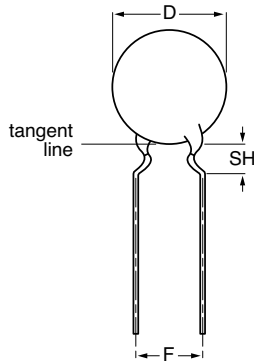
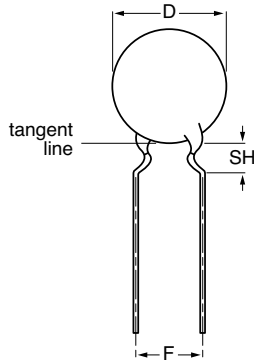


## Ceramic Disc Capacitors

### 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  $25 \pm 3$  °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,  $1 \pm 0.2$  V (RMS) for capacitance values higher than 1000 pF

Class 2, at 1 kHz,  $1 \pm 0.2$  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 $\Omega$

#### TOLERANCE ON CAPACITANCE:

$\pm 5$  %;  $\pm 10$  %;  $\pm 20$  %; + 80/- 20 %

#### DISSIPATION FACTOR:

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

Class 1,  $C > 30$  pF;  $\leq 0.2$  %

Class 2,  $\leq 3.0$  %

#### TEMPERATURE COEFFICIENTS:

Class 1 C0G (NP0); SL0

Class 2 Y5P; Z5U; Y5V; X5F

<b>ORDERING INFORMATION (PREFERRED TYPES), CLASS 1, 500 V (DC), KINKED</b>					
C (pF)	TOL. (%)	D <sub>max</sub> (mm)	LEAD SPACING F (mm)	SH <sup>(2)</sup> (mm)	CLEAR TEXT CODE
					13 <sup>th</sup> DIGIT: T = REEL; U = AMMO; 3 = BULK 16 <sup>th</sup> DIGIT: R = RoHS COMPLIANT
<b>CLASS 1 NP0</b>					
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.
<b>CLASS 1 SL0</b>					
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.

<b>ORDERING INFORMATION (PREFERRED TYPES), CLASS 2, 500 V (DC), KINKED</b>						
C (pF)	TOL. (%)	D <sub>max</sub> (mm)	LEAD SPACING F (mm)	SH <sup>(2)</sup> (mm)	CLEAR TEXT CODE	
					13 <sup>th</sup> DIGIT: T = REEL; U = AMMO; 3 = BULK 16 <sup>th</sup> DIGIT: R = RoHS COMPLIANT	
<b>CLASS 2 Y5P</b>						
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		7.5			D222K33Y5PL6.J5.	
3300		8.5			D332K39Y5PL6.J5.	
4700		10.0			D472K43Y5PL6.J5.	
6800		11.0			D682K53Y5PL6.J7.	
10 000		13.5			7.5	D103K69Y5PL6.J7.
		17.5				
<b>CLASS 2 Y5V</b>						
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.	



<b>ORDERING INFORMATION (PREFERRED TYPES), CLASS 2, 500 V (DC), KINKED</b>						
C (pF)	TOL. (%)	D <sub>max</sub> (mm)	LEAD SPACING F (mm)	SH <sup>(2)</sup> (mm)	CLEAR TEXT CODE	
					13 <sup>th</sup> DIGIT: T = REEL; U = AMMO; 3 = BULK 16 <sup>th</sup> DIGIT: R = RoHS COMPLIANT	
<b>CLASS 2 Z5U</b>						
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		11.0	7.5		D103M43Z5UL6.J5.	
15 000		13.5			D153M53Z5UL6.J7.	
22 000		15.0			D223M59Z5UL6.J7.	
<b>CLASS 2 X5F</b>						
100	± 10	5.0		5.0	4.0	D101K20X5FL6.J5R
220			D221K20X5FL6.J5R			
330			D331K20X5FL6.J5R			
470			D471K25X5FL6.J5R			
680			D681K25X5FL6.J5R			
1000		7.5	7.5	D102K29X5FL6.J5R		
2200		10.0		D222K39X5FL6.J5R		
3300		12.0		D332K47X5FL6.J7R		
4700		13.5		D472K53X5FL6.J7R		

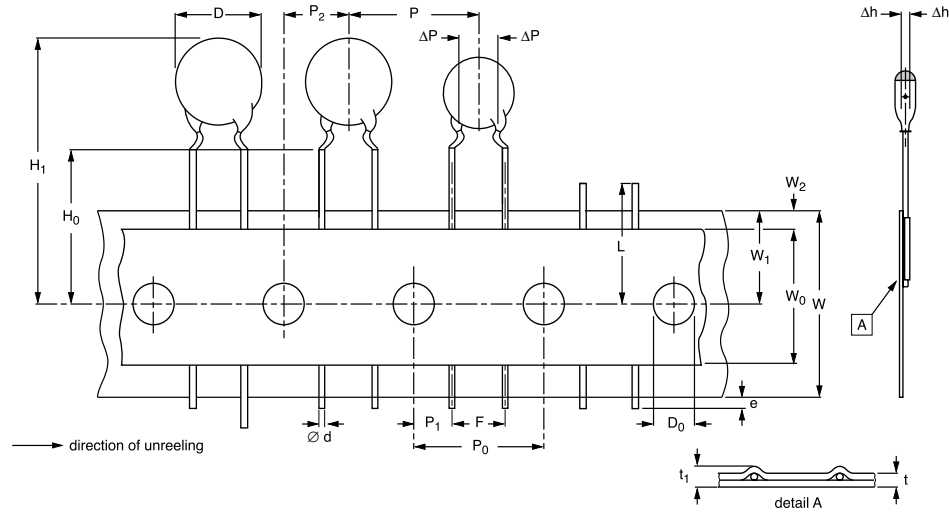
**Notes**

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

<b>PACKAGING</b>				
D <sub>max</sub> 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.



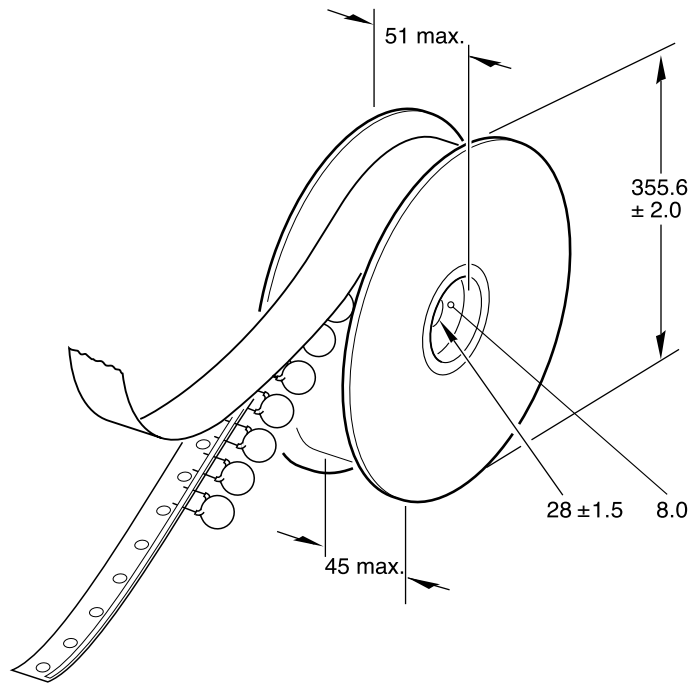
Kinked capacitors on tape, lead spacing 5.0 mm (0.2 inch)

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 <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 - 0.4
Δh	component alignment	0	± 1.0
W	tape width	18.0	+ 1.0 - 0.5
W <sub>0</sub>	hold-down tape width	5.0 minimum	-
W <sub>1</sub>	hole position	9.0	+ 0.75 - 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	-

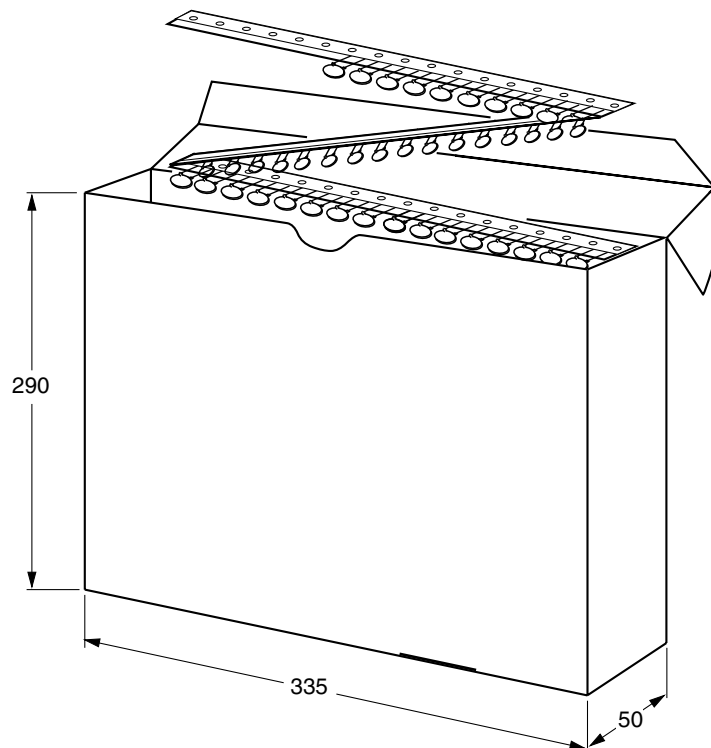
**Notes**

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

**REEL AND TAPE DATA** in millimeters



Reel with capacitors on tape



Ampack with capacitors on tape



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