

Ceramic Disc Capacitors

Safety, Class X1/Y2 440/250V (AC) Series DS

FEATURES

- Complying with “EN 132 400” and “IEC 60384-14, 2nd edition, including amendment 1.1995”
- High reliability
- Kinked (preferred) or straight leads.
- Lead (Pb)-free available.



APPLICATIONS

- Across-the-line
- Line by-pass
- Antenna coupling.

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 or 0.8 mm.

The capacitors may be supplied with kinked or straight leads having a lead spacing of 5.0 mm (0.200") or 7.5 mm (0.300") and a lead length from 4 to 30 mm. The standard tolerance on capacitance is $\pm 10\%$ for U2M and Y5P material, $\pm 20\%$ for Y5U and $-20/+80\%$ for Y5V material. Encapsulation is made of flammable resistant epoxy resin in accordance with “UL94V-0”.

CAPACITANCE RANGE:

at 1kHz, 1V (RMS); 10 to 10000pF

RATED VOLTAGE U_R :

(X1): 440V (AC), 50Hz (IEC 60384-14.2)

(Y2): 250V (AC), 50Hz (IEC 60384-14.2)

DIELECTRIC STRENGTH BETWEEN LEADS:

Component test:

1900V (AC), 50Hz, 2 seconds

As repeated test admissible only once with:

1700V (AC), 50Hz, 2 seconds

Random sampling test (destructive test):

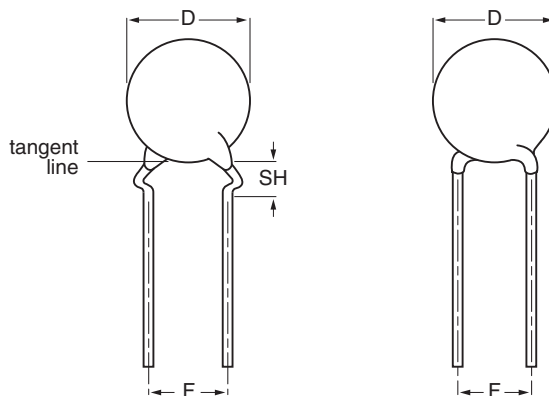
1500V (AC), 50Hz, 60 seconds

DIELECTRIC STRENGTH OF BODY INSULATION:

1500V (AC), 50Hz, 60 seconds (destructive test)

INSULATION RESISTANCE AT 500V (DC):

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



Capacitors with 5.0 mm (0.20") 7.5 mm (0.30") lead spacing.

TOLERANCE ON CAPACITANCE:

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

DISSIPATION FACTOR:

at 1kHz; 1V (RMS); 2.5% max

TEMPERATURE COEFFICIENTS:

U2M; Y5P; Y5U; Y5V

APPROVALS:

ENEC, UL file E95439 and CSA

CLIMATIC CATEGORY:

25/125/56 or 25/85/21

OPERATING TEMPERATURE RANGE:

-30 to $+125^\circ\text{C}$

MARKING

Marking indicates capacitance value and tolerance in accordance with “EIA 198”, voltage and approval marks.

The capacitors meet the essential requirements of “EIA 198”. Unless stated otherwise all electrical values apply at an ambient temperature of $25 \pm 3^\circ\text{C}$, at normal atmospheric conditions

ORDERING INFORMATION, X1 440V (AC); Y1 250V (AC)										
C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE	PACKAGING CODE 8 th AND 9 th DIGIT			CATALOG NUMBER ⁽⁴⁾ 3 rd DIGIT: 5 = STANDARD, 8 = RoHS COMPLIANT	
					13 th DIGIT: T = REEL; U = AMMO; 3 = BULK ⁽³⁾ 16 th DIGIT: R = RoHS COMPLIANT	REEL	AMMO	BULK		
						KINKED				
U2M										
10	±10	6.5	5.0	4.0	S100K25U2MY6.K5.	13	14	15	22.2 815 ..006	
15					S150K25U2MY6.K5.				22.2 815 ..106	
22					S220K25U2MY6.K5.				22.2 815 ..206	
33					S330K25U2MY6.K5.				22.2 815 ..306	
47		7.5			S470K29U2MY6.K5.				22.2 815 ..406	
68		8.5			S680K33U2MY6.K5.				22.2 815 ..606	
Y5P										
100	±10	6.5	5.0	4.0	S101K25Y5PY6.K5.	13	14	15	22.2 815 ..016	
150					S151K25Y5PY6.K5.				22.2 815 ..116	
220					7.5				S221K29Y5PY6.K5.	22.2 815 ..216
330									S331K29Y5PY6.K5.	22.2 815 ..316
470		S471K29Y5PY6.K5.							22.2 815 ..416	
680		S681K29Y5PY6.K5.							22.2 815 ..616	
Y5U										
1000	±20	7.5	5.0	4.0	S102M29Y5UY6.K5.	13	14	15	22.2 815 ..027	
1500					S152M29Y5UY6.K5.				22.2 815 ..127	
2200		8.5			S222M33Y5UY6.K5.				22.2 815 ..227	
3300					10.0				S332M39Y5UY6.K5.	22.2 815 ..327
4700									12.0	S472M47Y5UY6.K5.
Y5V										
2200	-20/+80%	8.5	5.0	4.0	S222Z33Y5VY6.K5.	13	14	15	22.2 815 ..228	
3300		10.0			S332Z39Y5VY6.K5.				22.2 815 ..328	
4700		11.0			S472Z43Y5VY6.K5.				22.2 815 ..428	
10000			15.0	7.5	4.8	S103Z59Y5VY6.K7.	35	36	37	22.2 815 ..038

Notes

- Maximum thickness 4.5 mm.
- SH = seated height.
- Straight leads are 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.

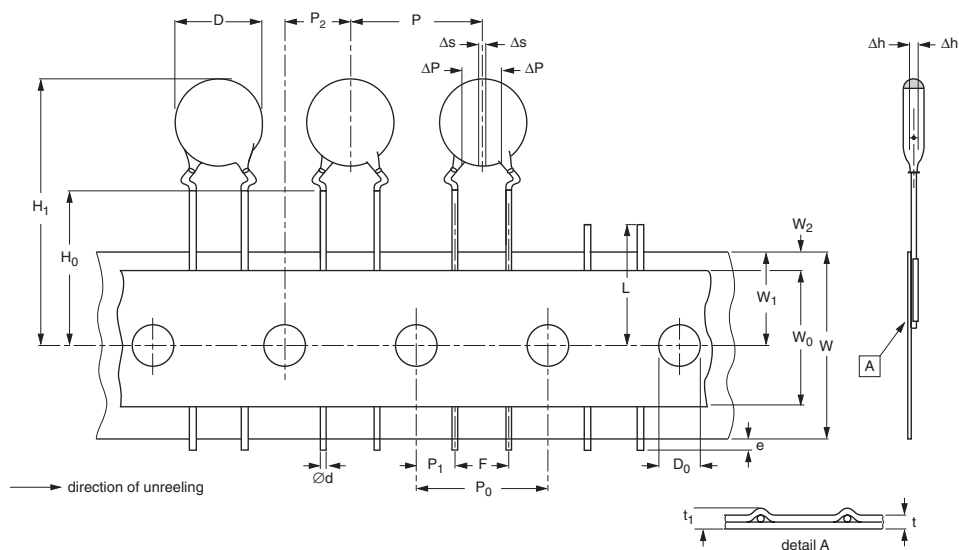
PACKAGING				
D _{max} (mm)	SIZE CODE	PACKAGING QUANTITIES		
		BULK	REEL	AMMO
8.5 (0.33")	33	1000	1000	1500
10.0 (0.39")	39			
11.0 (0.43")	43			
12.0 (0.47")	47			
13.5 (0.53")	53	500	—	—
15.0 (0.59")	59			

Note

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

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Series DS

Vishay BCcomponents



Kinked capacitors on tape, lead spacing 5 mm (0.20") or 7.5 mm (0.30").

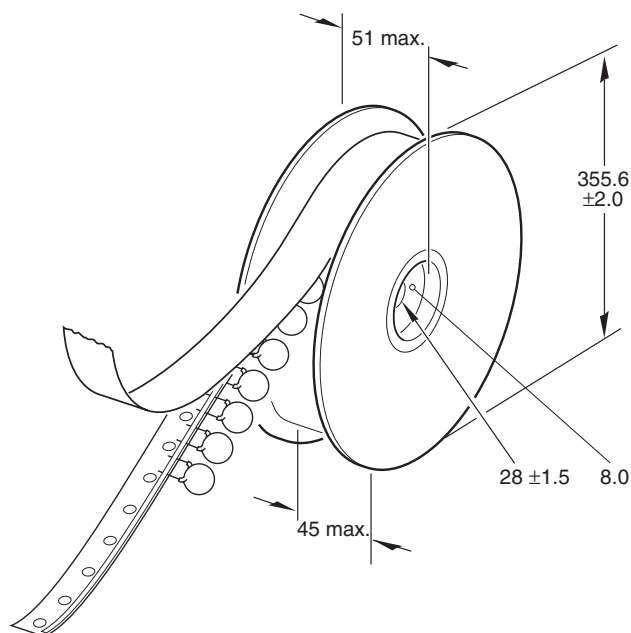
DIMENSIONS OF TAPE

SYMBOL	PARAMETER	DIMENSIONS (mm)	
		FEED-HOLE PITCH $P_0 = 12.7$	FEED-HOLE PITCH $P_0 = 15.0$
D	body diameter	11.0 max.	14.0 max.
d	lead diameter	0.6 ± 0.05	0.6 ± 0.05
P	pitch between capacitors	12.7 ± 1.0	15.0 ± 1.0
P_0	feed-hole pitch	12.7 ± 0.3 ; note 1	15.0 ± 0.3 ; note 1
ΔP	plane deviation	1.0 max.	1.0 max.
P_1	feed-hole centre to lead centre	3.85 ± 0.7 ; note 2	3.75 ± 1.0 ; note 2
P_2	feed-hole centre to component centre	6.35 ± 1.3 ; note 2	7.5 ± 1.5 ; note 2
F	lead spacing	$5.0 + 0.6/-0.4$	7.5 ± 1.0
Δh	component alignment	0 ± 1.0	0 ± 1.0
Δs	deviation along tape, left or right	0 ± 1.0	0 ± 1.0
W	tape width	$18.0 + 1.0/-0.5$	$18.0 + 1.0/-0.5$
W_0	hold-down tape width	5.0 min.	5.0 min.
W_1	hole position	$9.0 + 0.75/-0.5$	$9.0 + 0.75/-0.5$
W_2	hold-down tape margin	3.0 max.	3.0 max.
H_0	height to seating plane	16.0 ± 0.5	16.0 ± 0.5
H_1	maximum component height	32.0	40.0
e	lead end protrusion	1.0 max.	1.0 max.
L	maximum length of snapped lead	11.0	11.0
D_0	feed-hole diameter	4.0 ± 0.2	4.0 ± 0.2
t	total tape thickness	0.9 max.	0.9 max.
t_1	maximum thickness of tape and wires	1.5 max.	1.5 max.

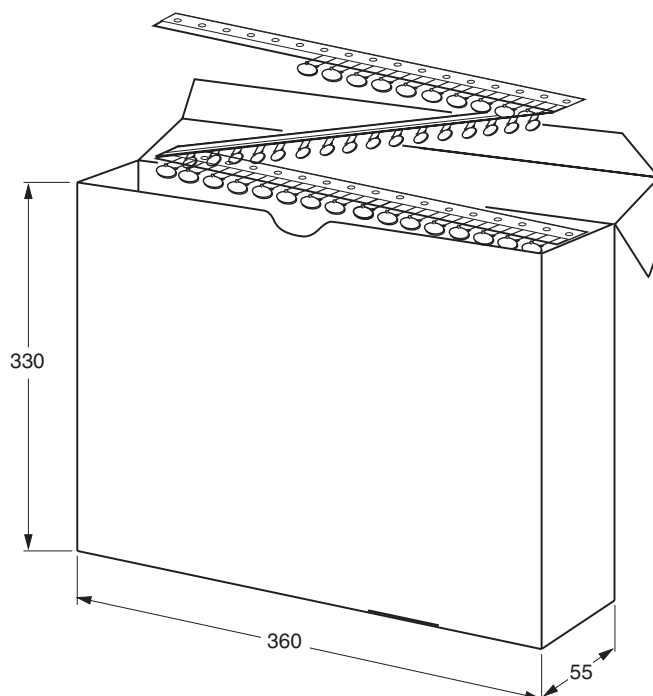
Notes

- 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.



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