

INCH POUND

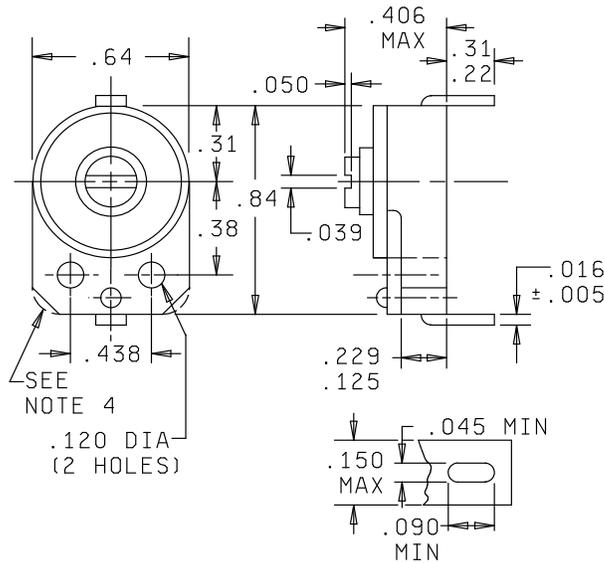
MIL-PRF-81/1E  
 19 April 2011  
 SUPERSEDING  
 MIL-PRF-81/1D  
 9 November 2005

PERFORMANCE SPECIFICATION SHEET

CAPACITORS, VARIABLE, CERAMIC DIELECTRIC,  
 STYLE CV11

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](#).



Inches	mm
.005	0.13
.016	0.41
.039	0.99
.045	1.14
.050	1.27
.090	2.29
.120	3.05
.125	3.18
.150	3.81
.22	5.59
.229	5.82
.31	7.87
.38	9.65
.406	10.31
.438	11.13
.64	16.26
.84	21.34

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm .03$  (0.76 mm) for two decimal places and  $\pm .010$  (0.25 mm) for three decimal places.
4. Limiting dimensions as shown.

FIGURE 1. Dimensions and configurations.

MIL-PRF-81/1E

REQUIREMENTS:

Dimensions and configuration: See [figure 1](#).

Capacitance value: See [table I](#).

DC rated voltage: See [table I](#).

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.

TABLE I. Style CV11.

Type designation	Capacitance (pF)		DC rated voltage (volts)	Characteristics				
				Symbol	Capacitance change from value at 25°C			
	At -55°C				At +85°C			
	Minimum percent	Maximum percent			Minimum percent	Maximum percent		
CV11A070	1.5	7.0	500	A	-4.5	+2.0	-2.5	+2.0
CV11A120	3.0	12.0	500	A	-4.5	+2.0	-2.5	+2.0
CV11A250	4.5	25.0	500	A	-4.5	+2.0	-2.5	+2.0
CV11B130	3.0	13.0	500	B	-1.0	+3.5	-2.5	-0.5
CV11B200	5.0	20.0	500	B	-1.0	+3.5	-2.5	-0.5
CV11C300	4.0	30.0	500	C	-1.0	+6.5	-4.0	-1.0
CV11C450	7.0	45.0	500	C	-1.0	+6.5	-4.0	-1.0
CV11D060	2.0	6.0	500	D	+1.5	+8.2	-5.0	-1.5
CV11D300	4.0	30.0	500	D	+1.5	+8.2	-5.0	-1.5
CV11D450	7.0	45.0	500	D	+1.5	+8.2	-5.0	-1.5

Barometric pressure:

[Method 105 of MIL-STD-202](#), condition D (100,000 feet) and condition B (50,000 feet).

Test potential: 80 percent of dc rated voltage for condition D and 125 percent dc rated voltage for condition B.

Insulation resistance:

[Method 302 of MIL-STD-202](#), condition A, 100 volts 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.

## MIL-PRF-81/1E

Temperature coefficient: Within the limits specified for the applicable characteristic.

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.

Torque: Not less than 4 ounce-inches nor more than 24 ounce-inches.

Fatigue:

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

Torque: Not less than 4 ounce-inches nor more than 36 ounce-inches.

Life:

Qualification test: 1,000 hours at +85°C, 750 volts dc with a 100 Hz or less 250 volt ac peak potential applied.

Insulation resistance:

[Method 302 of MIL-STD-202](#), condition A, 100 volts dc applied: 10,000 megohms, minimum.

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

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

Shock (specified pulse):

[Method 213 of MIL-STD-202](#), condition I (100 g's).

Vibration:

[Method 204 of MIL-STD-202](#), condition B (15 g's).

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

DF: Shall be not more than 0.2 percent.

Dielectric withstanding voltage: 1,100 volts dc applied for 3 seconds  $\pm 2$  seconds.

Insulation resistance: 10,000 megohms, minimum.

Moisture resistance:

[Method 106 of MIL-STD-202](#):

Insulation resistance: 10,000 megohms, minimum.

Capacitance change: Shall not exceed  $\pm 10$  percent of initial value or 0.5 pF, whichever is greater.

DF: Shall be not more than 0.5 percent.

MIL-PRF-81/1E

Reference documents: In addition to [MIL-PRF-81](#), this document references to following.

[MIL-STD-202](#)

- \* Qualification inspection: Qualification inspection is not required. A manufacturer that is currently listed on the QPL for at least one other MIL-PRF-81 style may supply CV11 parts by performing the group A and group B testing. A manufacturer that is not qualified to any MIL-PRF-81 styles may produce these parts by performing the group A, group B, and group C testing on the product before delivery.

Changes from previous issue. The margins of this specification are marked with asterisks to indicate where changes from 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 - 85  
DLA - CC

Preparing activity:

DLA - CC

(Project 5910-2011-006)

Review activities:

Army - AR, MI  
Air Force - 19, 99

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 ASSIST Online database at <https://assist.daps.dla.mil> .