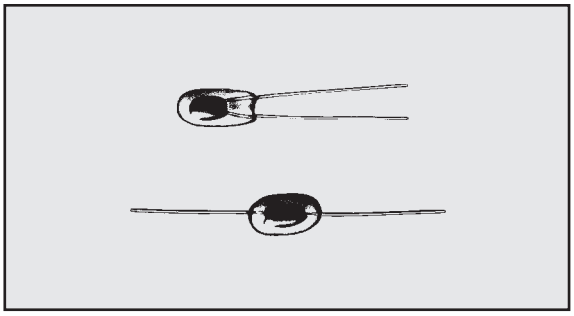
NTC THERMISTORS: TYPE BR32/42/55

GLASS ENCAPSULATED BEAD THERMISTOR

DESCRIPTION:

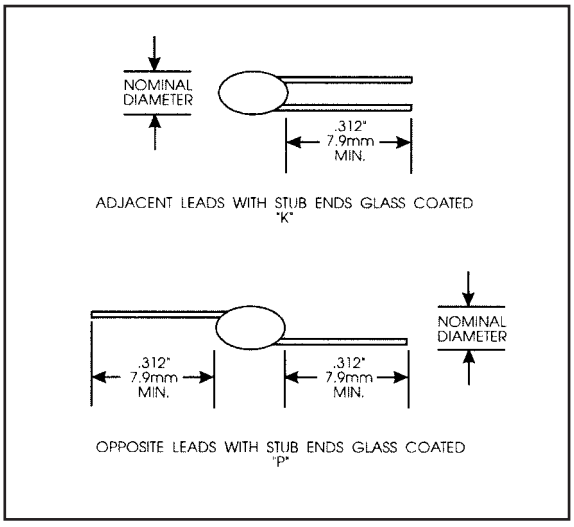
Large glass encapsulated bead thermistors on fine diameter platinum alloy lead-wires.



FEATURES:

- Suitable for most low cost temperature measurement, control or compensation applications
- Fast thermal response times
- Rugged glass encapsulation provides hermetic seal and better strain relief than large glass coated bead thermistors
- Long term stability is better than large glass coated bead thermistors
- Suitable for self-heated applications such as liquid level sensing or gas flow measurement
- Recommended for all applications where the customer will perform further assembly operations
- Normal operating/storage temperatures range from -80°C to:
  - 105°C for Material system E0
  - 200°C for Material system A1 through A4
  - 300°C for Material systems A5 through D17
- Unaffected by severe environmental exposures, including nuclear radiation
- Intermittent operation up to 600°C is permissible, however, stability will be degraded.

DIMENSIONS:



OPTIONS:

- Non-standard resistance tolerances
- Non-standard resistance values
- Reference temperature(s) other than 25°C - specify
- Mounting in special housings or enclosures
- Longer continuous leads
- Welded or soldered extension leads - specify lead material, diameter, length and insulation, if any.
- Solderable or weldable/solderable leads
- Leads can be pre-tinned or treated for improved soldering
- Calibration - specify temperature(s)
- Interchangeable pairs or set, curve matching - specify temperature range(s) and tolerance(s)
- Special aging and conditioning for high reliability applications

CODING:

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

BR 55 K A 752 N

- N — Tolerance code letter (see NOTE 1 and TABLE B)
- 752 — Zero-power resistance as 25°C (see NOTE 2)
- A — Material System Code Letter (see TABLE A)
- K — Lead configuration code letter.
  - "K" = adjacent leads with stub ends glass coated
  - "P" = opposite leads with stub ends glass coated
- 55 — Nominal Bead Diameter in mils (specify 32, 42 or 55)
- BR — Style "BR" denotes RUGGEDIZED BEAD structure

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: 7.5k Ohms= "752". 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

TABLE A: THERMAL AND ELECTRICAL PROPERTIES:

The following table lists the THERMAL and ELECTRICAL properties for all LARGE RUGGEDIZED THERMISTORS. All definitions and test methods are per MIL-PRF-23648.

THERMISTOR SERIES:			BR32	BR42	BR55
BODY DIMENSIONS:					
	Nom. Diameter:		.032" (.81 mm)	.042" (1.1 mm)	.055" (1.4 mm)
	Max. Diameter:		.033" (.84 mm)	.046" (1.2 mm)	.060" (1.5 mm)
	Max. Length:		.084" (2.1 mm)	.095" (2.4 mm)	.120" (3.0 mm)
lead-wires:					
	Nom. Diameter:		.003" (.08 mm)	.004" (.10 mm)	.004" (.10 mm)
	Minimum Lead Length:		.312" (7.9 mm)	.312" (7.9 mm)	.312" (7.9 mm)
	Lead Material:		Platinum Alloy	Platinum Alloy	Platinum Alloy
	Available Cuts:		"K" adjacent "P" opposite	"K" adjacent "P" opposite	"K" adjacent "P" opposite
MATERIAL SYSTEM:					
CODE LETTER	**R-vs-T CURVE**	**25/125 RATIO**	**Nominal Resistance Range @ 25°C**	**Nominal Resistance Range @ 25°C**	**Nominal Resistance Range @ 25°C**
E	0	5.0	—	30 Ω – 51 Ω	30 Ω – 51 Ω
A	1	11.8	100 Ω – 300 Ω	51 Ω – 150 Ω	51 Ω – 150 Ω
A	2	12.5	300 Ω – 750 Ω	150 Ω – 360 Ω	150 Ω – 360 Ω
A	3	14.0	750 Ω – 1.5 kΩ	360 Ω – 750 Ω	360 Ω – 750 Ω
A	4	16.9	1.5 kΩ – 3.0 kΩ	750 Ω – 1.5 kΩ	750 Ω – 1.5 kΩ
A	5	19.8	3.0 kΩ – 6.8 kΩ	1.5 kΩ – 3.6 kΩ	1.5 kΩ – 3.6 kΩ
A	6	22.1	6.8 kΩ – 13 kΩ	3.6 kΩ – 6.2 kΩ	3.6 kΩ – 6.2 kΩ
A	7	22.7	13 kΩ – 18 kΩ	6.2 kΩ – 9.1 kΩ	6.2 kΩ – 9.1 kΩ
B	8	29.4	18 kΩ – 51 kΩ	9.1 kΩ – 27 kΩ	9.1 kΩ – 27 kΩ
B	9	30.8	51 kΩ – 82 kΩ	27 kΩ – 43 kΩ	27 kΩ – 43 kΩ
B	10	32.3	82 kΩ – 150 kΩ	43 kΩ – 75 kΩ	43 kΩ – 75 kΩ
B	11	35.7	150 kΩ – 330 kΩ	75 kΩ – 160 kΩ	75 kΩ – 160 kΩ
B	12	38.1	330 kΩ – 680 kΩ	160 kΩ – 360 kΩ	160 kΩ – 360 kΩ
B	13	45.0	680 kΩ – 1.5 MΩ	360 kΩ – 750 kΩ	360 kΩ – 750 kΩ
B	14	48.1	1.5 MΩ – 3.0 MΩ	750 kΩ – 1.5 MΩ	750 kΩ – 1.5 MΩ
B	15	56.5	3.0 MΩ – 6.2 MΩ	1.5 MΩ – 3.0 MΩ	1.5 MΩ – 3.0 MΩ
D	16	75.6	6.2 MΩ – 10 MΩ	3.0 MΩ – 8.2 MΩ	3.0 MΩ – 8.2 MΩ
D	17	81.0	—	8.2 MΩ – 20 MΩ	8.2 MΩ – 20 MΩ
THERMAL TIME CONSTANT:					
	Still Air at 25°C:		4.5 sec	5 sec	7 sec
	Plunge into Water:		90 msec	140 msec	200 msec
DISSIPATION CONSTANT:					
	Still Air at 25°C:		.28 mW/°C	.33 mW/°C	.50 mW/°C
	Still Water at 25°C:		1.4 mW/°C	1.65 mW/°C	2.50 mW/°C
POWER RATING: (in air)					
	Maximum Power Rating:		.035 Watts	.042 Watts	.050 Watts
	100% Max. Power to:		150°C	150°C	150°C
	Derated to 0% at:		300°C	300°C	300°C

RESISTANCE -VS- TEMPERATURE CHARACTERISTICS: The nominal resistance range for the zero-power resistance at 25°C is shown for each THERMISTOR 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	K	L	M	N	P	Q	R	S
± % Tolerance at 25°C	1	2	5	10	15	20	25	30	40	50	Non-standard – consult factory

Crown Industrial Estate, Priorswood Road
Taunton, Somerset TA2 8QY UK
Tel +44 (0) 1823 335200
Fax +44 (0) 1823 332637

808 US Highway 1
Edison, New Jersey 08817-4695 USA
Tel +1 (732) 287 2870
Fax +1 (732) 287 8847

967 Windfall Road
St. Marys, Pennsylvania 15857-3397 USA
Tel +1 (814) 834 9140
Fax +1 (814) 781 7969