INCH-POUND
MIL-PRF-94E
AMENDMENT 4
22 MAY 1998
SUPERSEDING
AMENDMENT 3
24 OCTOBER 1997

PERFORMANCE SPECIFICATION

RESISTOR, VARIABLE, COMPOSITION
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-PRF-94E, dated 10 September 1992, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

* Beneficial comments box, delete and substitute :

"

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to Defense Supply Center, Columbus, ATTN: DSCC/VAM, 3990 East Broad Street, Columbus, OH 43213-1199, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

"

PAGE 2

TABLE IV, delete and substitute:

" TABLE IV. Style of operating shaft.

Symbol	Shaft
F	Flatted
S	Slotted

"

PAGE 3

2.1.1, SPECIFICATION, FEDERAL, delete "QQ-S-571" and its corresponding title.

2.1.1, SPECIFICATION, MILITARY, delete "MIL-R-39032" and its corresponding title.

2.1.1, STANDARD, MILITARY, delete "MIL-STD-45662" and its corresponding title.

After 2.1.1, add:

"2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

"AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

"ANSI/NCSL Z540-1 - Calibration Laboratory and Measuring and Test Equipment, General Requirements for.

"J-STD-006 - Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solder for Electronic Soldering Applications.

"INTERNATIONAL ORGANIZATION for STANDARDS (ISO)

"ISO 10012-1 - Quality Assurance Requirements for Measuring Equipment, Part 1: Meteorological Confirmation System for Measuring Equipment.

"(Applications for copies should be addressed to the American National Standards Institute, 11 West 42nd Street New York, NY 10036.) "

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3.4.5, delete "QQ-S-571" and substitute "J-STD-006".

After 3.4.5, add:

"3.4.5.1 Tin plated finished. Use of tin plating is prohibited as a finish and as an undercoat (see 6.15.1). Use of tin-lead (Sn-Pb) finishes as acceptable provided that the minimum lead content is 3 percent."

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* After 3.22, add:

"3.23 Immersion (MIL-PRF-94/7 (RV8) only). When resistors are tested as specified in 4.6.18, no more than four bubbles shall be emitted.

"3.24 Resistance to solvents (MIL-PRF-94/7 (RV8) only). When resistors are tested as specified in 4.6.19, there shall be no evidence of mechanical damage and the marking shall remain legible."

PAGE 11

4.4.4, delete and substitute:

"4.4.4 Retention of qualification. Every 6 months, the manufacturer shall compile a summary of the results of quality conformance inspections in the form of a retention of qualification report, and forward it to the qualifying activity within 30 days from the end of the reporting period as the basis of continued qualification approval. In addition, the manufacturer shall immediately notify the qualified activity whenever the group B inspection data indicates failure of the qualified product to meet the requirements of the specification. Continuation shall be based on the evidence that over a 6-month period, the following has been met:

a. The manufacturer has not modified the design of the item.

b. The specification requirements for the item have not been amended to affect the character of the item.

c. Lot rejection for group A inspection does not exceed the group A sampling plan.

d. The requirements for group B inspections are met.

When group B requirements are not met and the manufacturer has taken corrective action satisfactory to the government, group B retesting shall be instituted. A summary of the retesting shall be forwarded to the qualifying activity within 30 days after completion of the retest. All reports are to be certified by a responsible company official and government inspector. "

* TABLE IX, delete and substitute:

" TABLE IX. Qualification inspection.

Examination or test	Requirement paragraph	Method paragraph	Number of failures allowed 1/	
Group I				
Visual and mechanical examination 2/	3.1, 3.3 to 3.4.4 inclusive, 3.4.5 to 3.4.8 inclusive, 3.20 to 3.22 inclusive	4.6.1	0	
DC resistance	3.5	4.6.2		
Torque	3.6	4.6.3		
Dielectric withstanding voltage	3.7	4.6.4		
Group 1A 3/				
Immersion	3.23	4.6.18	1	
Resistance to solvents	3.24	4.6.19		
Group II				
Solderability 4/	3.28	4.6.5	1	
Group III				
Resistance to soldering heat	3.9	4.6.6		
Rotational life	3.10	4.6.7	1	
Switch life 5/	3.11	4.6.8		
Group IV				
Load life	3.12	4.6.9	1	2
Group V				
Moisture resistance	3.13	4.6.10	1	
Group VI				
Low temperature storage	3.14	4.6.11		
Low temperature operation	3.15	4.6.12	1	
Thermal shock	3.16	4.6.13		
Group VII				
Salt spray (corrosion)	3.17	4.6.14	1	
Group VIII				
Shock (specified pulse)	3.18	4.6.15	0	
Vibration, high frequency	3.19	4.6.16		
Group IX				
Fungus	3.22	4.6.17	0	

1/ Failure of a resistor in one or more tests of a group shall be charged as a single defective.
2/ Marking shall be considered defective only if the marking is illegible.
3/ Applicable only to MIL-PRF-94/7 (RV8) (see 3.1).
4/ Sample units subjected to group II shall not have been subjected to group I.

5/ Not applicable to locking bushings type resistors. “

PAGE 13

4.5.1.1, delete and substitute:

"4.5.1.1 Inspection and production lot.

"4.5.1.1.1 Inspection lot. An Inspection lot, as far as practicable, shall consist of all resistors of the same style (regardless of resistance value), produced in a period not to exceed 30 days, produced under essentially the same conditions, and offered for inspection at one time.

"4.5.1.1.2 Production lot. A production lot shall consist of all resistors of the same style, nominal resistance value, and resistance tolerance. Manufacture of all parts in the lot shall have been started, processed, assembled, and tested as a group. Lot identity shall be maintained throughout the manufacturing process."

PAGE 14

4.5.1.2.1.3.2a., after first sentence add: "Five samples shall be selected from each production lot that formed the failed inspection lot."

PAGE 15

4.5.1.2.1.3.2b., last sentence, delete and substitute: "If the lot fails this solderability test, the lot may be reworked and retested. If the lot fails a second rework, the lot shall be rejected and shall not be furnished against the requirements of this specification."

PAGE 16

TABLE XV, delete.

4.5.2, delete.

4.5.3, delete.

PAGE 17

4.6.2a, delete and substitute:

"a. Measuring apparatus: Different types of measuring test equipment (multimeter, bridges, or equivalent) are permitted to be used on the initial and final readings of this test, provided the equipment is the same style and model, or it can be shown that the performance of the equipment is equivalent. The supplier shall establish and maintain a calibration system in accordance with ANSI/NCSL Z540-1, ISO 10012-1, or equivalent system as approved by the qualifying activity. "

PAGE 23

* After 4.6.17, add:

"4.16.18 Immersion (MIL-PRF-94/7 (RV8) only) (see 3.23). Resistors shall be immersed for 1 minute ±5 seconds in water at 85°C +5°C, -0°C.

"4.6.19 Resistance to solvents (MIL-PRF-94/7 (RV8) only) (see 3.24). Resistors shall be tested in accordance with method 215 of MIL-STD-202. "

5.1, delete and substitute:

"5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite 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 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. "

PAGE 24

* 6.3, delete and substitute:

"6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Products List whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from Defense Supply Center, Columbus, ATTN: DSCC-VQP, 3990 East Broad Street, Columbus, Ohio 43216-5001. "

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6.13, end of last sentence, add: "and table XVII-1. "

After 6.13, add:

" TABLE XVII-1. Performance requirements.

Style	RV2	RV4	RV5	RV6	RV7		RV8
Maximum ambient temperature at rated wattage (see figure 6)	70°C	70°C	70°C	70°C	70°C		70°C
Maximum ambient temperature at zero rated wattage derating (see figure 6)	120°C	120°C	120°C	120°C	120°C		120°C
Power rating in watts Taper A (see 3.5.3.1) Tapers C and F (see 3.5.3.2)	 1.0 0.5	 2.0 1.0	 0.5 0.25	 0.5 0.25	 panel 0-2.0	 rear 1.6-0	 0.5 0.25
Maximum percent change in resistance							
Rotation life (see 3.10)	10	10	10	10	10		10
Load life (see 3.12)	10	10	10	10	10		10
Moisture resistance (see 3.13)	10 max	10 max	10 max	10 max	10 max		10 max
Low temperature storage (see 3.14)	2	2	2	2	2		2
Low temperature operation (see 3.15)	3	3	3	3	3		3
Thermal shock (see 3.16)	6	4	6	4	4		4
Shock (specified pulse) (see 3.18)	2	2	2	2	2		2
Vibration, high frequency (see 3.19)	2	2	2	2	2		2
Insulation resistance (after moisture resistance, see 3.13)	100 megohms	100 megohms	100 megohms	100 megohms	100 megohms		100 megohms
Resistance tolerance ± percent (see table V)	10 and 20	10 and 20	10 and 20	10 and 20	10 and 20		10 and 20

"

After 6.15, add the following:

"6.15.1 Tin plated finishes. Tin plating is prohibited (see 3.4.5.1) since it may result in tin whisker growth. Tin whisker growth could adversely affect the operation of electronic equipment systems. For additional information on this matter, refer to ASTM B545 (Standard Specification for Electrodeposited Coating of Tin)."

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

Custodians:
Army - CR
Navy - EC
Air Force - 85

Preparing activity:
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Navy - AS, MC, OS
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