

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Add new vendors. Add new tolerances. Editorial changes throughout.	88-03-14	D. Moore
B	Add New vendor.	92-03-17	A. Westphal
C	Remove vendors. Editorial changes throughout.	99-02-12	M. Radecki
D	Revise revision letter. Editorial changes throughout.	99-07-16	W. Sindelar
E	5 year review cycle. Editorial and procedural changes throughout.	05-02-02	K. Cottongim
F	Add pure tin, manufacturer eligibility, and high power pulse paragraphs. Editorial changes throughout.	11-06-09	M. Radecki
G	Add new vendor. Editorial changes throughout.	12-04-17	M. Radecki
H	Add resistance tolerance to the part number. Remove vendor. Editorial changes throughout.	13-03-15	M. Radecki
J	Update Hyperlinks. Editorial changes throughout.	18-11-09	M. Radecki

CURRENT DESIGN ACTIVITY CAGE CODE 037Z3
 HAS CHANGED NAMES TO:
 DLA LAND AND MARITIME
 COLUMBUS, OHIO 43218-3990



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

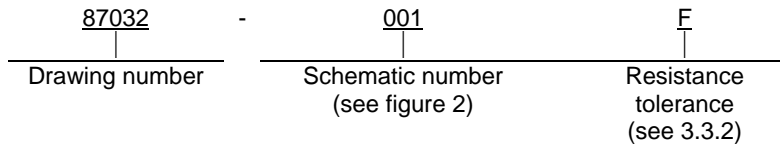
Selected item Drawing

REV STATUS OF PAGES	REV	J	J	J	J	J	J	J										
	PAGES	1	2	3	4	5	6	7										
PMIC N/A	PREPARED BY Allan R. Knox							DEFENSE ELECTRONICS SUPPLY CENTER, DAYTON, OH										
Original date of drawing 87-07-14	CHECKED BY David E. Moore							TITLE RESISTOR NETWORK, 10-PIN, SINGLE-IN-LINE PACKAGE (SIP)										
	APPROVED BY David E. Moore																	
	SIZE A	CODE IDENT. NO. 14933							DWG NO. 87032									
	REV J							PAGE 1 OF 7										

1. SCOPE

1.1 Scope. This drawing describes the requirements for a 10 pin, single-in-line package (SIP), resistor network.

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



2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards 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-83401 - Resistors Networks, Fixed, Film, and Capacitor-Resistor Networks, Ceramic Capacitor and Fixed Film Resistors, General Specification For.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-1285 - Marking of Electrical and Electronic Parts.

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

2.2 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 Item Requirements. The individual item requirements shall be as specified herein.

3.2 Interface and physical dimensions. The resistor shall meet the interface and physical dimensions as specified in [MIL-PRF-83401](#) and herein (see figure 1).

3.3 Electrical characteristics.

3.3.1 Resistance. Resistance values shall be as specified on figure 2.

3.3.2 Resistance tolerance. The resistance tolerances shall be in accordance with table I.

TABLE I. Resistance Tolerance.

Symbol	Resistance tolerance percent	Symbol	Resistance tolerance percent
B	± 0.1	G	± 2.0
D	± 0.5	J	± 5.0
F	± 1.0		

3.3.3 Individual power ratings. The power ratings for individual resistors shall be 100 milliwatts.

3.3.4 Package power ratings. The power rating for the package shall be 500 milliwatts.

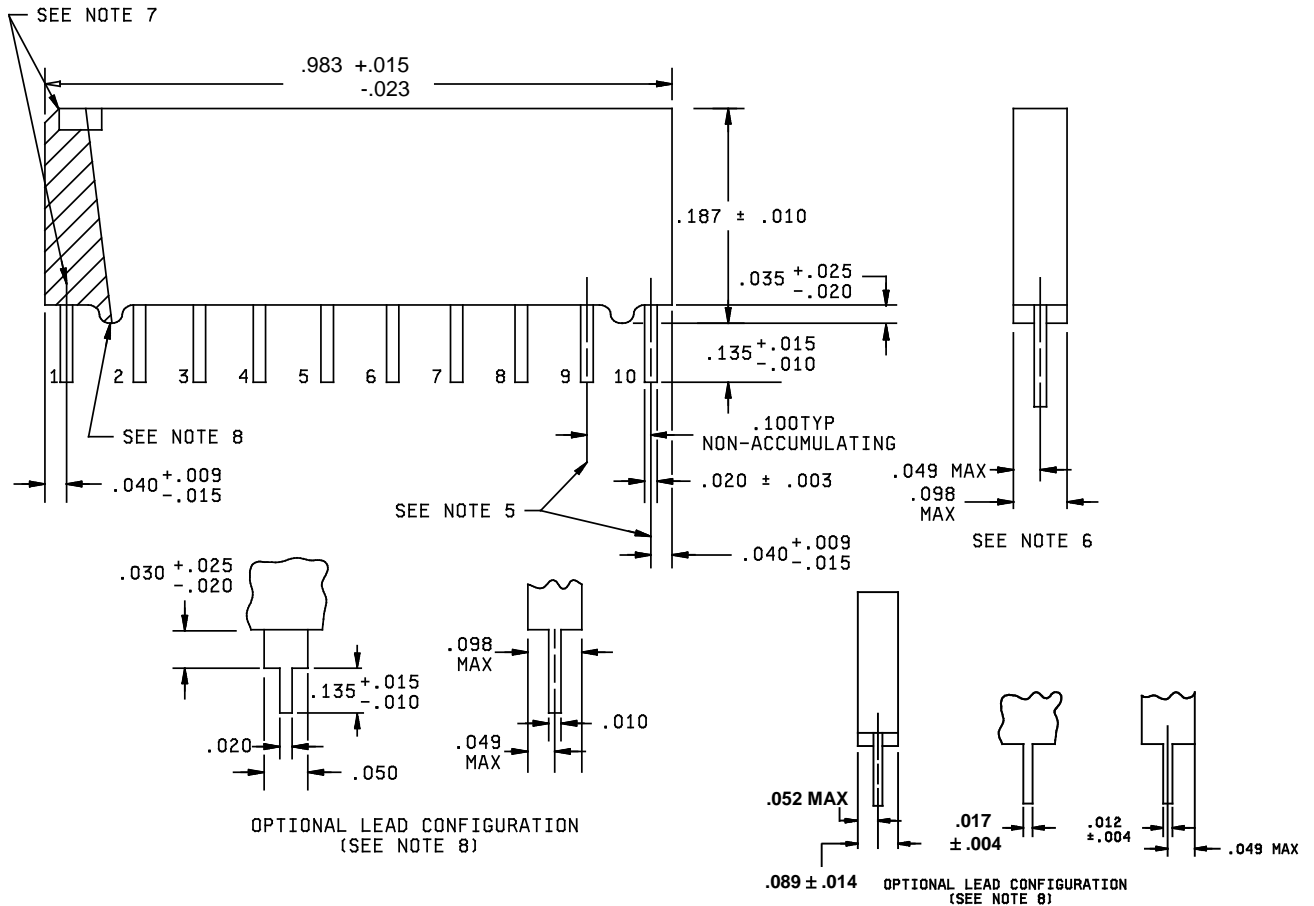
3.3.5 Voltage rating. Each resistor element shall have a maximum voltage rating of 50V dc or ac rms.

3.3.6 Characteristic. The resistor networks shall be in accordance with [MIL-PRF-83401](#), characteristic K.

DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	CAGE CODE 14933	DWG NO. 87032
		REV J	PAGE 2

3.3.7 Schematic. Resistor networks are available in schematics listed on figure 2.

3.4 Environmental characteristic. Resistor networks shall be in accordance with all the environmental characteristics of MIL-PRF-83401.



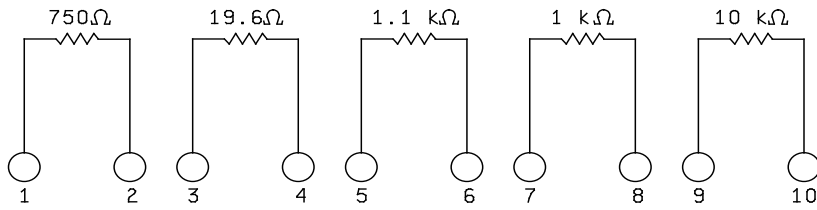
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ± 0.005 (0.13mm).
4. The pictorial view of the styles above is given as representative of the envelope of the item. Slight deviations from the outline not alter the functional aspects of the device, are acceptable.
5. Terminal centerline to centerline measurements made at point of emergence of the lead from the body.
6. Measurement made at point of emergence of the lead from the body.
7. Pin 1 locator shall be a bevel, bar or a dot above pin number 1 in the shaded area.
8. If the standoffs are located on the body, a minimum of two standoffs are required as illustrated. As an option, additional standoffs may be located on the body of the resistor network. If the leads with standoffs are used, standoffs on the body are not required.

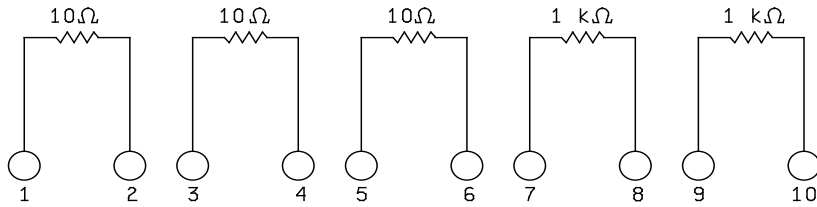
FIGURE 1. Resistor network.

DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	CAGE CODE 14933	DWG NO. 87032
		REV J	PAGE 3

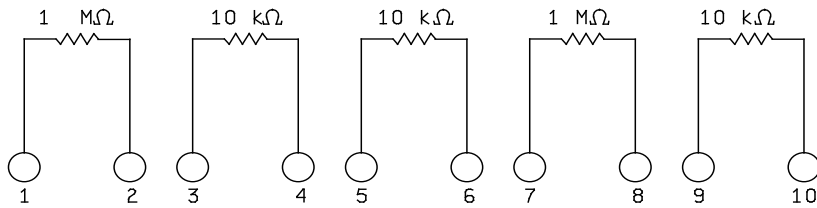
SCHMATIC 001



SCHMATIC 002



SCHMATIC 003



SCHMATIC 004

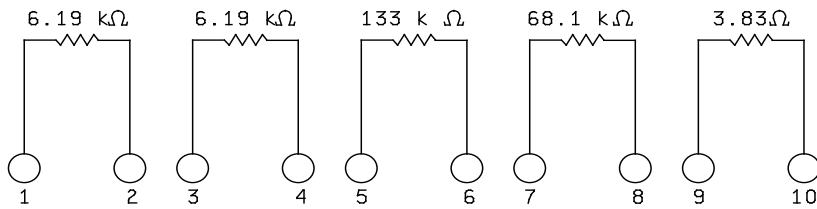
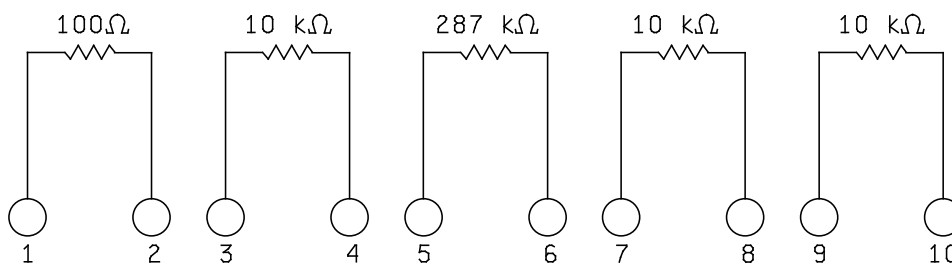


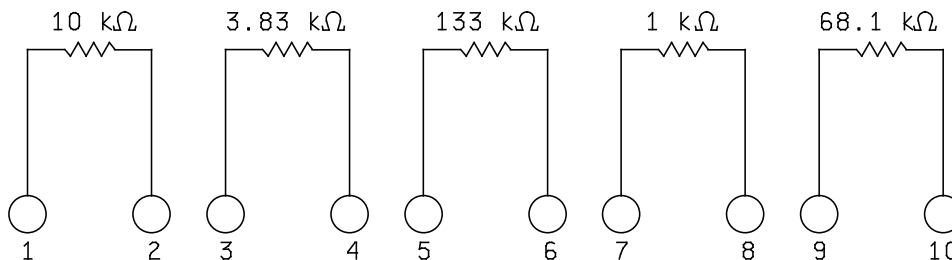
FIGURE 2. Network schematics and resistance values.

<p>DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO</p>	<p>SIZE A</p>	<p>CAGE CODE 14933</p>	<p>DWG NO. 87032</p>
		<p>REV J</p>	<p>PAGE 4</p>

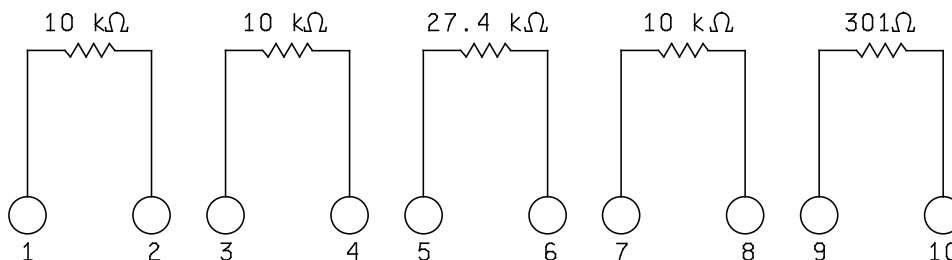
SCHEMATIC 005



SCHEMATIC 006



SCHEMATIC 007



NOTES:

1. All resistance values are in ohms.
2. Kilohms designated by k and megohms designated by M.

FIGURE 2. Network schematics and resistance values - Continued.

3.5 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).

3.6 Marking. Resistors shall be marked with the PIN assigned herein (see 1.2) and the manufacturer's CAGE code (or logo) in accordance with [MIL-STD-1285](#).

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.

DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	CAGE CODE 14933	DWG NO. 87032
		REV J	PAGE 5

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.

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

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

4. VERIFICATION

4.1 Qualification inspection. Qualification inspection 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 the group A and B inspections of [MIL-PRF-83401](#).

4.2.2 Certification. The procuring activity may accept a certificate of compliance in lieu of Group B inspection (see 6.2d).

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 material 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 Department 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. Resistors conforming to this drawing are intended for use when military specifications do not exist and qualified military devices that will perform the required function are not available for the OEM application. Resistor networks described herein are intended to be used in electrical circuits 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 certification of compliance that parts have passed conformance inspection with each shipment of parts by the manufacturer.
- c. Requirements for packaging and packing.
- d. Whether the manufacturer performs the group B tests or provides a certificate of compliance with group B requirements. If purchase order makes no reference to Group B screening the manufacturer will provide a certification of compliance (see 4.2.2).

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](#) which 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.

DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	CAGE CODE 14933	DWG NO. 87032
		REV J	PAGE 6

6.6 PIN supersession. The PIN in the original 87032 and through revision G has been superseded by a new PIN in revision H that includes a code for resistance tolerance. Table I illustrates a generic PIN substitution.

TABLE I. PIN supersession.

Revisions through G	Revision H
87032-001	87032-001F

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 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 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 87032-	Vendor similar designation or type number <u>1/</u>	Vendor CAGE	Vendor name and address
-001 thru -007 <u>2/</u>	MSM06A <u>2/</u>	91637	Vishay Dale 1122 23 rd Street Columbus, NE 68601-06097
-001, & -002; Res. Tol. F -003 thru -007; Res. Tol. B, D, & F	112-082	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.

2/ Does not manufacturer the B or D resistance tolerance.

DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	CAGE CODE 14933	DWG NO. 87032
		REV J	PAGE 7