

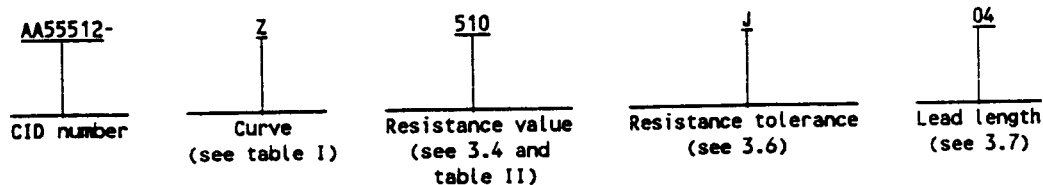
[INCH-POUND]
A-A-55512
19 April 1995

COMMERCIAL ITEM DESCRIPTION

RESISTOR, THERMALLY SENSITIVE (THERMISTOR)

The General Services Administration has authorized the use of this commercial item description (CID) for all federal agencies.

1. **SCOPE.** This CID covers the general requirements for a thermistor. The thermistor covered by this CID is intended for commercial/industrial applications.
2. **CLASSIFICATION.** This CID uses a classification system which is included in the Part or Identification Number (PIN) as shown in the following example (see 7.1).



3. SALIENT CHARACTERISTICS

- 3.1 **Design and construction.** The thermistor supplied to this CID shall be as specified herein (see Figure 1).
- 3.2 **Material.** The material shall be as specified herein.
 - 3.2.1 **Body.** The body of the thermistor shall be of negative temperature coefficient (NTC) material.
- 3.3 **Finish.** The finish shall be to the best commercial practices.
- 3.4 **Resistance.** The resistance measured at +25°C and expressed in ohms shall be as specified in table I and is identified by a three-digit number. The first two digits represent significant figures, and the last digit specifies the number of zeros to follow.
- 3.5 **Resistance at temperatures other than 25°C.** Resistance of temperatures other than +25°C shall be as specified in table II.
- 3.6 **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 II.
- 3.7 **Lead length.** The leads shall be number 28 gauge AWG, black polyvinylchloride (PVC), insulated wire and are available in 4 inch (10.02cm), 6 inch (15.24cm), 12 inch (30.48cm), or 24 inch (30.48cm) lengths.
- 3.8 **Resistance temperature coefficient.** The resistance temperature coefficient shall be as specified in table II.
- 3.9 **Marking.** The thermistor supplied to this CID shall be marked with the manufacturer's standard commercial PIN.

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data which may improve this document should be sent to: Defense Electronics Supply Center, ATTN: DESC-ELDM, 1507 Wilmington Pike, Dayton, OH 45444-5765, or telephone (513) 296-5257, or facsimile (FAX) (513) 296-8868.

AMSC N/A

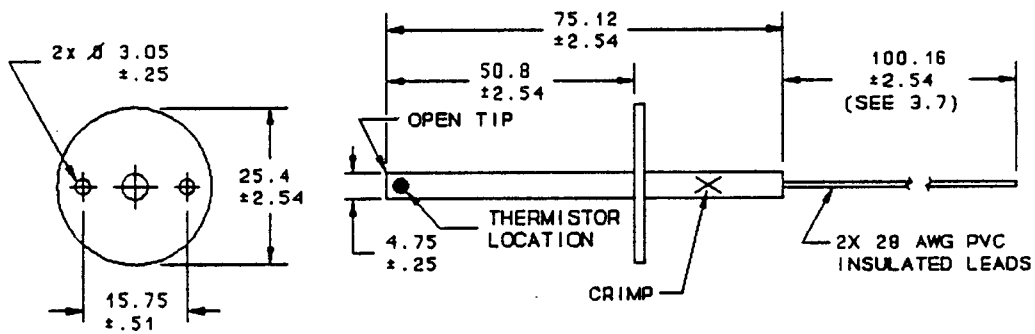
DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

FSC 5905

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TABLE I. Minimum/maximum resistance value and curve.

Resistance values in ohms at +25°C	Resistance temperature curve
40 to 250	A
470 to 2.2 k	Y
1.7 k to 33 k	Z
33 k to 100 k	W
47 k to 150 k	M
47 k to 220 k	V
470 k to 1.2 M	P
3.1 M to 40 M	R



mm	Inches	mm	Inches
0.25	0.010	15.75	0.62
0.51	0.02	25.4	1.0
2.54	0.10	50.8	2.0
3.05	0.12	75.12	3.0
4.75	0.18	100.16	4.07

FIGURE 1. Resistor, thermally sensitive (thermistor probe).

TABLE II. Resistance temperature coefficient.

		CURVE A			CURVE Y			CURVE Z			CURVE W		
°C	°F	RT/R25	Max Dev	NTC	RT/R25	Max Dev	NTC	RT/R25	Max Dev	NTC	RT/R25	Max Dev	NTC
-60	-76	43.0	-	-	75.69	9.7	-	140.58	4.1	-	-	-	-
-55	-67	31.9	-	-	54.78	-	-	96.40	-	-	-	-	-
-50	-58	24.3	18.3	5.6	40.06	8.2	6.1	67.06	3.5	7.2	-	-	-
-40	-40	14.4	15.4	4.9	22.05	6.8	5.8	33.66	3.0	6.7	40.16	3.0	-
-30	-22	8.93	12.5	4.5	12.56	5.6	5.4	17.10	2.4	6.2	20.64	2.4	6.5
-20	-4	5.69	9.9	4.4	7.422	4.4	5.1	9.712	1.9	5.8	11.03	1.9	5.1
-15	5	4.56	-	-	5.777	-	-	7.296	-	-	8.175	-	-
-10	14	3.68	7.4	4.3	4.527	3.3	4.8	5.534	1.4	5.5	6.119	1.4	5.7
-5	23	2.99	-	-	3.58	-	-	4.234	-	-	4.615	-	-
0	32	2.45	5.0	3.9	2.848	2.3	4.5	3.266	1.0	5.1	3.510	1.0	5.4
5	41	2.02	-	-	2.282	-	-	2.540	-	-	2.690	-	-
10	50	1.68	2.7	3.8	1.838	1.2	4.2	1.99	0.5	4.6	2.078	0.5	5.1
15	59	1.42	-	-	1.492	-	-	1.571	-	-	1.617	-	-
20	68	1.18	0.5	3.4	1.216	0.3	4.0	1.249	0.1	4.5	1.267	0.1	4.8
25	77	1.0	-	3.1	1.0	-	3.9	1.0	-	4.4	1.0	-	4.7
30	86	.854	1.4	3.0	.826	0.6	3.8	.806	0.2	4.3	.794	0.2	4.6
35	95	.732	-	-	.686	-	-	.653	-	-	.635	-	-
40	104	.628	3.2	2.9	.573	1.4	3.6	.533	0.6	4.0	.511	0.6	4.3
45	113	.537	-	-	.480	-	-	.437	-	-	.413	-	-
50	122	.464	5.0	2.8	.405	2.2	3.4	.36	1.0	3.8	.336	1.0	4.1
55	131	.403	-	-	.343	-	-	.299	-	-	.275	-	-
60	140	.350	6.7	2.7	.291	3.0	3.2	.249	1.2	3.6	.23	1.2	3.9
65	149	.305	-	-	.249	-	-	.208	-	-	.167	-	-
70	158	.267	8.2	2.6	.214	3.6	3.0	.175	1.6	3.4	.155	1.6	3.7
75	167	.238	-	-	.184	-	-	.148	-	-	.129	-	-
80	176	.208	9.8	2.5	.159	4.3	2.8	.126	1.8	3.3	.108	1.9	3.5
85	185	.183	-	-	.138	-	-	.107	-	-	.091	-	-
90	194	.163	11.2	2.4	.120	4.9	2.7	.092	2.1	3.1	.077	2.1	3.3
95	203	.145	-	-	.105	-	-	.079	-	-	.065	-	-
100	212	.130	12.6	2.3	.092	5.5	2.5	.068	2.4	2.9	.057	2.4	3.2
105	221	.117	-	-	.081	-	-	.059	-	-	.048	-	-
110	230	.105	-	-	.072	6.1	2.4	.061	2.6	2.8	.041	2.6	3.0
115	239	.094	13.5	2.2	.064	-	-	.045	-	-	.035	-	-
120	248	.085	-	-	.057	6.7	2.3	.039	2.9	2.7	.030	2.9	2.9
125	257	.075	15.0	2.1	.050	6.9	-	.034	3.0	2.6	.026	-	-
130	266	-	-	-	-	-	-	.030	3.1	2.5	.023	3.1	2.8
140	284	-	-	-	-	-	-	.024	3.4	2.4	.017	3.4	2.7
150	302	-	-	-	-	-	-	.019	3.5	-	.013	3.5	-

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TABLE II. Resistance temperature coefficient - Continued.

		CURVE M			CURVE V			CURVE P			CURVE R		
°C	°F	RT/R25	Max Dev	NTC	RT/R25	Max Dev	NTC	RT/R25	Max Dev	NTC	RT/R25	Max Dev	NTC
-60	-76	-	-	-	-	-	-	-	-	-	-	-	-
-55	-67	-	-	-	-	-	-	159.0	-	-	479.0	-	-
-50	-58	56.49	3.5	6.9	90.06	5.0	7.2	110.1	-	-	307.0	-	-
-40	-40	29.49	3.0	6.3	44.03	4.2	7.0	55.5	-	-	128.0	-	-
-30	-22	16.03	2.4	5.9	22.35	2.9	6.6	28.4	-	-	54.0	-	-
-20	-4	9.04	1.9	5.6	11.80	2.7	6.2	14.65	13.7	6.8	23.38	-	-
-15	5	6.873	-	-	8.691	-	-	10.51	-	-	15.84	-	-
-10	14	5.267	1.4	5.2	6.453	2.1	5.9	7.61	11.7	6.4	10.85	-	-
-5	23	4.070	-	-	4.830	-	-	5.56	-	-	7.508	-	-
0	32	3.166	1.0	4.9	3.643	1.4	5.5	4.09	9.9	6.0	5.246	13.2	7.1
5	41	2.461	-	-	2.774	-	-	3.04	-	-	3.7	-	-
10	50	1.958	0.5	4.7	2.128	0.8	5.2	2.28	8.2	5.7	2.633	10.9	6.7
15	59	1.556	-	-	1.644	-	-	1.72	-	-	1.891	-	-
20	68	1.243	0.1	4.4	1.278	0.2	5.0	1.31	6.6	5.4	1.369	8.7	6.4
25	77	1.0	-	4.2	1.0	-	4.9	1.0	-	-	1.0	-	-
30	86	.809	0.2	4.0	.787	0.4	4.7	.77	5.2	5.1	.736	6.8	6.1
35	95	.658	-	-	.623	-	-	.60	-	-	.546	-	-
40	104	.538	0.6	3.7	.497	0.9	4.5	.47	3.7	4.9	.407	4.9	5.8
45	113	.443	-	-	.398	-	-	.37	-	-	.307	-	-
50	122	.366	1.0	3.6	.321	1.5	4.3	.29	2.4	4.6	.232	3.2	5.5
55	131	.304	-	-	.26	-	-	.23	-	-	.176	-	-
60	140	.253	1.2	3.4	.212	1.9	4.1	.19	1.1	4.4	.136	1.5	5.2
65	149	.212	-	-	.173	-	-	.15	-	-	.105	-	-
70	158	.179	1.6	3.2	.143	2.4	3.9	.12	-	4.2	.081	0.0	5.0
75	167	.151	-	-	.118	-	-	.10	-	-	.064	-	-
80	176	.128	1.9	3.1	.098	2.7	3.7	.08	1.0	4.0	.050	1.4	4.8
85	185	.109	-	-	.081	-	-	.066	-	-	.039	-	-
90	194	.093	2.1	2.9	.068	3.2	3.5	.054	2.1	3.8	.031	2.8	4.6
95	203	.080	-	-	.057	-	-	.045	-	-	.025	-	-
100	212	.069	2.4	2.8	.048	3.6	3.4	.037	3.1	3.6	.020	4.1	4.4
105	221	.060	-	-	.041	-	-	.031	-	-	.016	-	-
110	230	.052	2.6	2.7	.035	4.0	3.2	.026	4.0	3.5	.013	5.2	4.2
115	239	.045	-	-	.03	-	-	.022	-	-	.011	-	-
120	248	.039	2.9	2.7	.025	4.4	3.1	.019	4.9	3.3	.009	6.4	4.0
125	257	.034	3.0	2.6	.022	4.5	3.0	.016	5.3	3.2	.007	7.0	3.9
130	266	.030	3.1	2.5	.019	4.7	3.0	.013	5.8	3.2	.006	7.6	3.8
140	284	.023	3.4	2.4	.014	5.0	2.9	.01	6.6	3.1	.004	8.6	3.7
150	302	.018	3.5	2.3	.011	5.4	2.8	.007	7.3	2.9	.003	9.6	3.5

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor certification. The contractor shall certify and maintain substantiating evidence that the product offered meets the salient characteristics of this CID, and that the product conforms to the producer's own drawings, specifications, standards, and quality assurance practices, and is the same product offered for sale in the commercial marketplace. The Government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract.

4.2 Certificate of compliance. Each contractor desiring to be listed as a suggested source of supply shall submit a DESC certificate of compliance to DESC-ELDM. This certificate shall state that the contractor's product meets all the requirements of this CID. In addition, a certificate of compliance shall accompany all thermistors supplied to this CID.

5. PACKAGING

5.1 Preservation, packing, and marking. Preservation, packing, and marking shall be as specified in the contract.

6. NOTES

6.1 PIN. The PIN should be used for Government purposes to buy commercial products to this CID. See section 2 for PIN format example.

6.2 Government users. To acquire information on obtaining these thermistors from the Government inventory system, contact Defense Electronics Supply Center, ATTN: DESC-EOP, 1507 Wilmington Pike, Dayton, OH 45444-5517, or telephone (513) 296-6141.

6.3 Ordering data. The contract should specify the following:

- a. CID document number, revision, and CID PIN.
- b. Quality assurance provisions.
- c. If a bid sample is required.
- d. Packaging requirements.

6.4 Suggested source of supply. Suggested sources of supply are listed below. Additional sources will be added as they become available. The vendors listed have submitted a certificate of compliance to DESC-ELDM and meet the market acceptability requirements of this CID.

PIN	Vendor commercial CAGE	Vendor commercial PIN
A55512-*****	56866	QTA-*****

Vendor CAGE
number

56866

Vendor name
and address

Quality Thermistor, Incorporated
2147 Centurian Place
Boise, ID 83709-2865
(208) 377-3373

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - 7FXE

Preparing Activity:

DLA-ES

Project 5905-0335