

MILITARY SPECIFICATION

FUSE, CARTRIDGE, INSTRUMENT TYPE,
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-F-23419E, dated 1 August 1992,
and is approved for use by all Departments and Agencies of the
Department of Defense

PAGE 1

Beneficial comments, line three, delete "DESC-EMM" and "45444-5283" and substitute "DESC-ELDM"
and "45444-5765"

PAGE 2

* 2 1 1, SPECIFICATIONS, FEDERAL, delete in its entirety and substitute

- "J-C-30 - Cable and Wire, Electrical (Power, Fixed Installation)
- "QQ-N-290 - Nickel Plating (Electrodeposited).
- "QQ-S-365 - Silver Plating, Electrodeposited General Requirements for "

* 2 1 1, SPECIFICATIONS, MILITARY, delete in its entirety and substitute

- "MIL-T-10727 - Tin Plating, Electrodeposited or Hot-Dipped, for Ferrous and Nonferrous Metals
- "MIL-F-14256 - Flux, Soldering, Liquid (Rosin Base)
- "MIL-G-45204 - Gold Plating, Electrodeposited "

* 2 1 1, STANDARDS, MILITARY, delete in its entirety and substitute

- "MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts
- "MIL-STD-790 - Standard Practice for Established Reliability and High Reliability Qualified Products List (QPL) Systems for Electrical, Electronic and Fiber Optic Parts Specifications
- "MIL-STD-1285 - Marking of Electrical and Electronic Parts "

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Following 2 1 1, add

"2 1 2 Other Government documents, drawings, and publications The following other Government documents, drawings, and publications form a part of this document to the extent specified herein Unless otherwise specified, the issues are those cited in the solicitation

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NASA Reference Publication 1124 - Outgassing Data for Selecting Spacecraft Materials

(Application for copies should be addressed to the NASA/Electronic Packaging and Processes Branch, NASA Goddard Space Flight Center, Code 312, Greenbelt, MD 20771)"

PAGE 3

* 2 2, ASTM standards, delete in its entirety and substitute

"AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E595 - Standard Test Method for Total Mass Loss and Collected Volatile Condensable Materials from Outgassing in a Vacuum Environment

(Application for copies should be addressed to the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Conshohocken, PA 19428-2959, Telephone (610) 832-9500, Fax (610) 832-9555)"

"AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/NCSL Z540-1 - Calibration Laboratories and Measuring and Test Equipment - General Requirements

"INTERNATIONAL ORGANIZATION FOR STANDARDS (ISO)

ISO 10012-1 - Quality assurance requirements for measuring equipment - Part 1 Metrological confirmation system for measuring equipment

(Application for copies should be addressed to the American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036-8002, Telephone (212) 642-4900, Fax (212) 302-1286)"

* 2 2, "UNDERWRITERS LABORATORIES INC (UL)", delete in its entirety and all corresponding information

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* 3 4 1 through 3 4 4, delete in their entirety

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PAGE 5

- * 3 5 5 1, delete and substitute

"3 5 5 1 Silver plating Silver plating shall be in accordance with QQ-S-365, or equivalent as approved by the qualifying activity, and shall be 99.9 percent pure silver, not coin silver. It shall be not less than 0.0008 inch (0.0020 mm) thick. When silver plating is specified (see 1 2 1 5), the letter "S" shall be added as a suffix to the type designation."

- * 3 5 5 2, after "QQ-N-290" add ", or equivalent as approved by the qualifying activity."

- * 3 5 5 4, delete and substitute

"3 5 5 4 Tin plating or coating Tin plating or coating shall conform to MIL-T-10727, or equivalent as approved by the qualifying activity, except the minimum lead content shall be 3 percent. (NOTE: Use of pure tin plating is prohibited as a final finish and as an undercoat effective 6 months from the date of this specification (see 6 8).)"

- * 3 5 5 5, after "MIL-G-45204" add ", or equivalent as approved by the qualifying activity."

PAGE 6

- * 3 11 through 3 11 2, delete in their entirety

3 12, last line, delete and substitute

"Collected volatile condensable material (CVCM)—Shall not exceed 0.1 percent

Materials data listed in the latest revision of the NASA Reference Publication 1124 which meet these TML and CVCM requirements may be substituted in lieu of testing."

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- * 3 20 2 through 3.20 2 4, delete in their entirety

PAGE 8

- * 4 1 2, delete and substitute

"4 1 2 Test equipment and inspection facilities The manufacturer 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."

- * 4 2a, delete in its entirety

- * 4 3, delete in its entirety

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- * TABLE II, delete in its entirety
- * 4 5 4b, delete "12-month period" and substitute "36-month period"

PAGE 10

- * TABLE III, Group II, delete "Maximum clearing current I²t (when specified)" and "Insulation resistance" and all corresponding information

TABLE III, Group III, after "Short circuit" add

"Maximum clearing current I²t (when specified) | 3 10 2 | 4 8 6 2 |"

- * TABLE III, Groups III, V, and VI, delete "Insulation resistance" and all corresponding information

PAGE 12

- * TABLE V, delete in its entirety
- * TABLE VI, delete and substitute

"TABLE VI Groups A and B, zero defect sampling plan

Lot size	Sample size	
	Group A, subgroup 2	Group B
1 to 13	100 percent	5
14 to 50	13	5
51 to 90	13	7
91 to 150	13	11
151 to 280	20	13
281 to 500	29	16
501 to 1,200	34	19
1,201 to 3,200	42	23
3,201 to 10,000	50	29

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- * TABLE VII, delete "Insulation resistance" and all corresponding information
- * 4 7 2 1 1, first line, after "minimum" add, "current", second line, delete "24 months" and substitute "36 months", third line delete "and after each subsequent 36-month period"

PAGE 14

- * TABLE VIII, Subgroup 1, delete "Insulation resistance" and all corresponding information, after "Short Circuit" add

"Maximum clearing current I²t (when specified) | 3 10 2 | 4 8 6 2 |"

- * TABLE VIII, Subgroup 2, delete "Maximum clearing current I²t (when specified)" and "Insulation resistance" and all corresponding information
- * TABLE VIII, Subgroup 4, delete "Insulation resistance" and all corresponding information

PAGE 15

4 8 4, delete and substitute

"4 8 4 Current-carrying capacity (see 3.8) Unless otherwise specified (see 3 1), fuses shall be subjected to an alternating or direct current of 100 percent of rated current, and shall be mounted in a fuseholder as specified (see 3 1)

For qualification inspection (group I), the samples shall be apportioned and submitted to the test at -55°C to -60°C, at +20°C to +35°C (room ambient temperature), and at the maximum rated temperature for the fuse (see 3 1) The tolerance at the maximum rated temperature shall be -0°C and +5°C

For group B, the inspection shall be done only at +20°C to +35°C (room ambient temperature) The test current shall be as specified (see 3 1) The current shall be maintained for 30 minutes after the temperature of each fuse has stabilized, but shall be applied for not less than 1 5 hours It may be assumed that the temperature has stabilized when three consecutive temperature readings taken at 10-minute intervals show no rise in temperature

When two or more fuses are tested in series, the fuseholders shall be located so that there will be a spacing, as specified in table IX, between any two fuses under test The wire connecting the fuseholders together and connecting the fuseholders to the ammeter and the source of supply shall be as specified in table IX, (unless otherwise specified), and shall be in accordance with J-C-30 The length of wire between fuseholders shall be as specified in table IX The temperature of the fuse case or body and of the terminals shall be measured by thermocouples (wire size 28 to 32 AWG) "

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TABLE IX, delete and substitute

"TABLE IX Current-carrying capacity test set-up

Fuse current rating	Spacing (mm)	Wire size	Length (mm)
> 15 amperes	> 6 inches (152 4)	8 AWG	2 feet (609 6)
≤ 15 amperes	> 1 inch (25 4)	14 AWG	6 inches (152 4)

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- * 4 8 7, delete in its entirety
- * 4 8 6 1, last sentence, delete
- * 4 8 6 3, last sentence, delete

PAGE 18

- * 5 through 5 4 2 inclusive, delete and substitute

"5 PACKAGING

"5 1 Packaging The requirements for packaging shall be in accordance with the contract or purchase order (see 6 2) "

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- * 6 2d through 6 2f, delete and substitute

"d Requirements for packaging (see 5 1)

"e Special marking, if required (see 5 1) "

- * 6 3, last sentence, delete and substitute "The activity responsible for the Qualified Products List is Commander, Defense Electronics Supply Center, ATTN DESC-ELSP, 1507 Wilmington Pike, Dayton, Ohio, 45444-5764, phone (513) 296-6277"

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Following 6.8, add

"6.9 Tin plated finishes Tin plating is prohibited (see 3.5.5.4) 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 from the previous amendment were made. This was done as a convenience only and 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.

CONCLUDING MATERIAL

Custodians

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

Preparing activity
DLA - ES

(Project 5920-0526)

Review activities

Army - AR, ME, MI
Air Force - 19
Navy - OS, SH
NSA - NS