

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Changes in accordance with NOR 5905-R008-92.	93-28-05	D. Moore
B	Correct vendor CAGE. Editorial changes throughout.	99-05-01	A. Ernst
C	Change vendor plant address. Editor changes throughout.	04-04-02	K. Cottongim
D	Add pure tin, manufacturer eligibility, and high power pulse paragraphs. Editorial changes throughout.	11-07-01	M. Radecki
E	Update Hyperlinks. Editorial changes throughout.	18-05-10	M. Radecki

CURRENT DESIGN ACTIVITY CAGE CODE 14933
HAS CHANGED TO: 037Z3

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



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

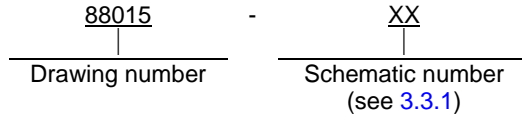
Selected Item Drawing

REV STATUS OF PAGES	REV	E	E	E	E	E	E	E	E										
	PAGES	1	2	3	4	5	6	7	8										
PMIC N/A	PREPARED BY Allan R. Knox									DEFENSE ELECTRONIC SUPPLY CENTER DAYTON, OH 45444-5000									
Original date of drawing 88-13-06	CHECKED BY David E Moore									TITLE RESISTOR NETWORK, 8-PIN, SINGLE INLINE (SIP) PACKAGE									
	APPROVED BY David E. Moore																		
	SIZE A	CAGE CODE 14933									DWG NO. 88015								
	REV E									PAGE 1 OF 8									

1. SCOPE

1.1 Scope. This drawing describes the requirements for an eight-pin, single inline 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, 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 SPECIFICATION

MIL-PRF-83401	-	Resistor Networks, Fixed, Film, And Capacitor-Resistor Networks, Ceramic Capacitor and Fixed Film Resistors, General Specification for.
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DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-1285	-	Marking of Electrical and Electronic Parts.
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(Copies of these documents are available online at <http://quicksearch.dla.mil>).

2.2 Order of precedence. Unless otherwise noted herein or 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-83401](#), and as specified herein.

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

3.3 Electrical characteristics.

3.3.1 Resistance. The resistance values shall be as specified on [figure 2](#).

3.3.2 Resistance tolerance. Resistors are available in tolerances specified in [figure 2](#).

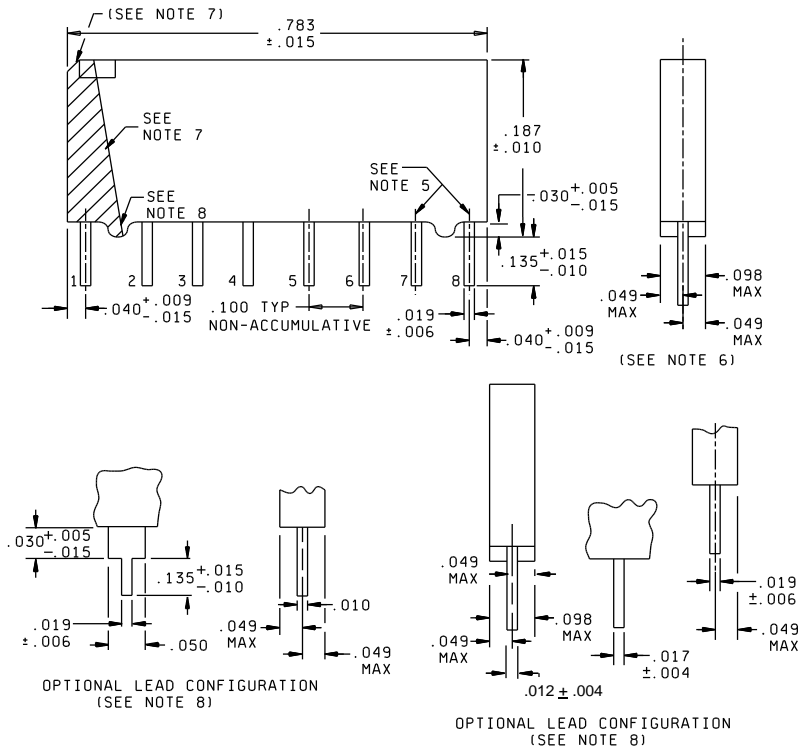
3.3.3 Schematic. Resistors are available in schematics listed in [figure 2](#).

3.3.4 Power ratings. Unless otherwise specified, the individual resistor power rating shall be 100 milliwatts at 70°C (see [figure 2](#)).

3.3.5 Package power ratings. The package power rating for resistor networks shall be 0.60 watts at 70°C.

3.3.6 Operating voltage. The maximum operating voltage shall be 50 Volts dc (see [table I](#)).

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Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.004	0.101	.009	0.228	.015	0.381	.030	0.762	.050	1.270	.135	3.429
.005	0.127	.010	0.254	.017	0.431	.040	1.016	.098	2.489	.187	4.749
.006	0.152	.012	0.304	.019	0.482	.049	1.244	.100	2.540	.783	19.888

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ± .005 (0.13mm).
4. The picturization of the styles above is representative of the envelope of the item. Slight deviations from the outline shown, which are contained within the envelope and do not alter the functional aspects of the device, are acceptable.
5. Terminal centerline to centerline measurements are made at the point of emergence of the lead from the body.
6. Measurement is made at the point of emergence of the lead from the body.
7. Pin 1 locator shall be a bevel, numeral 1 vertical bar, or a dot adjacent to pin 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 leads with standoffs are used, standoffs on the body are not required.

FIGURE 1. Resistor network.

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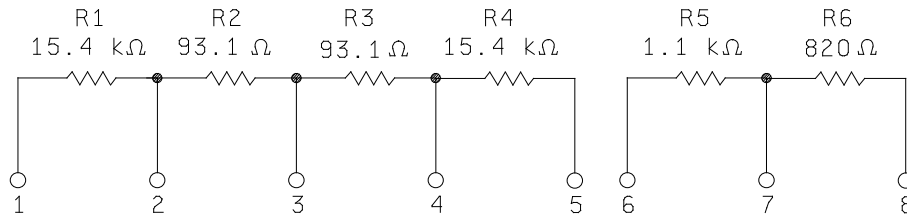
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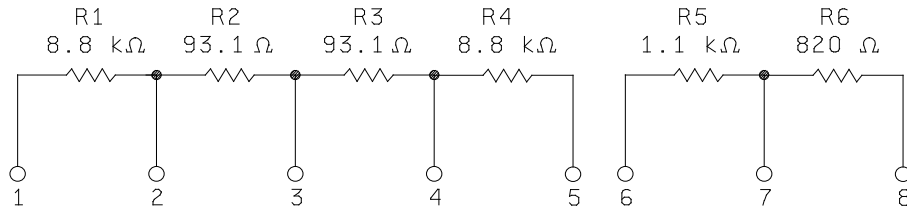
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Schematic 01



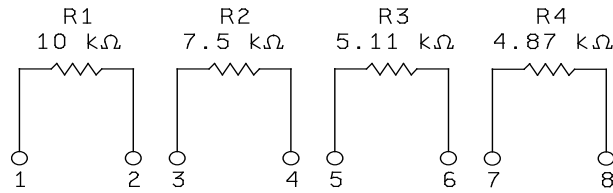
NOTE: Resistance tolerance for R1, R2, R3, R4, and R5 shall be ± 2 percent. Resistance tolerance for R6 shall be ± 5 percent.

Schematic 02



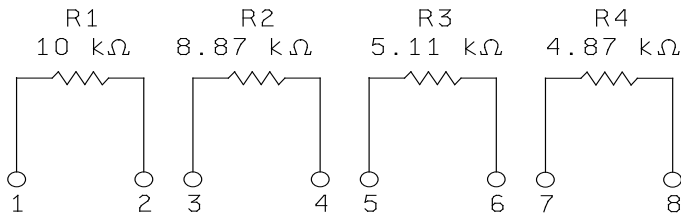
NOTE: Resistance tolerance for R1, R2, R3, R4, and R5 shall be ± 2 percent. Resistance tolerance for R6 shall be ± 5 percent.

Schematic 03



NOTE: Resistance tolerance shall be ± 1 percent.

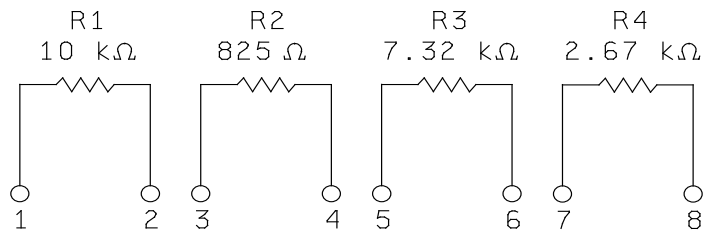
Schematic 04



NOTE: Resistance tolerance shall be ± 1 percent.

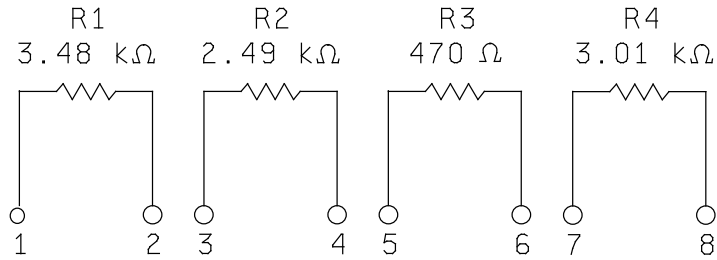
FIGURE 2. Schematic and resistance values.

Schematic 05



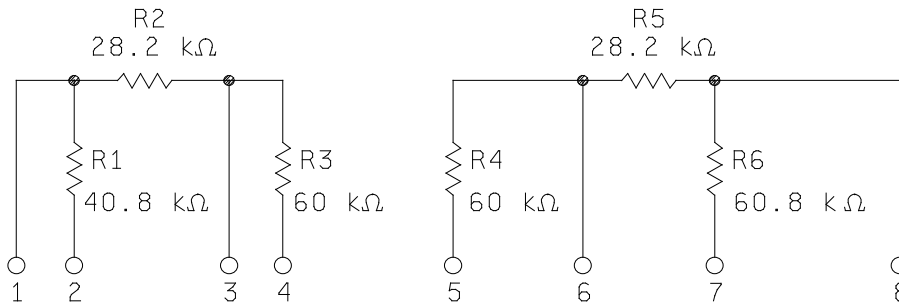
NOTE: Resistance tolerance shall be ± 1 percent.

Schematic 06



NOTE: Resistance tolerance shall be ± 1 percent.

Schematic 07



NOTES:

1. Resistance tolerance shall be ± 2 percent.
2. Power rating for R1, R2, R5, and R6 shall be 180 mW. Power rating for R3 and R4 shall be 100 mW.

FIGURE 2. Schematic and resistance values - Continued.

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TABLE I. Power conditioning pin/voltage connections.

Dash Number	Voltage <u>1/</u> <u>2/</u>							
	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
88015-01	39.0	G	3.0	G	39.0	10.5	G	9.0
88015-02	29.7	G	3.0	G	39.0	10.5	G	9.0
88015-03	31.6	G	27.4	G	22.6	G	22.0	G
88015-04	31.6	G	29.8	G	22.6	G	22.0	G
88015-05	31.6	G	9.0	G	27.0	G	16.0	G
88015-06	18.7	G	15.8	G	6.8	G	17.0	G
88015-07	G	50.0	50.0	G	G	50.0	50.0	G

1/ Values in volts dc.

2/ G = ground.

3.3.7 Temperature range. The operating temperature range shall be from -55°C to +125°C. For operation in temperatures in excess of 70°C derated in accordance with [figure 3](#).

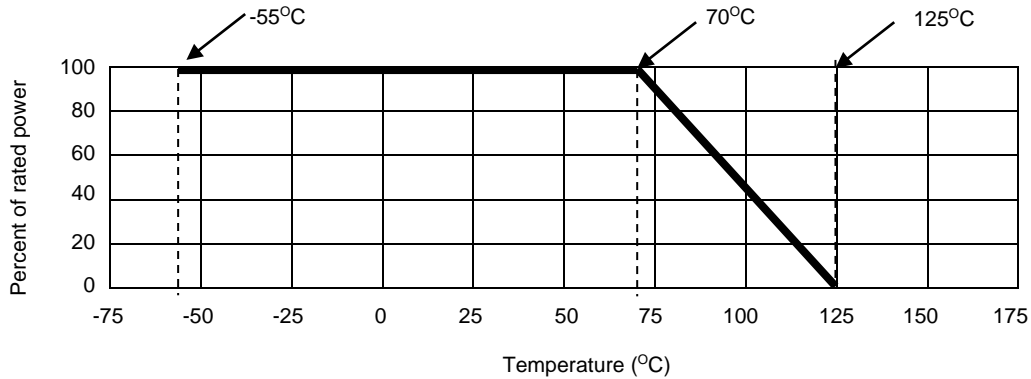


FIGURE 3. Derating curve.

3.3.8 Resistance temperature characteristic. The resistance temperature characteristic shall not exceed 100 ppm/°C for characteristic K.

3.4 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](#)).

3.5 Marking. Markings shall be in accordance with [MIL-STD-1285](#), except the part number shall be as specified in [1.2](#), with the Manufacturer's Commercial and Government Entity (CAGE) code, date and lot codes.

3.6 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.

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

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 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.

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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 group B inspection of [MIL-PRF-83401](#).

4.2.2 Certification. The procuring activity may accept a certificate of compliance in lieu of group B inspection ([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 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 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 original equipment manufacturer application.

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. Requirements for packaging and packing.
- d. Whether the manufacturer performs the group B inspection or provides a certificate 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](#) 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.

6.6 Users of record. 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.

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DLA Land and Maritime drawing PIN (see 1.2) 88015	Vendors similar designation or type number <u>1/</u>	Vendor CAGE	Vendor's name and address
-01 through -07	8L series	17826	Vishay - Techno Division 7803 Lemona Avenue Van Nuys, CA 91405-1139
-01 through -07	MSP08A-00-SXX	91637	Vishay Dale, Inc. P.O. Box 609 1122 23rd Street Columbus, NE 68602-0609 <u>PLANT:</u> Electrónica Vishay Dale de México, S.A. de CV. C. Joule No. 1920 Parque Industrial A.J. Bermúdez C.P. 32470 CD. Juárez Chihuahua, México

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.

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