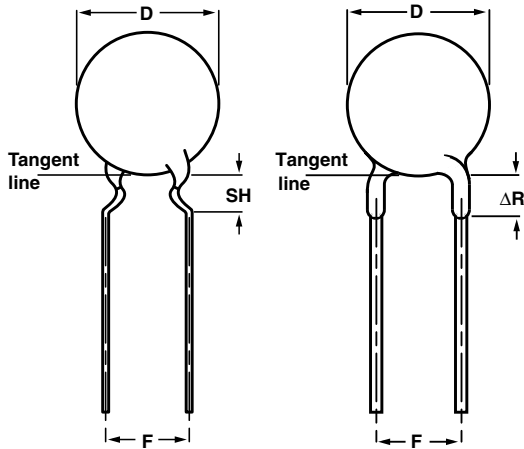


Ceramic Disc Capacitors

Class 1 and 2, 50 V (DC) General Purpose



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

TEMPERATURE COEFFICIENTS

Class 1 NPO; 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".

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

Encapsulation is made of phenolic resin.

CAPACITANCE RANGE

Class 1, at 1 MHz, 1.2 V (RMS); 1.0 to 100 pF

1 kHz, 1 ± 0.2 V (RMS) for capacitance values higher than 1000 pF

Class 2, at 1 kHz, 1 ± 0.2 V (RMS) 150 to 47 000 pF

RATED DC VOLTAGE

50 V

DIELECTRIC STRENGTH

250 % of rated voltage

INSULATION RESISTANCE AT 50 V (DC)

$\geq 10\,000\text{ M}\Omega$

TOLERANCE ON CAPACITANCE

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

DISSIPATION FACTOR

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

Class 1, $C > 30\text{ pF} \leq 0.2\%$

Class 2, $\leq 3.0\%$

ORDERING INFORMATION, CLASS 1, 50 V (DC), KINKED					
C (pF)	TOL. (%)	D _{max.} (mm)	LEAD SPACING F (mm)	SH/DR _{max.} ⁽²⁾ (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	D109C20C0KF6.J5R
			2.5	1.5	D109C20C0KF6.L2R
1.5			5.0	4.0	D159C20C0KF6.J5R
			2.5	1.5	D159C20C0KF6.L2R
2.2			5.0	4.0	D229C20C0JF6.J5R
			2.5	1.5	D229C20C0JF6.L2R
3.3			5.0	4.0	D339C20C0JF6.J5R
			2.5	1.5	D339C20C0JF6.L2R
4.7			5.0	4.0	D479C20C0HF6.J5R
			2.5	1.5	D479C20C0HF6.L2R
6.8	± 0.5 pF		5.0	4.0	D689D20C0HF6.J5R
			2.5	1.5	D689D20C0HF6.L2R
10	± 5		5.0	4.0	D100J20C0GF6.J5R
			2.5	1.5	D100J20C0GF6.L2R
12			5.0	4.0	D120J20C0GF6.J5R
			2.5	1.5	D120J20C0GF6.L2R
15			5.0	4.0	D150J20C0GF6.J5R
			2.5	1.5	D150J20C0GF6.L2R
18			5.0	4.0	D180J20C0GF6.J5R
			2.5	1.5	D180J20C0GF6.L2R
22		5.0	4.0	D220J20C0GF6.J5R	
		2.5	1.5	D220J20C0GF6.L2R	
27	5.0	4.0	D270J20C0GF6.J5R		
	2.5	1.5	D270J20C0GF6.L2R		
33	5.0	4.0	D330J20C0GF6.J5R		
	2.5	1.5	D330J20C0GF6.L2R		
39	5.0	4.0	D390J20C0GF6.J5R		
	2.5	1.5	D390J20C0GF6.L2R		
47	5.0	4.0	D470J20C0GF6.J5R		
	2.5	1.5	D470J20C0GF6.L2R		
CLASS 1 SL0					
56	± 5	5.0	5.0	4.0	D560J20SL0F6.J5R
			2.5	1.5	D560J20SL0F6.L2R
68			5.0	4.0	D680J20SL0F6.J5R
			2.5	1.5	D680J20SL0F6.L2R
82			5.0	4.0	D820J20SL0F6.J5R
			2.5	1.5	D820J20SL0F6.L2R
100			5.0	4.0	D101J20SL0F6.J5R
			2.5	1.5	D101J20SL0F6.L2R

Notes

1. Maximum thickness 4.0 mm.
2. SH = seated height; DR = run down
3. Lead style codes refer to lead configurations



Ceramic Disc Capacitors
Class 1 and 2, 50 V (DC) General Purpose

Vishay BCcomponents

ORDERING INFORMATION, CLASS 2, 50 V (DC), KINKED						
C (pF)	TOL. (%)	D _{max.} (mm)	LEAD SPACING F (mm)	CLEAR TEXT CODE		
				SH/DR _{max.} ⁽²⁾ (mm)	13 th DIGIT: T = REEL; U = AMMO; 3 = BULK	
CLASS 2 Y5P						
150	± 10	5.0	5.0	4.0	D151K20Y5PF6.J5R	
			2.5	1.5	D151K20Y5PF6.L2R	
180			5.0	4.0	D181K20Y5PF6.J5R	
			2.5	1.5	D181K20Y5PF6.L2R	
220			5.0	4.0	D221K20Y5PF6.J5R	
			2.5	1.5	D221K20Y5PF6.L2R	
330			5.0	4.0	D331K20Y5PF6.J5R	
			2.5	1.5	D331K20Y5PF6.L2R	
470			5.0	4.0	D471K20Y5PF6.J5R	
			2.5	1.5	D471K20Y5PF6.L2R	
680		5.0	4.0	D681K20Y5PF6.J5R		
		2.5	1.5	D681K20Y5PF6.L2R		
1000		5.0	4.0	D102K20Y5PF6.J5R		
		2.5	1.5	D102K20Y5PF6.L2R		
1500		5.0	4.0	D152K20Y5PF6.J5R		
		2.5	1.5	D152K20Y5PF6.L2R		
1800		6.5	5.0	5.0	4.0	D182K25Y5PF6.J5R
				2.5	1.5	D182K25Y5PF6.L2R
2200			5.0	4.0	D222K25Y5PF6.J5R	
			2.5	1.5	D222K25Y5PF6.L2R	
3300	5.0		4.0	D332K25Y5PF6.J5R		
	2.5		1.5	D332K25Y5PF6.L2R		
4700	7.5	5.0	4.0	D472K29Y5PF6.J5R		
		2.5	1.5	D472K29Y5PF6.L2R		
6800	8.5	5.0	4.0	D682K33Y5PF6.J5R		
		2.5	1.5	D682K33Y5PF6.L2R		
10 000	10.0	5.0	4.0	D103K39Y5PF6.J5R		
		2.5	1.5	D103K39Y5PF6.L2R		

Notes

1. Maximum thickness 4.0 mm.
2. SH = seated height; DR = run down
3. Lead Style codes refer to lead configurations

ORDERING INFORMATION, CLASS 2, 50 V (DC), KINKED AND STRAIGHT					
C (pF)	TOL. (%)	D _{max.} (mm)	LEAD SPACING F (mm)	CLEAR TEXT CODE	
				SH/DR _{max.} ⁽²⁾ (mm)	13 th DIGIT: T = REEL; U = AMMO; 3 = BULK
CLASS 2 Z5U					
1000	± 20	5.0	5.0	4.0	D102M20Z5UF6.J5R
			2.5	1.5	D102M20Z5UF6.L2R
1500			5.0	4.0	D152M20Z5UF6.J5R
			2.5	1.5	D152M20Z5UF6.L2R
2200			5.0	4.0	D222M20Z5UF6.J5R
			2.5	1.5	D222M20Z5UF6.L2R
3300		5.0	4.0	D332M20Z5UF6.J5R	
		2.5	1.5	D332M20Z5UF6.L2R	
4700		5.0	4.0	D472M20Z5UF6.J5R	
		2.5	1.5	D472M20Z5UF6.L2R	
6800		6.5	5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
10 000		7.5	5.0	4.0	D103M29Z5UF6.J5R
			2.5	1.5	D103M29Z5UF6.L2R
15 000		8.5	5.0	4.0	D153M33Z5UF6.J5R
			2.5	1.5	D153M33Z5UF6.L2R
22 000	10.0	5.0	4.0	D223M39Z5UF6.J5R	
		2.5	1.5	D223M39Z5UF6.L2R	
CLASS 2 Y5V					
1000	+ 80/- 20	5.0	5.0	4.0	D102Z20Y5VF6.J5R
			2.5	1.5	D102Z20Y5VF6.L2R
1500			5.0	4.0	D152Z20Y5VF6.J5R
			2.5	1.5	D152Z20Y5VF6.L2R
2200			5.0	4.0	D222Z20Y5VF6.J5R
			2.5	1.5	D222Z20Y5VF6.L2R
3300		5.0	4.0	D332Z20Y5VF6.J5R	
		2.5	1.5	D332Z20Y5VF6.L2R	
4700		5.0	4.0	D472Z20Y5VF6.J5R	
		2.5	1.5	D472Z20Y5VF6.L2R	
6800		6.5	5.0	4.0	D682Z25Y5VF6.J5R
			2.5	1.5	D682Z25Y5VF6.L2R
10 000		7.5	5.0	4.0	D103Z29Y5VF6.J5R
			2.5	1.5	D103Z29Y5VF6.L2R
15 000		8.5	5.0	4.0	D153Z33Y5VF6.J5R
			2.5	1.5	D153Z33Y5VF6.L2R
22 000	10.0	5.0	4.0	D223Z39Y5VF6.J5R	
		2.5	1.5	D223Z39Y5VF6.L2R	
CLASS 2 Z5V					
4700	+ 80/- 20	5.0	5.0	4.0	D472Z20Z5VF6.J5R
			2.5	1.5	D472Z20Z5VF6.L2R
10 000		6.5	5.0	4.0	D103Z25Z5VF6.J5R
			2.5	1.5	D103Z25Z5VF6.L2R
22 000		7.5	5.0	4.0	D223Z29Z5VF6.J5R
			2.5	1.5	D223Z29Z5VF6.L2R
47 000		10.0	5.0	4.0	D473Z39Z5VF6.J5R
			2.5	1.5	D473Z39Z5VF6.L2R

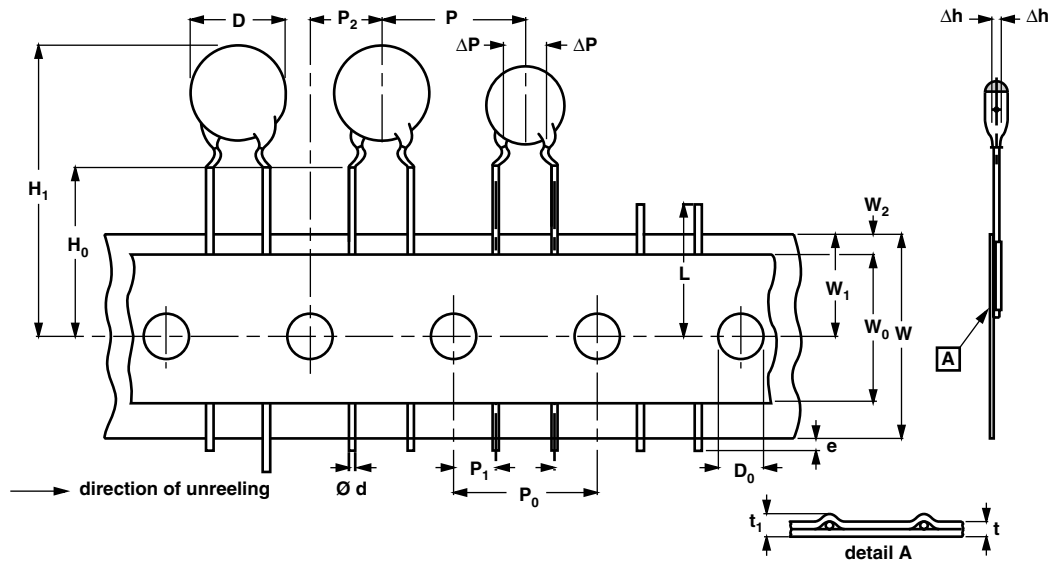
Notes

1. Maximum thickness 4.0 mm.
2. SH = seated height; DR = run down
3. Lead Style codes refer to lead configurations

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



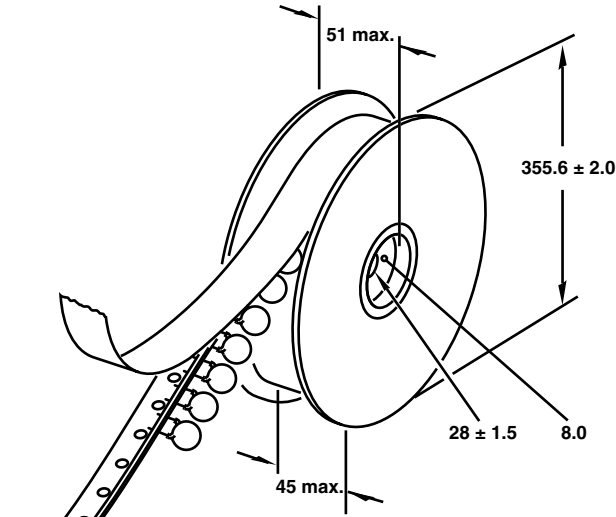
Kinked capacitors on tape, lead spacing 5.0 mm (0.2"), on tape

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 ₀ ⁽¹⁾	Feed-hole pitch	12.7	± 0.3; note
ΔP	Plane deviation	1.0 maximum	–
P ₁ ⁽²⁾	Feed-hole centre to lead center	3.85	± 0.7; note
P ₂ ⁽²⁾	Feed-hole centre to component center	6.35	± 1.3; note
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	–

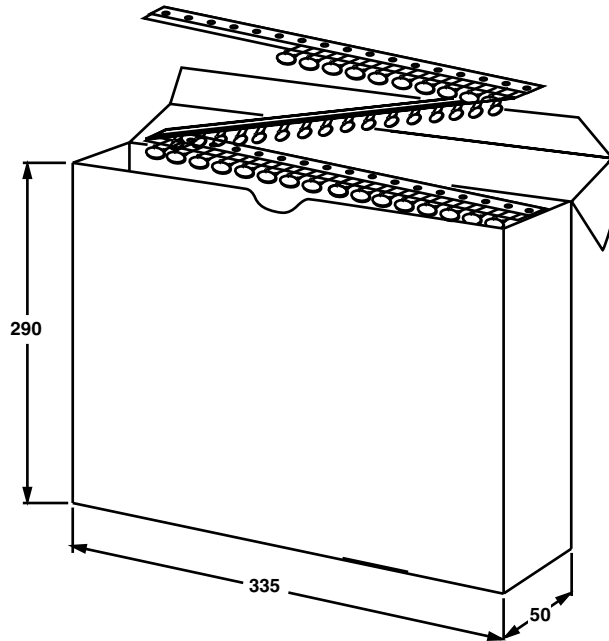
Notes

- Cumulative pitch error: ± ≤ 1 mm/20 pitches.
- Obliquity maximum 3°.

Reel and tape data in millimeters



Reel with capacitors on tape



Ampopack with capacitors on tape



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.