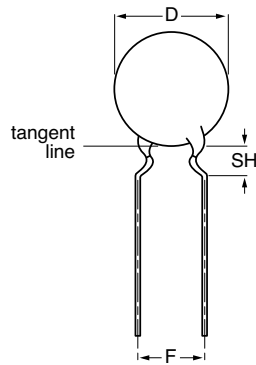
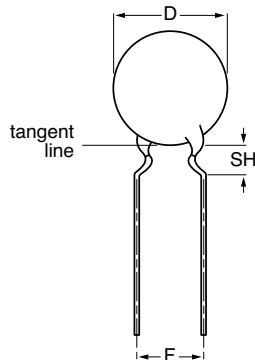




Ceramic Disc Capacitors Class 1 and 2, 500 V (DC) General Purpose



Capacitors with 5 mm (0.20") lead spacing



Capacitors with 7.5 mm (0.30") lead spacing

SECTIONAL SPECIFICATIONS:

Class 1 IEC 60 384-8,

Class 2 IEC 60 384-9,

EIA 198

CLIMATIC CATEGORY:

Class 1 55/125/21

Class 2 10/85/21, 30/85/21 and 55/85/21

OPERATING TEMPERATURE RANGE:

Class 1 - 55 to + 125 °C

Class 2 - 55 to + 85 °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 ± 3 °C, at normal atmospheric conditions.

FEATURES

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



RoHS
COMPLIANT

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") or 7.5 mm (0.300") and a lead length from 4 to 30 mm. Encapsulation is made of phenolic resin.

CAPACITANCE RANGE:

Class 1, at 1 MHz, 1.2 V (RMS); 10 to 82 pF

1 kHz, 1 ± 0.2 V (RMS) for capacitance values higher than 1000 pFClass 2, at 1 kHz, 1 ± 0.2 V (RMS); 100 to 22 000 pF

RATED DC VOLTAGE:

500 V

DIELECTRIC STRENGTH:

250 % of rated voltage

INSULATION RESISTANCE AT 500 V (DC):

 $\geq 10\,000$ M Ω

TOLERANCE ON CAPACITANCE:

 ± 5 %; ± 10 %; ± 20 %; + 80/- 20 %

DISSIPATION FACTOR:

Class 1, $C \leq 30$ pF; $\leq 20 \times (10/C + 0.7) \times 10^{-4}$ maximumClass 1, $C > 30$ pF; ≤ 0.2 %Class 2, ≤ 3.0 %

TEMPERATURE COEFFICIENTS:

Class 1 C0G (NP0); SL0

Class 2 Y5P; Z5U; Y5V; X5F

| ORDERING INFORMATION (PREFERRED TYPES), CLASS 1, 500 V (DC), KINKED | | | | | |
|--|-------------|--------------------------|---------------------------|---------------------------|--|
| C (pF) | TOL. (%) | D _{max} (mm) | LEAD SPACING F (mm) | SH ⁽²⁾ (mm) | CLEAR TEXT CODE |
| | | | | | 13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT |
| CLASS 1 NP0 | | | | | |
| 10 | ± 5 | 5.0 | 5.0 | 4.0 | D100J20C0GL6.J5. |
| 12 | | | | | D120J20C0GL6.J5. |
| 15 | | | | | D150J20C0GL6.J5. |
| 18 | | D180J25C0GL6.J5. | | | |
| 22 | | 6.5 | | | D220J25C0GL6.J5. |
| 27 | | | | | D270J25C0GL6.J5. |
| CLASS 1 SL0 | | | | | |
| 33 | ± 5 | 5.0 | 5.0 | 4.0 | D330J20SL0L6.J5. |
| 39 | | | | | D390J20SL0L6.J5. |
| 47 | | | | | D470J20SL0L6.J5. |
| 56 | | D560J20SL0L6.J5. | | | |
| 68 | | 6.5 | | | D680J25SL0L6.J5. |
| 82 | | | | | D820J25SL0L6.J5. |

Notes

1. Maximum thickness 4.0 mm.
2. SH = seated height.
3. Lead style codes refer to inward kinked leads. Other styles available on request.

| ORDERING INFORMATION (PREFERRED TYPES), CLASS 2, 500 V (DC), KINKED | | | | | | |
|--|-------------|--------------------------|---------------------------|---------------------------|--|------------------|
| C (pF) | TOL. (%) | D _{max} (mm) | LEAD SPACING F (mm) | SH ⁽²⁾ (mm) | CLEAR TEXT CODE | |
| | | | | | 13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT | |
| CLASS 2 Y5P | | | | | | |
| 100 | ± 10 | 5.0 | 5.0 | 4.0 | D101K20Y5PL6.J5. | |
| 150 | | | | | D151K20Y5PL6.J5. | |
| 220 | | | | | D221K20Y5PL6.J5. | |
| 330 | | | | | D331K20Y5PL6.J5. | |
| 470 | | | | | D471K20Y5PL6.J5. | |
| 680 | | | | | D681K25Y5PL6.J5. | |
| 1000 | | 6.5 | | | 5.0 | D102K25Y5PL6.J5. |
| 1500 | | | | | | D152K29Y5PL6.J5. |
| 2200 | | 8.5 | | | D222K33Y5PL6.J5. | |
| 3300 | | 10.0 | | | D332K39Y5PL6.J5. | |
| 4700 | | 11.0 | | | D472K43Y5PL6.J5. | |
| 6800 | | 13.5 | | | 7.5 | D682K53Y5PL6.J7. |
| 10 000 | | 17.5 | | | | D103K69Y5PL6.J7. |
| CLASS 2 Y5V | | | | | | |
| 1000 | + 80 /- 20 | 5.0 | 5.0 | 4.0 | D102Z20Y5VL6.J5. | |
| 1500 | | | | | D152Z20Y5VL6.J5. | |
| 2200 | 6.5 | D222Z25Y5VL6.J5. | | | | |
| 3300 | | D322Z25Y5VL6.J5. | | | | |
| 4700 | 7.5 | D472Z29Y5VL6.J5. | | | | |
| 6800 | 8.5 | D682Z33Y5VL6.J5. | | | | |
| 10 000 | 10.0 | D103Z39Y5VL6.J5. | | | | |
| 15 000 | 11.0 | D153Z43Y5VL6.J5. | | | | |
| 22 000 | 13.5 | 7.5 | | | D223Z53Y5VL6.J7. | |



| ORDERING INFORMATION (PREFERRED TYPES), CLASS 2, 500 V (DC), KINKED | | | | | | |
|--|-------------|--------------------------|---------------------------|---------------------------|--|------------------|
| C (pF) | TOL. (%) | D _{max} (mm) | LEAD SPACING F (mm) | SH ⁽²⁾ (mm) | CLEAR TEXT CODE | |
| | | | | | 13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT | |
| CLASS 2 Z5U | | | | | | |
| 1000 | ± 20 | 5.0 | 5.0 | 4.0 | D102M20Z5UL6.J5. | |
| 1500 | | | | | D152M25Z5UL6.J5. | |
| 2200 | | | | | D222M25Z5UL6.J5. | |
| 3300 | | | | | D332M29Z5UL6.J5. | |
| 4700 | | | | | D472M33Z5UL6.J5. | |
| 6800 | | | | | D682M39Z5UL6.J5. | |
| 10 000 | | 7.5 | 11.0 | 7.5 | 4.8 | D103M43Z5UL6.J5. |
| 15 000 | | | | | | D153M53Z5UL6.J7. |
| 22 000 | | | | | | D223M59Z5UL6.J7. |
| | | | | | | |
| CLASS 2 X5F | | | | | | |
| 100 | ± 10 | 5.0 | 5.0 | 4.0 | D101K20X5FL6.J5R | |
| 220 | | | | | D221K20X5FL6.J5R | |
| 330 | | | | | D331K20X5FL6.J5R | |
| 470 | | | | | D471K25X5FL6.J5R | |
| 680 | | | | | D681K25X5FL6.J5R | |
| 1000 | | | | | D102K29X5FL6.J5R | |
| 2200 | | 7.5 | 10.0 | 7.5 | 4.8 | D222K39X5FL6.J5R |
| 3300 | | | | | | D332K47X5FL6.J7R |
| 4700 | | | | | | D472K53X5FL6.J7R |
| | | | | | | |

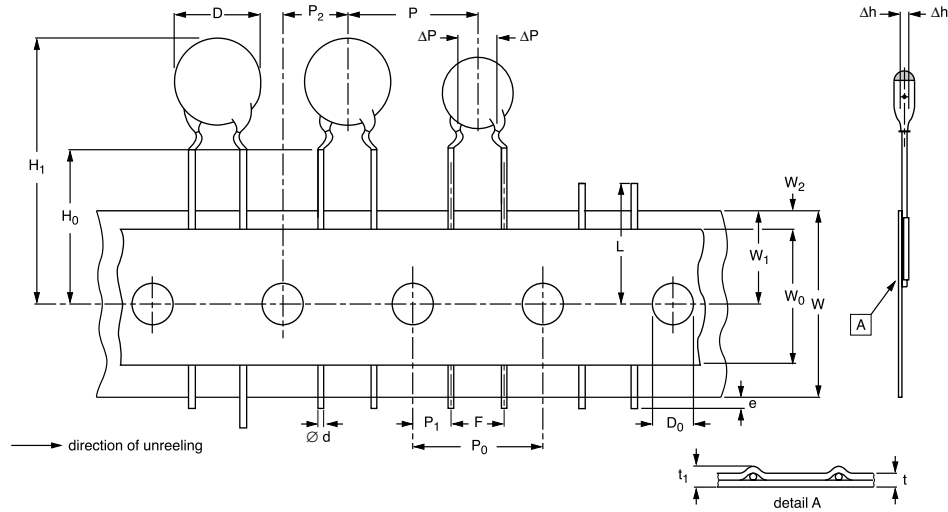
Notes

1. Maximum thickness 4.0 mm.
2. SH = seated height.
3. Lead style codes refer to inward kinked leads. Other styles available on request.

| PACKAGING | | | | |
|------------------------|-----------|----------------------|------|------|
| D _{max} 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 | | | |
| 13.5 (0.53") | 53 | 500 | - | - |
| 15.0 (0.59") | 59 | | | |
| 17.5 (0.69") | 69 | | | |
| | | | | |

Note

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



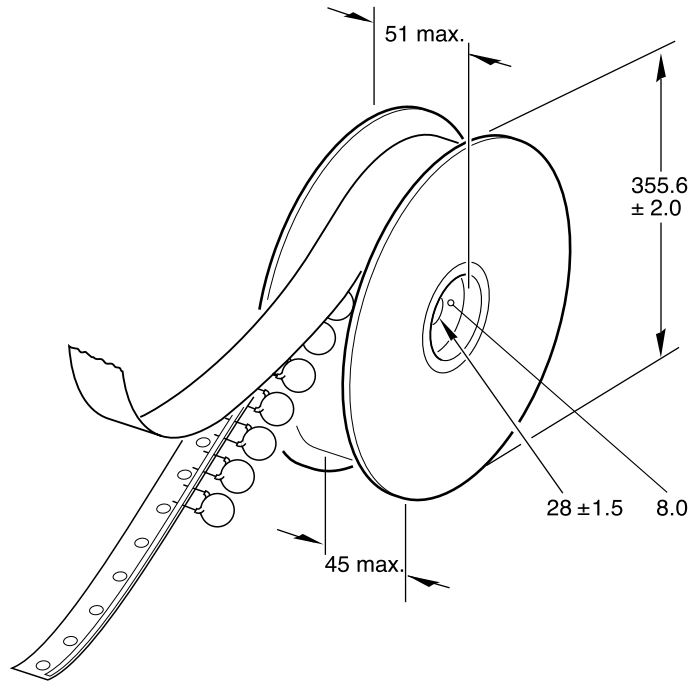
Kinked capacitors on tape, lead spacing 5.0 mm (0.2 inch)

| 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 ₀ | feed-hole pitch | 12.7 | ± 0.3; note 1 |
| ΔP | plane deviation | 1.0 maximum | - |
| P ₁ | feed-hole centre to lead centre | 3.85 | ± 0.7; note 2 |
| P ₂ | feed-hole centre to component centre | 6.35 | ± 1.3; note 2 |
| F | lead spacing | 5.0 | + 0.6 - 0.4 |
| Δh | component alignment | 0 | ± 1.0 |
| W | tape width | 18.0 | + 1.0 - 0.5 |
| W ₀ | hold-down tape width | 5.0 minimum | - |
| W ₁ | hole position | 9.0 | + 0.75 - 0.5 |
| W ₂ | hold-down tape margin | 3.0 maximum | - |
| H ₀ | height to seating plane | 16.0 | ± 0.5 |
| H ₁ | maximum component height | 32.0 | - |
| e | lead end protrusion | 1.0 maximum | - |
| L | maximum length of snapped lead | 11.0 | - |
| D ₀ | feed-hole diameter | 4.0 | ± 0.2 |
| t | total tape thickness | 0.9 maximum | - |
| t ₁ | maximum thickness of tape and wires | 1.5 maximum | - |

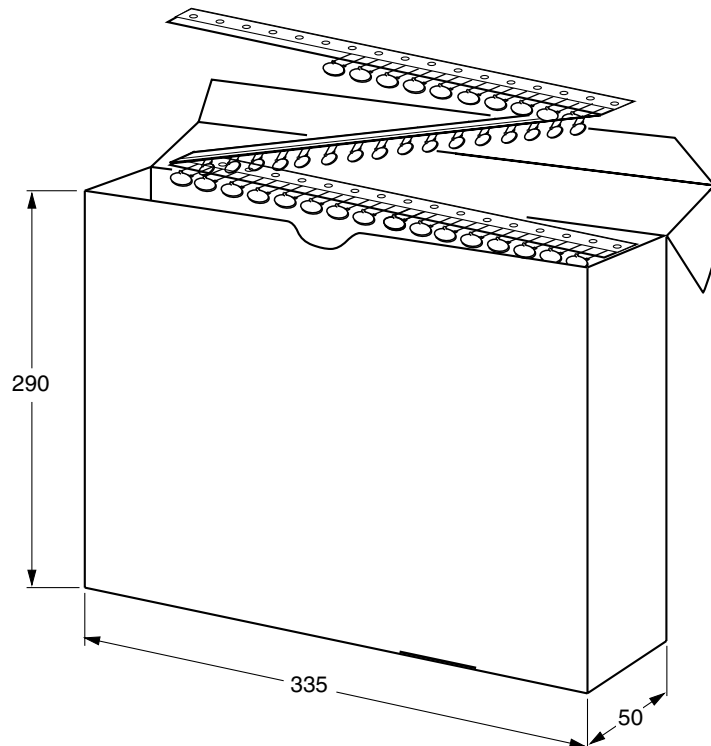
Notes

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

REEL AND TAPE DATA in millimeters



Reel with capacitors on tape



Ampopack with capacitors on tape



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