

731 456

PTC THERMISTORS: TYPES YC, YD, YF, YG

INDUSTRIAL / CONSUMER

Indirect Over-Temperature Protection

DESCRIPTION

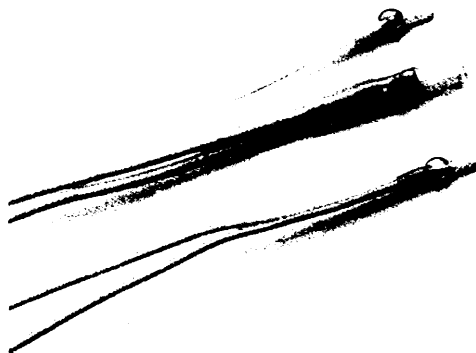
These PTC disc thermistors have been designed to detect excessive temperatures inside industrial equipment, especially within windings of electromagnetic equipment. By monitoring hot spots maximum output can be taken from the machine instead of allowing excessive temperature safety margins; this is particularly useful in irregular stop-start operation. The principle also applies to boilers, bearings, etc.

There are eighteen standard reference temperature types available, all of which have a nominal resistance of 1000Ω at the switch temperature T_{NF} . These thermistors cannot normally be used directly in series with a relay, hence it is necessary to use an associated sensing or trigger circuit. As each thermistor has an identical electrical specification with only the T_{NF} changed, the same electronic unit may be used with each thermistor type. Motor Protection thermistors are available in four different stages of insulation and in two sizes.

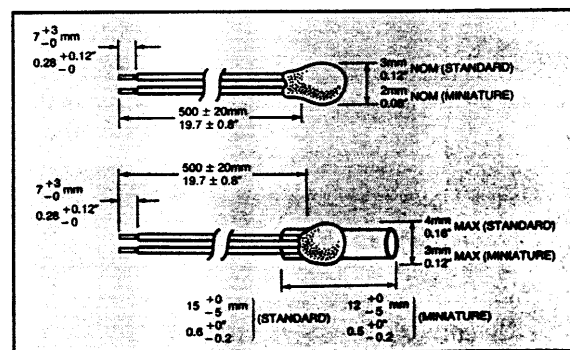
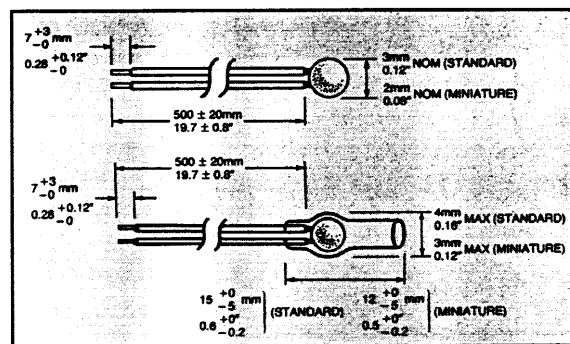
DATA

T_{NF} is the reference temperature of each type eg 80°C etc, and the significant resistance change occurs approximately within $T_{NF} \pm 5^{\circ}\text{C}$ where the temperature coefficient is $\geq +15\%/^{\circ}\text{C}$.

Disc Temperature $^{\circ}\text{C}$	Code	Resistance Ω	Measuring voltage V d.c.
25	B	100 (max)	0.2
	A	250 (max)	0.2
$T_{NF} - 5$		550 (max)	2.5
T_{NF}		1000 (typ)	2.5
$T_{NF} + 5$		1330 (min)	2.5
$T_{NF} + 15$		4000 (min)	7.5



DIMENSIONS



VC VD VE VF VG

Ratings:

(As recommended in the DIN 44 081 specification for built-in thermal protection of electric motors)

Ambient temperature range,
operating and storage -25°C to $T_{\text{NF}} + 15^{\circ}\text{C}$

*Typical thermal resistance
(embedded) 0.05°C/mW

*Typical dissipation constant
(embedded)20mW/°C

Typical dissipation constant
in free air at 25°C(k) 5.5mW/°C

‡Maximum power dissipation for self-heating
in free air at 25°C 690mW

Maximum applied voltage	650mV
(fault conditions) in free air 25°C	40V

Maximum applied voltage for temperature sensing if self-heating insignificant 7.5V

These values are dependent upon method of insulation and mounting.

†The values quoted apply specifically to 120°C and 130°C types. For other types it is advisable to consult the Technical Sales Department, if the devices are liable to be used near their limits.

All values, except operating and storage temperatures, refer specifically to types TC...TB.

CODING

Y	PTC thermistor
G	Disc insulation (see drawings)*
B	$R_{25} A = <250\Omega$, $B = <100\Omega$
M	Size: M=miniature, blank=standard*
130	Switch temperature °C (see table)
T	Temperature sensor
B	500mm leadwire

* Disc insulation styles C, D, F and standard size are available on special order.

Standard Temperature Colour Codes:

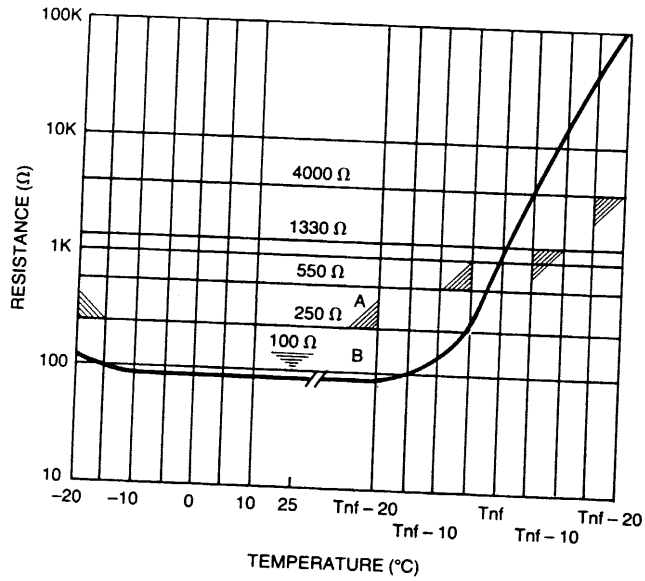
Code	T ₉₀ (°C)	Lead Colour
Y 060TB	60	White-grey
Y 070TB	70	White-brown
Y 080TB	80	White-white
Y 090TB	90	Green-green
Y 095TB	95	Black-red
Y 100TB	100	Red-red
Y 110TB	110	Brown-brown
Y 115TB	115	Brown-red
Y 120TB	120	Grey-grey
Y 125TB	125	Grey-red
Y 130TB	130	Blue-blue
Y 140TB	140	Blue-white
Y 145TB	145	Black-white
Y 150TB	150	Black-black
Y 155TB	155	Black-blue
Y 160TB	160	Blue-red
Y 170TB	170	Green-white
Y 180TB	180	Red-white

PAIRS & TRIPLETS

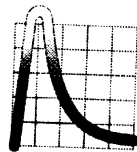
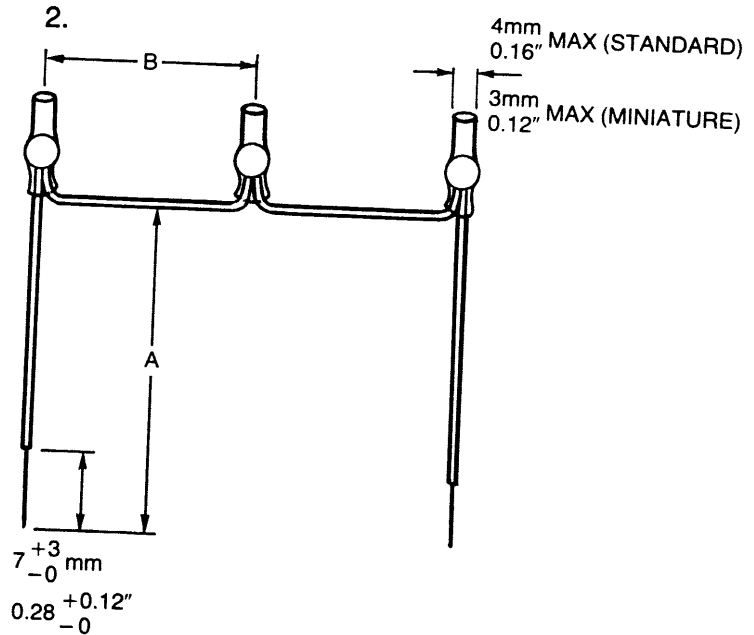
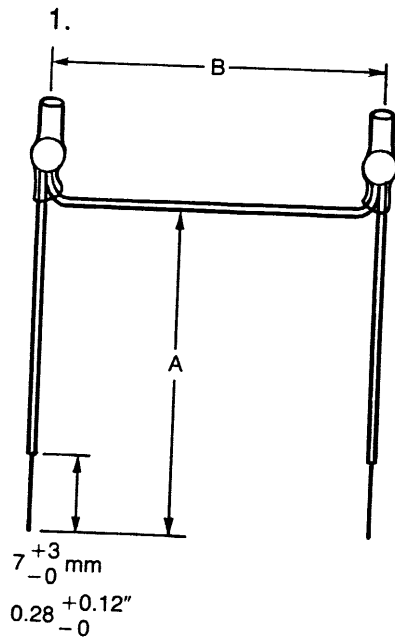
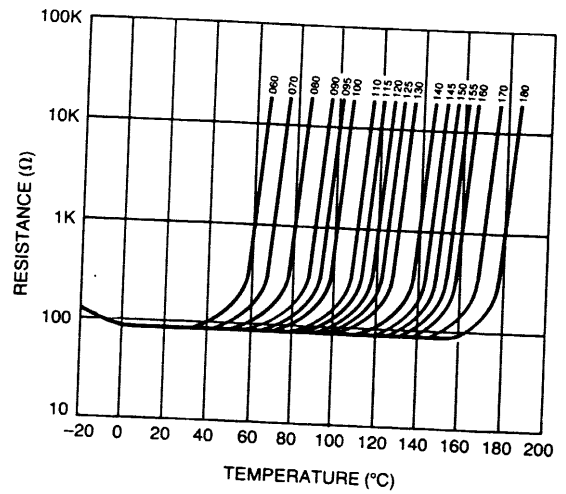
(Types Y-S-) These devices incorporate type YC, YD, YF, and YG thermistors connected in series as pairs or triplets for use in two-phase or three-phase motors and generators.

Lead lengths (A and B Figures 1 and 2) may be varied according to customer requirements and will be denoted by a serial number following the S in the code. The lead lengths are governed by the size of the motor and by the location of the hot spots. The terminal wires are colour coded in the same way as single devices and the interconnecting wires are pink.

Typical Resistance v. Temperature Characteristics.
Showing limiting conditions



Typical Resistance v. Temperature Characteristics.
For each switching temperature



THERMOMETRICS A COMMITMENT TO EXCELLENCE

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