

NTC Thermistors, Coated



FEATURES

- Small size - conformally coated.
- Wide resistance range.
- Available in 11 different R-T curves.

DESCRIPTION

Models M, C, and T are conformally coated, leaded thermistors for standard PC board mounting or assembly in probes. The coating is baked-on phenolic for durability and long-term stability. Models M and C have tinned solid copper leads. Model T has solid nickel wires with Teflon® insulation to provide isolation when assembled in metal probes or housings.

DIMENSIONS in inches [millimeters]



| LD DIAMETER | WIRE SIZE |
|-------------|------------------------|
| Type M | AWG 30: 0.0100 [0.254] |
| Type C | AWG 28: 0.0126 [0.320] |
| Type T | AWG 30: 0.0100 [0.254] |

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: 01C2001FP (preferred part numbering format)



| CURVE | GLOBAL MODEL | RESISTANCE VALUE | POINT MATCH TOLERANCE | PACKAGING |
|--|--------------|------------------|--------------------------------------|--|
| 01 02 03 04 07 08 09 12 13 14 17 | C M T | 2001 = 2K | F = ± 1 % J = ± 5 % K = ± 10 % | F = Lead (Pb)-free, Bulk P = Tin/Lead, Bulk |

Historical Part Number example: 1C2001FP (will continue to be accepted)



New Global Part Numbering: 01C2001SPC3 (preferred part numbering format)



| CURVE | GLOBAL MODEL | RESISTANCE VALUE | CHARACTERISTICS | PACKAGING | CURVE TRACK TOLERANCE* |
|--|--------------|------------------|-----------------|--|--|
| 01 02 03 04 07 08 09 12 13 14 17 | C M T | 2001 = 2K | S | F = Lead (Pb)-free, Bulk P = Tin/Lead, Bulk | A3 B3 C3 A2 B2 C2 A4 B4 A5 B5 C5 A8 B8 C8 |

*See following pages for Tolerance explanations and details.

Historical Part Number example: 1C2001SPC3 (will continue to be accepted)





| SELECTION GUIDE FOR TYPE M, C, AND T THERMISTORS | | | | | | | | | | |
|--|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| R ₂₅ (Ohms) | CURVE NUMBER | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 7 | 8 | 9 | 12 | 14 | 17 |
| 27 | | | | | | | | | . | |
| 33 | | | | | | | | | .. | |
| 50 | | | | | | | | | ... | |
| 56 | | | | | | | | | ... | |
| 68 | | | . | | | | | | ... | |
| 82 | | | .. | | | | | | ... | |
| 100 | | | .. | | | | | | ... | |
| 120 | | | .. | | | | | | ... | |
| 150 | | | ... | | | | | | ... | |
| 180 | | | ... | | | | | | ... | |
| 220 | | | ... | | | | | | ... | |
| 270 | | | ... | | | | | | ... | |
| 330 | | . | ... | | | | | | | |
| 390 | | .. | ... | | | | | | | |
| 470 | | .. | ... | | | | | | | |
| 500 | | .. | ... | | | | | | | |
| 560 | | .. | ... | | | | | | | |
| 680 | | ... | | | | | | | | |
| 820 | | ... | | | | | | | | |
| 1K | | ... | | | | | | | | |
| 1.2K | | ... | | | | | | | | |
| 1.5K | | ... | | | | | | | | |
| 1.8K | . | ... | | | | | | | | |
| 2.2K | . | ... | | | | | | | | |
| 2.7K | .. | ... | | | | | | | | |
| 3.3K | .. | ... | | | | | | | | |
| 3.9K | ... | | | | | | | | | |
| 4.7K | ... | | | | | | | | | |
| 5K | ... | | | | | | | | | |
| 5.6K | ... | | | | | | | | | |
| 6.8K | ... | | | | | | | | | . |
| 8.2K | ... | | | | | | . | | | . |
| 10K | ... | | | . | | | .. | | | .. |
| 12K | ... | | | . | | | .. | | | .. |
| 15K | ... | | | .. | | | ... | | | ... |
| 18K | ... | | | .. | | | ... | | | ... |
| 22K | | | | .. | | | ... | | | ... |
| 27K | | | | .. | . | . | ... | | | ... |
| 33K | | | | ... | . | .. | ... | | | ... |
| 39K | | | | ... | .. | .. | ... | | | ... |
| 47K | | | | ... | .. | ... | ... | | | ... |
| 50K | | | | ... | .. | ... | ... | | | ... |
| 56K | | | | ... | ... | ... | ... | | | |
| 68K | | | | ... | ... | ... | | | | |
| 82K | | | | ... | ... | ... | | | | |
| 100K | | | | ... | ... | ... | | | | |
| 120K | | | | | ... | ... | | | | |
| 150K | | | | | ... | ... | | | | |
| 180K | | | | | ... | ... | | | | |
| 220K | | | | | ... | | | | | |
| 270K | | | | | ... | | | | | |
| 330K | | | | | | | | . | | |
| 390K | | | | | | | | .. | | |
| 470K | | | | | | | | .. | | |
| 500K | | | | | | | | ... | | |
| 560K | | | | | | | | ... | | |
| 680K | | | | | | | | ... | | |
| 820K | | | | | | | | ... | | |
| 1 Meg | | | | | | | | ... | | |

MAXIMUM BODY DIAMETER

- . 0.125 [3.2]
- .. 0.110 [2.8]
- ... 0.095 [2.4]

DISSIPATION CONSTANT

2 - 3 mWatts/°C

THERMAL TIME CONSTANT

6 - 14 Seconds

NOTE:

1. Intermediate resistance values between the standard value series are available. Size would be the same as the color grouping.
2. Other body diameters available. Bead diameter increases as Res. decreases. (Consult Factory)
3. Leaded series of thermistors includes additional styles: (Consult Factory)
 - Type B: 26AWG lead, 0.0159 [0.40]
 - Type F: 32AWG lead, 0.008 [0.20]
 - Type E: 24AWG lead, 0.020 [0.51]
 - Type D: 22AWG lead, 0.025 [0.64]
 - Type G: 20AWG lead, 0.032 [0.81]
 - Type H: 18AWG lead, 0.040 [1.02]



TOLERANCES AVAILABLE FOR TYPE M, C AND T THERMISTORS

DESCRIPTION OF THERMISTOR TOLERANCES

The many applications of thermistors have mandated the need for two basic tolerance schemes for these products - Curve Tracking and Point Match Thermistors. An example of the resistance tolerance at various temperatures for the two different tolerancing methods is described in the following graph:



CURVE TRACKING TOLERANCE

Thermistors are calibrated at the high temperature of the curve track range and then final tested at the low temperature of the curve track range. This ensures that the thermistor will meet the specified temperature accuracy at every temperature within the desired temperature range. Several temperature ranges are available and the accuracy of the thermistor may be ± 0.2 °C, ± 0.5 °C, and ± 1.0 °C. The Curve Tracking temperature ranges and their code designators are shown in Figure 1 and Table 1.

To specify, add the appropriate suffix from the following table to the part number.

Example: 1M1002-B3 = Curve 1, 10 kilohms at + 25 °C, curve tracking to ± 0.5 °C from 0 °C to + 70 °C

| STANDARD ELECTRICAL SPECIFICATIONS FOR CURVE TRACKING THERMISTORS | | | | | | | | | | | | | | | | |
|--|---|-----------------|---------|---------|--------------------|---------|---------|------------------|---------|---------|------------------|---------|---------|-----------------|---------|---------|
| TEMP. RANGE | | 0 °C to + 70 °C | | | - 20 °C to + 50 °C | | | 0 °C to + 100 °C | | | 25 °C to + 90 °C | | | 0 °C to + 50 °C | | |
| TOLERANCE | | ±1 °C | ±0.5 °C | ±0.2 °C | ±1 °C | ±0.5 °C | ±0.2 °C | ±1 °C | ±0.5 °C | ±0.2 °C | ±1 °C | ±0.5 °C | ±0.2 °C | ±1 °C | ±0.5 °C | ±0.2 °C |
| PART NO. SUFFIX | | - A3 | - B3 | - C3 | - A2 | - B2 | - C2 | - A4 | - B4 | - C4 | - A5 | - B5 | - C5 | - A8 | - B8 | - C8 |
| C | 1 | X | X | X | X | X | X | X | X | N/A | X | X | X | X | X | X |
| U | 2 | X | X | X | X | X | X | X | X | N/A | X | X | X | X | X | X |
| R | 4 | X | X | X | X | X | X | X | X | N/A | X | X | X | X | X | X |
| V | 8 | X | X | X | X | X | X | X | X | N/A | X | X | X | X | X | X |
| E | 9 | X | X | X | X | X | X | X | X | N/A | X | X | X | X | X | X |