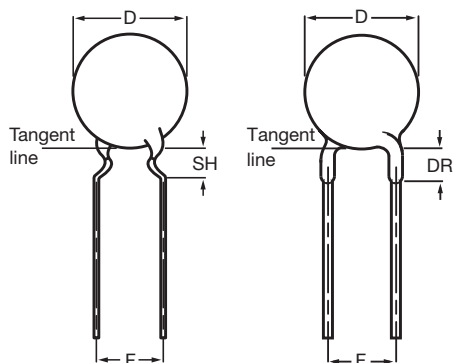


Ceramic Disc Capacitors

Class 1 and 2, 100 V_{DC}, 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 _{DC})	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



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") 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_{RMS}

150 pF to 47 000 pF; Class 2, at 1 kHz, 1 V_{RMS} ± 0.2 V_{RMS}

1 kHz, 1 V_{RMS} ± 0.2 V_{RMS} for capacitance values higher than 1000 pF

RATED DC VOLTAGE

100 V

DIELECTRIC STRENGTH

250 % of rated voltage

INSULATION RESISTANCE AT 100 V_{DC}

≥ 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 10⁻⁴ maximum

Class 1, C > 30 pF; ≤ 0.2 %

Class 2, ≤ 3.0 %

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
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Vishay BCcomponents

ORDERING INFORMATION, CLASS 1, 100 V _{DC} , KINKED AND STRAIGHT					
C (pF)	TOL. (%)	D _{MAX.} (mm)	LEAD SPACING F (mm)	SH/DR _{MAX.} ⁽¹⁾ (mm)	CLEAR TEXT CODE
					13 TH DIGIT: T = REEL; U = AMMO; 3 = BULK
CLASS 1 NP0					
1.0	± 0.25 pF	5.0	5.0	4.0	D109C20C0KH6.J5R
1.5			2.5	1.5	D109C20C0KH6.L2R
			5.0	4.0	D159C20C0KH6.J5R
			2.5	1.5	D159C20C0KH6.L2R
			2.2	5.0	4.0
3.3			2.5	1.5	D229C20C0JH6.L2R
			5.0	4.0	D339C20C0JH6.J5R
			2.5	1.5	D339C20C0JH6.L2R
			4.7	5.0	4.0
6.8			2.5	1.5	D479C20C0HH6.L2R
	5.0		4.0	D689D20C0HH6.J5R	
	2.5		1.5	D689D20C0HH6.L2R	
	10		± 5	5.0	4.0
12	2.5			1.5	D100J20C0GH6.L2R
	5.0			4.0	D120J20C0GH6.J5R
	2.5			1.5	D120J20C0GH6.L2R
	15			5.0	4.0
18	2.5			1.5	D150J20C0GH6.L2R
	5.0			4.0	D180J20C0GH6.J5R
	2.5			1.5	D180J20C0GH6.L2R
	22			5.0	4.0
27	2.5			1.5	D220J20C0GH6.L2R
	5.0			4.0	D270J20C0GH6.J5R
	2.5			1.5	D270J20C0GH6.L2R
	33			5.0	4.0
39	2.5			1.5	D330J20C0GH6.L2R
	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
68			2.5	1.5	D560J20SL0H6.L2R
			5.0	4.0	D680J20SL0H6.J5R
			2.5	1.5	D680J20SL0H6.L2R
			82	5.0	4.0
100			2.5	1.5	D820J20SL0H6.L2R
			5.0	4.0	D101J20SL0H6.J5R
			2.5	1.5	D101J20SL0H6.L2R

Notes

⁽¹⁾ SH = seated height; DR = run down

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

ORDERING INFORMATION, CLASS 2, 100 V _{DC} , KINKED AND STRAIGHT						
C (pF)	TOL. (%)	D _{MAX.} (mm)	LEAD SPACING F (mm)	SH/DR _{MAX.} ⁽¹⁾ (mm)	CLEAR TEXT CODE	
					13 TH 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		6.5	5.0	4.0	D102K20Y5PH6.J5R	
			2.5	1.5	D102K20Y5PH6.L2R	
1500			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		5.0	4.0	D332M20Z5UH6.J5R		
		2.5	1.5	D332M20Z5UH6.L2R		
4700		6.5	5.0	4.0	D472M25Z5UH6.J5R	
			2.5	1.5	D472M25Z5UH6.L2R	
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

⁽¹⁾ 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_{DC}, General Purpose

Vishay BCcomponents

ORDERING INFORMATION, CLASS 2, 100 V _{DC} , KINKED AND STRAIGHT					
C (pF)	TOL. (%)	D _{MAX.} (mm)	LEAD SPACING F (mm)	SH/DR _{MAX.} ⁽¹⁾ (mm)	CLEAR TEXT CODE
					13 TH 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

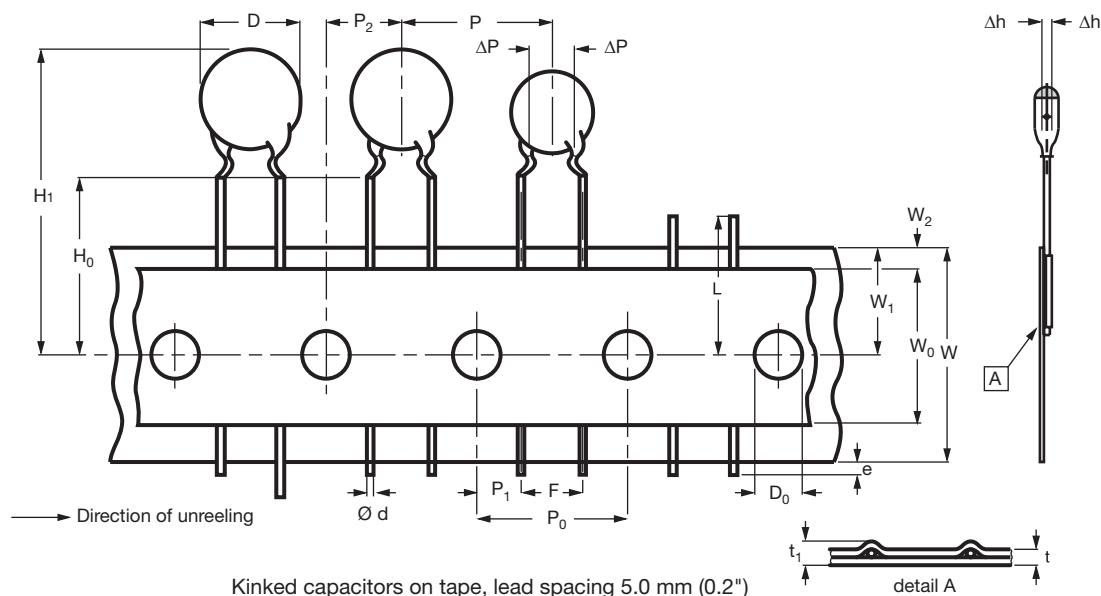
⁽¹⁾ SH = seated height; DR = run down

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

PACKAGING				
D _{MAX.} (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 ₀ ⁽¹⁾	Feed-hole pitch	12.7	± 0.3 ⁽¹⁾
ΔP	Plane deviation	1.0 maximum	-
P ₁ ⁽²⁾	Feed-hole center to lead center	3.85	± 0.7; ⁽²⁾
P ₂ ⁽²⁾	Feed-hole center to component center	6.35	± 1.3; ⁽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: ± ≤ 1 mm/20 pitches

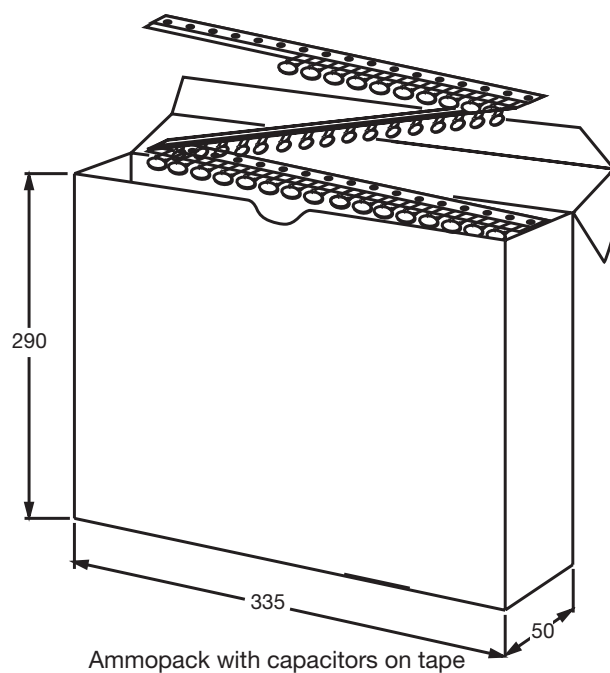
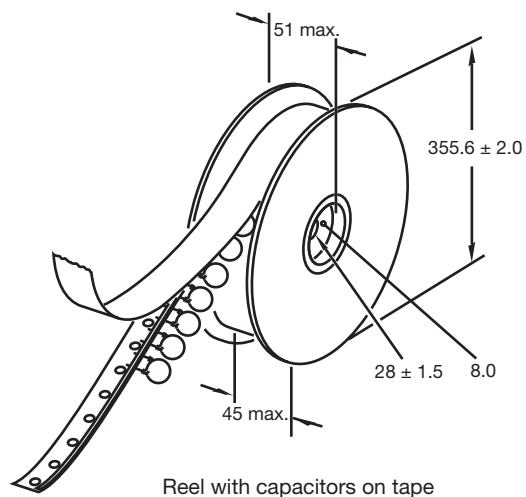
⁽²⁾ Obliquity maximum 3°



Ceramic Disc Capacitors
Class 1 and 2, 100 V_{DC}, General Purpose

Vishay BCcomponents

REEL AND TAPE DATA in millimeters





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