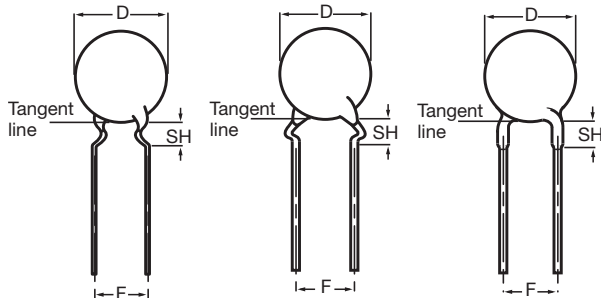




## Ceramic Disc Capacitors

### Class 2, Low Loss (0.5 %), 500 V<sub>DC</sub>, 1 kV<sub>DC</sub>, 2 kV<sub>DC</sub> and 3 kV<sub>DC</sub>



Capacitors with 5 mm (0.20"), 7.5 mm (0.30") and 10 mm (0.40") lead spacing

Obsolete - please refer to: [www.vishay.com/doc?28500](http://www.vishay.com/doc?28500)

#### QUICK REFERENCE DATA

| DESCRIPTION                | CLASS 2 (Y5P)         |
|----------------------------|-----------------------|
| Voltage (V <sub>DC</sub> ) | 500, 1000, 2000, 3000 |
| Min. Capacitance (pF)      | 100                   |
| Max. Capacitance (pF)      | 4700                  |
| Mounting                   | Through hole          |

#### MARKING

Marking indicates capacitance value and tolerance in accordance with "EIA 198" and voltage marks

#### OPERATING TEMPERATURE RANGE

- 30 °C to + 125 °C

#### TEMPERATURE COEFFICIENT

Y5P

#### SECTIONAL SPECIFICATIONS

Class 2 IEC 60384-9, EIA 198

Climatic Category

30/85/21

#### EXAMPLES OF MARKING CODE

|                                          |                                          |
|------------------------------------------|------------------------------------------|
| Disc size (D <sub>max.</sub> ) ≤ 6.5 mm: | Disc size (D <sub>max.</sub> ) ≥ 7.5 mm: |
| RP = low loss with T.C. Y5P              | BC                                       |
| 101K                                     | 102K                                     |
| 2 kV                                     | 3 kV                                     |

#### Note

The capacitors meet the essential requirements of IEC 60384-9 and EIA 198. Unless stated otherwise all electrical values apply at an ambient temperature of 25 °C ± 3 °C, at normal atmospheric conditions

#### FEATURES

- High reliability
- Low losses
- High capacitance in small size
- Kinked (preferred) or straight leads
- Compliant to RoHS Directive 2002/95/EC



RoHS  
COMPLIANT

#### APPLICATIONS

In electronic circuits where low losses and high capacitance per volume are essential, for example:

- SMPS
- HF ballast
- Snubber and high voltage circuits

#### DESIGN

The capacitors consist of a ceramic disc both sides of which are silver-plated. Connection leads are made of tinned copper having a diameter of 0.6 mm or 0.8 mm.

The capacitors may be supplied with kinked or straight leads with a lead spacing of 5 mm (0.20"), 7.5 mm (0.30") or 10 mm (0.40") and a lead length from 4 mm to 30 mm. The standard tolerance on capacitance is ± 10 %. Encapsulation is made of gold colored epoxy-resin, flammable resistant in accordance with "UL 94 V-0".

#### CAPACITANCE RANGE

100 pF to 4700 pF

#### RATED DC VOLTAGE

500 V; 1 kV; 2 kV; 3 kV

#### DIELECTRIC STRENGTH

200 % of rated voltage

#### INSULATION RESISTANCE AT 500 V<sub>DC</sub>

≥ 10 000 MΩ

#### TOLERANCE ON CAPACITANCE

± 10 %, other tolerances available on request

#### DISSIPATION FACTOR

0.5 % max.

# F Series



Vishay BCcomponents

Ceramic Disc Capacitors  
Class 2, Low Loss (0.5 %), 500 V<sub>DC</sub>,  
1 kV<sub>DC</sub>, 2 kV<sub>DC</sub> and 3 kV<sub>DC</sub>

| ORDERING INFORMATION |             |                           |                      |                           |                                                                                                          |
|----------------------|-------------|---------------------------|----------------------|---------------------------|----------------------------------------------------------------------------------------------------------|
| C<br>(pF)            | TOL.<br>(%) | D <sub>MAX.</sub><br>(mm) | LEAD SPACING<br>(mm) | SH <sup>(1)</sup><br>(mm) | CLEAR TEXT CODE                                                                                          |
|                      |             |                           |                      |                           | 13 <sup>TH</sup> DIGIT:<br>T = REEL; U = AMMO; 3 = BULK<br>16 <sup>TH</sup> DIGIT:<br>R = RoHS COMPLIANT |
| 500 V                |             |                           |                      |                           |                                                                                                          |
| 100                  | ± 10        | 5.0                       | 5.0                  | 4.0                       | F101K25Y5PL6.J5.                                                                                         |
| 120                  |             |                           |                      |                           | F121K25Y5PL6.J5.                                                                                         |
| 150                  |             |                           |                      |                           | F151K25Y5PL6.J5.                                                                                         |
| 180                  |             |                           |                      |                           | F181K25Y5PL6.J5.                                                                                         |
| 220                  |             |                           |                      |                           | F221K25Y5PL6.J5.                                                                                         |
| 270                  |             |                           |                      |                           | F271K25Y5PL6.J5.                                                                                         |
| 330                  |             |                           |                      |                           | F331K25Y5PL6.J5.                                                                                         |
| 390                  |             |                           |                      |                           | F391K25Y5PL6.J5.                                                                                         |
| 470                  |             | F471K25Y5PL6.J5.          |                      |                           |                                                                                                          |
| 560                  |             | F561K25Y5PL6.J5.          |                      |                           |                                                                                                          |
| 680                  |             | F681K25Y5PL6.J5.          |                      |                           |                                                                                                          |
| 820                  |             | F821K25Y5PL6.J5.          |                      |                           |                                                                                                          |
| 1000                 |             | F102K29Y5PL6.J5.          |                      |                           |                                                                                                          |
| 1200                 |             | F122K33Y5PL6.J5.          |                      |                           |                                                                                                          |
| 1500                 |             | F152K33Y5PL6.J5.          |                      |                           |                                                                                                          |
| 1800                 |             | F182K39Y5PL6.J5.          |                      |                           |                                                                                                          |
| 2200                 |             | F222K39Y5PL6.J5.          |                      |                           |                                                                                                          |
| 2700                 |             | F272K43Y5PL6.J5.          |                      |                           |                                                                                                          |
| 3300                 |             | F332K47Y5PL63J7.          |                      |                           |                                                                                                          |
| 3900                 |             | F392K53Y5PL63J7.          |                      |                           |                                                                                                          |
| 1 kV                 |             |                           |                      |                           |                                                                                                          |
| 100                  | ± 10        | 6.5                       | 5.0                  | 4.0                       | F101K25Y5PN6.J5.                                                                                         |
| 120                  |             |                           |                      |                           | F121K25Y5PN6.J5.                                                                                         |
| 150                  |             |                           |                      |                           | F151K25Y5PN6.J5.                                                                                         |
| 180                  |             |                           |                      |                           | F181K25Y5PN6.J5.                                                                                         |
| 220                  |             |                           |                      |                           | F221K25Y5PN6.J5.                                                                                         |
| 270                  |             |                           |                      |                           | F271K25Y5PN6.J5.                                                                                         |
| 330                  |             |                           |                      |                           | F331K25Y5PN6.J5.                                                                                         |
| 390                  |             |                           |                      |                           | F391K25Y5PN6.J5.                                                                                         |
| 470                  |             | F471K25Y5PN6.J5.          |                      |                           |                                                                                                          |
| 560                  |             | F561K29Y5PN6.J5.          |                      |                           |                                                                                                          |
| 680                  |             | F681K29Y5PN6.J5.          |                      |                           |                                                                                                          |
| 820                  |             | F821K33Y5PN6.J5.          |                      |                           |                                                                                                          |
| 1000                 |             | F102K33Y5PN6.J5.          |                      |                           |                                                                                                          |
| 1200                 |             | F122K39Y5PN6.J5.          |                      |                           |                                                                                                          |
| 1500                 |             | F152K39Y5PN6.J5.          |                      |                           |                                                                                                          |
| 1800                 |             | F182K39Y5PN6.J5.          |                      |                           |                                                                                                          |
| 2200                 |             | F222K43Y5PN6.J5.          |                      |                           |                                                                                                          |
| 2700                 |             | F272K53Y5PN63J7.          |                      |                           |                                                                                                          |
| 3300                 |             | F332K59Y5PN63J7.          |                      |                           |                                                                                                          |
| 3900                 |             | F392K59Y5PN63J7.          |                      |                           |                                                                                                          |



Ceramic Disc Capacitors  
Class 2, Low Loss (0.5 %), 500 V<sub>DC</sub>,  
1 kV<sub>DC</sub>, 2 kV<sub>DC</sub> and 3 kV<sub>DC</sub>

Vishay BCcomponents

| ORDERING INFORMATION |             |                           |                      |                           |                                                                                                          |                  |                  |
|----------------------|-------------|---------------------------|----------------------|---------------------------|----------------------------------------------------------------------------------------------------------|------------------|------------------|
| C<br>(pF)            | TOL.<br>(%) | D <sub>MAX.</sub><br>(mm) | LEAD SPACING<br>(mm) | SH <sup>(1)</sup><br>(mm) | CLEAR TEXT CODE                                                                                          |                  |                  |
|                      |             |                           |                      |                           | 13 <sup>TH</sup> DIGIT:<br>T = REEL; U = AMMO; 3 = BULK<br>16 <sup>TH</sup> DIGIT:<br>R = RoHS COMPLIANT |                  |                  |
| 2 kV                 |             |                           |                      |                           |                                                                                                          |                  |                  |
| 100                  | ± 10        | 6.5                       | 5.0                  | 4.0                       | F101K25Y5PP6.K5.                                                                                         |                  |                  |
| 120                  |             |                           |                      |                           | F121K25Y5PP6.K5.                                                                                         |                  |                  |
| 150                  |             |                           |                      |                           | F151K25Y5PP6.K5.                                                                                         |                  |                  |
| 180                  |             |                           |                      |                           | F181K25Y5PP6.K5.                                                                                         |                  |                  |
| 220                  |             |                           |                      |                           | F221K25Y5PP6.K5.                                                                                         |                  |                  |
| 270                  |             | 7.5                       |                      |                           | F271K29Y5PP6.K5.                                                                                         |                  |                  |
| 2 kV                 |             |                           |                      |                           |                                                                                                          |                  |                  |
| 330                  | ± 10        | 7.5                       | 5.0                  | 4.0                       | F331K29Y5PP6.K5.                                                                                         |                  |                  |
| 390                  |             |                           |                      |                           | F391K29Y5PP6.K5.                                                                                         |                  |                  |
| 470                  |             |                           |                      |                           | F471K29Y5PP6.K5.                                                                                         |                  |                  |
| 560                  |             | 8.5                       |                      |                           | F561K33Y5PP6.K5.                                                                                         |                  |                  |
| 680                  |             |                           |                      |                           | F681K33Y5PP6.K5.                                                                                         |                  |                  |
| 820                  |             | 11                        |                      |                           | F821K43Y5PP6.K5.                                                                                         |                  |                  |
| 1000                 |             |                           |                      |                           | F102K43Y5PP6.K5.                                                                                         |                  |                  |
| 1200                 |             | F122K43Y5PP6.K5.          |                      |                           |                                                                                                          |                  |                  |
| 1500                 |             | 12                        | F152K47Y5PP63K7.     |                           |                                                                                                          |                  |                  |
| 1800                 |             | 15                        | 7.5                  | 4.8                       | F182K59Y5PP63K7.                                                                                         |                  |                  |
| 2200                 |             |                           |                      |                           | F222K59Y5PP63K7.                                                                                         |                  |                  |
| 2700                 |             | 17.5                      |                      |                           | F272K69Y5PP63K7.                                                                                         |                  |                  |
| 3300                 |             |                           |                      |                           | F332K69Y5PP63K7.                                                                                         |                  |                  |
| 3900                 |             | 19                        |                      |                           | 10                                                                                                       | F392K75Y5PP83K0. |                  |
| 4700                 |             |                           |                      |                           |                                                                                                          | F472K75Y5PP83K0. |                  |
| 3 kV                 |             |                           |                      |                           |                                                                                                          |                  |                  |
| 100                  | ± 10        | 8.5                       |                      |                           | 7.5                                                                                                      | 4.0              | F101K33Y5PR6.K7. |
| 120                  |             |                           | F121K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 150                  |             |                           | F151K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 180                  |             |                           | F181K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 220                  |             |                           | F221K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 270                  |             |                           | F271K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 330                  |             |                           | F331K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 390                  |             |                           | F391K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 470                  |             |                           | F471K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 560                  |             |                           | F561K33Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 680                  |             |                           | F681K43Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 820                  |             | 11                        | F821K43Y5PR6.K7.     |                           |                                                                                                          |                  |                  |
| 1000                 |             |                           | F102K43Y5PR63K7.     |                           |                                                                                                          |                  |                  |
| 1200                 |             |                           | F122K53Y5PR63K7.     |                           |                                                                                                          |                  |                  |
| 1500                 |             | 13.5                      | 4.8                  | F152K59Y5PR63K7.          |                                                                                                          |                  |                  |
| 1800                 |             |                           |                      | F182K59Y5PR63K7.          |                                                                                                          |                  |                  |
| 2200                 |             | F222K59Y5PR63K7.          |                      |                           |                                                                                                          |                  |                  |
| 2700                 |             | 19                        |                      | 10                        | F272K75Y5PR83K0.                                                                                         |                  |                  |

**Notes**

<sup>(1)</sup> SH = seated height

- Maximum thickness 500 V = 3.5 mm; 1 kV = 4.5 mm; 2 kV = 5.0 mm; 3 kV = 6.0 mm
- Lead style codes refer to inward kinked leads. Other styles available on request

# F Series



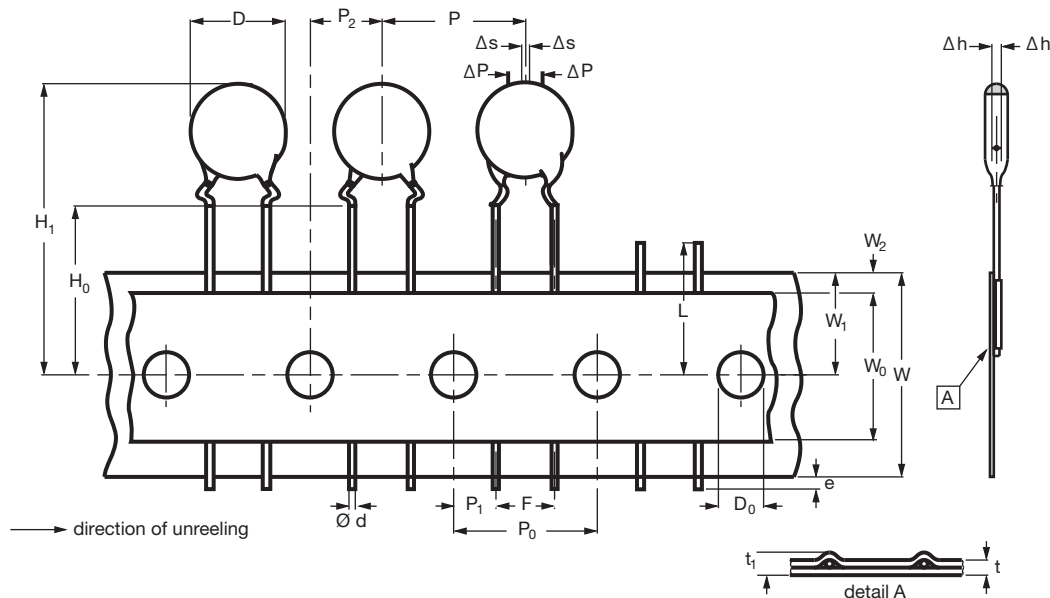
Vishay BCcomponents

Ceramic Disc Capacitors  
Class 2, Low Loss (0.5 %), 500 V<sub>DC</sub>,  
1 kV<sub>DC</sub>, 2 kV<sub>DC</sub> and 3 kV<sub>DC</sub>

| PACKAGING                       |           |                 |                                  |      |                               |
|---------------------------------|-----------|-----------------|----------------------------------|------|-------------------------------|
| PACKAGING TYPE                  | SIZE CODE | LEAD SPACE (mm) | VOLTAGE (V <sub>DC</sub> )       | SPQ  | BOX DIMENSIONS L x W x H (mm) |
| Bulk<br>(long lead L ≥ 25.4 mm) | 20 to 47  | all             | all                              | 1000 | 245 x 120 x 65                |
|                                 |           |                 |                                  | 1000 |                               |
|                                 | 53 to 75  |                 |                                  | 1000 |                               |
|                                 | 84 to 96  |                 |                                  | 500  |                               |
| Tape and reel                   | ≤ 47      | ≤ 6.40          | 500 ≤ WV ≤ 2000                  | 2500 | 370 x 370 x 60                |
|                                 |           |                 |                                  | 2000 |                               |
|                                 |           |                 |                                  | 1000 |                               |
|                                 | ≥ 53      | ≥ 7.5           | all                              | 1000 |                               |
| Ammopack                        | ≤ 47      | ≤ 6.40          | 500 ≤ WV < 2000<br>2000 and 3000 | 500  | 335 x 240 x 50                |
|                                 |           |                 |                                  | 2000 | 335 x 290 x 50                |
|                                 |           |                 |                                  | 1500 | 335 x 290 x 50                |
|                                 | ≥ 53      | ≥ 7.5           | all                              | 1500 | 360 x 330 x 55                |
|                                 |           |                 |                                  | 500  | 335 x 290 x 50                |

## Note

- The capacitors are supplied in bulk packaging (cardboard boxes), in tape on reel or in ammpack



| DIMENSIONS OF TAPE            |                                      |                 |                      |
|-------------------------------|--------------------------------------|-----------------|----------------------|
| SYMBOL                        | PARAMETER                            | DIMENSIONS (mm) |                      |
|                               |                                      | NOMINAL         | TOLERANCE            |
| D                             | Body diameter                        | 11.0 maximum    | -                    |
| d                             | Lead diameter                        | 0.6             | ± 0.05               |
| P                             | Pitch between capacitors             | 12.7            | ± 1.0                |
| P <sub>0</sub> <sup>(1)</sup> | Feed-hole pitch                      | 12.7            | ± 0.3 <sup>(1)</sup> |
| ΔP                            | Plane deviation                      | 1.0 maximum     | -                    |
| P <sub>1</sub> <sup>(2)</sup> | Feed-hole center to lead center      | 3.85            | ± 0.7 <sup>(2)</sup> |
| P <sub>2</sub> <sup>(2)</sup> | Feed-hole center to component center | 6.35            | ± 1.3 <sup>(2)</sup> |
| F                             | Lead spacing                         | 5.0             | 0.6                  |
| Δh                            | Component alignment                  | 0               | ± 1.0                |



Ceramic Disc Capacitors  
Class 2, Low Loss (0.5 %), 500 V<sub>DC</sub>,  
1 kV<sub>DC</sub>, 2 kV<sub>DC</sub> and 3 kV<sub>DC</sub>

Vishay BCcomponents

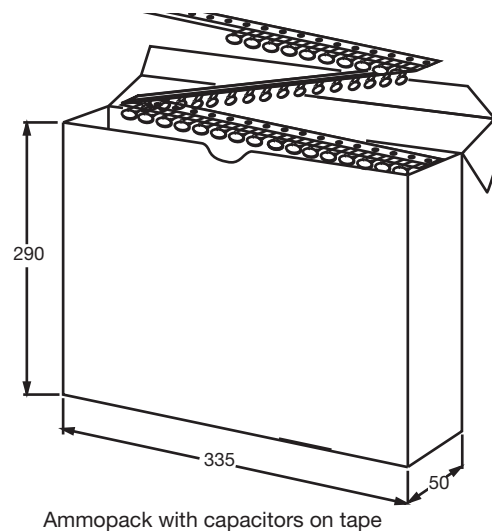
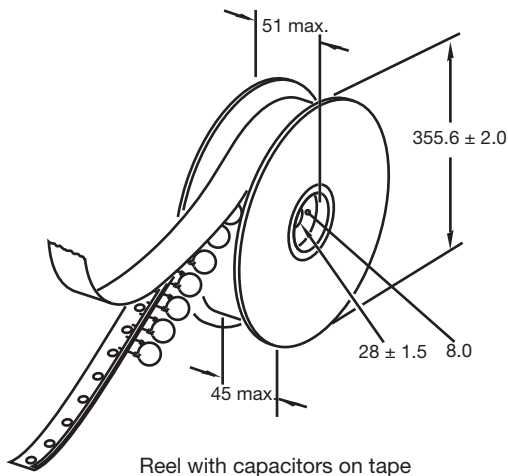
| DIMENSIONS OF TAPE |                                     |                 |           |
|--------------------|-------------------------------------|-----------------|-----------|
| SYMBOL             | PARAMETER                           | DIMENSIONS (mm) |           |
|                    |                                     | NOMINAL         | TOLERANCE |
| W                  | Tape width                          | 18.0            | 1.0       |
| W <sub>0</sub>     | Hold-down tape width                | 5.0 minimum     | -         |
| W <sub>1</sub>     | Hole position                       | 9.0             | 0.75      |
| W <sub>2</sub>     | Hold-down tape margin               | 3.0 maximum     | -         |
| H <sub>0</sub>     | Height to seating plane             | 16.0            | ± 0.5     |
| H <sub>1</sub>     | Maximum component height            | 32.0            | -         |
| e                  | Lead end protrusion                 | 1.0 maximum     | -         |
| L                  | Maximum length of snapped lead      | 11.0            | -         |
| D <sub>0</sub>     | Feed-hole diameter                  | 4.0             | ± 0.2     |
| t                  | Total tape thickness                | 0.9 maximum     | -         |
| t <sub>1</sub>     | Maximum thickness of tape and wires | 1.5 maximum     | -         |

**Notes**

(1) Cumulative pitch error:  $\pm \leq 1$  mm/20 pitches

(2) Obliquity maximum 3°

**REEL AND TAPE DATA** in millimeters



| DIMENSIONS OF AMMOPACK |                               |                    |      |
|------------------------|-------------------------------|--------------------|------|
| PARAMETER              | DISC SIZE (D <sub>MAX</sub> ) |                    | UNIT |
|                        | 6.5 mm                        | 12.0 mm to 13.5 mm |      |
| Taping pitch           | 12.7                          | 15.0               | mm   |
| L                      | 335                           | 360                | mm   |
| W                      | 290                           | 330                | mm   |
| H                      | 50                            | 55                 | mm   |



## Disclaimer

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## 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.**

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