



成功工業(惠州)有限公司

SUCCESS ELECTRONICS CO., LTD.

直流高壓型陶瓷電容器

Class I or Class II High Rated Voltage for Epoxy Resin Coating

FILE NO.

QC-T4-05

Ver:

1.0

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產品承認書

SPECIFICATION FOR APPROVAL

客戶名稱 CUSTOMER	_____
客戶料號 PART NO	_____
規格描述 DESCRIPTION	Class I or Class II High Rated Voltage for Epoxy Resin Coating
成功料號 SUCCESS P/N	See page 5~7
日期 DATE	2018/5/23

★ 符合 RoHS&HF 及其他環保要求；金屬鍍層不含六價鉻
RoHS &HF & Requirements of Environmental; prohibit containing Cr⁺⁶ in the plating with metal



Success Electronics Co., Ltd		
Made By	Checked By	Approval By
吳裕武	楊豪	楊豪

Customer Approval		
Prepared By	Checked By	Approval By



成功工業（惠州）有限公司

SUCCESS ELECTRONICS (HUIZHOU) CO., LTD.

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COMPONENT SPEC VERSION RECORD

VER	MINUTE OF CHANGES	SEC CHECK	RELEASE DATE
1.0	CHECKED AND RELEASED	祁能	2016/08/09



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直流高壓型陶瓷電容器
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一、品名說明 (Part No. Explain)

品名(Part No.):

8 Y 5 P 1 0 2 K 1 0 2 A 5 4 E

說明(Explain No.):

1 2 3 4 5 6 7 8 9

說明 1 (Explain No. 1): 種類 (Type)

No.	電容種類	Capacitor Type
8	直流高壓環氧包封型	Class I or Class II High Rated Voltage for Epoxy Resin Coating

說明 2 (Explain No. 2): 溫度特性 (Temperature Characteristic) 依 EIA 標準

溫度特性代碼 (TC Code)	Y5P	Y5U	Z5U	Z5V	Y5V	X7R	SL	NPO
下限溫度類別 (Low Temp.)	-30°C	-30°C	+10°C	+10°C	-30°C	-55°C	+20°C	+20°C
上限溫度類別 (High Temp.)	+85°C	+85°C	+85°C	+85°C	+85°C	+125°C	+85°C	+85°C
容量變化率 (Cap. Change)	±10%	+22%~-56%	+22%~-82%	±15%	+350~-1000PPM/°C	±60PPM/°C		

說明 3 (Explain No. 3): 靜電容量 (Nominal Capacitance)

標示 (Code)	100	101	472	333
靜電容量 (Nominal Cap.)	10PF	100PF	4700pF	33000PF

說明 4 (Explain No. 4): 靜電容量許容差 (Nominal Capacitance Tolerance)

標示 (Code)	C	D	J	K	M	Z
許容差 (Tolerance)	±0.25PF	±0.5PF	±5%	±10%	±20%	+80%~-20%

說明 5 (Explain No. 5): 額定電壓 (Rated Voltage)

標示 (Code)	102	202	302
額定電壓 (Rated Voltage)	1KV	2KV	3KV

說明 6 (Explain No. 6): 引線形狀及包裝方式 (Lead Style and Packing)

代碼說明(Code configuration)	散裝(Bulk)	盒裝編帶(Ammo)		軸裝編帶(Reel)	
編帶孔對孔距離 (P0)	/	P0=12.7mm	P0=15.0mm	P0=12.7mm	P0=15.0mm
直腳長腳(Straight long)	A	S	T	L	V
直線短腳(Straight short)	H	/	/	/	/
一字形腳(Vertical crimped)	E	M	R	P	W
外彎長腳(Outside crimped long)	J	N	B	Q	/
外彎短腳(Outside crimped short)	D	/	/	/	/
內彎短腳(Inside crimped short)	C	/	/	/	/
內彎長腳(Inside crimped long)	I	K	U	X	Y

說明 7 (Explain No. 7): 引線間距 (Lead spacing)

5	引線間距為 5.0mm (Lead spacing for 5.0 mm)
6	引線間距為 6.35mm (Lead spacing for 6.35 mm)
7	引線間距為 7.5mm (Lead spacing for 7.5 mm)
9	引線間距為 10.0mm (Lead spacing for 10.0 mm)

說明 8 (Explain No. 8): 引線直徑 (Wire Diameter)

4	引線直徑為 0.50mm (Wire Diameter for 0.50mm)
6	引線直徑為 0.60mm (Wire Diameter for 0.60mm)
8	引線直徑為 0.80mm (Wire Diameter for 0.80mm)

說明 9 (Explain No. 9):

E	無鉛無鹵產品(RoHS+HF)
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二、常用料號一覽表 (Material number list)

2.1 NPO 系列 (NPO TYPE)

R.V C(pF)	DC1KV (unit:mm)				DC2KV (unit:mm)				DC3KV (unit:mm)			
	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05
0.5	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
1	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
5	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
10	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
12	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
15	7.0	4.0	5.0	0.50	7.5	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
18	7.0	4.0	5.0	0.50	7.5	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
20	7.0	4.0	5.0	0.50	7.5	5.0	5.0/7.5	0.60	8.0	5.5	7.5	0.60
22	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.0	5.5	7.5	0.60

2.2 SL 系列 (SL TYPE)

R.V C(pF)	DC1KV (unit:mm)				DC2KV (unit:mm)				DC3KV (unit:mm)			
	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05
10	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
15	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
18	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
20	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
22	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	7.5	5.5	7.5	0.60
27	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.0	5.5	7.5	0.60
30	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.0	5.5	7.5	0.60
33	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.0	5.5	7.5	0.60
47	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.0	5.5	7.5	0.60
50	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.5	5.5	7.5	0.60
56	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.5	5.5	7.5	0.60
68	7.5	4.5	5.0	0.50	9.0	5.0	5.0/7.5	0.60	8.5	5.5	7.5	0.60
82	7.5	4.5	5.0	0.50	9.0	5.0	5.0/7.5	0.60	9.5	5.5	7.5	0.60
100	7.5	4.5	5.0	0.50	9.0	5.0	5.0/7.5	0.60	/	/	/	/
120	9.0	4.5	5.0	0.50	10.0	5.0	5.0/7.5	0.60	/	/	/	/
150	9.0	4.5	5.0	0.50	10.0	5.0	5.0/7.5	0.60	/	/	/	/
220	10.0	4.5	5.0	0.50	13.0	5.0	5.0/7.5	0.60	/	/	/	/

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2.3 Y5P 系列 (Y5P TYPE)

R.V C(pF)	DC1KV (unit:mm)				DC2KV (unit:mm)				DC3KV (unit:mm)			
	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05
100	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
150	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
200	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
220	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
250	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
270	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
300	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
330	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
390	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
470	7.5	4.0	5.0	0.50	7.5	5.0	5.0/7.5	0.60	7.5	5.0	7.5	0.60
560	8.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.0	5.0	7.5	0.60
680	8.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.5	5.0	7.5	0.60
750	8.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	9.5	5.0	7.5	0.60
820	8.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	9.5	5.0	7.5	0.60
1000	8.0	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	9.5	5.0	7.5	0.60
1200	9.0	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	10.0	5.0	7.5	0.60
1500	10.0	4.0	5.0	0.50	10.0	5.0	5.0/7.5	0.60	11.0	5.0	7.5	0.60
1800	10.0	4.0	5.0	0.50	11.0	5.0	5.0/7.5	0.60	12.0	5.0	7.5	0.60
2000	10.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	14.0	5.0	7.5	0.60
2200	11.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	14.0	5.0	7.5	0.60
3300	12.0	4.0	5.0	0.50	14.0	5.0	5.0/7.5	0.60	16.0	5.0	7.5	0.60
3900	12.0	4.0	5.0	0.50	16.0	5.0	5.0/7.5	0.60	19.0	5.0	7.5	0.60
4700	13.0	4.0	5.0	0.50	16.0	5.0	5.0/7.5	0.60	19.0	5.0	7.5	0.60

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2.4 Y5U&Z5U 系列 (Y5U&Z5U TYPE)

R.V C(pF)	DC1KV (unit:mm)				DC2KV (unit:mm)				DC3KV (unit:mm)			
	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05
1000	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	8.0	5.0	7.5	0.60
1200	7.0	4.0	5.0	0.50	7.5	5.0	5.0/7.5	0.60	8.5	5.0	7.5	0.60
1500	7.5	4.0	5.0	0.50	7.5	5.0	5.0/7.5	0.60	8.5	5.0	7.5	0.60
1800	7.5	4.0	5.0	0.50	7.5	5.0	5.0/7.5	0.60	8.5	5.0	7.5	0.60
2000	7.5	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	11.0	5.0	7.5	0.60
2200	7.5	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	11.0	5.0	7.5	0.60
2500	8.5	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	11.0	5.0	7.5	0.60
2700	8.5	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	11.0	5.0	7.5	0.60
3000	8.5	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	11.0	5.0	7.5	0.60
3300	8.5	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	11.0	5.0	7.5	0.60
3900	9.0	4.0	5.0	0.50	10.0	5.0	5.0/7.5	0.60	13.0	5.0	7.5	0.60
4700	9.5	4.0	5.0	0.50	10.0	5.0	5.0/7.5	0.60	13.0	5.0	7.5	0.60
5000	10.0	4.0	5.0	0.50	11.0	5.0	5.0/7.5	0.60	13.0	5.0	7.5	0.60
5600	10.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	14.0	5.0	7.5	0.60
6800	11.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	14.0	5.0	7.5	0.60
7500	12.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	16.0	5.0	7.5	0.60
8200	12.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	16.0	5.0	7.5	0.60
10000	12.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	16.0	5.0	7.5	0.60

2.5 Y5V&Z5V 系列 (Y5V&Z5V TYPE)

R.V C(pF)	DC1KV (unit:mm)				DC2KV (unit:mm)				DC3KV (unit:mm)			
	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05	Dia. (Max)	T (Max)	F ±1.0	d ±0.05
1000	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
1200	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
1500	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
1800	7.0	4.0	5.0	0.50	7.0	5.0	5.0/7.5	0.60	7.0	5.0	7.5	0.60
2000	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.5	5.0	7.5	0.60
2200	7.0	4.0	5.0	0.50	8.0	5.0	5.0/7.5	0.60	8.5	5.0	7.5	0.60
2500	7.5	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	9.5	5.0	7.5	0.60
2700	7.5	4.0	5.0	0.50	9.0	5.0	5.0/7.5	0.60	9.5	5.0	7.5	0.60
3000	7.5	4.0	5.0	0.50	10.0	5.0	5.0/7.5	0.60	9.5	5.0	7.5	0.60
3300	9.0	4.0	5.0	0.50	10.0	5.0	5.0/7.5	0.60	10.5	5.0	7.5	0.60
3900	9.0	4.0	5.0	0.50	10.0	5.0	5.0/7.5	0.60	10.5	5.0	7.5	0.60
4700	9.5	4.0	5.0	0.50	10.0	5.0	5.0/7.5	0.60	10.5	5.0	7.5	0.60
5000	9.5	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	13.5	5.0	7.5	0.60
5600	10.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	13.5	5.0	7.5	0.60
6800	11.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	13.5	5.0	7.5	0.60
7500	11.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	16.0	5.0	7.5	0.60
8200	11.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	16.0	5.0	7.5	0.60
10000	11.0	4.0	5.0	0.50	12.0	5.0	5.0/7.5	0.60	16.0	5.0	7.5	0.60

2.7 Note: Lead spacing can be adjusted according to customer demand



二、線型尺寸 (Figures & Dimension)

2.1 散裝線型(Bulk pack lead style)

<p>A→直腳長腳(Straight long)</p>	<p>H→直線短腳(Straight short)</p>	<p>D See page 5~7</p> <p>T See page 5~7</p> <p>F See page 5~7</p> <p>d See page 5~7</p> <p>H D+P</p> <p>P 3.0mm max</p> <p>L Straight long: 20mm min Straight short: 3.5±0.5mm or The customer request</p>
<p>J→外彎長腳(Outside crimped long)</p>	<p>D→外彎短腳(Outside crimped short)</p>	<p>D See page 5~7</p> <p>T See page 5~7</p> <p>F See page 5~7</p> <p>d See page 5~7</p> <p>P Not exceed the kink leads for kink lead</p> <p>H2 4.8mm max</p> <p>L Outside crimped long: 18mm min short: 3.5±0.5mm or The customer request</p>
<p>I→內彎長腳(Inside crimped long)</p>	<p>C→內彎短腳(Inside crimped short)</p>	<p>D See page 5~7</p> <p>T See page 5~7</p> <p>F See page 5~7</p> <p>d See page 5~7</p> <p>P Not exceed the kink leads for kink lead</p> <p>H2 4.8mm max</p> <p>L long: 18mm min short: 3.5±0.5mm or The customer request</p>
<p>E→一字形腳(Vertical crimped)</p>		<p>D See page 5~7</p> <p>T See page 5~7</p> <p>F See page 5~7</p> <p>d See page 5~7</p> <p>P Not exceed the kink leads for kink lead</p> <p>H2 4.8mm max</p> <p>L long: 18mm min short: 3.5±0.5mm or The customer request</p>



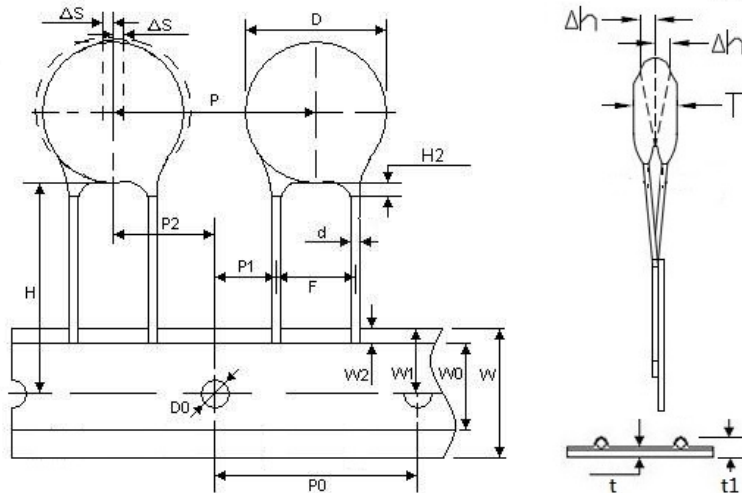
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2.2 編帶規格 (Taping Specifications :)

2.2.1 直線型(Straight)



單位(unit): mm

位置代字 (Symbol)	標示位置 (Item)	Dimensions(mm)			
		PO=12.7 (code: S)		PO=15.0 (code: T)	
F	引線間距 Lead to lead distance	5.0±1	7.5±1	5.0±1	7.5±1
P	零件中心距 Pitch of component	12.7±1.0		15±1.0	
P0	定位孔中心距 Feed hole pitch	12.7±0.3		15±0.3	
P1	孔中心到引線長度 Feed hole center to lead center	3.85±0.7	2.6±0.7	5±0.7	3.75±0.7
P2	孔中心到零件中心長度 Feed hole center to body center	6.35±1.3		7.5±1.3	
Δs	零件本體左右偏移 Component alignment R-L	0±2			
Δh	零件前后偏移 Component alignment F-R	0±2			
W	紙帶寬度 Tape width	18.0±1.0			
W0	固定膠帶寬度 Hold down tape width	7.5min			
W1	定位孔中心距紙帶上沿距離 Hold position	9.0±0.75			
W2	固定膠帶上沿到紙帶上沿距離 Hole down tape position	5.0max			
H	定位孔中心至本體底部距離 Height of component from tape center	20.0 +1.5/-1.0			
H2	塗裝腳長度 Dip Length	3.0max			
D0	定位孔直徑 Feed hole diameter	4.0±0.2			
t	紙帶總厚度 Total tape thickness	0.6±0.3			
d	引線直徑 (Lead diameter)	See page6~8			
D	外徑(Body Diameter)				
T	厚度(Body Thickness)				



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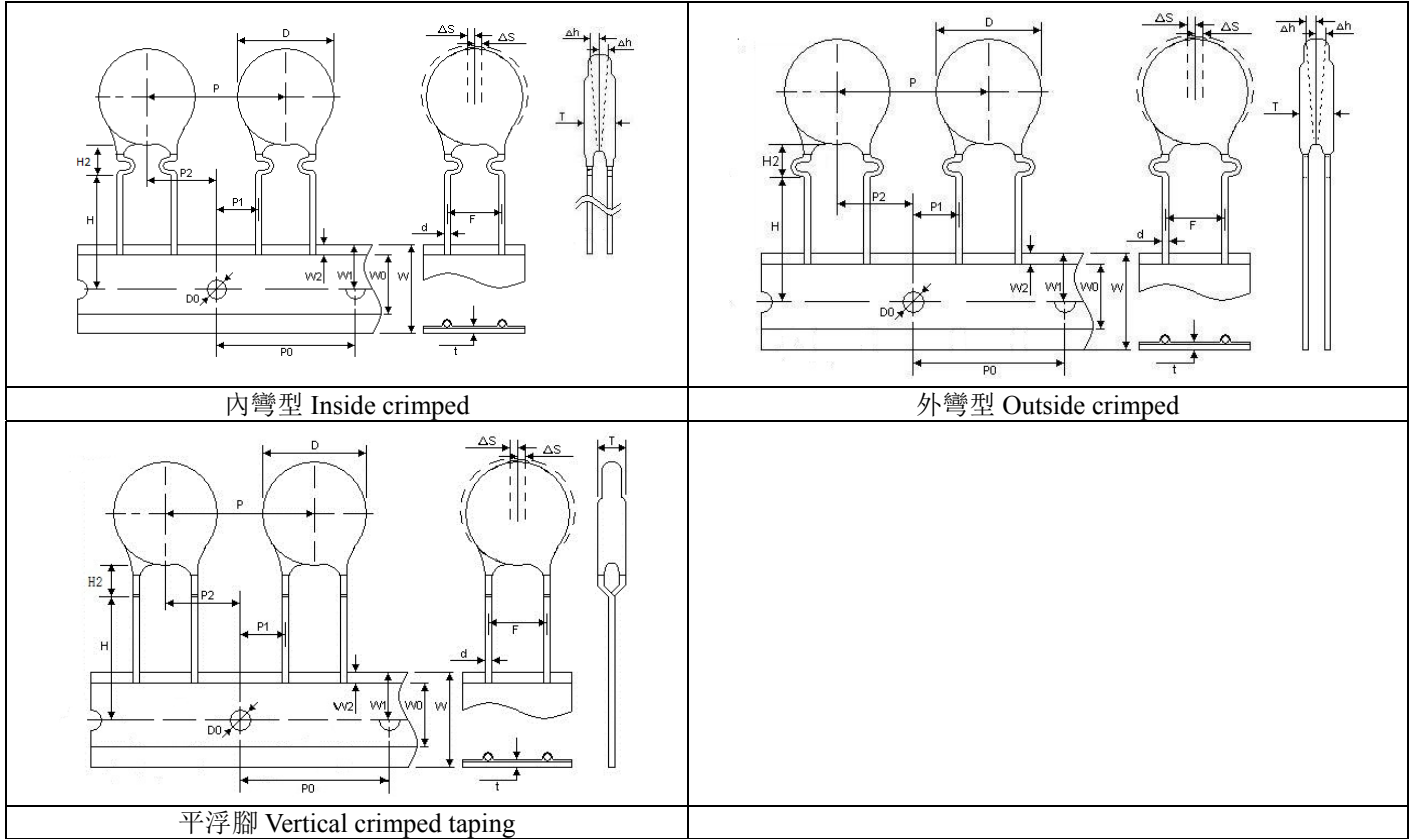
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2.2.2 折彎型 ()



內彎型 Inside crimped

外彎型 Outside crimped

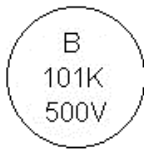



平浮腳 Vertical crimped taping

單位(unit): mm

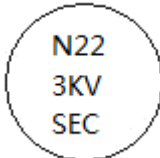
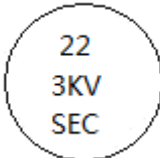
位置代字 (Symbol)	標示位置 (Item)	Dimensions(mm)			
		P0=12.7 (code: N)		P0=15.0 (code: B)	
F	零件之腳距 Lead to lead distance	5.0±1	7.5±1	5.0±1	7.5±1
P	零件間距離 Pitch of component	12.7±1.0		15±1.0	
P0	定位孔距離 Feed hole pitch	12.7±0.3		15±0.3	
P1	定位孔中心與導線中心距離 Feed hole center to lead center	3.85±0.7	2.6±0.7	5±0.7	3.75±0.7
P2	定位孔中心與本體中心之距離 Feed hole center to body center	6.35±1.3	6.35±1.3	7.5±1.3	7.5±1.3
Δs	零件本體左右偏移 Component alignment R-L	0±2			
Δh	零件前後偏移 Component alignment F-R	0±2			
W	紙帶寬度 Tape width	18.0±1.0			
W0	固定膠帶寬度 Hold down tape width	7.5min			
W1	定位孔中心距紙帶上沿距離 Hold position	9.0±0.75			
W2	固定膠帶上沿到紙帶上沿距離 Hole down tape position	5.0max			
H0	定位孔中心至本體底部距離 Height of component from tape center	16±0.5			
H2	導線折彎處到本體底部 Height of kink	4.8 max			
D0	定位孔直徑 Feed hole diameter	4.0±0.2			
t	紙帶總厚度 Total tape thickness	0.6±0.3			
d	引線直徑 (Lead diameter)	See page6~8			
D	外徑(Body Diameter)				
T	厚度(Body Thickness)				

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三、 標印說明 (Marking Explain)

系列(Type)	本體直徑 (Body Diameter)	圖樣(Pattern)	標印內容說明(Content description)
高誘電率型及半 導體型(HI-K TYEP)	≤8mm		第一行: 溫度特性 (TC marking code) 第二行: 標稱電容+許容差(Nominal capacitance + Tolerance) 第三行: 額定電壓 (Rated voltage)
	>8mm		第一行: 溫度特性 (Temperature characteristic) 第二行: 標稱電容+許容差(Nominal capacitance+ Tolerance) 第三行: 額定電壓 (Rated voltage) 第四行: 公司代字 (Trade name)
溫度補償型陶瓷 電容器 (TC TYPE) 額定電壓< DC3KV	≤8mm		第一行: 溫度特性+標稱電容+許容差(Temperature characteristic +Nominal capacitance+ Tolerance) 第二行: 額定電壓 (Rated voltage) (Note: SL TYPE: No marking for TC code)
	>8mm		第一行: 溫度特性+標稱電容+許容差(Temperature characteristic +Nominal capacitance+ Tolerance) 第二行: 額定電壓 (Rated voltage) 第四行: 公司代字 (Trade name) (Note: SL TYPE:No marking for TC code)

備注: 溫度補償型陶瓷電容器額定電壓≥DC3KV時, 都不標示靜電容量允許差, 圖樣如下:

 <p>NPO TYPE:標印材質代碼(marking for TC code)</p>	 <p>SL TYPE:不需標印材質代碼 (No marking for TC code)</p>
---	--

備注 Note :

1. 溫度特性標印方法(Temperature characteristic marking code):

系列 TYPE	溫度補償型(Class I)		高誘電率型&半導體系列(Class II& III)				
溫度特性 Temp. char.	SL	NPO	Y5P	Y5U	Y5V	Z5U	Z5V
標印代碼 Mar. code	NO marking	N	B	Y5U	Y5V	E	F

2. 容量標示方法 (capacitance marking code):

標稱容量值 Capacitance	22PF	47PF	100PF	470PF	1000PF	4700PF	10000PF	100000
標印代碼 Mar. code	22	47	101	471	102	472	103	104

3. 容量允許差表示方法 (capacitance Tolerance marking code):

容量許容差(Tolerance)	±0.25PF	±0.5PF	±5%	±10%	±20%	+80%~-20%
標印代碼 Mar. code	C	D	J	K	M	Z

4. 額定電壓標示方法 (Rated voltage marking code):

額定電壓	DC1000V	DC2000V	DC3000V
標印代碼 Mar. code	1KV	2KV	3KV



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四. 外觀及電氣特性 (Appearance & Electronic Characteristics)

4.1 外觀尺寸檢查 (Appearance and dimension)

元件表面清潔, 無異物附着, 標志清晰, 無可見損傷, 尺寸符合規定要求 (Clean surface, marking shall be legible, no visible damage. Dimension according to ordain requirement)

4.2 靜電容量 (Capacitance)

類別 (Type)	測量頻率 (Frequency)	測量電壓 (Test Voltage)	判定標準 (Standard)
溫度補償型 (Class I T.C Type)	1MHz±20%	1.0±0.2Vrms	在允許的偏差等級範圍內 To be within the specified tolerance.
高誘電率型 (Class II Hi-K Type)	1KHz±20%	1.0±0.2Vrms	

4.3 品質因素或損失角 (Quality Factor or Dissipation Factor)

類別 (Type)	測量頻率 (Frequency)	測量電壓 (Test Voltage)	判定標準 (Standard)
溫度補償型 (Class I T.C Type)	1MHz±20%	1.0±0.2Vrms	<30pF Q ≥ 400+20×C (pF) ≥ 30p Q > 1000
高誘電率型 (Class II Hi-K Type)	1KHz±20%	1.0±0.2Vrms	Z5V Y5V DF ≤ 5.0% Other Char. DF ≤ 2.5%

4.4 絕緣阻抗 (Insulation Resistance)

額定電壓 (Rated Voltage)	測量電壓 (Test Voltage)	測試時間 (Test Time)	充放電流 (charge and discharge current)	判定標準 (Standard)
<500V	T.V=Rate Voltage	60±3s	50mA max	Class I: 10GΩ min. Class II: C<0.02uF 10GΩ min. C ≥ 0.02uF 7.5GΩ min.
≥ 500v	TV=500V			

4.5 耐壓 (Dielectric Withstand Voltage)

類別 (Type)	額定電壓 (Rated Voltage)	測試電壓 (Test Voltage)	測試時間 (Test Time)	充放電流 (charge and discharge current)	判定標準 (Standard)
端子間 (Between Lead Wires)	<1.0KV	2.5×R.V	1~5sec	50mA max	no breakdown
	=1.0KV	2.0×R.V			
	>1.0KV, <3.0KV	1.75×R.V			
端子與外殼間 (Body Insulation)	≥ 3.0KV, <10.0KV	1.5×R.V			
使用金屬小球法, 施加電壓 DC1500V 測試 1-5S, 充放電電流 ≤ 50mA Using metallic small ball method. 1500V DC shall be applied for 1~5 secs. Charge and discharge current shall be limited to 50mA max.					no breakdown

4.6 測試環境 (The test environment)

除非另有說明, 測試應在下列條件下完成 (Unless otherwise specified, test and measurement shall be made at the standard conditions)

溫度 (Temperature)	相對濕度 (Humidity)	標準氣壓 (atmospheric pressure)
15 ~ 35°C	45 ~ 85%	86 ~ 106kPa

當測試結果有爭議時, 仲裁標況為: (If the validity of measurement value determined under the standard condition is questioned or if there occurs a special need of evaluating the test results, capacitors shall be tested and measured at the determinant ambient conditions:

溫度 (Temperature)	相對濕度 (Humidity)	標準氣壓 (atmospheric pressure)
25±1°C	48 ~ 52%	86 ~ 106kPa



五. 信賴性試驗(Reliability Test)

5.1 端子強度 – 抗拉強度(Terminal Strength—Tensile Strength)

測試條件(Test condition)	判定標準(Standard)								
固定待測電容器本體,在引線垂直方向施加標準 (參照下表) 拉力,持續 10+1 秒。 (The detected the capacitor body, applying the standard in the lead in vertical direction (refer to the table below) rally, lasts 10+1 seconds .)	端子無損傷或斷裂。 Termination not to be broken or loosened.								
<table border="1"> <thead> <tr> <th>標稱線徑 Diameter of wire (mm)</th> <th>拉力(kg)</th> </tr> </thead> <tbody> <tr> <td>0.35 < d ≤ 0.50</td> <td>0.50</td> </tr> <tr> <td>0.50 < d ≤ 0.80</td> <td>1.00</td> </tr> <tr> <td>0.80 < d ≤ 1.25</td> <td>2.00</td> </tr> </tbody> </table>	標稱線徑 Diameter of wire (mm)	拉力(kg)	0.35 < d ≤ 0.50	0.50	0.50 < d ≤ 0.80	1.00	0.80 < d ≤ 1.25	2.00	
標稱線徑 Diameter of wire (mm)	拉力(kg)								
0.35 < d ≤ 0.50	0.50								
0.50 < d ≤ 0.80	1.00								
0.80 < d ≤ 1.25	2.00								

5.2 端子強度 – 抗彎折強度(Terminal Strength—Bending Strength)

測試條件(test condition)	判定標準(standard)								
在引線端施加標準之接拉力 (參照下表) ,朝一方向 做 90°角彎折後回到原點,再向另一方向做 90°角 彎折並再折回原點,每個彎折時間約 2~3 秒,共做 兩個循環。 (Applying the standard ground pull in terminal (see table below), back toward a direction 90 ° angle bending, and then to the other direction 90 ° angle bending and then returning to the origin, each bend time of about 2 ~ 3 seconds, make a total of two cycle.)	端子無損傷或斷裂。 Termination not to be broken or loosened.								
<table border="1"> <thead> <tr> <th>標稱線徑 Diameter of wire (mm)</th> <th>拉力 (kg)</th> </tr> </thead> <tbody> <tr> <td>0.35 < d ≤ 0.50</td> <td>0.25</td> </tr> <tr> <td>0.50 < d ≤ 0.80</td> <td>0.50</td> </tr> <tr> <td>0.80 < d ≤ 1.25</td> <td>1.00</td> </tr> </tbody> </table>	標稱線徑 Diameter of wire (mm)	拉力 (kg)	0.35 < d ≤ 0.50	0.25	0.50 < d ≤ 0.80	0.50	0.80 < d ≤ 1.25	1.00	
標稱線徑 Diameter of wire (mm)	拉力 (kg)								
0.35 < d ≤ 0.50	0.25								
0.50 < d ≤ 0.80	0.50								
0.80 < d ≤ 1.25	1.00								

5.3 錫著性(Solder Ability)

測試條件(Test condition)	判定標準(Standard)
錫著溫度(Solder temp):245±5℃ 錫著時間(Solder time):3±0.5s	焊錫覆蓋面積須達 75% 以上。 (Lead wire to be soldered up to the dipped end point, with no gap in the axial direction over 75% of the circumferential direction.)



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5.4 錫耐熱性(Resistance To Soldering Heat)

測試條件(Test condition)	判定標準(Standard)
<p>如圖所示：將引線浸泡在$260\pm 5^{\circ}\text{C}$的焊料中，其深度為距端子根部1.5至2.0mm處；焊錫時間：10 ± 1秒</p> <p>初次測量之前，將電容器存放在$85\pm 2^{\circ}\text{C}$條件下1小時。然後在室內條件下存放24 ± 2小時。</p> <p>後處理：將電容器在室內條件下存放1至2小時。</p> <p>Solder temperature $260\pm 5^{\circ}\text{C}$ The depth of immersion shall be a position 1.5~2.0mm from the seating plane, using a thermal insulation screen of $1.5\pm 0.5\text{mm}$ thickness. solder time $10\pm 1\text{s}$</p> <p>Pre-treatment Capacitor shall be stored at $85\pm 2^{\circ}\text{C}$ for 1 hour, then placed at room condition for 24 ± 2 hour before initial measurements .</p> <p>Post-treatment Capacitor shall be stored for 1 to 2 hours at room condition.</p>	<p>外觀(Appearance)：無損傷(No damage)</p> <p>靜電容量變化率(Change from the value before) Y5P $\leq \pm 5.0\%$ X7R $\leq \pm 7.5\%$ SL/NPO: $\pm 2.5\%$ Z5U/Y5U $\leq \pm 15\%$ Z5V/Y5V $\leq \pm 20\%$</p> <p>耐壓(Dielectric Withstand Voltage): To satisfy routine test No 4.5</p>

5.5 溫度特性(Temperature Characteristics)

測試條件(Test condition)	判定標準(Standard)		
<p>以 25°C 為基準溫度,測得最低與最高溫度,加以計算取得。</p> <p>The change of capacitor should be got from the capacitor at 25°C, After capacitor measured from Min. Temp. to Max. Temp. it should be calculated from the formula below .</p> <p>NPO/SL : $TC(\text{PPM}/^{\circ}\text{C}) = [(C2-C1) * 10^6] / [C1(T2-T1)]$</p> <p>Other: $TC = (C2-C1) / C1 * 100\%$</p> <p>C1 : Capacitance at standard temperature (25°C).</p> <p>C2 : Capacitance at each temperature.</p> <p>T1: Test temperature (Min. Temp. and Max. Temp.)</p> <p>T2: Reference temperature</p>	類型	溫度範圍	容許誤差
	Type	Temp Range	Temperature Tolerance
	Z5	$+10\sim +85^{\circ}\text{C}$	E : $\pm 4.7\%$ F : $\pm 7.5\%$
	Y5	$-30\sim +85^{\circ}\text{C}$	P : $\pm 10\%$ R : $\pm 15\%$
	X7	$-55\sim +125^{\circ}\text{C}$	U : $+22\sim -56\%$ V : $\pm 22\sim -82\%$
	SL	$+20\sim +85^{\circ}\text{C}$	$+350\sim -1000\text{PPM}/^{\circ}\text{C}$
NPO	$+20\sim +85^{\circ}\text{C}$	$\pm 60\text{PPM}/^{\circ}\text{C}$	



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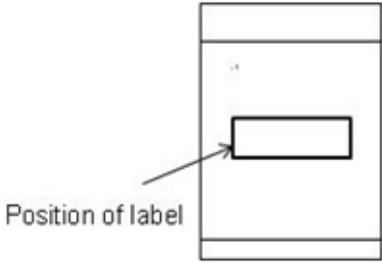
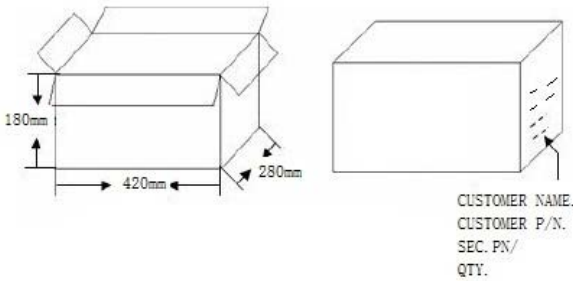
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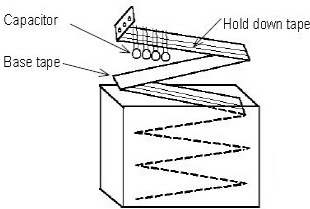
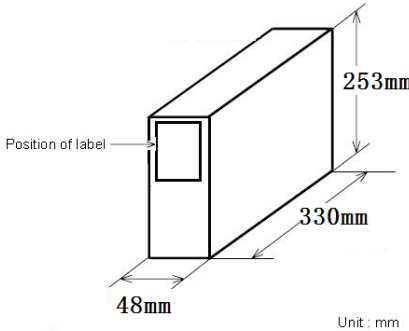
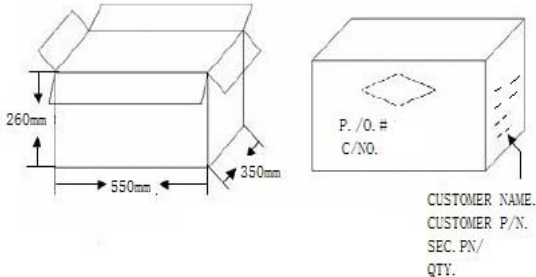
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六、包裝說明 (Packing Description):

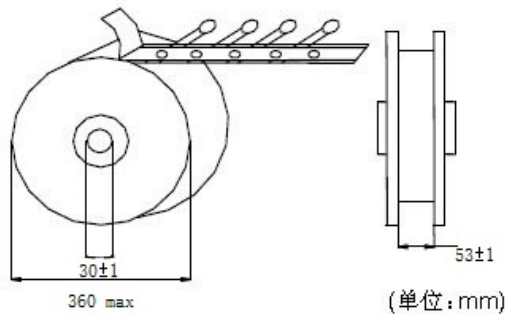
6.1 散裝包裝 (Bulk): 客戶有要求時依客戶要求 (Or according to customer's requirement)

PE 袋 (PE BAG)	外箱 (OUT-BOX)
	
*****	裝 20 袋 (20 bags)

6.2 編帶盒裝(Ammo):

內箱說明 (IN-BOX state)	內箱 (IN-BOX)	外箱 (OUT-BOX)
		
***	***	每外箱裝 10 個內箱 (OUT-BOX=10*IN-BOX)

6.3 卷軸包裝(Reel):



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6.4 包裝數量 (Packing quantity): 客戶有要求時依客戶要求 (Or according to customer's requirement)





6.4.1 散裝包裝 (Bulk)

外徑 Disc diameter (D)	包裝數量 (package quantity)
$D \leq 8 \text{ mm}$	1000pcs
$8 \text{ mm} < D < 14 \text{ mm}$	500pcs
$14 \text{ mm} \leq D$	250pcs

6.4.2 編帶盒裝&卷裝(Ammo&Reel)

額定電壓 (Rated Voltage)	包裝數量 (package quantity)
DC1KV	2000pcs
DC2KV OR DC3KV	1500pcs






6.5 標籤的內容: The content of the label


 V/N:1

 C/N:2

 P/N:3

 L/N:4

5

Qty:6

D/C:7



 L:8




SUCCESS ELECTRONICS CO.,LTD MADE IN CHINA
 TS16949/ISO9001/ISO14001/OHSAS18001

6.6 製造國 country of origin : Huizhou , China.

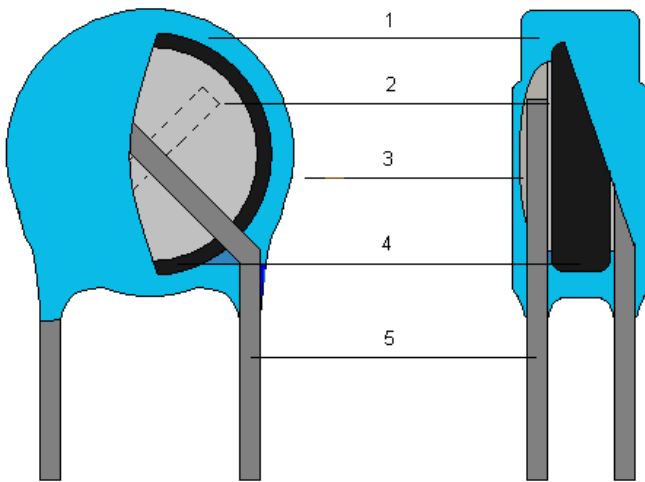
6.7 生產工場production factory

中國廣東省惠州市仲愷高新區潼橋鎮潼橋工業基地新科大道

New tech blvd , Tongqiao industrial Base , Tongqiao Town , Zhongkaigaoxin Dist ,Huizhou City ,Guangdong province , China .



七. 結構說明(Product structure)



1、包封層(Coating): 無鹵環氧樹脂(HF Epoxy Resin)

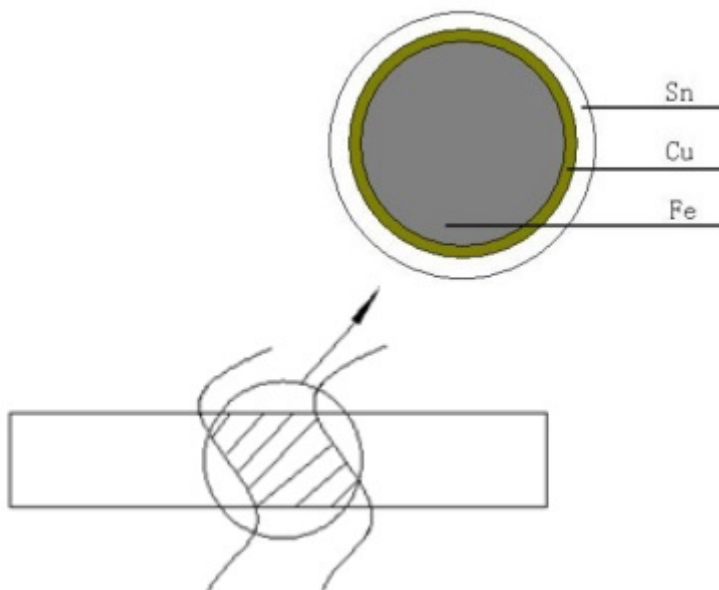
2、電極(Electrode): 銀(Silver)

3、焊料 (Solder): 錫(Alloy Tin)

4、介質(Dielectric): 陶瓷(Ceramic)

5、引線(Lead Wire): 鍍錫銅包鋼線或銅線(CP)

鍍錫銅包鋼線成份結構圖(Constituent structure chart of lead)

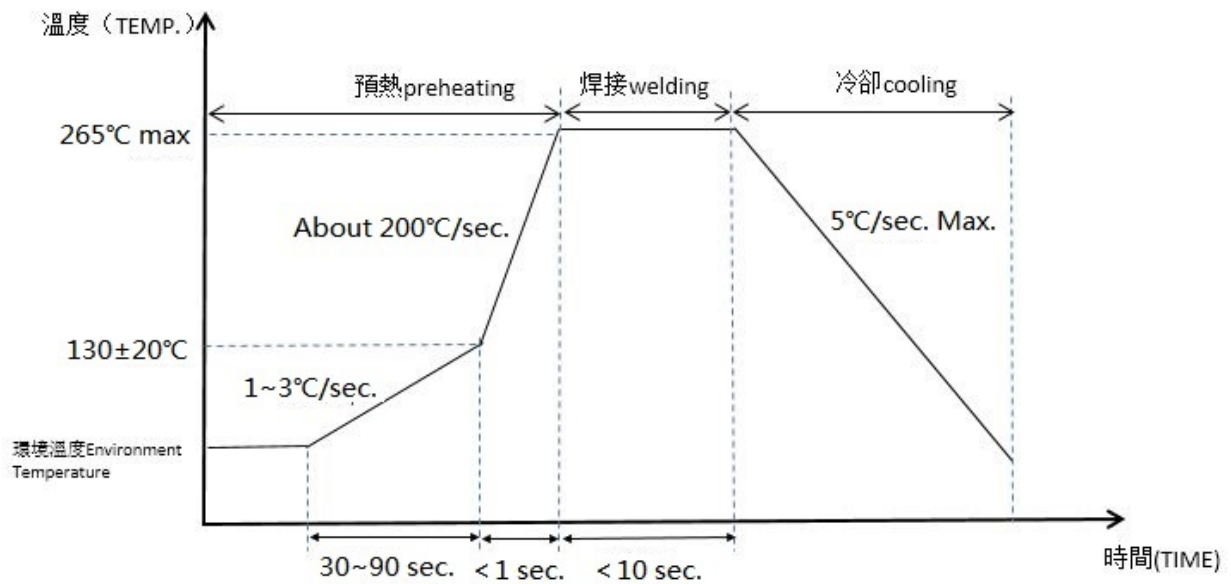




八· 焊接說明 Welding according to the instruction

8.1 建議波峰焊接條件(Wave soldering condition) :

焊接溫度曲線 (Welding temperature curve)



8.2 烙鐵焊接條件(Soldering iron welding) :

烙鐵頭溫度(Solder iron temperature)	400°C max
焊接時間(Welding time)	3.5sec max
烙鐵功率 Soldering iron wattage	50W max.



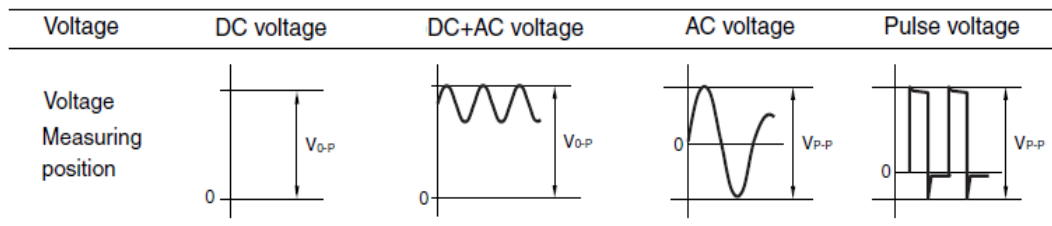
九. 注意事項 HANDLING PRECAUTIONS FOR CERAMIC CAPACITORS

9.1 使用電壓 (Operating voltage)

使用電容器時，端子間施加的電壓應該低於額定電壓。直流電壓上疊加交流電壓時，峰值電壓應該低於額定電壓。用交流電壓或脈衝電壓時，峰電壓也應該低於額定電壓。另外，確認使用的電源設備是不是有可能印加異常電壓（浪涌電壓，靜電，開關突峰電壓），如果產生則異常電壓也應該低於額定電壓（如下圖示）。交流一次側回路時，用於防止雜波的電容器其交流耐壓試驗的實驗條件不能超過規定的條件（電壓、時間、波形）。

Use within the rated voltage of capacitor between terminals. For DC rated voltage application, you should control the peak voltage (V_{o-p}) under the rated voltage in case the AC voltage is superimposed on the DC voltage. Use within the rate voltage includes peak voltage (V_{p-p}) when AC voltage or impulse voltage applied in a circuit. Confirm irregular voltage (surge voltage, static electricity, switching noise, etc) occurs in the equipment used, and use within the rated voltage containing the irregular voltage.

When the capacitor is used as a noise suppressor in the AC primary circuit, the voltage proof test should be within the specified conditions (voltage, time, wave form, etc).



9.2 使用溫度(Temperature)

使用時，電容器的表面溫度，包括其自身發熱，必須低於規格書規定的最高使用溫度。

Be sure to use only those operating temperature described in our catalogue or specification. Keep the surface temperature under the maximum temperature, which includes the maximum self-heat temperature.

9.3 自身發熱(Self-exothermal)

在環境溫度 25°C，無冷卻風扇工作的狀態下，自身發熱（電容器的表面溫度與環境溫度的差值）必須在 20°C 以下。在連續印加交流電壓或脈衝電壓，電流較大的回路中，更要特別的注意，在連續印加高頻電壓，高頻脈衝電壓的回路中，雖然在額定電壓以下，也有可能影響到信賴性，所以使用時要考慮減輕負荷及自身發熱。

Self-exothermal temperature should be within 20°C on the condition of atmosphere temperature 25°C without the influence of wind such as the cooling fan. Be sure to use a capacitor in a circuit of current increase by AC voltage or pulse voltage applied.

When high frequency voltage or impulse voltage applied in a circuit, reliability should be influenced. Take into considerations the load reduction and self-exothermal temperature, even if voltage should be within the rated voltage.

9.4 電容器的靜電容量變化(Capacitance change of capacitors)

由於使用溫度和施加電壓的不同，電容器的容量有可能發生變化；而且，電容器在放置期間，靜電容量也有可能減少，也就是老化特性。

For some of the capacitors, capacitance value may change considerably in the temperature range, or by applied DC voltage. And capacitor has aging characteristic (capacitance decreases by keeping as it is).

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9.5 電容器的振動(Vibration of capacitors)

電容器（種類Ⅱ）在交流回路或者脈衝回路中使用時，由於特定的頻率，電容器本身可能會發生振動，或者發出聲音、噪音。所以在使用之前，請確認能否符合貴司要求。

When the capacitor (class 2) is used in the AC circuit, or pulse circuit, the capacitor might vibrate or noise might occur in the specified frequency. Be sure to confirm the conditions before using the capacitor.

9.6 電容器的使用及保存（保管）(Usage of capacitance and storage)

請不要再以下地方使用電容器(Please do not use capacitors in the following locations.)

- ★ 日光直射到的地方（Places where can be shined by direct sunlight）
- ★ 直接接觸到水及鹽水的地方（Places where can direct access with water or salt water）
- ★ 凝結露水的地方（Places of having dew condensation）
- ★ 有腐蝕性氣體的地方，如硫化氫、亞硫酸等 Places of having corrosive gases, Such as hydrogen sulfide, sulfuric acid, etc.)
- ★ 電容器請不要保存在高溫高濕的環境中，而應保存在室溫-10~40℃，濕度85%RH以內的環境中，並在納入後6個月內使用。Capacitors should not be kept in the environment of high temperature and high humidity, and should be kept in the environment where the room temperature between -10 ~ 40 °C, and the humidity between 85%. Besides, the capacitors should be used within 6 months.
- ★ 電烙鐵的烙鐵頭不要直接接觸到電容器引腳以外的部位。
Electric soldering iron tip should not directly contact the areas except capacitor lead.

9.7 安裝上的注意點(Inserting precautions)

用自動插件機把電容器插入到基板上時，要確認並管理插件機的安裝條件（推動器壓力，剪切部的調整等），製品拔取，導線剪切時，不要對製品施加過度的衝擊和壓力。電容器的端子間隔要與基板孔的間隔一致。（外力改變導線間距的時候，有可能會損壞導線根部的塗料，如果發生此類的損壞，就有可能導致信賴性下降。）

When inserting capacitors into the PC board by automatic insertion machine, confirm the conditions (such as pressure of pusher, adjustment of clinching portion) and minimize the impact force by chucking the body, or clinching the lead terminals. Distances between the hole position onto a PC board should be equal to the pitch of capacitors. When stretching the lead terminal, any force may load the bottom of the capacitor body and result in damage to the insulation coating. Severe damages may cause poor reliability.

9.8 焊錫(Solder)

- ★ 焊錫條件（預熱的溫度及時間，焊錫的溫度及時間）在規格書規定範圍內。
Soldering conditions, such as pre-heat temperature, soldering temperature, and soldering time, should be followed by the descriptions in our catalogue or specification.
- ★ 修正作業的時候，要進行充分預熱，並進行溫度管理。
When reworking for soldering, sufficient pre-heating and temperature control should be used.