Polypropylene Film Capacitors
High Performance, ORANGE DROP®

Type 716P ORANGE DROP® is a high performance version of the popular Type 715P. It is made from polyproplyene and foil with copper leads for the ultimate in high pulse current and high rms current capabillity. It is a pressed unit for better utilization of board space.

Pb-free
RoHS COMPLIANT

The 200 V, 400 V and 600 V ratings are single section, extended foil units allowing for high frequency, high current applications. The 800 V, 1200 V and 1600 V ratings are series-wound extended foil with a floating metalized common foil with provides self-healing characteristics in addition to high frequency, high current capabilities.

Capacitance change with temperature is less than 3 % over the entire operating temperature range. The temperature coefficient is negative and virtually linear at 180 ppm/°C over the temperature range of + 25 °C to + 105 °C. This characteristics means the Type 716P is suitable for matching with positive TC resistors and inductors to maintain circuit stability.
Type 716P ORANGE DROP® capacitors are conformally coated with a flame retardant epoxy.

PERFORMANCE CHARACTERISTICS

Operating Temperature: - 55 °C to + 85 °C, standard; + 105 °C provided working voltage is reduced to 50 % of + 85 °C rating

Insulation Resistance: After a 2 minute charge at rated voltage or 500 V, whichever is less

At + 25 °C: 400 000 Megohm for C ≤ 0.5 Microfarads
200 000 Megohm - Microfarads for C > 0.5 Microfarads
At + 85 °C: 20 000 Megohm for C ≤ 0.5 Microfarads
10000 Megohm - Microfarads for C > 0.5 Microfarads
At + 105 °C: 2000 Megohm for C ≤ 0.5 Microfarads
1000 Megohm - Microfarads for C > 0.5 Microfarads

Capacitance, Tolerance and Dissipation Factor:
Capacitors shall be measured at a frequency of 1000 Hz at + 25 °C or else be referred to measurements made at that frequency and temperature. The maximum dissipation factor is 0.1 %.

Dielectric Withstanding Voltage:
Capacitors rated below 1000 volts shall withstand a DC potential of 250 % of rated voltage applied between terminals for not more than 5 seconds.
Capacitors rated 1000 volts and above shall withstand a DC potential of 200 % of rated voltage applied between the terminals for not more than 5 seconds. The test voltage must be applied and discharged through a resistor of 1 ohm per volt.

Humidity Test: Condition capacitors with no voltage applied for 72 hours at 95 % relative humidity and 75 °C. Remove capaitors from humidity chamber, wipe surface dry of moisture and dry in circulating air for 4 hours. Measure insulation resistance after a 2 minute charge at + 25 °C and rated voltage or 500 VDC, whichever is less. Minimum product of insulation resistance and capacitance shall be 50 000 Megohm - Microfarads after test but need not exceed 100 000 Megohm. Not more than one failure in 12 units tested shall be permitted.

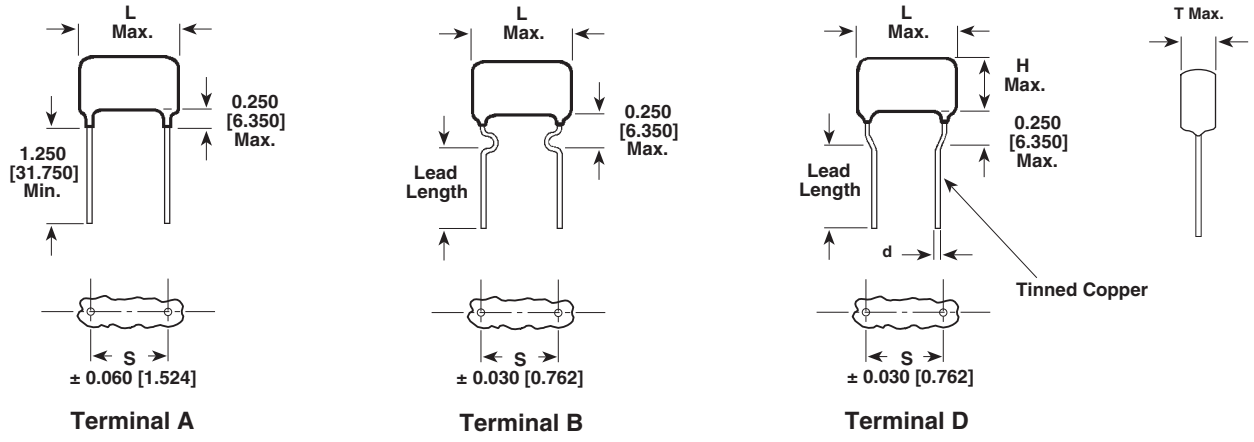
DC Life Test: Capacitors are capable of withstanding a 500 hour life test at + 85 °C at 150 % or rated working voltage. After test, capacitance shall not have changed by more than 5 % of initial value, insulation resistance shall not have decreased by more than 50 % of the initial limit and dissipation factor shall not have increased to more than 0.1 %.

AC Life Test: Capacitors shall withstand the maximum 60 Hz voltage for a period of 500 hours at + 85 °C.

Rated DC Voltage	Maximum 60 HZ Voltage
200	155
400, 600	200
800, 1200, 1600	500

Not more than one failure allowed in 12 units tested.

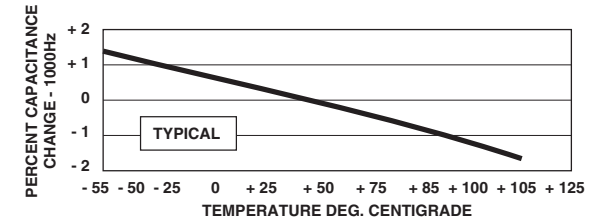
DIMENSIONS in inches [millimeters]

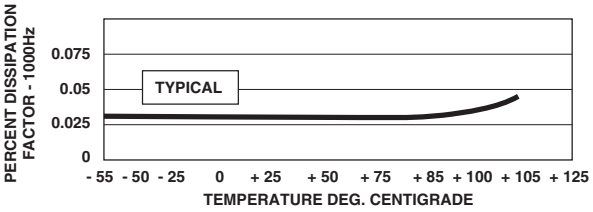


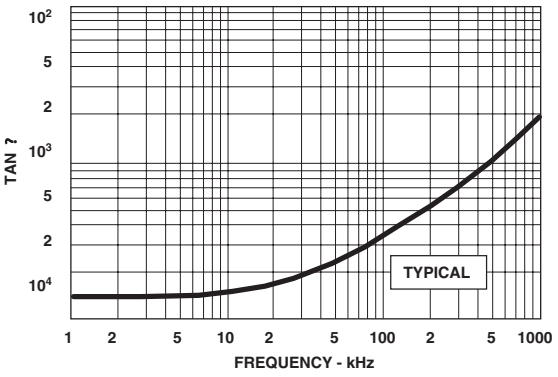
DIMENSIONS in inches [millimeters]

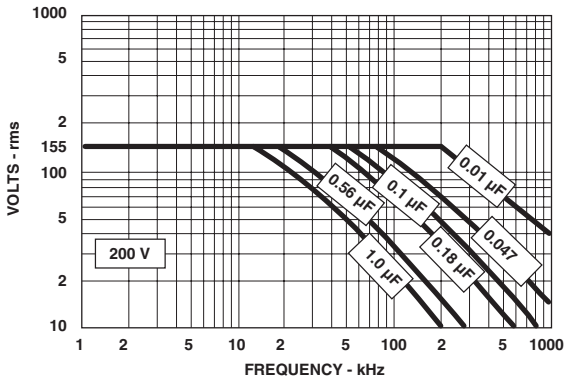
CASE CODE	L (Max.)	S		
		Terminal A	Terminal B	Terminal D
J	0.70 [17.78]	0.500 [12.70]	0.500 [12.70]	0.375 [9.52]
K	0.95 [24.13]	0.688 [17.48]	0.688 [17.48]	0.375 [9.52]
L	1.25 [31.75]	1.031 [26.19]	0.969 [24.61]	0.719 [18.26]
M	1.70 [43.18]	1.406 [35.71]	1.344 [34.14]	1.094 [27.79]

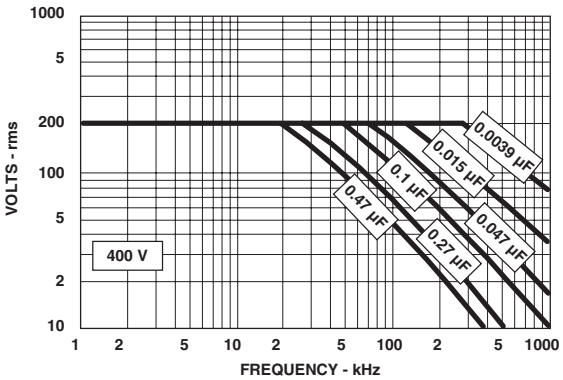
PERFORMANCE CHARACTERISTICS



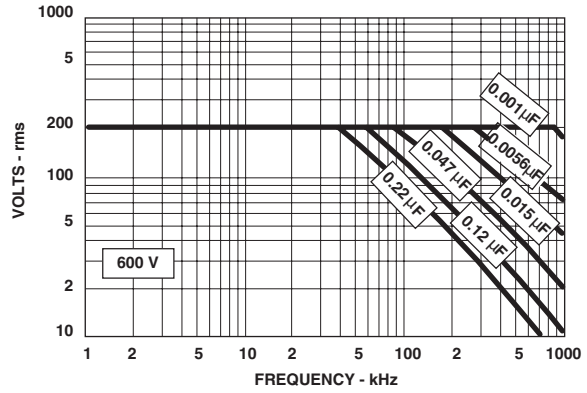


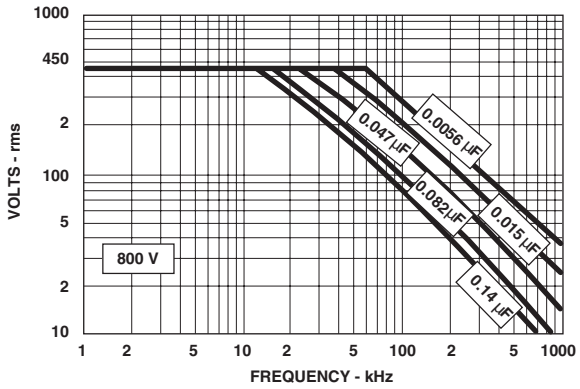


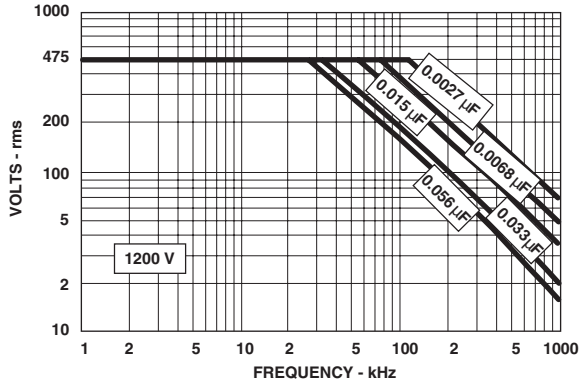


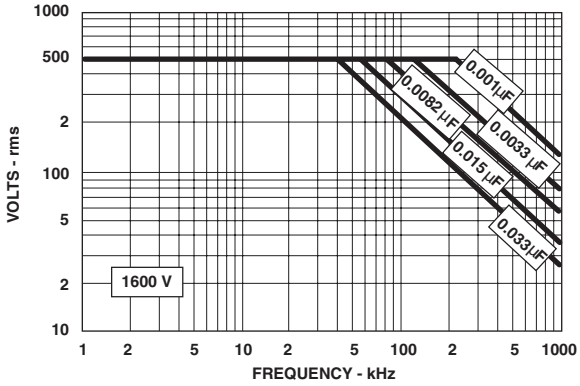


PERFORMANCE CHARACTERISTICS









STANDARD RATINGS* in inches [millimeters]					
µF ± 10 % TOLERANCE	**PART NUMBER**	**SIZE**			
		L	**T**	**H**	**d**
200 VDC/155 VAC**					
0.010	716P10392J	0.70 [17.78]	0.25 [6.35]	0.37 [9.40]	0.032 [0.813]
0.012	716P12392J	0.70 [17.78]	0.27 [6.86]	0.39 [9.91]	0.032 [0.813]
0.015	716P15392J	0.70 [17.78]	0.26 [6.60]	0.45 [11.43]	0.032 [0.813]
0.018	716P18392J	0.70 [17.78]	0.25 [6.35]	0.45 [11.43]	0.032 [0.813]
0.022	716P22392J	0.70 [17.78]	0.27 [6.86]	0.46 [11.68]	0.032 [0.813]
0.027	716P27392J	0.70 [17.78]	0.29 [7.37]	0.48 [12.19]	0.032 [0.813]
0.033	716P33392J	0.70 [17.78]	0.32 [8.13]	0.51 [12.95]	0.032 [0.813]
0.039	716P39392J	0.70 [17.78]	0.32 [8.13]	0.56 [14.22]	0.032 [0.813]
0.047	716P47392J	0.70 [17.78]	0.34 [8.64]	0.58 [14.73]	0.032 [0.813]
0.056	716P56392K	0.95 [24.13]	0.30 [7.62]	0.55 [13.97]	0.032 [0.813]
0.068	716P68392K	0.95 [24.13]	0.33 [8.38]	0.57 [14.48]	0.032 [0.813]
0.082	716P82392K	0.95 [24.13]	0.36 [9.14]	0.60 [15.24]	0.032 [0.813]
0.10	716P10492K	0.95 [24.13]	0.39 [9.91]	0.63 [16.00]	0.032 [0.813]
0.12	716P12492K	0.95 [24.13]	0.40 [10.16]	0.69 [17.53]	0.032 [0.813]
0.15	716P15492K	0.95 [24.13]	0.45 [11.43]	0.73 [18.54]	0.032 [0.813]
0.18	716P18492L	1.25 [31.75]	0.39 [9.91]	0.67 [17.02]	0.040 [1.016]
0.22	716P22492L	1.25 [31.75]	0.43 [10.92]	0.71 [18.03]	0.040 [1.016]
0.27	716P27492L	1.25 [31.75]	0.47 [11.94]	0.75 [19.05]	0.040 [1.016]
0.33	716P33492L	1.25 [31.75]	0.47 [11.94]	0.86 [21.84]	0.040 [1.016]
0.39	716P39492L	1.25 [31.75]	0.51 [12.95]	0.90 [22.86]	0.040 [1.016]
0.47	716P47492L	1.25 [31.75]	0.56 [14.22]	0.95 [24.13]	0.040 [1.016]
0.56	716P56492L	1.25 [31.75]	0.61 [15.49]	1.00 [25.40]	0.040 [1.016]
0.68	716P68492M	1.70 [43.18]	0.56 [14.22]	0.94 [23.88]	0.040 [1.016]
0.82	716P82492M	1.70 [43.18]	0.61 [15.49]	1.00 [25.40]	0.040 [1.016]
1.0	716P10592M	1.70 [43.18]	0.68 [17.27]	1.07 [27.18]	0.040 [1.016]
400 VDC/200 VAC**					
0.0039	716P39294J	0.70 [17.78]	0.24 [6.10]	0.36 [9.14]	0.032 [0.813]
0.0047	716P47294J	0.70 [17.78]	0.25 [6.35]	0.37 [9.40]	0.032 [0.813]
0.0056	716P56294J	0.70 [17.78]	0.24 [6.10]	0.44 [11.18]	0.032 [0.813]
0.0068	716P68294J	0.70 [17.78]	0.24 [6.10]	0.44 [11.18]	0.032 [0.813]
0.0082	716P82294J	0.70 [17.78]	0.25 [6.35]	0.45 [11.43]	0.032 [0.813]
0.010	716P10394J	0.70 [17.78]	0.27 [6.86]	0.46 [11.68]	0.032 [0.813]
0.012	716P12394J	0.70 [17.78]	0.29 [7.37]	0.48 [12.19]	0.032 [0.813]
0.015	716P15394J	0.70 [17.78]	0.31 [7.87]	0.50 [12.70]	0.032 [0.813]
0.018	716P18394K	0.95 [24.13]	0.28 [7.11]	0.47 [11.94]	0.032 [0.813]
0.022	716P22394K	0.95 [24.13]	0.30 [7.62]	0.49 [12.45]	0.032 [0.813]
0.027	716P27394K	0.95 [24.13]	0.31 [7.87]	0.55 [13.97]	0.032 [0.813]
0.033	716P33394K	0.95 [24.13]	0.33 [8.38]	0.57 [14.48]	0.032 [0.813]
0.039	716P39394K	0.95 [24.13]	0.36 [9.14]	0.60 [15.24]	0.032 [0.813]
0.047	716P47394K	0.95 [24.13]	0.39 [9.91]	0.62 [15.75]	0.032 [0.813]
0.056	716P56394K	0.95 [24.13]	0.40 [10.16]	0.68 [17.27]	0.032 [0.813]
0.068	716P68394K	0.95 [24.13]	0.43 [10.92]	0.72 [18.29]	0.032 [0.813]
0.082	716P82394L	1.25 [31.75]	0.38 [9.65]	0.67 [17.02]	0.040 [1.016]
0.10	716P10494L	1.25 [31.75]	0.42 [10.67]	0.70 [17.78]	0.040 [1.016]
0.12	716P12494L	1.25 [31.75]	0.45 [11.43]	0.73 [18.54]	0.040 [1.016]
0.15	716P15494L	1.25 [31.75]	0.46 [11.68]	0.84 [21.34]	0.040 [1.016]
0.18	716P18494L	1.25 [31.75]	0.50 [12.70]	0.89 [22.61]	0.040 [1.016]
0.22	716P22494L	1.25 [31.75]	0.57 [14.48]	0.95 [24.13]	0.040 [1.016]
0.27	716P27494L	1.25 [31.75]	0.63 [16.00]	1.01 [25.65]	0.040 [1.016]
0.33	716P33494M	1.70 [43.18]	0.57 [14.48]	0.96 [24.38]	0.040 [1.016]
0.39	716P39494M	1.70 [43.18]	0.62 [15.75]	1.01 [25.65]	0.040 [1.016]
0.47	716P47494M	1.70 [43.18]	0.68 [17.27]	1.07 [27.18]	0.040 [1.016]

* These standard ratings are available through Sprague® distribution on special order. For complete Part Number, add letter and number for terminal and lead length (Ex. 716P103916LD3).

** 60 Hz rms

STANDARD RATINGS* in inches [millimeters]					
µF ± 10 % TOLERANCE	**PART NUMBER**	**SIZE**			
		L	**T**	**H**	**d**
600 VDC/200 VAC**					
0.001	716P10296J	0.70 [17.78]	0.27 [6.86]	0.46 [11.68]	0.032 [0.813]
0.0012	716P12296J	0.70 [17.78]	0.24 [6.10]	0.44 [11.18]	0.032 [0.813]
0.0015	716P15296J	0.70 [17.78]	0.26 [6.60]	0.45 [11.43]	0.032 [0.813]
0.0018	716P18296J	0.70 [17.78]	0.27 [6.86]	0.46 [11.68]	0.032 [0.813]
0.0022	716P22296J	0.70 [17.78]	0.28 [7.11]	0.48 [12.19]	0.032 [0.813]
0.0027	716P27296J	0.70 [17.78]	0.25 [6.35]	0.44 [11.18]	0.032 [0.813]
0.0033	716P33296J	0.70 [17.78]	0.25 [6.35]	0.45 [11.43]	0.032 [0.813]
0.0039	716P39296J	0.70 [17.78]	0.26 [6.60]	0.46 [11.68]	0.032 [0.813]
0.0047	716P47296J	0.70 [17.78]	0.28 [7.11]	0.47 [11.94]	0.032 [0.813]
0.0056	716P56296J	0.70 [17.78]	0.30 [7.62]	0.49 [12.45]	0.032 [0.813]
0.0068	716P68296J	0.70 [17.78]	0.32 [8.13]	0.51 [12.95]	0.032 [0.813]
0.0082	716P82296J	0.70 [17.78]	0.32 [8.13]	0.56 [14.22]	0.032 [0.813]
0.01	716P10396J	0.70 [17.78]	0.34 [8.64]	0.58 [14.73]	0.032 [0.813]
0.012	716P12396K	0.95 [24.13]	0.31 [7.87]	0.55 [13.97]	0.032 [0.813]
0.015	716P15396K	0.95 [24.13]	0.34 [8.64]	0.58 [14.73]	0.032 [0.813]
0.018	716P18396K	0.95 [24.13]	0.36 [9.14]	0.60 [15.24]	0.032 [0.813]
0.022	716P22396K	0.95 [24.13]	0.39 [9.91]	0.63 [16.00]	0.032 [0.813]
0.027	716P27396K	0.95 [24.13]	0.41 [10.41]	0.69 [17.53]	0.032 [0.813]
0.033	716P33396K	0.95 [24.13]	0.44 [11.18]	0.73 [18.54]	0.032 [0.813]
0.039	716P39396K	0.95 [24.13]	0.48 [12.19]	0.76 [19.30]	0.032 [0.813]
0.047	716P47396L	1.25 [31.75]	0.42 [10.67]	0.70 [17.78]	0.040 [1.016]
0.056	716P56396L	1.25 [31.75]	0.45 [11.43]	0.73 [18.54]	0.040 [1.016]
0.068	716P68396L	1.25 [31.75]	0.45 [11.43]	0.84 [21.34]	0.040 [1.016]
0.082	716P82396L	1.25 [31.75]	0.49 [12.45]	0.88 [22.35]	0.040 [1.016]
0.1	716P10496L	1.25 [31.75]	0.54 [13.72]	0.93 [23.62]	0.040 [1.016]
0.12	716P12496L	1.25 [31.75]	0.59 [14.99]	0.97 [24.64]	0.040 [1.016]
0.15	716P15496M	1.70 [43.18]	0.55 [13.97]	0.93 [23.62]	0.040 [1.016]
0.18	716P18496M	1.70 [43.18]	0.59 [14.99]	0.98 [24.89]	0.040 [1.016]
0.22	716P22496M	1.70 [43.18]	0.65 [16.51]	1.04 [26.42]	0.040 [1.016]
800 VDC/450 VAC**					
0.0056	716P56298L	1.25 [31.75]	0.25 [6.35]	0.45 [11.43]	0.032 [0.813]
0.0068	716P68298L	1.25 [31.75]	0.27 [6.86]	0.46 [11.68]	0.032 [0.813]
0.0082	716P82298L	1.25 [31.75]	0.29 [7.37]	0.48 [12.19]	0.032 [0.813]
0.01	716P10398L	1.25 [31.75]	0.29 [7.37]	0.53 [13.46]	0.032 [0.813]
0.012	716P12398L	1.25 [31.75]	0.31 [7.87]	0.55 [13.97]	0.032 [0.813]
0.015	716P15398L	1.25 [31.75]	0.34 [8.64]	0.58 [14.73]	0.032 [0.813]
0.018	716P18398L	1.25 [31.75]	0.37 [9.40]	0.61 [15.49]	0.032 [0.813]
0.022	716P22398L	1.25 [31.75]	0.38 [9.65]	0.67 [17.02]	0.032 [0.813]
0.027	716P27398L	1.25 [31.75]	0.42 [10.67]	0.70 [17.78]	0.032 [0.813]
0.033	716P33398L	1.25 [31.75]	0.46 [11.68]	0.74 [18.80]	0.032 [0.813]
0.039	716P39398L	1.25 [31.75]	0.46 [11.68]	0.84 [21.34]	0.032 [0.813]
0.047	716P47398L	1.25 [31.75]	0.50 [12.70]	0.88 [22.35]	0.032 [0.813]
0.056	716P56398L	1.25 [31.75]	0.54 [13.72]	0.93 [23.62]	0.032 [0.813]
0.068	716P68398L	1.25 [31.75]	0.59 [14.99]	0.98 [24.89]	0.032 [0.813]
0.082	716P82398M	1.70 [43.18]	0.52 [13.21]	0.90 [22.86]	0.040 [1.016]
0.1	716P10498M	1.70 [43.18]	0.57 [14.48]	0.96 [24.38]	0.040 [1.016]
0.12	716P12498M	1.70 [43.18]	0.62 [15.75]	1.01 [25.65]	0.040 [1.016]
0.14	716P14498M	1.70 [43.18]	0.67 [17.02]	1.06 [26.92]	0.040 [1.016]

* These standard ratings are available through Sprague® distribution on special order. For complete Part Number, add letter and number for terminal and lead length (Ex. 716P103916LD3).
** 60 Hz rms

STANDARD RATINGS* in inches [millimeters]

μF ± 10 % TOLERANCE	PART NUMBER	SIZE			
		L	T	H	d
1200 VDC/475 VAC**					
0.0027	716P272912L	1.25 [31.75]	0.28 [7.11]	0.48 [12.19]	0.032 [0.813]
0.0033	716P332912L	1.25 [31.75]	0.30 [7.62]	0.49 [12.45]	0.032 [0.813]
0.0039	716P392912L	1.25 [31.75]	0.30 [7.62]	0.54 [13.72]	0.032 [0.813]
0.0047	716P472912L	1.25 [31.75]	0.32 [8.13]	0.56 [14.22]	0.032 [0.813]
0.0056	716P562912L	1.25 [31.75]	0.34 [8.64]	0.58 [14.73]	0.032 [0.813]
0.0068	716P682912L	1.25 [31.75]	0.37 [9.40]	0.61 [15.49]	0.032 [0.813]
0.0082	716P822912L	1.25 [31.75]	0.38 [9.65]	0.67 [17.02]	0.032 [0.813]
0.01	716P103912L	1.25 [31.75]	0.42 [10.67]	0.70 [17.78]	0.032 [0.813]
0.012	716P123912L	1.25 [31.75]	0.45 [11.43]	0.73 [18.54]	0.032 [0.813]
0.015	716P153912L	1.25 [31.75]	0.46 [11.68]	0.84 [21.34]	0.032 [0.813]
0.018	716P183912L	1.25 [31.75]	0.50 [12.70]	0.88 [22.35]	0.032 [0.813]
0.022	716P223912L	1.25 [31.75]	0.54 [13.72]	0.93 [23.62]	0.032 [0.813]
0.027	716P273912L	1.25 [31.75]	0.60 [15.24]	0.99 [25.15]	0.032 [0.813]
0.033	716P333912M	1.70 [43.18]	0.53 [13.46]	0.91 [23.11]	0.040 [1.016]
0.039	716P393912M	1.70 [43.18]	0.57 [14.48]	0.96 [24.38]	0.040 [1.016]
0.047	716P473912M	1.70 [43.18]	0.62 [15.75]	1.01 [25.65]	0.040 [1.016]
0.056	716P563912M	1.70 [43.18]	0.68 [17.27]	1.07 [27.18]	0.040 [1.016]
1600 VDC/500 VAC**					
0.001	716P102916L	1.25 [31.75]	0.28 [7.11]	0.47 [11.94]	0.032 [0.813]
0.0012	716P122916L	1.25 [31.75]	0.29 [7.37]	0.48 [12.19]	0.032 [0.813]
0.0015	716P152916L	1.25 [31.75]	0.30 [7.62]	0.50 [12.70]	0.032 [0.813]
0.0018	716P182916L	1.25 [31.75]	0.31 [7.87]	0.55 [13.97]	0.032 [0.813]
0.0022	716P222916L	1.25 [31.75]	0.32 [8.13]	0.56 [14.22]	0.032 [0.813]
0.0027	716P272916L	1.25 [31.75]	0.35 [8.89]	0.59 [14.99]	0.032 [0.813]
0.0033	716P332916L	1.25 [31.75]	0.37 [9.40]	0.61 [15.49]	0.032 [0.813]
0.0039	716P392916L	1.25 [31.75]	0.38 [9.65]	0.67 [17.02]	0.032 [0.813]
0.0047	716P472916L	1.25 [31.75]	0.41 [10.41]	0.69 [17.53]	0.032 [0.813]
0.0056	716P562916L	1.25 [31.75]	0.43 [10.92]	0.72 [18.29]	0.032 [0.813]
0.0068	716P682916L	1.25 [31.75]	0.47 [11.94]	0.75 [19.05]	0.032 [0.813]
0.0082	716P822916L	1.25 [31.75]	0.47 [11.94]	0.85 [21.59]	0.032 [0.813]
0.01	716P103916L	1.25 [31.75]	0.51 [12.95]	0.90 [22.86]	0.032 [0.813]
0.012	716P123916L	1.25 [31.75]	0.55 [13.97]	0.94 [23.88]	0.032 [0.813]
0.015	716P153916M	1.70 [43.18]	0.49 [12.45]	0.87 [22.10]	0.040 [1.016]
0.018	716P183916M	1.70 [43.18]	0.53 [13.46]	0.91 [23.11]	0.040 [1.016]
0.022	716P223916M	1.70 [43.18]	0.58 [14.73]	0.96 [24.38]	0.040 [1.016]
0.027	716P273916M	1.70 [43.18]	0.63 [16.0]	1.02 [25.91]	0.040 [1.016]
0.033	716P333916M	1.70 [43.18]	0.69 [17.53]	1.08 [27.43]	0.040 [1.016]

* These standard ratings are available through Sprague® distribution on special order. For complete Part Number, add letter and number for terminal and lead length (Ex. 716P103916LD3).

** 60Hz rms

ORDERING INFORMATION

716P	104	9	1	J	D	3
TYPE	CAPACITANCE	TOLERANCE	DC VOLTAGE RATING	CASE CODE	TERMINAL	LEAD LENGTH
	Capacitance is expressed in picofarads. The first two digits are significant. The third is the number of zeros to follow. Values must conform to decade rating for the tolerance specified.	0 = ± 20 % 9 = ± 10 % 5 = ± 5 %	This is expressed in hundred of volts.	See Dimensions	A = Straight lead B = Hairpin crimped D = Hockey crimped	1 = 0.187" ± 0.030" [4.750 ± 0.762] 2 = 0.250" ± 0.030" [6.350 ± 0.762] 3 = 1.250" [31.750] Minimum

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