

ENERGY STORAGE CAPACITORS



Type 282P.....	E-3
Type 681P.....	E-5
Type 682P.....	E-7
Type 684P.....	E-8

General Electrical, Physical, and Environmental Characteristics

Test Procedures:

Section J of the catalog covers the applicable test procedures.

Electrical Characteristics:

Capacitance, Dissipation Factor, Insulation Resistance, and Dielectric Strength shall be measured as specified in section J.

Physical Characteristics:

The Lead Strength shall be measured as specified in section J.

Discharge Life Test:

110% of rated voltage at +40°C for 250,000 discharges at 10 (1 for 282P) discharges/sec. into a Xenon Flash Tube.

As a result of the test there shall be:

- No open or short circuit
- No visible damage
- Max. ΔC of $\pm 10\%$
- Min. IR = 50% of initial limit
- Max. DF = 2.0%

Metalized-Film Energy Storage Capacitors

Features —

- Half the Size and a Third the Weight of Conventional Paper Energy Storage Capacitors
- High Energy (up to 1600 Joules)
- High Current (up to 3000 Amps)
- Rectangular Metal Case Construction

Major Applications:

Lasers, beacons, flash, and other applications requiring small, lightweight energy storage capacitors. These capacitors are designed to discharge into lamp loads at 1 pps or less at ambient temperatures up to 40°C

PHYSICAL CHARACTERISTICS —

Construction:

Non-inductive wound metalized film, wax impregnated

Case:

Hermetically sealed, drawn or welded, rectangular cases, for maximum durability

Marking:

Dearborn trademark, type or catalog number, capacitance and voltage

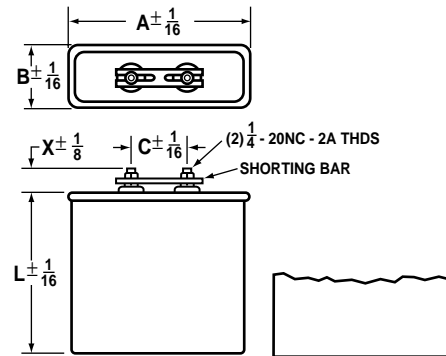


FIGURE 1
DRAWN
CASE

FIGURE 1A
WELDED
CASE

EXACT CONFIGURATION OF TERMINALS AT VENDORS OPTION

ELECTRICAL SPECIFICATION —

Capacitance Range:

10 μ F to 200 μ F

Capacitance Tolerance:

+20% -10%, \pm 10%

Operating Temperature:

0°C to +40°C

DC Voltage Range:

2000 VDC to 4000 VDC

Dissipation Factor:

1.0% maximum

Voltage Test:

120% of rated voltage for 2 minutes

Discharge Rate:

1 discharge per sec. maximum

Inductance:

The typical inductance at the resonant frequency is 0.1 μ H

Insulation Resistance:

Measured at 500VDC after a 2 minute charge
At +25°C, 2,000 Megohm-Microfarads

Special requirements: The operational characteristics as stated are typical of standard capacitors. Special designs to meet additional or different requirements are available. Consult factory for additional information.

STANDARD RATINGS

μF	Rated Joules	Catalog Number	Fig No	Size in Inches					Energy Density in Joules/cu. in. of Case	Approx. Weight in Lbs.
				A	B	C	L	X		
2000 VOLTS D-C										
50	100	282P1	1	3 3/4	2 1/2	2	5 7/8	5/8	1.84	2.6
80	160	282P2	1	4 9/16	3 3/4	2	5 1/8	5/8	1.83	4.1
100	200	282P3	1	4 9/16	3 3/4	2	6 1/4	5/8	1.87	5.0
200	400	282P4	1A	8	4 1/8	4 5/8	6 1/2	1/2	1.87	10.5
2500 VOLTS D-C										
10	31	282P5	1	3 3/4	2 1/4	2	3 3/8	5/8	1.0	1.5
20	62	282P6	1	3 3/4	2 1/4	2	4 3/4	5/8	1.55	1.9
50	156	282P7	1	4 9/16	3 3/4	2	5 1/8	5/8	1.78	4.1
80	250	282P8	1	4 9/16	3 3/4	2	6 3/4	5/8	2.18	5.4
100	312	282P9	1A	8	4 1/8	4 5/8	5 1/8	1/2	1.85	8.3
200	625	282P10	1A	8	4 1/8	4 5/8	8 3/4	1/2	2.17	14.2
4000 VOLTS D-C										
25	200	282P11	1	4 9/16	3 3/4	2	6 1/4	5/8	1.87	5.0
35	280	282P12	1	4 9/16	3 3/4	2	7 3/4	5/8	2.12	6.3
50	400	282P13	1A	8	4 1/8	4 5/8	6 1/2	1/2	1.87	10.5
100	800	282P14	1A	8	4 1/8	4 5/8	10 1/4	1/2	2.37	16.5
200	1600	282P15	1A	13 1/2	5 1/4	6 3/4	10 3/8	1/2	2.18	34.5

Additional capacitance values, voltages, and tolerances are available upon request.

**High Discharge Rate
Energy-Storage
Metalized-Film Capacitors**

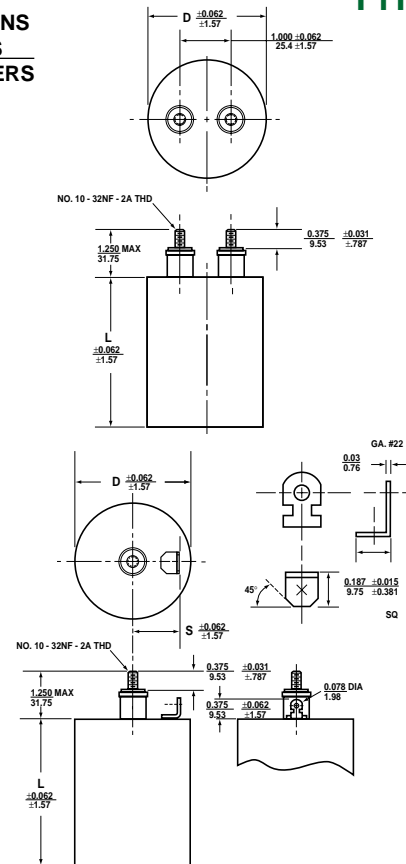
Features —

- High Energy Density
- Metal Tubular Case
- Lightweight
- 5 Joules/Cu. In.
- 80 Joules/Pound

Major Applications:

Flash, laser, strobe, beacons

**DIMENSIONS
INCHES
MILLIMETERS**



PHYSICAL CHARACTERISTICS —

Construction:

Non-inductive wound proprietary composition dielectric, silicone oil impregnated

Case:

Hermetically sealed drawn cylindrical enclosure. Available with case grounded (1 terminal) and insulated case (2 terminals)

Marking:

Dearborn trademark, type or catalog number, capacitance, tolerance, and voltage

ELECTRICAL SPECIFICATIONS —

Capacitance Range:

5 μ F to 100 μ F

Capacitance Tolerance:

+20% -10%, \pm 10%

Operating Temperature:

0°C to +40°C

DC Voltage Range:

1000 VDC to 2500 VDC

Dissipation Factor:

1.0% maximum

Voltage Test:

120% of rated voltage for 2 minutes

Discharge Rate:

10 discharges per sec. maximum

Inductance:

0.03 to 0.05 μ H typical at resonance (terminal style 1 only)

Insulation Resistance:

Measured at 500VDC after a 2 minute charge
At +25°C, 5,000 Megohm-Microfarads

Special Requirements: The operational characteristics as stated are typical of standard capacitors. Special designs to meet additional or different requirements are available. Consult factory for additional information.

STANDARD RATINGS

μF	Rated Joules	Grounded Number		Case Code	Max. Peak Discharge Current In Amperes	Energy Density In Joules/in ³
		Grounded Case	Insulated Case			
1000 VOLTS D-C						
20	10	681P206B21K01	-	EE	585	2.28
30	15	681P306B21K01	-	EG	585	2.42
50	25	681P506B21K01	-	FJ	645	2.69
80	40	681P806B21K01	681P806B21K02	JJ	1040	2.86
100	50	681P107B21K01	681P107B21K02	LJ	1330	2.78
1500 VOLTS D-C						
10	11	681P106B21K51	-	EE	400	2.50
20	23	681P206B21K51	-	EG	460	3.71
30	34	681P306B21K51	-	FJ	505	3.66
50	56	681P506B21K51	681P506B21K52	JJ	810	4.00
60	68	681P606B21K51	681P606B21K52	LJ	1040	3.78
80	90	681P806B21K51	681P806B21K52	NJ	1360	4.09
2000 VOLTS D-C						
5	10	681P505B22K01	-	DE	250	2.70
10	20	681P106B22K01	-	DG	290	3.85
20	40	681P206B22K01	681P206B22K02	JG	635	3.64
30	60	681P306B22K01	681P306B22K02	JJ	635	4.29
50	100	681P506B22K01	681P506B22K02	NJ	1080	4.55
2500 VOLTS D-C						
5	16	681P505B22K51	-	EE	310	3.64
10	31	681P106B22K51	-	FG	340	4.25
15	47	681P156B22K51	681P156B22K52	JG	550	4.27
20	63	681P206B22K51	681P206B22K52	JJ	550	4.50
35	110	681P356B22K51	681P356B22K52	NJ	930	5.00

The B2 in the catalog number designates a tolerance of +20% -10%, change the B2 to X9 for a tolerance of ±10%.

CASE SIZES

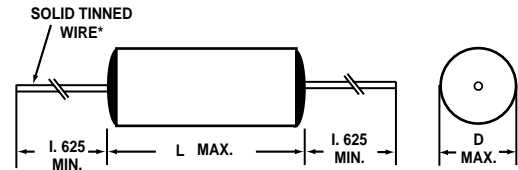
Case Code	Inches			Millimeters*		
	D	L	S	D	L	S
DE	1.375	2.500	0.562	34.9	63.5	14.27
DG	1.375	3.500	0.562	34.9	88.9	14.27
EE	1.500	2.500	0.680	38.1	63.5	17.27
EG	1.500	3.500	0.680	38.1	88.9	17.27
FG	1.625	3.500	0.750	41.3	88.9	19.10
FJ	1.625	4.500	0.750	41.3	114.3	19.10
JG	2.000	3.500	0.750	50.8	88.9	19.10
JJ	2.000	4.500	0.750	50.8	114.3	19.10
LJ	2.250	4.500	0.750	57.2	114.3	19.10
NJ	2.500	4.500	0.750	63.5	114.3	19.10

*Based on 1" = 25.4 mm.

TYPICAL WEIGHT

Case Code	Ounces	Grams
DE	3.6	102
DG	5.1	145
EE	4.4	125
EG	6.1	173
FG	7.2	204
FJ	9.2	261
JG	11	312
JJ	14	397
LJ	18	510
NJ	22	624

**High Discharge Rate
Energy-Storage
Metalized Polypropylene
Film Capacitors**



Features —

- Low Cost and Weight
- 10 PPS Discharge Rate
- Rugged Wrap & Fill Construction
- Low Loss

Major Applications:

Flash, portable laser, hand held range finder

PHYSICAL CHARACTERISTICS —

Construction:

Non-inductive wound metalized polypropylene

Case:

Flame retardant tape wrap and epoxy endfill

Lead Material:

Solder coated copper wire No. 16 AWG

Lead Strength:

Capable of withstanding a five pound pull force on lead axis

Marking:

Dearborn trademark, type or catalog number, capacitance, tolerance and voltage

ELECTRICAL SPECIFICATIONS —

Capacitance Range:

5 μ F to 100 μ F

Capacitance Tolerance:

+20% -10%, \pm 10%

Operating Temperature:

0°C to +40°C

DC Voltage Range:

800 VDC to 1200 VDC

Dissipation Factor:

0.3% Maximum

Voltage Test:

150% of rated voltage for 2 minutes

Discharge Rate:

10 discharges per sec. maximum

Inductance:

0.03 to 0.05 μ H typical at resonance

Insulation Resistance:

Measured at 500VDC after a 2 minute charge
At+25°, 40,000 Megohm-Microfarads

μ F	Rated Joules	D Max	L Max	Max. Peak Discharge Current Amps
800 VDC				
10	3.2	1.147	2.531	150
25	8	1.688	2.531	350
50	16	2.309	2.531	700
75	24	2.264	3.515	700
100	32	2.243	4.499	700
1000 VDC				
10	5	1.524	2.531	200
25	12.5	2.296	2.531	500
50	25	2.164	4.499	500
1200 VDC				
5	3.6	1.364	2.531	100
10	7.2	1.843	2.531	250
25	18	2.232	3.515	400

Special Requirements: The operational characteristics as stated are typical of standard capacitors. Special designs to meet additional or different requirements are available. Consult factory for additional information.

**High Discharge Rate
Energy-Storage
Metalized Polyester
Film Capacitors**

Features —

- Low Cost
- Light Weight
- 10 pps Discharge Rate
- Rugged Wrap & Fill Construction
- Long Life

Major Applications:

Flash, laser, strobe, light bar, aluminum electrolytic alternative

PHYSICAL CHARACTERISTICS —

Construction:

Non-inductive wound metalized polyester

Case:

Flame retardant tape wrap and epoxy endfill

Lead Material:

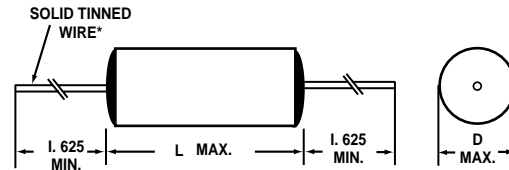
Solder coated copper wire No. 16 AWG

Lead Strength:

Capable of withstanding a five pound pull force on lead axis

Marking:

Dearborn trademark, type or catalog number capacitance, tolerance and voltage



ELECTRICAL SPECIFICATIONS —

Capacitance Range:

5 μ F to 175 μ F

Capacitance Tolerance:

+20% -10%, \pm 10%

Operating Temperature:

0°C to +40°C

DC Voltage Range:

400 VDC to 1000 VDC

Dissipation Factor:

1.0% maximum

Voltage Test:

150% of rated voltage for 2 minutes

Discharge Rate:

10 discharges per sec. maximum

Inductance:

0.03 to 0.05 μ H typical at resonance

Insulation Resistance:

Measure at rated voltage, not to exceed

500 VDC, after a 2 minute charge

At+25°, 25,000 Megohm-Microfarads

μ F	Rated Joules	D Max	L Max	Max. Peak Discharge Current Amps
400 VDC				
5.0	.4	.807	2.062	65
10.0	.8	1.032	2.062	130
25.0	2	1.502	2.062	300
50.0	4	2.043	2.062	600
75.0	6	2.148	2.531	700
100.0	8	1.759	4.500	450
150.0	12	2.112	4.500	700
175.0	14	2.267	4.500	800
750 VDC				
10.0	2.8	1.204	2.062	160
25.0	7.0	1.782	2.062	400
50.0	14	2.100	2.562	550
75.0	21.1	2.078	3.515	550
100.0	28.1	2.060	4.500	550
1000 VDC				
10.0	5	1.573	2.062	230
25.0	12.5	2.015	2.531	400
50.0	25.0	2.211	3.515	500
75.0	37.5	2.291	4.500	530

Special Requirements: The operational characteristics as stated are typical of standard capacitors. Special designs to meet additional or different requirements are available. Consult factory for additional information.