INCH-POUND
MIL-PRF-32192/2
w /Amendment 2
29 February 2012
SUPERSEDING
MIL-PRF-32192/2
w /Amendment 1
21 September 2005

PERFORMANCE SPECIFICATION SHEET

RESISTOR, CHIP, THERMAL (THERMISTOR), INSULATED POSITIVE TEMPERATURE COEFFICIENT STYLE RCTP0805

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-32192.

1. SCOPE

1.1 Scope. This specification covers the detail requirements for style RCTP0805 chip thermistors. This style is available in resistance ratio E. Termination materials B, G, U, T, C, D, S, and W are available through qualification. Resistance tolerance versus temperature characteristics F, G, J, and K are applicable through the maximum temperature of 125°C.

1.2 Part or Identifying Number (PIN). Chip thermistors covered by this specification are identified by a PIN which consists of the basic number of this specification and a coded dash number. The PIN is in the following form:

M32192	A2B1001GM
Performance specification number	Coded dash number

The coded dash number is derived in accordance with MIL-PRF-32192.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990, or emailed to Resistor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.daps.dla.mil.

2.2 Government documents.

2.2.1 Specifications, standards, or handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-32192 - Resistors, Chip, Thermal (Thermistor), General Specification For.

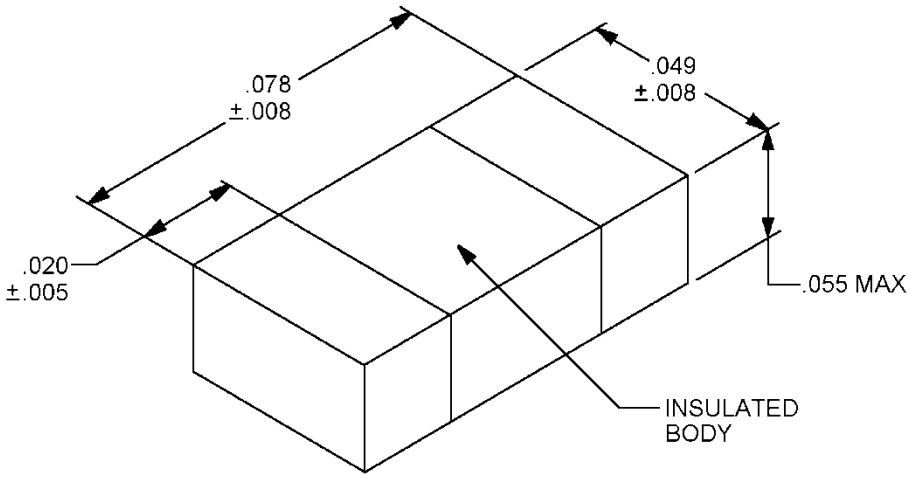
* (Copies of this document are available online at https://assist.daps.dla.mil/quicksearch/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

* 2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related, specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Requirements. Requirements shall be in accordance with MIL-PRF-32192, and as specified herein.

3.2 Interface and physical dimensions. The thermistors shall meet the interface and physical dimensions as specified on figure 1 and herein.



Inches	mm	Inches	mm	Inches	mm
.005	0.13	.020	0.51	.055	1.40
.008	0.20	.049	1.25	.078	1.98

NOTE: Dimensions are in inches. Metric equivalents are for reference only.

FIGURE 1. Style RCTP0805.

3.3 Thermal time constant. The thermal time constant shall be 30 seconds maximum in still air.

3.4 Dissipation constant. The dissipation constant shall be 2.5 milliwatts per degrees Celsius minimum in still air.

3.5 Power rating. The thermistor shall be capable of dissipating a maximum power of 0.25 watts at 25°C. Thermistors shall be derated in accordance with figure 2.

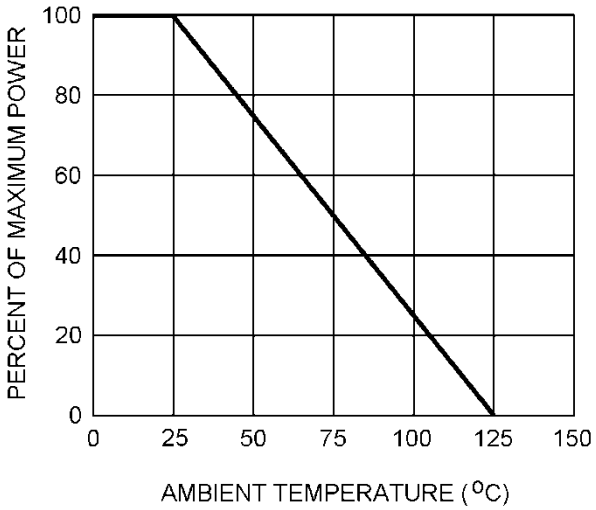


FIGURE 2. Derating curve for high ambient temperatures.

3.6 Resistance.

3.6.1 Resistance at 25°C. Standard values shall be as specified in the table III of MIL-PRF-32192 for 10 to 100 decade. Minimum and maximum resistance values shall be in accordance with table I.

* TABLE I. Minimum and maximum resistance values (at 25°C).

Ratio 0.53 (E)
Ohms 22 ohms min 5.62 Kilohms max

3.6.2 Resistance at temperatures other than 25°C. Factors for determining resistance at temperatures other than 25°C are in accordance with table II. The appropriate factor is selected from the column headed by the resistance range which includes the zero-power 25°C resistance of the thermistor in question. The 25°C resistance of the thermistor is multiplied by the factor selected to obtain the resistance at any given temperature.

Example: Given a thermistor with a 25°C resistance of 220 ohms, find the resistance at 75°C. Select the factor opposite 75°C from the column headed by the resistance range containing 220 ohms. The factor 1.400 is thus selected from the column headed 180-560. Multiply 220 ohms by the factor 1.400 to obtain the resistance at 75°C of 308 ohms.

* TABLE II. Factors for determining resistance at various temperatures.

TEMPERATURE °C	10-27 OHMS	33-68 OHMS	82-330 OHMS	390-2.7k OHMS	3.3k-5.62k OHMS
-55	0.552	0.519	0.493	0.481	0.493
-15	0.739	0.728	0.716	0.709	0.717
0	0.830	0.822	0.813	0.810	0.816
25	1.000	1.000	1.000	1.000	1.000
50	1.190	1.201	1.208	1.211	1.205
75	1.408	1.411	1.441	1.446	1.430
100	1.651	1.669	1.706	1.709	1.660
125	1.908	1.940	1.993	1.983	1.862

* 3.6.3 Resistance tolerance. The thermistor specified herein is available in resistance tolerances F (±1 percent), G (±2 percent), J (±5 percent), and K (±10 percent) plus the resistance deviation at specified temperature as specified in table III.

TABLE III. Resistance tolerances at temperatures other than 25 °C.

TEMPERATURE °C	F (±1 PERCENT)	G (±2 PERCENT)	J (±5 PERCENT)	K (±10 PERCENT)
-55	15	17	20	25
-15	9	10	13	18
0	3	4	7	12
25	1	2	5	10
50	3	4	7	12
75	5	6	9	14
100	7	9	12	17
125	10	12	15	20

3.7 Short time overload. The maximum allowable change in zero-power resistance as the result of the short time load test shall be ±2 percent.

3.8 Low temperature storage. The maximum allowable change in zero-power resistance as the result of the low temperature storage test shall be ±2 percent.

3.9 High temperature storage. The maximum allowable change in zero-power resistance as the result of the high temperature storage test shall be ±2 percent.

3.11 Thermal shock. The maximum allowable change in zero-power resistance as the result of the thermal shock test shall be ±2 percent.

3.12 Resistance to soldering heat. The maximum allowable change in zero-power resistance as the result of the resistance to soldering heat test shall be ±2 percent.

3.13 Resistance to bonding exposure. The maximum allowable change in zero-power resistance as the result of the resistance to soldering heat test shall be ±2 percent.

3.14 Moisture resistance. The maximum allowable change in zero-power resistance as the result of the moisture resistance test shall be ±3 percent.

3.15 Life. The maximum allowable change in zero-power resistance as the result of the life test shall be ±5 percent.

3.16 High temperature exposure. The maximum allowable change in zero-power resistance as the result of the high temperature exposure test shall be ±1 percent after 100 hours and ±2 percent after 1,000 hours.

3.17 Vibration, high frequency. The maximum allowable change in zero-power resistance as the result of the vibration test shall be ±2 percent.

3.18 Shock, specified pulse. The maximum allowable change in zero-power resistance as the result of the shock test shall be ±2 percent.

3.19 Immersion. The maximum allowable change in zero-power resistance as the result of the immersion test shall be ±3 percent.

3.20 Resistance to solvents (where applicable). There shall be no evidence of mechanical damage to the body and the marking shall remain clear and legible.

3.21 Marking (where applicable). The thermistors shall be marked in accordance with MIL-PRF-32192.

4. VERIFICATION

4.1 Verification. Verification shall be in accordance with MIL-PRF-32192.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military services system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The notes specified in MIL-PRF-32192 are applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of the specification.

b. Unless otherwise specified (see 2.1), the versions of the individual documents referenced will be those in effect on the date of release of the solicitation.

c. Packaging requirements (see 5.1).

* 6.3 Amendment notations. The margins of this specification are marked with asterisks to indicate modifications generated by this amendment where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Custodians:
Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5905-2011-055)

Review activities:
Army - AT, AV, CR4
Navy - AS, CG, MC, OS
Air Force - 19, 99

Civil agencies:
NASA - NA

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.daps.dla.mil.