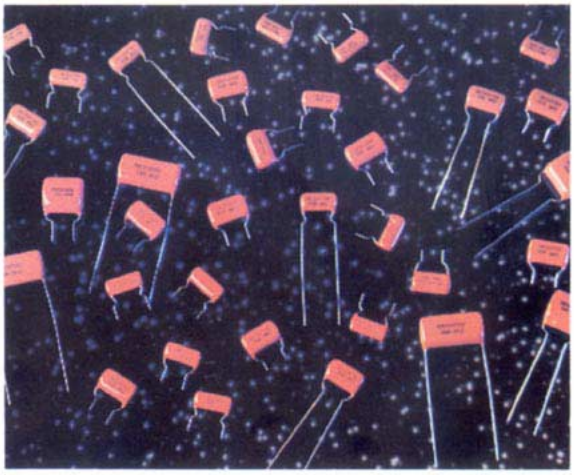
Type 225P, Orange Drop®, Polyester Film/Foil Capacitors



Features

- Radial-lead. Pressed profile.
- Non-inductively wound, extended foil construction.
- Over 35 years of proven dependability.
- Wide availability through CDE Distribution.

Specifications

Capacitance Range:
.00 to 1.0 µF

Capacitance Tolerance:
±5%, ±10%, ±20%

Voltage Ratings:
100 to 600 Volts D-C
70 to 200 Volts A-C

Operating Temperature Range:
-55°C to +85°C (at full voltage)

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

Lead Wire:
Tinned copper-clad steel,
.032 (0.8) diameter, #20 AWG

Insulation Resistance:

At +25°C:	100,000 MΩ for ≤ .25 µF
	25,000 MΩ-µF for C > .25 µF
At +85°C:	10,000 MΩ for C ≤ .15 µF
	1,500MΩ-µF for C >.15 µF
At+105°C:	1.500 MΩ for C ≤ .17 µF
	250 MΩ-µF for C > .17µF
At +125°C:	200 MΩ for C ≤ .13 µF
	25 MΩ-µF for C >.13 µF

Dissipation Factor:
0.75% Maximum @ 1 KHz, +25°C

Encapsulation:
Conformal coating of orange, flame retardant epoxy. Meets UL94V-0 specifications.

Dielectric/Construction:
Polyester film, single section design. Non-inductively wound with extended aluminum foil.

Dimensions in inches, metric (mm) in parenthesis.

General Specifications

The Type 225P Orange Drop® is designed and manufactured for operation in a wide range of demanding environments and applications. Type 225P capacitors are wound from the most reliable polyester film and aluminum foil available and are protected by a rugged conformal coating of orange epoxy. They may be operated up to +125 °C with proper derating.

The combination of proven dependability and extensive availability through CDE distribution make the 225P an ideal choice for many commercial and industrial electronic applications, from power supplies and instrumentation to audio amplifiers and test equipment.

Operating Temperature Range:

The standard operating temperature range for polyester film is -55°C to +85°C. The 225P may be operated at full voltage within this temperature range.

The 225P may be operated up to +105°C provided the DC working voltage is reduced to 70% of the +85°C rating (full rating), and up to +125°C with a 50% reduction from the +85°C rating (full rating).

For more specific details regarding operation above +85°C please contact our design engineering department.

The maximum operating temperature for the 225P polyester film capacitors is +125°C.

Dielectric Withstanding Voltage:

Units shall withstand a DC potential of 250% of rated voltage applied between terminals for not more than 5 seconds.

AC Voltage Applications:

The A-C component of the 225P's voltage rating has been specified to assure that corona will not be encountered when the capacitor is operated within the noted specifications. We encourage you to contact us if you have any concerns about operating voltage, temperature limits, etc.

Lead Bend Test:

After 3 consecutive 180° bends. No damage.

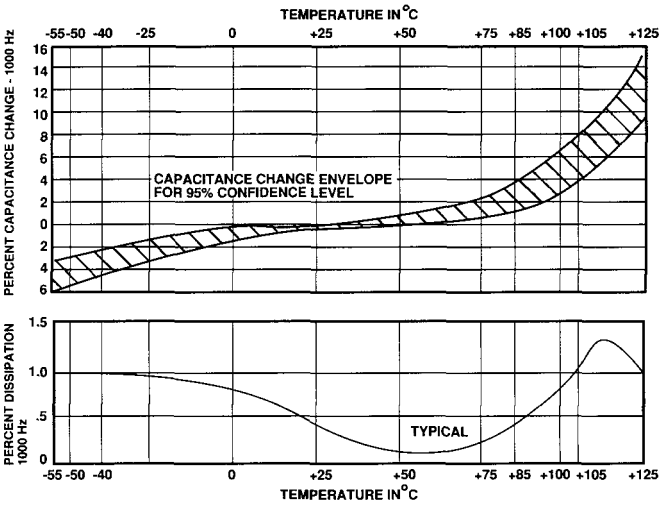
Humidity Testing:

Units subjected to 95% relative humidity for 72 hours with no voltage applied at +75°C. After 4 hours of drying minimum product of insulation resistance and capacitance shall be 5,000 MΩ-µF.

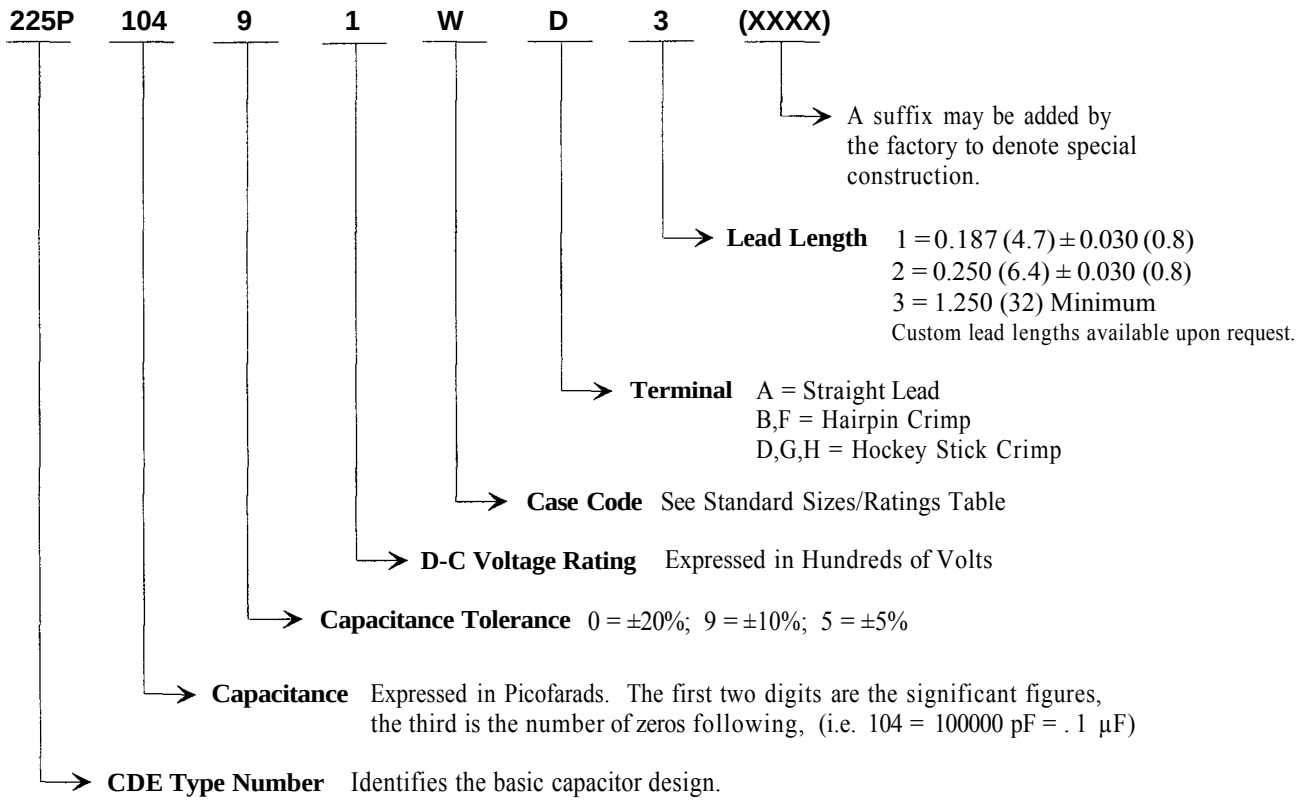
DC Voltage Life Test:

500 hours at +85°C at 150% of rated 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 initial value and dissipation factor shall not have increased to more than 1.0%. In addition, there should be no open or short circuits, and no sign of visible damage.

Typical Temperature Characteristics:



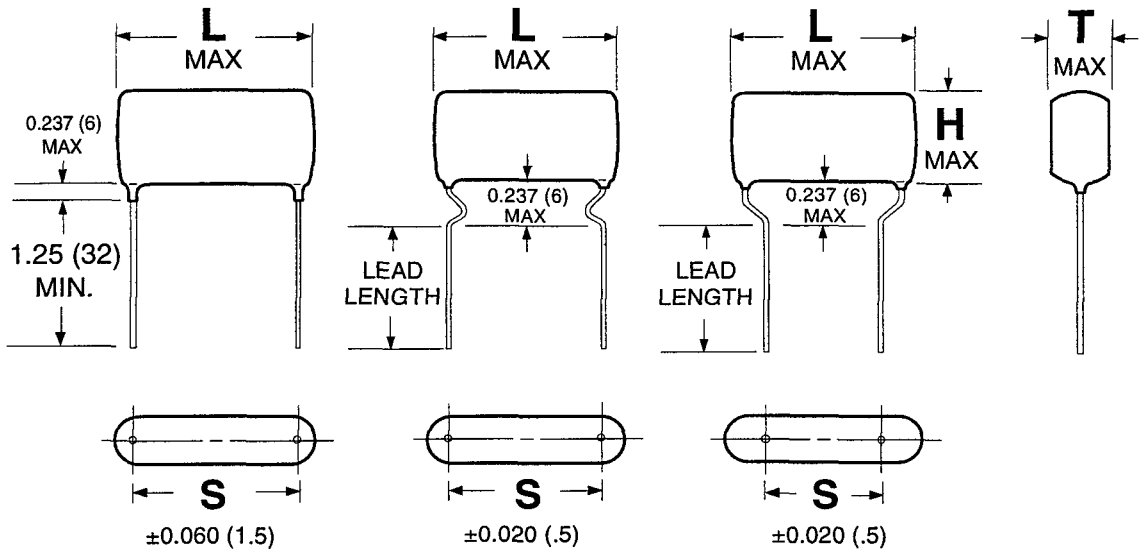
Ordering/Part Number information



Standard Marking Format

Sample Marking on unit	Description	Tolerance codes per EIA Standards
CDE225P100V 104K 9810	CDE - CDE Electronics identification 225P - Type number 100V - D-C Voltage rating, Volts 104K - Capacitance and tolerance code 9810 - Weekly date code (i.e. 10th week of 1998)	J ±5% K ±10% M ±20%

Standard Lead Styles



Standard Lead Spacings

CASE CODE	S					
	Term. A	Term. B	Term. D	Term. F	Term. G	Term. H
W	0.562 (14.3)	0.562 (14.3)	0.375 (9.5)	0.394 (10)	0.295 (7.5)	0.197 (5)
X	0.613 (15.6)	0.613 (15.6)	0.375 (9.5)	0.590 (15)	0.394 (10)	0.295 (7.5)
Y	0.969 (24.6)	0.969 (24.6)	0.719 (18.3)	0.886 (22.5)	0.590 (15)	---

Dimensions in inches, metric (mm) in parenthesis.

Type 225P Standard Sizes/Ratings[2]

Value, µF	Part Number[1]	L MAX	T MAX	H MAX	Value, µF	Part Number[1]	L MAX	T MAX	H MAX
100 VDC / 70 VAC*					200 VDC / 140 VAC*				
.001	225P10291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.001	225P10292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0012	225P12291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0012	225P12292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0015	225P15291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0015	225P15292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0018	225P18291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0018	225P18292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0022	225P22291W	.70 (17.8)	.25 (6,4)	.35 (8.9)	.0022	225P22292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0027	225P27291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0027	225P27292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
					.0033	225P33292X	.80 (20.3)	.25 (6,4)	.55 (14.0)
.0033	225P33291W	.70 (17.8)	.25 (6.4)	.35 (8.9)					
.0039	225P39291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0039	225P39292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0047	225P47291W	.70 (17,8)	.25 (6.4)	.35 (8.9)	.0047	225P47292X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0056	225P56291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0056	225P56292X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.0068	225P68291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0068	225P68292X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.0082	225P82291W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.0082	225P82292X	.80 (20.3)	.25 (6.4)	.58 (14.7)
					.01	225P10392X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.01	225P10391W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.012	225P12392X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.012	225P12391W	.70 (17.8)	.25 (6.4)	.35 (8.9)					
.015	225P15391W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.015	225P15392X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.018	225P18391W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.018	225P18392X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.022	225P22391W	.70 (17.8)	.25 (6.4)	.35 (8.9)	.022	225P22392X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.027	22SP27391W	.70 (17.8)	.27 (6.9)	.37 (9.4)	.027	225P27392X	.80 (20.3)	.28 (7.1)	.61 (15.5)
					.033	225P33392X	.80 (20.3)	.28 (7.1)	.61 (15.5)
.033	225P33391W	.70 (17.8)	.27 (6,9)	.37 (9.4)	.039	225P39392X	.80 (20.3)	.28 (7.1)	.61 (15.5)
.039	225P39391W	.70 (17.8)	.30 (7.6)	.42 (10.7)	.047	225P47392X	.80 (20.3)	.28 (7.1)	.61 (15.5)
.047	225P47391W	.70 (17.8)	.30 (7.6)	.42 (10.7)					
.056	225P56391W	.70 (17.8)	.34 (8.6)	.49 (12.4)	.056	225P56392X	.80 (20.3)	.31 (7.9)	.64 (16.3)
.068	225P68391W	.70 (17.8)	.34 (8.6)	.49 (12.4)	.068	225P68392X	.80 (20.3)	.31 (7,9)	.64 (16.3)
.082	225P82391W	.70 (17.8)	.40 (10.2)	.55 (14.0)	.082	225P82392X	.80 (20.3)	.34 (8.6)	.67 (17.0)
.1	225P10491W	.70 (17.8)	.40 (10.2)	.55 (14.0)	.1	225P10492X	.80 (20.3)	.37 (9.4)	.71 (18.0)
					.12	225P12492X	.80 (20.3)	.39 (9.9)	.72 (18.3)
.12	225P12491X	.80 (20.3)	.37 (9.4)	.57 (14.5)	.15	225P15492X	.80 (20.3)	.41 (10.4)	.74 (18.8)
.15	225P15491X	.80 (20.3)	.40 (10.2)	.62 (15.7)	.18	225P18492X	.80 (20.3)	.46 (11.7)	.75 (19.1)
.18	225P18491X	.80 (20.3)	.43 (10.9)	.66 (16.8)	.22	225P22492X	.80 (20.3)	.48 (12.2)	.77 (19.6)
.22	225P22491X	.80 (20.3)	.46 (11.7)	.70 (17.8)					
.27	225P27491X	.80 (20.3)	.49 (12.4)	.74 (18.8)	.27	225P27492Y	1.25 (31.8)	.39 (9.9)	.71 (18.0)
.33	225P33491X	.80 (20.3)	.52 (13.2)	.77 (19.6)	.33	225P33492Y	1.25 (31.8)	.41 (10.4)	.71 (18.0)
.39	225P39491X	.80 (20.3)	.55 (14.0)	.81 (20.6)	.39	225P39492Y	1.25 (31.8)	.45 (11.4)	.77 (19.6)
.47	225P47491X	.80 (20.3)	.60 (15.2)	.86 (21.8)	.47	225P47492Y	1.25 (31.8)	.50 (12.7)	.83 (21.1)
					.56	225P56492Y	1.25 (31.8)	.67 (17.0)	.99 (25.1)
.56	225P56491Y	1.25 (31.8)	.55 (14.0)	.88 (22.4)	.68	225P68492Y	1.25 (31.8)	.84 (21.3)	1.14 (29.0)
.68	225P68491Y	1.25 (31.8)	.58 (14.7)	.90 (22.9)					
.82	225P82491Y	1.25 (31.8)	.65 (16.5)	.94 (23.9)					
1.0	225P10591Y	1.25 (31.8)	.72 (18.3)	.98 (24.9)					

* 60 Hz.., RMS

[1] To complete part number for specific tolerance, terminal style and lead length please refer to Ordering/Part Number Information page.

[2] Shaded part numbers, when ordered as ±10% tolerance with the D3 terminal style and lead length, are Standard Stock items available through the CDE Distribution Network. For complete part number please add the D3 suffix to the above part numbers in accordance with the Ordering Information (i.e. 225P10491WD3). Other part numbers are available on special order.

Dimensions in inches, metric (mm) in parenthesis.

Type 225P Standard Sizes/Ratings[2]

Value, µF	Part Number[1]	L MAX	T MAX	H MAX
400 VDC / 200 VAC*				
.001	225P10294X	.80 (20.3)	.25 (6.4)	.55(14.0)
.0012	225P12294X	.80 (20.3)	.25 (6.4)	.55(14.0)
.0015	225P15294X	.80 (20.3)	.25 (6.4)	.55(14.0)
.0018	225P18294X	.80 (20.3)	.25 (6.4)	.55(14.0)
.0022	225P22294X	.80 (20.3)	.25 (6,4)	.55(14.0)
.0027	225P27294X	.80 (20.3)	.25 (6.4)	.55(14.0)
.0033	225P33294X	.80 (20.3)	.25 (6.4)	.55(14.0)
.0039	225P39294X	.80 (20.3)	.25 (6.4)	.55(14.0)
.0047	225P47294X	.80 (20.3)	.25(6.4)	.55 (14.0)
.0056	225P56294X	.80 (20.3)	.25 (6.4)	.58(14.7)
.0068	225P68294X	.80 (20.3)	.25 (6.4)	.58(14.7)
.0082	225P82294X	.80 (20.3)	.25 (6.4)	.58(14.7)
.01	225P10394X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.012	225P12394X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.015	225P15394X	.80 (20.3)	.28 (7.1)	.58(14.7)
.018	225P18394X	.80 (20.3)	.31 (7.9)	.58 (14.7)
.022	225P22394X	.80 (20.3)	.31 (7.9)	.58(14.7)
.027	225P27394X	.80 (20.3)	.34 (8.6)	.65(16.5)
.033	225P33394X	.80 (20.3)	.34 (8.6)	.65(16.5)
.039	225P39394X	.80 (20.3)	.41 (10.4)	.65(16.5)
.047	225P47394X	.80 (20.3)	.41 (10.4)	.65(16.5)
.056	225P56394X	.80 (20.3)	.47(11.9)	.80 (20.3)
.068	225P68394X	.80 (20.3)	.47(11.9)	.80 (20.3)
.082	225P82394X	.80 (20.3)	.50 (12.7)	.82 (20.8)
.1	225P10494X	.80 (20.3)	.52(13.2)	.84(21.3)
.12	225P12494Y	1.25(31.8)	.44(11.2)	.77(19.6)
.15	225P15494Y	1.25(31.8)	.47(11.9)	.80 (20.3)
.18	225P18494Y	1.25(31.8)	.52(13.2)	.84(21.3)
.22	225P22494Y	1.25(31.8)	.56(14.2)	.89 (22.6)
.27	225P27494Y	1.25(31.8)	.69 (17.5)	.91 (23.1)
.33	225P33494Y	1.25(31.8)	.72 (18.3)	.99 (25.1)
.39	225P39494Y	1.25(31.8)	.75(19.1)	1.10(27.9)
.47	225P47494Y	1.25(31.8)	.84(21.3)	1.14(29.0)

Value, µF	Part Number[1]	L MAX	T MAX	H MAX
600 VDC / 200 VAC*				
.001	225P10296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0012	225P12296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0015	225P15296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0018	225P18296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0022	225P22296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0027	225P27296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0033	225P33296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0039	225P39296X	.80 (20.3)	.25 (6.4)	.55 (14.0)
.0047	225P47296X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.0056	225P56296X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.0068	225P68296X	.80 (20.3)	.25 (6.4)	.58 (14.7)
.0082	225P82296X	.80 (20.3)	.31 (7.9)	.64 (16.3)
.01	225P10396X	.80 (20.3)	.31 (7.9)	.64 (16.3)
.012	225P12396X	.80 (20.3)	.34 (8.6)	.67 (17.0)
.015	225P15396X	.80 (20.3)	.34 (8.6)	.67 (17.0)
.018	225P18396X	.80 (20.3)	.37 (9.4)	.74 (18.8)
.022	225P22396X	.80 (20.3)	.37 (9.4)	.74 (18.8)
.027	225P27396X	.80 (20.3)	.44 (11.2)	.77 (19.6)
.033	225P33396X	.80 (20.3)	.44 (11.2)	.77 (19.6)
.039	225P39396X	.80 (20.3)	.50 (12.7)	.83 (21.1)
.047	225P47396X	.80 (20.3)	.50 (12.7)	.83 (21.1)
.056	225P56396Y	1.25(31.8)	.47 (11.9)	.82 (20.8)
.068	225P68396Y	1.25(31.8)	.47 (11.9)	.82 (20.8)
.082	225P82396Y	1.25(31.8)	.53 (13.5)	.88 (22.4)
.1	225P10496Y	1.25(31.8)	.56 (14.2)	.91 (23.1)
.12	225P12496Y	1.25(31.8)	.60 (15.2)	.92 (23.4)
.15	225P15496Y	1.25(31.8)	.62 (15.7)	.94 (23.9)
.18	225P18496Y	1.25(31.8)	.70 (17.8)	1.02 (25.9)
.22	225P22496Y	1.25(31.8)	.76 (19.3)	1.10 (27.9)

*** 60 Hz., RMS**

[1] To complete part number for specific tolerance, terminal style and lead length please refer to Ordering/Part Number Information page.

[2] Shaded part numbers, when ordered as ±10% tolerance with the D3 terminal style and lead length, are Standard Stock items available through the CDE Distribution Network. For complete part number please add the D3 suffix to the above part numbers in accordance with the Ordering Information (i.e. 225P10491WD3). Other part numbers are available on special order.

Dimensions in inches, metric (mm) in parenthesis.

dV/dt Specifications

Maximum Pulse Rise Time (dV/dt) in Volts/µsec

Cap Value (µF)	100V	200V	400V	600V
.001	12200	14800	21000	23300
.0012	11100	13500	19100	21300
.0015	9900	12100	17100	19000
.0018	9100	11100	15600	17400
.0022	8200	10000	14100	15700
.0027	7400	9000	12800	14200
.0033	6700	8200	11500	12800
.0039	6200	7500	10600	11800
.0047	5600	6800	9700	10700
.0056	5100	6300	8900	9800
.0068	4700	5700	8000	8900
.0082	4200	5200	7300	8100
.01	3800	4700	6600	7400
.012	3500	4300	6100	6700
.015	3100	3800	5400	6000
.018	2900	3500	4900	5500
.022	2600	3200	4500	5000
.027	2300	2900	4000	4500
.033	2100	2600	3700	4100
.039	1900	2400	3400	3700
.047	1800	2200	3100	3400
.056	1600	2000	2800	3100
.068	1500	1800	2500	2800
.082	1300	1600	2300	2300
.1	1200	1500	2100	2100
.12	1000	1400	1900	1900
.15	900	1200	1500	1700
.18	800		1400	1600
.22	700	1000	1300	1400
.27	700	800	1200	
.33	600	700	1000	
.39	600	700	1000	
.47	500	600	900	
.56	400	600		
.68	400	500		
.82	400			
1.0	300			

Note: dV/dt ratings based on measurements made at the junction of the wire leads and capacitor body.

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