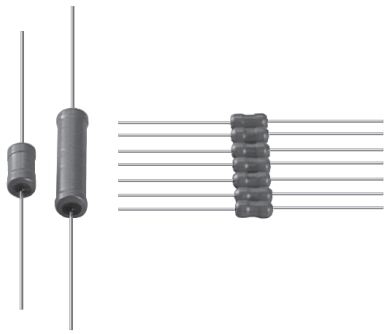
Type 192P Pacer®

Vishay Sprague

Polyester Film/Foil Capacitors
Sleeved, Miniature, Axial Lead



FEATURES

- Axial lead, designed for automatic insertion
- Non-inductively wound, extended foil construction
- Lead wire has metal end cap for connection to extended foil
- Moisture resistant
- Encased in an orange heat shrinkable polyolefin sleeve
- Available tape and reeled to EIA specifications for automatic insertion

PERFORMANCE CHARACTERISTICS

Operating Temperature: - 55°C to + 85°C.

Capacitance Range: 0.0001μF to 0.39μF.

Capacitance Tolerance: ± 20%, ± 10%, ± 5%.
Other tolerances available upon request.

DC Voltage Rating: 80 WVDC to 600 WVDC.

Voltage Derating: At + 105°C: 70% of + 85°C rating.
At + 125°C: 50% of + 85°C rating.

Dissipation Factor: 1.0% maximum.

Voltage Test: 200% of rated voltage for 1 minute.

Insulation Resistance:
At + 25°C: 100,000 Megohm minimum.
At + 85°C: 15,000 Megohm minimum.
At + 105°C: 2000 Megohm minimum.
At + 125°C: 200 Megohm minimum.

PHYSICAL CHARACTERISTICS

Lead Pull: 5 pounds (2.3 kilograms) for 1 minute. No physical damage.

Lead Bend: After three complete consecutive bends, no damage.

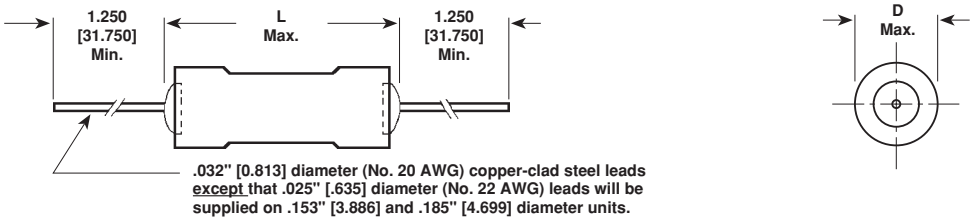
Marking: Sprague® trademark, Type 192P, voltage, capacitance, tolerance and date code.

ENVIRONMENTAL CHARACTERISTICS

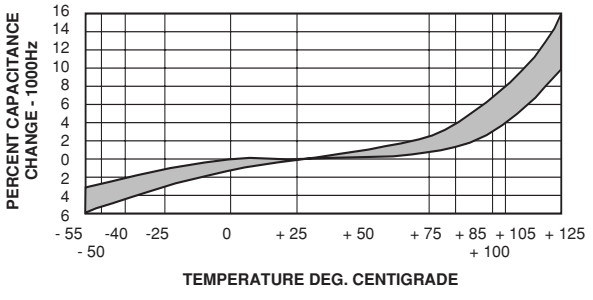
DC Life Test: 150% of rated voltage for 250 hours @ + 85°C.
No open or short circuits. No visible damage.
Maximum Δ CAP ± 10%, maximum.
Minimum Δ IR 50% of initial limit, minimum.
Maximum Δ DF 1.0%.

Humidity Test: 95% relative humidity @ + 40°C for 500 hours. No visible damage.
Minimum IR = 50% of initial limit.

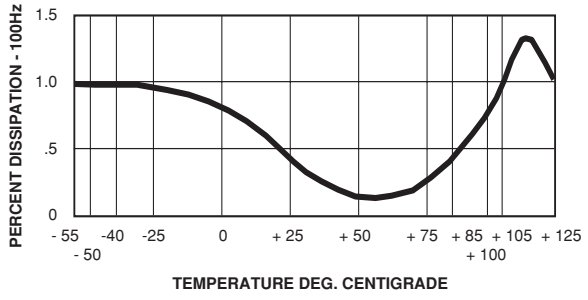
DIMENSIONS in inches [millimeters]



CAPACITANCE CHANGE



DISSIPATION



STANDARD RATINGS in inches [millimeters]

CAPACITANCE (μF)	PART NUMBER	SIZE	
		D	L
80 VDC/55 VAC**			
0.0022	192P222X9080	0.153 [3.886]	0.437 [11.100]
0.0027	192P272X9080	0.153 [3.886]	0.437 [11.100]
0.0033	192P332X9080	0.153 [3.886]	0.437 [11.100]
0.0039	192P392X9080	0.153 [3.886]	0.437 [11.100]
0.0047	192P472X9080	0.153 [3.886]	0.437 [11.100]
0.0056	192P562X9080	0.185 [4.699]	0.500 [12.700]
0.0068	192P682X9080	0.185 [4.699]	0.500 [12.700]
0.0082	192P822X9080	0.185 [4.699]	0.500 [12.700]
0.01	192P103X9080*	0.185 [4.699]	0.500 [12.700]
0.012	192P123X9080	0.185 [4.699]	0.562 [14.275]
0.015	192P153X9080	0.185 [4.699]	0.562 [14.275]
0.018	192P183X9080	0.185 [4.699]	0.625 [15.875]
0.022	192P223X9080*	0.185 [4.699]	0.625 [15.875]
0.027	192P273X9080	0.229 [5.817]	0.562 [14.275]
0.033	192P333X9080	0.229 [5.817]	0.562 [14.275]
0.039	192P393X9080	0.229 [5.817]	0.687 [17.450]
0.047	192P473X9080*	0.229 [5.817]	0.687 [17.450]
0.056	192P563X9080	0.250 [6.350]	0.687 [17.450]
0.068	192P683X9080	0.250 [6.350]	0.687 [17.450]
0.082	192P823X9080	0.315 [8.00]	0.645 [16.383]
0.10	192P104X9080*	0.315 [8.00]	0.645 [16.383]
0.12	192P124X9080	0.315 [8.00]	0.770 [19.558]
0.15	192P154X9080	0.315 [8.00]	0.770 [19.558]
0.18	192P184X9080	0.343 [8.712]	0.770 [19.558]
0.22	192P224X9080	0.343 [8.712]	0.770 [19.558]
0.27	192P274X9080	0.343 [8.712]	1.020 [25.908]
0.33	192P334X9080	0.343 [8.712]	1.332 [33.833]
0.39	192P394X9080	0.343 [8.712]	1.332 [33.833]
200 VDC/140 VAC**			
0.00010	192P101X9200	0.153 [3.886]	0.437 [11.100]
0.00012	192P121X9200	0.153 [3.886]	0.437 [11.100]
0.00015	192P151X9200	0.153 [3.886]	0.437 [11.100]
0.00018	192P181X9200	0.153 [3.886]	0.437 [11.100]
0.00022	192P221X9200	0.153 [3.886]	0.437 [11.100]
0.00027	192P271X9200	0.153 [3.886]	0.437 [11.100]
0.00033	192P331X9200	0.153 [3.886]	0.437 [11.100]
0.00039	192P391X9200	0.153 [3.886]	0.437 [11.100]
0.00047	192P471X9200	0.153 [3.886]	0.437 [11.100]
0.00056	192P561X9200	0.153 [3.886]	0.437 [11.100]
0.00068	192P681X9200	0.153 [3.886]	0.437 [11.100]
0.00082	192P821X9200	0.153 [3.886]	0.437 [11.100]
0.001	192P102X9200	0.153 [3.886]	0.437 [11.100]
0.0012	192P122X9200	0.153 [3.886]	0.437 [11.100]
0.0015	192P152X9200	0.153 [3.886]	0.437 [11.100]
0.0018	192P182X9200	0.185 [4.699]	0.437 [11.100]
0.0022	192P222X9200	0.185 [4.699]	0.437 [11.100]
0.0027	192P272X9200	0.185 [4.699]	0.437 [11.100]
0.0033	192P332X9200	0.185 [4.699]	0.437 [11.100]
0.0039	192P392X9200	0.185 [4.699]	0.562 [14.275]
0.0047	192P472X9200	0.185 [4.699]	0.562 [14.275]
0.0056	192P562X9200	0.185 [4.699]	0.562 [14.275]
0.0068	192P682X9200	0.185 [4.699]	0.562 [14.275]
0.0082	192P822X9200	0.185 [4.699]	0.625 [15.875]
0.01	192P103X9200	0.185 [4.699]	0.625 [15.875]

Note: Shaded Part Numbers shown above are standard stock items available through the Vishay/Sprague® Distribution Network. Packaging for these items is bulk, however tape and reel packaging is readily available on special order. Also, any non-standard Part Number may always be ordered as a special. In addition, the four Part Numbers indicated by a * when ordered with a ± 5% capacitance tolerance (i.e. Part Number 192P103X5080) are also standard stock items.

**60Hz rms.

Pacer® is a registered trademark of Sprague®.

STANDARD RATINGS in inches [millimeters]

CAPACITANCE (μF)	PART NUMBER	SIZE D	SIZE L
200 VDC/140 VAC**			
0.012	192P123X9200	0.229 [5.817]	0.562 [14.275]
0.015	192P153X9200	0.229 [5.817]	0.562 [14.275]
0.018	192P183X9200	0.229 [5.817]	0.687 [17.450]
0.022	192P223X9200	0.229 [5.817]	0.687 [17.450]
0.027	192P273X9200	0.250 [6.350]	0.687 [17.450]
0.033	192P333X9200	0.250 [6.350]	0.687 [17.450]
0.039	192P393X9200	0.315 [8.00]	0.645 [16.383]
0.047	192P473X9200	0.315 [8.00]	0.645 [16.383]
0.056	192P563X9200	0.315 [8.00]	0.770 [19.558]
0.068	192P683X9200	0.315 [8.00]	0.770 [19.558]
0.082	192P823X9200	0.343 [8.712]	0.770 [19.558]
0.10	192P104X9200	0.343 [8.712]	0.770 [19.558]
0.12	192P124X9200	0.343 [8.712]	1.020 [25.908]
0.15	192P154X9200	0.343 [8.712]	1.020 [25.908]
0.18	192P184X9200	0.343 [8.712]	1.332 [33.833]
0.22	192P224X9200		1.332 [33.833]
400 VDC/200 VAC**			
0.00047	192P471X9400	0.185 [4.699]	0.500 [12.700]
0.00056	192P561X9400	0.185 [4.699]	0.500 [12.700]
0.00068	192P681X9400	0.185 [4.699]	0.500 [12.700]
0.00082	192P821X9400	0.185 [4.699]	0.500 [12.700]
0.001	192P102X9400	0.185 [4.699]	0.500 [12.700]
0.0012	192P122X9400	0.185 [4.699]	0.500 [12.700]
0.0015	192P152X9400	0.185 [4.699]	0.500 [12.700]
0.0018	192P182X9400	0.185 [4.699]	0.562 [14.275]
0.0022	192P222X9400	0.185 [4.699]	0.562 [14.275]
0.0027	192P272X9400	0.229 [5.817]	0.562 [14.275]
0.0033	192P332X9400	0.229 [5.817]	0.562 [14.275]
0.0039	192P392X9400	0.229 [5.817]	0.562 [14.275]
0.0047	192P472X9400	0.229 [5.817]	0.562 [14.275]
0.0056	192P562X9400	0.250 [6.350]	0.687 [17.450]
0.0068	192P682X9400	0.250 [6.350]	0.687 [17.450]
0.0082	192P822X9400	0.250 [6.350]	0.687 [17.450]
0.01	192P103X9400	0.250 [6.350]	0.687 [17.450]
0.012	192P123X9400	0.315 [8.00]	0.645 [16.383]
0.015	192P153X9400	0.315 [8.00]	0.645 [16.383]
0.018	192P183X9400	0.315 [8.00]	0.770 [19.558]
0.022	192P223X9400	0.315 [8.00]	0.770 [19.558]
0.027	192P273X9400	0.343 [8.712]	0.770 [19.558]
0.033	192P333X9400	0.343 [8.712]	0.770 [19.558]
0.039	192P393X9400	0.343 [8.712]	1.020 [25.908]
0.047	192P473X9400	0.343 [8.712]	1.020 [25.908]
0.056	192P563X9400	0.343 [8.712]	1.332 [33.833]
0.068	192P683X9400	0.343 [8.712]	1.332 [33.833]
600 VDC/200 VAC*			
0.00047	192P471X9600	0.185 [4.699]	0.562 [14.275]
0.00056	192P561X9600	0.185 [4.699]	0.562 [14.275]
0.00068	192P681X9600	0.185 [4.699]	0.562 [14.275]
0.00082	192P821X9600	0.185 [4.699]	0.625 [15.875]
0.001	192P102X9600	0.185 [4.699]	0.625 [15.875]
0.0012	192P122X9600	0.229 [5.817]	0.562 [14.275]
0.0015	192P152X9600	0.229 [5.817]	0.562 [14.275]
0.0018	192P182X9600	0.229 [5.817]	0.687 [17.450]
0.0022	192P222X9600	0.229 [5.817]	0.687 [17.450]

Note: Shaded Part Numbers shown above are standard stock items available through the Vishay/Sprague® Distribution Network. Packaging for these items is bulk, however tape and reel packaging is readily available on special order. Also, any non-standard Part Number may always be ordered as a special.

**60Hz rms.

STANDARD RATINGS in inches [millimeters]

CAPACITANCE (μF)	PART NUMBER	SIZE D	SIZE L
	600 VDC/200 VAC*		
0.0027	192P272X9600	0.250 [6.350]	0.687 [17.450]
0.0033	192P332X9600	0.250 [6.350]	0.687 [17.450]
0.0039	192P392X9600	0.315 [8.00]	0.770 [19.558]
0.0047	192P472X9600	0.315 [8.00]	0.770 [19.558]
0.0056	192P562X9600	0.315 [8.00]	0.770 [19.558]
0.0068	192P682X9600	0.315 [8.00]	0.770 [19.558]
0.0082	192P822X9600	0.343 [8.712]	0.770 [19.558]
0.01	192P103X9600	0.343 [8.712]	0.770 [19.558]
0.012	192P123X9600	0.343 [8.712]	1.020 [25.908]
0.015	192P153X9600	0.343 [8.712]	1.020 [25.908]
0.018	192P183X9600	0.343 [8.712]	1.020 [25.908]
0.022	192P223X9600	0.343 [8.712]	1.020 [25.908]
0.027	192P273X9600	0.343 [8.712]	1.332 [33.833]
0.033	192P333X9600	0.343 [8.712]	1.332 [33.833]

* 60Hz rms.

STANDARD MARKING FORMAT

SAMPLE MARKING

②192P200 V
222K9325

DESCRIPTION

②	Sprague® identification
192P	Type
200 V	DC Voltage rating, Volts
222K	Capacitance (See How to Order) and
9325	Tolerance
	Weekly date code (i.e. 25th week of 1993)

TOLERANCE CODES PER EIA STANDARDS

J = ± 5%
K = ± 10%
M = ± 20%

ORDERING INFORMATION

192P — TYPE

222 — CAPACITANCE
This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow (Ex. 222 = 2200pF = .0022μF; 473 = 47000pF = .047μF, etc.)

X9 — CAPACITANCE TOLERANCE
X0 = ± 20%
X9 = ± 10%
X5 = ± 5%

200 — DC VOLTAGE RATING
This is expressed in volts.

T* — XXXX
A suffix may be added by the factory to denote special construction, packaging, marking, etc.
* Tape & Reel.

PACKAGING in inches [millimeters]

IF THE "D" DIMENSION IS:	THEN ADD THE "P" SUFFIX	STANDARD QUANTITY PER REEL**
	CLASS I, LEVEL 1, .200" [5.080] PITCH	
0.153 [3.886]	P303	3000
0.185 [4.699]	P304	3000
	CLASS II, LEVEL 1, .400" [10.160] PITCH	
0.229 [5.817]	P305	1250
0.250 [6.350]	P384	1000
0.315 [8.00]	P347	1000
0.343 [8.712]	P347	750

** Specific quantities can be tape and reeled per EIA Standard RS-296-D. The 192P Pacer® is available in bulk pack or tape and reeled per EIA Standard RS-296-D. A suffix is not required for bulk packaging.

Notice

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