HIGH DISCHARGE RATE ENERGY-STORAGE METALIZED POLYESTER FILM CAPACITORS

TYPE 684P

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 µF to 175 µF

CAPACITANCE TOLERANCE:
+20% -10%, ±10%

OPERATING TEMPERATURE:
0°C to +40°C

DC VOLTAGE RANGE:
400 VDC to 1,000 VDC

DISSIPATION FACTOR:
1.0% maximum

VOLTAGE TEST:
150% of rated voltage for 2 minutes

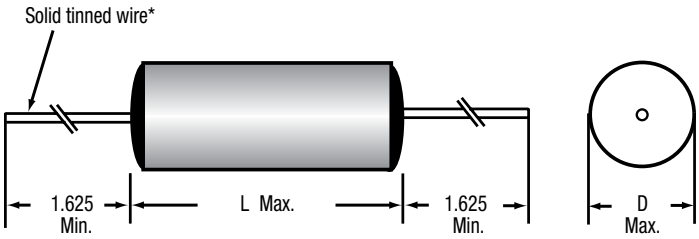
DISCHARGE RATE:
10 discharge per sec. maximum

INDUCTANCE:
0.03 to 0.05 µH typical at resonance

INSULATION RESISTANCE:
Measure at rated voltage, not to exceed 500 VDC, after a 2 minute charge.

- At +25°C, 25,000 Megaohm-Microfarads

DIMENSIONS (in inches)



HIGH DISCHARGE RATE ENERGY-STORAGE METALIZED POLYPROPYLENE FILM CAPACITORS

STANDARD RATINGS

µF	Rated Joules	Dimensions (in inches)		Max. Peak Discharge Current (in Amps)
		D Max.	L Max.	
400 VDC				
5.0	0.4	0.807	2.062	65
10.0	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
1,000 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

GENERAL INFORMATION ON POLYESTER CAPACITORS

GENERAL INFORMATION

One of the principle characteristics of these capacitors is their small size. This is due to the high dielectric constant and high dielectric strength of the film. They also have superior self-healing properties. They may be used in AC sine wave or non sine wave applications.

GENERAL ELECTRICAL, PHYSICAL, AND ENVIRONMENTAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS:

Capacitance, dissipation factor, insulation resistance, and dielectric strength shall be measured as specified.

PHYSICAL CHARACTERISTICS:

The lead strength shall be measured as specified.

ENVIRONMENTAL CHARACTERISTICS:

Vibration Test:

Units shall be tested as required. As a result of the test no mechanical damage, short, open or intermittent circuit.

MOISTURE RESISTANCE:

The hermetically sealed units shall be tested.

As a result of the test there shall be:

- No visible damage
- Max. Δ C of $\pm$ 10%
- Min. IR = 50% of initial limit
- Max. DF = 2.0%

HUMIDITY TEST:

The non-hermetically sealed units shall be tested.

As a result of the test there shall be:

- No visible damage
- Max. Δ C of $\pm$ 10%
- Min. IR = 20% of initial limit
- Max. DF = 2.0%

DC LIFE:

125% of rated voltage at 85°C (125°C for Type 218P) for 250 hours except for Type 430P units rated at 1,000 VDC or greater which shall be tested at 100% of rated voltage at 40°C for 1,000 hours.

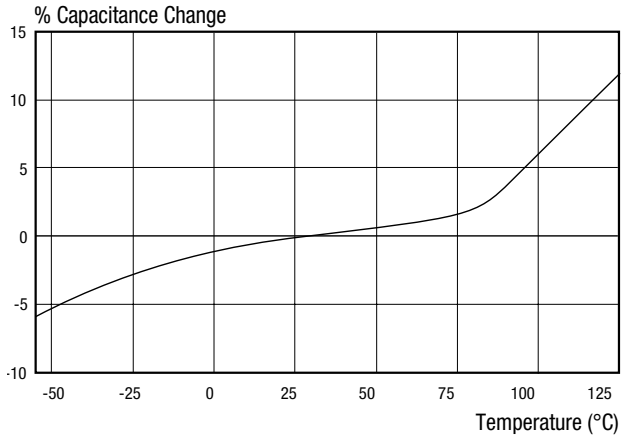
As a result of the test there shall be:

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

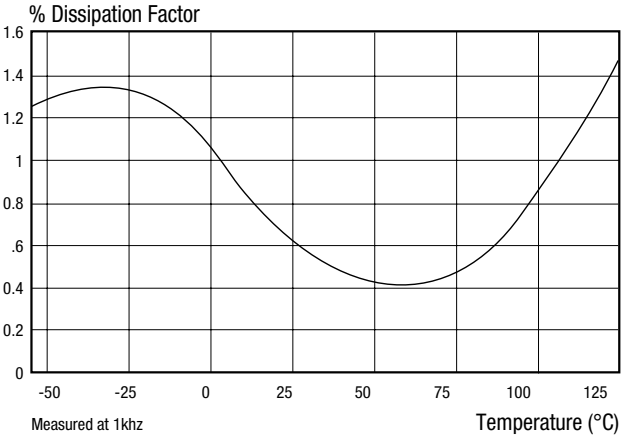
GENERAL INFORMATION ON POLYESTER CAPACITORS

CHARACTERISTICS

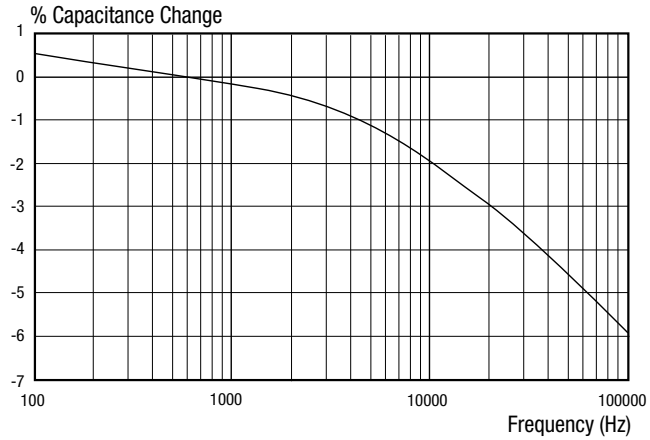
CAPACITANCE CHANGE VS. TEMPERATURE - METALIZED POLYESTER



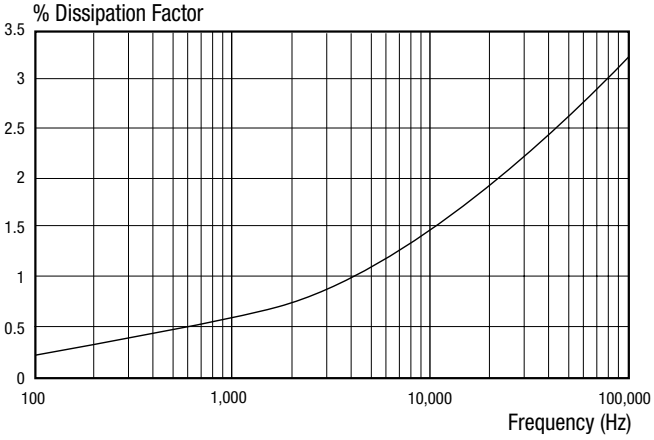
DISSIPATION FACTOR VS. TEMPERATURE - METALIZED POLYESTER



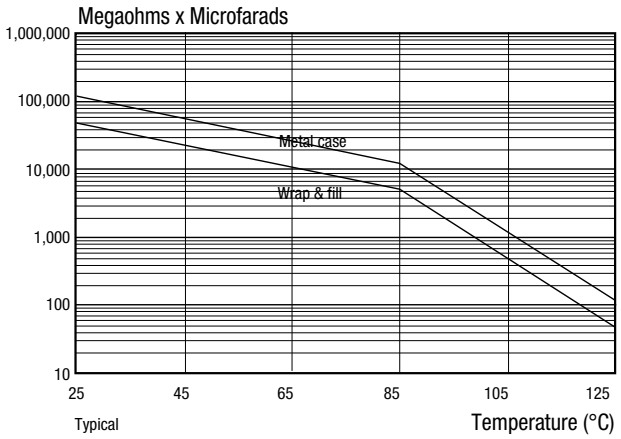
CAPACITANCE CHANGE VS. FREQUENCY - METALIZED POLYESTER



DISSIPATION FACTOR VS. FREQUENCY - METALIZED POLYESTER

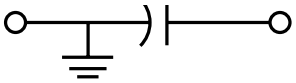


INSULATION RESISTANCE VS. TEMPERATURE - METALIZED POLYESTER



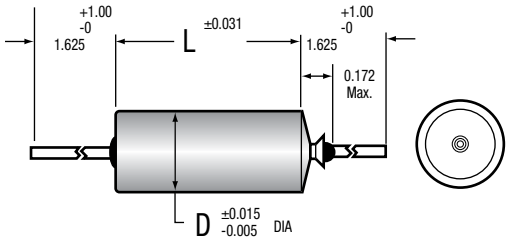
GUIDE TO ORDERING

SECTION GROUNDED TO CASE

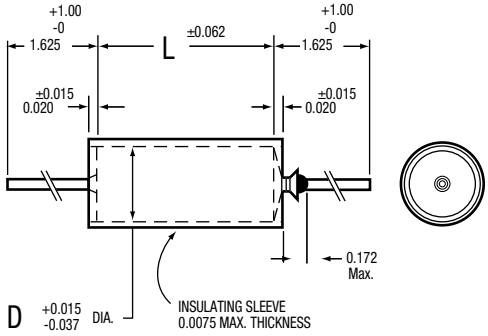


DIMENSIONS (in inches)

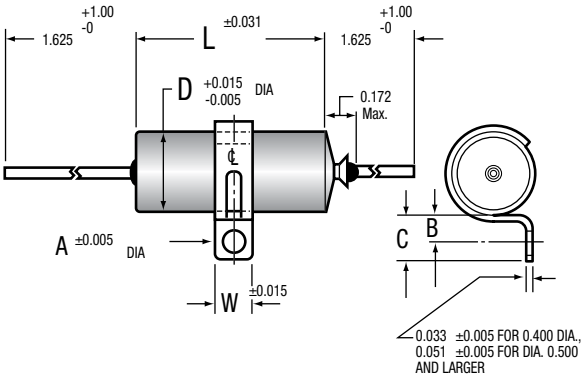
CASE STYLE 01



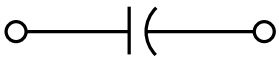
CASE STYLE 03



CASE STYLE 12

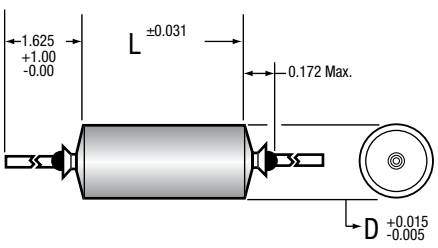


SECTION INSULATED FROM CASE

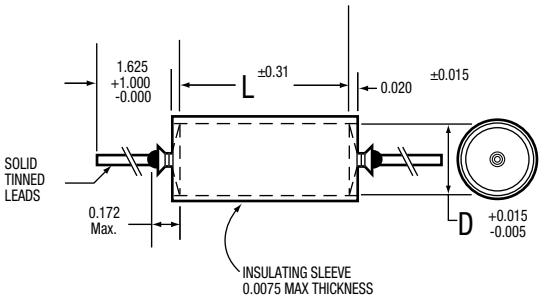


DIMENSIONS (in inches)

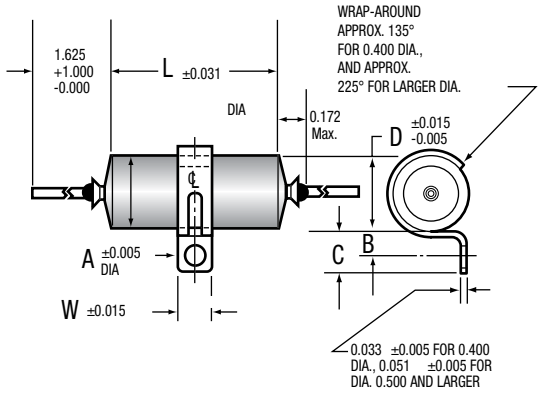
CASE STYLE 02



CASE STYLE 04



CASE STYLE 13



The length of grounded styles is 0.062" shorter than the length shown in tabulations in the catalog.

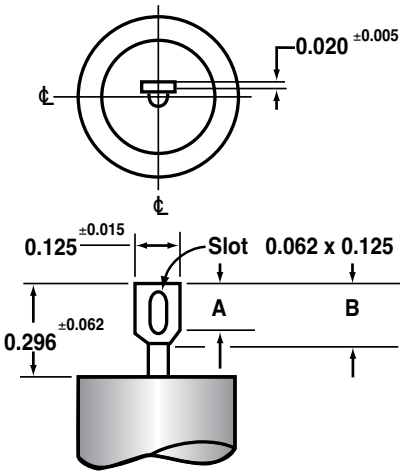
GUIDE TO ORDERING

BRACKET DIMENSIONS (Style 12 & 13 / in inches)

D	W	A	B	C
0.400	0.250	0.144	0.187±0.015	0.312±0.031
0.500	0.500	0.156	0.250±0.031	0.437±0.062
0.562	0.500	0.156	0.250±0.031	0.437±0.062
0.670	0.500	0.156	0.250±0.031	0.437±0.062
0.750	0.500	0.156	0.250±0.031	0.437±0.062
1.000	0.500	0.156	0.250±0.031	0.437±0.062

*Based on 1 in. = 25.4 mm

TYPICAL TAB TERMINAL DIMENSIONS



Dwg. No A-9525

A = 0.156 ± 0.015" (3.96 ± 0.38 mm)

B = 0.187 ± 0.015" (4.75 ± 0.38 mm)

Tab Terminal available only on case diameters equal to or greater than 0.400 inches.

T1 & T3 styles are supplied with one tab terminal on the insulated end and a ground lead on the opposite end.

ORDERING TABLES

METAL CASE

EXAMPLE:

218P 223 X9 100 S 02

CATALOG NUMBERING SYSTEM

Case style

Terminal: S = Wire leads T = Soldering tab*.

DC Voltage rating: Expressed in volts.
See standard ratings charts for voltage code.

Capacitance Tolerance: X0 = ±20%
X9 = ±10%
X5 = ±5%
X2 = ±2%

Capacitance: Expressed in picofarads, the first two digits are significant figures; the third is the number of zeros following. See standard ratings tables for capacitance code.

Dearborn type number: Identifies the basic capacitor.

* Soldering tabs are available only on case diameters equal to or greater then 0.400 inches.

WRAP AND FILL

EXAMPLE:

430P 183 X9 100 X F

CATALOG NUMBERING SYSTEM

"F" applies only to "ROHS" compliant parts.

Terminal: No suffix required unless specified on applicable specification sheet (Terminal style).

DC Voltage rating: Expressed in volts.
See standard ratings charts for voltage code.

Capacitance Tolerance: X0 = ±20%
X9 = ±10%
X5 = ±5%
X2 = ±2%

Capacitance: Expressed in picofarads, the first two digits are significant figures; the third is the number of zeros following. See standard ratings tables for capacitance code.

Dearborn type number: Identifies the basic capacitor.