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.

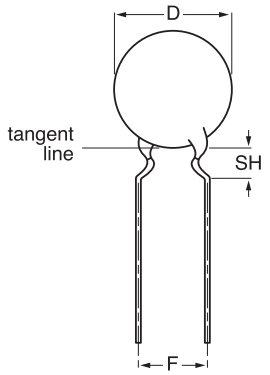
APPLICATIONS

- 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):

≥ 10000 MΩ

TOLERANCE ON CAPACITANCE:

± 5 %; ± 10 %; ± 20 %; + 80 % /-20 %

DISSIPATION FACTOR:

Class 1, C ≤ 30 pF ≤ 20 x (10/C + 0.7) x 10^{-4} maximum

Class 1, C > 30 pF ≤ 20 x 10^{-4}

Class 2, ≤ 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 13th DIGIT: T = REEL; U = AMMO; 3 = BULK 16th DIGIT: R = RoHS COMPLIANT	PACKAGING CODE 8th AND 9th DIGIT[3] REEL	AMMO	BULK	CATALOG NUMBER[4] 3rd DIGIT: 5 = STANDARD, 8 = RoHS COMPLIANT
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	± 5				D100J20C0GF6.J5.				22.2 505 ..005
12					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

1. Maximum thickness 4.0 mm.
2. SH = seated height.
3. Packaging codes refer to inward kinked leads. Other styles available on request.
4. 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 13th DIGIT: T = REEL; U = AMMO; 3 = BULK 16th DIGIT: R = RoHS COMPLIANT	PACKAGING CODE 8th AND 9th DIGIT[3] REEL	AMMO	BULK	CATALOG NUMBER[4] 3rd DIGIT: 5 = STANDARD, 8 = RoHS COMPLIANT
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		6.5			D182K25Y5PF6.J5.				22.2 615 ..171
2200					D222K25Y5PF6.J5.				22.2 615 ..221
3300					D332K25Y5PF6.J5.				22.2 615 ..321
4700		7.5			D472K29Y5PF6.J5.				22.2 615 ..421
6800		8.5			D682K33Y5PF6.J5.				22.2 615 ..621
10000		10.0			D103K39Y5PF6.J5.				22.2 615 ..031

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

C (pF)	TOL. (%)	D_{max} (mm)	LEAD SPACING F (mm)	SH[2] (mm)	CLEAR TEXT CODE: 13th DIGIT: T = REEL; U = AMMO; 3 = BULK; 16th DIGIT: R = RoHS COMPLIANT	PACKAGING CODE 8th AND 9th DIGIT[3]: REEL	AMMO	BULK	CATALOG NUMBER[4] 3rd DIGIT: 5 = STANDARD, 8 = RoHS COMPLIANT
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

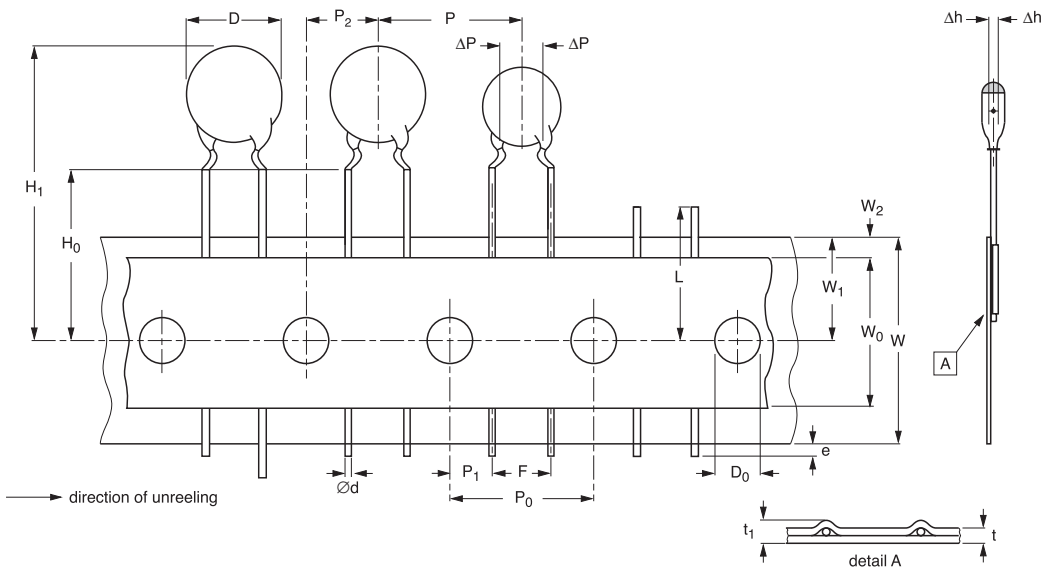
1. Maximum thickness 4.0 mm.
2. SH = seated height.
3. Packaging codes refer to inward kinked leads. Other styles available on request.
4. 3rd digit to complete RoHS catalog number. 8th and 9th digit of the catalog number to be completed with the packaging code.

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

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



Capacitors, lead spacing 5.0 mm, on tape.

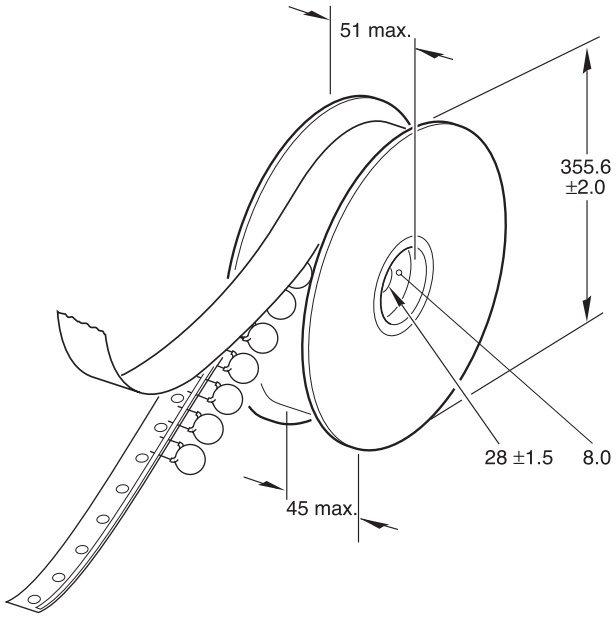
Kinked capacitors on tape, lead spacing 5.0 mm (0.2 inch)

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 snipped 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	–

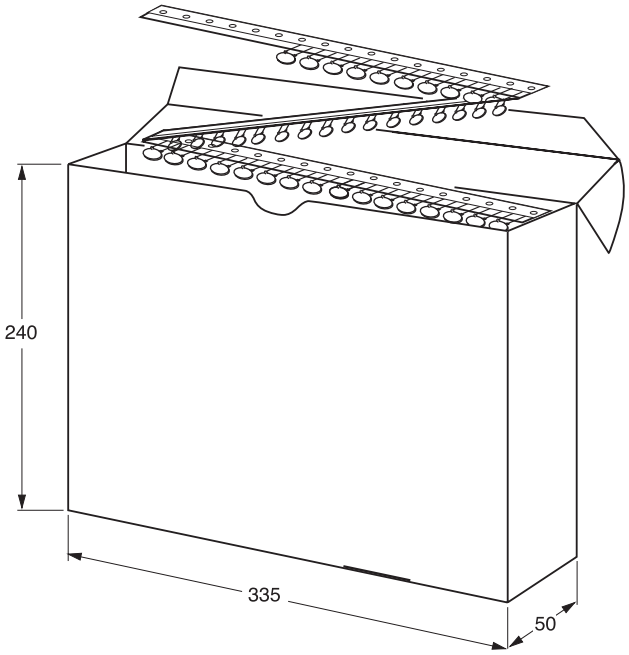
Notes

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

REEL AND TAPE DATA in millimeters



Reel with capacitors on tape.



Ammopack with capacitors on tape.

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