	68	73	73	79	85	92	96	103
Temperature Tm °C	130	100	125	125	140	140	140	150	150	160	160	160
Type	**E4A**	**E4A**	**E4A**	**E4A**	**E4A**	**E4A**	**E4A**	**E4A**	**E4A**	**E4A**	**E4A**	
Temperature Tf °C	144	152	167	172	184	190	192	205	216	229	240	
Temperature Tc °C	119	127	142	142	159	160	167	175	191	200	200	
Temperature Tm °C	175	175	210	240	210	310	210	310	375	375	375	

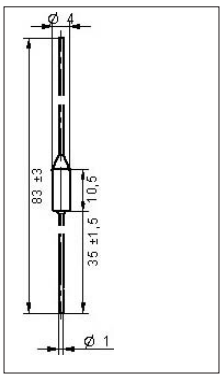
Version:
00 = 18 x 35 mm
01 = 35 x 35 mm



S3M1 16 A — 250 V/AC Td

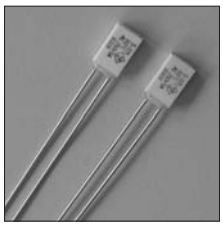
Type	E5A	E5A	E5A	E5A	E5A	E5A	E5A	E5A	E5A	E5A	E5A	E5A
Temperature Tf °C	70	72	77	84	93	98	100	104	110	117	121	128
Temperature Tc °C	50	47	52	59	68	73	73	79	85	92	96	103
Temperature Tm °C	175	175	200	200	215	215	215	225	225	235	235	235
Type	**E5A**	**E5A**	**E5A**	**E5A**	**E5A**	**E5A**	**E5A**	**E5A**	**E5A**	**E5A**	**E5A**	
Temperature Tf °C	144	152	167	172	184	190	192	205	216	229	240	
Temperature Tc °C	119	127	142	142	159	160	167	175	191	200	200	
Temperature Tm °C	250	250	285	350	350	350	350	375	375	375	375	

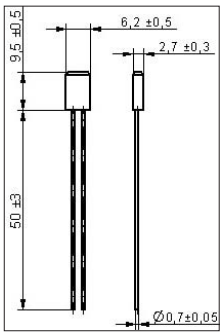
Version:
00 = 18 x 35 mm
01 = 35 x 35 mm



S3M1 25 A — 250 V/AC Td

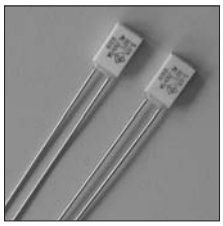
Type	E8A	E8A	E8A	E8A	E8A	E8A	E8A	E8A	E8A	E8A	E8A	E8A
Temperature Tf °C	70	72	77	84	93	98	100	104	110	117	121	128
Temperature Tc °C	50	47	52	59	68	73	73	79	85	92	96	103
Temperature Tm °C	175	175	200	200	215	215	215	225	225	235	235	235
Type	**E8A**	**E8A**	**E8A**	**E8A**	**E8A**	**E8A**	**E8A**	**E8A**	**E8A**			
Temperature Tf °C	144	167	172	184	190	192	205	229	240			
Temperature Tc °C	119	142	142	159	160	167	175	200	200			
Temperature Tm °C	250	285	350	350	350	350	375	375	375			

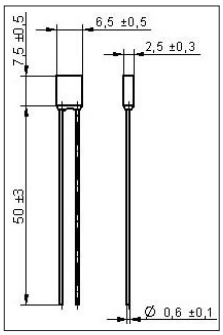




MTS1 5 A — 250 V/AC — Wt

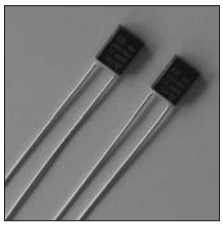
Type	S95	S105	S125	S138
Temperature Tf °C	100	110	130	143
Temperature Tc °C	70	80	100	110
Temperature Tm °C	180	180	180	180



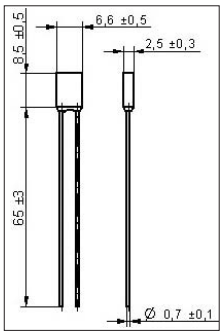


MTR1 3 A — 250 V/AC — Wt

Type	R-95	R-105	R-125	R-138	R-145
Temperature Tf °C	98	108	130	143	150
Temperature Tc °C	70	80	100	110	120
Temperature Tm °C	180	180	180	180	180

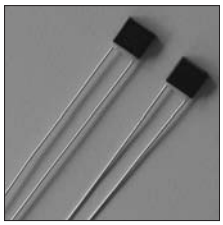


Version:
S = short 36+/-3
L = long 68+/-3

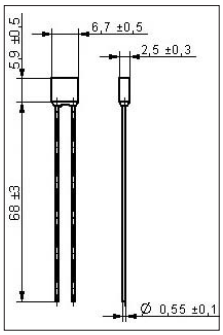


MTEF 3 A — 250 V/AC — Ad

Type	E06F	E0F	E1F	E2F	E3F	E4F	E13F	E5F	E6F	E7F
Temperature Tf °C	65	76	86	102	115	127	133	136	139	145
Temperature Tc °C	50	55	65	70	90	95	95	95	105	115
Temperature Tm °C	200	200	200	200	200	200	200	200	200	200

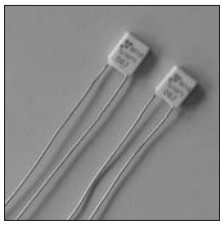


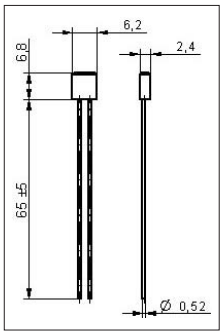
Version:
S = short 36+/-3
L = long 68+/-3



MTHF 2 A — 250 V/AC — Ad

Type	H06F	H0F	H1F	H2F	H3F	H4F	H13F	H5F	H6F	H7F
Temperature Tf °C	65	76	86	102	115	127	133	136	139	145
Temperature Tc °C	50	50	60	75	95	100	100	100	110	115
Temperature Tm °C	200	200	200	200	200	200	200	200	200	200

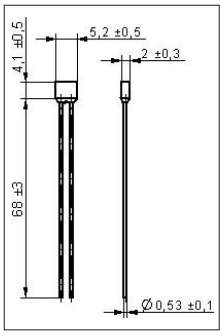




MTML 2 A — 250 V/AC — Jf

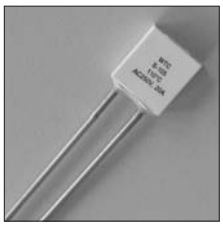
Type	L10	L20	L30	L33
Temperature Tf °C	102	115	125	130
Temperature Tc °C	75	85	90	100
Temperature Tm °C	165	165	165	165

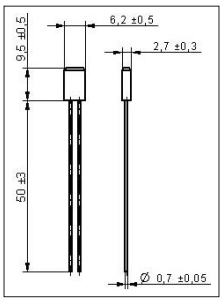
Version:
S = short 36+/-3
L = long 68+/-3



MTNF 1 A — 250 V/AC — Ad

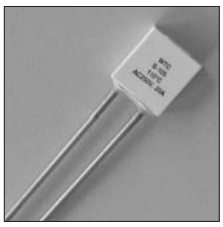
Type	N06F	N0F	N1F	N2F	N3F	N4F	N13F	N5F	N6F	N7F
Temperature Tf °C	65	76	86	102	115	127	133	136	139	145
Temperature Tc °C	55	55	65	80	95	105	105	110	120	125
Temperature Tm °C	200	200	200	200	200	200	200	200	200	200

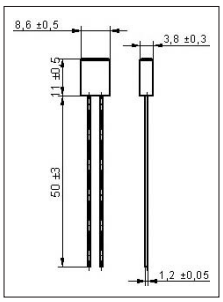




MWS1 15 A — 250 V/AC — Wt

Type	S95H	S105H	S125H	S138H
Temperature Tf °C	100	110	130	143
Temperature Tc °C	70	80	100	110
Temperature Tm °C	180	180	180	180

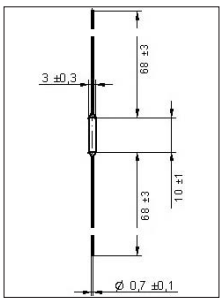




MWS2 20 A — 250 V/AC — Wt

Type	S95	S105	S125	S138
Temperature Tf °C	100	110	130	143
Temperature Tc °C	70	80	100	110
Temperature Tm °C	180	180	180	180

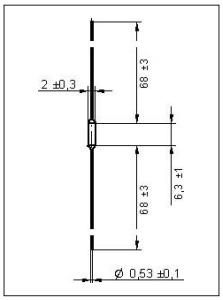
Version:
00 = short 38+/-3
01 = long 68+/-3



MTYF 4 A — 250 V/AC — Ad

Type	Y06	Y0F	Y1F	Y2F	Y3F	Y4F	Y13F	Y5F	Y6F	Y7F
Temperature Tf °C	65	76	86	102	115	127	133	136	139	145
Temperature Tc °C	45	55	60	70	90	100	100	105	115	125
Temperature Tm °C	200	200	200	200	200	200	200	200	200	200

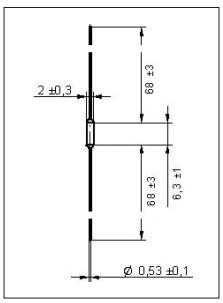
Version:
00 = short 38+/-3
01 = long 68+/-3



MTTF 2 A — 250 V/AC — Ad

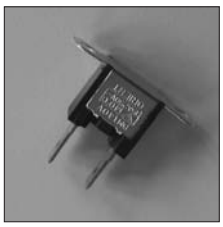
Type	T2F	T3F	T4F	T13F	T5F	T6F
Temperature Tf °C	102	115	127	133	136	139
Temperature Tc °C	75	95	110	105	105	120
Temperature Tm °C	200	200	200	200	200	200

Version:
00 = short 38+/-3
01 = long 68+/-3

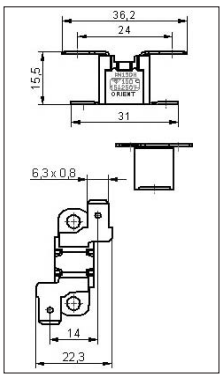


MTKF 1 A — 250 V/AC — Ad

Type	T06F K06F	T0F	T1F	K2F	K3F	K4F	K13F	K5F	K6F	T7F K7F
Temperature Tf °C	65	76	86	102	115	127	133	136	139	145
Temperature Tc °C	50/55	55	60	80	99	110	110	115	120	125
Temperature Tm °C	200	200	200	200	200	200	200	200	200	200

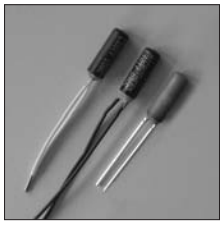


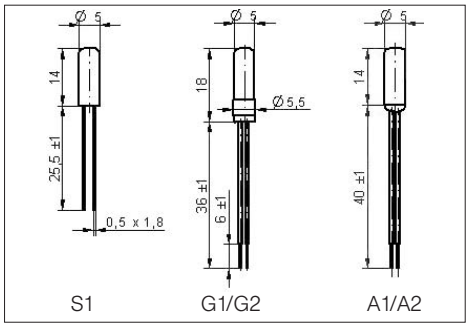
Version:
V = connections vertical
H = connections horizontal



TDM 15 A — 250 V/AC — Or

Type H / V											
Temperature Tf °C	78	90	99	110	120	130	140	150	170	182	190
Temperature Tc °C	62	68	83	86	96	112	125	135	145	163	170
Temperature Tm °C	250	250	250	250	250	250	250	250	250	250	250





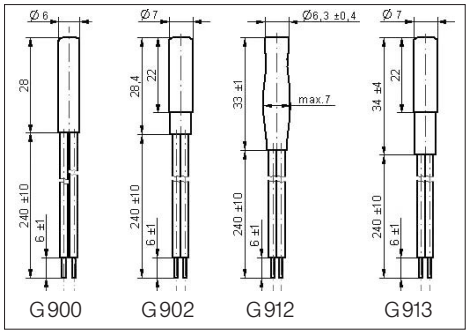
L10* 3 A, 8 A — 250 V/AC — Mi

Version:

3.0 A:	A1	= L513 leads 0.25 mm² yellow
3.0 A:	A2	= L601 wire 0.25 mm² yellow
8.0 A:	S	= 000 push-on terminal 1.8 x 0.5 mm
8.0 A:	G1	= G911 + L549 leads 0.5 mm² yellow
8.0 A:	G2	= G911 + L604 wire 0.5 mm² yellow

Type	L10	L10	L10	L10	L10	L10	L10	L10	L10	L10	L10
Temperature Tf °C	71	77	85	90	100	108	118	130	140	150	165
Temperature Tc °C	55	55	55	60	70	78	88	100	110	120	135
Temperature Tm °C	175	175	175	175	175	175	175	175	175	175	175

* Manufacture to MIC Standard



L50 3 A, 5 A, 10 A, 16 A — 250 V/AC — Md

Version:

3.0 A:	E3	G900/G902	U228 up to Tf	184°C	L610 wire 0.25 mm² yellow
		G912/G913	U228 up to Tf	240°C	L515 leads 0.25 mm² white
5.0 A:	E7	G900/G902	U228 up to Tf	184°C	L614 wire 0.5 mm² yellow
		G912/G913	U228 up to Tf	240°C	L540 leads 0.5 mm² white
10.0 A:	E4	G900/G902	U228 up to Tf	184°C	L605 wire 1.0 mm² white
		G912/G913	U228 up to Tf	240°C	L567 leads 1.0 mm² white
16.0 A:	E5	G900/G902	U228 up to Tf	184°C	L605 wire 1.0 mm² white
		G912/G913	U228 up to Tf	240°C	L567 leads 1.0 mm² white

Type E3, E4, E5, E7											
Temperature Tf °C	70	72	77	84	93	98	100	104	110	117	121	128
Temperature Tc °C	50	41	52	59	68	73	73	79	85	92	96	103
Temperature Tm °C	130	100	125	125	140	140	140	150	150	160	160	160

Type E3, E4, E5, E7											
Temperature Tf °C	144	152	167	172	184	190	192	205	216	229	240	
Temperature Tc °C	119	127	142	142	159	160	167	175	191	200	200	
Temperature Tm °C	175	175	210	240	210	310	210	310	375	375	375	

Technical Data according to Standard EN60691

Type Sales-designation	Current/Voltage 250 V 50/60 Hz cos phi 1.0	cos phi 0.6	Rated functioning temperature Tf °C	Tolerance	Standard-connections/Version
SDJ1	10 A		66 up to 240	+0- 5 K	wire ø 1.0 mm
SDJ2	15 A		66 up to 240	+0- 5 K	wire ø 1.0 mm
S3M1 5A	5 A	4,5 A	70 up to 205	+0- 5 K	wire ø 0.6 mm
S3M1 10A	10 A	8,0 A	70 up to 240	+0- 5 K	wire ø 1.0 mm
S3M1 16A	16 A		70 up to 240	+0- 5 K	wire ø 1.0 mm
S3M1 25A	25 A		70 up to 240	+0- 5 K	wire ø 1.0 mm
MTS1	5 A		100 up to 143	+0-10 K	wire ø 0.7 mm
MTR1	3 A		98 up to 150	+0-10 K	wire ø 0.6 mm
MTEF	3 A		65 up to 145	+0-10 K	wire ø 0.6 mm
MTHF	2 A		65 up to 145	+0-10 K	wire ø 0.55 mm
MTML	2 A		102 up to 130	+0-10 K	wire ø 0.55 mm
MTNF	1 A		65 up to 145	+0-10 K	wire ø 0.53 mm
MWS1	15 A		100 up to 143	+0-10 K	wire ø 1.2 mm
MWS2	20 A		100 up to 143	+0-10 K	wire ø 1.2 mm
MTYF	4 A		65 up to 145	+0-10 K	wire ø 0.7 mm
MTTF	2 A		102 up to 139	+0-10 K	wire ø 0.58 mm
MTKF	1 A		65 up to 145	+0-10 K	wire ø 0.53 mm
TDM	15 A		90 up to 150	+0- 7 K	push-on 6.3 x 0.8 mm (V or H)
L10*	3 A/8 A	6.3 A	71 up to 165	+0-10 K	silver-plated copper flat, section 1.8 x 0.5 leads 0.25 mm^2 or 0.5 mm^2 or wire ø 0.8 mm
L50	3 A/5 A/10 A/16 A		70 up to 240	+0- 5 K	silicone insulated wire conductors ø 1.0 mm

Thermal links on tape or with insulated wire. Please request. * Special version connections on request. * Products to MIC Standard.

Explanation of the Abbreviations

TL Thermal link, a device which cannot be reset, which will open a circuit only one time after having been exposed, for a minimum period of time, to a higher temperature than that for which it has been set.

Tf Rated functioning temperature is the temperature at which the thermal link cuts off under determined conditions.

Tc Holding temperature is the highest temperature at which the thermal link does not change its circuit during a determined period and under determined conditions. The temperature ratings Tc mentioned here are only recommendations. They can be reduced or increased depending on the application.

Tm Maximum temperature limit is the temperature determined by the manufacturer below which the mechanical and electrical parameters of the thermal link are not affected during a determined period after the change of the circuit.

Minimum rate of temperature change 0.5 K / min., maximum rate 1.0 K / min.

Information on currents I_i, I_b, I_p on request. Information on other voltages on request.

Standard Quality / Approvals

These thermal links comply with international standards EN 60691 for Thermal Links (TL)

and undergo continuous checks in production.

Production item testing, voltage testing.

Specific application documentation and approval details are available on request.

Ordering Example

Quantity	Sales Designation	Type	Version	Temperature °C -Tf	Designation
10.000	S3M1	E4A	00	117	E4A00117C