

INCH-POUND
MIL-PRF-914/4A
3 July 1997
SUPERSEDING
MIL-R-914/4
12 February 1991

PERFORMANCE SPECIFICATION

RESISTOR NETWORK, FIXED, FILM, SURFACE MOUNT, 20-PIN, LEADLESS CHIP CARRIER, NONESTABLISHED RELIABILITY AND ESTABLISHED RELIABILITY, STYLE RNS040

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

1. SCOPE

1.1 Scope. This specification covers the detail requirements for RNS040 resistor networks. Resistors covered by this specification are considered a monolithic design or wire bond and die construction. The established reliability (ER) and nonestablished reliability (non-ER) styles are available in all characteristics and resistance tolerances.

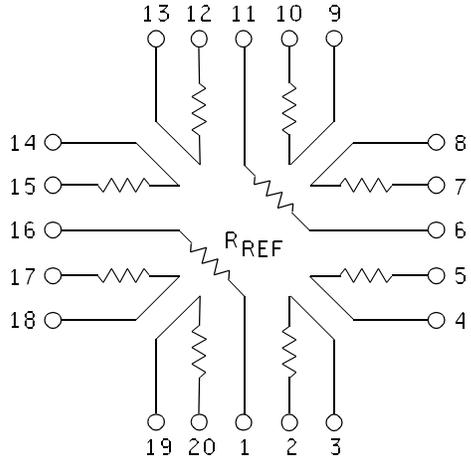
1.2 Part or Identifying Number (PIN) (see 6.4). Resistor networks covered by this specification are identified by a pin which consists of the basic number of this specification and a coded number. The military PIN is in the following form:

M914G04	H1002FSS
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Associated specification	Coded number

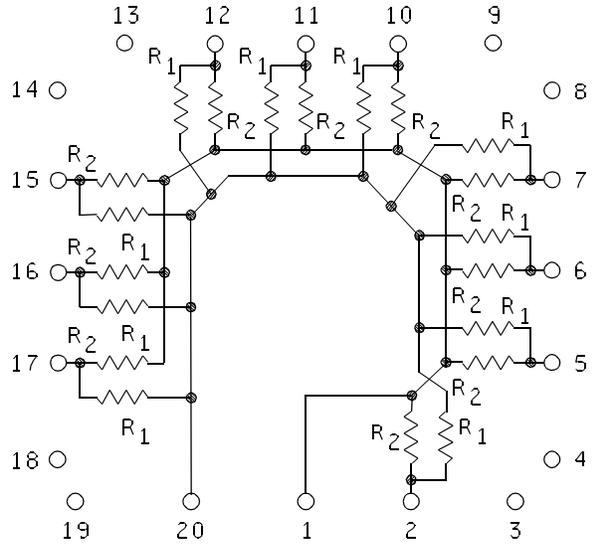
The coded number is derived in accordance with MIL-PRF-914.

1.2.1 Schematic. The schematic of the resistor network is identified by a single letter in accordance with figure 1. The resistor element R_{ref} is the reference resistor element used in determining the ratio accuracy (when applicable).

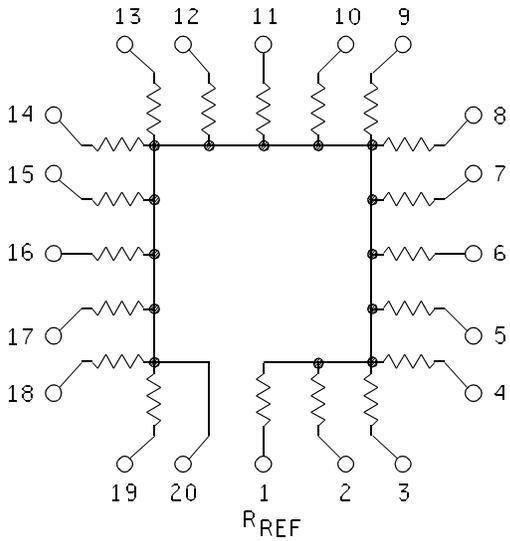
Beneficial comment (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be address to: US Army, Communication-Electronics Command, ATTN: AMSEL-LC-LEO-E-EP, Fort Monmouth, NJ 07703-5601 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.



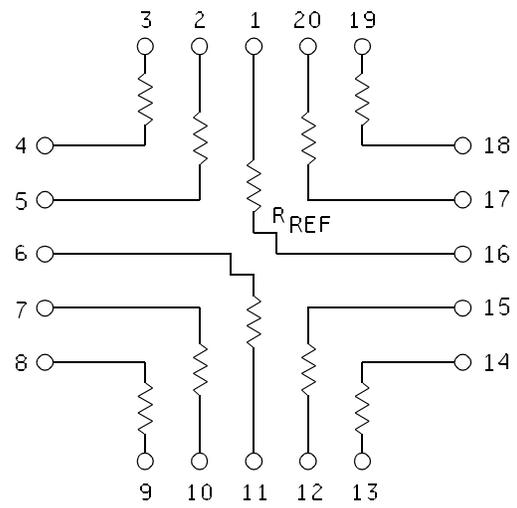
SCHEMATIC P



SCHEMATIC S



SCHEMATIC M



SCHEMATIC E

FIGURE 1. Schematics.

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 user 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.

2.2 Government documents.

2.2.1 Specification, 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 listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF DEFENSE

MIL-PRF-914 - Resistor Networks, Fixed, Film, Surface Mount, Nonestablished Reliability and Established Reliability, General Specification for.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Defense Printing Service Detachment Office, Bldg. 4D (Customer Service), 700 Robbins Avenue, Philadelphia PA 19111-5094.)

2.3 Order of precedence. 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 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-914.

3.2 Design and construction. The resistor networks shall be of the design, construction, physical dimensions specified on figure 2.

3.3 Power rating. The power ratings for schematic P, schematic M, schematic E, and schematic S shall be as specified in table I.

3.4 Power conditioning. The power applied for power conditioning for schematic P, schematic M, schematic E, and schematic S shall be one and one-half times rated power.

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

3.6 Voltage rating. The maximum voltage rating shall be 50 V dc.

3.7 Resistance range. The resistance range shall be 10 ohms to 2.2 megohms.

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3.8 Standard resistance values. The standard resistance values and the resistance designator for the "S" schematic are as specified in table II.

TABLE I. Power ratings.

Schematics	Characteristics K and M		Characteristics C, R, H, and V	
	Element (watts)	Network (watts)	Element (watts)	Network (watts)
P	0.10	1.00	0.050	0.50
M	0.05	0.95	0.025	0.475
E	0.10	1.00	0.050	0.50
S	0.05	1.00	0.025	0.50

TABLE II. Standard resistance values.

Resistance designator	R1 (ohms)	R2 (ohms)		Resistance designator	R1 (ohms)	R2 (ohms)
A001	82	130		A010	330	470
A002	120	200		A011	330	680
A003	130	210		A012	1.5 k	3.3 k
A004	160	260		A013	3 k	6.2 k
A005	180	240		A014	180	270
A006	180	390		A015	270	270
A007	220	270		A016	560	560
A008	220	330		A017	560	1.2 k
A009	330	390		A018	620	2.7 k

3.9 Resistance tolerance. Resistors are available in (B) ± 0.1 percent, (D) ± 0.5 percent, (F) ± 1.0 percent, (G) ± 2 percent, (J) ± 5 percent resistance tolerances.

3.10 Marking. Due to the size limitations, this style resistor shall be marked with the following minimum information in the order shown:

- 042K - Date code, characteristic.
- 10K0 - Coded resistance value.
- FEMJ - Tolerance, schematic, failure rate, JAN marking.

3.11 Termination. Resistors are available in termination A, termination D, and termination G for configuration A and termination B, termination E, and termination H for configuration B, termination Z, termination W, and termination T for configuration C.

4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-PRF-914.

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4.2 "S" schematic tests. For tests on "S" schematic, the dc resistance measurements, resistance temperature characteristic measurement, and short time overload application shall be made between each terminal and applicable common terminal without compensation for the shunt circuits to determine the acceptability to section 3 requirements.

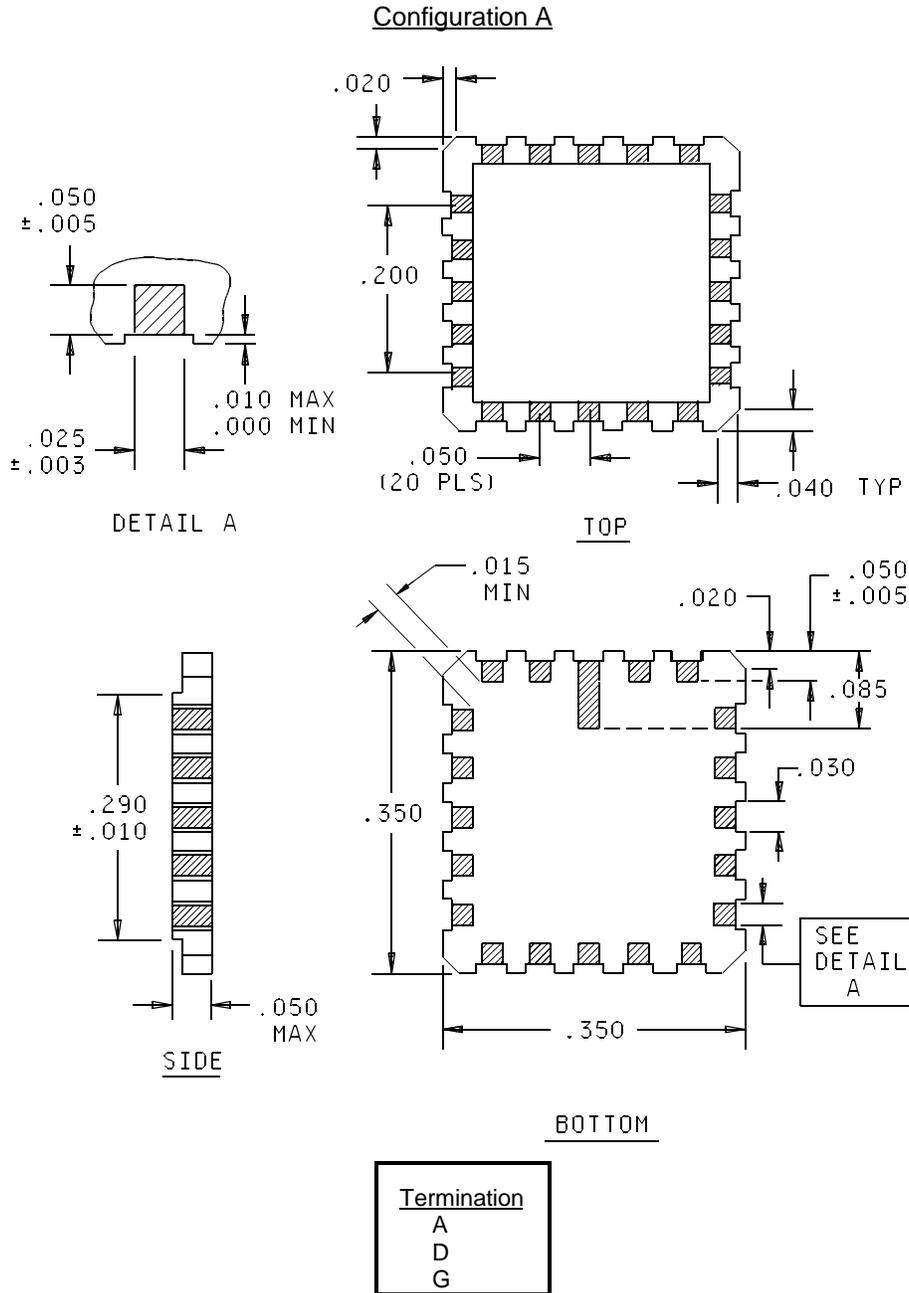


FIGURE 2. Leadless chip carrier.

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Configuration B

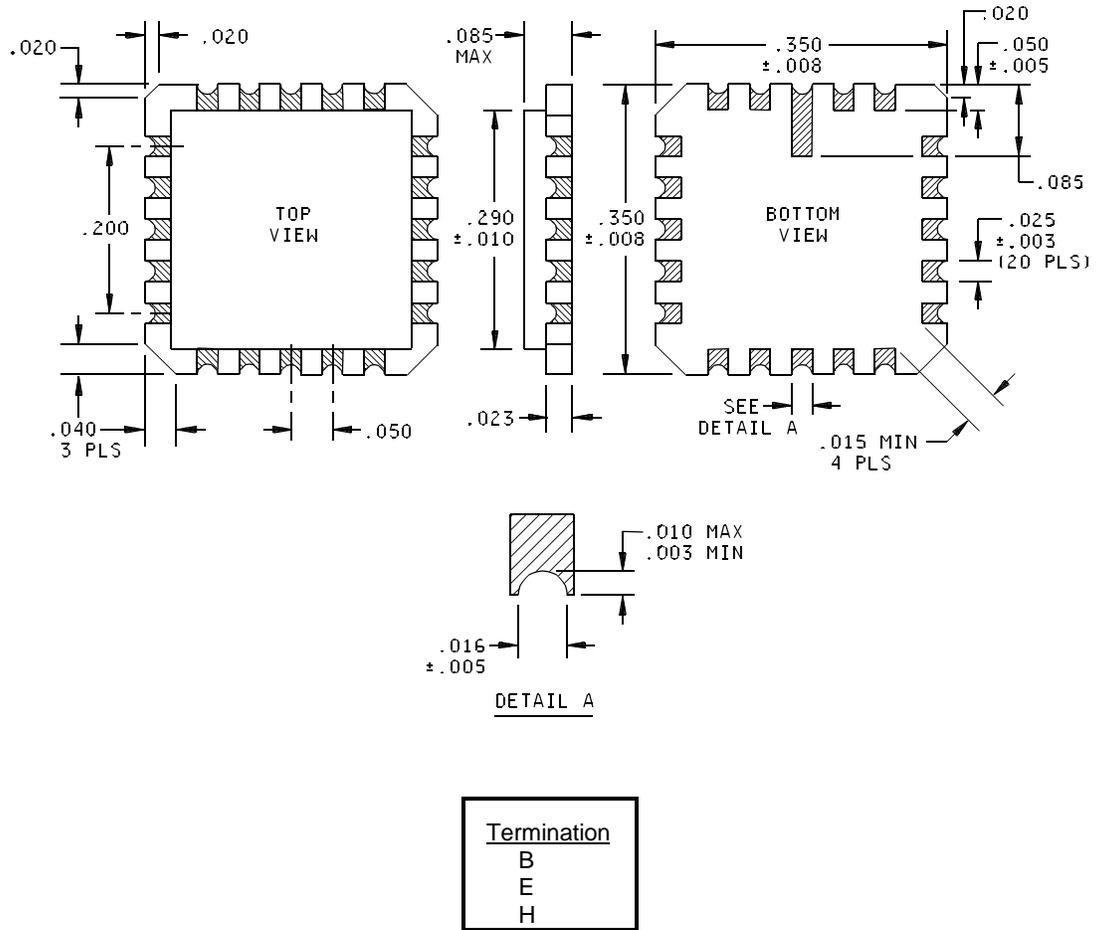


FIGURE 2. Leadless chip carrier - Continued.

5. PACKAGING

5.1 Packaging. For acquisition purposes, packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite package requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. 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 nature that may be helpful, but is not mandatory.)

6.1 Intended use. Resistor networks are used in surface mount applications where space is a major concern.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of the specification, and the complete PIN.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of the individual documents referenced (see 2.1).
- c. Packaging requirement (see 5.1).
- d. Allowable substitution.

6.3 Soldering. Extreme care should be taken when soldering these resistors. Prolonged exposure to high temperatures can damage these devices.

6.4 PIN (see 1.2). PIN is a new term encompassing terms previously used in specifications such as part number, type designator, identification number, etc.

6.5 Subject term (key word) listing.

Monolithic design
Wire bond and die construction

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

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Custodians:

Army - CR
Navy - EC
Air Force - 85

Review activities:

Army - AR, AT, AV, CR4
Navy - AS, CG, MC, OS
Air Force - 17, 19

Preparing activity:
Army - CR

Agent:
DLA - CC

(Project 5905-1444-05)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-PRF-914/4A

2. DOCUMENT DATE (YYMMDD)
3-JUL-1997

3. DOCUMENT TITLE RESISTOR NETWORK, FIXED, FILM, SURFACE MOUNT, 20-PIN, LEADLESS CHIP CARRIER, NONESTABLISHED RELIABILITY AND ESTABLISHED RELIABILITY, STYLE RNS040

4. NATURE OF CHANGE (*Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.*)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (*Last, First, Middle Initial*)

b. ORGANIZATION

c. ADDRESS (*Include Zip Code*)

d. TELEPHONE (*Include Area Code*)
(1) Commercial
(2) AUTOVON
(*if applicable*)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME

US Army Communications-Electronics Command

b. TELEPHONE (*Include Area Code*)

(1) Commercial
(908)427-3441

(2) AUTOVON
987-3441

c. ADDRESS (*Include Zip Code*)

ATTN: AMSEL-LC-LEO-E-EP
Fort Monmouth, NJ 07703-5023

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
DEFENSE QUALITY AND STANDARDIZATION OFFICE
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22401-3466
Telephone (703) 756-2340 AUTOVON 289-2340