

# WRAP-AND-FILL METALIZED POLYPHENYLENE SULFIDE FILM CAPACITORS



## FEATURES

- Superior performance
- High efficiency
- High stability
- High reliability
- Rugged construction
- Small size
- Meets the requirements of MIL-PRF-55514 / 13

### MAJOR APPLICATIONS:

Filtering, timing, storage, integrating, and other applications requiring the high stability and low retrace of polyphenylene sulfide.

## PHYSICAL CHARACTERISTICS

### CONSTRUCTION:

Non-inductive wound metalized polyphenylene sulfide.

**CASE:** Flame retardant tape wrap and epoxy endfill.

**LEAD MATERIAL:** Solder coated solid wire.

### LEAD WIRE SIZES:

Case Dia.	Lead AWG
< 0.230	0.020 (No. 24)
< 0.440	0.025 (No. 22)
≥ 0.440	0.032 (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  $\mu$ F to 15.0  $\mu$ F

### VOLTAGE RATING:

- 50 VDC to 200 VDC
- 32 VRMS to 126 VRMS

**CAPACITANCE TOLERANCE:**  $\pm$ 10%,  $\pm$ 5%,  $\pm$ 2%

### OPERATING TEMPERATURE:

-55°C to +125°C without derating for DC operation

**AC OPERATION:** Limited to +105°C

**DISSIPATION FACTOR:** 0.15% maximum when measured at 1kHz @ 25°C

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

### INSULATION RESISTANCE:

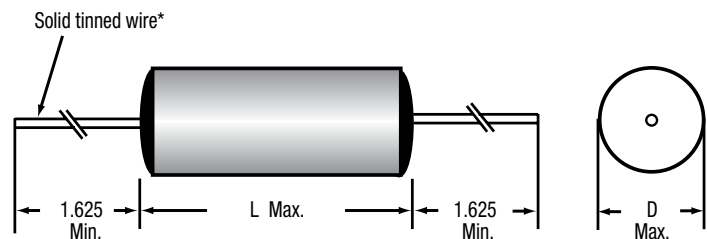
Measure at rated VDC after a 2 minute charge.

- At + 25°C, 50,000 Megaohm-Microfarads, need not exceed 100,000 Megaohms
- At + 85°C, 2,000 Megaohm-Microfarads, need not exceed 4,000 Megaohms
- At + 125°C, 250 Megaohm-Microfarads, need not exceed 500 Megaohms

## MAXIMUM PULSE RISE TIME

Capacitor Length (inch)	Rise Time $dv / dt$ (V / $\mu$ s)		
	50 V	100 V	200 V
0.400	25	35	57
0.530	13	20	38
0.750	7	14	20
1.030	6	9	14
1.250	4	7	11
1.500	-	-	9

## DIMENSIONS (in inches)



\* Leads to be within  $\pm$ 0.062" of center line at egress, but not less than 0.031" from edge.

# WRAP-AND-FILL METALIZED POLYPHENYLENE SULFIDE FILM CAPACITORS

TYPE 842P

## STANDARD RATINGS

Capacitance		Voltage Code 050 50 VDC / 32 VAC*		Voltage Code 100 100 VDC / 63 VAC*		Voltage Code 200 200 VDC / 126 VAC*	
µF	Code	D	L	D	L	D	L
0.010	103	0.17	0.40	0.17	0.40	0.17	0.40
0.015	153	0.17	0.40	0.17	0.40	0.19	0.40
0.022	223	0.17	0.40	0.17	0.40	0.23	0.40
0.033	333	0.17	0.40	0.19	0.40	0.26	0.40
0.047	473	0.17	0.40	0.23	0.40	0.23	0.53
0.068	683	0.17	0.40	0.26	0.40	0.26	0.53
0.10	104	0.23	0.40	0.23	0.53	0.31	0.53
0.15	154	0.23	0.40	0.26	0.53	0.31	0.75
0.22	224	0.26	0.40	0.31	0.53	0.35	0.75
0.33	334	0.26	0.53	0.35	0.53	0.40	0.75
0.47	474	0.31	0.53	0.31	0.75	0.40	1.03
0.68	684	0.35	0.53	0.35	0.75	0.44	1.03
1.00	105	0.31	0.75	0.40	0.75	0.49	1.25
1.50	155	0.35	0.75	0.40	1.03	0.56	1.25
2.00	205	0.40	0.75	0.44	1.03	0.56	1.50
2.70	275	0.35	1.03	0.51	1.03	0.67	1.50
3.00	305	0.40	1.03	0.49	1.25	0.67	1.50
3.90	395	0.44	1.03	0.56	1.25	0.76	1.50
5.00	505	0.49	1.03	0.61	1.25	0.87	2.06
5.60	565	0.49	1.03	0.56	1.50	-	-
6.80	685	0.49	1.25	0.61	1.50	-	-
10.00	106	0.61	1.25	-	-	-	-
15.00	156	0.61	1.50	-	-	-	-

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

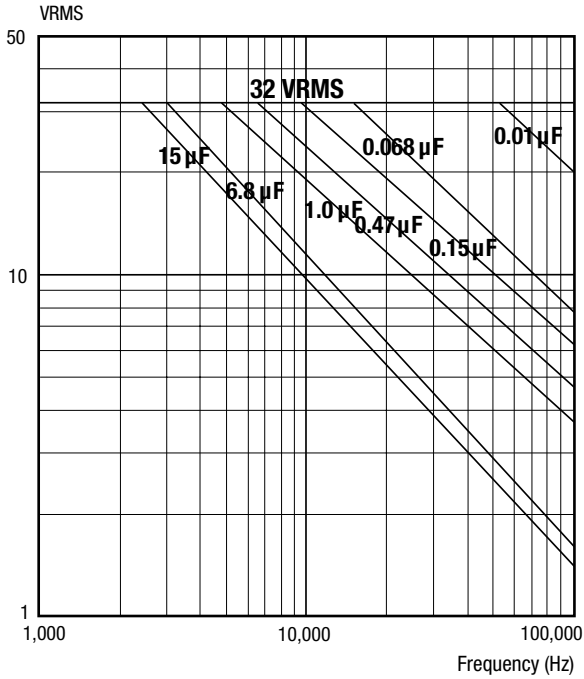
\* AC voltage rating is at 400Hz 1.4 x VRMS + VDC should not exceed the rated VDC.

\* Graphs of AC voltage vs. frequency follow.

# WRAP-AND-FILL METALIZED POLYPHENYLENE SULFIDE FILM CAPACITORS

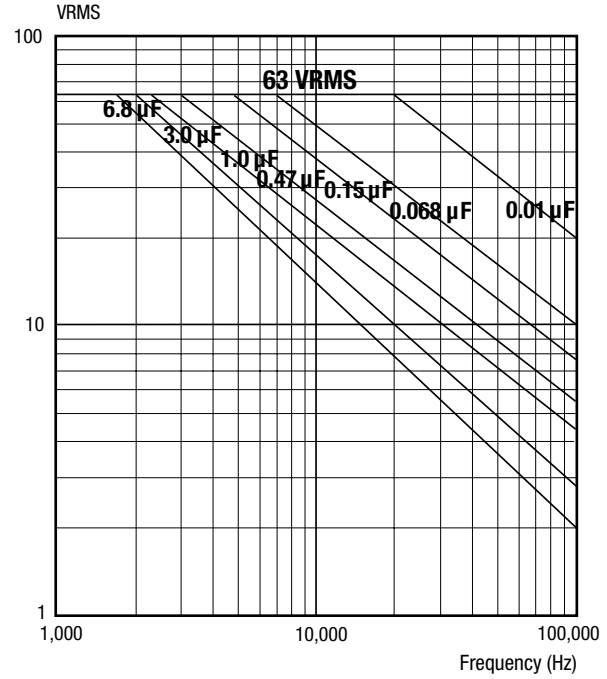
VOLTAGE VS. FREQUENCY TYPE 842P

50 VDC / 32 VAC



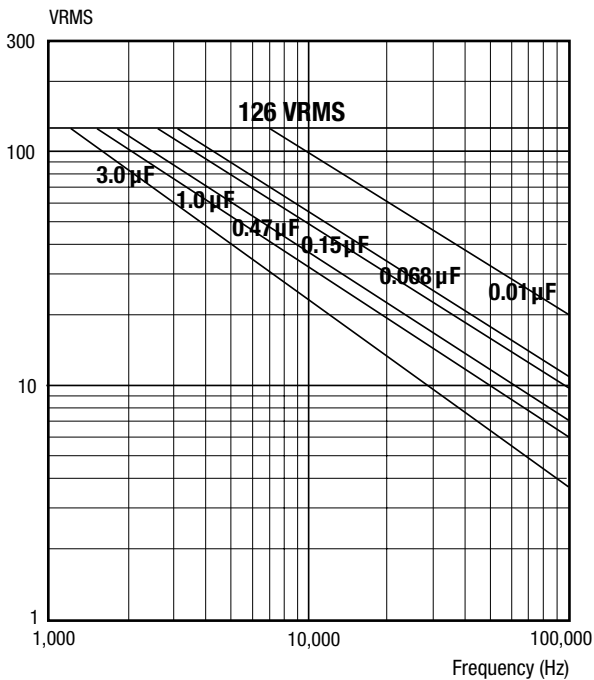
VOLTAGE VS. FREQUENCY TYPE 842P

100 VDC / 63 VAC



VOLTAGE VS. FREQUENCY TYPE 842P

200 VDC / 126 VAC



# GENERAL INFORMATION ON POLYPHENYLENE SULFIDE CAPACITORS

## 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
- Min. IR = 50% of initial limit
- Max.  $\Delta C$  of  $\pm 5\%$
- Max. DF = 0.5%

### HUMIDITY TEST:

The non-hermetically sealed units shall be tested.

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

- No visible damage
- Min. IR = 50% of initial limit
- Max.  $\Delta C$  of  $\pm 5\%$
- Max. DF = 0.5%

### DC LIFE:

820P, 842P, 859P are tested in accordance with the applicable Mil Spec.  
810P, 832P, 860P & 882P: 140% of rated voltage at 125°C for 250 hours  
880P: 125% of rated voltage for 250 hours at 150°C.

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

- No permanent open or short circuit
- Max.  $\Delta C$  of  $\pm 5\%$
- Max. DF = 0.3%
- No visible damage
- Min. IR = 50% of initial limit






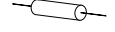
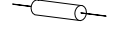
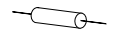

### AC LIFE:

The Type 859P shall be tested at 110% of the rated rms voltage at 400Hz for 250 hours at 85°C.

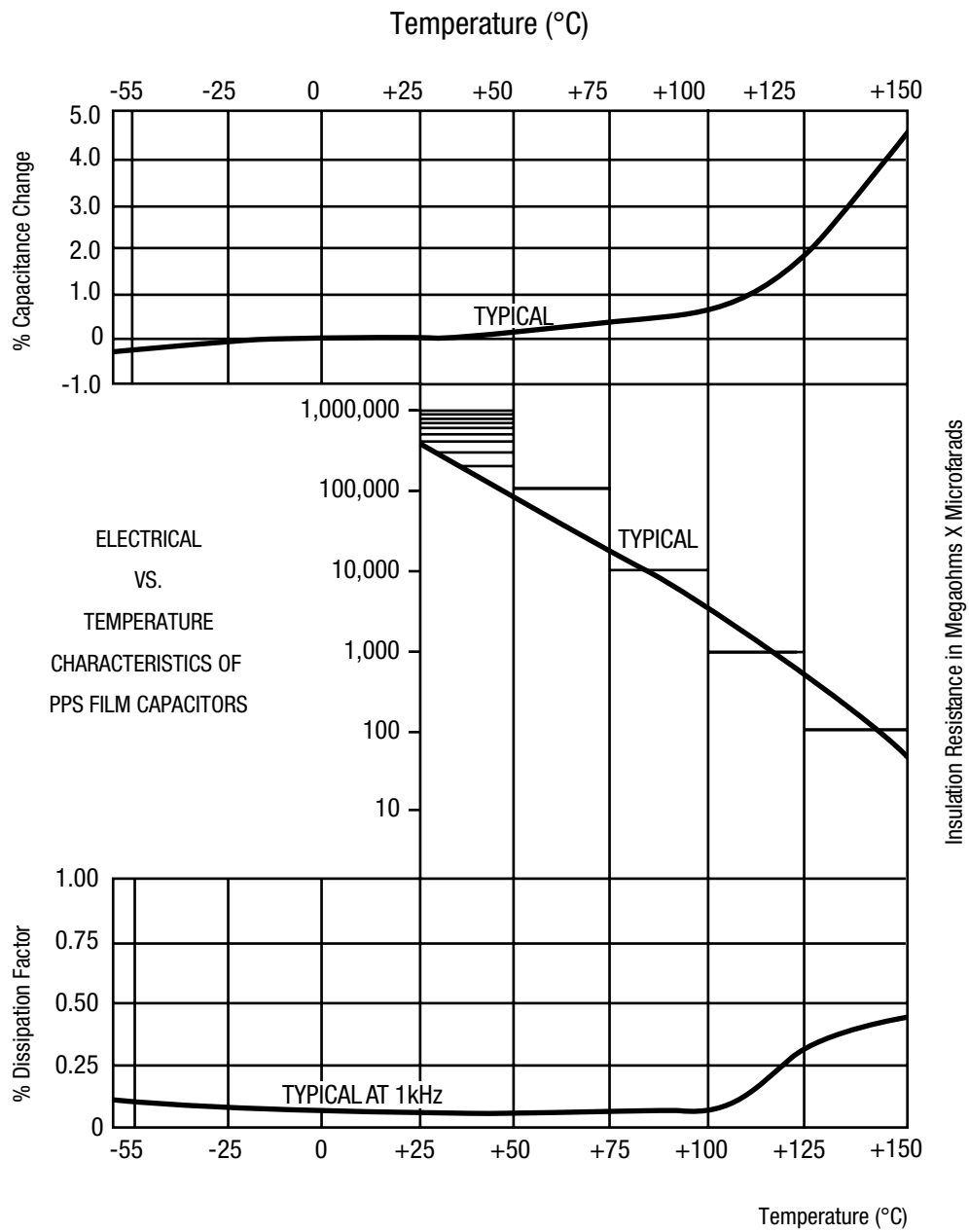
#### As a result of the test there shall be:

- No permanent open or short circuit
- Max.  $\Delta C$  of  $\pm 5\%$
- Max. DF = 0.5%
- No visible damage
- Min. IR = 50% of initial limit

## METALIZED POLYCARBONATE / POLYPHENYLENE SULFIDE

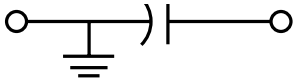
POLYPHENYLENE SULFIDE (Replacement for Polycarbonate)			POLYCARBONATE		POLYCARBONATE / POLYPHENYLENE SULFIDE			
Part Number	Mil Spec Number	Catalog Page	Part Number	Mil Spec Number	Outline Drawing	Description	Cap Range $\mu\text{F}$	DC Voltage Range
859P	39022 / 12	40	259P	39022 / 7		AC Rated -55°C to +105°C	0.01 - 10.0	80 - 440 VAC
860P	-	42	260P	-		Various Configurations 55°C to +105°C	0.01 - 10.0	200 - 600
820P	39022 / 13	37	620P	39022 / 10		Small Size -55°C to +125°C	0.01 - 15.0	50 - 400
-	95008	-	629P	83439 / 4 / 6 95008		Feed Thru -55°C to +125°C	0.01 - 15.0	50 - 400
832P	-	137	632P	-		Wrap & Fill -55°C to +125°C	0.001 - 10.0	63 - 400
842P	55514 / 13	140	642P	55514 / 7		Miniature Wrap & Fill -55°C to +125°C	0.01 - 15.0	50 - 200
880P	-	143	-	-		High Temp, PPS -55°C to +150°C	0.0047 - 10.0	50 - 400
FILM / FOIL POLYCARBONATE / POLYPHENYLENE SULFIDE								
810P	-	147	610P	-		Pulse Capacitor -55°C to +125°C	0.001 - 1.0	50 - 400
882P	-	149	-	-		Zero TCC PPS -55°C to +125°C	0.001 - 0.22	200

# GENERAL INFORMATION ON POLYPHENYLENE SULFIDE CAPACITORS



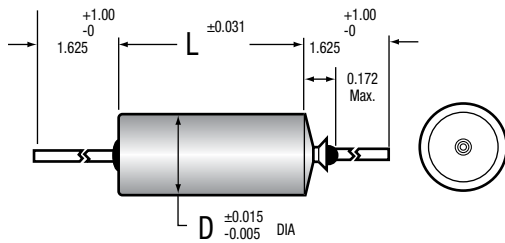
Dwg. No. A-14,582

## SECTION GROUNDED TO CASE

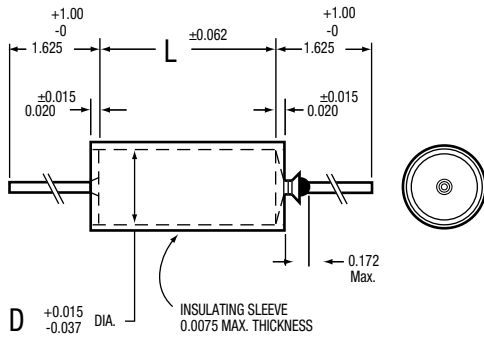


DIMENSIONS (in inches)

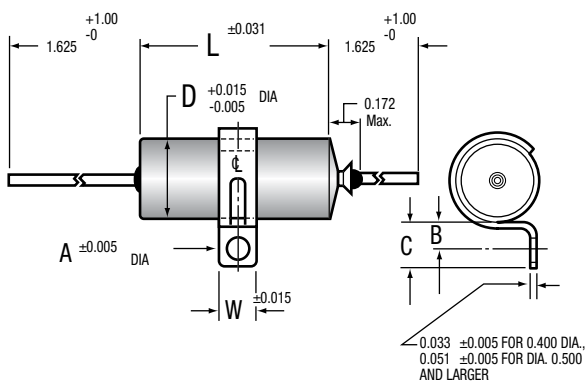
### CASE STYLE 01



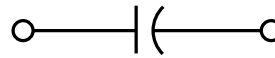
### CASE STYLE 03



### CASE STYLE 12

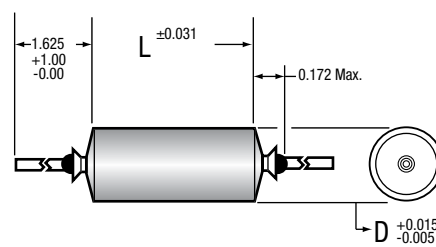


## SECTION INSULATED FROM CASE

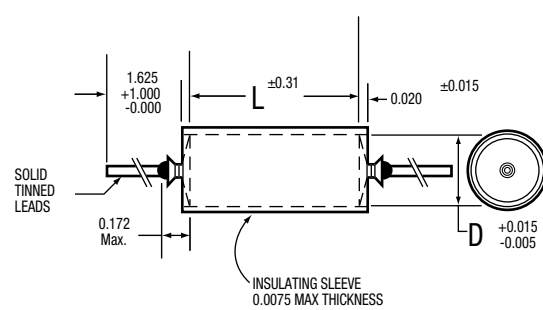


DIMENSIONS (in inches)

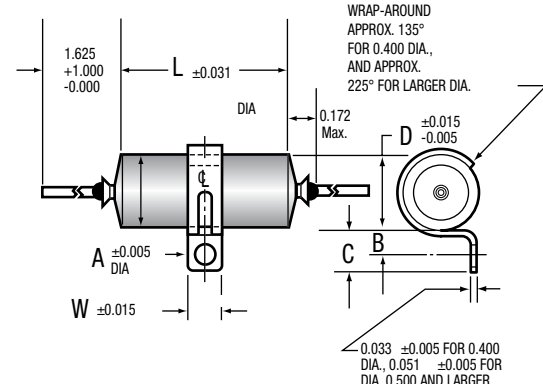
### CASE STYLE 02



### CASE STYLE 04



### CASE STYLE 13



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

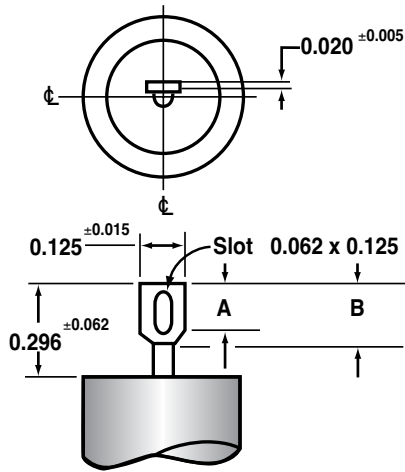
# GUIDE TO ORDERING

## 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 =  $\pm 20\%$   
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.