15

How To Order

J 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

SERIES
1-AC Y1
2-AC Y2
3-CLASS I
4-CLASSII
5-CLASSIII

CAPACITANCE
0R5~0.5PF
010~1PF
100~10PF
101~100PF
102~1000PF
102~1nF
102~0.001 μF
103~10000PF
103~10nF
103~0.01 μF
104~100 n F
105~1 μF
106~10 μF

TOLERANCE
C=±0.25PF
D=±0.5PF
G=±2%
J=±5%
K=10%
M=±20%
Z=+80-20%

WORKING VOLTAGE
1C~16VDC
1E~25VDC
1H~50VDC
1J~63VDC
2A~100VDC
2E~250VDC
2G~400VDC
2H~500VDC
3A~1000VDC
1KVDC
3D~2000VDC
2KVDC
3E~2500VDC
2.5KVDC
3F~3000VDC
3KVDC
3G~4000VDC
4KVDC
3H~5000VDC
5KVDC
3J~6300VDC
(6000VDC)
6KVDC
3K=8000VDC
8KVDC
4A=10000VDC
10KVDC
4B=12000VDC
12KVDC
4C=15000VDC
15KVDC
4P=18KVDC
4D=20000VDC
20KVDC
4E=25KVDC
4F=30KVDC
4V=35KVDC
4G=40KVDC
4W=45KVDC
4H=50KVDC
4J=63KVDC
4K=80KVDC
5A=100KVDC
5B=125KVDC
5C=160KVDC
5D=200KVDC
5E=250KVDC

FOOT TYPE
A-HIGH SEATED
S-STRAIGHT LEAD
O-OUTWARD KINK
I-INSIDE KINK
ASSEMBLY
F-UP/DOWN KINK
L:AXIAL
(FOR HIGH VOLTAGE)
≥40KVDC

TEMPERATURE CHARACTERISTIC

NPO	NPO	I
N75	N750	I
SLO	SL	I
2SL	2SL	I
X7R	X7R	II
Y5E	Y5E	II
Y5P	Y5P	II III
Y5R	Y5R	II
BNH	BN	II
Y5T	Y5T	II
Y5U	Y5U	II III
Y5V	Y5V	II III
Z5U	Z5U	II
Z5V	Z5V	II

N: RoHS
REACH
Low Halogen

COATING
D:DUREZ
E:EPOXY BLUE
Y:EPOXY YELLOW

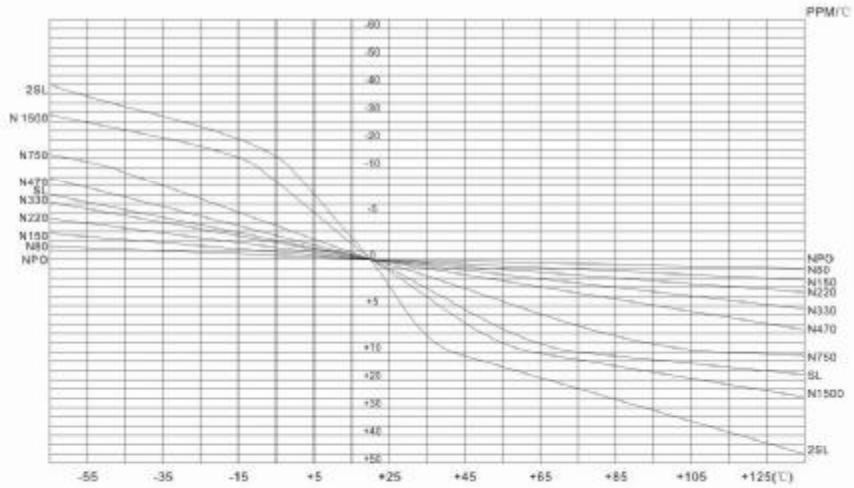
FOOT LENGTH

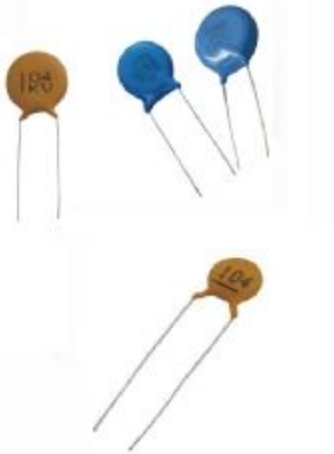
3:3 mm	±1mm
4:4 mm	±1mm
5:5 mm	±1mm
7:7 mm	±1mm
8:8 mm	±1mm
0:10mm	±1mm
M:17mm	±2mm
L:25mm	±2mm
S:35mm	±2mm
X:50mm	±2mm
T:Taping	±2mm

PITCH±0.8mm
3:2.5mm
5:5.0mm
6:6.35mm
7:7.5mm
9:9.5(10) mm
1:12.5mm
4:15mm
2:20mm
H:OTHER(AXIAL OR SPACIAL TYPE)

溫度特性曲綫圖 Capacitance and Temperature Curve

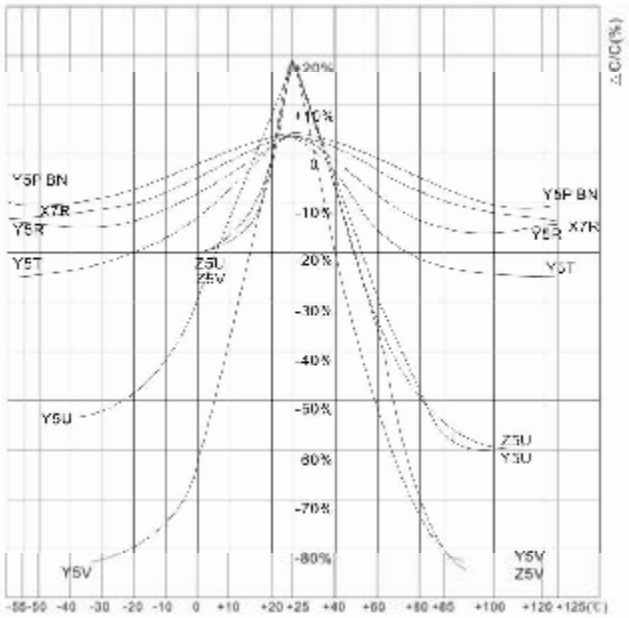
T.C.:Temperature compensating ceramic disc capacitors
溫度補償型陶瓷電容器 (Class Ⅰ)





HIK: High permittivity ceramic disc capacitors 高誘電型陶瓷電容器 (ClassⅡ) .

S.C: Semi-conductive ceramic disc capacitors 半導體型陶瓷電容器 (ClassⅢ) .



Temperature Coeficient:

Code	T.R.	PPM/℃	EIA Code	Code	T.R.	Cap change	EIA Code	Code	T.R.	Cap Change	EIA code
CH	-55℃ ~ 125℃	0±60~500	COH(NPO)	B	-25℃ ~ +125℃	±15%	Y5R	B	-55℃ ~ +125℃	±15%	X7R
UJ	-55℃ ~ 125℃	-750±120	U2J(N750)	B	-25℃ ~ +125℃	±10%	Y5P BN	B	-25℃ ~ +125℃	±22%	Y5T
SL	-55℃ ~ 125℃	+350~ -1000	S2L	E	+10℃ ~ +85℃	+22% ~ -56%	Z5U	E	-25℃ ~ +125℃	+22%~-56%	Y5U
2SL	-55℃ ~ 125℃	+2000~ -5000	2SL	F	+10℃ ~ +85℃	+22% ~ -82%	Z5V	F	-25℃ ~ +85℃	+22%~-82%	Y5V

特　　性
CHARACTERISTICS

項目 ITEM	規格 SPECIFICATION		檢測方法及條件 TEST METHOD AND CONDITION
1. 外觀、尺寸、標誌 Appearance, size and mark	無異常 Normal		依外觀、尺寸及標誌標準，尺寸用游標卡尺檢查、外觀、標誌用目視法檢驗； According to the standard of appearance, size and mark, size measured by vernier, appearance and marks test by visual.
2. 絕緣電阻 Insulation resistance	T.C.	10000MΩMIN	端子間施加額定電壓，500VDC以上，以500VDC測定，測定時間爲60秒以上。 Apply rated voltage. Above 500vdc rated voltage tested by 500vdc. Min.charged 60 seconds.
	HIK	5000MΩMIN	
	半導體(S.C.)	100MΩ MIN	
3. 耐電壓 Voltage proof	無破裂等明顯損壞異狀 No failure		端子間加工作電壓施壓1-5秒，充放電電流爲50mA以下。 電壓測試完後需存放于25℃的環境下，放置96hrs後方能測試其容量。 Applied as following T.V. 1-5s between terminal and less than 50mA current.Capacitor shall be measured capacitance after leaving for 96hrs at 25℃. W.V.<500VDC T.V=200%×W.V W.V.＜1KVDC T.V=150%×W.V W.V＜2KVDC T.V=125%×W.V (FOR DUREZ) (EPOXY IN P9)
4. 靜電電容 Capacitance	在標準允許誤差內 Within the specified tolerance		使用頻率(Test frequency): T.C.:＜1000PF 1MHz >1000PF 1KHz HIK、半導體類（S.C.) 1KHz 使用電壓(Test voltage): T.C.HIK. 1.0±0.2Vrms S.C. 0.1Vrms 使用溫度(Temperature):25℃ ±2℃
5. Q值和散逸因素 Q AND DF	T.C.: ① C<30PF: Q>400+20xC ② C>30PF: Q>1000		測定條件同靜電容量之規定。 same condition as the capacitance
	HIK: ①Y5E、Y5P、Z5U、Y5U、X7R: DF<2.5% ②Z5V、Y5V: DF<5% ③BN、Y5T: DF<0.5%, Y5R: DF<0.2%(Low Loss, Non RoHs)		
	半導體類(S.C.): ①Y5P、Y5U: DF<5% ②Y5V、DF:<7%		
6. 溫度特性 Temperature characteristic (T.C.)	T.C.: C≤4PF TC±250PPM/℃ C≤9.9PF TC±120PPM/℃ C≥10PF TC±60PPM/℃ SL TC P350-N1000		試驗步驟見下表： Test temperature Step / Temp / Temp / Cap 1 / 25±2℃ / T1 / C1 2 / The low temp / T2 / C2 3 / 25±2℃ / T1 / C1 4 / The high temp / T2 / C2 5 / 25±2℃ / /
	HIK、S.C.: Y5E: ±4.7% Y5P、BN: ±10% X7R、Y5R: ±15% Y5T: ±22% Y5U、Z5U: +22%-56% Y5V、Z5V: +22%-82%		溫度特性容量變化率的計算公式見下表 T.C.calculated by under formula ① T.C.:(PPM) $T.C.=\frac{C2-C1}{C1(T2-T1)}\times10^6$ ② HIK、S.C: $T.C.=\frac{C2-C1}{C1}\times100\%$
7. 焊錫附著性及焊錫耐熱性 Resistance to solder heat and Solder ability of leads	外觀 Appearance	引綫周圍至少75%的面積均勻附錫，且本體無破裂等損壞現象。 Lead wire shall be soldered with uniformly coated on the axial direction over 75% of the circumferential direction, and no defect.	

CERAMIC DISC CAPACITORS CHARACTERISTICS

項目 ITEM	規格 SPECIFICATION		檢測方法及條件 TEST METHOD AND CONDITION
7. 焊錫附著性及焊錫耐熱性 Resistance to solder heat and Solder ability of leads	靜電容量變化率 Capacitance Change	T.C.:±5% or ±0.5PF	將元件端子線浸入260℃±5℃的溶錫內，端子線浸至離本體邊緣2.0-3.0mm處，并保持3+1/-0秒。試驗前，將元件放置85+3/-0℃中預熱，5分鐘後再進行焊錫試驗；試驗後，元件須放置室溫中24小時後方可進行電氣特性的測試。 The lead wire shall be immersed into the melted solder of 260℃±5℃ up to about 2.0 to 3.0 mm from the main body for 3+1/-1 seconds.. Capacitor shall be measured after leaving for 24 hours at room temperature.
		HIK、S.C.: Y5E、Y5P、BN:±10% X7R、Y5R:±15% Y5T、Y5U、Z5U:±20% Z5V、Y5V:±30%	
	Q OR DF	T.C.: ①C<30PF: Q≥400+20xC ②C≥30PF: Q≥1000	
		HIK: ①Y5E、Y5P、X7R、Z5U、Y5U: DF≤2.5% ②Z5V、Y5V: DF≤5% ③BN、Y5T: DF<0.5%, Y5R: DF<0.2%	
		S.C.: ①Y5P、Y5U: DF≤5% ②Y5V: Df≤7%	
	絕緣電阻 Insulation Resistance	T.C.:10000M Ω min HIK: 5000M Ω min S.C.: 100M Ω min	
8. 溫度循環 Temp. Cycle	外觀 Appearance	無缺陷 No marked defect	將電容器進行如下五個溫度循環試驗： Capacitor shall be subjected to five cycles of the temperature cycle as follwing: Step / Temp.(℃) / Time 1 / Min rated temp(+0-3) / 30min 2 / 25 / 30min 3 / Max rated temp(+0-3) / 30min 4 / 25 / 30min 放置室溫下一段時間再測量其電氣特性： Measure at room temperature after cooling for: T.C.:24Hr HIK、S.C.:48Hr
	靜電容量 Capacitance	T.C.:±5% or ±0.5PF max. HIK、(S.C.): Y5E、Y5P、BN:±10%; X7R、Y5R:±15%; Y5T、Y5U、Z5U:±20%; Z5V、Y5V:±30%。	
	Q OR DF	T.C.: C<30PF: Q≥400+20xC C≥30PF: Q≥1000 HIK Y5E、Y5P、X7R、Y5U、Z5U DF≤5% Y5V、Z5V DF≤7.5% BN、Y5T DF≤1% Y5R DF≤0.5% S.C. Y5P、Y5U DF≤7.5% Y5V DF≤10%	
	絕緣電阻 Insulation Resistance	與初始規格值一致 To satisfy the specified initial value.	
9. 耐濕負荷 Humidity loading	外觀 Appearance	無顯著之異常現象 No marked defect	在溫度40（±2℃）、相對濕度95%的狀態下，連續施加直流額定電壓（充放電電流爲50mA以下）500（+24-0）小時； 試驗後置于室溫中： T.C.類規格需放置24小時以上方可測定其電氣特性； HIK、半導體類規格需放置48小時以上方可測定其電氣特性。 Apply rated voltage for 500(+24-0)hours at 40(±2℃) in 95% RH Charge and discharge current 50mA max. Leave the capacitors in ambient condition for over the following time. Measurement T.C.:24Hrs HIK、S.C.:48Hrs
	靜電容量變化率 Capacitance Change	T.C.:±7.5% or ±0.75PF max.	
		HIK、半導體類 (S.C.): Y5E、Y5P、BN: ±15% X7R、Y5R: ±20% Y5T、Y5U、Z5U: ±25% Z5V、Y5V: ±35%	
	Q OR DF	T.C.: ①C<10PF: Q≥200+10×C ②10PF≤C<30PF: Q≥275+2.5×C ③C≥30PF: Q≥350	
		HIK: Y5E、Y5P、X7R、Y5U、Z5U DF≤5% Y5V、Z5V DF≤7.5% BN、Y5T DF≤1% Y5R DF≤0.5%	
		半導體類(S.C.): Y5P、Y5U DF≤7.5% Y5V Df≤10%	
	絕緣電阻 Insulation resistance	500M Ω min.or 25M Ω XUF min.	

CERAMIC DISC CAPACITORS CHARACTERISTICS

項目 ITEM	規格 SPECIFICATION		檢測方法及條件 TEST METHOD AND CONDITION
10. 高溫負荷 (壽命試驗) High temperature Loading (Loading life)	外觀 Appearance	無顯著之異常。 No marked defect.	<500VDC在試驗溫度下連續施加2倍W.V.≥500VDC,在試驗溫度下連續施加1倍W.V.(充放電電流50mA以下)1000(+48-0)小時 <500VDC apply 2 times rated voltage,≥500VDC apply 1 times rated voltage,at maximum operating temperature for 1000(+48-0)hours
	靜電容量變化率 Capacitance change	T.C.: ±7.5% or ±0.75PF; HIK、半導體類(S.C.): Y5E、Y5P、BN:±10%; X7R、Y5R:±15%; Y5T、Y5U、Z5U:±20%; Z5V、Y5V:±30%。	Test temp.: T.C.、Y5E、Y5P、BN、Y5R、Y5T、Y5U、Z5U、Y5V、Z5V: 85℃ ±5℃ NPO N750、X7R: 125℃ ±5℃ Change or discharge current shall not exceed 50mA..
	Q or DF	T.C. C<30PF: Q≥200+10xC C≥30PF: Q≥500 HIK. Y5E、Y5P、X7R、Y5U、Z5U DF≤5% Y5V、Z5V DF≤7.5% BN、Y5T DF≤1% Y5R DF≤0.5% 半導體(S.C.): Y5P、Y5U DF≤7.5% Y5V Df≤10%	試驗後：取出於室溫中，T.C.類需放置24小時以上方可測定；HIK、半導體類需放置48小時以上方可測定。 Capacitor shall be measured after leaving at room temperature T.C.:24Hr HIK、S.C.:48Hr
	絕緣電阻 Insulation resistance	T.C.:1000MΩ min HIK:500MΩ min S.C.:25MΩ x UF min	
11. 端子強度 Strength of lead	抗拉強度 Pull	導綫不斷裂，電容器本體不破損。 Lead wire shall not cut off and capacitor shall not be broken.	垂直固定被測物本體，引線向下，負荷施力方向爲端線引出方向，施加負荷爲1.0kg，時間爲5秒 As a figure fix the body of capacitor, apply a tensile weight gradually to each lead in the radial direction of capacitor up to 1.0kg,and keep it for 5 secretary..
	彎曲強度 Bending		固定被測物，施加0.5kg於端子引綫臂并彎曲90°，回復原來之位置，并反向彎曲90°，1次彎曲時間爲5秒。 Each lead wire shall be subjected to 0.5kg weight and then a 90° bent, in one direction, return to original position and then a 90° bent in the opposite direction at the rate of onebent in 5 seconds..
11. 儲存 Storage	必須存放于室溫5-35℃中且濕度≤75%的室內，在此儲存條件下可保證3年的壽命。 Store all capacitors indoors at temperature of 5-35℃, humidity≤75%. They are warranted for a period of 3 years from the date of manufacture.		

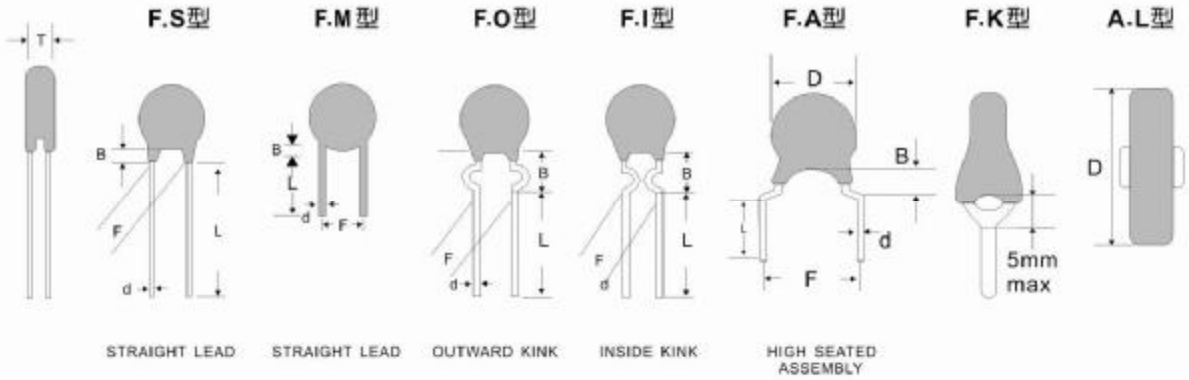
CAPACITANCE SIZE VOLTAGE TOLERANCE & LEAD SPACE(FOR DUREZ)

WV	CLASS I		CLASS II			
	NPO	SL/2SL	X7R	Y5P(Y5E)	Y5U	Y5V/Z5V
25V (1E)	0.5~50PF 51~121 151~221 241~391	24~181PF 201~331 361~681 821~102	821~152 182~472 502~882 103	201~222 242~472 472~103	202~682 822~103	222~103 103~223
50V (1H)	0.5~50 51~121 151~221 241~391	24~181 201~331 361~681 821~102	821~152 182~472 502~822 103	201~222 242~472 472~103	202~682 822~103	222~103 103~223
100V (2A)	0.5~50 51~121 151~221 241~391	24~181 201~331 361~681 821~102	827~152 182~472 502~822 103	201~222 242~472 472~103	202~682 822~103	222~103 103~223
250V (2E)	0.5~50 51~121 151~221 241~391	24~181 201~331 361~681 821~102	821~152 182~472 502~822 103	201~222 242~472 472~103	202~682 822~103	222~103 103~223 333 473 104
500V (2H)	0.5~50 51~121 151~221 241~391	24~181 201~331 361~681 821~102	471~102 122~222 242~472 502~682 822 103	151~122 152~272 302~472 502~682 822~103	102~222 332~682 682~103 103	102~332 362~682 682~103 103~223 473~683 104
1KV (3A)	0.5~50 51~121 151~221 241~391	20~101 101~181 201~271 301~391 471~561 681 821~102	331~102 122~202 222~392 472~562 682 822 103	101~102 102~222 222~332 362~472 502~682 822 103	821~222 222~472 472~682 822~103	152~332 332~682 822~103

WV	CLASSIII			D (MAX)	T (MAX)	P (±0.8)	D (±0.1)
	S.C.Y5P	S.C.Y5U	S.C.Y5V				
25V (1E)	472~223 333~473 563~683 104	153~473 683~104 104~224	103~473 183~154 104~224	6 8 10 12	3 3 3 3	2.5/5.0 2.5/5.0 5.0/7.5/10 5.0/7.5/10	0.45 0.45 0.45 0.45
50V (1H)	472~223 333~473 563~683 104	153~473 683~104 104~224	103~473 503~104 104~224	6 8 10 12	3 3 3 3	2.5/5.0 2.5/5.0 5.0/7.5/10 5.0/7.5/10	0.45 0.45 0.45 0.45
100V (2A)	472~223 333~473 563~683 104	153~473 683~104 104~154 154~224	103~473 503~104 104~224 204~224	6 8 10 12	3 3 3 3	2.5/5.0 2.5/5.0 5.0/7.5/10 5.0/7.5/10	0.45 0.45 0.45 0.45
250V (2E)		153~333 473~104	103~473 503~104 104~224	6 8 10 12 14 16	3 3 3 3 3 3	2.5/5.0 2.5/5.0 5.0/7.5/10 5.0/7.5/10 7.5/10 7.5/10	0.45 0.45 0.45 0.45 0.5 0.5
500V (2H)				6 8 10 12 14 16	3 3 3 3 3 3	5.0 5.0/7.5 5.0/7.5/10 5.0/7.5/10 7.5/10 7.5/10	0.45 0.45 0.45 0.5 0.5 0.5
1KV (3A)				6 8 10 12 14 16 18	3 3 3 3 3 3 3	5.0 5.0/7.5 5.0/7.5/10 5.0/7.5/10 7.5/10 10 10	0.45 0.45 0.45 0.5 0.5 0.5 0.6

MODEL & SPECIFICATION OF CERAMIC CAPACITORS

陶瓷電容器外形規格

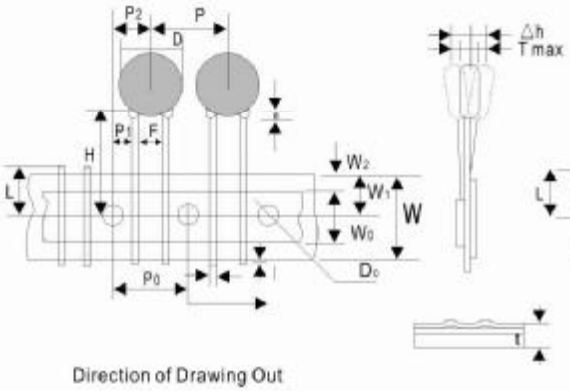


MODEL	Working Voltage	T (mm) (max)	d (mm) ±0.1	L (mm)	F (mm)	B (mm) (max)
F S	12~25 50~100 500 1KV~3KV 3KV~UP	3 3 3 5 20	0.45~1.0	3~50	$2.5^{+1}_{-0.5}$/5.0±0.8 $2.5^{+1}_{-0.5}$/5.0±0.8 5.0±0.8 5.0/6.35/7.5±0.8 7.5/10/12.5/15/20±1	2 2 3 3 3
F A	12~25 50~100 500 1KV~3KV 3KV~20KV	3 3 3 5 10	0.45~1.0	3~50	$2.5^{+1}_{-0.5}$/5.0±0.8 $2.5^{+1}_{-0.5}$/5.0±0.8 5.0±0.8 5.0/6.35/7.5±0.8 10±1	2 2 3 3 3 3
F O	12~25 50~100 500 1KV~3KV 3KV~20KV	3 3 3 5 10	0.45~0.8	3~50	5.0±0.8 5.0±0.8 5.0±0.8 5.0/6.35/7.5±0.8 5/7.5/10±1	5 5 5 5 5
F I	12~25 50~100 500 1KV~3KV 3KV~6.3KV	3 3 3 5 8	0.45~0.8	3~50	5.0±0.8 5.0±0.8 5.0±0.8 5.0/6.35/7.5±0.8 7.5/10±1	5 5 5 5 5
F K	1KV~3KV 3KV~30KV	5 13	0.45~0.8	3~50	5.0/6.35/7.5±0.8 5/7.5/10±1	5 5
AL	10KV~250KV	40				

CLASS 1,2,3/TAPING SPECIFICATIONS

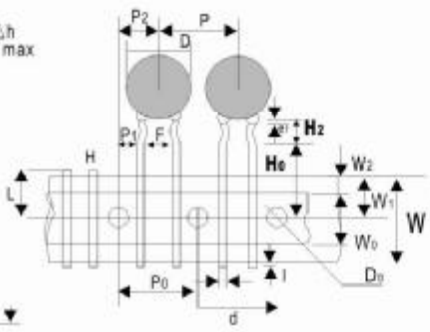
Taping(Radial)

Type A



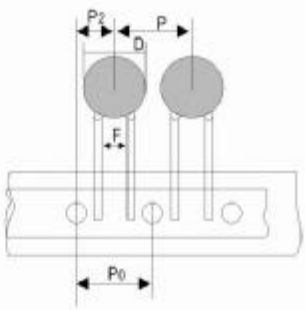
Direction of Drawing Out

Type B



Direction of Drawing Out

Type C



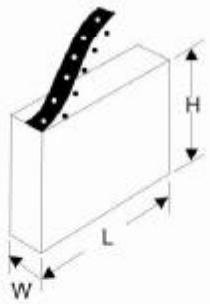
Same TypeA

Direction of Drawing Out

(Unit:mm)

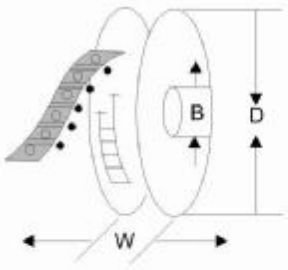
Item		Code	Dimensions(mm)	Item	Code	Dimensions(mm)
Taping Pitch		P	12.7±1.0/25.4±1.0	Lead Protrusion	l	+0.5~1.0
Guide Pitch		P_0	12.7±1.0/25.4±1.0	Diameter of Feed Hole	D_0	4.0±0.3
Lead Spacing		F	2.5/5.0/6.35/7.5/ 10/12.5/15±0.8	Diameter of Lead	d	0.50~0.8±0.1
Feed Hold Position Capacitor Body		P_2	6.35±1.3 for F=5.25	Total Thickness of Tape	t	0.7±0.3
Feed Hold Position Capacitor Lead		P_1	3.85±0.7 for F=5.25	Thickness of Capacitor Body	T	<7
Diameter of Disc		D	See table of each series	Alignment to ER Direction	△h	T±2.0
				Length of Snipped Lead	L	$11.0^{+0}_{-0.1}$
Width of Base Tape		W	18.0±0.5	Width of Hold-down Tape	W_0	6.0~15
Feed Hole Vertiacl Position		W_1	$9.10^{+0.75}_{-0.5}$	Hold-down Tape Position	W_2	1.5±1.5
Taping Height	For Crimp	H	18±2	Coating Extention	e	1.5
	For Straight	H_0	16.0±1.0	Coating Extention	e1	Up to center of crim:

AMMO PACK



- H=241±5mm
- L=332±5mm
- W=42±3mm

REEL



- D≤354(13.93)
- B≤21(.83″) or ≤30(1.18″)
- W≤65(2.56)