

## 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.



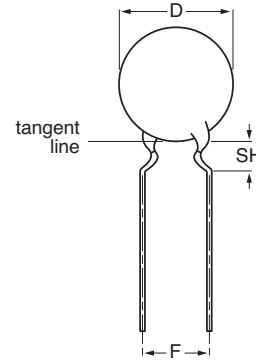
#### APPLICATIONS

- 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



ORDERING INFORMATION, CLASS 1, 100 V (DC), KINKED											
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	
<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				D689D20C0HH6.J5.						22.2 506 ..645
10	± 5				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		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**

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.

ORDERING INFORMATION, CLASS 2, 100 V (DC), KINKED											
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	
<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					D152K25Y5PH6.J5.						22.2 616 ..121
1800					D182K25Y5PH6.J5.						22.2 616 ..171
2200					D222K25Y5PH6.J5.						22.2 616 ..221
3300		6.5	D332K29Y5PH6.J5.			22.2 616 ..321					
4700		7.5	D472K33Y5PH6.J5.			22.2 616 ..421					
6800		8.5	D682K39Y5PH6.J5.			22.2 616 ..621					
10000		10.0	D103K43Y5PH6.J5.			22.2 616 ..031					
		11.0									



<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						

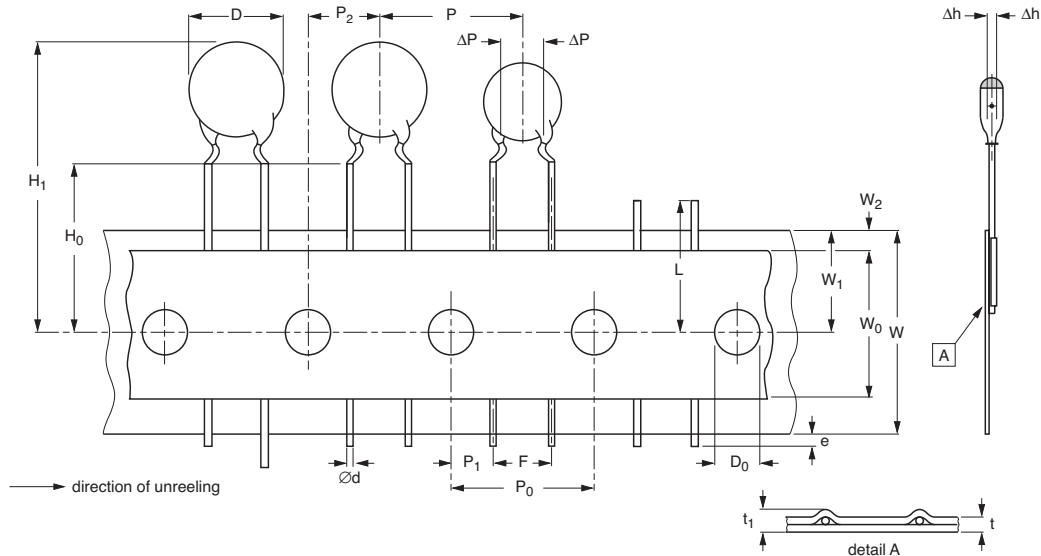
**Notes**

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2. SH = seated height.
3. Packaging codes refer to inward kinked leads. Other styles available on request.
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<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.



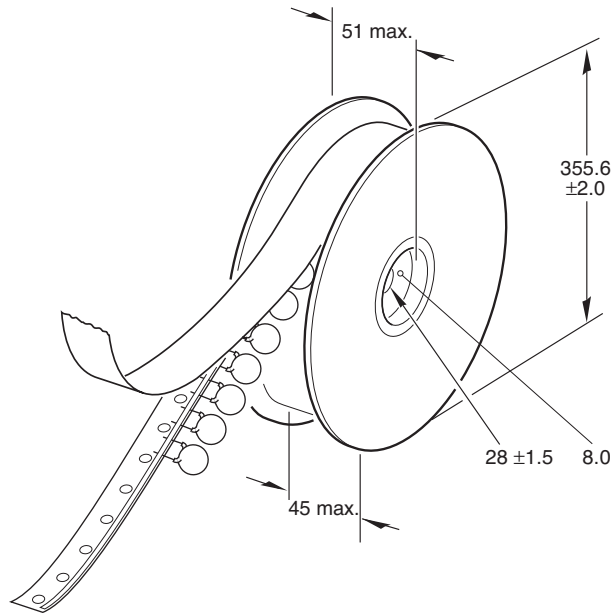
Kinked capacitors on tape, lead spacing 5.0 mm (0.2"), on tape.

<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	-

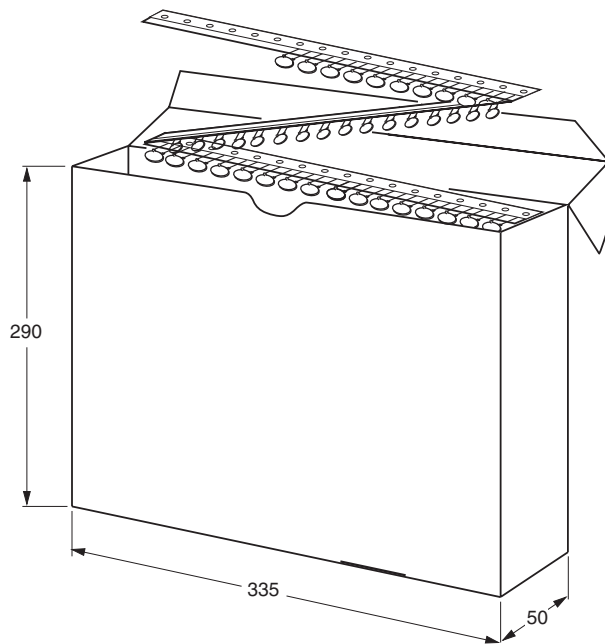
**Notes**

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.