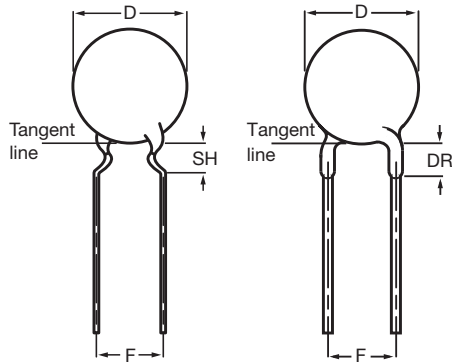


## Ceramic Disc Capacitors

### Class 1 and 2, 100 V<sub>DC</sub>, General Purpose



Capacitors with 5 mm (0.20") and 2.5 mm (0.10") lead spacing

#### QUICK REFERENCE DATA

DESCRIPTION	CLASS 1 (NP0, SL0)	CLASS 2 (YP5, Z5U, Y5V, Z5V)
Voltage (V <sub>DC</sub> )	100	
Min. Capacitance (pF)	1.0	150
Max. Capacitance (pF)	100	47 000
Mounting	Through hole	

#### MARKING

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

#### OPERATING TEMPERATURE RANGE

Class 1, - 55 °C to + 125 °C

Class 2, - 30 °C to + 85 °C

#### 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

#### FEATURES

- Low losses
- High stability
- High capacitance in small size
- Kinked (preferred) or straight leads
- Compliant to RoHS directive 2002/95/EC

#### 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 straight leads with 2.5 mm (0.100"), lead length from 4 mm to 30 mm.

#### CAPACITANCE RANGE

1.0 pF to 100 pF; Class 1, at 1 MHz, 1.2 V<sub>RMS</sub>

150 pF to 47 000 pF; Class 2, at 1 kHz, 1 V<sub>RMS</sub> ± 0.2 V<sub>RMS</sub>

1 kHz, 1 V<sub>RMS</sub> ± 0.2 V<sub>RMS</sub> for capacitance values higher than 1000 pF

#### RATED DC VOLTAGE

100 V

#### DIELECTRIC STRENGTH

250 % of rated voltage

#### INSULATION RESISTANCE AT 100 V<sub>DC</sub>

≥ 10 000 MΩ

#### TOLERANCE ON CAPACITANCE

± 0.25 pF; ± 0.5 pF; ± 5 % ; ± 10 % ; ± 20 % ; + 80/- 20 %

#### DISSIPATION FACTOR

Class 1, C ≤ 30 pF; ≤ 2 x (10/C + 0.7) x 10<sup>-4</sup> maximum

Class 1, C > 30 pF; ≤ 0.2 %

Class 2, ≤ 3.0 %



**RoHS**  
COMPLIANT

#### Note

The capacitors meet the essential requirements of "EIA 198". Unless stated otherwise all electrical values apply at an ambient temperature of 25 °C ± 3 °C, at normal atmospheric conditions.



Ceramic Disc Capacitors  
Class 1 and 2, 100 V<sub>DC</sub>, General Purpose

Vishay BCcomponents

**ORDERING INFORMATION, CLASS 1, 100 V<sub>DC</sub>, KINKED AND STRAIGHT**

C (pF)	TOL. (%)	D <sub>MAX.</sub> (mm)	LEAD SPACING F (mm)	SH/DR <sub>MAX.</sub> <sup>(1)</sup> (mm)	CLEAR TEXT CODE		
					13 <sup>TH</sup> DIGIT: T = REEL; U = AMMO; 3 = BULK		
CLASS 1 NP0							
1.0	± 0.25 pF	5.0	5.0	4.0	D109C20C0KH6.J5R		
			2.5	1.5	D109C20C0KH6.L2R		
1.5			5.0	4.0	D159C20C0KH6.J5R		
			2.5	1.5	D159C20C0KH6.L2R		
2.2			5.0	4.0	D229C20C0JH6.J5R		
			2.5	1.5	D229C20C0JH6.L2R		
3.3			5.0	4.0	D339C20C0JH6.J5R		
			2.5	1.5	D339C20C0JH6.L2R		
4.7			5.0	4.0	D479C20C0HH6.J5R		
			2.5	1.5	D479C20C0HH6.L2R		
6.8	± 0.5 pF			5.0	4.0	D689D20C0HH6.J5R	
				2.5	1.5	D689D20C0HH6.L2R	
10	± 5			5.0	4.0	D100J20C0GH6.J5R	
				2.5	1.5	D100J20C0GH6.L2R	
12				5.0	4.0	D120J20C0GH6.J5R	
				2.5	1.5	D120J20C0GH6.L2R	
15				5.0	4.0	D150J20C0GH6.J5R	
				2.5	1.5	D150J20C0GH6.L2R	
18				5.0	4.0	D180J20C0GH6.J5R	
				2.5	1.5	D180J20C0GH6.L2R	
22				5.0	4.0	D220J20C0GH6.J5R	
				2.5	1.5	D220J20C0GH6.L2R	
27				5.0	4.0	D270J20C0GH6.J5R	
				2.5	1.5	D270J20C0GH6.L2R	
33				5.0	4.0	D330J20C0GH6.J5R	
				2.5	1.5	D330J20C0GH6.L2R	
39				6.5	5.0	4.0	D390J25C0GH6.J5R
					2.5	1.5	D390J25C0GH6.L2R
47					5.0	4.0	D470J25C0GH6.J5R
					2.5	1.5	D470J25C0GH6.L2R
CLASS 1 SL0							
56	± 5	5.0	5.0	4.0	D560J20SL0H6.J5R		
			2.5	1.5	D560J20SL0H6.L2R		
68			5.0	4.0	D680J20SL0H6.J5R		
			2.5	1.5	D680J20SL0H6.L2R		
82			5.0	4.0	D820J20SL0H6.J5R		
			2.5	1.5	D820J20SL0H6.L2R		
100			5.0	4.0	D101J20SL0H6.J5R		
			2.5	1.5	D101J20SL0H6.L2R		

**Notes**<sup>(1)</sup> SH = seated height; DR = run down

- Maximum thickness 4.0 mm
- Lead style codes refer to lead configurations

**ORDERING INFORMATION, CLASS 2, 100 V<sub>DC</sub>, KINKED AND STRAIGHT**

C (pF)	TOL. (%)	D <sub>MAX.</sub> (mm)	LEAD SPACING F (mm)	SH/DR <sub>MAX.</sub> <sup>(1)</sup> (mm)	CLEAR TEXT CODE
					13 <sup>TH</sup> DIGIT: T = REEL; U = AMMO; 3 = BULK
CLASS 2 Y5P					
150	±10	5.0	5.0	4.0	D151K20Y5PH6.J5R
			2.5	1.5	D151K20Y5PH6.L2R
180			5.0	4.0	D181K20Y5PH6.J5R
			2.5	1.5	D181K20Y5PH6.L2R
220			5.0	4.0	D221K20Y5PH6.J5R
			2.5	1.5	D221K20Y5PH6.L2R
330			5.0	4.0	D331K20Y5PH6.J5R
			2.5	1.5	D331K20Y5PH6.L2R
470			5.0	4.0	D471K20Y5PH6.J5R
			2.5	1.5	D471K20Y5PH6.L2R
680			5.0	4.0	D681K20Y5PH6.J5R
			2.5	1.5	D681K20Y5PH6.L2R
1000		5.0	4.0	D102K20Y5PH6.J5R	
		2.5	1.5	D102K20Y5PH6.L2R	
1500		6.5	5.0	4.0	D152K25Y5PH6.J5R
			2.5	1.5	D152K25Y5PH6.L2R
1800			5.0	4.0	D182K25Y5PH6.J5R
			2.5	1.5	D182K25Y5PH6.L2R
2200			5.0	4.0	D222K25Y5PH6.J5R
			2.5	1.5	D222K25Y5PH6.L2R
3300		7.5	5.0	4.0	D332K29Y5PH6.J5R
			2.5	1.5	D332K29Y5PH6.L2R
4700		8.5	5.0	4.0	D472K33Y5PH6.J5R
			2.5	1.5	D472K33Y5PH6.L2R
6800		10.0	5.0	4.0	D682K39Y5PH6.J5R
			2.5	1.5	D682K39Y5PH6.L2R
10000		11.0	5.0	4.0	D103K43Y5PH6.J5R
			2.5	1.5	D103K43Y5PH6.L2R
CLASS 2 Z5U					
1000	± 20	5.0	5.0	4.0	D102M20Z5UH6.J5R
			2.5	1.5	D102M20Z5UH6.L2R
1500			5.0	4.0	D152M20Z5UH6.J5R
			2.5	1.5	D152M20Z5UH6.L2R
2200			5.0	4.0	D222M20Z5UH6.J5R
			2.5	1.5	D222M20Z5UH6.L2R
3300		6.5	5.0	4.0	D332M20Z5UH6.J5R
			2.5	1.5	D332M20Z5UH6.L2R
4700			5.0	4.0	D472M25Z5UH6.J5R
			2.5	1.5	D472M25Z5UH6.L2R
6800			5.0	4.0	D682M25Z5UH6.J5R
			2.5	1.5	D682M25Z5UH6.L2R
10 000		7.5	5.0	4.0	D103M29Z5UH6.J5R
			2.5	1.5	D103M29Z5UH6.L2R
15 000		8.5	5.0	4.0	D153M33Z5UH6.J5R
			2.5	1.5	D153M33Z5UH6.L2R
22 000		10.0	5.0	4.0	D223M39Z5UH6.J5R
			2.5	1.5	D223M39Z5UH6.L2R

**Note**<sup>(1)</sup> SH = seated height; DR = run down

- Maximum thickness 4.0 mm
- Lead style codes refer to lead configuration



## Ceramic Disc Capacitors Class 1 and 2, 100 V<sub>DC</sub>, General Purpose

Vishay BCcomponents

ORDERING INFORMATION, CLASS 2, 100 V <sub>DC</sub> , KINKED AND STRAIGHT					
C (pF)	TOL. (%)	D <sub>MAX.</sub> (mm)	LEAD SPACING F (mm)	SH/DR <sub>MAX.</sub> <sup>(1)</sup> (mm)	CLEAR TEXT CODE
					13 <sup>TH</sup> DIGIT: T = REEL; U = AMMO; 3 = BULK
CLASS 2 Y5V					
1000	+ 80/- 20	5.0	5.0	4.0	D102Z20Y5VH6.J5R
			2.5	1.5	D102Z20Y5VH6.L2R
1500			5.0	4.0	D152Z20Y5VH6.J5R
			2.5	1.5	D152Z20Y5VH6.L2R
2200			5.0	4.0	D222Z20Y5VH6.J5R
			2.5	1.5	D222Z20Y5VH6.L2R
3300			5.0	4.0	D332Z20Y5VH6.J5R
			2.5	1.5	D332Z20Y5VH6.L2R
4700		6.5	5.0	4.0	D472Z25Y5VH6.J5R
			2.5	1.5	D472Z25Y5VH6.L2R
6800			5.0	4.0	D682Z25Y5VH6.J5R
			2.5	1.5	D682Z25Y5VH6.L2R
10 000		7.5	5.0	4.0	D103Z29Y5VH6.J5R
			2.5	1.5	D103Z29Y5VH6.L2R
15 000		8.5	5.0	4.0	D153Z33Y5VH6.J5R
			2.5	1.5	D153Z33Y5VH6.L2R
22 000		10.0	5.0	4.0	D223Z39Y5VH6.J5R
			2.5	1.5	D223Z39Y5VH6.L2R
CLASS 2 Z5V					
4700	+ 80/- 20	5.0	5.0	4.0	D472Z20Z5VH6.J5R
			2.5	1.5	D472Z20Z5VH6.L2R
10 000		6.5	5.0	4.0	D103Z25Z5VH6.J5R
			2.5	1.5	D103Z25Z5VH6.L2R
22 000		8.5	5.0	4.0	D223Z33Z5VH6.J5R
			2.5	1.5	D223Z33Z5VH6.L2R
47 000		11.0	5.0	4.0	D473Z43Z5VH6.J5R
			2.5	1.5	D473Z43Z5VH6.L2R

### Note

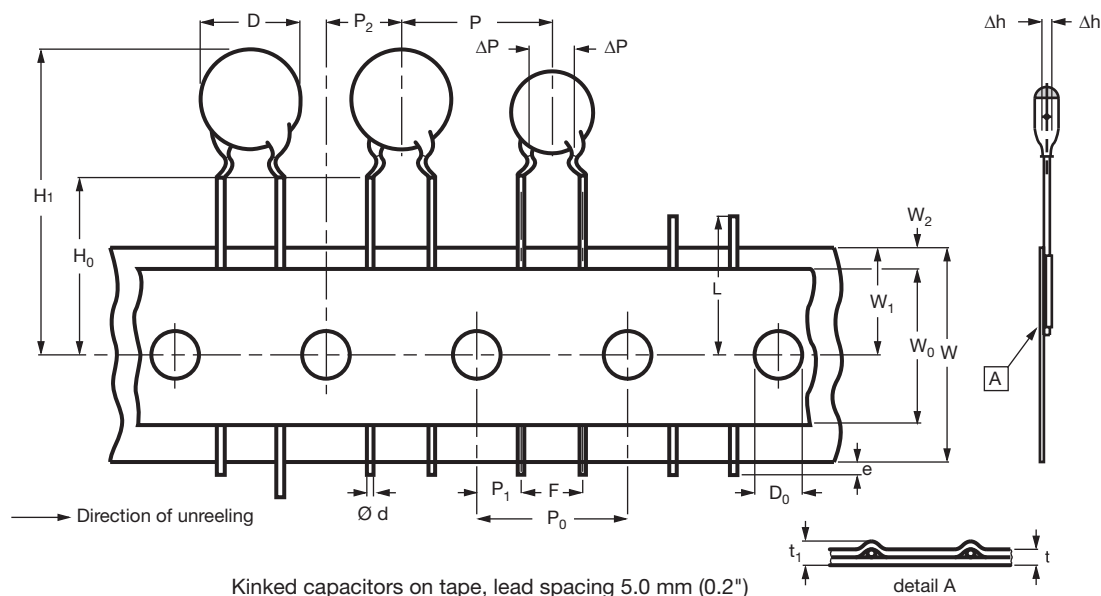
<sup>(1)</sup> SH = seated height; DR = run down

- Maximum thickness 4.0 mm
- Lead style codes refer to lead configuration

PACKAGING				
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

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



DIMENSION 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> <sup>(1)</sup>	Feed-hole pitch	12.7	± 0.3 <sup>(1)</sup>
ΔP	Plane deviation	1.0 maximum	-
P <sub>1</sub> <sup>(2)</sup>	Feed-hole center to lead center	3.85	± 0.7; <sup>(2)</sup>
P <sub>2</sub> <sup>(2)</sup>	Feed-hole center to component center	6.35	± 1.3; <sup>(2)</sup>
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

<sup>(1)</sup> Cumulative pitch error: ± ≤ 1 mm/20 pitches

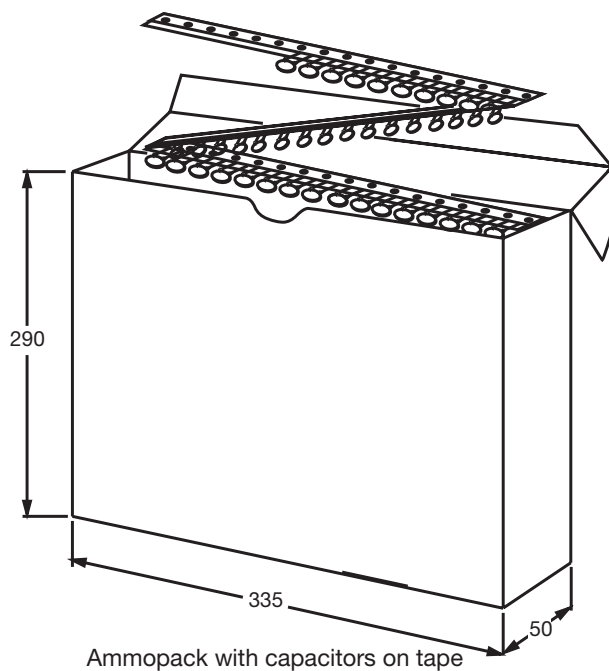
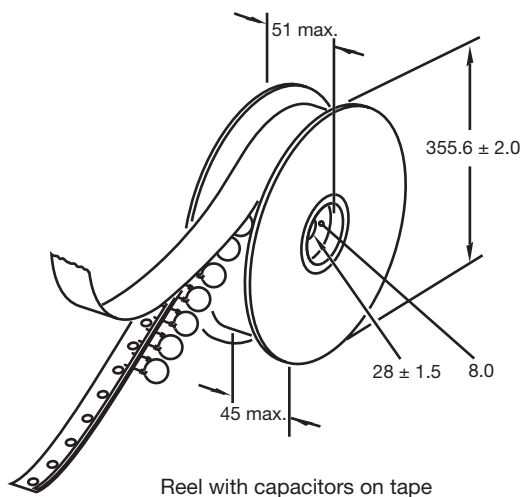
<sup>(2)</sup> Obliquity maximum 3°



Ceramic Disc Capacitors  
Class 1 and 2, 100 V<sub>DC</sub>, General Purpose

Vishay BCcomponents

**REEL AND TAPE DATA** in millimeters





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[D103Z25Z5VH63L6](#) [D103Z25Z5VH63L6R](#) [D103Z29Y5VH63L6R](#) [D103Z29Z5UH6TJ6R](#) [D150J20U2MHAAAC](#)  
[D180J20C0GH63L6R](#) [D220J20C0GH63L6R](#) [D271K20Y5PH63L6R](#) [D330J20C0GH63L6R](#) [D150J20C0GH63L6R](#)  
[D103M29Z5UH6UJ5](#) [D104M69Z5VH63L0](#) [D470J25C0GH63L6R](#) [D472K33Y5PH63L2R](#) [D560J25C0GH6TJ6R](#)  
[D561K20Y5PH63J5R](#) [D470J25C0GH6TJ5R](#) [D470J25C0GH63J5R](#) [D103Z31Y5VHAAEU](#) [D101G29C0GH6UJ5R](#)  
[D101J29C0GH63J5R](#) [D103M29Z5UH6UJ5R](#) [D471K20Y5PH6UJ5R](#)