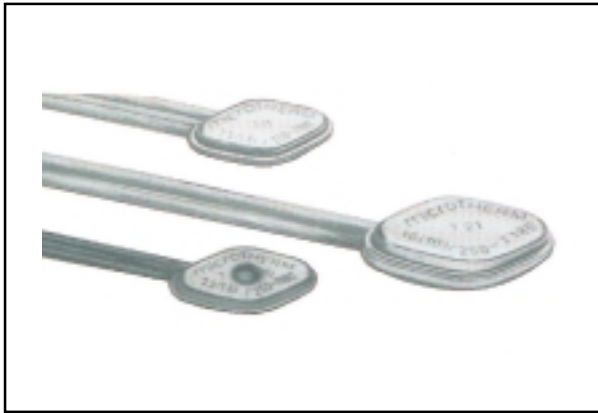


## Thermal Cutouts Current Sensitive Thermal Protection for Coils/Windings T Types



### APPLICATIONS

Thermal protection, and under certain circumstances, temperature control of electrical machinery and equipment.

### Examples:

- |                |                                 |
|----------------|---------------------------------|
| AC Motors      | Coils                           |
| Oil Baths      | Single Phase Motors             |
| Electromagnets | Water Boilers                   |
| DC Motors      | Copiers                         |
| Accumulators   | Generators                      |
| Hot Air Dryers | Liquid Pumps                    |
| Transformers   | Electric Ranges                 |
| Rectifiers     | Washing Machines                |
| Inverters      | Equipment of<br>Different Kinds |

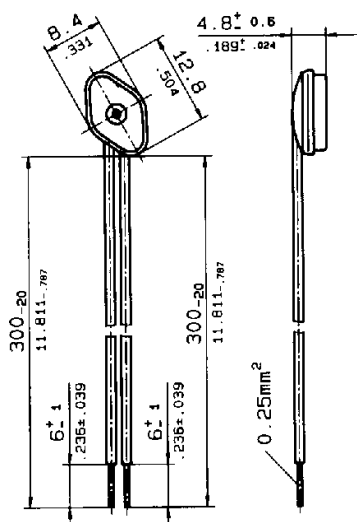
### DESCRIPTION

These thermal cutouts operate by means of a thermally sensitive bimetal snap-element which switches a double electrical contact when reaching a pre-set response temperature. The contacts can be normally open or normally closed. The electrical current being switched flows through the bi-metal element, which therefore gives a combination of temperature-and current-sensitivity.

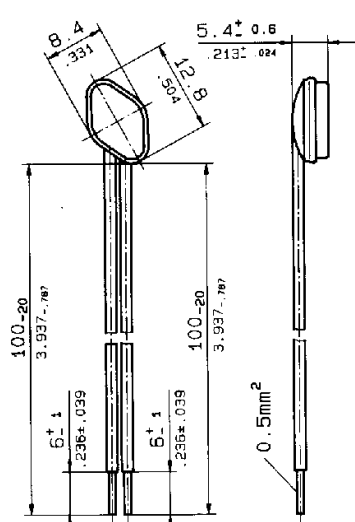
Heat transfer occurs on all sides via convection, radiation or conduction in gaseous or solid media. The rhomboid base conducts heat directly onto the bi-metal element, allowing its use as a surface temperature cutout.

### DIMENSIONS

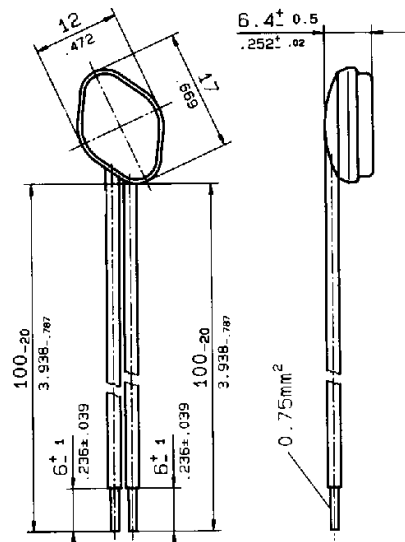
T10 (Standard)



T11 (Standard)





T21 (Standard)



## Thermal Cutouts Current Sensitive Thermal Protection for Coils/Windings T Types

### TECHNICAL DATA

Type	T10***	T11***	T20***	T21***
Nominal Voltage 50-60Hz	250V	250V	250V	250V
Current Rating at cos Ohms = 1.0*	2.5A	2.5A	10.0A	16.0A
Current Rating at cos Ohms = 0.6*	1.6A	1.6A	6.3A	10.0A
☛ Max. Load at cos Ohms = 1.0	3.8A	3.8A	13.0A	13.0A
500V 50-60Hz	3.5A	3.5A		
380V 50-60Hz	4.0A	4.0A		
250V 50-60Hz	6.3A	6.3A	16.0A	20.0A
110V 50-60Hz	10.0A	10.0A	20.0A	25.0A
60V DC	1.0A	1.0A	2.5A	6.3A
42V DC	1.2A	1.2A	4.8A	8.0A
6, 12, 24V DC	1.5A	1.5A	6.3A	10.0A
Min. Load 50mA				
Contact Arrangement Normally Closed N-C Normally Closed N-O				
Switch Operations At Rated Current	E1 (10,000)	E1 (10,000)	1E3 (10,000)	02E2 (10,000)
Standard Contact Resistance***	< 40m Ohms	< 40m Ohms	< 40m Ohms	< 40m Ohms
Standard Response Temperature Range Stepped in 5°C Intervals	+50°C to +180°C	+50°C to +180°C	+50°C to +160°C	+65°C to +160°C
Standard Tolerance	±3K ±5K ±10K	±5K ±10K ±15K	±2.5K ±5K ±10K	±5K ±10K ±15K
Max. Permanent Temperature of Switch Mechanism*	T180	T180	T180	T180
Standard - Temperature Rating of Connecting Leads by Insulation Class and Epoxy Sealant (to VDE0530)	A, E, B, F, H 200°C max 10h 230°C max 5h	A, E, B, F, H 200°C max 10h 230°C max 5h	A, E, B, F 200°C max 10h 230°C max 5h	A, E, B, F 200°C max 10h 230°C max 5h
Vacuum Tightness☛ Rate of Leak	Standard Ref. P102 0.133-0.0133 bar cm³/sec	Standard Ref. P102 0.133-0.0133 bar cm³/sec	Standard Ref. P102 0.133-0.0133 bar cm³/sec	Standard Ref. P102 0.133-0.0133 bar cm³/sec
Housing Material Coating Material	Copper/Beryllium PTFE	Stainless Steel Hard Epoxy	Rolled Bronze Hard Epoxy	Stainless Steel Hard Epoxy
Housing - Insulation Options	SHB, SSB, SSH, UWF, PTFE, SKH, GSS	SHD, SSB, SSH, UWF, PTFE, SKH, GSS	H HB, SHB, SSB, SSH, UWF, VIB	H HB, SHB, SSB, SSH, UWF, VIB
Cross-Section of the Connecting Leads Standard Version	0.25mm²	0.50mm²	0.50mm²	0.75mm²
Insulation Resistance/ Dielectric Strength	Standard 1250V 50-60 Hz P301 2000V 50-60 Hz P302 2750V 50-60 Hz P303 3750V 50-60 Hz P304 4000V 50-60 Hz			
Notes:	* Approved Ratings - Further specific values on request, (U, V, B) ☛ Cycling rate 72/h *** Contact resistance without connections, e.g. leads, wire or terminals. *** The thermostats can be produced with a specific production mark (e.g. letter V, U, B), L.S.C.T.200A½hp UL547			

## Thermal Cutouts

### Current Sensitive Thermal Protection for Coils/Windings T Types

#### RESPONSE TEMPERATURE/ TOLERANCE

Temperature steps in 5°C intervals.

Tolerance - see Technical Data Section. Clear text indication of response temperature in °C, tolerance in K.

B200 for Type T10, T11

Usable with insulation types U104, U106, U108, U116

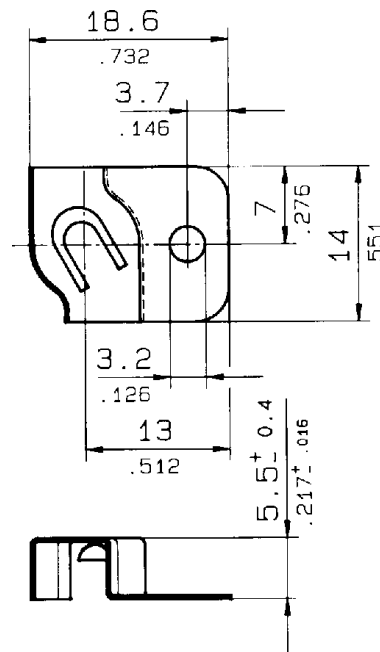
#### Switching Hysteresis

Reset occurs between 5K and 50K below response temperature, depending on response temperature and application.

Rate of temperature change from 0.1K/min. up to max. 1.0K/min. The thermal cutout's response is affected by its insulation.

Special switching temperatures are possible for better response and reset, if desired.

For normally closed response <71°C the stated electrical load should be reduced by approx 30%; for normally open response temperatures <71°C reduce by approx 60%. This reduced loading is due to the combined temperature and current sensitivity of the device.

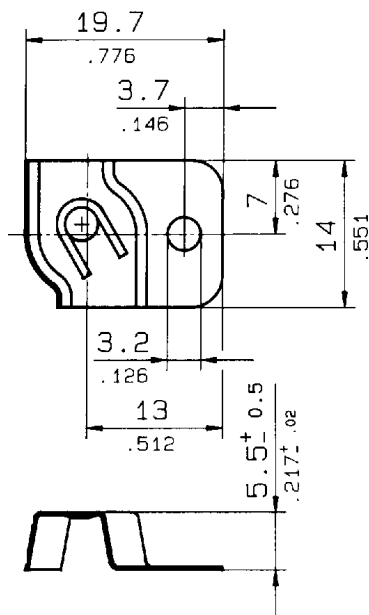


#### MOUNTINGS

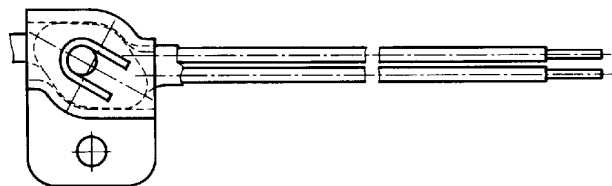
Copper-Beryllium mounting clip for use with insulated (SSB, SSh, UWF, SKH) thermal cutouts.

B199 for Type T10, T11

Usable with insulation types U112, U168, U182



#### FIXING EXAMPLE



## Thermal Cutouts Current Sensitive Thermal Protection for Coils/Windings T Types

### INSULATION

The standard versions of these cutouts are not insulated.

If insulation is required, the standard type for the appropriate response temperature or continuous operating temperature (insulation class) should be chosen.

	Type	Insulation	Description	Insulation Class
	T 10, T11	U102	Standard SHB, heat shrunk Polyester, transparent	B
	T 20, T21	U101	Standard SHB, heat shrunk Polyester, transparent	B
	T 10, T11	U104 U108	SSB, radiation cross-linked, shrunk sleeve black for normally closed red for normally open	B
	T 20, T21	U105 U109	SSB, radiation cross-linked, shrunk sleeve black for normally closed red for normally open	B
	T 10, T11	U106	SSH, radiation cross-linked, shrunk sleeve transparent	F
	T 20, T21	U106	Standard SSH, radiation cross-linked, shrunk sleeve transparent	F
	T 10, T11	U112	UWF epoxy coating	F
	T 20, T21	U118	UWF epoxy coating	F
	T 10, T11	U116	Standard heat-shrunk PTFE	H/C
	T 10, T11	U168	Silicon coated glassfibre sleeve	H
	T 10, T11	U182	Standard SKH insulation cap	H