

NOTICE OF
CANCELLATION

INCH-POUND

MIL-R-39008/2F
NOTICE 3
9 January 2009
SUPERSEDING
NOTICE 2
18 September 1998

MILITARY SPECIFICATION

RESISTORS, FIXED, COMPOSITION (INSULATED),
ESTABLISHED RELIABILITY,
STYLE RCR20

MIL-R-39008/2, dated 23 August 1989, is hereby canceled. Future acquisitions for this item, the designer may consider the following alternatives:

For general application.

[MIL-PRF-39017/2](#) - Resistors, Fixed, Film (Insulated), Nonestablished Reliability, and Established Reliability, Style RLR20.

DSCC drawing [98021](#) - Resistor, Fixed, Film (Insulated), 1/2 Watt.

NOTE: Designers are CAUTIONED on using the above alternative superseding resistors in high power pulse applications. Since they have not been qualified nor tested for such applications, damage and premature failure are possible. These alternative resistors only see a one time pulse (Short-time overload) as part of the group B inspection of these military specifications.

For pulse applications, the following specifications may be considered. Designers are advised to carefully review the pulse capability guidelines in these specifications in connection with the application pulse environment:

DSCC drawing [03005](#) - Resistor, Fixed, Carbon Film, High Pulse Voltage, 1/2 Watt.

DSCC drawing [99001](#) - Resistor, Fixed, Ceramic Composition (Insulted).

Custodians: Preparing

Army - CR

Navy - EC

Air Force - 85

activity:

Army - CR

Agent:

DLA - CC

Reviewing activity:

Army - AR, AT, AV, CR4, MI

Navy - AS, MC, OS

Air Force - 19, 99

(Project 5905-2008-059)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil>.

AMSC N/A

FSC 5905

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

MILITARY SPECIFICATION
RESISTORS, FIXED, COMPOSITION (INSULATED),
ESTABLISHED RELIABILITY
STYLE RCR20

This amendment forms part of MIL-R-39008/2F, dated 23 August 1989,
and is approved for use by all Departments and Agencies of the
Department of Defense.

PAGE 1

*After 3.5, add the following new paragraph:

"3.6 Moisture resistance. The change in resistance shall not exceed an average of 12 percent for each group of 10 resistors tested, nor a maximum of 15 percent for any individual resistor up to and including 1 megohm. For values over 1 megohm, the change in resistance shall not exceed a maximum of 15 percent for any individual resistor."

PAGE 2

FIGURE 1, add the following new note:

"4. Lead length for new design and tape and reel packaging shall be 1.000 +0.625, -0.000 inch (25.4 +15.88, -0.00 mm)."

CONCLUDING MATERIAL

Custodians:

Army - ER
Navy - EC
Air Force - 85
NASA - NA

Preparing activity:

Army - ER

Agent:

DLA - ES

Review activities:

Army - AR, MI
Navy - AS, OS
Air Force - 11, 80
DLA - ES

(Project 5905-1213)

User activities:

Army - AT, AV, ME
Navy - MC
Air Force - 19

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MIL-R-39008/2F

23 August 1989

SUPERSEDING

MIL-R-39008/2E

30 December 1983

MILITARY SPECIFICATION

RESISTOR, FIXED, COMPOSITION (INSULATED),

ESTABLISHED RELIABILITY

STYLE RCR20

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 style RCR20 resistors.

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 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).

SPECIFICATION

MILITARY

MIL-R-39008 - Resistors, Fixed, Composition (Insulated), Established Reliability, General Specification for.

* (Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

* 2.2 Order of precedence. In the event of a conflict between the text of this document and the ~~References~~ cited herein (except for related associated detail 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.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Laboratory Command, Reliability, Logistics and Standardization Division, ATTN: SLCET-R-S, Fort Monmouth, NJ 07703-5000 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

FSC 5905

MIL-R-39008/2F

3. REQUIREMENTS

3.1 Requirements. Requirements shall be in accordance with MIL-R-39008, and as specified herein.

3.2 Design and construction. The resistor shall be of the design, construction, and physical dimensions specified on figure 1.

3.3 Power rating. The power rating shall be 1/2 watt, based on full load operation (100 percent rated wattage) at an ambient temperature of 70°C. Resistors operated at ambient temperature in excess of 70°C shall be derated in accordance with figure 2. The rated dc or rms continuous working voltage shall not exceed 350 volts.

3.4 Resistance. The minimum resistance value shall be 1.0 ohm; maximum value shall be 22 megohms.

3.5 Weight. The maximum weight of this style shall be 0.662 gram.

* 3.6 Workmanship. Workmanship shall be as specified in MIL-R-39008.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-R-39008 and as specified herein.

* 4.2 Visual and mechanical examination. Visual and mechanical examination shall be as specified in MIL-R-39008.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-R-39008.

6. NOTES

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

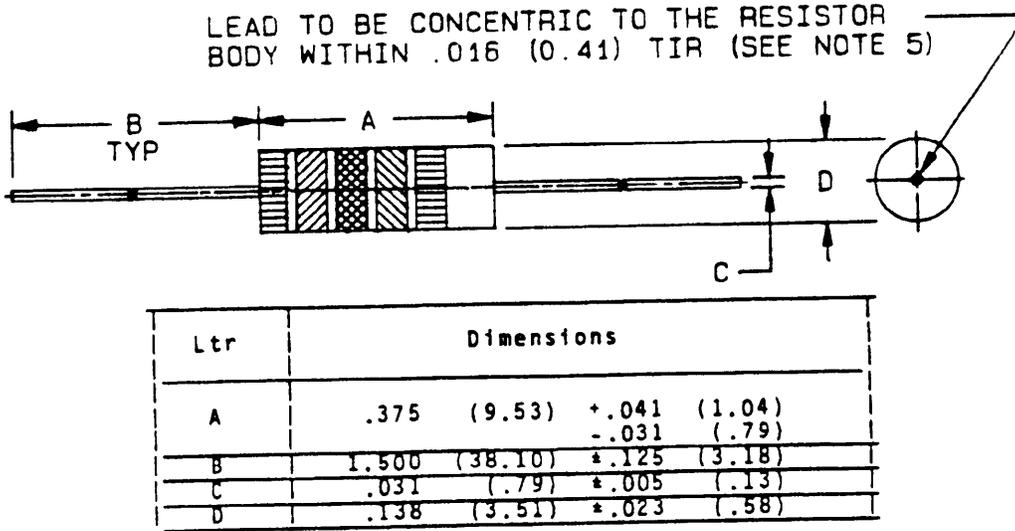
6.1 Notes. The notes specified in MIL-R-39008 are applicable to this specification.

* 6.2 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 2.1.1).

* 6.3 Power rating. It is essential that no more than 50 percent of the rated wattage be applied if the established failure rate level is to be maintained.

* 6.4 MIL-R-11 substitution data. Resistors of this specification, regardless of their failure rate designation, are substitutes for resistors of the same resistance value and tolerance specified in the inactivated specification MIL-R-11/3. In addition, these resistors of resistance tolerance "J" are substitutes for style RC22 of MIL-R-11/4 in the following resistance range: 2.7 through 3.9 ohms and 1.1 through 22 megohms inclusive. For RC22 values from 4.3 ohms through 1.0 megohm inclusive, use style RLR20, resistance tolerance "G", of MIL-R-39017/2.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are in parentheses.
3. Metric equivalents are given for general information only.
4. Lead length for new design and tape and reel packaging shall be $1.00 \pm .625, -0.000$ inch ($25.4 \pm 15.88, -0.00$ mm).
5. Lead concentric tolerance is to be measured at the point of lead egress from the resistor body.

FIGURE 1. Style RCR20 resistor.

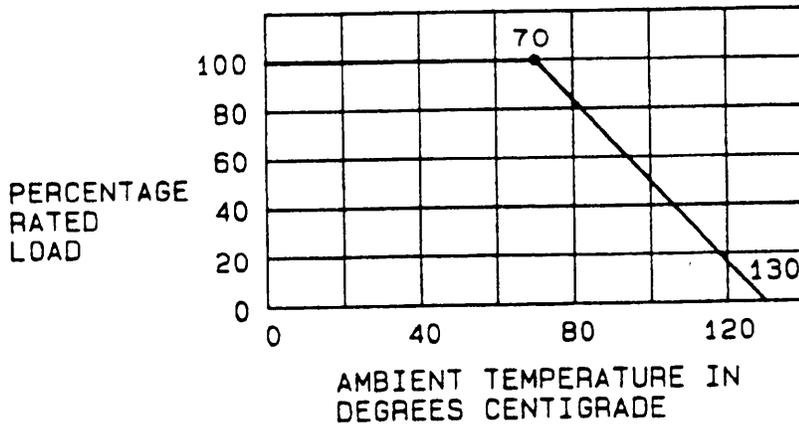


FIGURE 2. Derating curve for high ambient temperatures.

* 6.5 High frequency characteristics. Typical values of impedance to dc resistance ratio and phase angle from 100 kHz to 100 MHz are shown on figures 3 and 4 below. Circuit variations in mounting position and lead length can have a significant effect on the high frequency characteristics.

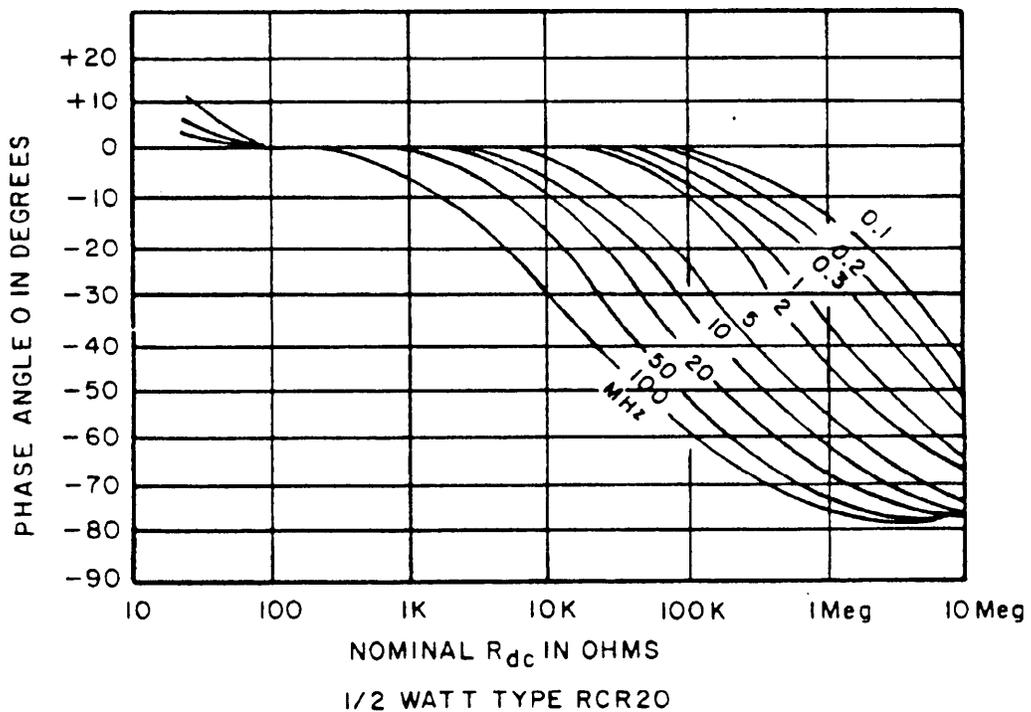


FIGURE 3. Impedance to dc resistance ratio.

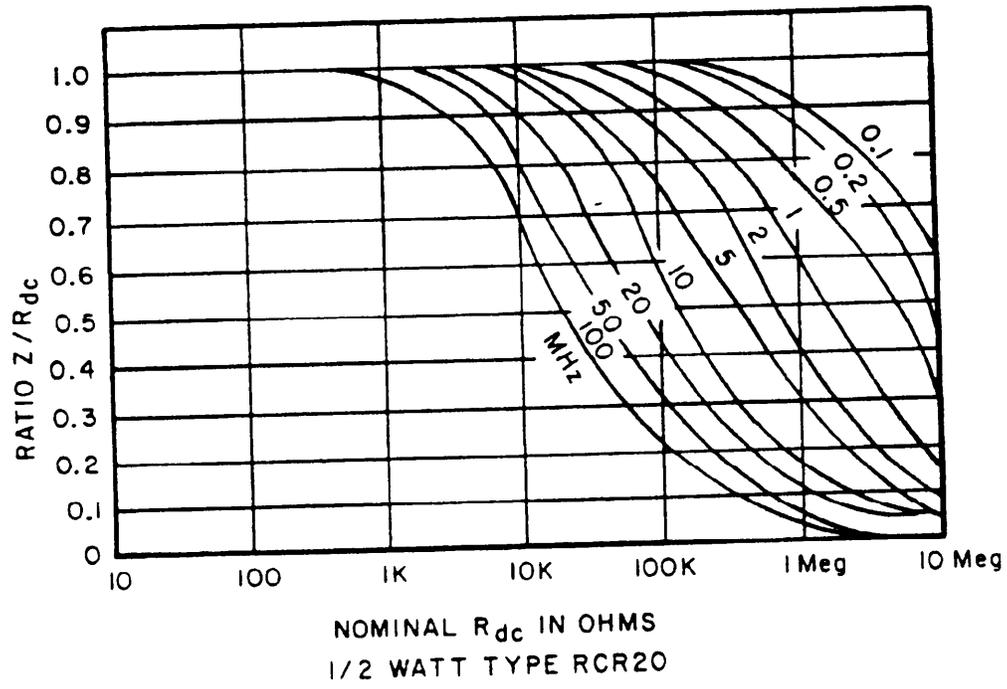


FIGURE 4. Impedance to phase angle.

MIL-R-39008/2F

* 6.6 Peak voltage and pulsed operation. When these resistors are used under low duty cycle pulse applications, the maximum permissible operating voltage is limited by breakdown instead of heating. In such applications, the peak value of the pulse shall not exceed 2.5 times rated rms working voltage or 700 volts, whichever is less.

* 6.7 Changes from previous issue. The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue 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 issue.

CONCLUDING MATERIAL

Custodians:

Army - ER
Navy - EC
Air Force - 85

Review activities:

Army - AR, MI
Navy - AS, OS, TD
Air Force - 17, 99
DLA - ES

User activities:

Army - AT, AV, ME
Navy - MC
Air Force - 19

Preparing activity:

Army - ER

Agent:

DLA - ES

(Project 5905-1155-2)