



## Ceramic Disc Capacitors Class 1, 500 V (DC) Narrow Tolerance

### FEATURES

- Low losses
- High stability
- High capacitance in small size
- Kinked (preferred) or straight leads
- Lead (Pb)-free available



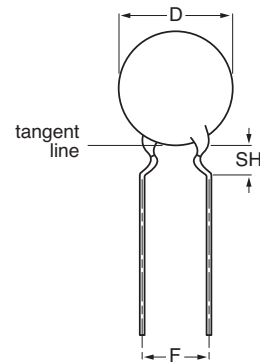
### APPLICATIONS

- Bypassing
- Coupling
- Resonant circuit.

### 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.

The capacitors have inward kinked leads with a spacing of 5 mm (0.200") and a lead length from 4 to 30 mm. Encapsulation is made of phenolic resin.



Capacitors with 5 mm (0.20") lead spacing.

### CAPACITANCE RANGE:

Class 1, at 1 MHz, 1.2 V (RMS); 1.0 pF to 330 pF  
1 kHz,  $1 \pm 0.2V$  (RMS) for capacitance values higher than 1000 pF.

### RATED DC VOLTAGE:

500 V

### DIELECTRIC STRENGTH:

250 % of rated voltage

### INSULATION RESISTANCE AT 500V (DC):

$\geq 10\,000\text{ M}\Omega$

### TOLERANCE ON CAPACITANCE:

$\pm 0.25\text{ pF}$ ;  $\pm 2\%$

### DISSIPATION FACTOR:

Class 1,  $C \leq 30\text{ pF}$ ;  $\leq 20 \times (10/C + 0.7) \times 10^{-4}$  maximum

Class 1,  $C > 30\text{ pF}$ ;  $\leq 20 \times 10^{-4}$

### TEMPERATURE COEFFICIENTS:

Class 1 NP0; P100; N150; N750; N1500

### SECTIONAL SPECIFICATIONS:

Class 1 IEC 60 384-8,  
EIA 198

### CLIMATIC CATEGORY:

Class 1 55/125/21

### OPERATING TEMPERATURE RANGE:

Class 1 - 55 to + 125 °C

### MARKING

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

The capacitors meet the essential requirements of "EIA 198". Unless stated otherwise all electrical values apply at an ambient temperature of  $25 \pm 3\text{ °C}$ , at normal atmospheric conditions

# HV 500 V Narrow Tolerance

Vishay BCcomponents

Ceramic Disc Capacitors  
Class 1, 500 V (DC) Narrow Tolerance



| ORDERING INFORMATION, CLASS 1, 500 V (DC), KINKED |             |                          |                              |                           |                                                                                                             |                                                                            |      |      |                                                                                                      |                |
|---------------------------------------------------|-------------|--------------------------|------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------|------|------------------------------------------------------------------------------------------------------|----------------|
| C<br>(pF)                                         | TOL.<br>(%) | D <sub>max</sub><br>(mm) | LEAD<br>SPACING<br>F<br>(mm) | SH <sup>(2)</sup><br>(mm) | CLEAR TEXT CODE                                                                                             | PACKAGING CODE<br>8 <sup>th</sup> AND 9 <sup>th</sup> DIGIT <sup>(3)</sup> |      |      | CATALOG<br>NUMBER <sup>(4)</sup><br>3 <sup>rd</sup> DIGIT:<br>5 = STANDARD,<br>8 = RoHS<br>COMPLIANT |                |
|                                                   |             |                          |                              |                           | 13 <sup>th</sup> DIGIT:<br>T = REEL; U = AMMO;<br>3 = BULK<br>16 <sup>th</sup> DIGIT:<br>R = RoHS COMPLIANT | REEL                                                                       | AMMO | BULK |                                                                                                      |                |
| CLASS 1 P100                                      |             |                          |                              |                           |                                                                                                             |                                                                            |      |      |                                                                                                      |                |
| 1.5                                               | ± 0.25      | 5.0                      | 5.0                          | 4.0                       | D159C20M7GL6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 598 ..144                                                                                       |                |
| 2.2                                               |             |                          |                              |                           | D229C20M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..244                                                                                       |                |
| 3.3                                               |             |                          |                              |                           | D339C20M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..344                                                                                       |                |
| 4.7                                               |             |                          |                              |                           | D479C20M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..444                                                                                       |                |
| 6.8                                               | ± 2 %       | 6.5                      |                              |                           | D689C25M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..644                                                                                       |                |
| 10                                                |             | 7.5                      |                              |                           | D100G29M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..004                                                                                       |                |
| 15                                                |             | 8.5                      |                              |                           | D150G33M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..104                                                                                       |                |
| 22                                                |             | 10.0                     |                              |                           | D220G39M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..204                                                                                       |                |
| 33                                                |             | 12.0                     |                              |                           | D330G47M7GL6.J5.                                                                                            |                                                                            |      |      | 22.2 598 ..304                                                                                       |                |
| CLASS 1 NP0                                       |             |                          |                              |                           |                                                                                                             |                                                                            |      |      |                                                                                                      |                |
| 1.0                                               | ± 0.25      | 5.0                      | 5.0                          | 4.0                       | D109C20C0KL6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 508 ..044                                                                                       |                |
| 1.5                                               |             |                          |                              |                           | D159C20C0KL6.J5.                                                                                            |                                                                            |      |      | 22.2 508 ..144                                                                                       |                |
| 2.2                                               |             |                          |                              |                           | D229C20C0JL6.J5.                                                                                            |                                                                            |      |      | 22.2 508 ..244                                                                                       |                |
| 3.3                                               |             |                          |                              |                           | D339C20C0JL6.J5.                                                                                            |                                                                            |      |      | 22.2 508 ..344                                                                                       |                |
| 4.7                                               |             |                          |                              |                           | D479C20C0HL6.J5.                                                                                            |                                                                            |      |      | 22.2 508 ..444                                                                                       |                |
| 6.8                                               |             |                          |                              |                           | D689C20C0HL6.J5.                                                                                            |                                                                            |      |      | 22.2 508 ..644                                                                                       |                |
| 10                                                | ± 2 %       |                          |                              |                           | 6.5                                                                                                         |                                                                            |      |      | D100G20C0GL6.J5.                                                                                     | 22.2 508 ..004 |
| 15                                                |             |                          |                              |                           |                                                                                                             |                                                                            |      |      | D150G20C0GL6.J5.                                                                                     | 22.2 508 ..104 |
| 22                                                |             |                          |                              |                           |                                                                                                             |                                                                            |      |      | D220G25C0GL6.J5.                                                                                     | 22.2 508 ..204 |
| 33                                                |             |                          |                              |                           |                                                                                                             |                                                                            |      |      | D330G25C0GL6.J5.                                                                                     | 22.2 508 ..304 |
| 47                                                |             | D470G29C0GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 508 ..404                                                                                       |                |
| 68                                                |             | D680G33C0GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 508 ..604                                                                                       |                |
| 100                                               |             | D101G39C0GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 508 ..014                                                                                       |                |
| 150                                               |             | D151G47C0GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 508 ..114                                                                                       |                |
| CLASS 1 N150                                      |             |                          |                              |                           |                                                                                                             |                                                                            |      |      |                                                                                                      |                |
| 2.2                                               | ± 0.25      | 5.0                      | 5.0                          | 4.0                       | D229C20P2JL6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 518 ..244                                                                                       |                |
| 3.3                                               |             |                          |                              |                           | D339C20P2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 518 ..344                                                                                       |                |
| 4.7                                               |             |                          |                              |                           | D479C20P2HL6.J5.                                                                                            |                                                                            |      |      | 22.2 518 ..444                                                                                       |                |
| 6.8                                               |             |                          |                              |                           | D689C20P2HL6.J5.                                                                                            |                                                                            |      |      | 22.2 518 ..644                                                                                       |                |
| 10                                                | ± 2 %       |                          |                              |                           | 6.5                                                                                                         |                                                                            |      |      | D100G20P2GL6.J5.                                                                                     | 22.2 518 ..004 |
| 15                                                |             |                          |                              |                           |                                                                                                             |                                                                            |      |      | D150G20P2GL6.J5.                                                                                     | 22.2 518 ..104 |
| 22                                                |             |                          |                              |                           |                                                                                                             |                                                                            |      |      | D220G25P2GL6.J5.                                                                                     | 22.2 518 ..204 |
| 33                                                |             | D330G25P2GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 518 ..304                                                                                       |                |
| 47                                                |             | D470G29P2GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 518 ..404                                                                                       |                |
| 68                                                |             | D680G33P2GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 518 ..604                                                                                       |                |
| 100                                               |             | D101G43P2GL6.J5.         |                              |                           |                                                                                                             |                                                                            |      |      | 22.2 518 ..014                                                                                       |                |



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| ORDERING INFORMATION, CLASS 1, 500 V (DC), KINKED |             |                          |                              |                           |                                                                                                             |                                                                            |      |      |                                                                                                      |
|---------------------------------------------------|-------------|--------------------------|------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------|------|------------------------------------------------------------------------------------------------------|
| C<br>(pF)                                         | TOL.<br>(%) | D <sub>max</sub><br>(mm) | LEAD<br>SPACING<br>F<br>(mm) | SH <sup>(2)</sup><br>(mm) | CLEAR TEXT CODE                                                                                             | PACKAGING CODE<br>8 <sup>th</sup> AND 9 <sup>th</sup> DIGIT <sup>(3)</sup> |      |      | CATALOG<br>NUMBER <sup>(4)</sup><br>3 <sup>rd</sup> DIGIT:<br>5 = STANDARD,<br>8 = RoHS<br>COMPLIANT |
|                                                   |             |                          |                              |                           | 13 <sup>th</sup> DIGIT:<br>T = REEL; U = AMMO;<br>3 = BULK<br>16 <sup>th</sup> DIGIT:<br>R = RoHS COMPLIANT | REEL                                                                       | AMMO | BULK |                                                                                                      |
| CLASS 1 N750                                      |             |                          |                              |                           |                                                                                                             |                                                                            |      |      |                                                                                                      |
| 6.8                                               | ± 0.25      | 5.0                      | 5.0                          | 4.0                       | D689C20U2JL6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 558 ..644                                                                                       |
| 10                                                | ± 2 %       |                          |                              |                           | D100G20U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..004                                                                                       |
| 15                                                |             |                          |                              |                           | D150G20U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..104                                                                                       |
| 22                                                |             |                          |                              |                           | D220G20U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..204                                                                                       |
| 33                                                |             | 6.5                      |                              |                           | D330G25U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..304                                                                                       |
| 47                                                |             | 7.5                      |                              |                           | D470G29U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..404                                                                                       |
| 68                                                |             | 8.5                      |                              |                           | D680G33U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..604                                                                                       |
| 100                                               |             | 10.0                     |                              |                           | D101G39U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..014                                                                                       |
| 150                                               |             | 12.0                     |                              |                           | D151G47U2JL6.J5.                                                                                            |                                                                            |      |      | 22.2 558 ..114                                                                                       |
| CLASS 1 N1500                                     |             |                          |                              |                           |                                                                                                             |                                                                            |      |      |                                                                                                      |
| 8.2                                               | ± 0.25 pF   | 5.0                      | 5.0                          | 4.0                       | D829C20P3KL6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 588 ..844                                                                                       |
| 10                                                | ± 2 %       |                          |                              |                           | D100G20P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..004                                                                                       |
| 15                                                |             |                          |                              |                           | D150G20P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..104                                                                                       |
| 22                                                |             |                          |                              |                           | D220G20P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..204                                                                                       |
| 33                                                |             |                          |                              |                           | D330G20P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..304                                                                                       |
| 47                                                |             |                          |                              |                           | D470G20P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..404                                                                                       |
| 68                                                |             | 6.5                      |                              |                           | D680G25P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..604                                                                                       |
| 100                                               |             | 7.5                      |                              |                           | D101G29P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..014                                                                                       |
| 150                                               |             | 8.5                      |                              |                           | D151G33P3KL6.J5.                                                                                            |                                                                            |      |      | 22.2 588 ..114                                                                                       |
| 220                                               | 10.0        | D221G39P3KL6.J5.         |                              |                           | 22.2 588 ..214                                                                                              |                                                                            |      |      |                                                                                                      |
| 330                                               | 12.0        | D331G47P3KL6.J5.         |                              |                           | 22.2 588 ..314                                                                                              |                                                                            |      |      |                                                                                                      |

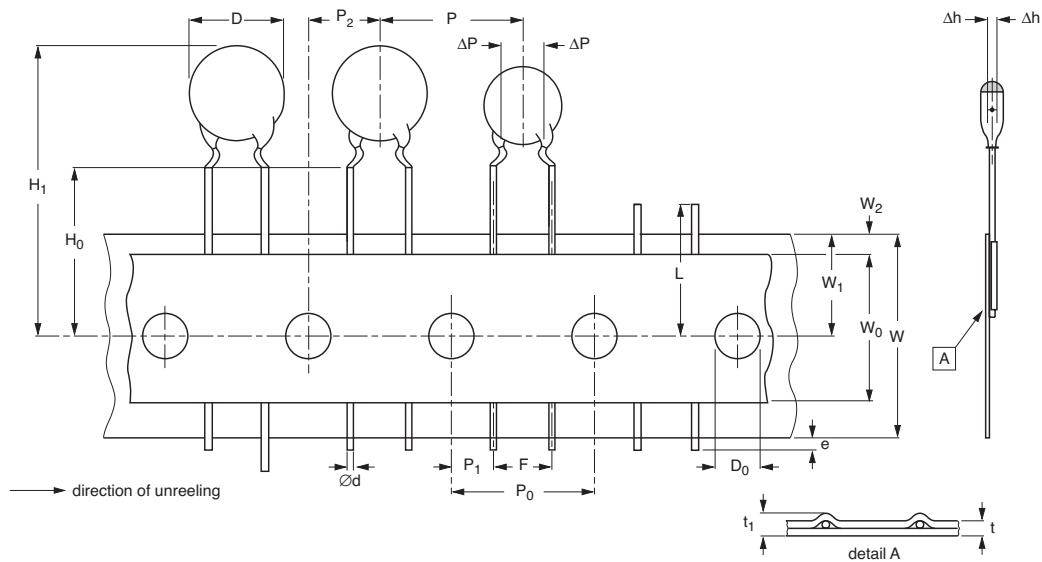
## Notes

- Maximum thickness 4.0 mm.
- SH = seated height.
- Packaging codes refer to inward kinked leads. Other styles available on request.
- 3<sup>rd</sup> digit to complete RoHS catalog number. 8<sup>th</sup> and 9<sup>th</sup> digit of the catalog number to be completed with the packaging code.
- Other capacitance values E12 series available

| PACKAGING                |           |                      |      |      |
|--------------------------|-----------|----------------------|------|------|
| D <sub>max</sub><br>(mm) | SIZE CODE | PACKAGING QUANTITIES |      |      |
|                          |           | BULK                 | REEL | AMMO |
| 5.0 (0.20")              | 20        | 1000                 | 2000 | 2000 |
| 6.5 (0.25")              | 25        |                      |      |      |
| 7.5 (0.29")              | 29        |                      |      |      |
| 8.5 (0.33")              | 33        |                      |      |      |
| 10.0 (0.39")             | 39        |                      |      |      |
| 11.0 (0.43")             | 43        |                      |      |      |
| 12.0 (0.47")             | 47        |                      |      |      |

## Note

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



Kinked capacitors on tape, lead spacing 5.0 mm (0.2").

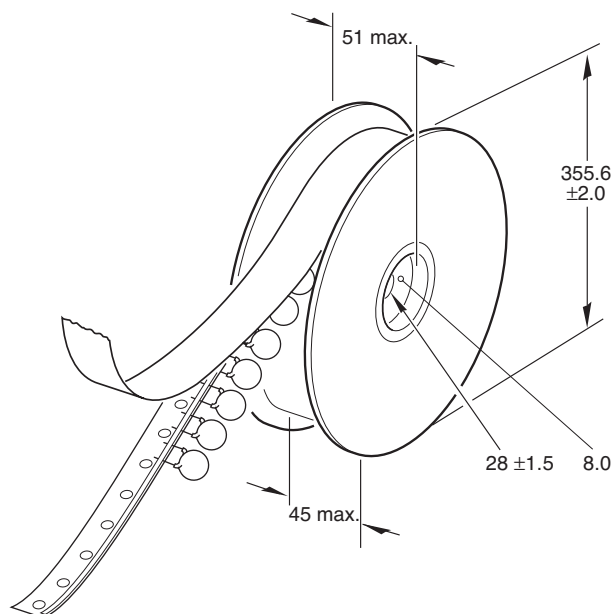
| DIMENSIONS OF TAPE |                                      |                 |                 |
|--------------------|--------------------------------------|-----------------|-----------------|
| SYMBOL             | PARAMETER                            | DIMENSIONS (mm) |                 |
|                    |                                      | 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>     | feed-hole pitch                      | 12.7            | ± 0.3; note 1   |
| ΔP                 | plane deviation                      | 1.0 maximum     | -               |
| P <sub>1</sub>     | feed-hole centre to lead centre      | 3.85            | ± 0.7; note 2   |
| P <sub>2</sub>     | feed-hole centre to component centre | 6.35            | ± 1.3; note 2   |
| F                  | lead spacing                         | 5.0             | + 0.6<br>- 0.4  |
| Δh                 | component alignment                  | 0               | ± 1.0           |
| Δs                 | deviation along tape, left or right  | 0               | ± 1.0           |
| W                  | tape width                           | 18.0            | + 1.0<br>- 0.5  |
| W <sub>0</sub>     | hold-down tape width                 | 5.0 minimum     | -               |
| W <sub>1</sub>     | hole position                        | 9.0             | + 0.75<br>- 0.5 |
| 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

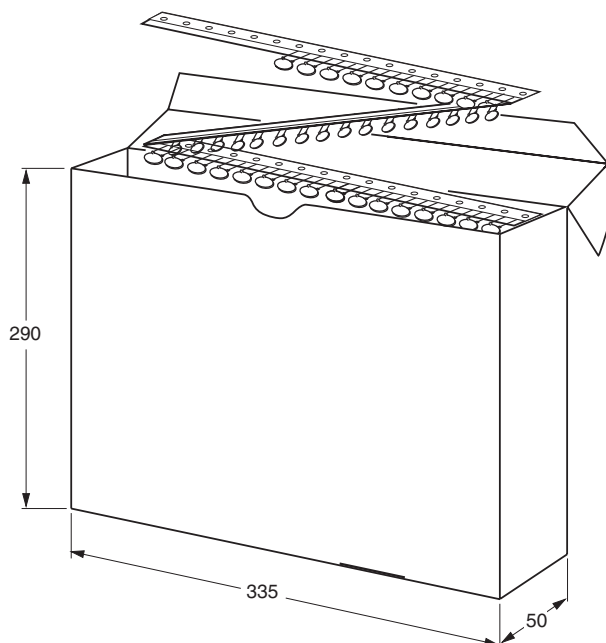
1. Cumulative pitch error:  $\pm \leq 1$  mm /20 pitches.
2. Obliquity maximum 3°.



**REEL AND TAPE DATA** in millimeters



Reel with capacitors on tape.



Ammopack with capacitors on tape.



### Notice

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