

MILITARY SPECIFICATION

CAPACITORS, FIXED, PLASTIC (OR METALLIZED PLASTIC) DIELECTRIC,
DC OR DC-AC, IN NONMETAL CASES, ESTABLISHED RELIABILITY
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-55514C, dated 31 March 1992, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 4

Following MILITARY STANDARDS parenthetical statement, delete and substitute:

"(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)"

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3.3.2.2, delete and substitute:

"3.3.2.2 Quality levels. The quality of lots that have been subjected to and passed the subgroup 1, 100 percent screening inspection of the group A inspection shall be established and maintained in accordance with 4.4.4.2 and EIA-554, method B. Individual PPM defect level (i.e., PPM-2 and PPM-3) and an overall PPM defect level (i.e., PPM-5) shall be established based on the tests prescribed in the subgroup 2 tests of the group A inspections. The defect level for PPM-2 shall be less than 100 PPM."

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* 3.5.3.4, delete and substitute:

"3.5.3.4 Tin plated finishes. Tin plating is prohibited as a final finish or as an undercoat. Tin-lead (Sn-Pb) finishes are acceptable provided that the minimum lead content is three percent (see 6.9)."

* 3.11, delete title and substitute:

"Barometric pressure (reduced) for qualification only."

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4.5, at the end of the paragraph, add the following:

"In the event that no production occurred during the reporting period, a report shall be submitted certifying that the manufacturer still has the capabilities and the facilities necessary to produce the item. The manufacturer, however, shall maintain the required number of unit hours in the specified maintenance period in order to remain qualified to the applicable failure rate levels. The manufacturer shall also produce enough parts during any reporting period in order to perform all applicable group B tests."

* TABLE XI, delete and substitute:

* TABLE XI. Group A inspection.

Inspection	Requirement paragraph	Test method paragraph	Sampling procedure
<u>Subgroup 1</u>			
Preconditioning	3.7	4.7.3	100 percent inspection
Burn-in (when specified, see 3.1)	3.8	4.7.4	
Dielectric withstanding voltage	3.10	4.7.6	
Insulation resistance (at +25°C)	3.9	4.7.5	
Capacitance	3.12	4.7.8	
Dissipation factor (at +25°C)	3.13	4.7.9	
Equivalent series resistance (at +25°C) <u>1/</u>	3.14	4.7.10	
<u>Subgroup 2 (PPM)</u>			
Dielectric withstanding voltage (PPM-2)	3.10	4.7.6	See table XII
Insulation resistance (at +25°C) (PPM-2)	3.9	4.7.5	
Capacitance (PPM-2)	3.12	4.7.8	
Dissipation factor (at +25°C) (PPM-2)	3.13	4.7.9	
Equivalent series resistance (at +25°C) (PPM-2) <u>1/</u>	3.14	4.7.10	
Mechanical examination external (PPM-3) (dimensions only)	3.4	4.7.1	
<u>Subgroup 3</u>			
Visual inspection: Marking <u>2/</u>	3.25	4.7.1	13 samples 0 failures
<u>Subgroup 4</u>			
Insulation resistance (at high operating temperature)	3.9	4.7.5	13 samples 0 failures
Dissipation factor (at high operating temperature)	3.13	4.7.9	
Equivalent series resistance (at high operating temperature)	3.14	4.7.10	
<u>Subgroup 5</u>			
Solderability	3.20	4.7.16	5 samples 0 failures

1/ Exempt from PDA and 100 PPM limit for PPM-2.

2/ Marking defects are based on visual inspection and shall be charged only for illegible, incomplete, or incorrect marking. Any subsequent electrical defects shall not be used as a basis for determining marking defects.

* TABLE XII, delete and substitute:

" TABLE XII. 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 XIII, delete and substitute:

" TABLE XIII. Group B inspection.

Inspection	Requirement paragraph	Test method paragraph	Number of sample units to be inspected	Number of failures allowed <u>1/</u>
<u>Subgroup 1 (every 3 months)</u>				
Low temperature conditioning and capacitance change with temperature	3.22	4.7.18	6	1
Thermal shock and immersion	3.23	4.7.19		
<u>Subgroup 1A (every month)</u>				
Life (at accelerated conditions)	3.24	4.7.20	10 minimum	
<u>Subgroup 1B (every 3 months) 2/ 3/</u>				
Life at +125°C (proof test) characteristics K, L, Q, R, and S	3.24	4.7.20.3.2	10	1
<u>Subgroup 1C (every 3 months)</u>				
AC conditioning (when specified, see 3.1)	3.21	4.7.17	(See 3.1)	5 percent

See footnotes at end of table.

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TABLE XIII. Group B inspection - Continued.

Inspection	Requirement paragraph	Test method paragraph	Number of sample units to be inspected	Number of failures allowed ^{1/}
<u>Subgroup 2 (every 6 months)</u>				
Resistance to soldering heat ^{4/}	3.15	4.7.11] 12] 0
Moisture resistance	3.16	4.7.12		
Vibration, high frequency ^{4/}	3.17	4.7.13		
Shock (specified pulse) ^{4/}	3.18	4.7.14		
Terminal strength	3.19	4.7.15		
<u>Subgroup 2A (every 6 months)</u>				
Resistance to solvents	3.6	4.7.2	5	0

^{1/} A sample unit having one or more defects shall be considered as a single failure.

^{2/} Proof test data is not used in FR level determination.

^{3/} Life at +105°C (proof test) for characteristics K and L.

^{4/} If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, this test, 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 may require resumption of the specified testing. Deletion of testing does not relieve the manufacturer from meeting the test requirements in case of dispute. "

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4.7.2b, delete in its entirety.

PAGE 22

* 4.7.7, delete title and substitute:

"Barometric pressure (reduced) for qualification only. "

PAGE 27

Following 6.8, add:

"6.9 Tin plated finishes. Tin plating is prohibited (see 3.5.3.4) 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 (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.

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CONCLUDING MATERIAL

Custodians:

Army - ER
Navy - EC
Air Force - 85

Review activities:

Navy - AS, MC, OS
Air Force - 17, 19, 99
DLA - ES

Preparing activity:

Army - ER

Agent:

DLA - ES

(Project 5910-1878)