INCH POUND

MIL-C-62/1C
6 February 2004
SUPERSEDING
MIL-C-62/1B
19 December 1968

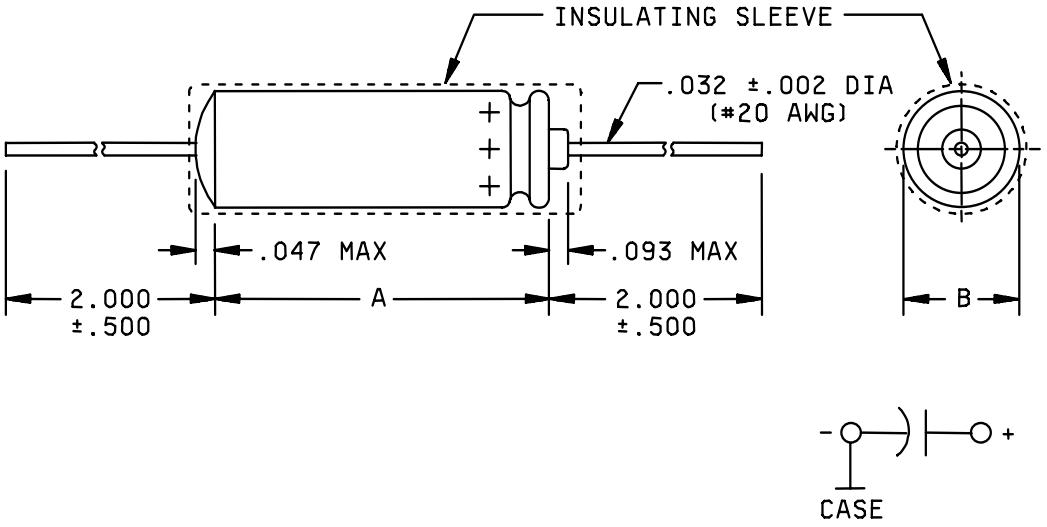
MILITARY SPECIFICATION SHEET

CAPACITORS, FIXED, ELECTROLYTIC
(DC, ALUMINUM, DRY ELECTROLYTE, POLARIZED)
STYLES CE10 AND CE11

INACTIVE FOR NEW DESIGN
AFTER 27 MARCH 1979

This specification sheet is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the capacitors described herein shall consist of this document and the latest issue of specification MIL-C-62.



STYLES
CE10 - uninsulated
CE11 - insulated

Inches	mm
.002	.05
.032	.81
.047	1.19
.093	2.36
.500	12.70
2.000	50.80

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

TABLE I. Styles CE10 and CE11 capacitors.

*

Type designation 1/	Capacitance	DC rated voltage	DC leakage	Maximum impedance at 120° +10, -5 Hz at -40° +0, -3Hz	Dissipation factor	Case dimensions 2/ 3/ A ±.031 (.79)	B ±.016 (.41)
	µf	Volts	µa	Ohms	Percent	Inches	Inches
CE1-C560C	56	5	2.0	178	20	.688 (17.48)	.375 (9.53)
CE1-C750C	75	5	2.0	133	20	.812 (20.62)	.375 (9.53)
CE1-C101C	100	5	2.0	100	20	.938 (23.83)	.375 (9.53)
CE1-C181C	180	5	2.0	55	20	1.250 (31.75)	.375 (9.53)
CE1-C271C	270	5	2.0	37	20	1.500 (38.10)	.375 (9.53)
CE1-C150D	15	10	2.0	600	20	.688 (17.48)	.250 (6.35)
CE1-C390D	39	10	2.0	230	20	.688 (17.48)	.375 (9.53)
CE1-C560D	56	10	2.1	160	20	.812 (20.62)	.375 (9.53)
CE1-C101D	100	10	2.3	90	20	.938 (23.83)	.375 (9.53)
CE1-C151D	150	10	2.7	60	20	1.250 (31.75)	.375 (9.53)
CE1-C221D	220	10	3.2	41	20	1.500 (38.10)	.375 (9.53)
CE1-C100E	10	15	2.0	800	20	.688 (17.48)	.250 (6.35)
CE1-C270E	27	15	2.0	296	20	.688 (17.48)	.375 (9.53)
CE1-C560E	56	15	2.3	143	20	.812 (20.62)	.375 (9.53)
CE1-C750E	75	15	2.9	107	20	.938 (23.83)	.375 (9.53)
CE1-C101E	100	15	3.3	80	20	1.250 (31.75)	.375 (9.53)
CE1-C151E	150	15	4.1	53	20	1.500 (38.10)	.375 (9.53)
CE1-C5R6F	5.6	25	2.3	1430	20	.688 (17.48)	.250 (6.35)
CE1-C150F	15	25	2.3	530	20	.688 (17.48)	.375 (9.53)
CE1-C200F	20	25	2.5	400	20	.812 (20.62)	.375 (9.53)
CE1-C390F	39	25	3.3	206	20	.938 (23.83)	.375 (9.53)
CE1-C560F	56	25	4.0	143	20	1.250 (31.75)	.375 (9.53)
CE1-C750F	75	25	4.8	107	20	1.500 (38.10)	.375 (9.53)

See footnotes at end of table.

TABLE I. Styles CE10 and CE11 capacitors - Continued.

*

Type designation 1/	Capacitance	DC rated voltage	DC leakage	Maximum impedance at 120° +10, -5 Hz at -40° +0, -3Hz	Dissipation factor	Case dimensions 2/ 3/ A ±.031 (.79)	Case dimensions 2/ 3/ B ±.016 (.41)
	µf	Volts	µa	Ohms	Percent	Inches	Inches
CE1-C1R0G	1	50	3.3	7000	20	.688 (17.48)	.250 (6.35)
CE1-C5R6G	5.6	50	3.3	1250	20	.688 (17.48)	.375 (9.53)
CE1-C100G	10	50	3.5	700	20	.812 (20.62)	.375 (9.53)
CE1-C150G	15	50	4.4	470	20	1.250 (31.75)	.375 (9.53)
CE1-C220G	22	50	5.0	320	20	1.250 (31.75)	.375 (9.53)
CE1-C330G	33	50	6.0	210	20	1.500 (38.10)	.375 (9.53)
CE1-C8R2H	8.2	100	8.0	850	15	.938 (23.83)	.375 (9.53)
CE1-C100H	10	100	8.0	700	15	1.250 (31.75)	.375 (9.53)
CE1-C180H	18	100	9.4	390	15	1.500 (38.10)	.375 (9.53)
CE1-C1R0J	1	150	10.0	7000	12	.938 (23.83)	.375 (9.53)
CE1-C2R2J	2.2	150	10.0	3200	12	.938 (23.83)	.375 (9.53)
CE1-C5R6J	5.6	150	10.0	1250	12	.938 (23.83)	.375 (9.53)
CE1-C8R2J	8.2	150	10.0	850	12	1.250 (31.75)	.375 (9.53)
CE1-C100J	10	150	10.6	700	12	1.500 (38.10)	.375 (9.53)

1/ Complete type designation shall include an additional digit to complete style.
2/ The dimensions shown are for style CE10; for style CE11, add .062 (1.57) ± .062 (1.57) to the nominal dimension.
3/ Metric equivalents are given for general information only.

REQUIREMENTS:

Dimensions and configuration: See figure and table I.

Case type: Tubular, uninsulated (CE10) and insulated (CE11).

Capacitance value: See table I.

Capacitance tolerance: -10, +75 percent.

Operating temperature range:

-40°C to +85°C.

Solderability: Method 208 of MIL-STD-202.

DC leakage: See table I.

Capacitance: Method 305 of MIL-STD-202.

Dissipation factor: See table I.

Terminal strength: Method 211 of MIL-STD-202, test conditions A and D.

Shock, medium impact: Method 205, test condition C, MIL-STD-202.

Vibration, high frequency: Method 204, test condition B, MIL-STD-202.

* Salt atmosphere (corrosion): Method 101, test condition B, MIL-STD-202.

Temperature cycling and immersion:

Temperature cycling: Method 102, test condition D, MIL-STD-202.

Immersion: Method 104, test condition C, MIL-STD-202.

DWV - Insulating sleeves - Method 301 of MIL-STD-202. 4,000 volts dc applied.

DCL - Not more than 150 percent of initial measurement.

Capacitance change - 5 percent.

DF - See table I.

Corrosion - Not more than 10 percent.

Moisture resistance: Method 106 of MIL-STD-202.

Insulation resistance (insulating sleeve) - Not less than 100 megohms.

DWV - Insulating sleeves - Method 301 of MIL-STD-202. 4,000 volts dc applied.

DCL - Not more than 150 percent of initial requirement.

Capacitance change - 5 percent.

DF - See table I.

Corrosion - Not more than 10 percent.

Stability at low and high temperature:

In accordance with MIL-C-62.

Step 1 (at +25°C):

DCL - See table I.

Capacitance - See table I.

DF - See table I.

Step 2 (at -40°C):

Impedance - See table I.

Step 3 (at +25°C):

DCL - See table I.

Capacitance - +5 percent of initial value.

DF - See table I.

Step 4 (at +85°C):

DCL - Not more than 10 times initial value, or meet initial 25°C requirement.

Capacitance - ±20 percent of initial value.

DF - See table I.

Step 5 (at +25°C):

DCL - See table I.

Capacitance - ±5 percent of initial value.

DF - See table I.

Surge voltage:

In accordance with MIL-C-62.

DCL - See table I.

Capacitance change - 6 percent.

DF - See table I.

Vent: Not applicable.

Life: Method 108, test condition F, MIL-STD-202.

DCL - See table I.

Capacitance change: 100 volts, dc rated, and less: -20, +15 percent.

DC rated voltage above 100 volts: ±15 percent.

DF - Meet the initial requirement or not exceed 150 percent of the initial measurement.

Barometric pressure: Method 105 of MIL-STD-202.

Shelf life: In accordance with MIL-C-62.

Build factor: Not more than 4.0.

Shelf factor: Not more than 3.0.

DCL: Not more than 150 percent of initial value.

Capacitance change: 6 percent.

DF: Not more than 175 percent of initial requirement.

VERIFICATION:

Qualification inspection: Not applicable.

Retention of qualification: Not applicable.

Conformance inspection: Group A inspection only.

TABLE II. Supersession data.

Superseded insulated part number	Superseded uninsulated part number	Recommended replacement style CE10 or CE11
001	063	CE1-C560C
002	064	CE1-C750C
003	065	CE1-C101C
004	066	CE1-C181C
005	067	CE1-C271C
006	068	CE1-C150D
007	069	CE1-C390D
008	070	CE1-C560D
009	071	CE1-C101D
010	072	CE1-C151D
011	073	CE1-C221D
012	074	CE1-C100E
013	075	CE1-C270E
014	076	CE1-C560E
015	077	CE1-C750E
016	078	CE1-C101E
017	079	CE1-C151E
018	080	CE1-C5R6F
019	081	CE1-C150F
020	082	CE1-C200F
021	083	CE1-C390F
022	084	CE1-C560F
023	085	CE1-C750F
024	086	CE1-C010G
025	087	CE1-C5R6G
026	088	CE1-C100G
027	089	CE1-C150G
028	090	CE1-C220G
029	091	CE1-C330G
030	092	CE1-C8R2H
031	093	CE1-C100H
032	094	CE1-C180H
033	095	CE1-C1R0J
034	096	CE1-C2R2J
035	097	CE1-C5R6J
036	098	CE1-C8R2J
037	099	CE1-C100J

Application data:

All capacitors shall withstand an rms ripple current at 120 Hz and 85°C as determined from the formula:

$$I_r \quad k\sqrt{C}$$

Where:

I_r = rms ripple current in milliamps.
C = nominal capacitance in microfarads.
k = 20 for units rated at 5 to 250 volts dc inclusive.
= 30 for units rated at 300 to 450 volts dc inclusive.

Supersession data: See table II.

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

Review activities:
Army - AT, AV, CR4, MI
Navy - AS, MC, OS
Air Force - 19, 99

(Project 5910-2228-01)

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 www.dodssp.daps.mil .