

Polyester Capacitors Filmite® “E”, ORANGE DROP®, Radial Lead



FEATURES

- Identical performance characteristics to Type 225P pressed polyester capacitors through 600 WVDC ratings
- 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



RoHS
COMPLIANT

PERFORMANCE CHARACTERISTICS

Operating Temperature: - 55 °C to + 85 °C, standard; up to + 105 °C when WVDC is reduced to 70 % of + 85 °C rating. To + 125 °C when WVDC is 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 for 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 rated below 1000 volts shall withstand a DC potential of 250 % of rated voltage applied between terminals

for not more than 5 seconds. Capacitance 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.

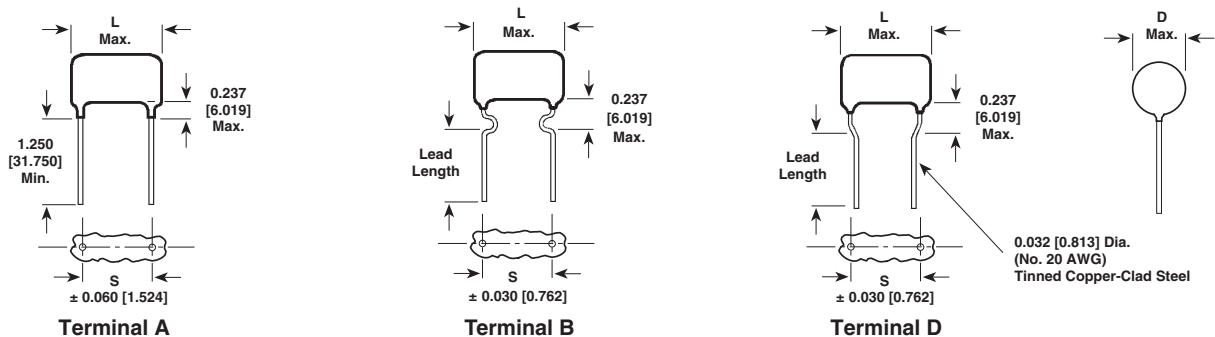
Humidity Test:

Condition capacitors with no voltage applied for 72 hours at 95 % relative humidity and + 75 °C. Remove 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]

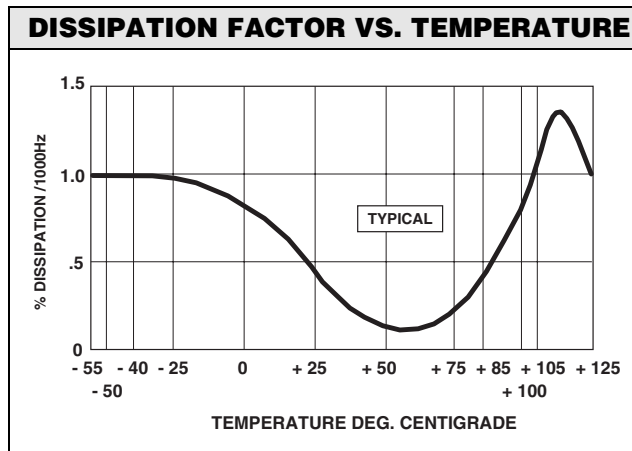
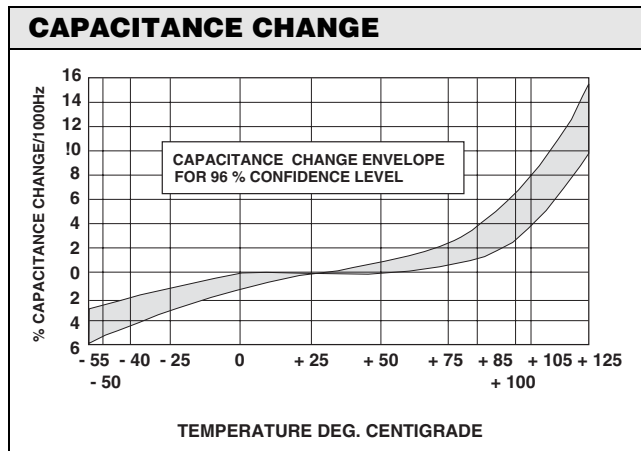


| Case Code | L (Max.) | S | |
|-----------|--------------|------------------|----------------|
| | | Terminal A and B | Terminal D |
| J | 0.70 [17.78] | 0.500 [12.700] | 0.375 [9.525] |
| K | 0.90 [22.86] | 0.688 [17.475] | 0.375 [9.525] |
| L | 1.20 [30.48] | 0.969 [24.613] | 0.719 [18.263] |
| M | 1.60 [40.64] | 1.344 [34.138] | 1.094 [27.788] |

Type 418P

Vishay Sprague

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



| STANDARD RATINGS* | | | | |
|--------------------------|----|-------------|--------------|--------------|
| ± 10 % TOLERANCE | µF | PART NUMBER | SIZE | |
| | | | L | H |
| 100 VDC/70 VAC** | | | | |
| 0.027 | | 418P27391J | 0.70 [17.78] | 0.35 [8.89] |
| 0.033 | | 418P33391J | 0.70 [17.78] | 0.35 [8.89] |
| 0.047 | | 418P47391J | 0.70 [17.78] | 0.35 [8.89] |
| 0.082 | | 418P82391K | 0.90 [22.86] | 0.40 [10.16] |
| 0.1 | | 418P10491K | 0.90 [22.86] | 0.40 [10.16] |
| 0.15 | | 418P15491K | 0.90 [22.86] | 0.45 [11.43] |
| 0.22 | | 418P22491L | 1.20 [30.48] | 0.45 [11.43] |
| 0.33 | | 418P33491L | 1.20 [30.48] | 0.50 [12.70] |
| 0.47 | | 418P47491M | 1.60 [40.64] | 0.50 [12.70] |
| 0.68 | | 418P68491M | 1.60 [40.64] | 0.60 [15.24] |
| 1.0 | | 418P10591M | 1.60 [40.64] | 0.70 [17.78] |
| 200 VDC/140 VAC** | | | | |
| 0.0056 | | 418P56292J | 0.70 [17.78] | 0.33 [8.38] |
| 0.0068 | | 418P68292J | 0.70 [17.78] | 0.33 [8.38] |
| 0.01 | | 418P10392J | 0.70 [17.78] | 0.33 [8.38] |
| 0.015 | | 418P15392J | 0.70 [17.78] | 0.33 [8.38] |
| 0.018 | | 418P18392J | 0.70 [17.78] | 0.33 [8.38] |
| 0.022 | | 418P22392J | 0.70 [17.78] | 0.33 [8.38] |
| 0.033 | | 418P33392K | 0.90 [22.86] | 0.38 [9.65] |
| 0.039 | | 418P39392K | 0.90 [22.86] | 0.38 [9.65] |
| 0.047 | | 418P47392K | 0.90 [22.86] | 0.38 [9.65] |
| 0.056 | | 418P56392L | 1.20 [30.48] | 0.38 [9.65] |
| 0.068 | | 418P68392L | 1.20 [30.48] | 0.38 [9.65] |
| 0.082 | | 418P82392L | 1.20 [30.48] | 0.40 [10.16] |
| 0.1 | | 418P10492L | 1.20 [30.48] | 0.40 [10.16] |
| 0.15 | | 418P15492L | 1.20 [30.48] | 0.45 [11.43] |
| 0.22 | | 418P22492L | 1.20 [30.48] | 0.50 [12.70] |
| 0.27 | | 418P27492M | 1.60 [40.64] | 0.47 [11.94] |
| 0.33 | | 418P33492M | 1.60 [40.64] | 0.47 [11.94] |
| 0.47 | | 418P47492M | 1.60 [40.64] | 0.55 [13.97] |

* These standard ratings are available through Sprague® distribution on special order. For complete Part Number, add letter and number for terminal and lead length in accordance with How to Order (Ex: 418P47492MD3).

** 60 Hz rms



Polyester Capacitors
Filmit[®] "E", ORANGE DROP[®], Radial Lead

| STANDARD RATINGS* in inches [millimeters] | | | | |
|--|-------------|--------------|--------------|--|
| μF $\pm 10\%$ TOLERANCE | PART NUMBER | SIZE | | |
| | | L | H | |
| 400 VDC/200 VAC** | | | | |
| 0.001 | 418P10294J | 0.70 [17.78] | 0.30 [7.62] | |
| 0.0015 | 418P15294J | 0.70 [17.78] | 0.30 [7.62] | |
| 0.0022 | 418P22294J | 0.70 [17.78] | 0.30 [7.62] | |
| 0.0033 | 418P33294J | 0.70 [17.78] | 0.30 [7.62] | |
| 0.0047 | 418P47294J | 0.70 [17.78] | 0.30 [7.62] | |
| 0.0068 | 418P68294J | 0.70 [17.78] | 0.33 [8.38] | |
| 0.0082 | 418P82294J | 0.70 [17.78] | 0.35 [8.89] | |
| 0.01 | 418P10394J | 0.70 [17.78] | 0.35 [8.89] | |
| 0.015 | 418P15394J | 0.70 [17.78] | 0.38 [9.65] | |
| 0.018 | 418P18394K | 0.90 [22.86] | 0.38 [9.65] | |
| 0.022 | 418P22394K | 0.90 [22.86] | 0.38 [9.65] | |
| 0.033 | 418P33394K | 0.90 [22.86] | 0.40 [10.16] | |
| 0.047 | 418P47394L | 1.20 [30.48] | 0.40 [10.16] | |
| 0.056 | 418P56394L | 1.20 [30.48] | 0.45 [11.43] | |
| 0.068 | 418P68394L | 1.20 [30.48] | 0.45 [11.43] | |
| 0.082 | 418P82394L | 1.20 [30.48] | 0.52 [13.21] | |
| 0.1 | 418P10494L | 1.20 [30.48] | 0.52 [13.21] | |
| 0.15 | 418P15494L | 1.20 [30.48] | 0.57 [14.48] | |
| 0.18 | 418P18494M | 1.60 [40.64] | 0.60 [15.24] | |
| 0.22 | 418P22494M | 1.60 [40.64] | 0.60 [15.24] | |
| 0.27 | 418P27494M | 1.60 [40.64] | 0.65 [16.51] | |
| 0.33 | 418P33494M | 1.60 [40.64] | 0.65 [16.51] | |
| 0.39 | 418P39494M | 1.60 [40.64] | 0.72 [18.29] | |
| 0.47 | 418P47494M | 1.60 [40.64] | 0.80 [20.32] | |
| 600 VDC/200 VAC** | | | | |
| 0.001 | 418P10296J | 0.70 [17.78] | 0.30 [7.62] | |
| 0.0012 | 418P12296J | 0.70 [17.78] | 0.33 [8.38] | |
| 0.0015 | 418P15296J | 0.70 [17.78] | 0.33 [8.38] | |
| 0.0018 | 418P18296J | 0.70 [17.78] | 0.33 [8.38] | |
| 0.0022 | 418P22296J | 0.70 [17.78] | 0.33 [8.38] | |
| 0.0027 | 418P27296J | 0.70 [17.78] | 0.35 [8.89] | |
| 0.0033 | 418P33296J | 0.70 [17.78] | 0.35 [8.89] | |
| 0.0039 | 418P39296J | 0.70 [17.78] | 0.38 [9.65] | |
| 0.0047 | 418P47296J | 0.70 [17.78] | 0.38 [9.65] | |
| 0.0056 | 418P56296J | 0.70 [17.78] | 0.40 [10.16] | |
| 0.0068 | 418P68296J | 0.70 [17.78] | 0.40 [10.16] | |
| 0.0082 | 418P82296K | 0.90 [22.86] | 0.40 [10.16] | |
| 0.01 | 418P10396K | 0.90 [22.86] | 0.40 [10.16] | |
| 0.012 | 418P12396K | 0.90 [22.86] | 0.40 [10.16] | |
| 0.015 | 418P15396K | 0.90 [22.86] | 0.40 [10.16] | |
| 0.018 | 418P18396K | 0.90 [22.86] | 0.45 [11.43] | |
| 0.022 | 418P22396K | 0.90 [22.86] | 0.45 [11.43] | |
| 0.027 | 418P27396L | 1.20 [30.48] | 0.45 [11.43] | |
| 0.033 | 418P33396L | 1.20 [30.48] | 0.45 [11.43] | |
| 0.039 | 418P39396L | 1.20 [30.48] | 0.55 [13.97] | |
| 0.047 | 418P47396L | 1.20 [30.48] | 0.55 [13.97] | |
| 0.056 | 418P56396L | 1.20 [30.48] | 0.60 [15.24] | |
| 0.068 | 418P68396L | 1.20 [30.48] | 0.60 [15.24] | |
| 0.082 | 418P82396L | 1.20 [30.48] | 0.65 [16.51] | |
| 0.1 | 418P10496L | 1.20 [30.48] | 0.65 [16.51] | |
| 0.12 | 418P12496M | 1.60 [40.64] | 0.70 [17.78] | |
| 0.15 | 418P15496M | 1.60 [40.64] | 0.70 [17.78] | |
| 0.18 | 418P18496M | 1.60 [40.64] | 0.80 [20.32] | |
| 0.22 | 418P22496M | 1.60 [40.64] | 0.80 [20.32] | |
| 0.25 | 418P25496M | 1.60 [40.64] | 0.80 [20.32] | |

* These standard ratings are available through Sprague[®] distribution on special order. For complete Part Number, add letter and number for terminal and lead length in accordance with How to Order (Ex: 418P47492MD3).

** 60 Hz rms

Type 418P

Vishay Sprague

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



| STANDARD RATINGS in inches [millimeters] | | | | |
|---|-------------|--------------|--------------|--|
| μF $\pm 10\%$ TOLERANCE | PART NUMBER | SIZE | | |
| | | L | H | |
| 1000 VDC/200 VAC** | | | | |
| 0.001 | 418P102910J | 0.70 [17.78] | 0.33 [8.38] | |
| 0.0015 | 418P152910J | 0.70 [17.78] | 0.33 [8.38] | |
| 0.0018 | 418P182910J | 0.70 [17.78] | 0.35 [8.89] | |
| 0.0022 | 418P222910J | 0.70 [17.78] | 0.35 [8.89] | |
| 0.0033 | 418P332910K | 0.90 [22.86] | 0.35 [8.89] | |
| 0.0047 | 418P472910K | 0.90 [22.86] | 0.40 [10.16] | |
| 0.0056 | 418P562910K | 0.90 [22.86] | 0.43 [10.92] | |
| 0.0068 | 418P682910K | 0.90 [22.86] | 0.43 [10.92] | |
| 0.0082 | 418P822910K | 0.90 [22.86] | 0.48 [12.19] | |
| 0.01 | 418P103910K | 0.90 [22.86] | 0.48 [12.19] | |
| 0.015 | 418P153910L | 1.20 [30.48] | 0.48 [12.19] | |
| 0.018 | 418P183910L | 1.20 [30.48] | 0.58 [14.73] | |
| 0.022 | 418P223910L | 1.20 [30.48] | 0.58 [14.73] | |
| 0.027 | 418P273910L | 1.20 [30.48] | 0.65 [16.51] | |
| 0.033 | 418P333910L | 1.20 [30.48] | 0.65 [16.51] | |
| 0.039 | 418P393910M | 1.60 [40.64] | 0.65 [16.51] | |
| 0.047 | 418P473910M | 1.60 [40.64] | 0.65 [16.51] | |
| 0.056 | 418P563910M | 1.60 [40.64] | 0.75 [19.05] | |
| 0.068 | 418P683910M | 1.60 [40.64] | 0.75 [19.05] | |
| 0.082 | 418P823910M | 1.60 [40.64] | 0.85 [21.59] | |
| 0.1 | 418P104910M | 1.60 [40.64] | 0.85 [21.59] | |

* These standard ratings are available through Sprague® distribution on special order. For complete Part Number, add letter and number for terminal and lead length in accordance with How to Order (Ex: 418P47492MD3)

** 60 Hz rms

| ORDERING INFORMATION | | | | | | | |
|-----------------------------|---|---|--|--------------------------------|--|--|--|
| 418P TYPE | 104 CAPACITANCE | 9 TOLERANCE | 1 DC VOLTAGE RATING | J, K, L or M CASE CODE | D TERMINAL | 3 LEAD LENGTH | (-XXX) 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 = $\pm 20\%$ 9 = $\pm 10\%$ 5 = $\pm 5\%$ | This is expressed in hundred of volts. | See Dimensional Configurations | A = Straight Lead B = Hairpin Crimped D = Hockey Crimped | 1 = 0.187" \pm 0.030" [4.750 \pm 0.762] 2 = 0.250" \pm 0.030" [6.350 \pm 0.762] 3 = 1.250" [31.750] Minimum | A three-digit suffix may be added by the factory to denote special construction. |



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.