

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Dimension change (maximum length) in figure 2. Editorial changes throughout.	13-07-25	M. Radecki
B	Update Hyperlink, editorial changes throughout	19-03-15	M. Radecki



Prepared in accordance with [ASME Y14.100](#)

Selected Item Drawing

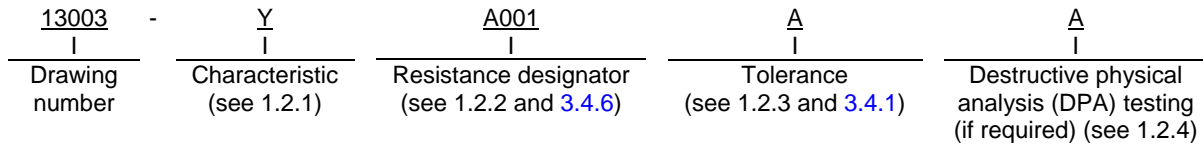
<b>REV STATUS OF PAGES</b>	<b>REV</b>	B	B	B	B	B	B											
	<b>PAGES</b>	1	2	3	4	5	6											

<b>PMIC N/A</b>	<b>PREPARED BY</b> Andrew R. Ernst	<b>DLA LAND AND MARITIME</b> <b>COLUMBUS, OHIO 43218-3990</b>	
Original date of drawing  12-12-18	<b>CHECKED BY</b> Andrew R. Ernst	<b>TITLE</b>  <b>RESISTOR NETWORK, 8 PIN, DUAL-IN-LINE PACKAGE (DIP), MULTI RESISTANCE VALUES</b>	
	<b>APPROVED BY</b> Michael Radecki		
	<b>SIZE</b> <b>A</b>	<b>CAGE CODE</b> <b>037Z3</b>	<b>DWG NO.</b>  <b>13003</b>
	<b>REV</b> <b>A</b>		<b>PAGE</b> 1 <b>OF</b> 6

1. SCOPE

1.1 Scope. This drawing describes the requirements for an 8 pin, resistor network with multi resistance values.

1.2 Part or Identifying Number (PIN). The complete PIN is as follows:



1.2.1 Characteristics. The characteristic is identified by a single letter and is in accordance with MIL-PRF-83401.

1.2.2 Resistance value. The resistance values are in accordance with MIL-PRF-83401.

1.2.2.1 Resistance value designations. The resistance value designations are as specified in table I.

TABLE I. Standard resistance values. 1/

Resistance designator	Ohmic Values			
	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>
A001	100K	2K	2K	100K
A002	100K	1K	1K	100K
A003	50K	1K	1K	50K
A004	25K	1K	1K	25K
A005	20K	1K	1K	20K
A006	10K	1K	1K	10K
A007	10K	2K	2K	10K
A008	10K	5K	5K	10K

1/ Contact DLA Land and Maritime-VAT (see 6.6) for additional resistance designator values. Four different resistance values can be supplied.

1.2.3 Resistance tolerance. For available resistance tolerances and designators, see 3.4.1.

1.2.4 DPA testing. The PIN is identified with a single letter "A" if DPA testing is a requirement of group A inspection, (see 4.2.1) and left blank if it is not a requirement.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 or 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 of documents in sections 3 or 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and 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 SPECIFICATIONS

MIL-PRF-83401 - Resistor Networks, Fixed, Film, and Capacitor-Resistor Networks, Ceramic Capacitor and Fixed Film Resistors, General Specification for.

<b>DLA LAND AND MARITIME COLUMBUS, OHIO</b>	<b>SIZE A</b>	<b>CAGE CODE 037Z3</b>	<b>DWG NO. 13003</b>
		REV B	PAGE 2

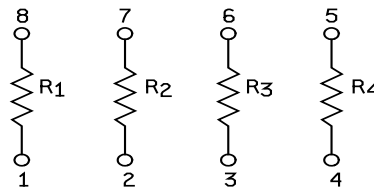
(Copies of these documents are available online at <https://quicksearch.dla.mil>.)

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, 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 Item requirements. The individual item requirements shall be in accordance with MIL-PRF-83401 and as specified herein.

3.2 Schematics. The schematic of the resistor network is in accordance with figure 1. The resistor element R1 is the reference resistor element used in determining the ratio accuracy (when applicable).



SCHEMATIC A

FIGURE 1. Resistor schematics.

3.3 Interface and physical dimensions. Resistors shall meet the interface and physical dimensions as specified in herein (see figure 2).

3.4 Electrical characteristics.

3.4.1 Resistance. The resistance values shall be 100 ohms to 1 megohm.

3.4.2 Resistance tolerance. The resistance tolerances shall be in accordance with table II

TABLE II. Resistance Tolerance.

Symbol	Resistance tolerance percent	Symbol	Resistance tolerance percent
A	± 0.05	F	± 1
B	± 0.1	G	± 2
D	± 0.5	J	± 5

3.4.3 Power rating. The power rating per schematic "A" shall be in accordance with table III

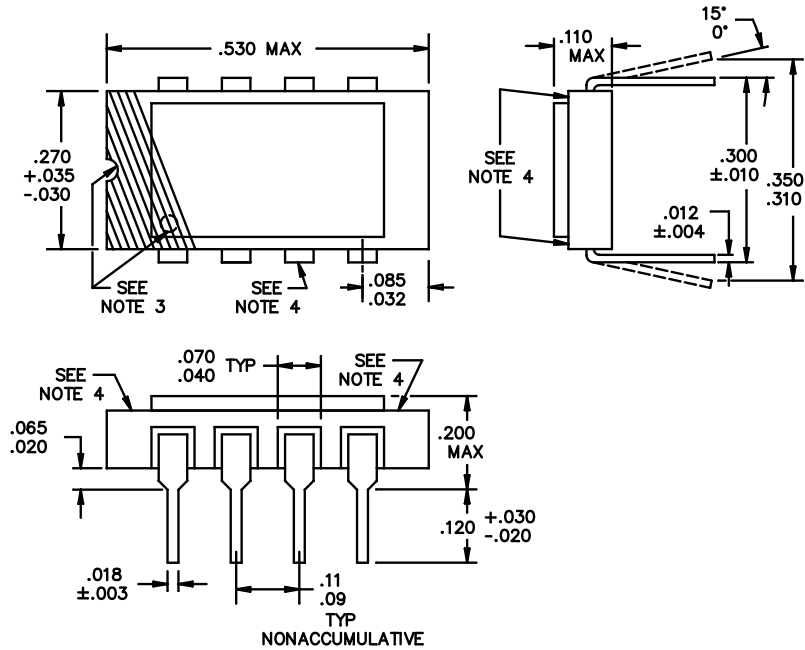
TABLE III. Power Rating

Schematic A	Power rating (in watts)	
	Element	Network
Characteristics C, R, V, and Y	0.1	0.4
Characteristics H, K, and M	0.2	0.8

3.4.4 Temperature range. The operating temperature range shall be -55°C to +125°C.

3.4.5 Resistance temperature characteristic. The resistance temperature characteristic shall be in accordance with MIL-PRF-83401.

<b>DLA LAND AND MARITIME COLUMBUS, OHIO</b>	<b>SIZE A</b>	<b>CAGE CODE 037Z3</b>	<b>DWG NO. 13003</b>
		<b>REV B</b>	<b>PAGE 3</b>



Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.003	0.08	.018	0.46	.035	0.89	.080	2.03	.120	3.05	.310	7.87
.004	0.10	.020	0.51	.040	1.02	.085	2.16	.200	5.08	.350	8.89
.010	0.25	.030	0.76	.065	1.65	.09	2.3	.270	6.86	.530	13.46
.012	0.30	.032	0.81	.070	1.78	.11	2.8	.300	7.62		

NOTES:

1. Dimensions are given in inches.
2. Metric equivalents are given for general information only.
3. Pin 1 locator shall be a dot, or a notch in the shaded area.
4. Side brazed configuration optional.

FIGURE 2. Resistor network.

3.4.6 TC tracking. The TC tracking shall be  $\pm 5$  ppm/ $^{\circ}$ C.

3.4.7 Operating voltage. The maximum operating voltage shall be 50 V dc for schematic A.

3.4.8 Destructive physical analysis (DPA). When examined as specified in 4.2.4, resistors shall meet the requirements in MIL-STD-1580.

3.5 Marking. Resistors shall be marked with the PIN assigned herein (see 1.2) and manufacturer's identification code (CAGE or logo). Pin 1 indicator shall be located adjacent to pin 1.

3.6 Pure tin. The use of pure tin, as an underplate or final finish, is prohibited both internally and externally. Tin content of resistor components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass (see 6.4).

3.7 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable or biobased materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.8 Manufacturer eligibility. To be eligible for listing as an approved source of supply, a manufacturer shall be listed on the MIL-PRF-83401 Qualified Products List for at least one part, or perform the group A and group B inspections specified herein on a sample agreed upon by the manufacturer and DLA Land and Maritime-VAT.

<b>DLA LAND AND MARITIME COLUMBUS, OHIO</b>	<b>SIZE A</b>	<b>CAGE CODE 037Z3</b>	<b>DWG NO. 13003</b>
		REV B	PAGE 4

3.8.1 Certificate of compliance. A certificate of compliance shall be required from manufacturers requesting to be listed as an approved source of supply.

3.9 Workmanship. Resistors shall be processed in such a manner as to be uniform in quality and free from defects that will affect life, serviceability, or appearance.

#### 4. VERIFICATION

4.1 Qualification inspection. Qualification inspection in accordance with [MIL-PRF-83401](#) is not applicable to this document.

4.2 Conformance inspection.

4.2.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A (M level part) and group B inspections of [MIL-PRF-83401](#). When DPA is a requirement of group A inspection a minimum of 3 pieces or 1% of the lot whichever is less but not to exceed 5 pieces sample with 0 defects allowed.

4.2.2 Certification. The acquiring activity, at its discretion, may accept a certificate of compliance with group B requirements in lieu of performing group B tests (see 6.2c).

4.2.3 Power conditioning. The power conditioning shall be performed at rated power.

4.2.4 Destructive physical analysis. (see [3.4.8](#)). Resistors shall be examined as specified in [MIL-STD-1580](#).

#### 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 activities within the Military Service or Defense Agency, or within the military service's 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 which may be helpful, but is not mandatory.)

6.1 Intended use. Resistor networks are intended to be used in electronic circuit where miniaturization is required.

6.2 Ordering data. The contract or purchase order should specify the following:

- a. Complete DLA Land and Maritime CAGE CODE and PIN (see [1.2](#)).
- b. Requirements for delivery: One copy of the conformance inspection data or a certificate of compliance that parts have passed conformance inspection with each shipment of parts by the manufacturer.
- c. Whether the manufacturer performs the group B tests or provides certification of compliance with group B requirements (see 4.2.2).
- d. Requirements for packaging and packing.

6.3 Electrostatic charge. Under several combinations of conditions, these resistors can be electrically damaged, by electrostatic charges, and drift from specified value. Users should consider this phenomena when ordering or shipping resistors. Direct shipment to the Government is controlled by [MIL-DTL-39032](#) that specifies a preventive packaging procedure.

6.4 Tin whisker growth. The use of alloys with tin content greater than 97 percent, by mass, may exhibit tin whisker growth problems after manufacture. Tin whiskers may occur anytime from a day to years after manufacture and can develop under typical operating conditions, on products that use such materials. Conformal coatings applied over top of a whisker-prone surface will not prevent the formation of tin whiskers. Alloys of 3 percent lead, by mass, have shown to inhibit the growth of tin whiskers. For additional information on this matter, refer to [ASTM-B545](#) (Standard Specification for Electrodeposited Coatings of Tin).

6.5 Pulse applications. Designers are CAUTIONED on using the above resistors in high power pulse applications. Since they have not been qualified nor tested for such applications, damage and premature failure are possible. These resistors only see a onetime pulse (Short-time overload) as part of the group B inspection of [MIL-PRF-83401](#).

<b>DLA LAND AND MARITIME COLUMBUS, OHIO</b>	<b>SIZE A</b>	<b>CAGE CODE 037Z3</b>	<b>DWG NO. 13003</b>
		REV B	PAGE 5

6.6 User of record. Coordination of this document for future revisions is coordinated only with the approved sources of supply and the users of record of this document. Requests to be added as a recorded user of this drawing may be achieved on-line at [resistor@dla.mil](mailto:resistor@dla.mil) or in writing to: DLA Land and Maritime - VAT, P.O. Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-8754 or DSN 850-8754.

6.7 Approved source of supply. Approved sources of supply are listed herein. Additional sources will be added as they become available. Assistance in the use of this drawing may be obtained on on-line at [resistor@dla.mil](mailto:resistor@dla.mil) or contact DLA Land and Maritime - VAT, P.O. Box 3990, Columbus, OH 43218-3990, or by telephone (614) 692-8754 or DSN 850-8754.

DLA Land and Maritime Drawing PIN	Vendors similar designation or type number <u>1/</u>	Vendor CAGE	Vendor's name and address
13003-*****A characteristics: Y,C, R, V res. values: 100 ohms to 1 megohms all tolerances with or without DPA testing	HD112-151UF	57489	Vishay Thin Film 2160 Liberty Drive Niagara Falls, NY 14304

1/ Parts must be purchased to the DLA Land and Maritime CAGE Code and PIN to assure that all performance requirements and tests are met.

<b>DLA LAND AND MARITIME COLUMBUS, OHIO</b>	<b>SIZE A</b>	<b>CAGE CODE 037Z3</b>	<b>DWG NO. 13003</b>
		REV B	PAGE 6