# Ceramic Singlelayer DC Disc Capacitors for General Purpose Class 1, Class 2, and Class 3, 1 $kV_{DC}$, 2 $kV_{DC}$, 3 $kV_{DC}$, 6 $kV_{DC}$

## FEATURES

- High capacitance with small size
- High stability
- Crimp and straight lead styles
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb e3 RoHS COMPLIANT HALOGEN FREE

## APPLICATIONS

- Temperature compensation
- Coupling and decoupling
- Bypassing

| QUICK REFERENCE DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESCRIPTION | VALUE | | | | | | |
| Ceramic Class | 1 | | 2 | | | | 3 |
| Ceramic Dielectric | SL0 | S3N | X7R | Y5P | X5F | Z5U | Y5V |
| Voltage ($V_{DC}$) | 1000, 2000, 3000, 6000 | 6000 | 1000, 2000, 3000 | 1000, 2000, 3000 | 1000, 2000 | 1000, 2000, 3000, 6000 | 1000, 2000, 3000 |
| Min. Capacitance (pF) | 10 | 47 | 100 | 100 | 100 | 1000 | 1000 |
| Max. Capacitance (pF) | 470 | 150 | 4700 | 10 000 | 4700 | 22 000 | 33 000 |
| Mounting | Radial | | | | | | |

## MARKING

Marking indicates capacitance value and tolerance in accordance with “EIA 198” and voltage marks.

## OPERATING TEMPERATURE RANGE

SL0, X7R, X5F: -55 °C to +125 °C

Y5P, Z5U, Z5V, Y5V: -30 °C to +125 °C

## TEMPERATURE CHARACTERISTICS

Class 1: SL0, S3N

Class 2: X7R, Y5P, X5F, Z5U

Class 3: Y5V

## SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60058-1)

Class 1 and 2: 55/125/21

Class 3: 30/85/21

## APPROVALS

EIA 198

IEC 60384-8

IEC 60384-9

## DESIGN

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

The capacitors may be supplied with straight or kinked leads having a lead spacing of 5.0 mm, 7.5 mm and 10.0 mm.

Coating is made of epoxy resin in accordance with UL 94 V-0.

## CAPACITANCE RANGE

10 pF to 33 nF

## TOLERANCE ON CAPACITANCE

± 5 %; ± 10 %; ± 20 %; + 80 % / - 20 %

## RATED VOLTAGE

1000 $V_{DC}$, 2000 $V_{DC}$, 3000 $V_{DC}$, 6000 $V_{DC}$

## TEST VOLTAGE

200 % of rated voltage

## INSULATION RESISTANCE AT RATED VOLTAGE

10 GΩ min.

## DISSIPATION FACTOR

Class 1: 0.1 max. when $C \geq 30$ pF
(1 MHz, 1 V where $C \leq 1000$ pF,
and 1 kHz, 1 V where $C > 1000$ pF)
For $C < 30$ pF: DF = 100/(400 + 20 °C)
DF = dissipation factor in %;
C = capacitance value in pF

Class 2: 2.5 % max. (1 kHz, 1 V)

Class 3: 5 % max. (1 kHz, 1 V)



For technical questions, contact: cdc@vishay.com

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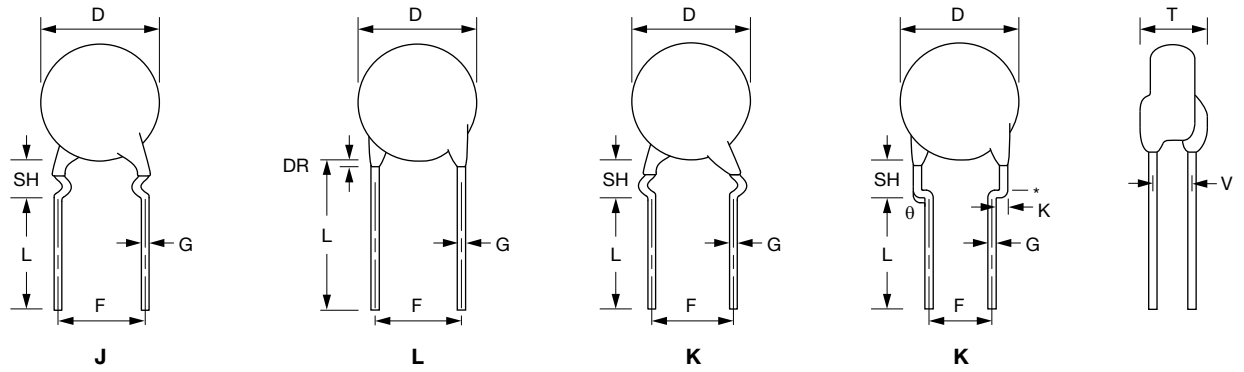
## LEAD CONFIGURATION (in millimeters)

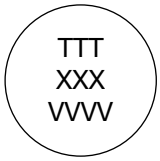



**Notes**

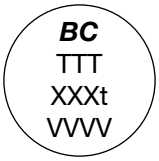
- Lead-spacing 2.5 mm is available for L lead configuration only
- DR = 3.0 mm max., SH = 4.8 mm max.
- V: 1 kV = 1.2 mm ± 0.5 mm; 2 kV = 2.6 mm ± 0.8 mm; 3 kV = 3.5 mm ± 1.0 mm; 6 kV = 6.2 mm ± 1.2 mm

## MARKING

**Size 25**




**Size 29 and above**




**Note**

- Refer to specified part for detail marking

## ORDERING CODE INFORMATION

| S | 102 | K | 29 | Y5P | N | 6 | 3 | J | 5 | R |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 3 4 | 5 | 6 7 | 8 9 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **Product Type** | **Capacitance (pF)** | **Capacitance Tolerance** | **Size Code** | **T.C. Code** | **Rated Voltage** | **Lead Diameter** | **Packaging / Lead Length** | **Lead Style** | **Lead Spacing** | **RoHS-Compliant** |
| S series | The first two digits are the significant figures of capacitance and the last digit is a multiplier as follows:<br>0 = * 1<br>1 = * 10<br>2 = * 100<br>3 = * 1000 | J = ± 5 %<br>K = ± 10 %<br>M = ± 20 %<br>Z = + 80 % / - 20 % | Please refer to relevant datasheet | Please refer to relevant datasheet | N = 1000 $V_{DC}$<br>P = 2000 $V_{DC}$<br>R = 3000 $V_{DC}$<br>U = 6000 $V_{DC}$ | 6 = 0.60 mm ± 0.05 mm<br>8 = 0.80 mm ± 0.05 mm | 3 = bulk with 30.0 mm ± 5.0 mm<br>B = bulk with 3.5 mm ± 0.5 mm<br>T = tape and reel<br>U = ammo | Please refer to relevant datasheet | 5 = 5.0 mm<br>6 = 6.4 mm<br>7 = 7.5 mm<br>0 = 10.0 mm | R = RoHS-compliant and halogen-free |



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## ORDERING CODES

| DIELECTRIC SL0 (1000 $V_{DC}$ / 2000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| CAP. (pF) | 1000 $V_{DC}$ | | | 2000 $V_{DC}$ | | |
| | ORDERING CODE | DIAMETER (mm max.) | THICKNESS (mm max.) | ORDERING CODE | DIAMETER (mm max.) | THICKNESS (mm max.) |
| 10 | S100#25SL0N6###R | 6.5 | 4 | S100#25SL0P6###R | 6.5 | 4.5 |
| 12 | S120#25SL0N6###R | 6.5 | 4 | S120#25SL0P6###R | 6.5 | 4.5 |
| 15 | S150#25SL0N6###R | 6.5 | 4 | S150#25SL0P6###R | 6.5 | 4.5 |
| 18 | S180#25SL0N6###R | 6.5 | 4 | S180#25SL0P6###R | 6.5 | 4.5 |
| 22 | S220#25SL0N6###R | 6.5 | 4 | S220#25SL0P6###R | 6.5 | 4.5 |
| 27 | S270#25SL0N6###R | 6.5 | 4 | S270#25SL0P6###R | 6.5 | 4.5 |
| 33 | S330#25SL0N6###R | 6.5 | 4 | S330#29SL0P6###R | 7.5 | 4.5 |
| 39 | S390#25SL0N6###R | 6.5 | 4 | S390#29SL0P6###R | 7.5 | 4.5 |
| 47 | S470#25SL0N6###R | 6.5 | 4 | S470#29SL0P6###R | 7.5 | 4.5 |
| 56 | S560#29SL0N6###R | 7.5 | 4 | S560#29SL0P6###R | 7.5 | 4.5 |
| 68 | S680#29SL0N6###R | 7.5 | 4 | S680#33SL0P6###R | 8.5 | 4.5 |
| 82 | S820#29SL0N6###R | 7.5 | 4 | S820#33SL0P6###R | 8.5 | 4.5 |
| 100 | S101#29SL0N6###R | 7.5 | 4 | S101#39SL0P6###R | 10 | 4.5 |
| 120 | S121#33SL0N6###R | 8.5 | 4 | S121#39SL0P6###R | 10 | 4.5 |
| 150 | S151#33SL0N6###R | 8.5 | 4 | S151#43SL0P6###R | 11 | 4.5 |
| 180 | S181#39SL0N6###R | 10 | 4 | / | / | / |
| 220 | S221#39SL0N6###R | 10 | 4 | / | / | / |

| DIELECTRIC SL0 (3000 $V_{DC}$ / 6000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| CAP. (pF) | 3000 $V_{DC}$ | | | 6000 $V_{DC}$ (1) | | |
| | ORDERING CODE | DIAMETER (mm max.) | THICKNESS (mm max.) | ORDERING CODE | DIAMETER (mm max.) | THICKNESS (mm max.) |
| 10 | S100#33SL0R6###R | 8.5 | 5.5 | S100#39SL0U83L0R | 10 | 8 |
| 12 | S120#33SL0R6###R | 8.5 | 5.5 | S120#39SL0U83L0R | 10 | 8 |
| 15 | S150#33SL0R6###R | 8.5 | 5.5 | S150#43SL0U83L0R | 11 | 8 |
| 18 | S180#33SL0R6###R | 8.5 | 5.5 | S180#43SL0U83L0R | 11 | 8 |
| 22 | S220#33SL0R6###R | 8.5 | 5.5 | S220#43SL0U83L0R | 11 | 8 |
| 27 | S270#33SL0R6###R | 8.5 | 5.5 | S270#47SL0U83L0R | 12 | 8 |
| 33 | S330#33SL0R6###R | 8.5 | 5.5 | S330#53SL0U83L0R | 13.5 | 8 |
| 39 | S390#33SL0R6###R | 8.5 | 5.5 | / | / | / |
| 47 | S470#33SL0R6###R | 8.5 | 5.5 | / | / | / |
| 56 | S560#39SL0R6###R | 10 | 5.5 | / | / | / |
| 68 | S680#39SL0R6###R | 10 | 5.5 | / | / | / |

**Notes**

- Lead diameter is 0.6 mm
- # 5th digit is capacitance tolerance code: ± 5 % = J; ± 10 % = K
- # 13th digit is packaging code: bulk = 3; reel = T; ammo = U
- # 14th digit is lead style code: L; J; K (J is valid for 1 kV only)
- # 15th digit is lead spacing code: 5.0 mm = 5; 6.4 mm = 6; 7.5 mm = 7; 10.0 mm = 0

(1) For 6000 V part, only straight lead configuration (0.8 mm lead diameter) and bulk packaging are available


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| **DIELECTRIC Z5U** (1000 $V_{DC}$ / 2000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| **CAP. (pF)** | **1000 $V_{DC}$** | | | **2000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 1000 | S102#25Z5UN6###R | 6.5 | 4 | S102#29Z5UP6###R | 7.5 | 4.5 |
| 1500 | S152#29Z5UN6###R | 7.5 | 4 | S152#29Z5UP6###R | 7.5 | 4.5 |
| 2200 | S222#29Z5UN6###R | 7.5 | 4 | S222#33Z5UP6###R | 8.5 | 4.5 |
| 3300 | S332#33Z5UN6###R | 8.5 | 4 | S332#43Z5UP6###R | 11.0 | 4.5 |
| 4700 | S472#39Z5UN6###R | 10 | 4 | S472#47Z5UP6###R | 12.0 | 4.5 |
| 6800 | S682#43Z5UN6###R | 11 | 4 | S682#53Z5UP63K7R | 13.5 | 4.5 |
| 10 000 | S103#47Z5UN6###R | 12 | 4 | S103#69Z5UP63K7R | 17.5 | 4.5 |
| 15 000 | S153#59Z5UN63J7R | 15 | 4 | / | / | / |
| 22 000 | S223#75Z5UN83J0R | 19 | 4 | / | / | / |

| **DIELECTRIC Z5U** (3000 $V_{DC}$ / 6000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| **CAP. (pF)** | **3000 $V_{DC}$** | | | **6000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 220 | / | / | / | S221#39Z5UU83L0R | 10 | 8 |
| 330 | / | / | / | S331#43Z5UU83L0R | 11 | 8 |
| 470 | S471#33Z5UR6###R | 8.5 | 5.5 | S471#47Z5UU83L0R | 12 | 8 |
| 1000 | S102#33Z5UR6###R | 8.5 | 5.5 | S102#59Z5UU83L0R | 15 | 8 |
| 1500 | S152#39Z5UR6###R | 10.0 | 5.5 | S152#69Z5UU83L0R | 17.5 | 8 |
| 2200 | S222#43Z5UR6###R | 11.0 | 5.5 | S222M75Z5UU83L0R | 19 | 8 |
| 3300 | S332#53Z5UR63K7R | 13.5 | 5.5 | / | / | / |
| 4700 | S472#69Z5UR63K7R | 17.5 | 5.5 | / | / | / |

**Notes**

- Lead diameter is 0.6 mm
- # 5th digit is capacitance tolerance code: ± 20 % = M; + 80 % / - 20 % = Z
- # 13th digit is packaging code: bulk = 3; reel = T; ammo = U
- # 14th digit is lead style code: L; J; K (J is valid for 1 kV only)
- # 15th digit is lead spacing code: 5.0 mm = 5; 6.4 mm = 6; 7.5 mm = 7; 10.0 mm = 0


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| **DIELECTRIC Y5P** (1000 $V_{DC}$ / 2000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| **CAP. (pF)** | **1000 $V_{DC}$** | | | **2000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 100 | S101#25Y5PN6###R | 6.5 | 4.0 | S101#25Y5PP6###R | 6.5 | 4.5 |
| 120 | S121#25Y5PN6###R | 6.5 | 4.0 | S121#25Y5PP6###R | 6.5 | 4.5 |
| 150 | S151#25Y5PN6###R | 6.5 | 4.0 | S151#25Y5PP6###R | 6.5 | 4.5 |
| 180 | S181#25Y5PN6###R | 6.5 | 4.0 | S181#25Y5PP6###R | 6.5 | 4.5 |
| 220 | S221#25Y5PN6###R | 6.5 | 4.0 | S221#25Y5PP6###R | 6.5 | 4.5 |
| 270 | S271#25Y5PN6###R | 6.5 | 4.0 | S271#25Y5PP6###R | 6.5 | 4.5 |
| 330 | S331#25Y5PN6###R | 6.5 | 4.0 | S331#25Y5PP6###R | 6.5 | 4.5 |
| 470 | S471#25Y5PN6###R | 6.5 | 4.0 | S471#29Y5PP6###R | 7.5 | 4.5 |
| 560 | S561#29Y5PN6###R | 7.5 | 4.0 | S561#29Y5PP6###R | 7.5 | 4.5 |
| 680 | S681#29Y5PN6###R | 7.5 | 4.0 | S681#29Y5PP6###R | 7.5 | 4.5 |
| 820 | S821#29Y5PN7###R | 7.5 | 4.0 | S821#33Y5PP6###R | 8.5 | 4.5 |
| 1000 | S102#29Y5PN6###R | 7.5 | 4.0 | S102#33Y5PP6###R | 8.5 | 4.5 |
| 1500 | S152#33Y5PN6###R | 8.5 | 4.0 | S152#39Y5PP6###R | 10.0 | 4.5 |
| 1800 | S182#33Y5PN6###R | 8.5 | 4.0 | S182#43Y5PP6###R | 11.0 | 4.5 |
| 2200 | S222#39Y5PN6###R | 10.0 | 4.0 | S222#43Y5PP6###R | 11.0 | 4.5 |
| 3300 | S332#43Y5PN6###R | 11.0 | 4.0 | S332#53Y5PP6###R | 13.5 | 4.5 |
| 4700 | S472#53Y5PN6###R | 13.5 | 4.0 | S472#69Y5PP63K7R | 17.5 | 4.5 |
| 6800 | S682#59Y5PN63J7R | 15.0 | 4.0 | / | / | / |
| 10 000 | S103#75Y5PN83J0R | 19.0 | 4.0 | / | / | / |

| **DIELECTRIC Y5P** (3000 $V_{DC}$) | | | |
|---|---|---|---|
| **CAP. (pF)** | **3000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 100 | S101#33Y5PR6###R | 8.5 | 5.5 |
| 120 | S121#33Y5PR6###R | 8.5 | 5.5 |
| 150 | S151#33Y5PR6###R | 8.5 | 5.5 |
| 180 | S181#33Y5PR6###R | 8.5 | 5.5 |
| 220 | S221#33Y5PR6###R | 8.5 | 5.5 |
| 270 | S271#33Y5PR6###R | 8.5 | 5.5 |
| 330 | S331#33Y5PR6###R | 8.5 | 5.5 |
| 470 | S471#33Y5PR6###R | 8.5 | 5.5 |
| 560 | S561#39Y5PR6###R | 10.0 | 5.5 |
| 680 | S681#39Y5PR6###R | 10.0 | 5.5 |
| 820 | S821#39Y5PR6###R | 10.0 | 5.5 |
| 1000 | S102#43Y5PR6###R | 11.0 | 5.5 |
| 1500 | S152#47Y5PR6###R | 12.0 | 5.5 |
| 1800 | S182#47Y5PR6###R | 12.0 | 5.5 |
| 2200 | S222#59Y5PR63K7R | 15.0 | 5.5 |
| 3300 | S332#75Y5PR83K0R | 19.0 | 5.5 |

**Notes**

- Lead diameter is 0.6 mm
- # 5th digit is capacitance tolerance code: ± 5 % = J; ± 10 % = K
- # 13th digit is packaging code: bulk = 3; reel = T; ammo = U
- # 14th digit is lead style code: L; J; K (J is valid for 1 kV only)
- # 15th digit is lead spacing code: 5.0 mm = 5; 6.4 mm = 6; 7.5 mm = 7; 10.0 mm = 0


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| **DIELECTRIC X7R** (1000 $V_{DC}$ / 2000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| **CAP. (pF)** | **1000 $V_{DC}$** | | | **2000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 100 | S101#25X7RN6###R | 6.5 | 4.0 | S101#25X7RP6###R | 6.5 | 4.5 |
| 120 | S121#25X7RN6###R | 6.5 | 4.0 | S121#25X7RP6###R | 6.5 | 4.5 |
| 150 | S151#25X7RN6###R | 6.5 | 4.0 | S151#25X7RP6###R | 6.5 | 4.5 |
| 180 | S181#25X7RN6###R | 6.5 | 4.0 | S181#25X7RP6###R | 6.5 | 4.5 |
| 220 | S221#25X7RN6###R | 6.5 | 4.0 | S221#25X7RP6###R | 6.5 | 4.5 |
| 270 | S271#25X7RN6###R | 6.5 | 4.0 | S271#25X7RP6###R | 6.5 | 4.5 |
| 330 | S331#25X7RN6###R | 6.5 | 4.0 | S331#25X7RP6###R | 6.5 | 4.5 |
| 470 | S471#29X7RN6###R | 7.5 | 4.0 | S471#29X7RP6###R | 7.5 | 4.5 |
| 560 | S561#29X7RN6###R | 7.5 | 4.0 | S561#33X7RP6###R | 8.5 | 4.5 |
| 680 | S681#29X7RN6###R | 7.5 | 4.0 | S681#33X7RP6###R | 8.5 | 4.5 |
| 820 | S821#29X7RN7###R | 7.5 | 4.0 | S821#39X7RP6###R | 10.0 | 4.5 |
| 1000 | S102#33X7RN6###R | 8.5 | 4.0 | S102#39X7RP6###R | 10.0 | 4.5 |
| 1500 | S152#39X7RN6###R | 10.0 | 4.0 | S152#43X7RP6###R | 11.0 | 4.5 |
| 1800 | S182#43X7RN6###R | 11.0 | 4.0 | S182#47X7RP6###R | 12.0 | 4.5 |
| 2200 | S222#43X7RN6###R | 11.0 | 4.0 | S222#53X7RP6###R | 13.0 | 4.5 |
| 3300 | S332#47X7RN6###R | 12.0 | 4.0 | S332#59X7RP63K7R | 15.0 | 4.5 |
| 4700 | S472#59X7RN63J7R | 15.0 | 4.0 | / | / | / |

| **DIELECTRIC X7R** (3000 $V_{DC}$) | | | |
|---|---|---|---|
| **CAP. (pF)** | **3000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 100 | S101#33X7RR6###R | 8.5 | 5.5 |
| 120 | S121#33X7RR6###R | 8.5 | 5.5 |
| 150 | S151#33X7RR6###R | 8.5 | 5.5 |
| 180 | S181#33X7RR6###R | 8.5 | 5.5 |
| 220 | S221#33X7RR6###R | 8.5 | 5.5 |
| 270 | S271#33X7RR6###R | 8.5 | 5.5 |
| 330 | S331#33X7RR6###R | 8.5 | 5.5 |
| 470 | S471#33X7RR6###R | 8.5 | 5.5 |
| 560 | S561#39X7RR6###R | 10.0 | 5.5 |
| 680 | S681#39X7RR6###R | 10.0 | 5.5 |
| 820 | S821#43X7RR6###R | 11.0 | 5.5 |
| 1000 | S102#43X7RR6###R | 11.0 | 5.5 |
| 1500 | S152#53X7RR6###R | 13.0 | 5.5 |
| 1800 | S182#59X7RR63K7R | 15.0 | 5.5 |
| 2200 | S222#69X7RR63K7R | 17.5 | 5.5 |

**Notes**

- Lead diameter is 0.6 mm
- # 5th digit is capacitance tolerance code: ± 5 % = J; ± 10 % = K
- # 13th digit is packaging code: bulk = 3; reel = T; ammo = U
- # 14th digit is lead style code: L; J; K (J is valid for 1 kV only)
- # 15th digit is lead spacing code: 5.0 mm = 5; 6.4 mm = 6; 7.5 mm = 7; 10.0 mm = 0


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| **DIELECTRIC Y5V** (1000 $V_{DC}$ / 2000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| **CAP. (pF)** | **1000 $V_{DC}$** | | | **2000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 1000 | S102Z25Y5VN6###R | 6.5 | 4.0 | S102Z29Y5VP6###R | 7.5 | 4.5 |
| 1500 | S152Z25Y5VN6###R | 6.5 | 4.0 | S152Z29Y5VP6###R | 7.5 | 4.5 |
| 2200 | S222Z29Y5VN6###R | 7.5 | 4.0 | S222Z33Y5VP6###R | 8.5 | 4.5 |
| 3300 | S332Z29Y5VN6###R | 7.5 | 4.0 | S332Z39Y5VP6###R | 10.0 | 4.5 |
| 4700 | S472Z33Y5VN6###R | 8.5 | 4.0 | S472Z43Y5VP6###R | 11.0 | 4.5 |
| 6800 | S682Z39Y5VN6###R | 10.0 | 4.0 | S682Z47Y5VP6###R | 12.0 | 4.5 |
| 10 000 | S103Z43Y5VN6###R | 11.0 | 4.0 | S103Z59Y5VP6###R | 15.0 | 4.5 |
| 15 000 | S153Z53Y5VN63J7R | 13.5 | 4.0 | / | / | / |
| 22 000 | S223Z59Y5VN63J7R | 15.0 | 4.0 | / | / | / |
| 33 000 | S333Z75Y5VN83J0R | 19.0 | 4.0 | / | / | / |

| **DIELECTRIC Y5V** (3000 $V_{DC}$) | | | |
|---|---|---|---|
| **CAP. (pF)** | **3000 $V_{DC}$** | | |
| | **ORDERING CODE** | **DIAMETER (mm max.)** | **THICKNESS (mm max.)** |
| 1000 | S102Z33Y5VR6###R | 8.5 | 5.5 |
| 1500 | S152Z33Y5VR6###R | 8.5 | 5.5 |
| 2200 | S222Z39Y5VR6###R | 10.0 | 5.5 |
| 3300 | S332Z43Y5VR6###R | 11.0 | 5.5 |
| 4700 | S472Z47Y5VR6###R | 12.0 | 5.5 |
| 6800 | S682Z59Y5VR6###R | 15.0 | 5.5 |

**Notes**

- Lead diameter is 0.6 mm
- # 5th digit is capacitance tolerance code: ± 5 % = J; ± 10 % = K
- # 13th digit is packaging code: bulk = 3; reel = T; ammo = U
- # 14th digit is lead style code: L; J; K (J is valid for 1 kV only)
- # 15th digit is lead spacing code: 5.0 mm = 5; 6.4 mm = 6; 7.5 mm = 7; 10.0 mm = 0


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| DIELECTRIC X5F (1000 $V_{DC}$ / 2000 $V_{DC}$) | | | | | | |
|---|---|---|---|---|---|---|
| CAP. (pF) | 1000 $V_{DC}$ | | | 2000 $V_{DC}$ | | |
| | ORDERING CODE | DIAMETER (mm max.) | THICKNESS (mm max.) | ORDERING CODE | DIAMETER (mm max.) | THICKNESS (mm max.) |
| 100 | S101#25X5FN6###R | 6.5 | 4.0 | S101#25X5FP6###R | 6.5 | 4.5 |
| 120 | S121#25X5FN6###R | 6.5 | 4.0 | S121#25X5FP6###R | 6.5 | 4.5 |
| 150 | S151#25X5FN6###R | 6.5 | 4.0 | S151#25X5FP6###R | 6.5 | 4.5 |
| 180 | S181#25X5FN6###R | 6.5 | 4.0 | S181#25X5FP6###R | 6.5 | 4.5 |
| 220 | S221#25X5FN6###R | 6.5 | 4.0 | S221#25X5FP6###R | 6.5 | 4.5 |
| 270 | S271#25X5FN6###R | 6.5 | 4.0 | S271#29X5FP6###R | 7.5 | 4.5 |
| 330 | S331#25X5FN6###R | 6.5 | 4.0 | S331#29X5FP6###R | 7.5 | 4.5 |
| 390 | S391#25X5FN6###R | 6.5 | 4.0 | S391#31X5FP6###R | 8.0 | 4.5 |
| 470 | S471#25X5FN6###R | 6.5 | 4.0 | S471#31X5FP6###R | 8.0 | 4.5 |
| 560 | S561#29X5FN6###R | 7.5 | 4.0 | S561#33X5FP6###R | 8.5 | 4.5 |
| 680 | S681#29X5FN6###R | 7.5 | 4.0 | S681#39X5FP6###R | 10.0 | 4.5 |
| 820 | S821#29X5FN7###R | 7.5 | 4.0 | S821#43X5FP6###R | 11.0 | 4.5 |
| 1000 | S102#29X5FN6###R | 7.5 | 4.0 | S102#43X5FP6###R | 11.0 | 4.5 |
| 1500 | S152#39X5FN6###R | 10.0 | 4.0 | S152#47X5FP6###R | 12.0 | 4.5 |
| 1800 | S182#43X5FN6###R | 11.0 | 4.0 | S182#53X5FP63K7R | 13.5 | 4.5 |
| 2200 | S222#43X5FN6###R | 11.0 | 4.0 | S222#59X5FP63K7R | 15.0 | 4.5 |
| 3300 | S332#53X5FN63J7R | 12.0 | 4.0 | S332#65X5FP63K7R | 16.5 | 4.5 |
| 4700 | S472#63X5FN63J7R | 15.0 | 4.0 | / | / | / |

**Notes**
- Lead diameter is 0.6 mm
- # 5th digit is capacitance tolerance code: ± 5 % = J; ± 10 % = K
- # 13th digit is packaging code: bulk = 3; reel = T; ammo = U
- # 14th digit is lead style code: L; J; K (J is valid for 1 kV only)
- # 15th digit is lead spacing code: 5.0 mm = 5; 6.4 mm = 6; 7.5 mm = 7; 10.0 mm = 0

| DIELECTRIC S3N (6000 $V_{DC}$) | | | |
|---|---|---|---|
| CAP. (pF) | 6000 $V_{DC}$ | | |
| | ORDERING CODE | DIAMETER (mm max.) | THICKNESS (mm max.) |
| 47 | S470M43S3NU83L0R | 11.0 | 8.0 |
| 68 | S680M53S3NU83L0R | 13.5 | 8.0 |
| 100 | S101M59S3NU83L0R | 15.0 | 8.0 |
| 150 | S151M59S3NU83L0R | 15.0 | 8.0 |

**Notes**
- Lead diameter is 0.6 mm
- # 5th digit is capacitance tolerance code: ± 5 % = J; ± 10 % = K
- # 13th digit is packaging code: bulk = 3; reel = T; ammo = U
- # 14th digit is lead style code: L; J; K (J is valid for 1 kV only)
- # 15th digit is lead spacing code: 5.0 mm = 5; 6.4 mm = 6; 7.5 mm = 7; 10.0 mm = 0

## TAPING AND PACKAGING

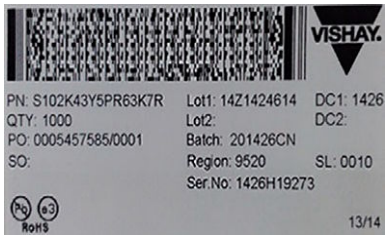
## LABELLING

Each reel is provided with a label showing the following details:

manufacturer, D style, capacitance, tolerance, batch number, quantity of components, rated voltage, dielectric.

On special request other designations can be shown.

For example:





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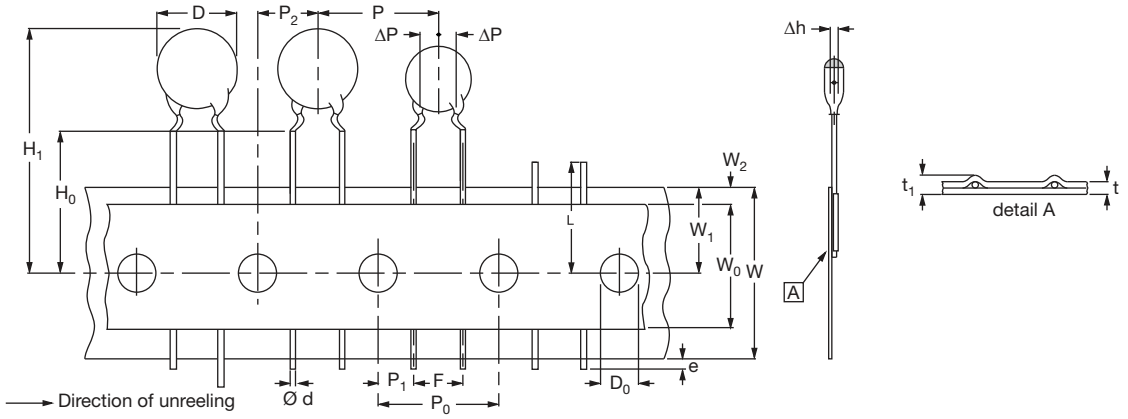
## PACKAGING QUANTITIES AND BOX DIMENSIONS

| PACKAGING | SIZE CODE | LEAD SPACING (mm) | RATED VOLTAGE | SMALLEST PACKAGING QUANTITY (SPQ) | BOX DIMENSIONS L x W x H (mm) |
|---|---|---|---|---|---|
| Tape on reel | ≤ 47 | ≤ 6.4 | ≤ 2000 | 2000 | 370 x 370 x 60 |
| | | | 3000 | 1000 | |
| | | ≥ 7.5 | all | 1000 | |
| | ≥ 59 | all | all | 500 | |
| Ammopack | ≤ 47 | ≤ 6.4 | < 2000 | 2000 | 335 x 240 x 50 |
| | | | ≥ 2000 | 1500 | |
| | | ≥ 7.5 | all | 1500 | 335 x 290 x 50 |
| | > 47 | > 6.4 | all | 1000 | |
| Bulk (1) | < 49 | all | < 6000 | 1000 | 245 x 120 x 65 |
| | 49 to 75 | all | < 6000 | 500 | |
| | > 75 | all | < 6000 | 250 | |
| | ≤ 49 | all | 6000 | 500 | |
| | > 49 | all | 6000 | 250 | |

**Note**

(1) SPQ contains one or a multiple of poly-bags, 1000 units per bag.

## CAPACITORS ON TAPE




| PARAMETER | SYMBOL | DIMENSIONS (mm) | | |
|---|---|---|---|---|
| Body diameter | D | 11.0 max. | 11.0 max. | 14.0 max. |
| Lead diameter | d | 0.6 ± 0.05 | 0.6 ± 0.05 | 0.6 ± 0.05 |
| Pitch of component | p | 12.7 ± 1.0 | 12.7 ± 1.0 | 15.0 ± 1.0 |
| Pitch of sprocket hole | $P_0$ | 12.7 ± 0.3 | 12.7 ± 0.3 | 15.0 ± 0.3 |
| Distance, hole center to lead | $P_1$ | 5.1 ± 0.7 | 3.85 ± 0.7 | 3.75 ± 0.7 |
| Distance, hole to center of component | $P_2$ | 6.35 ± 1.3 | 6.35 ± 1.3 | 7.5 ± 1.5 |
| Lead spacing | F | 2.5 + 0.60 / - 0.40 | 5.0 + 0.60 / - 0.40 | 7.5 + 0.6 / - 0.4 |
| Average deviation across tape | Δh | ± 1.0 max. | ± 1.0 max. | ± 1.0 max. |
| Average deviation in direction of reeling | ΔP | ± 1.0 max. | ± 1.0 max. | ± 1.0 max. |
| Carrier tape width | W | 18.0 + 1.0 / - 0.5 | 18.0 + 1.0 / - 0.5 | 18.0 + 1.0 / - 0.5 |
| Hold-down tape width | $W_0$ | 5.0 min. | 5.0 min. | 5.0 min. |
| Position of sprocket hole | $W_1$ | 9.0 + 0.75 / - 0.5 | 9.0 + 0.75 / - 0.5 | 9.0 + 0.75 / - 0.5 |
| Distance of hold-down tape | $W_2$ | 3.0 max. | 3.0 max. | 3.0 max. |
| Maximum component height | $H_1$ | 32 max. | 32 max. | 40 max. |
| Height to seating plane (for kinked leads) | $H_0$ | 16.0 ± 0.5 | 16.0 ± 0.5 | 16.0 ± 0.5 |
| Height to seating plane (for straight leads) | $H_0$ | 20.0 ± 0.5 | 20.0 ± 0.5 | 20.0 ± 0.5 |
| Length of cut leads | L | 11.0 max. | 11.0 max. | 11.0 max. |
| Length of lead protrusion | e | 1.0 max. | 1.0 max. | 1.0 max. |
| Diameter of sprocket hole | $D_0$ | 4.0 ± 0.2 | 4.0 ± 0.2 | 4.0 ± 0.2 |
| Total tape thickness | t | 0.9 max. | 0.9 max. | 0.9 max. |
| Maximum thickness of taping and wires | $t_1$ | 1.5 max. | 1.5 max. | 1.5 max. |



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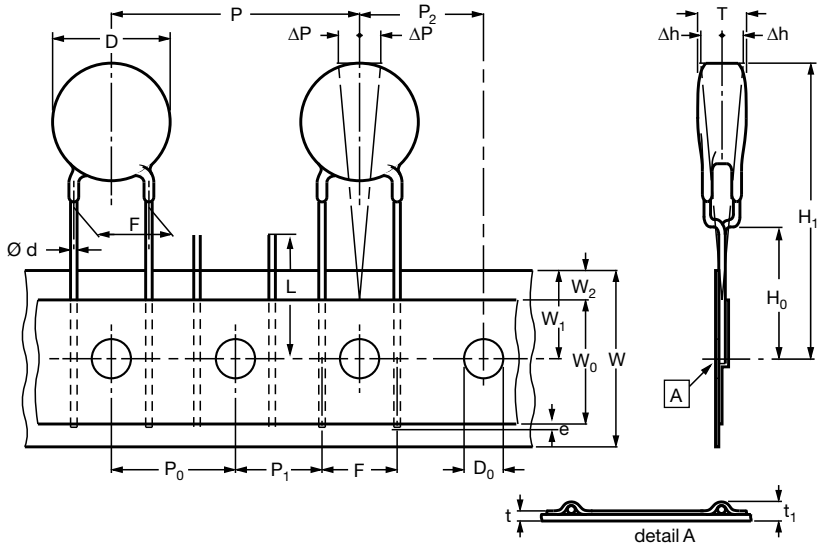


| DIMENSIONS OF TAPE | | |
|---|---|---|
| **SYMBOL** | **PARAMETER** | **DIMENSIONS (mm)** |
| D (1) | Body diameter | 19.0 max. |
| d | Lead diameter | 0.6 ± 0.05 |
| P | Pitch of component | 25.4 ± 1 |
| $P_0$ (2) | Pitch of sprocket hole | 12.7 ± 0.3 |
| $P_1$ (3) | Distance, hole center to lead | 7.7 or 6.4 ± 1.0 |
| $P_2$ (3) | Distance, hole to center of component | 12.7 ± 1.5 |
| F | Lead spacing | 10.0 or 12.5 + 0.6 / - 0.4 |
| Δh | Average deviation across tape | ± 1.0 max. |
| ΔP | Average deviation in direction of reeling | ± 1.0 max. |
| W | Carrier tape width | 18.0 + 1 / - 0.5 |
| $W_0$ | Hold-down tape width | 5.0 min. |
| $W_1$ | Position of sprocket hole | 9.0 + 0.75 / - 0.5 |
| $W_2$ | Distance of hold-down tape | 3.0 max. |
| $H_1$ | Maximum component height | 40.0 |
| $H_0$ | Height to seating plane (for kinked leads) | 16.0 ± 0.5 |
| $H_0$ | Height to seating plane (for straight leads) | 20.0 ± 0.5 |
| L | Length of cut leads | 11.0 max. |
| l | Length of lead protrusion | 1.0 max. |
| $D_0$ | Diameter of sprocket hole | 4.0 ± 0.2 |
| t | Total tape thickness | 0.9 max. |

**Notes**

(1) See Ordering Information table

(2) Cumulative pitch error: ± 1 mm / 20 pitches

(3) Obliquity maximum 3°



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