

## Ceramic Disc Capacitors

### Class 1 and 2, 100 V (DC) General Purpose

#### FEATURES

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



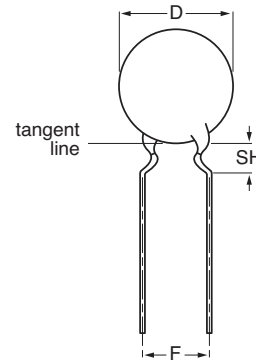
#### APPLICATIONS

- 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 (0.200") lead spacing.

#### CAPACITANCE RANGE:

Class 1, at 1 MHz, 1.2 V (RMS); 1.0 to 100 pF  
1 kHz,  $1 \pm 0.2V$  (RMS) for capacitance values higher than 1000 pF.

Class 2, at 1 kHz,  $1 \pm 0.2 V$  (RMS); 150 to 47000 pF

#### RATED DC VOLTAGE:

100 V

#### DIELECTRIC STRENGTH:

250 % of rated voltage

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

$\geq 10000 M\Omega$

#### TOLERANCE ON CAPACITANCE:

$\pm 0.25 pF$ ;  $\pm 0.5 pF$ ;  $\pm 5 \%$ ;  $\pm 10 \%$ ;  $\pm 20 \%$ ;  $+ 80 / - 20 \%$

#### DISSIPATION FACTOR:

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

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

Class 2,  $\leq 3.0 \%$

#### TEMPERATURE COEFFICIENTS:

Class 1 NP0; SL0

Class 2 Y5P; Z5U; Y5V; Z5V

#### 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 and 30/85/21

#### OPERATING TEMPERATURE RANGE:

Class 1 - 55 to + 125 °C

Class 2 - 30 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



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<b>ORDERING INFORMATION, CLASS 1, 100 V (DC), KINKED</b>																	
C (pF)	TOL. (%)	D <sub>max</sub> (mm)	LEAD SPACING F (mm)	SH <sup>(2)</sup> (mm)	CLEAR TEXT CODE			PACKAGING CODE 8 <sup>th</sup> AND 9 <sup>th</sup> DIGIT <sup>(3)</sup>			CATALOG NUMBER <sup>(4)</sup> 3 <sup>rd</sup> DIGIT: 5 = STANDARD 8 = RoHS COMPLIANT						
					T = REEL; U = AMMO; 3 = BULK	REEL	AMMO	BULK	REEL	AMMO		BULK					
<b>CLASS 1 NP0</b>																	
1.0	± 0.25 pF	5.0	5.0	4.0	D109C20C0KH6.J5.			06	08	10	22.2 506 ..044						
1.5					D159C20C0KH6.J5.						22.2 506 ..144						
2.2					D229C20C0KH6.J5.						22.2 506 ..244						
3.3					D339C20C0KH6.J5.						22.2 506 ..344						
4.7					D479C20C0KH6.J5.						22.2 506 ..444						
6.8	± 0.5 pF				6.5	5.0	4.0				D689D20C0HH6.J5.			06	08	10	22.2 506 ..645
10	D100J20C0GH6.J5.										22.2 506 ..005						
12	D120J20C0GH6.J5.										22.2 506 ..055						
15	D150J20C0GH6.J5.										22.2 506 ..105						
18	D180J20C0GH6.J5.										22.2 506 ..155						
22	± 5	D220J20C0GH6.J5.						22.2 506 ..205									
27		D270J20C0GH6.J5.						22.2 506 ..255									
33		D330J20C0GH6.J5.						22.2 506 ..305									
39		D390J25C0GH6.J5.						22.2 506 ..355									
47		D470J25C0GH6.J5.						22.2 506 ..405									
<b>CLASS 1 SL0</b>																	
56	± 5	5.0	5.0	4.0	D560J20SL0H6.J5.			06	08	10	22.2 566 ..505						
68					D680J20SL0H6.J5.						22.2 566 ..605						
82					D820J20SL0H6.J5.						22.2 566 ..805						
100					D101J20SL0H6.J5.						22.2 566 ..015						

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.

<b>ORDERING INFORMATION, CLASS 2, 100 V (DC), KINKED</b>												
C (pF)	TOL. (%)	D <sub>max</sub> (mm)	LEAD SPACING F (mm)	SH <sup>(2)</sup> (mm)	CLEAR TEXT CODE			PACKAGING CODE 8 <sup>th</sup> AND 9 <sup>th</sup> DIGIT <sup>(3)</sup>			CATALOG NUMBER <sup>(4)</sup> 3 <sup>rd</sup> DIGIT: 5 = STANDARD 8 = RoHS COMPLIANT	
					T = REEL; U = AMMO; 3 = BULK	REEL	AMMO	BULK	REEL	AMMO		BULK
<b>CLASS 2 Y5P</b>												
150	± 10	5.0	5.0	4.0	D151K20Y5PH6.J5.			06	08	10	22.2 616 ..111	
180					D181K20Y5PH6.J5.						22.2 616 ..161	
220					D221K20Y5PH6.J5.						22.2 616 ..211	
330					D331K20Y5PH6.J5.						22.2 616 ..311	
470					D471K20Y5PH6.J5.						22.2 616 ..411	
680					D681K20Y5PH6.J5.						22.2 616 ..611	
1000					D102K20Y5PH6.J5.						22.2 616 ..021	
1500					6.5	D152K25Y5PH6.J5.					22.2 616 ..121	
1800						D182K25Y5PH6.J5.					22.2 616 ..171	
2200						D222K25Y5PH6.J5.					22.2 616 ..221	
3300		7.5	D332K29Y5PH6.J5.			22.2 616 ..321						
4700		8.5	D472K33Y5PH6.J5.			22.2 616 ..421						
6800		10.0	D682K39Y5PH6.J5.			22.2 616 ..621						
10000		11.0	D103K43Y5PH6.J5.			22.2 616 ..031						



<b>ORDERING INFORMATION, CLASS 2, 100 V (DC), KINKED</b>										
C (pF)	TOL. (%)	D <sub>max</sub> (mm)	LEAD SPACING F (mm)	SH <sup>(2)</sup> (mm)	CLEAR TEXT CODE	PACKAGING CODE 8 <sup>th</sup> AND 9 <sup>th</sup> DIGIT <sup>(3)</sup>			CATALOG NUMBER <sup>(4)</sup> 3 <sup>rd</sup> DIGIT: 5 = STANDARD 8 = RoHS COMPLIANT	
					13 <sup>th</sup> DIGIT: T = REEL; U = AMMO; 3 = BULK 16 <sup>th</sup> DIGIT: R = RoHS COMPLIANT	REEL	AMMO	BULK		
<b>CLASS 2 Z5U</b>										
1000	± 20	5.0	5.0	4.0	D102M20Z5UH6.J5.	06	08	10	22.2 646 ..022	
1500					D152M20Z5UH6.J5.				22.2 646 ..122	
2200					D222M20Z5UH6.J5.				22.2 646 ..222	
3300					D332M20Z5UH6.J5.				22.2 646 ..322	
4700					D472M25Z5UH6.J5.				22.2 646 ..422	
6800		6.5			D682M25Z5UH6.J5.				22.2 646 ..622	
10000					7.5				D103M29Z5UH6.J5.	22.2 646 ..032
15000					8.5				D153M33Z5UH6.J5.	22.2 646 ..132
22000					10.0				D223M39Z5UH6.J5.	22.2 646 ..232
<b>CLASS 2 Y5V</b>										
1000	+ 80/- 20 %	5.0	5.0	4.0	D102Z20Y5VH6.J5.	06	08	10	22.2 636 ..023	
1500					D152Z20Y5VH6.J5.				22.2 636 ..123	
2200					D222Z20Y5VH6.J5.				22.2 636 ..223	
3300					D322Z20Y5VH6.J5.				22.2 636 ..323	
4700					D472Z20Y5VH6.J5.				22.2 636 ..423	
6800		6.5			D682Z25Y5VH6.J5.				22.2 636 ..623	
10000					7.5				D103Z29Y5VH6.J5.	22.2 636 ..033
15000					8.5				D153Z33Y5VH6.J5.	22.2 636 ..133
22000					10.0				D223Z39Y5VH6.J5.	22.2 636 ..233
<b>CLASS 2 Z5V</b>										
4700	+ 80/- 20 %	5.0	5.0	4.0	D472Z20Z5VH6.J5.	06	08	10	22.2 656 ..423	
10000		6.5			D103Z25Z5VH6.J5.				22.2 656 ..033	
22000		8.5			D223Z33Z5VH6.J5.				22.2 656 ..233	
47000		11.0			D473Z43Z5VH6.J5.				22.2 656 ..433	

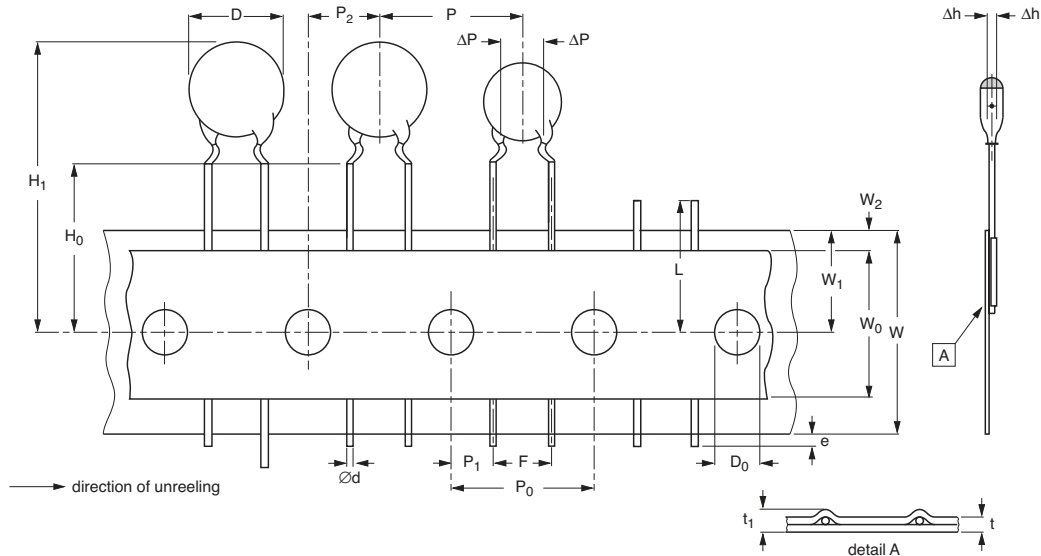
**Notes**

1. Maximum thickness 4.0 mm.
2. SH = seated height.
3. Packaging codes refer to inward kinked leads. Other styles available on request.
4. 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.

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

**Note**

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



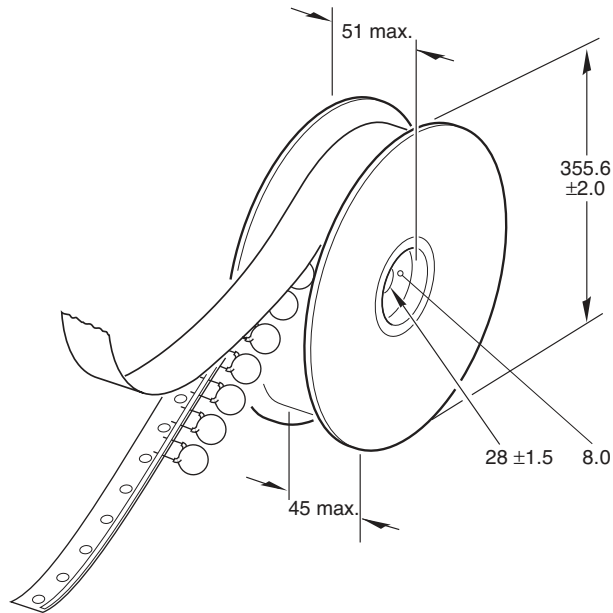
Kinked capacitors on tape, lead spacing 5.0 mm (0.2"), on tape.

<b>DIMENSIONS OF TAPE</b>			
<b>SYMBOL</b>	<b>PARAMETER</b>	<b>DIMENSIONS (mm)</b>	
		<b>NOMINAL</b>	<b>TOLERANCE</b>
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
Δs	deviation along tape, left or right	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	-

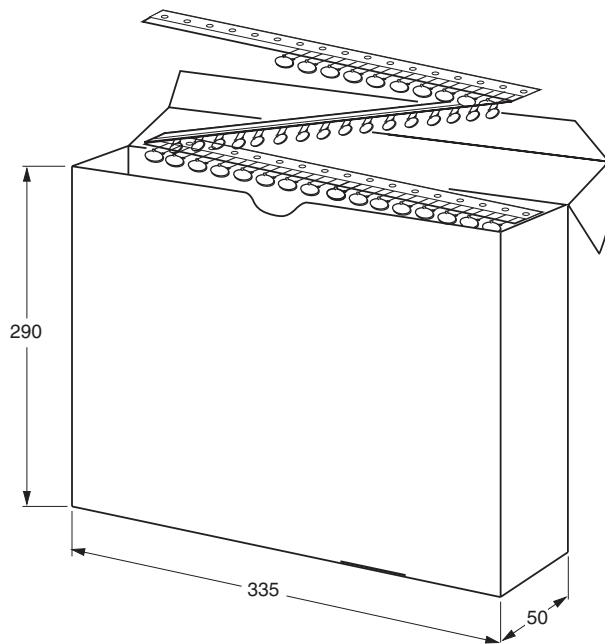
**Notes**

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

## REEL AND TAPE DATA in millimeters



Reel with capacitors on tape.



Ampopack with capacitors on tape.