

NTC THERMISTORS: TYPE P60/65/85/100

LARGE BEAD-IN-GLASS THERMOPROBES

DESCRIPTION:

The Type P60, P65, P85 and P100 THERMOPROBES consist of a large bead thermistor hermetically sealed in the tip of a shock resistant solid glass rod. They have excellent long term stability.

APPLICATIONS:

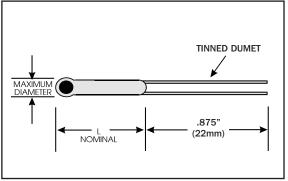
The Type P60, P65, P85 and P100 THERMOPROBES are recommended for all low cost, general purpose applications involving temperature measurement, temperature control, circuit temperature compensation, liquid level sensing or fluid flow sensing. They are ideally suited for applications which require a reliable, low cost sensor.

DATA:

All THERMOPROBES are aged for extended periods of time. As such, they exhibit excellent stability for all service temperatures at or below the aging temperature. THERMOPROBES which are manufactured with Material System "E" are aged at 105°C; those manufactured with a Material System having a 25°C/125°C ratio of 16.9 or less are aged at 200°C; and all other Material Systems are aged at 300°C. Intermittent operation at temperatures up to 600°C is permissible, however, degraded stability will result when the aging temperature is exceeded.

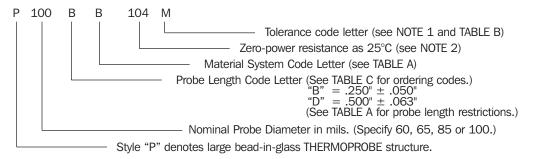


DIMENSIONS:



CODING:

The code number to be ordered may be specified as follows:



- **NOTE 1:** Special tolerances are available on request. Consult factory for special resistance tolerances, non-standard resistances and/or non-standard temperatures.
- **NOTE 2:** The zero-power resistance at 25°C, expressed in Ohms, is identified by a three digit code number. The first two digits represent significant figures, and the last digit specifies the number of zeros to follow. Example: 100k Ohms = "104". The standard resistance values are from the 24-Value series decade as specified in Military Standard MS90178.

1.0 / 1.1 / 1.2 / 1.3 / 1.5 / 1.6 / 1.8 / 2.0 / 2.2 / 2.4 / 2.7 / 3.0 3.3 / 3.6 / 3.9 / 4.3 / 4.7 / 5.1 / 5.6 / 6.2 / 6.8 / 7.5 / 8.2 / 9.1

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TABLE A: THERMAL AND ELECTRICAL PROPERTIES:

The following table lists the THERMAL and ELECTRICAL properties for all LARGE BEAD-IN-GLASS THERMOPROBES. All definitions and test methods are per MIL-PRF-23648.

THERMISTOR TYPE:			P60	P65	P85	P100	
BODY DIMEN	BODY DIMENSIONS: Max. Diameter: Standard Lengths: Length Codes Available (Special Order Only)		.060" (1.5 mm) .250" (6.3 mm) .500" (12.7 mm) "A", "C"	.065" (1.7 mm) .250" (6.3 mm) .500" (12.7 mm) "A", "C"	.085" (2.2 mm) .250" (6.3 mm) .500" (12.7 mm) "A", "C", "F", "H"	.100" (2.5 mm) .250" (6.3 mm) .500" (12.7 mm) "A", "C", "F", "H" "K", "M", "P", "R"	
lead-wires:	l-wires: Nom. Diameter: Minimum Lead Length: Lead Material:		.008" (.20 mm) .875" (22 mm) Tinned Dumet	.008" (.20 mm) .875" (22 mm) Tinned Dumet	.012" (.30 mm) .875" (22 mm) Tinned Dumet	.012" (.30 mm) .875" (22 mm) Tinned Dumet	
MATERIAL SY	(STEM:		Nominal	Nominal	Nominal	Nominal	
CODE	R-vs-T	25/125	Resistance	Resistance	Resistance	Resistance	
LETTER	CURVE RATIO		Range @ 25°C (Ohms)	Range @ 25°C (Ohms)	Range @ 25°C (Ohms)	Range @ 25°C (Ohms)	
E	0	5.0	30 - 51	30 - 51	30 - 51	30 - 51	
A	1	11.8	51 - 150	51 - 150	51 - 150	51 - 150	
A	2 3	12.5	150 - 360	150 - 360	150 - 360	150 - 360	
A	3	14.0 16.9	360 - 750 750 - 1.5k	360 - 750 750 - 1.5k	360 – 750 750 – 1.5k	360 – 750 750 – 1.5k	
A	4 5	19.8	1.5k - 3.6k	1.5k – 3.6k	1.5k – 3.6k	1.5k – 3.6k	
A	6	22.1	3.6k – 6.2k	3.6k – 6.2k	3.6k – 6.2k	3.6k – 6.2k	
A	7	22.1	6.2k - 9.1k	6.2k - 9.1k	6.2k - 9.1k	6.2k - 9.1k	
В	8	29.4	9.1k – 27k	9.1k – 27k	9.1k – 27k	9.1k – 27k	
В	9	30.8	27k – 43k	27k – 43k	27k – 43k	27k – 43k	
В	10	32.3	43k – 75k	43k – 75k	43k – 75k	43k – 75k	
В	11	35.7	75k – 160k	75k – 160k	75k – 160k	75k – 160k	
В	12	38.1	160k – 360k	160k – 360k	160k – 360k	160k – 360k	
В	13	45.0	360k – 750k	360k – 750k	360k – 750k	360k – 750k	
В	14	48.1	750k – 1.5M	750k – 1.5M	750k – 1.5M	750k – 1.5M	
В	15	56.5	1.5M - 3.0M	1.5M - 3.0M	1.5M - 3.0M	1.5M - 3.0M	
D	16	75.6	3.0M – 8.2M	3.0M - 8.2M	3.0M - 8.2M	3.0M - 8.2M	
D	17	81.0	8.2M – 20M	8.2M – 20M	8.2M - 20M	8.2M – 20M	
THERMAL TIN	ME CONSTANT:						
	Still Air at 25°C: Plunge into Water:		12 sec 300 msec	13 sec 320 msec	16 sec 400 msec	22 sec 600 msec	
DISSIPATION	S	till Air at 25°C: Water at 25°C:	.60 mW/°C 3.00 mW/°C	.65 mW/°C 3.30 mW/°C	.85 mW/°C 4.00 mW/°C	1.00 mW/°C 5.00 mW/°C	
POWER RATING: (in air) Maximum Power Rating: 100% Max. Power to: Derated to 0% at:			.060 Watts 200°C 300°C	.065 Watts 200°C 300°C	.100 Watts 200°C 300°C		

RESISTANCE -VS- TEMPERATURE CHARACTERISTICS: The nominal resistance range for the zero-power resistance at 25°C is shown for each large bead-in-glass THERMOPROBE Type and each available Material System. Each Material System is denoted by an ordering Code Letter, a referenced Curve number and the nominal 25°C/125°C resistance ratio.

TABLE B: STANDARD TOLERANCES:

Tolerance Code Letter	F	G	J	К	L	М	Ν	Р	Q	R	S
\pm % Tolerance at 25°C	1	2	5	10 15 20 25 30 40 50 Non-standard – consult		Non-standard – consult factory					

TABLE C: PROBE LENGTH CODES: (Refer to TABLE A for length options.)

Nominal Probe Length:	.125"	.250"	.375"	.500"	.750"	1.00"	1.25"	1.50"	1.75"	2.00"
Probe Length Code Letter:	А	В	С	D	F	Н	К	М	Р	R