

# WRAP-AND-FILL OVAL CONFIGURATION METALIZED POLYESTER FILM CAPACITORS



## FEATURES

- Economical
- Small size
- Rugged construction
- Space saving oval configuration

### MAJOR APPLICATIONS:

Blocking, filtering, bypass, timing, coupling decoupling, pulse operations, power supply, etc.

## PHYSICAL CHARACTERISTICS

### CONSTRUCTION:

Non-inductive wound metalized polyester.

### CASE:

Flame retardant tape wrap and epoxy endfill.

### LEAD MATERIAL:

Solder coated solid wire.

### LEAD WIRE SIZES:

Case Dia.	Lead AWG
≤ 0.240	No. 22
> 0.240	No. 20

### 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:** 0.01  $\mu\text{F}$  to 15.0  $\mu\text{F}$

### VOLTAGE RATING:

- 63 VDC to 630 VDC
- 40 VRMS to 220 VRMS

**CAPACITANCE TOLERANCE:**  $\pm 20\%$ ,  $\pm 10\%$ ,  $\pm 5\%$

**OPERATING TEMPERATURE:**  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

**VOLTAGE DERATING:** At  $+125^{\circ}\text{C}$ , 50% of the  $85^{\circ}\text{C}$  rating

### DISSIPATION FACTOR:

- 0.8% maximum  $\leq 1.0 \mu\text{F}$
- 1.0% maximum  $> 1.0 \mu\text{F}$

**DC VOLTAGE TEST:** 200% of rated voltage for 2 minutes

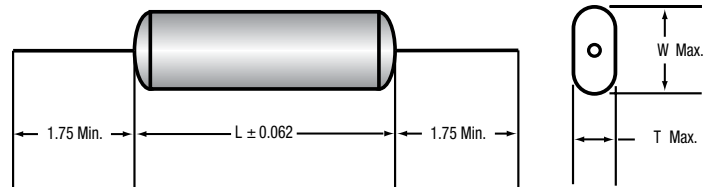
### INSULATION RESISTANCE:

- At  $+25^{\circ}\text{C}$ , 25,000 Megaohm-Microfarads, need not exceed 50,000 Megaohms
- At  $+85^{\circ}\text{C}$ , 1,000 Megaohm-Microfarads, need not exceed 2,500 Megaohms

## MAXIMUM PULSE RISE TIME

Capacitor Length (inch)	Rise Time $dv/dt$ (V / $\mu\text{s}$ )				
	63 VDC / 40 VAC	100 VDC / 63 VAC	250 VDC / 160 VAC	400 VDC / 200 VAC	630 VDC / 220 VAC
0.625	46	54	75	100	250
0.750	28	34	48	75	130
1.000	16	19	27	45	75
1.250	12	13	19	30	45
1.500	9	10	15	-	37
1.750	9	9	12	19	30
2.000	-	-	-	-	25
2.250	-	7	9	13	-

## DIMENSIONS (in inches)



\*Leads to be within  $\pm 0.062$ " (1.57 mm) of the center line at egress, but not less than 0.031" for the edge.

# WRAP-AND-FILL OVAL CONFIGURATION METALIZED POLYESTER FILM CAPACITORS

TYPE 431P

## STANDARD RATINGS

Capacitance		Voltage Code 063 63 VDC / 40 VAC*			Voltage Code 100 100 VDC / 63 VAC*			Voltage Code 250 250 VDC / 160 VAC*			Voltage Code 400 400 VDC / 200 VAC*			Voltage Code 630 630 VDC / 220 VAC*		
μF	Code	T	W	L	T	W	L	T	W	L	T	W	L	T	W	L
0.010	103	-	-	-	-	-	-	-	-	-	-	-	-	0.171	0.278	0.625
0.015	153	-	-	-	-	-	-	-	-	-	-	-	-	0.199	0.331	0.625
0.022	223	-	-	-	-	-	-	-	-	-	-	-	-	0.189	0.296	0.750
0.033	333	-	-	-	-	-	-	-	-	-	0.173	0.280	0.625	0.221	0.353	0.750
0.047	473	-	-	-	-	-	-	-	-	-	0.206	0.313	0.625	0.191	0.323	1.000
0.068	683	-	-	-	-	-	-	-	-	-	0.198	0.305	0.750	0.231	0.363	1.000
0.10	104	-	-	-	-	-	-	0.191	0.298	0.625	0.230	0.362	0.750	0.272	0.429	1.000
0.15	154	-	-	-	-	-	-	0.186	0.293	0.750	0.214	0.395	1.000	0.275	0.432	1.250
0.22	224	-	-	-	0.200	0.307	0.625	0.215	0.347	0.750	0.251	0.407	1.000	0.292	0.448	1.500
0.33	334	0.210	0.317	0.625	0.196	0.303	0.750	0.200	0.332	1.000	0.258	0.415	1.250	0.302	0.507	1.750
0.47	474	0.191	0.323	0.750	0.178	0.285	1.000	0.231	0.387	1.000	0.272	0.428	1.500	0.348	0.603	1.750
0.68	684	0.231	0.363	0.750	0.204	0.336	1.000	0.282	0.438	1.000	0.297	0.453	1.750	0.432	0.687	1.750
1.00	105	0.212	0.344	1.000	0.208	0.339	1.250	0.287	0.443	1.250	0.344	0.550	1.750	0.488	0.742	2.000
1.50	155	0.252	0.408	1.000	0.246	0.403	1.250	0.336	0.541	1.250	0.411	0.665	1.750	-	-	-
2.00	205	0.274	0.480	1.000	0.288	0.444	1.250	0.341	0.547	1.500	0.486	0.740	1.750	-	-	-
2.50	255	0.311	0.517	1.000	0.304	0.509	1.250	0.366	0.628	1.500	0.507	0.860	1.750	-	-	-
3.00	305	0.283	0.488	1.250	0.337	0.542	1.250	0.407	0.662	1.500	0.467	0.820	2.250	-	-	-
4.00	405	0.307	0.513	1.250	0.345	0.600	1.500	0.427	0.682	1.750	0.557	0.910	2.250	-	-	-
5.00	505	0.349	0.554	1.500	0.393	0.648	1.500	0.486	0.741	1.750	-	-	-	-	-	-
6.00	605	0.365	0.620	1.500	0.437	0.692	1.500	0.496	0.848	1.750	-	-	-	-	-	-
7.00	705	0.400	0.654	1.500	0.479	0.733	1.500	0.544	0.897	1.750	-	-	-	-	-	-
10.00	106	0.492	0.747	1.500	0.478	0.831	1.750	0.558	0.910	2.250	-	-	-	-	-	-
12.00	126	0.496	0.740	1.750	0.483	0.738	2.250	0.622	0.975	2.250	-	-	-	-	-	-
15.00	156	0.507	0.860	1.750	0.505	0.857	2.250	-	-	-	-	-	-	-	-	-

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

\*AC voltage rating is at 60Hz 1.4 x VRMS + VDC should not exceed the rated VDC.

# 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.  $\Delta C$  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.  $\Delta C$  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.

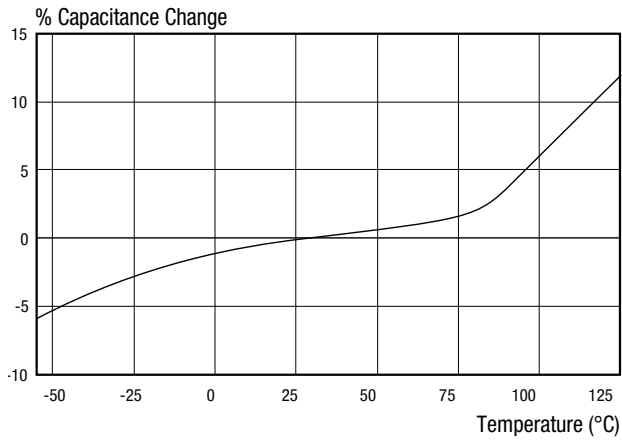
#### As a result of the test there shall be:

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

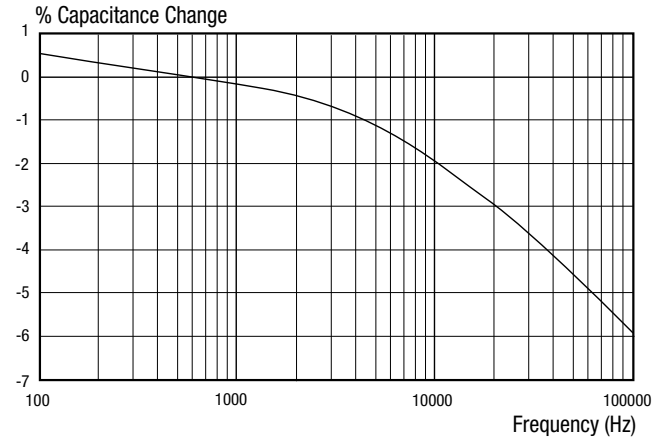
# GENERAL INFORMATION ON POLYESTER CAPACITORS

## CHARACTERISTICS

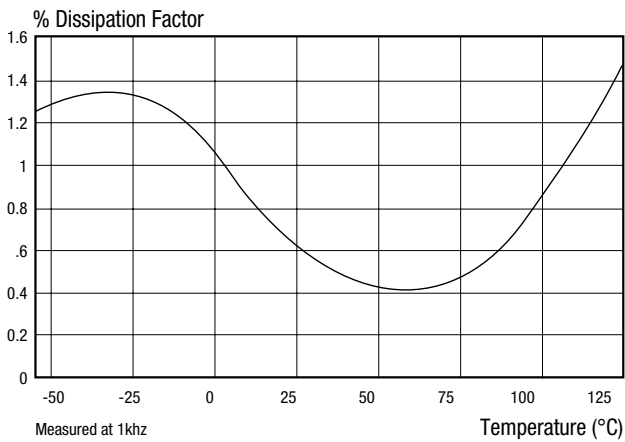
### CAPACITANCE CHANGE VS. TEMPERATURE - METALIZED POLYESTER



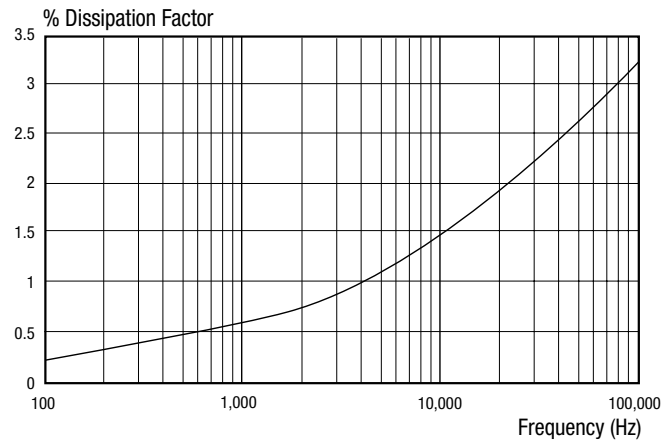
### CAPACITANCE CHANGE VS. FREQUENCY - METALIZED POLYESTER



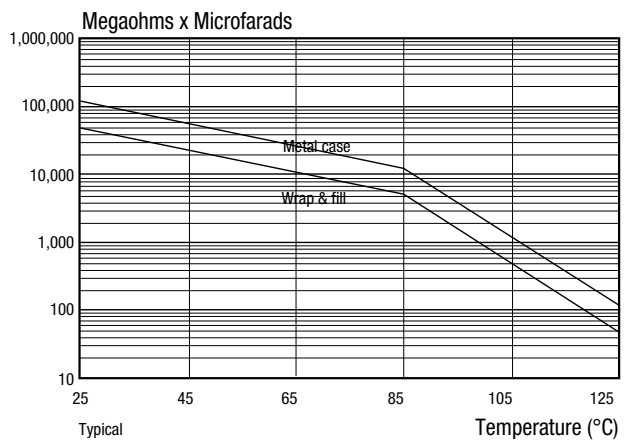
### DISSIPATION FACTOR VS. TEMPERATURE - METALIZED POLYESTER



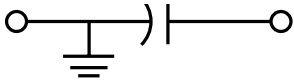
### DISSIPATION FACTOR VS. FREQUENCY - METALIZED POLYESTER



### INSULATION RESISTANCE VS. TEMPERATURE - METALIZED POLYESTER

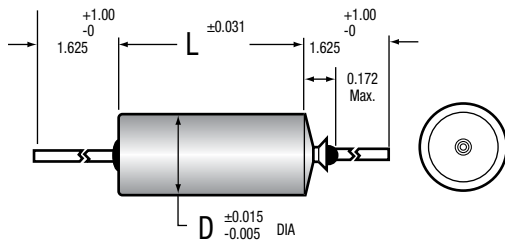


## SECTION GROUNDED TO CASE

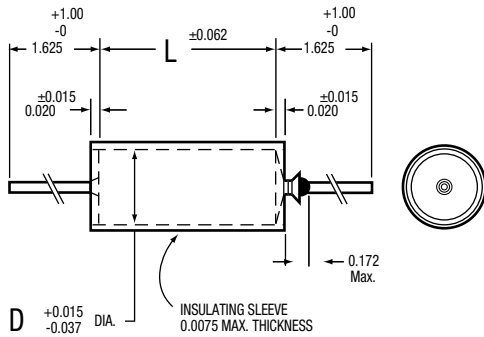


DIMENSIONS (in inches)

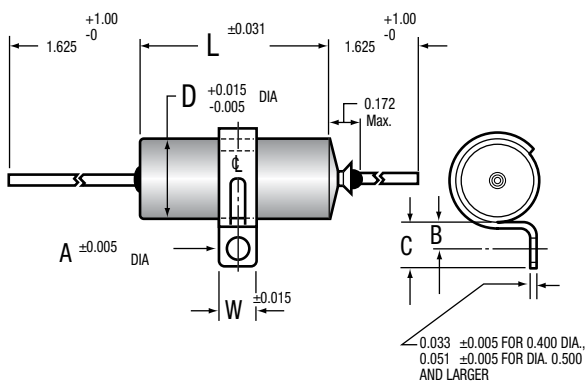
### CASE STYLE 01



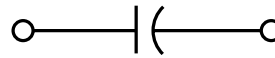
### CASE STYLE 03



### CASE STYLE 12

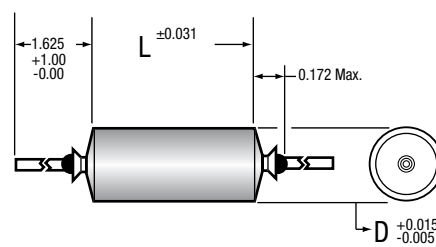


## SECTION INSULATED FROM CASE

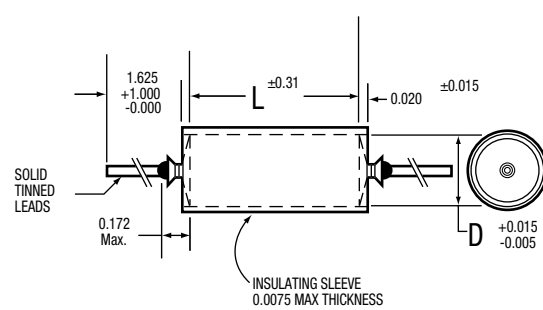


DIMENSIONS (in inches)

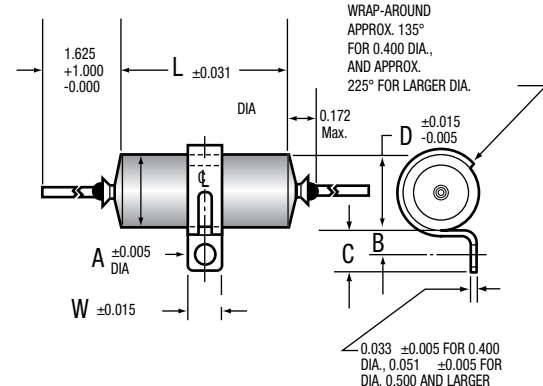
### CASE STYLE 02



### CASE STYLE 04



### CASE STYLE 13



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

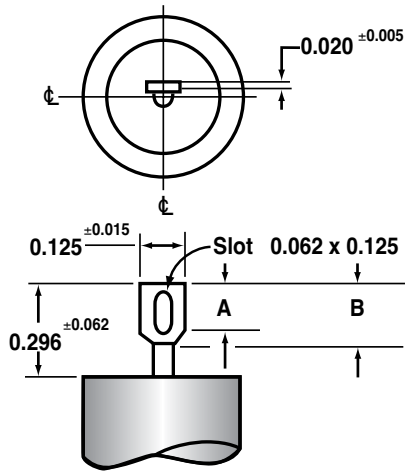
# GUIDE TO ORDERING

## 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.

## 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 =  $\pm 20\%$   
X9 =  $\pm 10\%$   
X5 =  $\pm 5\%$   
X2 =  $\pm 2\%$

**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 than 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 =  $\pm 20\%$   
X9 =  $\pm 10\%$   
X5 =  $\pm 5\%$   
X2 =  $\pm 2\%$

**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.