INCH-POUND

MIL-C-39014E
AMENDMENT 3
21 April 1993
SUPERSEDING
AMENDMENT 2
28 January 1993

MILITARY SPECIFICATION

CAPACITOR, FIXED, CERAMIC DIELECTRIC
(GENERAL PURPOSE)
ESTABLISHED RELIABILITY
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-39014E, dated 4 December 1990, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 3

* 3.3.2.1, add the following sentence to the end of the paragraph: "In addition, the manufacturer shall demonstrate control of the temperature coefficient of capacitance and lead integrity in the process."

PAGE 5

3.6, Dielectric withstanding voltage (at 25°C test), add the following: "Not applicable if optional voltage conditioning was performed at or above 250 percent of rated voltage."

PAGE 14

4.4.4.1c, add the following: "Styles in a group (see 4.6.1.1.1) may be combined for FR levels 'R' and 'S'; however, at least FR level 'P' must be maintained on each style with the exception of those styles listed in group 5. The styles in group 5 may be combined for the 'P' FR level and the 'M' FR level. Styles in groups 1 and 2 may be combined for levels 'R' and 'S'; however at least failure rate level 'P' must be maintained on each style."

4.4.4.2, second sentence, delete in its entirety and substitute: "The PPM defect level shall be maintained in accordance with the style groupings listed in 4.6.1.1.1."

4.5g, last sentence, delete in its entirety and substitute: "This information shall be submitted in accordance with the style groupings listed in 4.6.1.1.1."

PAGE 15

4.6.1.1.1, paragraph following style groupings: Delete in its entirety.

PAGE 16

* TABLE III, subgroup 2, delete "when specified" and substitute "only".

* TABLE III, subgroup 3, insulation resistance, delete "4.7.6" and substitute "4.7.7.

* TABLE III, subgroup 3, dissipation factor, delete "4.7.5" and substitute "4.7.4".

* TABLE III, subgroup 3, capacitance, delete "4.7.4" and substitute "4.7.3".

* TABLE III, subgroup 3, after Mechanical examination insert "(physical dimensions only)(PPM-3)".

* TABLE III, subgroup 3, delete "Design and construction 3.5 4.7.2"

* TABLE III, subgroup 3, delete "Dimensions only (PPM-3) 3.5 4.7.1"

* TABLE III, subgroup 4, delete "Physical dimensions 3.1"

* TABLE III, subgroup 6, delete in its entirety.

* TABLE III, footnote 3, delete in its entirety.

* TABLE IV, delete in its entirety and substitute:

"TABLE IV. Sampling plans for PPM categories.

Lot size	Sample Size	
	PPM-2	PPM-3
1 - 13	100%	100%
14 - 125	100%	13
126 - 150	125	13
151 - 280	125	20
281 - 500	125	29
501 - 1,200	125	34
1,201 - 3,200	125	42
3,201 - 10,000	192	50
10,001 - 35,000	294	60
35,001 - 150,000	294	74
150,001 - 500,000	345	90
500,001 - UP	435	102

"

* TABLE V, delete in its entirety and substitute:

"TABLE V. Group B inspection.

Inspection	Requirement paragraph	Test method paragraph	Number of sample units to be inspected	Number of defectives permitted 1/
Every 2 months				
Subgroup 1				
Voltage-temperature limits 2/	3.14	4.7.10.2	18	1
Vibration, high frequency 3/	3.15	4.7.11		
Immersion 3/	3.16	4.7.12		
Salt spray (corrosion) (Style CKR72) 3/	3.17	4.7.13		
Subgroup 2 4/				1
Shock, specified pulse 3/	3.18	4.7.14	18	1
Terminal strength 3/, 5/	3.19	4.7.15		
Resistance to soldering heat	3.22	4.7.18		
Moisture resistance	3.20	4.7.16		
Subgroup 3				
Marking legibility (laser marking only) 3/	3.27.1	4.7.1.1	4	0
Resistance to solvents 3/	3.23	4.7.19		
Subgroup 4				
Life (4,000 hours accelerated conditions)	3.24	4.7.20.2.1	5 minimum per style	See 4.6.2.1.1.2
Subgroup 5				
Life (accelerated condition at 85°C) (style CKR13 only)	3.24	4.7.20.2.2	24	1

1/ A sample unit having one or more defects shall be charged as a single defective.

2/ If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, the frequency of this test, with the approval of the qualifying activity can be performed on an annual basis. If the design, material, construction or processing of the part is changed or, if there are any quality problems or failures, the qualifying activity may require resumption of the original test frequency.

3/ If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, this, with the approval of the qualifying activity, can be deleted. The manufacturer, however, shall perform this test every three years after the deletion as part of long term design verification. If the design, material, construction or processing of the part is changed or, if there are any quality problems, the qualifying activity amy require resumption of the specified testing. Deletion of testing does not relieve the manufacturer from meeting the test requirement in case of dispute.

4/ Moisture resistance test shall be performed once only in this subgroup.

5/ Applicable unless otherwise specified, (see 3.1)."

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* 4.6.2.1.1.1, delete in its entirety and substitute:

"4.6.2.1.1.1 Subgroups 1 through 3. Forty sample units shall be taken from production every 2 months and subjected to the applicable tests for their particular subgroup. Permitted failures shall be as specified in table V."

* 4.6.2.1.1.2, title, delete "Subgroup 5" and substitute "Subgroup 4".

* 4.6.2.1.1.3, title, delete "Subgroup 6" and substitute "Subgroup 5".

* 4.6.2.1.1.3, third line, delete "subgroup 6" and substitute "subgroup 5".

PAGE 23

4.7.2.2.2, title, add the following: "(Capacitors with voltage ratings of 200 volts or less only.)"

PAGE 25

4.7.10.1, delete in its entirety and substitute:

"4.7.10.1 For qualification inspection. The temperature of each capacitor shall be varied as specified in table VI. Capacitance measurements shall be made at the frequency and voltage specified in 4.7.3a and 4.7.3b. The dc rated voltage need only be applied to the capacitor in each of steps E through G until voltage stability is reached and the capacitance measurement is made. Capacitance measurements shall be made at each step specified in table VI and at a sufficient number of intermediate points between steps B and G to establish a true characteristic curve. Capacitance measurements at each temperature shall be taken at 5-minute intervals and shall be stopped and recorded when two successive readings indicate a capacitance change of less than one percent."

PAGE 28

4.7.20.1b, delete in its entirety and substitute:

"b. Operating conditions - Capacitors shall be subjected to the applicable high-test temperature, +4, -0°C (see 3.1) at 200, ±2 percent of the dc rated voltage."

4.7.20.1c, delete in its entirety and substitute:

"c. Operating conditions - Capacitors tested under rated conditions shall be subjected to the dc rated voltage, ±2 percent."

PAGE 35

6.2, add the following subparagraph:

"h. Insulating coating limits of less than .018 inch (0.46 mm) for MIL-C-39014/1 and MIL-C-39014/2 capacitors are negotiable with the manufacture."

The margin 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.

CONCLUDING MATERIAL

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

Review activities:
Army - AR, MI
Air Force - 99
DLA - ES

User activities:
Army - AT, AV, MI
Navy - MC
Air Force - 19

Preparing activity:
Army - ER

Agent:
DLA - ES

(Project 5910-1850)