

- Features:**
- 1. Worldwide safety agency certificate: UL/CSA/VDE/ENEC/CQC.
 - 2. Operating temperature range: 125°C (UL: 85°C).
 - 3. Dielectric strength: AC4000V.
 - 4. Complete Range of capacitance values.
 - 5. Coated with flame-resistant epoxy resin (UL94V-0).
 - 6. Cost-saving automatic insertion available.
 - 7. Comply with RoHS.
 - 8. Halogen-free available.

Applications: Across-the-line
Line by-pass
Antenna coupling

Approval Standard and Certificate No

country	Mark	Standard	Rated Voltage	Certificate No
UL (U.S.A.)		UL1414	250VAC	E104572
UL (Canada)				
CSA (Canada)		CAN/CSA E384-14-95	250VAC	1413193 (LR66829)
VDE (Germany)		EN 60384-14 IEC 60384-14	X1: 760/400VAC Y1: 500/250VAC	115455
ENEC		EN 60384-14 IEC 60384-14	X1: 760/400VAC Y1: 500/250VAC	40016157
CQC (China)		GB/T 14472-1998	X1: 400VAC Y1: 250VAC	CQC03001008379

Marking

Example	
	Type Code: WD (Class X1 Y1)
	Nominal Capacitance: 472 (4700pF)
	Tolerance: M (±20%)
	Rated Voltage: 400V~ (X1), 250V~ (Y1)
	Temperature Characteristic: E (Y5U)
	Sub-class of Safety Performance: X1 Y1 (WD type)
	Logogram: 
	Monogram Safety Regulation body: 

General Specifications

Capacitance Range: 1pF to 0.01uF

Rated Voltage (U_R): X1: 760/400VAC; Y1: 500/250VAC

Dielectric Strength: 4000Vac (50~60Hz, 50mA max) for 1 minute

Capacitance (C_R): Within the specified tolerance

Y5P, Y5U, Y5V, X7R measured at 1KHz $\pm$ 20%

C0G, SL measured at 1MHz $\pm$ 20%

Both are 1Vrms, 25°C

Dissipation Factor ($\tan\delta$) SL and C0G : $C \geq 30\text{pF}$, $Q \geq 1000$;

or

$C < 30\text{pF}$, $Q \geq 400 + 20C_R$

Q Value: Y5P, Y5U, X7R: $\tan\delta \leq 0.025$

Y5V : $\tan\delta \leq 0.050$

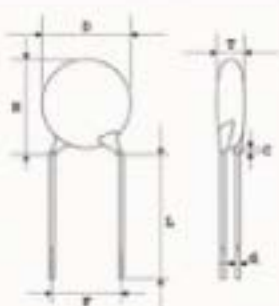
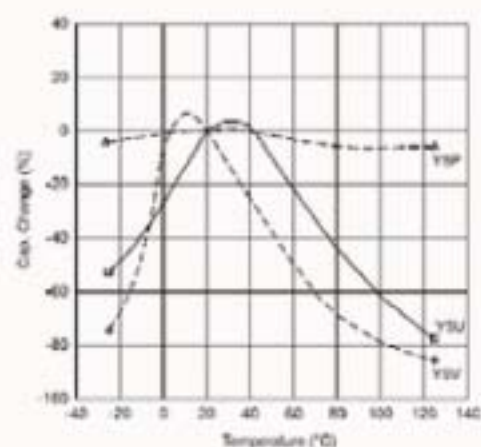
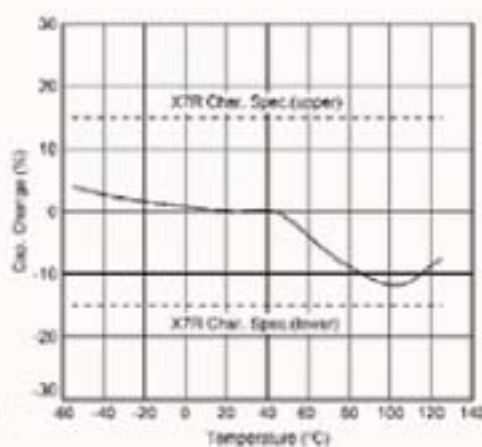
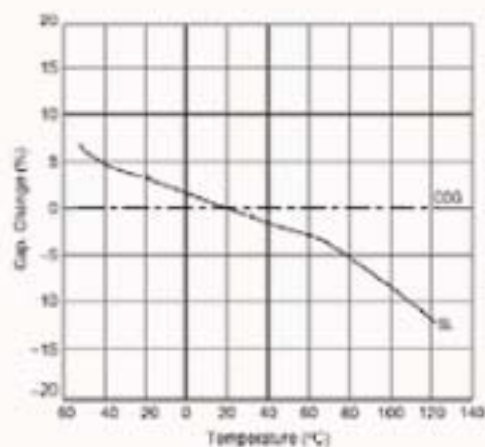
Measured Condition see "Capacitance".

Insulation Resistance: 10000M Ω minimum at 500VDC for 1 minute

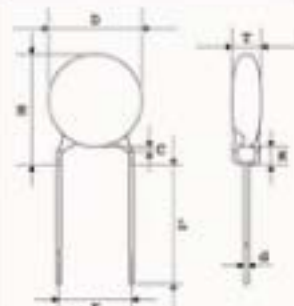
Operating -25°C to +125°C (UL/CSA: -25°C to +85°C)

Temperature Range: -55°C to +125°C for SL, C0G and X7R

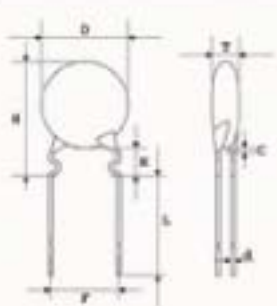
Temperature Characteristic Curves



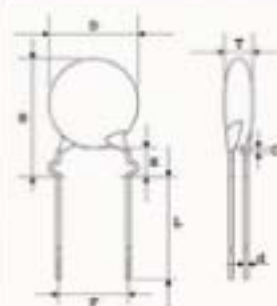
直脚



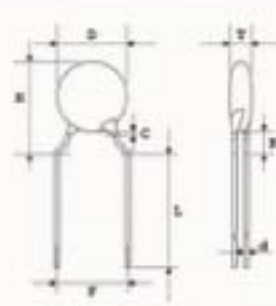
平行脚



内弯脚



外弯脚

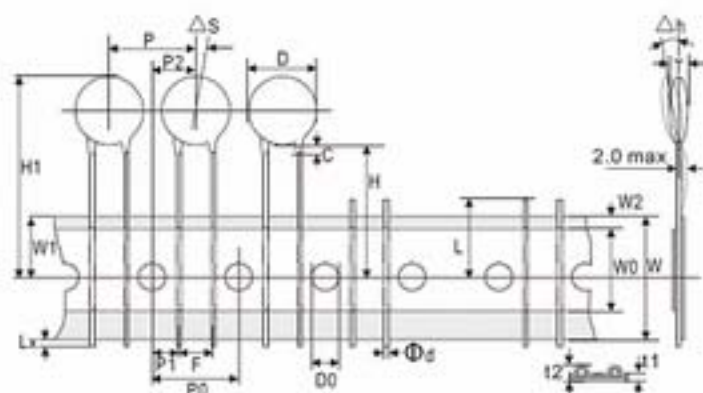


双弯脚

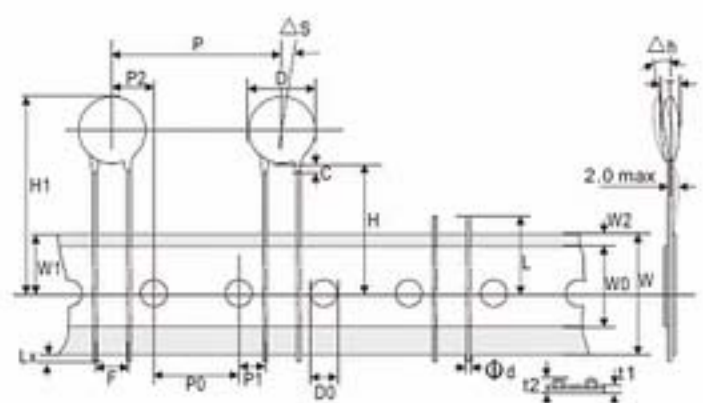
Type Code	Temperature Characteristic	Normal Capacitance (pF)	Tolerance	Dimensions (mm)								
				D (max.)	T (max.)	F (±1.0)	D (±0.1)					
WD (X1Y1)	COG (C)	1.0, 1.5, 2.2, 3.3	C (±0.25pF) D (±0.5pF)	8	8	7.5 & 10	0.6					
		4.7, 5.1		10								
		6.8		11								
		10	J (5%) , K (10%)	11								
	SL (L)	1.0, 1.5, 2.2, 3.3	C (±0.25pF) D (±0.5pF)	8	8	7.5 & 10	0.6					
		4.7, 5.1		10								
		6.8		11								
		10, 12, 15, 18, 20, 22, 27, 30, 33, 36, 39	8									
		47, 56, 68, 82	J (5%) , K (10%)	12								
	X7R (X)	5.1	C (±0.25pF) D (±0.5pF)	9	8	7.5 & 10	0.6					
		10, 12, 15, 18, 20, 22	J (5%) , K (10%)	10								
		27, 30, 33, 36, 39, 47, 56, 68, 82, 100	11									
		120, 150, 180, 220, 270, 330, 390, 470	11									
		560	K (±10%) M (±20%)	11		10						
		680, 820, 860		12								
		1000, 1200		15								
		1500		16								
		1800, 2000, 2200		20								
	Y5P (B)	1.0, 1.5, 2.2, 3.3	C (±0.25pF) D (±0.5pF)	8	8	7.5 & 10	0.6					
		4.7, 5.1		9								
		6.8		10								
		10, 12, 15, 18, 20, 22, 27, 30	10									
		33, 36, 39, 47, 56, 68, 82, 100	11									
		120, 150, 180, 220, 270, 330, 390, 470	K (±10%) M (±20%)	11		10						
		560		11								
		680, 820, 860		12								
		1000, 1200		15								
		1500		16								
		1800, 2000, 2200		20								
	Y5U (E)	100, 150, 220, 330, 390, 470, 560, 680	K (±10%) M (±20%)	8	8	7.5 & 10	0.6					
		820, 860		8								
		1000, 1200		9								
		1500, 1800		11								
		2000, 2200		12		10						
		2700, 2800		14								
		3000, 3200, 3300, 3600		16								
		3900, 4000, 4700, 5000		19								
		5500, 5600, 6000, 6800, 8000		22								
		8200, 8600, 9000, 10000		25								
		Y5V (F)		470, 560, 680, 820, 860				K (±10%) M (±20%)	8	8	7.5 & 10	0.6
				1000, 1200					9			
	1500, 1800		11	10								
	2000, 2200		12									
	2700, 2800		14									
	3000, 3200, 3300, 3600		16									
	3900, 4200, 4700, 5000		19									
	5500, 5600, 6000, 6800, 8000		22									
	8200, 8600, 9000, 10000		25									

Taping Specifications

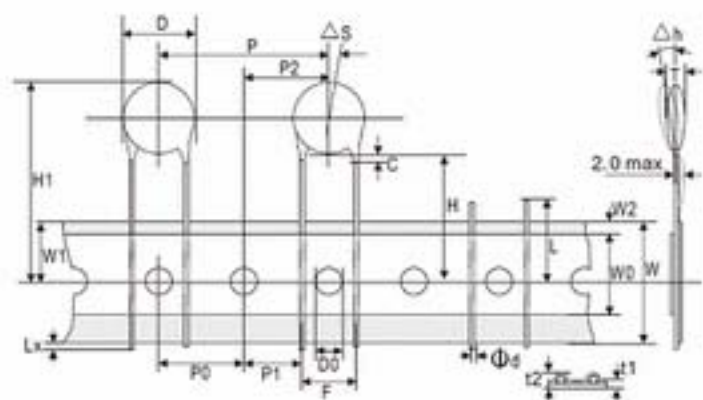
Type 1: F5.0, P12.7 & F7.5, P15.0



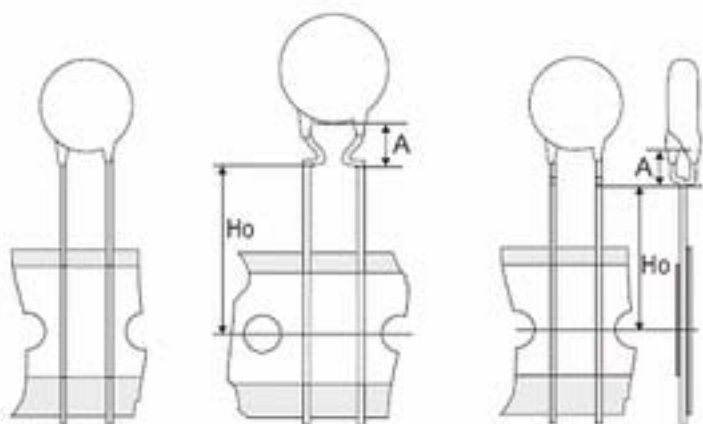
Type 2: F7.5, P30.0



Type 3: F10.0, P25.4



Lead Variation:



Straight type Inside Kink type Vertical Kink type

Item	Code	Taping Specification	
		Type 1	
Body Diameter	D	11.0 max	14.0 max
Body Thickness	T	6.0 max	8.0 max
Lead Diameter	Φd	0.6 ± 0.1	0.65 ± 0.1
Pitch of Sprocket Hole	P0	12.7 ± 0.3	15.0 ± 0.3
Pitch of Component	P	12.7 ± 1.0	15.0 ± 1.0
Lead Length from Hole Center Lead	P1	3.85 ± 0.7	3.75 ± 1.0
Lead Length from Hole Center Lead to component Center	P2	6.35 ± 1.3	7.5 ± 1.5
Lead Spacing	F	5.0+0.8/-0.2	7.5 ± 1.0
Deviation Along Tape, Left or Right	ΔS	0 ± 1.0	0 ± 1.0
Deviation Across Tape	Δh	0 ± 2.0	0 ± 2.0
Carrier Tape Width	W	18.0+1.0/-0.5	18.0+1.0/-0.5
Hold Down Tape Width	W0	5.0 min	5.0 min
Position of Sprocket Hole	W1	9.0 ± 0.5	9.0 ± 0.5
Hold Down Tape Position	W2	3.0 max	3.0 max
Height of Component from Hole Center	H	20.0 ± 1.5	20.0 ± 1.5
Lead-Wire Clinch Height	H0	16.0 ± 0.5	16.0 ± 0.5
Component Height	H1	32.25 max	/
Length of Snipped Lead	L	11.0 max	11.0 max
Diameter of Sprocket Hole	D0	4.0 ± 0.2	4.0 ± 0.2
Total Tape Thickness	t1	0.7 ± 0.2	0.7 ± 0.2
Total Thickness, Tape and Lead Wire	t2	1.5 max	1.7 max
Length of snipped Lead	Lx	1.0 max	1.0 max
Coating on lead	C	3.0 max	3.0 max
Height of Kink	A	5.0 max	5.0 max

Item	Code	Taping Specification	
		Type 2	Type 3
Body Diameter	D	20.0 max	20.0 max
Body Thickness	T	8.0 max	8.0 max
Lead Diameter	Φd	0.65 ± 0.1	0.65 ± 0.1
Pitch of Sprocket Hole	P0	15.0 ± 0.3	12.7 ± 0.3
Pitch of Component	P	30.0 ± 1.0	25.4 ± 1.0
Lead Length from Hole Center Lead	P1	3.75 ± 1.0	7.7 ± 1.0
Lead Length from Hole Center Lead to component Center	P2	7.5 ± 1.5	12.7 ± 1.5
Lead Spacing	F	7.5 ± 1.0	10.0 ± 1.0
Deviation Along Tape, Left or Right	ΔS	0 ± 1.0	0 ± 1.0
Deviation Across Tape	Δh	0 ± 2.0	0 ± 2.0
Carrier Tape Width	W	18.0+1.0/-0.5	18.0+1.0/-0.5
Hold Down Tape Width	W0	5.0 min	9.0 min
Position of Sprocket Hole	W1	9.0 ± 0.5	9.0 ± 0.5
Hold Down Tape Position	W2	3.0 max	3.0 max
Height of Component from Hole Center	H	20.0 ± 1.5	20.0 ± 1.5
Lead-Wire Clinch Height	H0	16.0 ± 0.5	16.0 ± 0.5
Component Height	H1	/	/
Length of Snipped Lead	L	11.0 max	11.0 max
Diameter of Sprocket Hole	D0	4.0 ± 0.2	4.0 ± 0.2
Total Tape Thickness	t1	0.7 ± 0.2	0.7 ± 0.2
Total Thickness, Tape and Lead Wire	t2	1.7 max	1.7 max
Length of snipped Lead	Lx	1.0 max	1.0 max
Coating on lead	C	3.0 max	3.0 max
Height of Kink	A	5.0 max	5.0 max