

INCH-POUND
MIL-C-25/4E
12 January 2004
SUPERSEDING
MIL-C-25/4D
21 June 1968

MILITARY SPECIFICATION SHEET

CAPACITORS, FIXED, PAPER OR PLASTIC DIELECTRIC,
DIRECT CURRENT
(HERMETICALLY SEALED IN METAL CASES),
STYLES CP53, CP54, AND CP55

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

The requirements for acquiring the product described herein
shall consist of this specification and MIL-C-25.

INACTIVE FOR NEW DESIGN
after 21 June 1968

REQUIREMENTS:

Dimensions: See figure 1 and tables I and II.

Case: Magnetic or nonmagnetic material, uninsulated.

Design and construction: Capacitors shall be of the design, construction and physical dimensions as specified in figure 1 and tables I and II.

Capacitance value: See table I.

Capacitance tolerance: See table I.

DC voltage rating: See table I.

Operating temperature range:
Characteristics E and F: -55°C to +85°C.
characteristic K: -55°C to +125°C.

Terminal: Symbol B, solder lug (nonremovable).

Voltage derating with temperature: See figure 2.

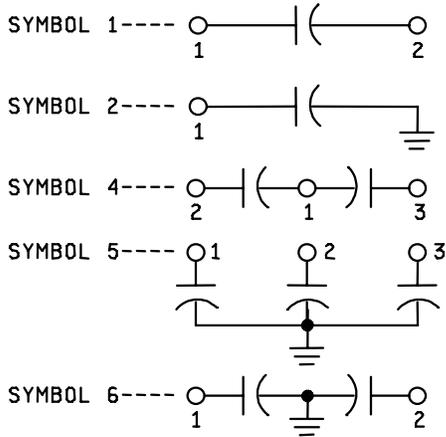
* Dielectric withstanding voltage: As specified in MIL-C-25.

* Insulation resistance: As specified in MIL-C-25.

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- * Capacitance: When measured as specified in MIL-C-25, shall be within the tolerance specified in table I.
- * Dissipation factor: When measured as specified in MIL-C-25, shall not exceed 1 percent.
- * Barometric pressure (qualification only): As specified in MIL-C-25.

Circuit diagram:



- * Vibration (grade 1, 10 to 55 Hz): As specified in MIL-C-25.
- * Salt atmosphere (corrosion): As specified in MIL-C-25.
- * Thermal shock: As specified in MIL-C-25, except that the test temperature of step 3 shall be as follows:
For characteristics E and F: 85°C.
For characteristic K: 125°C.
- * Immersion: As specified in MIL-C-25.
- * Terminal strength: As specified in MIL-C-25.
- * Moisture resistance: As specified in MIL-C-25.
- * Seal: As specified in MIL-C-25.
- * Low temperature and capacitance change with temperature: As specified in MIL-C-25.
- * Life: As specified in MIL-C-25.

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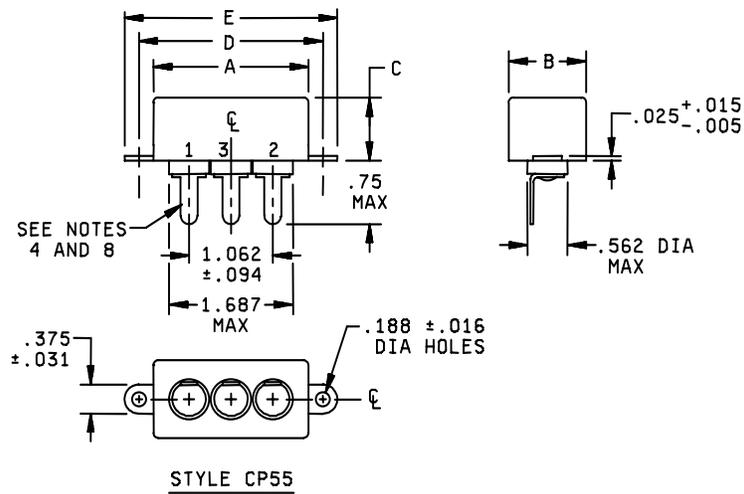
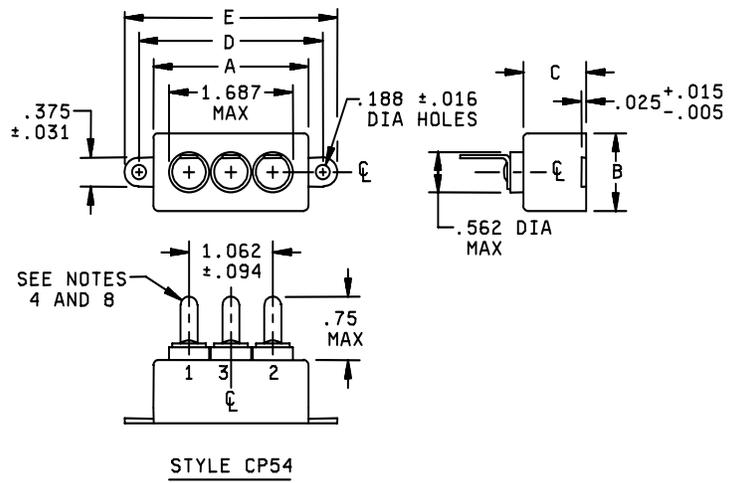
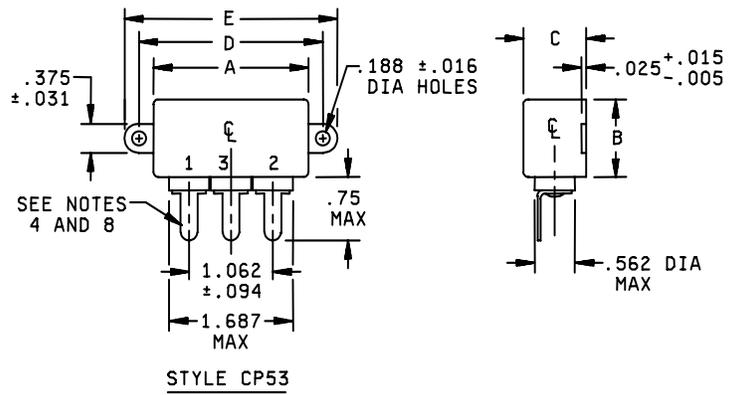
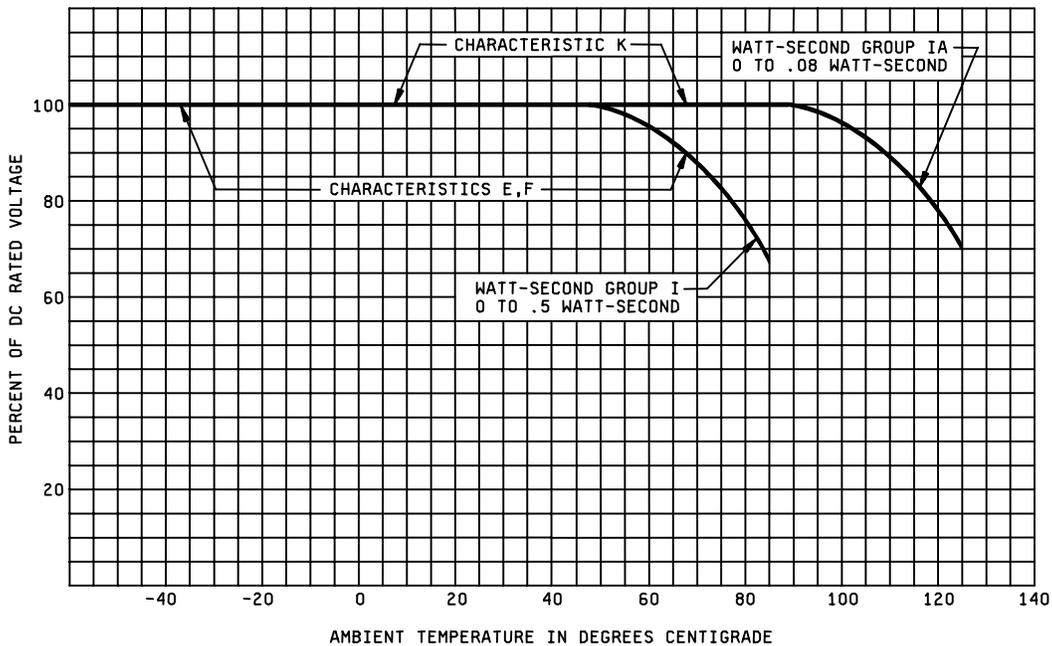


FIGURE 1. Styles CP53, CP54, and CP55 capacitors.

NOTES:

1. See tables I and II for additional dimensions.
2. All dimensions in inches.
- * 3. Metric equivalents are given for general information only.
4. Terminals need not be identified by numbers as shown. Shape of terminals and terminal lugs (drilled, punched, forked, or slotted) optional.
5. Mounting holes may be elongated.
6. For circuit 1, use terminals 1 and 2. For circuit 2, use terminal 1. For circuit 4, use terminal 1 for common connection and identify common terminal by the letter C on case adjacent to terminal. For circuit 6, use terminals 1 and 2.
7. Capacitors differ only in location of terminals. Style CP53, having the terminals on one side, contains certain values of capacitance in a smaller case than is possible with styles CP54 and CP55, the terminals of which are on top and bottom faces, respectively.
8. Terminal lugs shall be oriented as shown with respect to side of case bearing terminal identification numbers.

FIGURE 1. Styles CP53, CP54, and CP55 capacitors - Continued.



NOTE: Permissible operating voltages, while based on incomplete data are the capacitor suppliers' best estimate to provide a life expectancy of 8,800 hours of continuous operation at higher ambient temperatures. Longer life can be expected by operation at voltages lower than indicated on the curve: For example, a life expectancy of 44,000 hours may be obtained by operation at 70 percent of the voltage determined by use of this curve. Also, a life longer than 8,800 hours may be expected at the voltage determined by use of this curve if the high ambient temperature prevails for only a portion of the whole operating time.

FIGURE 2. Voltage derating for ambient temperature (characteristics E, F, and K).

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TABLE I. Styles CP53, CP54 and CP55 characteristics and dimensions.

Type designation ^{1/}	DC voltage rating (volts) (see fig. 2)	Capacitance (μf)	Capacitance tolerance ^{2/}	Characteristics	Vibration grade	Case size		
						Characteristic E	Characteristic F	Characteristic K
CP5-B--B105K1	100	1	K	E, F	1	A2	A1	
CP5-B-EB205K1	100	2	K	E	1	B1		
CP5-B--B405K1	100	4	K	E, F	1	C2	C1	
CP5-B-FB805K1	100	8	K	F	1		C1	
CP5-B-FB106K1	100	10	K	F	1		C2	
CP5-B-FC504K1	200	0.5	K	F	1		A1	
CP5-B-EC105K1	200	1	K	E	1	B1		
CP5-B-EC205K1	200	2	K	E	1	C1		
CP5-B-KE503K1	400	0.05	K	K	1			A1
CP5-B-KE104K1	400	0.10	K	K	1			A1
CP5-B-KE254K1	400	0.25	K	K	1			A1
CP5-B-KE504K1	400	0.5	K	K	1			A2
CP5-B-KE105K1	400	1	K	K	1			B1
CP5-B-EF254K1	600	0.25	K	E	1	A1		
CP5-B--F504K1	600	0.5	K	E, F	1	A3	A2	
CP5-B--F105K1	600	1	K	E, F	1	B2	B1	
CP5-B-EF205K1	600	2	K	E	1	C2		
CP5-B-EG503K1	1,000	0.05	K	E	1	A1		
CP5-B-EG104K1	1,000	0.1	K	E	1	A1		
CP5-B--G254K1	1,000	0.25	K	E, F	1	A2	A1	
CP5-B-EG504K1	1,000	0.5	K	E	1	B1		
CP5-B-EG105K1	1,000	1	K	E	1	C2		
CP5-B-EF503V1	600	0.05-0.05 ^{3/}	V	E	1	A1		
CP5-B-EF104V1	600	0.1 -0.1	V	E	1	A1		
CP5-B--F254V1	600	0.25-0.25	V	E, F	1	A3	A2	
CP5-B--F504V1	600	0.5 -0.5	V	E, F	1	B2	B1	
CP5-B-EF105V1	600	1 -1	V	E	1	C2		
CP5-B-EG503V1	1,000	0.05-0.05	V	E	1	A1		
CP5-B--G104V1	1,000	0.1 -0.1	V	E,F	1	A2	A1	
CP5-B-EG254V1	1,000	0.25-0.25	V	E	1	B1		
CP5-B-EG504V1	1,000	0.5 -0.5	V	E	1	C2		
CP5-B5-E504V1	400	0.5 -0.5 -0.5	V	E, F	1	C2	C1	
CP5-B5-F104V1	600	0.1 -0.1 -0.1	V	E, F	1	A2	A1	
CP5-B5-EF254V1	600	0.25-0.25-0.25	V	E	1	B1		
CP5-B5-EF504V1	600	0.5 -0.5 -0.5	V	E	1	C2		
CP5-B5-EG503V1	1,000	0.05-0.05-0.05	V	E	1	A1		
CP5-B5-EG104V1	1,000	0.1 -0.1 -0.1	V	E	1	B1		
CP5-B5-EG254V1	1,000	0.25-0.25-0.25	V	E	1	C2		

^{1/} Complete type designation shall include additional symbols to complete style designation, indicate circuit (where applicable) and characteristics (where applicable).

^{2/} Capacitance tolerance in percent: K, ±10; V, +20, -10.

^{3/} For multiple-unit capacitors, the watt-second rating is the sum of the watt-second ratings of the component sections.

TABLE II. Case dimensions.

Case size	Dimensions				
	A ± 0.062	B ± 0.062	C + 0.062 -0.125	D ± 0.031	E ± 0.062
A1	1.812	1.000	0.750	2.125	2.500
A2	1.812	1.000	0.875	2.125	2.500
A3	1.812	1.000	1.000	2.125	2.500
B1	2.000	1.750	0.875	2.375	2.750
B2	2.000	1.750	1.000	2.375	2.750
C1	2.000	2.000	1.000	2.375	2.750
C2	2.000	2.000	1.125	2.375	2.750

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TABLE III. Millimeter equivalents of decimal inches.

Inches	mm	Inches	mm	Inches	mm	Inches	mm
0.031	0.79	0.875	22.23	1.750	44.45	2.375	60.33
0.062	1.57	1.000	25.40	1.812	46.02	2.500	63.50
0.125	3.18	1.125	28.58	2.000	50.80	2.750	69.85
0.750	19.05	1.250	31.75	2.125	53.98		

Changes from previous issue: The margins of this specification are marked with asterisks to indicate where changes 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.

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

Preparing activity:
 DLA - CC

(Project 5910-2238-01)

Review activities:
 Army - AR, MI
 Navy - AS, MC, OS
 Air Force - 99

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