INCH-POUND

MIL-PRF-39006/18A
17 April 2002
SUPERSEDING
MIL-C-39006/18
28 August 1970

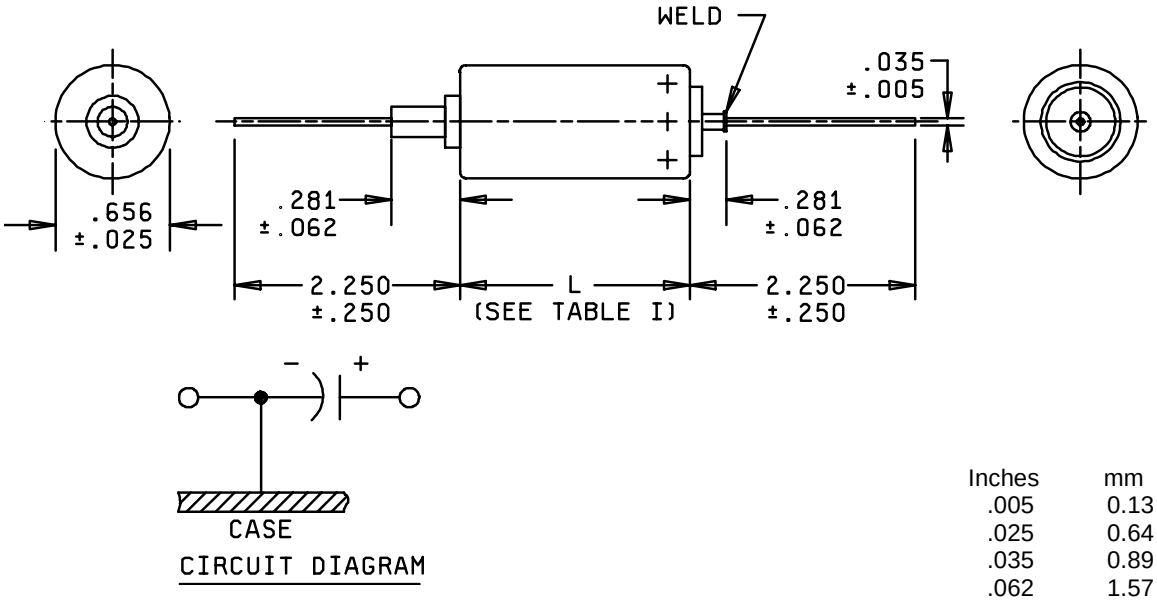
PERFORMANCE SPECIFICATION SHEET

CAPACITORS, FIXED, ELECTROLYTIC (NONSOLID ELECTROLYTE), TANTALUM, (POLARIZED, SINTERED SLUG), 85°C (VOLTAGE DERATED TO 125°C), ESTABLISHED RELIABILITY, STYLE CLR10

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 document and MIL-PRF-39006.

INACTIVE FOR NEW DESIGN AFTER 23 JUNE 1981. FOR NEW DESIGN, USE MIL-PRF-39006/22.



Inches	mm
.005	0.13
.025	0.64
.035	0.89
.062	1.57
.250	6.35
.281	7.14
.656	16.66
2.250	57.15

NOTES:
1. Dimensions are in inches.
2. Metric equivalents (to the nearest 0.01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.

FIGURE 1. Style CLR10 capacitors.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

TABLE I. Capacitor characteristics.

Rated voltage (85°C)	Cap.	DC leakage (max)			Dissi-pation factor (max)	Derated voltage (125°C)	Surge voltage (85°C)	Imped-ance (max)	Dimension L ±.062 (1.57)	PIN M39006/18- Failure rate level (%/1,000 hr)				
		25°C	85°C	125°C						L(2.0)	M(1.0)	P(0.1)	R(0.01)	S(0.001)
V dc	µF	µA	µA	µA	%	V dc	V dc	Ω	Inches					
8	70.0	6	30	48	47	7	9.2	60	.438 (11.13)	1000	1018	1036	1054	1072
8	140.0	10	50	80	47	7	9.2	30	.562 (14.27)	1001	1019	1037	1055	1073
10	50.0	5	25	40	35	9	11.5	75	.438 (11.13)	1002	1020	1038	1056	1074
10	100.0	9	45	72	35	9	11.5	40	.562 (14.27)	1003	1021	1039	1057	1075
20	28.0	6	30	48	21	18	23.0	85	.438 (11.13)	1004	1022	1040	1058	1076
20	56.0	10	50	80	21	18	23.0	45	.562 (14.27)	1005	1023	1041	1059	1077
30	20.0	7	35	56	15	26	34.5	125	.438 (11.13)	1006	1024	1042	1060	1078
30	40.0	12	60	96	15	26	34.5	75	.562 (14.27)	1007	1025	1043	1061	1079
60	12.0	7	35	56	9.1	52	69.0	180	.438 (11.13)	1008	1026	1044	1062	1080
60	25.0	12	60	96	9.6	52	69.0	90	.562 (14.27)	1009	1027	1045	1063	1081
90	8.0	7	35	56	6.1	78	103.0	250	.438 (11.13)	1010	1028	1046	1064	1082
90	16.0	12	60	96	6.1	78	103.0	125	.562 (14.27)	1011	1029	1047	1065	1083
180	4.0	7	35	56	6.1	155	207.0	500	.719 (18.26)	1012	1030	1048	1066	1084
180	8.0	12	60	96	6.1	155	207.0	250	.938 (23.83)	1013	1031	1049	1067	1085
270	2.5	7	35	56	5.7	235	310.0	750	1.031 (26.19)	1014	1032	1050	1068	1086
270	5.0	11	55	88	5.7	235	310.0	375	1.375 (34.93)	1015	1033	1051	1069	1087
360	2.0	7	35	56	6.1	310	414.0	1,000	1.312 (33.32)	1016	1034	1052	1070	1088
360	4.0	12	60	96	6.1	310	414.0	500	1.781 (45.24)	1017	1035	1053	1071	1089

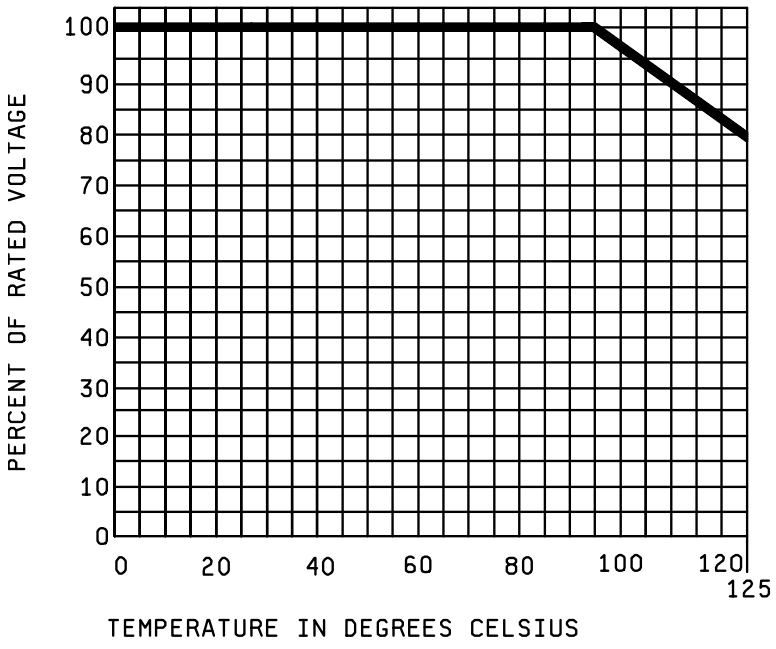


FIGURE 2. Voltage derating with temperature.

REQUIREMENTS:

Design and construction:

Dimensions and configuration: See figure 1.

Case type: Tubular, uninsulated.

Seal type: G (hermetic).

Terminals: Axial-wire lead conforming to type N3 of MIL-STD-1276, except as shown on figure 1.

Rated temperature: -55°C to +85°C, voltage derated to +125°C (see figure 2).

Rated voltage: See table I.

Capacitance (Cap.) (nom): See table I.

Cap. tolerance: +50 percent, -15 percent.

FR level: See table I.

Constant voltage conditioning: As specified in MIL-PRF-39006.

DC leakage (DCL) (max) (at 25°C): See table I.

Cap. (nom): Method 305 of MIL-STD-202. See table I.

Dissipation factor (DF) (max): See table I.

Seal: Method 112 of MIL-STD-202, conditions A and C.

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

Vibration, high frequency: Method 204 of MIL-STD-202, condition D (20 G).

Thermal shock: Method 107 of MIL-STD-202, condition A (with step 3 at +125°C). Number of cycles: 30.

DCL: 125 percent (max) of 25°C value of table I.

ΔCap.: Within ±5 percent of initial measurement.

DF: 115 percent (max) of initial requirement.

Salt atmosphere: Method 101 of MIL-STD-202, condition B (48 hours).

Solderability: Group A Solderability not required. Product must be capable of meeting Solderability requirements.

Terminal strength:

Pull: Method 211 of MIL-STD-202, condition A.

Wire-lead bend: In accordance with MIL-PRF-39006.

Surge voltage: See table I.

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

DCL: 125 percent (max) of 25°C value of table I.

ΔCap.: Within ±8 percent of initial measurement.

DF: 115 percent (max) of table I value.

Dielectric withstanding voltage (DWV): Not applicable.

Insulation resistance (IR): Not applicable.

Low temperature (storage): Method 502 of MIL-STD-810.

DCL: See table I.

ΔCap.: Within ±5 percent of initial measurement.

DF: See table I.

Stability at low and high temperatures:

Step 1 (+25°C):

DCL: See table I.

Cap.: Within tolerance of table I value.

DF: See table I.

Step 2 (-55°C):

Imp. See table I.

ΔCap.: -60 percent (<20 V), -40 percent (30 V), or -30 percent (>30 V) of step 1 value (max).

Step 3 (+25°C):

DCL: See table I.

ΔCap.: Within ±5 percent of step 1 value.

DF: See table I.

Step 4 (+85°C):

DCL: See table I.

ΔCap.: +30 percent (< 20 V) or +20 percent (> 20 V) of step 1 value (max).

DF: See table I.

Step 5 (+125°C): 1/

DCL: See table I.

ΔCap.: +30 percent (<18 V) or 20 percent (> 18 V) of step 1 value (max).

DF: See table I.

Step 6 (+25°C):

DCL: See table I.

ΔCap.: Within ±5 percent of step 1 value.

DF: See table I.

Reverse voltage: Not applicable.

Life at 85°C: Method 108 of MIL-STD-202.

2,000 hour (qualification):

DCL: See table I.

ΔCap.: Within ±15 percent of initial measurement.

DF: See table I.

10,000 hours (group B) and extended life:

DCL (85°C): 125 percent (max) of table I value.

DCL (25°C): See table I.

ΔCap.: Within ±25 percent of initial measurement.

DF: 200 percent (max) of table I value.

DWV and IR: Not applicable.

Vacuum life: Not applicable.

Life at 125°C: Method 108 of MIL-STD-202.

DCL: See table I.

ΔCap.: Within ±15 percent of initial measurement.

DF: 130 percent (max) of table I value.

DWV and IR: Not applicable.

1/ 125°C derated voltage referenced.

10,000 hours (group B):

DCL (125°C): 125 percent (max) of table I value.

DCL (25°C): See table I.

ΔCap.: Within ±25 percent of initial measurement.

DF: 200 percent (max) of table I value.

DWV and IR: Not applicable.

Barometric pressure: Method 105 of MIL-STD-202, condition E (150,000 feet).

Test voltage: Rated voltage.

Fungus: Method 508 of MIL-STD-810.

Resistance to solvents: Method 215 of MIL-STD-202.

Resistance to soldering heat: Method 210 of MIL-STD-202, condition B.

DCL: See table I.

ΔCap.: Within ±5 percent of initial measurement.

DF: See table I.

Marking: In accordance with MIL-PRF-39006.

Polarity: Series of plus (+) symbols encircling positive end (see figure 1).

Voltage groups (85°C rated voltage):

I - - - - - - - - - - 8 to 90 V inclusive
II - - - - - - - - - - 180 to 360 V inclusive.

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

Review activities:
Navy - AS, MC, OS
Air Force - 19

Preparing activity:
DLA - CC

(Project 5910-2158-02)