



NTC THERMISTORS: TYPE BR32/42/55

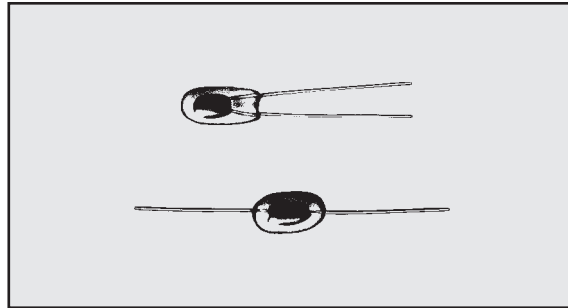
GLASS ENCAPSULATED BEAD THERMISTOR

DESCRIPTION:

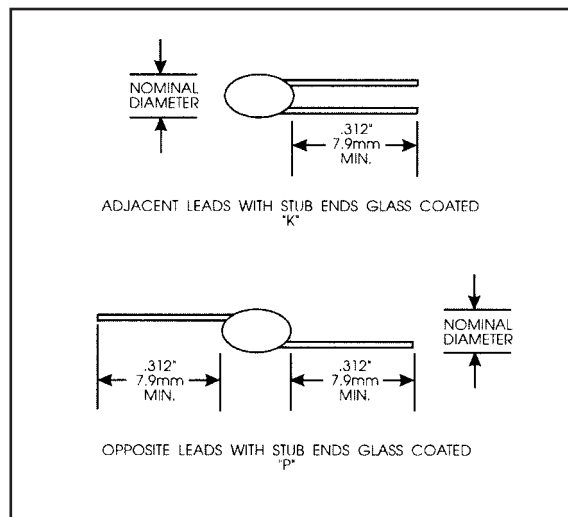
Large glass encapsulated bead thermistors on fine diameter platinum alloy lead-wires.

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:

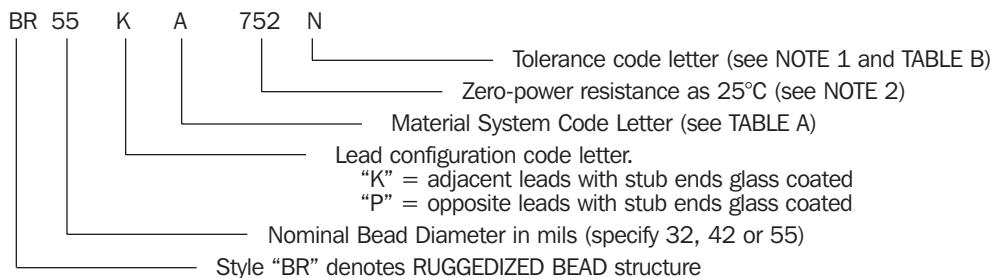


OPTIONS:

- 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:



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: | | | Nominal Resistance | Nominal Resistance | Nominal Resistance |
| CODE LETTER | R-vs-T CURVE | 25/125 RATIO | Range @ 25°C | Range @ 25°C | 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