# Polyester Capacitors
# Filmite® "E", ORANGE DROP®, Radial Lead

## FEATURES

- Utilizes minimum area where printed wiring board space is most important
- Wound from PETP polyester film and thin gauge foil under carefully controlled atmospheric conditions
- Protected against moisture by a conformal coating of epoxy
- Specifically designed for printed wiring board applications
- Widely used in computers, instrumentation and telecommunications equipment
- 100 VDC through 600 VDC, may be operated up to + 125 °C with proper dearting

Pb-free
RoHS COMPLIANT

## PERFORMANCE CHARACTERISTICS

**Operating Temperature:** - 55 °C to + 85 °C
To + 105 °C when working voltage is reduced to 70 % of + 85 °C rating; to + 125 °C when 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: 100 000 Megohm for C ≤ 0.25 Microfarads
25000 Megohm - Microfarads for C > 0.25 Microfarads
At + 85 °C: 10 000 Megohm for C ≤ 0.15 Microfarads
1500 Megohm - Microfarads for C > 0.15 Microfarads
At + 105 °C: 1500 Megohm for C ≤ 0.17 Microfarads
250 Megohm - Microfarads for C > 0.17 Microfarads
At + 125 °C: 200 Megohm for C ≤ 0.13 Microfarads
25 Megohm - Microfarads for C > 0.13 Microfarads

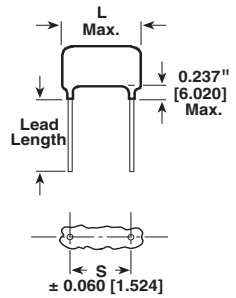
**Capacitance Tolerance and Dissipation Factor:**
Capacitors shall be measured at a frequency of 1000 Hz at + 25 °C or else be referred to measurements made at that frequency and temperature. The maximum dissipation factor shall be 0.75 %

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

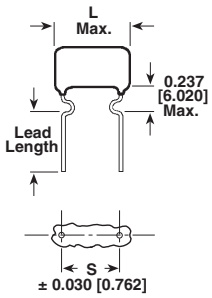
**Humidity Test:**
Condition capacitors with no voltage applied for 72 hours at 95 % relative humidity and + 75 °C. Remove capacitors from humidity chamber, wipe surface dry of moisture and dry in circulating air for 4 hours. Measure insulation resistance after a 2 minute charge at 25 °C and rated voltage or 500 VDC, whichever is less. Minimum product of insulation resistance and capacitance shall be 5000 Megohm - Microfarads after test but need not exceed 10 000 Megohm. Not more than one failure allowed in 12 units tested.

**DC Life Test:**
Capacitance are capable of withstanding a 500 hour life test at + 85 °C at 150 % of 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 1 %.

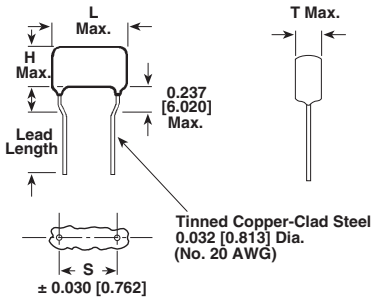
## DIMENSIONS in inches [millimeters]




Terminal A



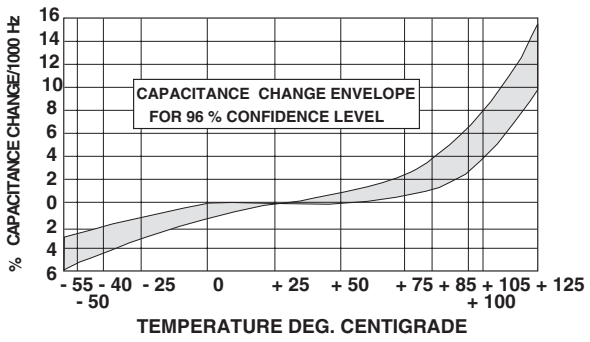

Terminal B



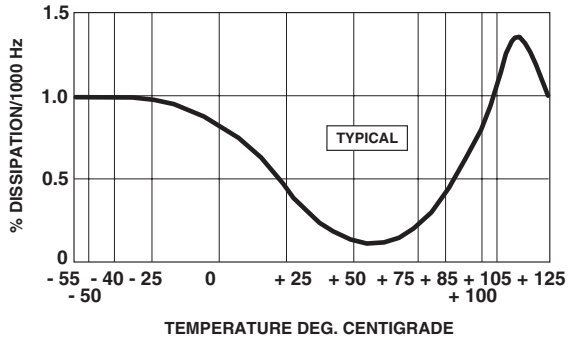

Terminal D

| CASE CODE | L (Max.) | S | |
|---|---|---|---|
| | | Terminal A and B | Terminal D |
| W | 0.70 [17.78] | 0.562 [14.275] | 0.375 [9.525] |
| X | 0.80 [20.32] | 0.613 [15.570] | 0.375 [9.525] |
| Y | 1.25 [31.75] | 0.969 [24.613] | 0.719 [18.263] |

## CAPACITANCE CHANGE




## DISSIPATION FACTOR VS.TEMPERATURE




## STANDARD RATINGS*

| µF ± 10 % TOLERANCE | PART NUMBER | SIZE L | SIZE H | SIZE T |
|---|---|---|---|---|
| | | 100 VDC/70 VAC** | | |
| 0.001 | 225P10291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0012 | 225P12291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0015 | 225P15291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0018 | 225P18291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0022 | 225P22291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0027 | 225P27291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0033 | 225P33291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0039 | 225P39291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0047 | 225P47291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0056 | 225P56291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0068 | 225P68291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.0082 | 225P82291W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.01 | 225P10391W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.012 | 225P12391W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.015 | 225P15391W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.018 | 225P18391W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.022 | 225P22391W | 0.70 [17.78] | 0.35 [8.89] | 0.25 [6.35] |
| 0.027 | 225P27391W | 0.70 [17.78] | 0.37 [9.40] | 0.27 [6.86] |
| 0.033 | 225P33391W | 0.70 [17.78] | 0.37 [9.40] | 0.27 [6.86] |
| 0.039 | 225P39391W | 0.70 [17.78] | 0.42 [10.67] | 0.30 [7.62] |
| 0.047 | 225P47391W | 0.70 [17.78] | 0.42 [10.67] | 0.30 [7.62] |
| 0.056 | 225P56391W | 0.70 [17.78] | 0.49 [12.45] | 0.34 [8.64] |
| 0.068 | 225P68391W | 0.70 [17.78] | 0.49 [12.45] | 0.34 [8.64] |
| 0.082 | 225P82391W | 0.70 [17.78] | 0.55 [13.97] | 0.40 [10.16] |
| 0.1 | 225P10491W | 0.70 [17.78] | 0.55 [13.97] | 0.40 [10.16] |
| 0.12 | 225P12491X | 0.80 [20.32] | 0.57 [14.48] | 0.37 [9.40] |
| 0.15 | 225P15491X | 0.80 [20.32] | 0.62 [15.75] | 0.40 [10.16] |
| 0.18 | 225P18491X | 0.80 [20.32] | 0.66 [16.76] | 0.43 [10.92] |
| 0.22 | 225P22491X | 0.80 [20.32] | 0.70 [17.78] | 0.46 [11.68] |
| 0.27 | 225P27491X | 0.80 [20.32] | 0.74 [18.80] | 0.49 [12.45] |
| 0.33 | 225P33491X | 0.80 [20.32] | 0.77 [19.56] | 0.52 [13.21] |
| 0.39 | 225P39491X | 0.80 [20.32] | 0.81 [20.57] | 0.55 [13.97] |
| 0.47 | 225P47491X | 0.80 [20.32] | 0.86 [21.84] | 0.60 [15.24] |
| 0.56 | 225P56491Y | 1.25 [31.75] | 0.88 [22.35] | 0.55 [13.97] |
| 0.68 | 225P68491Y | 1.25 [31.75] | 0.90 [22.86] | 0.58 [14.73] |
| 0.82 | 225P82491Y | 1.25 [31.75] | 0.94 [23.88] | 0.65 [16.51] |
| 1.0 | 225P10591Y | 1.25 [31.75] | 0.98 [24.89] | 0.72 [18.29] |

* Parts ordered with D3 leads are standard capacitors in stock and available through the Sprague® Distribution Network. For complete Part Number, add letter and number for terminal and lead length. See Ordering Information (Ex: 225P39391WD3).

** 60 Hz rms

| **STANDARD RATINGS*** in inches [millimeters] | | | | |
|---|---|---|---|---|
| **µF ± 10 % TOLERANCE** | **PART NUMBER** | **SIZE** | | |
| | | **L** | **H** | **T** |
| **200 VDC/140 VAC**** | | | | |
| 0.001 | 225P10292X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0015 | 225P15292X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0022 | 225P22292X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0033 | 225P33292X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0047 | 225P47292X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0068 | 225P68292X | 0.80 [20.32] | 0.58 [14.73] | 0.25 [6.35] |
| 0.01 | 225P10392X | 0.80 [20.32] | 0.58 [14.73] | 0.25 [6.35] |
| 0.015 | 225P15392X | 0.80 [20.32] | 0.58 [14.73] | 0.25 [6.35] |
| 0.022 | 225P22392X | 0.80 [20.32] | 0.58 [14.73] | 0.25 [6.35] |
| 0.033 | 225P33392X | 0.80 [20.32] | 0.61 [15.49] | 0.28 [7.11] |
| 0.047 | 225P47392X | 0.80 [20.32] | 0.61 [15.49] | 0.28 [7.11] |
| 0.068 | 225P68392X | 0.80 [20.32] | 0.64 [16.26] | 0.31 [7.87] |
| 0.1 | 225P10492X | 0.80 [20.32] | 0.71 [18.03] | 0.37 [9.40] |
| 0.1 | 225P10492Y | 1.25 [31.75] | 0.64 [16.26] | 0.31 [7.87] |
| 0.15 | 225P15492X | 0.80 [20.32] | 0.74 [18.80] | 0.41 [10.41] |
| 0.22 | 225P22492X | 0.80 [20.32] | 0.77 [19.56] | 0.48 [12.19] |
| 0.33 | 225P33492Y | 1.25 [31.75] | 0.71 [18.03] | 0.41 [10.41] |
| 0.47 | 225P47492Y | 1.25 [31.75] | 0.83 [21.08] | 0.50 [12.70] |
| 0.68 | 225P68492Y | 1.25 [31.75] | 1.14 [28.96] | 0.84 [21.34] |
| **400 VDC/200 VAC**** | | | | |
| 0.001 | 225P10294X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0015 | 225P15294X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0022 | 225P22294X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0033 | 225P33294X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0047 | 225P47294X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0068 | 225P68294X | 0.80 [20.32] | 0.58 [14.73] | 0.25 [6.35] |
| 0.01 | 225P10394X | 0.80 [20.32] | 0.58 [14.73] | 0.28 [7.11] |
| 0.015 | 225P15394X | 0.80 [20.32] | 0.58 [14.73] | 0.28 [7.11] |
| 0.022 | 225P22394X | 0.80 [20.32] | 0.58 [14.73] | 0.31 [7.87] |
| 0.033 | 225P33394X | 0.80 [20.32] | 0.65 [16.51] | 0.34 [8.64] |
| 0.047 | 225P47394X | 0.80 [20.32] | 0.65 [16.51] | 0.41 [10.41] |
| 0.047 | 225P47394Y | 1.25 [31.75] | 0.64 [16.26] | 0.31 [7.87] |
| 0.068 | 225P68394X | 0.80 [20.32] | 0.80 [20.32] | 0.47 [11.94] |
| 0.1 | 225P10494X | 0.80 [20.32] | 0.84 [21.34] | 0.52 [13.21] |
| 0.1 | 225P10494Y | 1.25 [31.75] | 0.74 [18.80] | 0.41 [10.41] |
| 0.15 | 225P15494Y | 1.25 [31.75] | 0.80 [20.32] | 0.47 [11.94] |
| 0.22 | 225P22494Y | 1.25 [31.75] | 0.89 [22.61] | 0.56 [14. 22] |
| 0.33 | 225P33494Y | 1.25 [31.75] | 0.99 [25.15] | 0.72 [18.29] |
| 0.47 | 225P47494Y | 1.25 [31.75] | 1.14 [28.96] | 0.84 [21.34] |

* Parts ordered with D3 leads are standard capacitors in stock and available through the Sprague® Distribution Network. For complete Part Number, add letter and number for terminal and lead length. See How to Order (Ex: 225P39391WD3).

** 60 Hz rms

## STANDARD RATINGS* in inches [millimeters]

| µF ± 10 % TOLERANCE | PART NUMBER | SIZE L | SIZE H | SIZE T |
|---|---|---|---|---|
| | | 600 VDC/200 VAC** | | |
| 0.001 | 225P10296X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0015 | 225P15296X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0022 | 225P22296X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0033 | 225P33296X | 0.80 [20.32] | 0.55 [13.97] | 0.25 [6.35] |
| 0.0047 | 225P47296X | 0.80 [20.32] | 0.58 [14.73] | 0.25 [6.35] |
| 0.0068 | 225P68296X | 0.80 [20.32] | 0.58 [14.73] | 0.25 [6.35] |
| 0.01 | 225P10396X | 0.80 [20.32] | 0.64 [16.26] | 0.31 [7.87] |
| 0.015 | 225P15396X | 0.80 [20.32] | 0.67 [17.02] | 0.34 [8.64] |
| 0.018 | 225P18396X | 0.80 [20.32] | 0.74 [18.80] | 0.37 [9.40] |
| 0.022 | 225P22396X | 0.80 [20.32] | 0.74 [18.80] | 0.37 [9.40] |
| 0.033 | 225P33396X | 0.80 [20.32] | 0.77 [19.56] | 0.44 [11.18] |
| 0.039 | 225P39396X | 0.80 [20.32] | 0.83 [21.08] | 0.50 [12.70] |
| 0.047 | 225P47396X | 0.80 [20.32] | 0.83 [21.08] | 0.50 [12.70] |
| 0.068 | 225P68396Y | 1.25 [31.75] | 0.82 [20.83] | 0.47 [11.94] |
| 0.1 | 225P10496Y | 1.25 [31.75] | 0.91 [23.11] | 0.56 [14.22] |
| 0.22 | 225P22496Y | 1.25 [31.75] | 1.10 [27.94] | 0.76 [19.30] |

* Parts ordered with D3 leads are standard capacitors in stock and available through the Sprague® Distribution Network. For complete Part Number, add letter and number for terminal and lead length. See How to Order (Ex: 225P39391WD3).
* 60 Hz rms

## ORDERING INFORMATION

| 225P | 104 | 9 | 1 | W | D | 3 | (-XXX) |
|---|---|---|---|---|---|---|---|
| TYPE | CAPACITANCE | TOLERANCE | DC VOLTAGE RATING | CASE CODE | TERMINAL | LEAD LENGTH | SPECIAL CONSTRUCTION |
| | 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 %<br>9 = ± 10 %<br>5 = ± 50 % | This is expressed in hundred of volts. | See Dimensional Configurations. | A = Straight Lead<br>B = Hairpin Crimped<br>D = Hockey Crimped | 1 = 0.187" ± 0.030" [4.750 ± 0.762]<br>2 = 0.250" ± 0.030" [6.350 ± 0.762]<br>3 = 1.250" [31.750] Minimum | A three-digit suffix may be added by the factory to denote special construction. |

**Note:** Some Part Numbers are in stock and available through the Vishay Sprague® Distribution Network. Other Part Numbers are available on special order through Vishay Sprague® Distribution. In the construction of the components described, the full intent of the specification will be met. Vishay however, reserves the right to make, from time to time, such departures from the detail specifications as may be required to permit improvements in the design of its products. The information included herein is believed to be accurate and reliable. However, Vishay Sprague® assumes no responsibility for its use nor for any infringements of patens of other rights of third parties which may result from its use.

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Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
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- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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AVIC JONHON

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(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

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FORSTAR®

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