INCH-POUND
MIL-PRF-39005/11B
9 October 1997
SUPERSEDING
MIL-R-39005/11A(EC)
13 January 1976

PERFORMANCE SPECIFICATION

RESISTORS, FIXED, WIRE-WOUND (ACCURATE), NONESTABLISHED RELIABILITY, AND ESTABLISHED RELIABILITY STYLES RBR80 AND RBR81

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 performance requirements for styles RBR80 and RBR81, nonestablished reliability, established reliability, accurate, wire-wound, fixed resistors.

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 users 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 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 listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.3).

SPECIFICATION

MILITARY

MIL-PRF-39005 - Resistors, Fixed, Wire-Wound (Accurate), Nonestablished Reliability, Established Reliability, General Specification for.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Defense Automated Printing Service, Building 4D (NPM DODSSP), 700 Robbins Ave., Philadelphia, PA 19111-5094.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: DSCC-VAM, 3990 E. Broad St., Columbus, OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of the basic document or by letter.

AMSC N/A FSC 5905

2.2 Order of precedence. In the event of a conflict between the text of this document and the reference 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-39005.

3.2 Interface and physical dimensions. Resistors shall meet the interface and physical dimensions specified on figure 1.

3.3 Minimum resistance value and applicable tolerance. Minimum resistance values and applicable tolerances are as follows:

Minimum resistance (ohms) 1/	Resistance tolerance (percent)
1000	T (±0.01)
100	Q (±0.02) and A (±0.05)
10	B (±0.10) and F (±1.0)

1/ Minimum resistance values are available for both styles RBR80 and RBR81, but it is preferred that style RBR81 be limited in use to resistance values exceeding 0.120 megohms.

3.4 Maximum resistance value. Maximum resistance values shall be as follows:

Resistor style	Maximum resistance 1/ (megohms)
RBR80	0.120
RBR81	0.250

1/ Based on use of 0.0006-inch or larger diameter wire.

3.5 Power rating. Power rating shall be 0.1 watt.

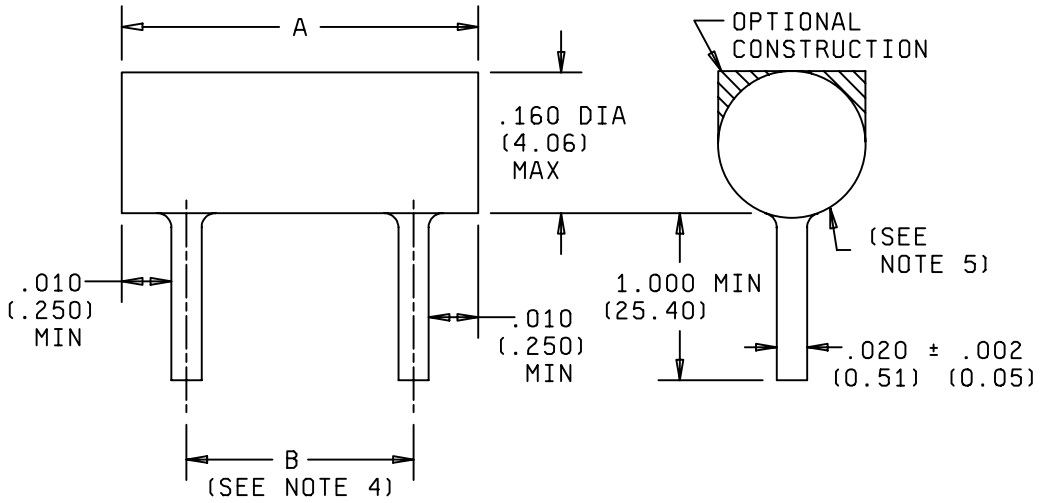
3.6 Maximum voltage. Maximum voltage shall be 100 volts direct current or peak.

3.7 Maximum weight. The maximum weight shall be 0.4 gram for style RBR80 and 0.55 gram for style RBR81.

3.8 Resistance-temperature characteristic. The resistance-temperature characteristic shall not exceed the value listed in table I.

TABLE I. Maximum resistance-temperature characteristic.

Resistance (ohms)	Parts / million /°C (PPM / °C)
Less than 100 ohms	±10
100 ohms and above	± 5



Style	A, Max	B, ±0.005 (0.13)
RBR80	0.325 (8.26)	0.225 (5.72)
RBR81	0.500 (12.70)	0.400 (10.16)

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are in parenthesis.
3. The lead measurements shall be made at the point of emergence from the body.
4. Leads are to be clean and solderable to within 0.005 (0.13mm) from the resistor body.

FIGURE 1. Style RBR80 and RBR81 resistors.

3.9 Maximum allowable reactance (see 4.3). The maximum allowable reactance shall be defined as follows:

1. For resistance values less than 500 ohms, the phase angle shall not exceed +5 degrees.
2. For resistance values 500 ohms or greater, but less than 20,000 ohms, the phase angle shall not exceed ±10 degrees.
3. For resistance values 20,0-0 ohms or greater, but less than 50,000 ohms, the effective parallel capacitance shall not exceed 4.0 pF.
4. For resistance values of 50,00 ohms or greater, the maximum effective parallel capacitance shall not exceed 6.0 pF.

3.10 Life. The maximum allowable change in resistance after 2,000 hours (qualification inspection) shall be as follows:

1. For resistance values of 10 ohms or greater, but less than 100 ohms, the change in resistance shall not exceed ±0.1 percent.
2. For resistance values of 100 ohms or greater, the change in resistance shall not exceed ±0.05 percent.

3.11 High temperature exposure. The maximum allowable change in resistance after 2,000 hours exposure to an ambient of 145°C shall be as follows:

1. For resistance values of 10 ohms or greater, but less than 100 ohms, the change in resistance shall not exceed ±0.1 percent.
2. For resistance values of 100 ohms or greater, the change in resistance shall not exceed ±0.05 percent.

3.12 Marking. Due to size limitations, style RBR80 resistor shall be marked with the following minimum information:

BR80L - Partial style and terminal designator
12701 - Coded resistance value
FMJ - Tolerance, failure rate, JAN marking
7445A - Date code, lot code

The complete marking is required on the unit package. Where manufacturers are able to provide more information, the following is preferred in the sequence presented: Style and source code.

4. VERIFICATION

4.1 Classification of inspection. The inspection requirements specified herein are classified as follows:

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-39005. In addition, following the completion of group V of table VII, the 30 samples shall be tested as specified in 4.3, herein, with zero defectives allowed.

4.3 Quality conformance inspection. Sampling and inspection shall be in accordance with MIL-PRF-39005. In addition, prior to subjection the 102 sample units to the annual group C (table X) “High temperature exposure” test, 30 of these samples (10-high value, 10-10,000 ohms, 10-low value) will be tested as specified in 4.3, herein, with zero defectives allowed.

4.4 Maximum allowable reactance. The inherent reactance shall be measured as follows:

1. Test instrument - Hewlett-Packard RX meter, model 250B; Tektronic LC meter, type 130, or any other equivalent meter.

2. Frequency range - 100 kHz to 500 kHz.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.3). 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.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Notes. The notes specified in MIL-PRF-39005 are applicable to this specification.

6.2 Supplementary insulation. Where the potential to ground is over 250 volts, supplementary insulation should be provided.

6.3 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of the specification.

b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2).

c. Packaging requirements (see 5.1).

6.4 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.

Review activity:
Navy - EC

Preparing activity:
DSCC - CC

(Project 5905-1480-03)