

METRIC

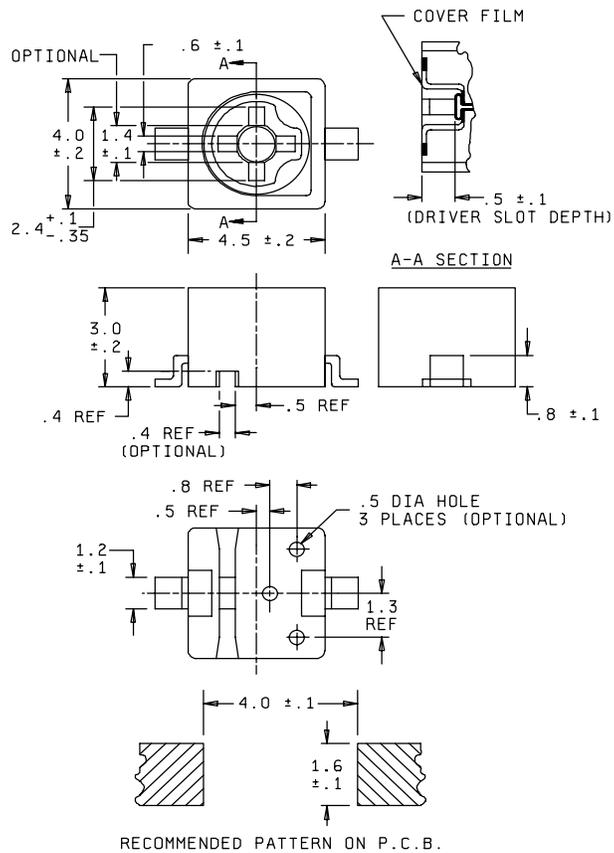
MIL-PRF-81/12A  
25 May 1999  
SUPERSEDING  
DOD-C-81/12  
7 May 1986

PERFORMANCE SPECIFICATION SHEET

CAPACITORS, VARIABLE, CERAMIC DIELECTRIC,  
STYLES CV50 AND CV51

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

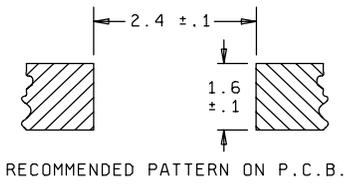
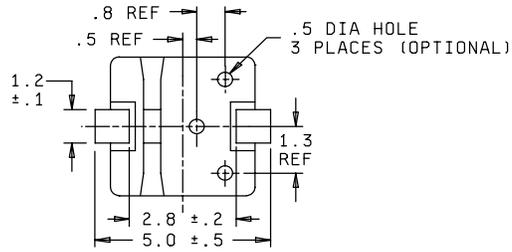
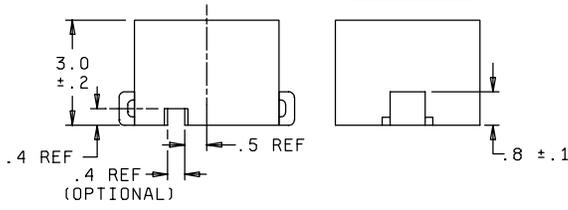
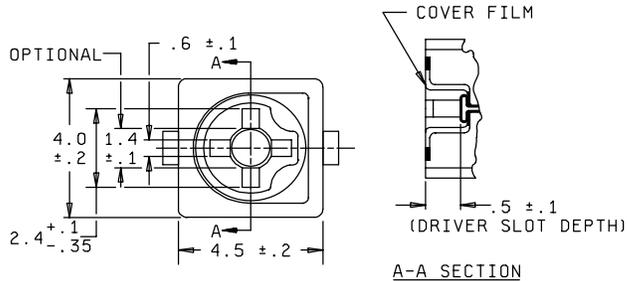
The requirements for acquiring the product described herein shall  
consist of this specification and MIL-PRF-81.



Style CV50

FIGURE 1. Dimensions and configurations.

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mm	Inches
0.10	.004
0.15	.005
0.20	.008
0.35	.014
0.40	.016
0.50	.020
0.60	.024
0.80	.032
1.20	.047
1.30	.051
1.40	.055
1.60	.063
2.40	.095
2.80	.110
3.00	.118
4.00	.158
4.50	.177
5.00	.197

Style CV51

NOTES:

1. Dimensions are in millimeters.
2. Inch equivalents are given for general information only.
3. Unless otherwise specified, tolerance is  $\pm 0.15$  (.005 inch).
4. This unit is supplied with a silicone membrane covering the adjustment opening which allows washing prior to tuning without risk of contamination.

FIGURE 1. Dimensions and configuration - Continued.

REQUIREMENTS:

Dimensions and configuration: See figure 1 and table I.

Capacitance value: See table I.

DC rated voltage: 100 V dc.

Operating temperature range: -55°C to +85°C.

Characteristics: See table I.

Dielectric withstanding voltage: Method 301 of MIL-STD-202. A dc potential of 2.2 times rated voltage applied between terminals for 3 seconds  $\pm$ 2 seconds.

Barometric pressure (reduced): Method 105 of MIL-STD-202, condition D (100,000 feet).

Test potential: 100 percent of dc rated voltage.

Insulation resistance: Method 302 of MIL-STD-202, condition A, 100 V dc applied: 10,000 megohms, minimum.

Capacitance: Method 305 of MIL-STD-202.

DF: At 1 MHz  $\pm$ 100 kHz, at maximum and minimum capacitance: Shall be not more than 0.2 percent for rated maximum capacitance 6 picofarad (pF), 10 pF, and 20 pF, 0.3 percent for 30 pF.

TABLE I. Styles CV50 and CV51.

Type designation <u>1/ 2/</u>	Capacitance		DC rated voltage (volts)	Characteristic	
	Min (pF)	Max (pF)		Symbol	Temperature coefficient (ppm/°C)
CV5XX060	2.0	6.0	100	X	0 $\pm$ 200
CV5XT100	3.0	10.0	100	T	-150 $\pm$ 300
CV5XZ200	4.5	20.0	100	Z	-750 $\pm$ 300
CV5XV300	6.5	30.0	100	V	-1,200 $\pm$ 500

1/ The complete type designation will include an additional digit to indicate style CV50 or CV51.

2/ Qualification to the CV50 will also qualify CV51.

Temperature coefficient: Within the limits specified for the applicable characteristics (see table I).

Capacitance drift: Within 0.75 percent of initial step 1 measurement or 0.50 pF, whichever is greater.

Terminal strength:

Pull test: Capacitor held by body and 4-pound load applied to each terminal for at least 10 seconds.

NOTE: This test is applied for leaded type only.

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Torque: Not less than 0.2 ounce-inch nor more than 1.4 ounce-inches.

Shock (specified pulse): Method 213 of MIL-STD-202, condition I (100 g's).

Vibration, high frequency: Method 204 of MIL-STD-202, condition B (15 g's).

Capacitance change: Shall not exceed  $\pm 2$  percent of nominal value or 0.5 pF, whichever is greater.

DF: Shall be not more than 0.2 percent for rated maximum capacitance 6 pF, 10 pF, and 20 pF, 0.3 percent for 30 pF.

Dielectric withstanding voltage: A dc potential of 2.2 times rated voltage applied between terminals for 3 seconds  $\pm 2$  seconds.

Insulation resistance: Shall be 10,000 megohms, minimum.

Fatigue: At a rate of approximately 20 cycles per minute for a period of 1 minute.

$\Delta C$ : Shall not exceed 12 percent or 0.75 pF, whichever is greater.

Torque: Initial requirement.

Life:

Qualification test: 1,000 hours at +85°C, 150 percent of rated V dc with a peak alternating voltage of 50 percent of rated V dc (100 hertz or less) superimposed.

Insulation resistance: Initial requirement.

Capacitance change: Shall not exceed  $\pm 8$  percent of initial value or 0.75 pF, whichever is greater.

Group C life: Conditions and requirements are the same as that for qualification.

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

Insulation resistance: Shall be 10,000 megohms minimum.

Capacitance change: Shall not exceed  $\pm 5$  percent of nominal value or 0.5 pF, whichever is greater.

DF: Shall be not more than 0.5 percent.

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:

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

Preparing activity:  
DLA - CC

(Project 5910-2010-08)

Review activities:

Army - AR, AT, MI  
Air Force - 19, 99