MICROTEMP® Thermal Cutoffs: TYPES & SPECIFICATIONS

MICROTEMP® thermal cutoffs are available in a range of temperatures and electrical ratings to meet application requirements (see Microtemp® Operating Temperature Summary and Electrical Rating Summary on page 4). There are 5 primary types of thermal cutoffs available. Standard dimensions of each TCO series are shown on page 4.

G Series: This "Global" series or G designation represents the world standard in thermal cutoffs. MICROTEMP® TCOs were the first chemical-pellet spring-type TCO ever developed and continue to be the thermal cutoff of choice for over 35 years.

E Series: This new "Environmentally" friendly series holds Agency recognition equivalent to the G series and has been designed to comply with the Restriction of Hazardous Substances in Electrical and Electronic Equipment (ROHS) Directive (2002/95/EC). None of the substances specified in this Directive have been intentionally incorporated into the E-series products.

G4 Series

Rated for continuous operating currents up to 10 amps @ 250VAC (15 amps @ 120VAC, 5 amps @ 24VDC), the G4 series MICROTEMP® TCO is the industry standard for over-temperature protection. The G4 series is applied to millions of appliances and personal care products each year, providing reliable back-up protection for temperature controlling thermostats and other over-temperature conditions. The G4 series is also widely applied in office machines, portable heaters and industrial equipment as a thermal safeguard.

G5 Series

Designed for higher voltage and current applications than the G4, the G5 series MICROTEMP® TCO is rated for operating currents up to 20 amps @ 250VAC and 277 VAC (25 amps @ 120VAC). Similar in appearance to the G4 series, the G5 series has a different internal construction designed for interrupting higher currents and withstanding higher temperatures.

G6 Series

The G6 series MICROTEMP® TCO can be utilized in applications where a higher maximum-overshoot temperature rating is not required, yet it is rated for operating currents up to 16 amps @ 250VAC. It is the same physical size as the G4, G5 and G8 series TCOs.

G7 Series

The G7 series MICROTEMP® TCO is designed to satisfy applications requiring miniaturized components that do not need maximum current interrupt capability. The G7 is just 2/3 the size of the G4 and G5, and with a current interrupting capability of 5 amps @ 250VAC (5 amps @ 24VDC), it is capable of meeting the requirements of transformers, motors, battery packs and electronic circuit applications.

G8 Series

Designed for very high-current applications such as major appliances and high-wattage electric heat packages, the G8 series MICROTEMP® TCO is rated for operating currents up to 25 amps @ 250VAC (20 amps @ 277VAC). More economical than electromechanical bimetal-type one shot devices, it can be utilized in applications where its small size is an advantage in terms of mounting (it's the same physical size as the G4, G5 and G6 series TCOs) and thermal response.

MICROTEMP® TCO Operating Temperature Summary

Open Temp Tf°C	Holding Temperature °C		Maximum Overshoot Temperature °C							
	Th°C G4, G5, Z6, G7 Series	Th°C G6, G8 Series	Tm°C G4 Series	Tm°C G5 Series	Tm°C G6 Series	Tm°C Z6 Series	Tm°C G7 Series	Tm°C G8 Series	Tm°C R9 Series	Tm°C R7 Series
072	57	47	100	175	100	-	-	175	100	-
073	58	48	100	175	100	-	-	175	130	130
077	62	52	125	200	125	-	125	200	125	125
084	69	59	125	200	125	-	125	200	125	125
093	78	68	140	215	-	-	140	215	140	140
098	83	73	140	215	140	280	140	215	140	140
104	89	79	150	225	150	260	-	225	150	-
110	95	85	150	225	-	-	140	225	150	140
117	102	92	160	235	160	275	150	235	160	150
121	106	96	160	235	160	380	150	235	160	150
128	113	103	205	235	205	-	150	235	160	150
134	119	109	205	250	-	-	175	-	205	175
141	126	116	205	250	-	-	175	-	205	175
144	129	119	205	250	205	380	175	250	175	175
152	137	127	205	250	205	250	175	-	175	175
158	143	133	240	285	-	-	200	-	240	200
167	152	142	210	285	-	380	200	285	210	200
172	157	147	240	350	-	-	200	-	240	200
184	169	159	210	350	210	380	200	350	210	200
190	175	165	310	350	-	-	270	-	310	270
192	177	167	210	350	210	-	210	350	210	210
205	190	180	310	375	-	-	-	-	310	-
216	200	191	375	375	-	-	-	-	375	-
229	200	200	375	375	375	380	-	375	375	-
240	200	200	450	375	450	380	-	375	375	-
257	200	-	470	-	-	-	-	-	-	-

T_m – Maximum overshoot temperature: temperature up to which TCO will not change status

T_f – Functioning open temperature tolerance: +0, -5°C

T_h – Maximum temperature of the MICROTEMP® TCO measured at the case end of the thermal cutoff at which the thermal cutoff can be maintained for a period for 168 hours without opening.
NOTE: it is advised that TCOs are not exposed to continuous operating temperatures in excess of T_f -25°C.

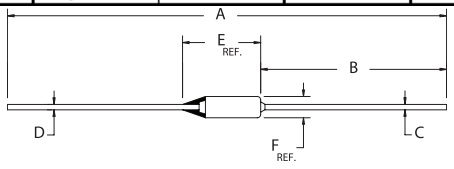
C.T.I. – Comparative tracking index (all primary thermal cutoffs): 250VAC

NOTE: G4, G5, G6 ,G7 and G8 series TCOs with $T_F \geq 175$°C comply with UL conductive heat aging (CHAT) requirements.

Electrical Rating Summary

Agency	Electrical Current & Voltage Rating								
	G4 Series		G5 Series	G6 Series	Z6 Series	G7 Series		G8 Series	R9 Series
	Resistive	Inductive	Resistive	Resistive	Resistive	Resistive	Inductive	Resistive	Resistive
UL/CSA	10A/250VAC 15A/120AC 5A/24VDC	8A/250VAC 14A/120VAC	20A/250VAC 25A/120VAC 21A/240VAC 20A/277VAC	16A/250VAC	16A/250VAC	5A/250VAC 5A/24VDC	4.5A/250VAC 4.5A/120VAC	25A/250VAC	
VDE	10A/250VAC 15A/120AC 5A/24VDC	8A/250VAC 14A/120VAC	20A/250VAC	16A/250VAC	16A/250VAC	5A/250VAC 5A/24VDC	4.5A/250VAC 4.5A/120VAC	25A/250VAC	
METI	10A/250VAC		15A/250VAC			5A/250VAC 5A/24VDC			15A/250VAC
CCC	10A/250VAC		16A/250VAC	16A/250VAC	16A/250VAC	5A/250VAC			

MICROTEMP® TCO Standard Dimensions



	Dimensions - Inches (Millimeters)	G4, G5, G6, Z6 & G8 Series	G7 Series
Standard Leads	A Overall Length ± .12 (±3.0) B Case Lead Length ± .06 (±1.5)	2.51 (63.8) 1.38 (34.9)	N/A N/A
Long Leads	A Overall Length ± .12 (±3.0) B Case Lead Length ± .06 (±1.5)	3.26 (82.9) 1.38 (34.9)	3.26 (82.9) 1.38 (34.9)
Lead Material and Diameter	C Case Lead Tin Plated Copper D Epoxy Lead Silver Plated Copper	0.040 (1.0) 0.040 (1.0)	(0.023 (.57) (0.023 (.57)
Case Dimensions	E Case Length (Reference) F Case Diameter (Reference)	0.58 (14.7) 0.158 (4.0)	0.38 (9.6) 0.118 (3.0)