



## Ceramic Disc Capacitors Class 1, 100 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); 1.5 to 560 pF  
1 kHz,  $1 \pm 0.2V$  (RMS) for capacitance values higher than 1000 pF.

### TEMPERATURE COEFFICIENTS:

Class 1 NP0; P100; N150; N750; N1500

### RATED DC VOLTAGE:

100 V

### SECTIONAL SPECIFICATIONS:

Class 1 IEC 60 384-8,  
EIA 198

### DIELECTRIC STRENGTH:

250 % of rated voltage

### CLIMATIC CATEGORY:

Class 1 55/125/56

### INSULATION RESISTANCE AT 100V (DC):

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

### OPERATING TEMPERATURE RANGE:

Class 1 - 55 to + 125 °C

### TOLERANCE ON CAPACITANCE:

$\pm 0.25\text{ pF}$ ;  $\pm 0.5\text{ pF}$ ;  $\pm 2\%$

### MARKING

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

### DISSIPATION FACTOR:

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

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

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

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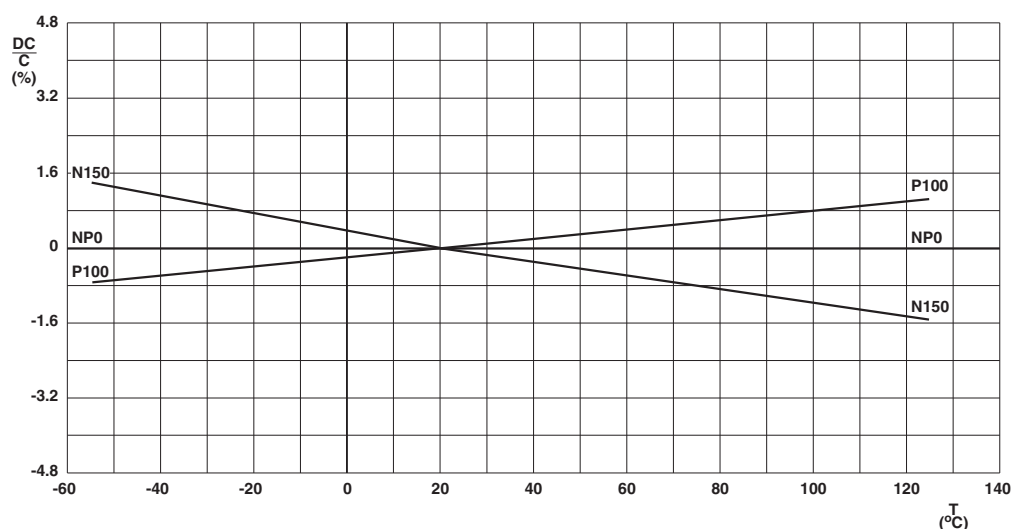
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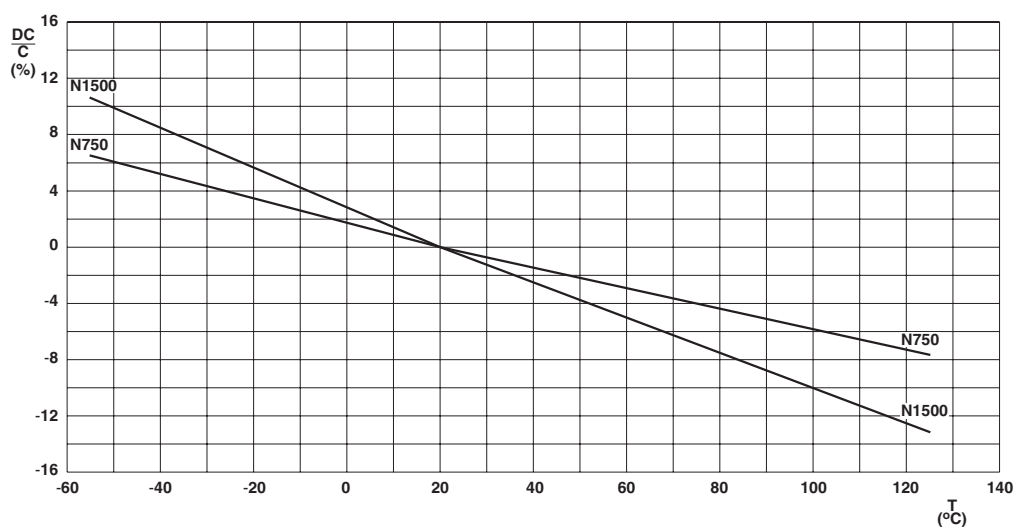


## TEMPERATURE COEFFICIENT IN ACCORDANCE WITH "RS198"

|         |            |            |
|---------|------------|------------|
| C = 0.0 | 0 = - 1    | G = ± 30   |
| M = 1.0 | 1 = - 10   | H = ± 60   |
| P = 1.5 | 2 = - 100  | J = ± 120  |
| R = 2.2 | 3 = - 1000 | K = ± 250  |
| S = 3.3 | 5 = + 1    | L = ± 500  |
| T = 4.7 | 6 = + 10   | M = ± 1000 |
| U = 7.5 | 7 = + 100  | N = ± 2500 |
| -       | 8 = + 1000 | -          |



Capacitance change as a function of temperature



Capacitance change as a function of temperature



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| ORDERING INFORMATION, CLASS 1, 100 V (DC), KINKED |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      |                                                                                                     |                |
|---------------------------------------------------|------------------|--------------------------|---------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------------------------|----------------|
| C<br>(pF)                                         | TOL.<br>(%)      | D <sub>max</sub><br>(mm) | LEAD<br>SPACING <sup>(2)</sup><br>F<br>(mm) | SH <sup>(3)</sup><br>(mm) | CLEAR TEXT CODE                                                                                             | PACKAGING CODE<br>8 <sup>th</sup> AND 9 <sup>th</sup> DIGIT <sup>(4)</sup> |      |      | CATALOG<br>NUMBER <sup>(5)</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 pF        | 5.0                      | 5.0                                         | 4.0                       | D159C20M7GH6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 596 ..144                                                                                      |                |
| 2.2                                               |                  |                          |                                             |                           | D229C20M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..244                                                                                      |                |
| 3.3                                               |                  |                          |                                             |                           | D339C20M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..344                                                                                      |                |
| 4.7                                               |                  |                          |                                             |                           | D479C20M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..444                                                                                      |                |
| 6.8                                               | D689C20M7GH6.J5. | 22.2 596 ..644           |                                             |                           |                                                                                                             |                                                                            |      |      |                                                                                                     |                |
| 10                                                | ± 2 %            | 6.5                      |                                             |                           | D100G25M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..004                                                                                      |                |
| 15                                                |                  | 7.5                      |                                             |                           | D150G29M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..104                                                                                      |                |
| 22                                                |                  | 8.5                      |                                             |                           | D220G33M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..204                                                                                      |                |
| 33                                                |                  | 10.0                     |                                             |                           | D330G39M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..304                                                                                      |                |
| 47                                                |                  | 11.0                     |                                             |                           | D470G43M7GH6.J5.                                                                                            |                                                                            |      |      | 22.2 596 ..404                                                                                      |                |
| CLASS 1 NP0                                       |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      |                                                                                                     |                |
| 1.5                                               | ± 0.25 pF        | 5.0                      | 5.0                                         | 4.0                       | D159C20C0KH6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 506 ..144                                                                                      |                |
| 1.8                                               |                  |                          |                                             |                           | D189C20C0KH6.J5.                                                                                            |                                                                            |      |      | 22.2 506 ..194                                                                                      |                |
| 2.2                                               |                  |                          |                                             |                           | D229C20C0JH6.J5.                                                                                            |                                                                            |      |      | 22.2 506 ..244                                                                                      |                |
| 3.3                                               |                  |                          |                                             |                           | D339C20C0JH6.J5.                                                                                            |                                                                            |      |      | 22.2 506 ..344                                                                                      |                |
| 4.7                                               |                  |                          |                                             |                           | D479C20C0HH6.J5.                                                                                            |                                                                            |      |      | 22.2 506 ..444                                                                                      |                |
| 6.8                                               | D689C20C0HH6.J5. |                          |                                             |                           | 22.2 506 ..644                                                                                              |                                                                            |      |      |                                                                                                     |                |
| 10                                                | ± 2 %            |                          |                                             |                           | 6.5                                                                                                         |                                                                            |      |      | D100G20C0GH6.J5.                                                                                    | 22.2 506 ..004 |
| 15                                                |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      | D150G20C0GH6.J5.                                                                                    | 22.2 506 ..104 |
| 22                                                |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      | D220G20C0GH6.J5.                                                                                    | 22.2 506 ..204 |
| 33                                                |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      | D330G20C0GH6.J5.                                                                                    | 22.2 506 ..304 |
| 47                                                |                  | D470G25C0GH6.J5.         |                                             |                           |                                                                                                             |                                                                            |      |      | 22.2 506 ..404                                                                                      |                |
| 68                                                |                  | D680G25C0GH6.J5.         |                                             |                           |                                                                                                             |                                                                            |      |      | 22.2 506 ..604                                                                                      |                |
| 100                                               |                  | 7.5                      |                                             |                           |                                                                                                             |                                                                            |      |      | D101G29C0GH6.J5.                                                                                    | 22.2 506 ..014 |
| 150                                               |                  | 8.5                      |                                             |                           |                                                                                                             |                                                                            |      |      | D151G33C0GH6.J5.                                                                                    | 22.2 506 ..114 |
| 220                                               |                  | 11.0                     |                                             |                           |                                                                                                             |                                                                            |      |      | D221G43C0GH6.J5.                                                                                    | 22.2 506 ..214 |
| CLASS 1 N150                                      |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      |                                                                                                     |                |
| 3.9                                               | ± 0.25 pF        | 5.0                      | 5.0                                         | 4.0                       | D399C20P2JH6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 516 ..394                                                                                      |                |
| 4.7                                               |                  |                          |                                             |                           | D479C20P2HH6.J5.                                                                                            |                                                                            |      |      | 22.2516 ..444                                                                                       |                |
| 6.8                                               |                  |                          |                                             |                           | D689C20P2HH6.J5.                                                                                            |                                                                            |      |      | 22.2 516 ..644                                                                                      |                |
| 10                                                | ± 2 %            |                          |                                             |                           | 6.5                                                                                                         |                                                                            |      |      | D100G20P2GH6.J5.                                                                                    | 22.2 516 ..004 |
| 15                                                |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      | D150G20P2GH6.J5.                                                                                    | 22.2 516 ..104 |
| 22                                                |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      | D220G20P2GH6.J5.                                                                                    | 22.2 516 ..204 |
| 33                                                |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      | D330G20P2GH6.J5.                                                                                    | 22.2 516 ..304 |
| 47                                                |                  |                          |                                             |                           |                                                                                                             |                                                                            |      |      | D470G25P2GH6.J5.                                                                                    | 22.2 516 ..404 |
| 68                                                |                  | D680G25P2GH6.J5.         |                                             |                           |                                                                                                             |                                                                            |      |      | 22.2 516 ..604                                                                                      |                |
| 100                                               | 7.5              | D101G29P2GH6.J5.         |                                             |                           | 22.2 516 ..014                                                                                              |                                                                            |      |      |                                                                                                     |                |
| 150                                               | 10.0             | D151G39P2GH6.J5.         |                                             |                           | 22.2 516 ..114                                                                                              |                                                                            |      |      |                                                                                                     |                |
| 220                                               | 11.0             | D221G43P2GH6.J5.         |                                             |                           | 22.2 516 ..214                                                                                              |                                                                            |      |      |                                                                                                     |                |

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| ORDERING INFORMATION, CLASS 1, 100 V (DC), KINKED |             |                          |                                             |                           |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
|---------------------------------------------------|-------------|--------------------------|---------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------|------|---------------------------------------------------------------------------------------------------------|------------------|----|----|----|----------------|
| C<br>(pF)                                         | TOL.<br>(%) | D <sub>max</sub><br>(mm) | LEAD<br>SPACING <sup>(2)</sup><br>F<br>(mm) | SH <sup>(3)</sup><br>(mm) | CLEAR TEXT CODE                                                                                             | PACKAGING CODE<br>8 <sup>th</sup> AND 9 <sup>th</sup> DIGIT <sup>(4)</sup> |      |      | CATALOG<br>NUMBER <sup>(5)</sup><br><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 pF   | 5.0                      | 5.0                                         | 4.0                       | D689C20U2JH6.J5.                                                                                            | 06                                                                         | 08   | 10   | 22.2 556 ..644                                                                                          |                  |    |    |    |                |
| 10                                                | ± 2 %       |                          |                                             |                           | D100G20U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..004                                                                                          |                  |    |    |    |                |
| 15                                                |             |                          |                                             |                           | D150G20U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..104                                                                                          |                  |    |    |    |                |
| 22                                                |             |                          |                                             |                           | D220G20U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..204                                                                                          |                  |    |    |    |                |
| 33                                                |             |                          |                                             |                           | D330G20U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..304                                                                                          |                  |    |    |    |                |
| 47                                                |             | D470G20U2JH6.J5.         |                                             |                           | 22.2 556 ..404                                                                                              |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 68                                                |             | 6.5                      |                                             |                           | D680G25U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..604                                                                                          |                  |    |    |    |                |
| 100                                               |             | 7.5                      |                                             |                           | D101G29U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..014                                                                                          |                  |    |    |    |                |
| 150                                               |             | 8.5                      |                                             |                           | D151G33U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..114                                                                                          |                  |    |    |    |                |
| 220                                               |             | 10.0                     |                                             |                           | D221G39U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..214                                                                                          |                  |    |    |    |                |
| 330                                               |             | 12.0                     |                                             |                           | D331G47U2JH6.J5.                                                                                            |                                                                            |      |      | 22.2 556 ..314                                                                                          |                  |    |    |    |                |
| CLASS 1 N1500                                     |             |                          |                                             |                           |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 18                                                | ± 2 %       | 5.0                      |                                             |                           | 5.0                                                                                                         |                                                                            |      |      | 4.0                                                                                                     | D180G20P3KH6.J5. | 06 | 08 | 10 | 22.2 586 ..154 |
| 22                                                |             |                          | D220G20P3KH6.J5.                            | 22.2 586 ..204            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 33                                                |             |                          | D330G20P3KH6.J5.                            | 22.2 586 ..304            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 47                                                |             |                          | D470G20P3KH6.J5.                            | 22.2 586 ..404            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 68                                                |             |                          | D680G20P3KH6.J5.                            | 22.2 586 ..604            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 100                                               |             | 6.5                      | D101G25P3KH6.J5.                            | 22.2 586 ..014            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 150                                               |             | 7.5                      | D151G29P3KH6.J5.                            | 22.2 586 ..114            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 220                                               |             | 8.5                      | D221G33P3KH6.J5.                            | 22.2 586 ..214            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 330                                               |             | 10.0                     | D331G39P3KH6.J5.                            | 22.2 586 ..314            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 470                                               |             | 11.0                     | D471G43P3KH6.J5.                            | 22.2 586 ..414            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |
| 560                                               |             | 12.0                     | D561G47P3KH6.J5.                            | 22.2 586 ..514            |                                                                                                             |                                                                            |      |      |                                                                                                         |                  |    |    |    |                |

## Notes

- Maximum thickness 4.0 mm.
- 2.5 mm lead spacing is available on request. Straight leads leadstyle L2. Digit 14 (L) and 15 (2) Clear Text Code
- 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.

| PACKAGING                |           |                      |      |      |
|--------------------------|-----------|----------------------|------|------|
| D <sub>max</sub><br>(mm) | SIZE CODE | PACKAGING QUANTITIES |      |      |
|                          |           | BULK                 | REEL | AMMO |
| 5.0 (0.20")              | 20        | 1000                 | 2500 | 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 ammpack.



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°.

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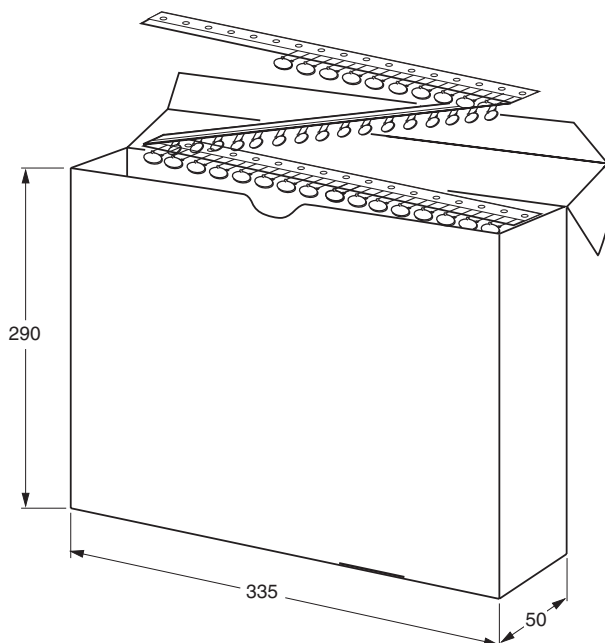
Ceramic Disc Capacitors  
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## REEL AND TAPE DATA in millimeters



Reel with capacitors on tape.



Ammopack with capacitors on tape.