



## Film Capacitors Metalized Polycarbonate, Wrap-and-Fill



### FEATURES

- Superior performance
- High efficiency
- High stability
- High reliability
- Rugged construction
- Small size

### PERFORMANCE CHARACTERISTICS

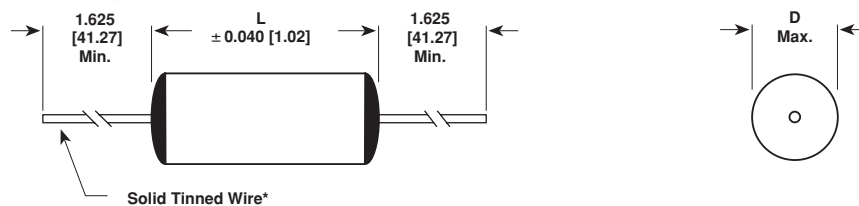
**Operating Temperature:** - 55°C to + 125°C.  
**Capacitance Range:** 0.001μF to 10.0μF.  
**Capacitance Tolerance:** ± 10%, ± 5%, ± 2%.  
**DC Voltage Rating:** 50 WVDC to 400 WVDC.  
**AC Voltage Rating:** See AC Voltage Rating table.  
**Dissipation Factor:** 0.25% maximum.  
**Voltage Test:** 200% of rated voltage for 1 minute.  
**Insulation Resistance:**  
 At + 25°C: 50,000 Megohm - Microfarads, or 100,000 Megohm minimum.  
 At + 85°C: 2,000 Megohm - Microfarads, or 4000 Megohm minimum.  
 At + 125°C: 250 Megohm - Microfarads or 500 Megohm minimum  
**Vibration Test (Condition D):** No mechanical damage. No short, open or intermittent circuits.

**DC Life Test:** 140% of rated voltage for 250 hours @ + 125°C. No open or short circuits. No visible damage. Maximum Δ CAP ± 5%. Minimum IR = 30% of initial limit. Maximum DF = 0.5%.  
**Humidity Test:** 95% relative humidity @ + 40°C for 240 hours. No visible damage. Maximum Δ CAP ± 5%. Minimum IR = 50% of initial limit. Maximum DF = 0.5%.

### PHYSICAL CHARACTERISTICS

**Lead Pull:** 5 pounds (2.3 kilograms) for one minute. No physical damage.  
**Lead Bend:** After three complete consecutive bends, no damage.  
**Marking:** Sprague® trademark, type or part number, capacitance and voltage.

### DIMENSIONS in inches [millimeters]



\* Leads to be within ± 0.062" [1.57mm] of center line at egress but not less than 0.031" [0.79mm] from edge.

### AC VOLTAGE RATING (- 55°C to + 105°C Ambient)

DC VOLTAGE RATING		EQUIVALENT VAC rms RATINGS @				
		400Hz	800Hz	1200Hz	1600Hz	2000Hz
50	(0.33μF through 5.6μF)	25.0	20.0	15.0	12.0	10.0
	(6.8μF through 10.0μF)	20.0	18.0	12.0	10.0	8.0
100	(0.15μF through 5.0μF)	65.0	45.0	35.0	30.0	25.0
	(6.8μF through 12.0μF)	40.0	30.0	25.0	20.0	18.0
200	(0.056μF through 2.0μF)	120.0	85.0	65.0	55.0	50.0
	(2.2μF through 5.0μF)	95.0	65.0	55.0	45.0	40.0
400	(0.022μF through 1.2μF)	200.0	140.0	115.0	100.0	90.0
	(1.5μF through 2.0μF)	165.0	110.0	90.0	80.0	70.0

# Type 632P

Vishay Sprague



STANDARD RATINGS in inches [millimeters]					
CAPACITANCE ( $\mu$ F)	PART NUMBER**	CASE SIZE		LEAD AWG NO.	
		D	L		
50 WVDC					
0.01*	632P103X9050	0.170 [4.32]	0.440 [11.18]	24	
0.012	632P123X9050	0.170 [4.32]	0.440 [11.18]	24	
0.015	632P153X9050	0.170 [4.32]	0.440 [11.18]	24	
0.018	632P183X9050	0.170 [4.32]	0.440 [11.18]	24	
0.02	632P203X9050	0.170 [4.32]	0.440 [11.18]	24	
0.022*	632P223X9050	0.170 [4.32]	0.440 [11.18]	24	
0.027	632P273X9050	0.170 [4.32]	0.440 [11.18]	24	
0.033*	632P333X9050	0.170 [4.32]	0.440 [11.18]	24	
0.039	632P393X9050	0.170 [4.32]	0.440 [11.18]	24	
0.047*	632P473X9050	0.170 [4.32]	0.440 [11.18]	24	
0.056	632P563X9050	0.170 [4.32]	0.440 [11.18]	24	
0.068	632P683X9050	0.170 [4.32]	0.560 [14.22]	24	
0.082	632P823X9050	0.170 [4.32]	0.560 [14.22]	24	
0.10*	632P104X9050	0.190 [4.83]	0.560 [14.22]	24	
0.12	632P124X9050	0.190 [4.83]	0.560 [14.22]	24	
0.15*	632P154X9050	0.230 [5.84]	0.440 [11.18]	22	
0.18	632P184X9050	0.230 [5.84]	0.560 [14.22]	22	
0.2	632P204X9050	0.230 [5.84]	0.560 [14.22]	22	
0.22*	632P224X9050	0.230 [5.84]	0.560 [14.22]	22	
0.27	632P274X9050	0.230 [5.84]	0.560 [14.22]	22	
0.33*	632P334X9050	0.250 [6.35]	0.560 [14.22]	22	
0.39	632P394X9050	0.250 [6.35]	0.560 [14.22]	22	
0.47*	632P474X9050	0.310 [7.87]	0.560 [14.22]	22	
0.50	632P504X9050	0.310 [7.87]	0.560 [14.22]	22	
0.56	632P564X9050	0.310 [7.87]	0.560 [14.22]	22	
0.68*	632P684X9050	0.310 [7.87]	0.560 [14.22]	22	
0.82	632P824X9050	0.270 [6.86]	0.750 [19.05]	22	
1.0*	632P105X9050	0.310 [7.87]	0.750 [19.05]	22	
1.2	632P125X9050	0.350 [8.89]	0.750 [19.05]	20	
1.5*	632P155X9050	0.350 [8.89]	0.750 [19.05]	20	
1.8	632P185X9050	0.370 [9.40]	0.750 [19.05]	20	
2.0*	632P205X9050	0.400 [10.16]	0.750 [19.05]	20	
2.2*	632P225X9050	0.400 [10.16]	0.750 [19.05]	20	
2.7	632P275X9050	0.400 [10.16]	1.000 [25.40]	20	
3.0	632P305X9050	0.400 [10.16]	1.000 [25.40]	20	
3.3	632P335X9050	0.400 [10.16]	1.000 [25.40]	20	
3.9	632P395X9050	0.400 [10.16]	1.250 [31.75]	20	
4.7*	632P475X9050	0.450 [11.43]	1.250 [31.75]	20	
5.0	632P505X9050	0.500 [12.70]	1.250 [31.75]	20	
5.6	632P565X9050	0.550 [13.97]	1.000 [25.40]	20	
6.0	632P605X9050	0.550 [13.97]	1.000 [25.40]	20	
6.8	632P685X9050	0.600 [15.24]	1.000 [25.40]	20	
8.0	632P825X9050	0.550 [12.70]	1.310 [33.27]	20	
10.0*	632P106X9050	0.600 [15.24]	1.310 [33.27]	20	

\* These ratings are stocked.

\*\* Part Numbers listed are for a capacitance tolerance of  $\pm$  10%. To specify  $\pm$  5% tolerance, change the "X9" in the Part Number to "X5"; for  $\pm$  2%, from "X9" to "X2".



<b>STANDARD RATINGS</b> in inches [millimeters]				
CAPACITANCE ( $\mu$ F)	PART NUMBER*	CASE SIZE		LEAD AWG NO.
		D	L	
<b>100 WVDC</b>				
0.01	632P103X9100	0.170 [4.32]	0.440 [11.18]	24
0.012	632P123X9100	0.170 [4.32]	0.440 [11.18]	24
0.015	632P153X9100	0.170 [4.32]	0.440 [11.18]	24
0.018	632P183X9100	0.190 [4.83]	0.440 [11.18]	24
0.02	632P203X9100	0.190 [4.83]	0.440 [11.18]	24
0.022	632P223X9100	0.190 [4.83]	0.440 [11.18]	24
0.027	632P273X9100	0.190 [4.83]	0.440 [11.18]	24
0.033	632P333X9100	0.190 [4.83]	0.440 [11.18]	24
0.039	632P393X9100	0.170 [4.32]	0.560 [14.22]	24
0.047	632P473X9100	0.190 [4.83]	0.560 [14.22]	24
0.050	632P503X9100	0.190 [4.83]	0.560 [14.22]	24
0.056	632P563X9100	0.190 [4.83]	0.560 [14.22]	24
0.068	632P683X9100	0.230 [5.84]	0.560 [14.22]	22
0.082	632P823X9100	0.230 [5.84]	0.560 [14.22]	22
0.10	632P104X9100	0.230 [5.84]	0.560 [14.22]	22
0.12	632P124X9100	0.230 [5.84]	0.560 [14.22]	22
0.15	632P154X9100	0.310 [7.87]	0.560 [14.22]	22
0.18	632P184X9100	0.230 [5.84]	0.750 [19.05]	22
0.20	632P204X9100	0.230 [5.84]	0.750 [19.05]	22
0.22	632P224X9100	0.250 [6.35]	0.750 [19.05]	22
0.27	632P274X9100	0.310 [7.87]	0.750 [19.05]	22
0.33	632P334X9100	0.310 [7.87]	0.750 [19.05]	22
0.39	632P394X9100	0.310 [7.87]	0.750 [19.05]	22
0.47	632P474X9100	0.370 [9.40]	0.750 [19.05]	20
0.50	632P504X9100	0.370 [9.40]	0.750 [19.05]	20
0.56	632P564X9100	0.370 [9.40]	0.750 [19.05]	20
0.68	632P684X9100	0.400 [10.16]	0.750 [19.05]	20
0.82	632P824X9100	0.370 [9.40]	1.000 [25.40]	20
1.0	632P105X9100	0.400 [10.16]	1.000 [25.40]	20
1.2	632P125X9100	0.400 [10.16]	1.000 [25.40]	20
1.5	632P155X9100	0.450 [11.43]	1.000 [25.40]	20
1.8	632P185X9100	0.450 [11.43]	1.000 [25.40]	20
2.0	632P205X9100	0.450 [11.43]	1.000 [25.40]	20
2.2	632P225X9100	0.500 [12.70]	1.000 [25.40]	20
2.7	632P275X9100	0.500 [12.70]	1.250 [31.79]	20
3.0	632P305X9100	0.500 [12.70]	1.250 [31.79]	20
3.3	632P335X9100	0.450 [11.43]	1.500 [38.10]	20
3.9	632P395X9100	0.500 [12.70]	1.500 [38.10]	20
4.7	632P475X9100	0.600 [15.24]	1.310 [33.27]	20
5.0	632P505X9100	0.600 [15.24]	1.310 [33.27]	20
<b>200 WVDC</b>				
0.001	632P102X9200	0.170 [4.32]	0.440 [11.18]	24
0.0012	632P122X9200	0.170 [4.32]	0.440 [11.18]	24
0.0015	632P152X9200	0.170 [4.32]	0.440 [11.18]	24
0.0018	632P182X9200	0.170 [4.32]	0.440 [11.18]	24
0.002	632P202X9200	0.170 [4.32]	0.440 [11.18]	24
0.0022	632P222X9200	0.170 [4.32]	0.440 [11.18]	24
0.0027	632P272X9200	0.170 [4.32]	0.440 [11.18]	24
0.0033	632P332X9200	0.170 [4.32]	0.440 [11.18]	24
0.0039	632P392X9200	0.170 [4.32]	0.440 [11.18]	24
0.0047	632P472X9200	0.170 [4.32]	0.440 [11.18]	24
0.005	632P502X9200	0.170 [4.32]	0.440 [11.18]	24
0.0056	632P562X9200	0.170 [4.32]	0.440 [11.18]	24
0.0068	632P682X9200	0.170 [4.32]	0.440 [11.18]	24
0.0082	632P822X9200	0.170 [4.32]	0.440 [11.18]	24

\* Part Numbers listed are for a capacitance tolerance of  $\pm 10\%$ . To specify  $\pm 5\%$  tolerance, change the "X9" in the Part Number to "X5"; for  $\pm 2\%$ , from "X9" to "X2".

# Type 632P

Vishay Sprague



<b>STANDARD RATINGS</b> in inches [millimeters]				
CAPACITANCE ( $\mu$ F)	PART NUMBER*	CASE SIZE		LEAD AWG NO.
		D	L	
<b>200 WVDC</b>				
0.01	632P103X9200	0.190 [4.83]	0.560 [14.22]	24
0.012	632P123X9200	0.190 [4.83]	0.560 [14.22]	24
0.015	632P153X9200	0.190 [4.83]	0.560 [14.22]	24
0.018	632P183X9200	0.190 [4.83]	0.560 [14.22]	24
0.02	632P203X9200	0.190 [4.83]	0.560 [14.22]	24
0.022	632P223X9200	0.190 [4.83]	0.560 [14.22]	24
0.027	632P273X9200	0.230 [5.84]	0.560 [14.22]	22
0.033	632P333X9200	0.230 [5.84]	0.560 [14.22]	22
0.039	632P393X9200	0.230 [5.84]	0.560 [14.22]	22
0.047	632P473X9200	0.230 [5.84]	0.560 [14.22]	22
0.05	632P503X9200	0.250 [6.35]	0.560 [14.22]	22
0.056	632P563X9200	0.270 [6.86]	0.560 [14.22]	22
0.068	632P683X9200	0.270 [6.86]	0.560 [14.22]	22
0.082	632P823X9200	0.310 [7.87]	0.560 [14.22]	22
0.10	632P104X9200	0.310 [7.87]	0.560 [14.22]	22
0.12	632P124X9200	0.270 [6.86]	0.750 [19.05]	22
0.15	632P154X9200	0.310 [7.87]	0.750 [19.05]	22
0.18	632P184X9200	0.310 [7.87]	0.750 [19.05]	22
0.20	632P204X9200	0.350 [8.89]	0.750 [19.05]	20
0.22	632P224X9200	0.350 [8.89]	0.750 [19.05]	20
0.27	632P274X9200	0.350 [8.89]	1.000 [25.40]	20
0.33	632P334X9200	0.370 [9.40]	1.000 [25.40]	20
0.39	632P394X9200	0.400 [10.16]	1.000 [25.40]	20
0.47	632P474X9200	0.400 [10.16]	1.000 [25.40]	20
0.50	632P504X9200	0.400 [10.16]	1.000 [25.40]	20
0.56	632P564X9200	0.450 [11.43]	1.000 [25.40]	20
0.68	632P684X9200	0.450 [11.43]	1.000 [25.40]	20
0.82	632P824X9200	0.500 [12.70]	1.000 [25.40]	20
1.0	632P105X9200	0.550 [13.97]	1.000 [25.40]	20
1.2	632P125X9200	0.500 [12.70]	1.250 [31.75]	20
1.5	632P155X9200	0.500 [12.70]	1.250 [31.75]	20
1.8	632P185X9200	0.500 [12.70]	1.810 [45.97]	20
2.0	632P205X9200	0.550 [13.97]	1.810 [45.97]	20
2.2	632P225X9200	0.550 [13.97]	1.810 [45.97]	20
2.7	632P275X9200	0.650 [16.51]	1.560 [39.62]	20
3.0	632P305X9200	0.700 [17.78]	1.560 [39.62]	20
3.3	632P335X9200	0.700 [17.78]	1.810 [45.97]	20
4.0	632P405X9200	0.750 [19.05]	1.810 [45.97]	20
4.7	632P475X9200	0.750 [19.05]	2.060 [52.32]	20
5.0	632P505X9200	0.750 [19.05]	2.060 [52.32]	20
<b>400 WVDC</b>				
0.001	632P102X9400	0.190 [4.83]	0.440 [11.18]	24
0.0012	632P122X9400	0.190 [4.83]	0.440 [11.18]	24
0.0015	632P152X9400	0.190 [4.83]	0.440 [11.18]	24
0.0018	632P182X9400	0.190 [4.83]	0.440 [11.18]	24
0.002	632P202X9400	0.190 [4.83]	0.440 [11.18]	24
0.0022	632P222X9400	0.190 [4.83]	0.440 [11.18]	24
0.0033	632P332X9400	0.230 [5.84]	0.440 [11.18]	22
0.0039	632P392X9400	0.230 [5.84]	0.440 [11.18]	22
0.0047	632P472X9400	0.230 [5.84]	0.440 [11.18]	22
0.005	632P502X9400	0.230 [5.84]	0.440 [11.18]	22
0.0056	632P562X9400	0.230 [5.84]	0.440 [11.18]	22
0.0068	632P682X9400	0.230 [5.84]	0.560 [14.22]	22
0.0082	632P822X9400	0.230 [5.84]	0.560 [14.22]	22
0.01	632P103X9400	0.230 [5.84]	0.560 [14.22]	22

\* Part Numbers listed are for a capacitance tolerance of  $\pm 10\%$ . To specify  $\pm 5\%$  tolerance, change the "X9" in the Part Number to "X5"; for  $\pm 2\%$ , from "X9" to "X2".



<b>STANDARD RATINGS</b> in inches [millimeters]				
CAPACITANCE ( $\mu$ F)	PART NUMBER*	CASE SIZE		LEAD AWG NO.
		D	L	
<b>400 WVDC</b>				
0.012	632P123X9400	0.250 [6.35]	0.560 [14.22]	22
0.015	632P153X9400	0.230 [5.84]	0.750 [19.05]	22
0.018	632P183X9400	0.270 [6.86]	0.750 [19.05]	22
0.02	632P203X9400	0.310 [7.87]	0.750 [19.05]	22
0.022	632P223X9400	0.310 [7.87]	0.750 [19.05]	22
0.027	632P273X9400	0.310 [7.87]	0.750 [19.05]	22
0.033	632P333X9400	0.310 [7.87]	0.750 [19.05]	22
0.039	632P393X9400	0.310 [7.87]	0.750 [19.05]	22
0.047	632P473X9400	0.400 [10.16]	0.750 [19.05]	20
0.050	632P503X9400	0.400 [10.16]	0.750 [19.05]	20
0.056	632P563X9400	0.400 [10.16]	0.750 [19.05]	20
0.068	632P683X9400	0.400 [10.16]	0.750 [19.05]	20
0.082	632P823X9400	0.370 [9.40]	1.000 [25.40]	20
0.10	632P104X9400	0.400 [10.16]	1.000 [25.40]	20
0.12	632P124X9400	0.400 [10.16]	1.000 [25.40]	20
0.15	632P154X9400	0.400 [10.16]	1.250 [31.75]	20
0.18	632P184X9400	0.450 [11.43]	1.250 [31.75]	20
0.20	632P204X9400	0.500 [12.70]	1.250 [31.75]	20
0.22	632P224X9400	0.500 [12.70]	1.250 [31.75]	20
0.27	632P274X9400	0.550 [13.97]	1.310 [33.27]	20
0.33	632P334X9400	0.550 [13.97]	1.310 [33.27]	20
0.39	632P394X9400	0.500 [12.70]	1.810 [45.97]	20
0.47	632P474X9400	0.550 [13.97]	1.810 [45.97]	20
0.50	632P504X9400	0.550 [13.97]	1.810 [45.97]	20
0.56	632P564X9400	0.600 [15.24]	1.810 [45.97]	20
0.68	632P684X9400	0.650 [16.51]	1.810 [45.97]	20
0.82	632P824X9400	0.700 [17.78]	1.810 [45.97]	20
1.0	632P105X9400	0.750 [19.05]	1.810 [45.97]	20
1.2	632P125X9400	0.900 [22.86]	1.810 [45.97]	20
1.5	632P155X9400	0.900 [22.86]	2.310 [58.70]	20
1.8	632P185X9400	0.950 [24.13]	2.310 [58.70]	20
2.0	632P205X9400	1.000 [25.40]	2.310 [58.70]	20

\* Part numbers listed are for a capacitance tolerance of  $\pm 10\%$ . To specify  $\pm 5\%$  tolerance, change the "X9" in the Part Number to "X5"; for  $\pm 2\%$ , from "X9" to "X2."

<b>ORDERING INFORMATION</b>			
<b>632P</b> TYPE	<b>103</b> CAPACITANCE	<b>X9</b> CAPACITANCE TOLERANCE	<b>050</b> DC VOLTAGE RATING
	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow. Values must conform to the decade rating for the tolerance specified.	X9 = $\pm 10\%$ X5 = $\pm 5\%$ X2 = $\pm 2\%$	This is expressed in volts.

**BECAUSE OF A WORLDWIDE SHORTAGE OF METALIZED POLYCARBONATE FILM, CERTAIN PART NUMBERS IN THE 632P SERIES MAY NOT BE AVAILABLE. PLEASE CHECK THE FACTORY FOR AVAILABILITY.**