

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

FEATURES

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



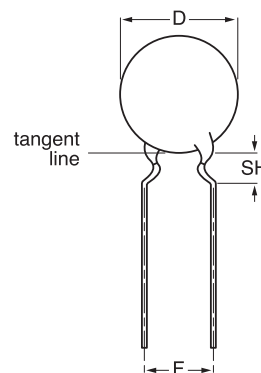
APPLICATIONS

- 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 (0.20") lead spacing.

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 47000 pF

RATED DC VOLTAGE:

50 V

DIELECTRIC STRENGTH:

250 % of rated voltage

INSULATION RESISTANCE AT 50V (DC):

$\geq 10000 \text{ M}\Omega$

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

Class 2, $\leq 3.0 \%$

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".

ORDERING INFORMATION, CLASS 1, 50 V (DC), KINKED

C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE	PACKAGING CODE 8 th AND 9 th DIGIT ⁽³⁾			CATALOG NUMBER ⁽⁴⁾ 3 rd DIGIT: 5 = STANDARD, 8 = RoHS COMPLIANT
					13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT	REEL	AMMO	BULK	
CLASS 1 NP0									
1.0	± 0.25 pF	5.0	5.0	4.0	D109C20C0KF6.J5.	06	08	10	22.2 505 ..044
1.5					D159C20C0KF6.J5.				22.2 505 ..144
2.2					D229C20C0JF6.J5.				22.2 505 ..244
3.3					D339C20C0JF6.J5.				22.2 505 ..344
4.7					D479C20C0HF6.J5.				22.2 505 ..444
6.8	± 0.5 pF				D689D20C0HF6.J5.				22.2 505 ..645
10					D100J20C0GF6.J5.				22.2 505 ..005
12	± 5				D120J20C0GF6.J5.				22.2 505 ..055
15					D150J20C0GF6.J5.				22.2 505 ..105
18					D180J20C0GF6.J5.				22.2 505 ..155
22					D220J20C0GF6.J5.				22.2 505 ..205
27					D270J20C0GF6.J5.				22.2 505 ..255
33					D330J20C0GF6.J5.				22.2 505 ..305
39					D390J20C0GF6.J5.				22.2 505 ..355
47					D470J20C0GF6.J5.				22.2 505 ..405
CLASS 1 SL0									
56	± 5	5.0	5.0	4.0	D560J20SL0F6.J5.	06	08	10	22.2 565 ..505
68					D680J20SL0F6.J5.				22.2 565 ..605
82					D820J20SL0F6.J5.				22.2 565 ..805
100					D101J20SL0F6.J5.				22.2 565 ..015

Notes

- Maximum thickness 4.0 mm.
- SH = seated height.
- Packaging codes refer to inward kinked leads. Other styles available on request.
- 3rd digit to complete RoHS catalog number. 8th and 9th digit of the catalog number to be completed with the packaging code.

ORDERING INFORMATION, CLASS 2, 50 V (DC), KINKED

C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE	PACKAGING CODE 8 th AND 9 th DIGIT ⁽³⁾			CATALOG NUMBER ⁽⁴⁾ 3 rd DIGIT: 5 = STANDARD, 8 = RoHS COMPLIANT
					13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT	REEL	AMMO	BULK	
CLASS 2 Y5P									
150	± 10	5.0	5.0	4.0	D151J20Y5PF6.J5.	06	08	10	22.2 615 ..111
180					D181J20Y5PF6.J5.				22.2 615 ..161
220					D221J20Y5PF6.J5.				22.2 615 ..211
330					D331K20Y5PF6.J5.				22.2 615 ..311
470					D471K20Y5PF6.J5.				22.2 615 ..411
680					D681K20Y5PF6.J5.				22.2 615 ..611
1000					D102K20Y5PF6.J5.				22.2 615 ..021
1500					D152K20Y5PF6.J5.				22.2 615 ..121
1800					D182K25Y5PF6.J5.				22.2 615 ..171
2200		6.5			D222K25Y5PF6.J5.				22.2 615 ..221
3300					D332K25Y5PF6.J5.				22.2 615 ..321
4700					D472K29Y5PF6.J5.				22.2 615 ..421
6800					D682K33Y5PF6.J5.				22.2 615 ..621
10000					10.0				D103K39Y5PF6.J5.

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Vishay BCcomponents

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C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE	PACKAGING CODE 8 th AND 9 th DIGIT ⁽³⁾			CATALOG NUMBER ⁽⁴⁾ 3 rd DIGIT: 5 = STANDARD, 8 = RoHS COMPLIANT
					13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT	REEL	AMMO	BULK	
CLASS 2 Z5U									
1000	± 20	5.0	5.0	4.0	D102M20Z5UF6.J5.	06	08	10	22.2 645 ..022
1500					D152M20Z5UF6.J5.				22.2 645 ..122
2200					D222M20Z5UF6.J5.				22.2 645 ..222
3300					D332M20Z5UF6.J5.				22.2 645 ..322
4700					D472M20Z5UF6.J5.				22.2 645 ..422
6800		6.5			D682M25Z5UF6.J5.				22.2 645 ..622
10000		7.5			D103M29Z5UF6.J5.				22.2 645 ..032
15000		8.5			D153M33Z5UF6.J5.				22.2 645 ..132
22000		10.0			D223M39Z5UF6.J5.				22.2 645 ..232
CLASS 2 Y5V									
1000	+ 80/– 20	5.0	5.0	4.0	D102Z20Y5VF6.J5.	06	08	10	22.2 635 ..023
1500					D152Z20Y5VF6.J5.				22.2 635 ..123
2200					D222Z20Y5VF6.J5.				22.2 635 ..223
3300					D322Z20Y5VF6.J5.				22.2 635 ..323
4700					D472Z20Y5VF6.J5.				22.2 635 ..423
6800		6.5			D682Z25Y5VF6.J5.				22.2 635 ..623
10000		7.5			D103Z29Y5VF6.J5.				22.2 635 ..033
15000		8.5			D153Z33Y5VF6.J5.				22.2 635 ..133
22000		10.0			D223Z39Y5VF6.J5.				22.2 635 ..233
CLASS 2 Z5V									
4700	+ 80/– 20	5.0	5.0	4.0	D472Z20Z5VF6.J5.	06	08	10	22.2 655 ..423
10000		6.5			D103Z25Z5VF6.J5.				22.2 655 ..033
22000		7.5			D223Z29Z5VF6.J5.				22.2 655 ..233
47000		10.0			D473Z39Z5VF6.J5.				22.2 655 ..433

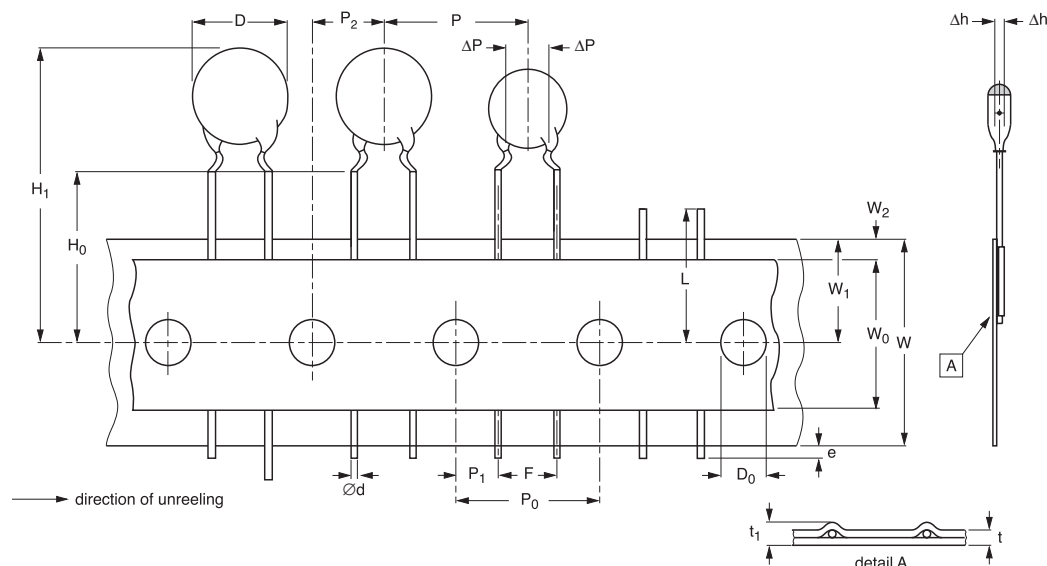
Notes

- Maximum thickness 4.0 mm.
- SH = seated height.
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- 3rd digit to complete RoHS catalog number. 8th and 9th digit of the catalog number to be completed with the packaging code.

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.



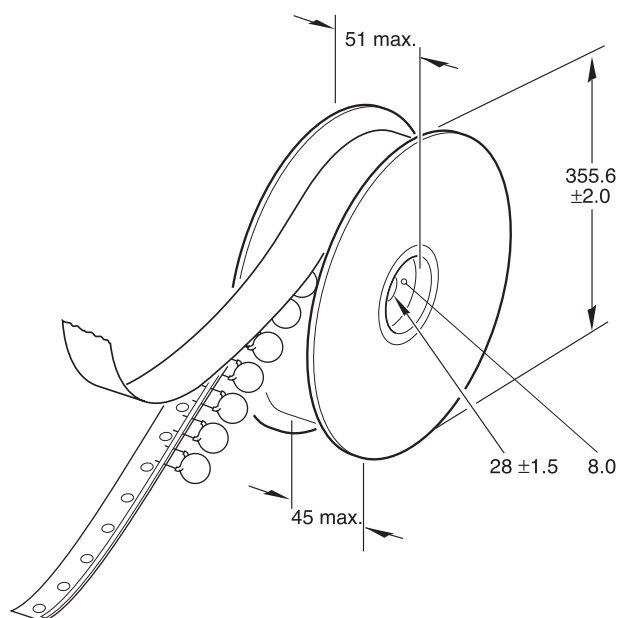
Capacitors, lead spacing 5.0 mm, on tape.

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

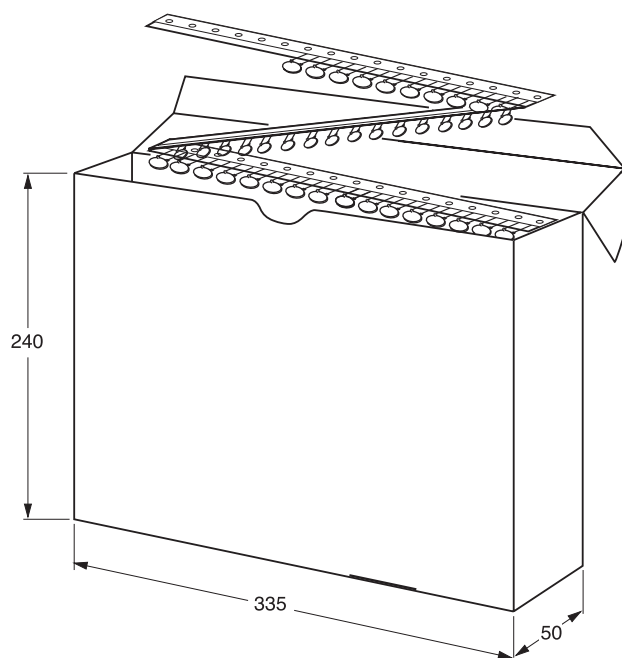
DIMENSIONS OF TAPE			
SYMBOL	PARAMETER	DIMENSIONS (mm)	
		NOMINAL	TOLERANCE
D	body diameter	11.0 maximum	–
d	lead diameter	0.6	± 0.05
P	pitch between capacitors	12.7	± 1.0
P ₀	feed-hole pitch	12.7	± 0.3; note 1
ΔP	plane deviation	1.0 maximum	–
P ₁	feed-hole centre to lead centre	3.85	± 0.7; note 2
P ₂	feed-hole centre to component centre	6.35	± 1.3; note 2
F	lead spacing	5.0	+ 0.6
Δh	component alignment	0	± 1.0
Δs	deviation along tape, left or right	0	± 1.0
W	tape width	18.0	+ 1.0
W ₀	hold-down tape width	5.0 minimum	–
W ₁	hole position	9.0	+ 0.75
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: $\pm \leq 1$ mm /20 pitches.
2. Obliquity maximum 3°.

**REEL AND TAPE DATA** in millimeters

Reel with capacitors on tape.



Ammopack with capacitors on tape.



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