

PERFORMANCE SPECIFICATION

RESISTORS NETWORKS, FIXED, FILM, SURFACE MOUNT,
 NONESTABLISHED RELIABILITY, AND ESTABLISHED RELIABILITY,
 GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-PRF-914A, dated 3 July 1997, and is approved for use by all Departments and Agencies of the Department of Defense.

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TABLE I, delete and substitute.

"TABLE I. Characteristics.

Test or condition	Characteristics						Units
	R	V	H	K	M	C 1/	
Resistance-temperature characteristic (see 3.13)	±25	±50	±50	±100	±300	±50	ppm/°C
Tracking to the reference element	±5	±5	<u>2/</u>	<u>2/</u>	<u>2/</u>	±5	
Maximum ambient temperature at rated wattage (see 3.6)	70	70	70	70	70	70	°C
Maximum ambient temperature at zero power derating (see figure 1)	125	125	125	125	125	125	
Thermal shock (see 3.8) and Power conditioning (see 3.9)	ΔR ±.25 $\Delta Ratio$ ±.03	±.25 ±.03	±.50 <u>3/</u>	±.70 <u>3/</u>	±.70 <u>3/</u>	±.70 <u>3/</u>	Maximum percent change in resistance (0.01 ohm additional allowed for measurement error). When applicable maximum percent change in resistance ratio.
Thermal shock (see 3.8)	ΔR ±.15 $\Delta Ratio$ ±.03	±.15 ±.03	±.25 <u>3/</u>	±.50 <u>3/</u>	±.50 <u>3/</u>	±.50 <u>3/</u>	
Low temperature operation (see 3.14)	ΔR ±.10 $\Delta Ratio$ ±.02	±.10 ±.02	±.10 <u>3/</u>	±.25 <u>3/</u>	±.50 <u>3/</u>	±.10 ±.02	
Short-time overload (see 3.15)	ΔR ±.10 $\Delta Ratio$ ±.02	±.10 ±.02	±.10 <u>3/</u>	±.25 <u>3/</u>	±.50 <u>3/</u>	±.10 ±.02	
Terminal strength (see 3.17)	ΔR ±.10 $\Delta Ratio$ ±.03	±.10 ±.03	±.25 <u>3/</u>	±.25 <u>3/</u>	±.25 <u>3/</u>	±.10 ±.03	

See footnotes at end of table.

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TABLE I. Characteristics – Continued.

Test or condition	Characteristics							Units
	R	V	H	K	M	C 1/		
Resistance to bonding exposure (see 3.20)	ΔR $\Delta Ratio$	$\pm.25$ $\pm.02$	$\pm.25$ $\pm.02$	$\pm.25$ <u>3/</u>	$\pm.25$ <u>3/</u>	$\pm.25$ <u>3/</u>	$\pm.25$ $\pm.02$	Maximum percent change in resistance (0.01 ohm additional allowed for measurement error). When applicable maximum percent change in resistance ratio.
Moisture resistance (see 3.21)	ΔR $\Delta Ratio$	$\pm.20$ $\pm.02$	$\pm.20$ $\pm.02$	$\pm.40$ <u>3/</u>	$\pm.50$ <u>3/</u>	$\pm.50$ <u>3/</u>	$\pm.20$ $\pm.02$	
Shock, specified pulse (see 3.22)	ΔR $\Delta Ratio$	$\pm.25$ $\pm.03$	$\pm.25$ $\pm.03$	$\pm.25$ <u>3/</u>	$\pm.25$ <u>3/</u>	$\pm.25$ <u>3/</u>	$\pm.25$ $\pm.03$	
Vibration, high frequency (see 3.23)	ΔR $\Delta Ratio$	$\pm.25$ $\pm.03$	$\pm.25$ $\pm.03$	$\pm.25$ <u>3/</u>	$\pm.25$ <u>3/</u>	$\pm.25$ <u>3/</u>	$\pm.25$ $\pm.03$	
Life (see 3.24.1)	ΔR $\Delta Ratio$	$\pm.50$ $\pm.03$	$\pm.50$ $\pm.03$	$\pm.50$ <u>3/</u>	$\pm.50$ <u>3/</u>	$\pm.20$ <u>3/</u>	$\pm.50$ $\pm.03$	
FR level		± 2.0	± 2.0	± 2.0	± 2.0	± 2.0	± 2.0	
High temperature Exposure (see 3.25)	ΔR $\Delta Ratio$	$\pm.10$ $\pm.03$	$\pm.10$ $\pm.03$	$\pm.20$ <u>3/</u>	$\pm.50$ <u>3/</u>	± 1.0 <u>3/</u>	$\pm.10$ $\pm.03$	
Low temperature storage (see 3.26)	ΔR $\Delta Ratio$	$\pm.10$ $\pm.02$	$\pm.10$ $\pm.02$	$\pm.10$ <u>3/</u>	$\pm.25$ <u>3/</u>	$\pm.50$ <u>3/</u>	$\pm.10$ $\pm.02$	
Steady-state humidity (see 3.28)	ΔR $\Delta Ratio$	$\pm.20$ $\pm.02$	$\pm.20$ $\pm.02$	$\pm.40$ <u>3/</u>	$\pm.50$ <u>3/</u>	$\pm.50$ <u>3/</u>	$\pm.20$ $\pm.02$	
Insulation resistance (see 3.19)		10,000	10,000	10,000	10,000	10,000	10,000	
Resistance, tolerance and, when applicable, resistance ratio accuracy (see table VIII) 4/		B D F	B D F	B D F	D F G J	F G J	B D F	\pm percent

- 1/ Hermetically sealed resistor network (see 3.27).
2/ Not applicable.
3/ Delta ratio are not applicable.
4/ See 3.10.3.

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- * TABLE II, delete footnote 2 in its entirety and references to footnote 2 in table.

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- * 2.2.1, SPECIFICATION; delete "(See supplement 1 for list of associated specifications.)" and substitute the following:

"MIL-PRF-914/3 - Resistor Network, Fixed, Film, Surface Mount, 16-Pin, Leadless Chip Carrier, Nonestablished Reliability and Established Reliability, Style RNS030.

"MIL-PRF-914/4 - Resistor Network, Fixed, Film, Surface Mount, 20-Pin, Leadless Chip Carrier, Nonestablished Reliability and Established Reliability, Style RNS040.

"MIL-PRF-914/5 - Resistor Network, Fixed, Film, Surface Mount, 16-Pin, Leadless Chip Carrier, Nonestablished Reliability and Established Reliability, Style RNS050."

- * 2.2.1, STANDARDS; delete "MIL-STD-1276 - Leads for Electronic Components Parts".

- * 2.2.1, parenthesis note; delete "Defense Printing Service Detachment Office, Bldg. 4D, (Customer Service)" and substitute "Document Automation and Production Service, Bldg. 4D, (DPM-DODSSP)".

- * 2.3, parenthesis note; delete "Defense Printing Service Detachment Office" and substitute "Documentation Automation and Production Service".

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- * 3.5.2.1, delete in its entirety and substitute:

"3.5.2.1 Solder dip (retinning) leads. The manufacturer (or authorized category B or category C distributor) may solder dip/retin the leads of the product supplied to this specification provided the solder dip process (see appendix) has been approved by the qualifying activity."

- * 3.5.2.1.1; delete in its entirety.

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- * 3.5.2.1.2; delete in its entirety.

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4.5h, delete "P" and substitute "M".

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6.2c, delete and substitute.

"c. Packaging requirements (e.g., Electrostatic discharge (ESD) sensitivity) (see 5.1)."

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After 6.4.2, add.

“6.4.3 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.”

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* A.2 APPLICABLE DOCUMENTS; delete and substitute:

“A.2 APPLICABLE DOCUMENTS

“A.2.1 General. The documents listed in this section are specified in sections 3, 4, and 5 of this appendix. The section does not include documents cited in other section of this appendix or recommended for additional information or as samples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3, 4 and 5 of this appendix whether or not they are listed.

“A.2.2 Government documents.

“A.2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this appendix 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 of the specification).

“SPECIFICATION

“DEPARTMENT OF DEFENSE

“MIL-STD-1276 - Leads for Electronic Components Parts.

“(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Document Automation and Production Service, Building 4D (DPM-DODISS), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

“A.2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications, specification sheets, or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.”

A.3.1, delete “P” and substitute “M”.

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* TABLE XIX, style column; delete “RNS010” and “RNS020” and all critical resistance value for schematic A, schematic B, schematic J, and schematic C.

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* TABLE XXII, style column; delete "RNS010" and "RNS020" and all qualify styles.

* Add Section 5 after table XXIII.

"A.5 SOLDER DIP (RETIMMING) LEADS

"A.5.1 Solder dip (retinning) leads. The manufacturer (or authorized category B or category C distributor) may solder dip/retin the leads of product supplied to this specification provided the solder dip process of this appendix or an equivalent process has been approved by the qualifying activity.

"(NOTE: Solder dip of termination A, termination B, termination C, and termination Z is not allowed).

"A.5.2 Qualifying activity approval. Approval of the solder dip process will be based on one of the following options:

- "a. When the original lead finish qualified was hot solder dip lead finish 52 of MIL-STD-1276. (NOTE: The 200 micro inch maximum thickness is not applicable). The manufacturer shall use the same solder dip process for retinning as is used in the original manufacture of the product.
- "b. When the lead originally qualified was not hot solder dip lead finish 52 of MIL-STD-1276 as prescribed in A.5.2a, approval for the process to be used for solder dip shall be based on the following test procedure:
 - "(1) Thirty samples of any resistance value for each style and lead finish are subject to the manufacturer's solder dip process. Following the solder dip process, the resistors are subjected to the dc resistance test (and other group A electricals). No defects are allowed.
 - "(2) Ten of the 30 samples are then subjected to the solderability test. No defects are allowed.
 - "(3) The remaining 20 samples are subjected to the resistance to bonding exposure test followed by the moisture resistance test. No defects are allowed.

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"A.5.3 Solder dip/retraining options. The manufacturer (or authorized category B or category C distributor) may solder dip/retin as follows:

- "a. After the 100 percent group A screening tests and before group A solderability test: Following the solder dip/retraining process, the electrical measurements required in group A, subgroup 1, 100 percent screening tests shall be repeated on 100 percent of the lot. (NOTE: The manufacturer may solder dip/retin prior to the 100 percent electrical measurements of the group A, subgroup 1 tests). The percentage defective allowable (PDA) for the electrical measurements shall be as for the subgroup 1 tests.
- "b. As a corrective action, if the lot fails the group A solderability test: The lot may be retrained no more than two times. The lot after retraining shall be 100 percent screened for group A electrical requirements (dc resistance). Any parts failing (lot not exceeding PDA for group A, subgroup 1, see 4.6.3.2.1) these screens shall not be supplied to this specification. If electrical failures exceeding 1 percent of the lot are detected after the second retraining operation, the lot shall not be supplied to this specification.
- "c. After the group A inspection has been completed: Following the solder dip/retraining process, the electrical measurements required in group A, subgroup 1, 100 percent screening test shall be repeated on 100 percent of the lot. The PDA for the electrical measurements shall be as for the subgroup 1 tests. Following these tests, the manufacturer shall submit the lot to the group A solderability test as specified in 4.6.3.2.4."

Custodians:
Army - CR
Navy - EC
Air Force - 11

Preparing activity:
Army - CR

(Project 5905-1642)

Review activities:
Army - AR, AT, AV, CR4, MI
Navy - AS, CG, MC, OS
Air Force - 19
NASA - NA