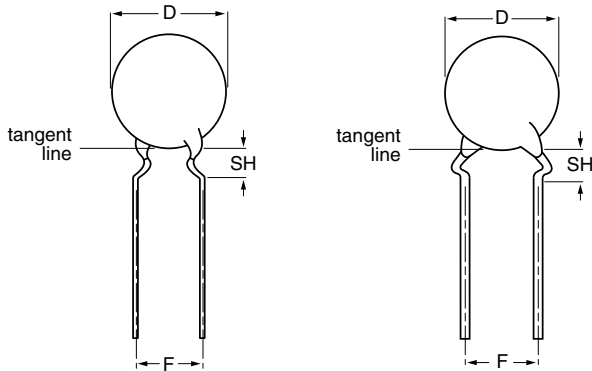
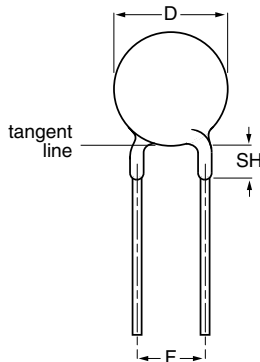


Ceramic Disc Capacitors

Class 1 and 2, 1/2/3/6 kV General Purpose



Capacitors with 5 mm (0.20 inch), 7.5 mm (0.30 inch) and 10 mm (0.40 inch) lead spacing



Capacitors with 10 mm (0.40 inch) lead spacing

Class 2 X5F - 55 to + 85 °C

TEMPERATURE COEFFICIENTS:

Class 1 SL0; S3N

Class 2 X7R; Y5P; Z5U; Y5V; X5F

SECTIONAL SPECIFICATIONS:

Class 1 IEC 60 384-8,

Class 2 IEC 60 384-9,

EIA 198

CLIMATIC CATEGORY:

Class 1 SL0 55/125/21

Class 2 X7R 55/125/21

Class 2 Y5P; Z5U; Y5V 30/85/21

Class 2 X5F 55/85/21

MARKING

Straight and kinked leaded versions are gold coloured
Marking indicates capacitance value and tolerance in accordance with "EIA 198", and voltage

FEATURES

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

APPLICATIONS

- DC high voltage
- Pulse high voltage
- SMPS
- HV power supply
- HF ballast

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 up to 3 kV and 0.8 mm for 6 kV.

The capacitors may be supplied with kinked or straight leads with a lead spacing of 5 mm (0.200"), 7.5 mm (0.300") or 10 mm (0.400") and a lead length from 4 to 30 mm. The standard tolerance on capacitance is 5 % or 10 % for class 1 capacitors and ± 10 % or ± 20 % for class 2 capacitors. Encapsulation is made of gold-coloured epoxy-resin, flammable resistant in accordance with "UL94V-0".

CAPACITANCE RANGE:

Class 1, at 1 MHz, 1.2 V (RMS); 10 to 220 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); 100 to 22 000 pF

RATED DC VOLTAGE:

1 kV; 2 kV; 3 kV; 6 kV

DIELECTRIC STRENGTH:

200 % of rated voltage

INSULATION RESISTANCE AT 500 V (DC):

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

TOLERANCE ON CAPACITANCE:

± 5 %; ± 10 %; ± 20 %; + 80 /- 20 %

Other tolerances available on request

DISSIPATION FACTOR:

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

Class 1, $C > 30\ \text{pF}$; ≤ 0.2 %

Class 2, ≤ 3.0 %

OPERATING TEMPERATURE RANGE:

Class 1 SL0; S3N - 55 to + 125 °C

Class 2 X7R - 55 to + 125 °C

Class 2 Y5P; Z5U; Y5V - 30 to + 85 °C



RoHS
COMPLIANT

ORDERING INFORMATION, 1 kV (DC), STRAIGHT						
C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE	
			KINKED		13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT	
CLASS 1 SLO						
10	± 5	6.5	5.0	4.0	S100J25SL0N6.J5.	
	± 10				S100K25SL0N6.J5.	
12	± 5				S120J25SL0N6.J5.	
	± 10				S120K25SL0N6.J5.	
15	± 5				S150J25SL0N6.J5.	
	± 10				S150K25SL0N6.J5.	
18	± 5				S180J25SL0N6.J5.	
	± 10				S180K25SL0N6.J5.	
22	± 5				S220J25SL0N6.J5.	
	± 10				S220K25SL0N6.J5.	
27	± 5				S270J25SL0N6.J5.	
	± 10				S270K25SL0N6.J5.	
33	± 5				S330J25SL0N6.J5.	
	± 10				S330K25SL0N6.J5.	
39	± 5				S390J25SL0N6.J5.	
	± 10				S390K25SL0N6.J5.	
47	± 5	S470J25SL0N6.J5.				
	± 10	S470K25SL0N6.J5.				
56	± 5	7.5	S560J29SL0N6.J5.			
	± 10		S560K29SL0N6.J5.			
68	± 5		S680J29SL0N6.J5.			
	± 10		S680K29SL0N6.J5.			
82	± 5		S820J29SL0N6.J5.			
	± 10		S820K29SL0N6.J5.			
100	± 5		S101J29SL0N6.J5.			
	± 10		S101K29SL0N6.J5.			
120	± 5		S121J33SL0N6.J5.			
	± 10		S121K33SL0N6.J5.			
150	± 10		S151K33SL0N6.J5.			
220			S221K39SL0N6.J5.			
CLASS 2 X7R						
100	± 10		6.5	5.0	4.0	S101K25X7RN6.J5.
150						S151K25X7RN6.J5.
220						S221K25X7RN6.J5.
330		S331K25X7RN6.J5.				
470		S471K29X7RN6.J5.				
680		S681K29X7RN6.J5.				
1000		8.5	S102K33X7RN6.J5.			
1500		10.0	S152K39X7RN6.J5.			
2200		11.0	S222K43X7RN6.J5.			
3300		12.0	S332K47X7RN6.J7.			
4700	15.0	7.5	4.8	S472K59X7RN6.J7.		



Ceramic Disc Capacitors
Class 1 and 2, 1/2/3/6 kV General Purpose

HV 1 kV - 6 kV
Vishay BCcomponents

ORDERING INFORMATION, 1 KV (DC), STRAIGHT								
C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE			
			KINKED		13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT			
CLASS 2 Y5P								
100	± 10	6.5	5.0	4.0	S101K25Y5PN6.J5.			
150					S151K25Y5PN6.J5.			
220					S221K25Y5PN6.J5.			
330					S331K25Y5PN6.J5.			
470					S471K25Y5PN6.J5.			
680					S681K29Y5PN6.J5.			
1000		7.5	5.0	4.0	S102K29Y5PN6.J5.			
1500					S152K33Y5PN6.J5.			
2200					S222K39Y5PN6.J5.			
3300		11.0	7.5	4.8	S332K43Y5PN6.J5.			
4700		13.5			S472K53Y5PN63J7.			
6800		15.0			S682K59Y5PN63J7.			
10 000		19.0	10.0		S103K75Y5PN83J0.			
CLASS 2 Z5U								
1000	± 20	6.5	5.0	4.0	S102M25Z5UN6.J5.			
1500					S152M29Z5UN6.J5.			
2200					S222M29Z5UN6.J5.			
3300					S332M33Z5UN6.J5.			
4700		10.0	7.5	4.8	S472M39Z5UN6.J5.			
6800		11.0			S682M43Z5UN6.J5.			
10 000		12.0			S103M47Z5UN63J7.			
15 000		15.0	10.0		S153M59Z5UN63J7.			
22 000		19.0			S223M75Z5UN83J0.			
CLASS 2 Y5V								
1000	+ 80/- 20	6.5	5.0	4.0	S102Z25Y5VN6.J5.			
1500					S152Z25Y5VN6.J5.			
2200					S222Z29Y5VN6.J5.			
3300		7.5	5.0	4.0	S332Z29Y5VN6.J5.			
4700					S472Z33Y5VN6.J5.			
6800					S682Z39Y5VN6.J5.			
10 000		11.0	5.0	4.0	S103Z43Y5VN6.J5.			
15 000					13.5	7.5	4.8	S153Z53Y5VN6.J7.
22 000								15.0
33 000		19.0	10.0		S333Z75Y5VN8.J0.			



Vishay BCcomponents

Ceramic Disc Capacitors
Class 1 and 2, 1/2/3/6 kV General Purpose

ORDERING INFORMATION, 1 KV (DC), KINKED					
C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE
			KINKED		13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT
CLASS 2 X5F					
100	± 10	6.5	5.0	4.0	S101K25X5FN6.J5R
220					S221K25X5FN6.J5R
270					S271K25X5FN6.J5R
330					S331K25X5FN6.J5R
390					S391K25X5FN6.J5R
470					S471K25X5FN6.J5R
680		7.5	5.0	4.0	S681K29X5FN6.J5R
820					S821K29X5FN6.J5R
1000					S102K29X5FN6.J5R
2200					S222K43X5FN6.J5R
3300		13.5	7.5	4.8	S332K53X5FN6.J7R
4700		16.0	7.5		S472K63X5FN63J7R

Notes

1. Maximum thickness 4.5 mm.
2. SH = seated height.
3. Lead style codes refer to inward kinked leads. Other styles available on request.



Ceramic Disc Capacitors
Class 1 and 2, 1/2/3/6 kV General Purpose

Vishay BCcomponents

ORDERING INFORMATION, 2 KV (DC), KINKED								
C (pF)	TOL. (%)	D _{max} (mm)	LEADSPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE			
			KINKED		13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT			
CLASS 1 SL0								
10	± 5	6.5	5.0	4.0	S100J25SL0P6.K5.			
	± 10				S100K25SL0P6.K5.			
12	± 5				S120J25SL0P6.K5.			
	± 10				S120K25SL0P6.K5.			
15	± 5				S150J25SL0P6.K5.			
	± 10				S150K25SL0P6.K5.			
18	± 5				S180J25SL0P6.K5.			
	± 10				S180K25SL0P6.K5.			
22	± 5				S220J25SL0P6.K5.			
	± 10				S220K25SL0P6.K5.			
27	± 5				S270J25SL0P6.K5.			
	± 10				S270K25SL0P6.K5.			
33	± 5	7.5			S330J29SL0P6.K5.			
	± 10				S330K29SL0P6.K5.			
39	± 5				S390J29SL0P6.K5.			
	± 10				S390K29SL0P6.K5.			
47	± 5				S470J29SL0P6.K5.			
	± 10				S470K29SL0P6.K5.			
56	± 5				S560J29SL0P6.K5.			
	± 10				S560K29SL0P6.K5.			
68	± 5				8.5	S680J33SL0P6.K5.		
	± 10					S680K33SL0P6.K5.		
82	± 5					S820J33SL0P6.K5.		
	± 10					S820K33SL0P6.K5.		
100	± 5	10.0	S101J39SL0P6.K5.					
	± 10		S101K39SL0P6.K5.					
120	± 5		S121J39SL0P6.K5.					
	± 10		S121K39SL0P6.K5.					
150	± 10		S151K43SL0P6.K5.					
CLASS 2 X7R								
100	± 10	6.5	5.0	4.0		S101K25X7RP6.K5.		
150					S151K25X7RP6.K5.			
220					S221K25X7RP6.K5.			
330					S331K25X7RP6.K5.			
470					S471K29X7RP6.K5.			
680					S681K33X7RP6.K5.			
1000		S102K39X7RP6.K5.						
1500		S152K43X7RP6.K5.						
2200		7.5			13.5	4.8	S222K53X7RP6.K7.	
3300							15.0	S332K59X7RP6.K7.

ORDERING INFORMATION, 2 KV (DC), KINKED						
C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SH ⁽²⁾ (mm)	CLEAR TEXT CODE	
			KINKED		13 th DIGIT: T = REEL; U = AMMO; 3 = BULK 16 th DIGIT: R = RoHS COMPLIANT	
CLASS 2 Y5P						
100	± 10	6.5	5.0	4.0	S101K25Y5PP6.K5.	
150					S151K25Y5PP6.K5.	
220					S221K25Y5PP6.K5.	
330					S331K25Y5PP6.K5.	
470					S471K29Y5PP6.K5.	
680					S681K29Y5PP6.K5.	
1000		7.5	5.0	4.0	S102K33Y5PP6.K5.	
1500					S152K39Y5PP6.K5.	
2200					S222K43Y5PP6.K5.	
3300		13.5	7.5	4.8	S332K53Y5PP63K7.	
4700		17.5			S472K69Y5PP63K7.	
CLASS 2 Z5U						
1000	± 20	7.5	5.0	4.0	S102M29Z5UP6.K5.	
1500					S152M29Z5UP6.K5.	
2200					8.5	S222M33Z5UP6.K5.
3300					11.0	S332M43Z5UP6.K5.
4700		12.0	7.5	4.8	S472M47Z5UP63K7.	
6800		13.5			S682M53Z5UP63K7.	
10 000		17.5			S103M69Z5UP63K7.	
CLASS 2 Y5V						
1000	+ 80/- 20	7.5	5.0	4.0	S102Z29Y5VP6.K5.	
1500					S152Z29Y5VP6.K5.	
2200					8.5	S222Z33Y5VP6.K5.
3300					10.5	S322Z39Y5VP6.K5.
4700		11.0	7.5	4.8	S472Z43Y5VP6.K5.	
6800		12.0			S682Z47Y5VP6.K7.	
10 000		15.0			S103Z59Y5VP6.K7.	
CLASS 2 X5F						
100	± 10	6.5	5.0	4.0	S101K25X5FP6.K5R	
220					S221K25X5FP6.K5R	
330					7.5	S331K29X5FP6.K5R
470					8.0	S471K31X5FP6.K5R
680					10.0	S681K39X5FP6.K5R
1000					11.0	S102K43X5FP6.K5R
2200		15.0	7.5	4.8	S222K59X5FP6.K7R	
3300		16.5	7.5		S332K65X5FP63K7R	

Notes

- Maximum thickness 5.0 mm.
- SH = seated height.
- Lead style codes refer to outward kinked leads. Other styles available on request.



Ceramic Disc Capacitors
Class 1 and 2, 1/2/3/6 kV General Purpose

Vishay BCcomponents

ORDERING INFORMATION, 3 kV (DC), KINKED					
C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SEATED HEIGHT (mm)	CLEAR TEXT CODE 16 th DIGIT: R = RoHS COMPLIANT
			KINKED		
CLASS 1 SL					
10	± 10	8.5	7.5	4.0	S100K33SL0R63K7.
15					S150K33SL0R63K7.
22					S220K33SL0R63K7.
33					S330K33SL0R63K7.
47					S470K33SL0R63K7.
68		10.0	S680K39SL0R63K7.		
CLASS 2 X7R					
100	± 10	8.5	7.5	4.0	S101K33X7RR63K7.
150					S151K33X7RR63K7.
220					S221K33X7RR63K7.
330					S331K33X7RR63K7.
470					S471K33X7RR63K7.
680		10.0	S681K39X7RR63K7.		
1000		11.0	S102K43X7RR63K7.		
1500		13.5	S152K53X7RR63K7.		
2200		17.5	4.8	S222K59X7RR83K7.	
CLASS 2 Y5P					
100	± 10	8.5	7.5	4.0	S101K33Y5PR63K7.
150					S151K33Y5PR63K7.
220					S221K33Y5PR63K7.
330					S331K33Y5PR63K7.
470					S471K33Y5PR63K7.
680		10.0	S681K39Y5PR63K7.		
1000		11.0	S102K43Y5PR63K7.		
1500		12.0	S152K47Y5PR63K7.		
2200		15.0	4.8	S222K59Y5PR63K7.	
3300		19.0	10.0	S332K75Y5PR83K0.	
CLASS 2 Z5U					
470	± 20	8.5	7.5	4.0	S471M33Z5UR63K7.
680					S681M33Z5UR63K7.
1000					S102M33Z5UR63K7.
1500		10.0	S152M39Z5UR63K7.		
2200		11.0	S222M43Z5UR63K7.		
3300		13.5	4.8	S332M53Z5UR63K7.	
4700		17.5	S472M69Z5UR83K7.		
CLASS 2 Y5V					
1000	+ 80/- 20	8.5	7.5	4.0	S102Z33Y5VR63K7.
1500					S152Z33Y5VR63K7.
2200					10.0
3300		11.0	S322Z43Y5VR63K7.		
4700		12.0	4.8	S472Z47Y5VR63K7.	
6800		15.0	S682Z59Y5VR63K7.		

Notes

- Maximum thickness 6.0 mm.
- Lead style codes refer to outward kinked leads. Other styles available on request.
- All packaged in bulk.

ORDERING INFORMATION, 6 kV (DC), STRAIGHT					
C (pF)	TOL. (%)	D _{max} (mm)	LEAD SPACING F (mm)	SEATED HEIGHT (mm)	CLEAR TEXT CODE 16 th DIGIT: R = RoHS COMPLIANT
			STRAIGHT		
CLASS 1 SL					
10	± 20	10.0	10	3.0	S100M39SL0U83L0.
15					S150M43SL0U83L0.
22					S220M43SL0U83L0.
33					S330M53SL0U83L0.
CLASS 1 S3N					
47	± 20	11.0	10	3.0	S470M43S3NU83L0.
68		13.5			S680M53S3NU83L0.
100		15.0			S101M59S3NU83L0.
150		15.0			S151M59S3NU83L0.
CLASS 2 Z5U					
220	± 20	10.0	10	3.0	S221M39Z5UU83L0.
330		11.0			S331M43Z5UU83L0.
470		12.0			S471M47Z5UU83L0.
680		13.5			S681M53Z5UU83L0.
1000		15.0			S102M59Z5UU83L0.
1500		17.5			S152M69Z5UU83L0.
2200		19.0			S222M75Z5UU83L0.

Notes

1. Maximum thickness 8.0 mm.
2. Lead style codes refer to straight leads. Other styles available on request.
3. All packaged in bulk.

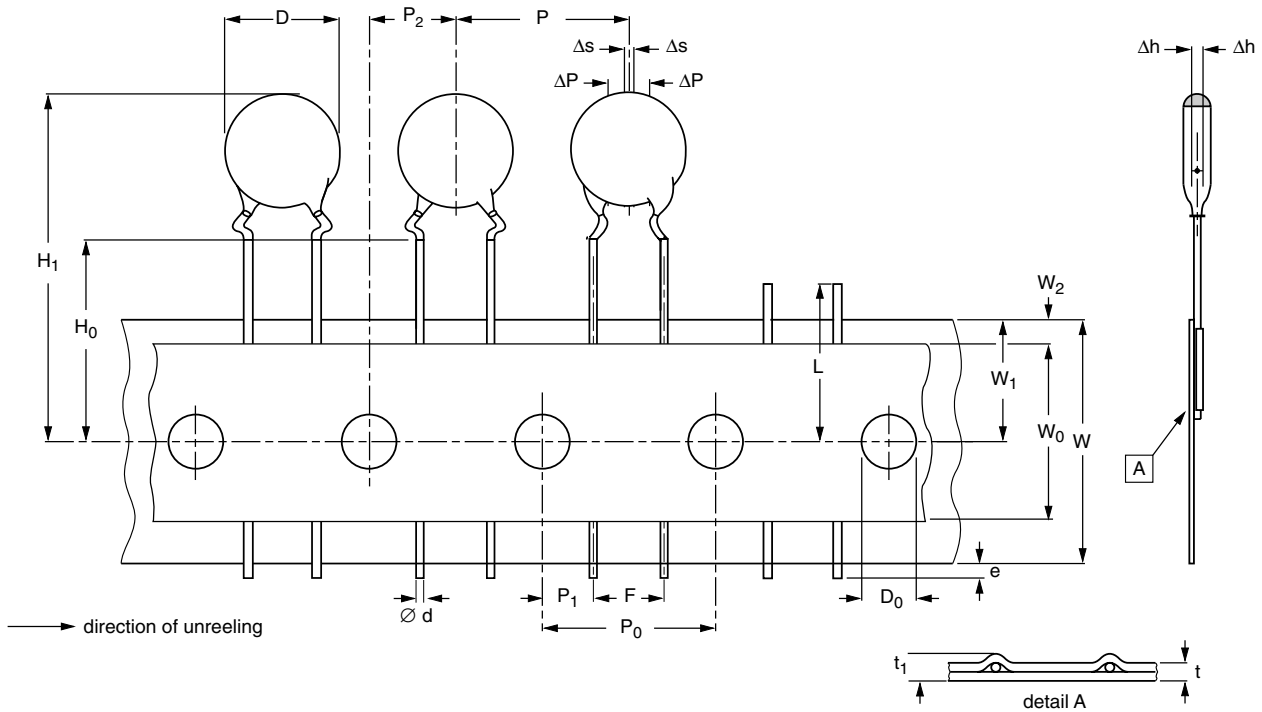
PACKAGING					
PACKAGING TYPE	SIZE CODE	LEAD SPACE (mm)	VOLTAGE (VDC)	SPQ	BOX DIMENSIONS L × W × H (mm)
Bulk (long lead L ≥ 25.4 mm)	20 to 47	all	all	1000	245 x 120 x 65
				1000	
	1000				
	500				
Tape and reel	≤ 47	≤ 6.4	< 500	2500	370 x 370 x 60
			500 ≤ WV ≤ 2000	2000	
		3000	1000		
		≥ 7.5	all	1000	
Ammopack	≤ 47	≤ 6.4	< 500	2000	335 x 240 x 50
			500 ≤ WV < 2000	2000	335 x 290 x 50
		2000 and 3000	1500	360 x 330 x 55	
		≥ 7.5	all		1500

Note

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

Ceramic Disc Capacitors
Class 1 and 2, 1/2/3/6 kV General Purpose

Vishay BCcomponents



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

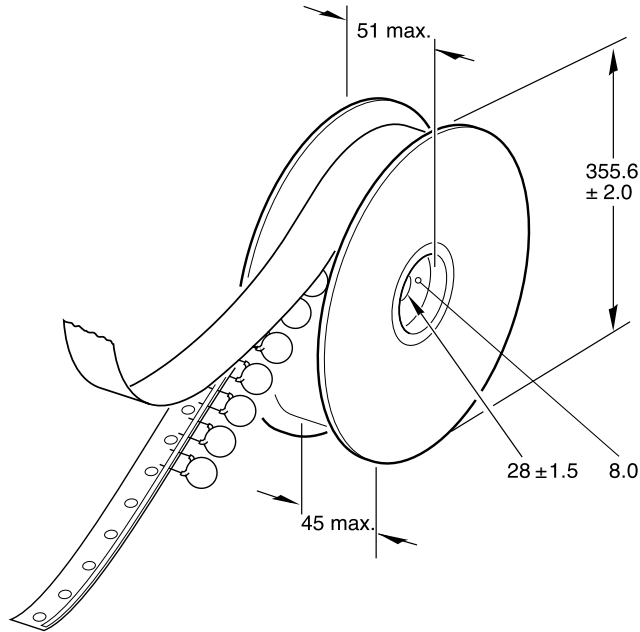
DIMENSIONS OF TAPE

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/- 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	-

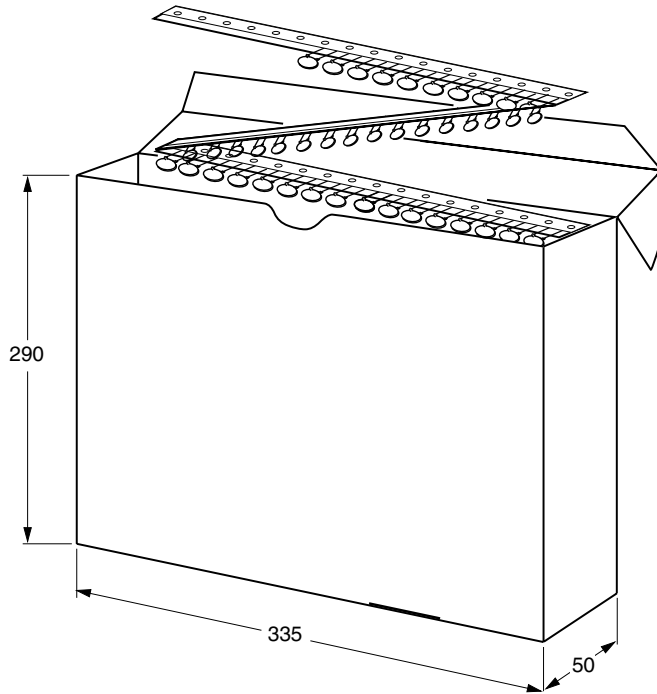
Notes

- 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



Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.