

	成功工業(惠州)有限公司 SUCCESS ELECTRONICS CO., LTD.	FILE NO.	QC-T4-07
		Ver:	1.0
	低散逸因數陶瓷電容器 Low-DF Type Ceramic Capacitor	Page	1/22

產品承認書

SPECIFICATION FOR APPROVAL

客戶名稱	CUSTOMER	
客戶料號	PART NO	
規格描述	DESCRIPTION	LOW DF TYPE Y5R DC1KV/DC2KV/DC3KV
成功料號	SUCCESS P/N	SEE PAGE 5
日期	DATE	2016/08/23

★ 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
廖東	郭北	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.

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

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COMPONENT SPEC VERSION RECORD

VER	MINUTE OF CHANGES	SEC	CHECK	RELEASE DATE
1.0	CHECKED AND RELEASED		祁能	2016/08/23

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一、品名說明 (Part No. Explain)

品名(Part No.) :

9	R	L	1	0	2	K	1	0	2	K	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
9	低散逸因數型	Low-DF Type

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

代碼 (code)	溫度範圍(Temperature Range)	容量變化率(Temperature Tolerance)
RL	-30~+85℃ at 25℃	±15%
	-25~+125℃ at 25℃	+15%~-30%

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

標示 (Code)	101	102	472
靜電容量 (Nominal Cap.)	100pF	1000pF	4700pF

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

標示 (code)	K	M
許容差 (Tolerance)	±10%	±20%

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

標示 (Code)	501	102	202	302
額定電壓(Rated Voltage)	500V	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)		軸裝編裝(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) : 引線距離(Lead spacing)

標示 (Code)	5	7	9
Lead spacing	5.0mm	7.5mm	10mm

說明 8 (Explain No. 8) 引腳直徑(Wire Diameter)

4	表示線徑為 0.50mm(Wire Diameter for 0.50mm)
6	表示線徑為 0.60mm(Wire Diameter for 0.60mm)

說明 9 (Explain No. 9) : "E"表示為無鉛無鹵產品(RoHs+HF)

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二、常用料號一覽表 (Material number list)

Part Number	Cap.(pF)	Cap. Tol. (%)	Rated Volt.	Dimension (mm)			
				Dia.(Max)	T(Max)	F(±1.0)	d (±0.05)
9RL101K102***E	100	±10%	1000VDC	7.5	4.0	5.0	0.50
9RL151K102***E	150	±10%	1000VDC	6.5	4.0	5.0	0.50
9RL221K102***E	220	±10%	1000VDC	6.5	4.0	5.0	0.50
9RL331K102***E	330	±10%	1000VDC	7.0	4.0	5.0	0.50
9RL391K102***E	390	±10%	1000VDC	7.0	4.0	5.0	0.50
9RL471K102***E	470	±10%	1000VDC	7.0	4.0	5.0	0.50
9RL561K102***E	560	±10%	1000VDC	8.0	4.0	5.0	0.50
9RL681K102***E	680	±10%	1000VDC	8.0	4.0	5.0	0.50
9RL821K102***E	820	±10%	1000VDC	9.0	4.0	5.0	0.50
9RL102K102***E	1000	±10%	1000VDC	9.0	4.0	5.0	0.50
9RL152K102***E	1500	±10%	1000VDC	10.0	4.0	5.0	0.50
9RL222K102***E	2200	±10%	1000VDC	12.0	4.0	5.0/7.5	0.50/0.60
9RL332K102***E	3300	±10%	1000VDC	13.0	4.0	5.0/7.5	0.50/0.60
9BL101K202***E	100	±10%	2000VDC	9.0	4.5	5.0/7.5	0.60
9RL151K202***E	150	±10%	2000VDC	7.0	4.5	5.0/7.5	0.60
9RL221K202***E	220	±10%	2000VDC	7.0	4.5	5.0/7.5	0.60
9RL331K202***E	330	±10%	2000VDC	7.5	4.5	5.0/7.5	0.60
9RL391K202***E	390	±10%	2000VDC	8.0	4.5	5.0/7.5	0.60
9RL471K202***E	470	±10%	2000VDC	8.0	4.5	5.0/7.5	0.60
9RL561K202***E	560	±10%	2000VDC	9.0	4.5	5.0/7.5	0.60
9RL681K202***E	680	±10%	2000VDC	9.5	4.5	5.0/7.5	0.60
9RL821K202***E	820	±10%	2000VDC	10.0	4.5	5.0/7.5	0.60
9RL102K202***E	1000	±10%	2000VDC	10.5	4.5	5.0/7.5	0.60
9RL152K202***E	1500	±10%	2000VDC	12.0	4.5	5.0/7.5	0.60
9RL222K202***E	2200	±10%	2000VDC	13.0	4.5	5.0/7.5	0.60
9RL332K202***E	3300	±10%	2000VDC	15.0	4.5	5.0/7.5	0.60
9RL101K302***E	100	±10%	3000VDC	7.5	5.5	7.5	0.60
9RL151K302***E	150	±10%	3000VDC	7.5	5.5	7.5	0.60
9RL221K302***E	220	±10%	3000VDC	8.5	5.5	7.5	0.60
9RL331K302***E	330	±10%	3000VDC	9.5	5.5	7.5	0.60
9RL391K302***E	390	±10%	3000VDC	9.5	5.5	7.5	0.60
9RL471K302***E	470	±10%	3000VDC	11.0	5.5	7.5	0.60
9RL561K302***E	560	±10%	3000VDC	11.0	5.5	7.5	0.60
9RL681K302***E	680	±10%	3000VDC	12	5.5	7.5	0.60
9RL821K302***E	820	±10%	3000VDC	13.5	5.5	7.5	0.60
9RL102K302***E	1000	±10%	3000VDC	13.5	5.5	7.5	0.60



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三、線型尺寸 (Figures&Dimension)

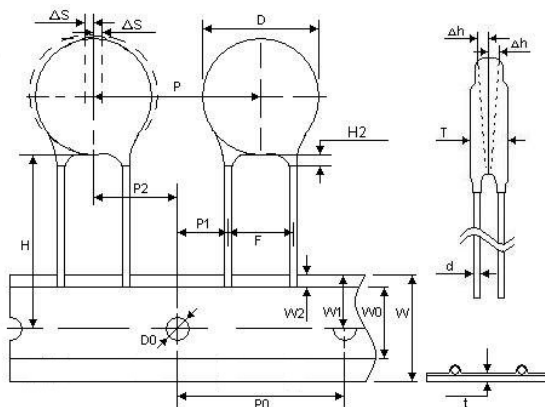
3.1 散裝線型(Bulk pack lead style)

A→直腳長腳(Straight long)		H→直線短腳(Straight short)		<table><tr><td>D</td><td rowspan="4">See page 5</td></tr><tr><td>T</td></tr><tr><td>F</td></tr><tr><td>d</td></tr><tr><td>H</td><td>D+P</td></tr><tr><td>P</td><td>3.0mm max</td></tr><tr><td>L</td><td>long: 18mm min short: The customer request</td></tr></table>		D	See page 5	T	F	d	H	D+P	P	3.0mm max	L	long: 18mm min short: The customer request
D	See page 5															
T																
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H	D+P															
P	3.0mm max															
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J→外彎長腳(Outside crimped long)		D→外彎短腳(Outside crimped short)		<table><tr><td>D</td><td rowspan="4">See page5</td></tr><tr><td>T</td></tr><tr><td>F</td></tr><tr><td>d</td></tr><tr><td>P</td><td>Not exceed the kink leads for kink lead</td></tr><tr><td>H2</td><td>4.8mm max</td></tr><tr><td>L</td><td>long: 18mm min short: The customer request</td></tr></table>		D	See page5	T	F	d	P	Not exceed the kink leads for kink lead	H2	4.8mm max	L	long: 18mm min short: The customer request
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E→一字形腳(Vertical crimped)																
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3.2 編帶說明 (Taping pack lead style)

3.2.1 直線編帶(Straight)



單位(unit) : mm

位置代字 (Symbol)	標示位置 (Item)	Dimensions(mm)			
		P0=12.7(code : S)		P0=15.0(code : T)	
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	12.7±1.0	15±1.0	15±1.0
P0	定位孔距離 Feed hole pitch	12.7±0.3	12.7±0.3	15±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
△s	零件本體左右偏移 Component alignment R-L	0±2	0±2	0±2	0±2
△h	零件前後偏移 Deviation across tape	0±2	0±2	0±2	0±2
W	紙帶寬度 Tape width	18.0±1.0	18.0±1.0	18.0±1.0	18.0±1.0
W0	固定膠帶寬度 Hold down tape width	7.5min	7.5min	7.5min	7.5min
W1	定位孔中心距紙帶上沿距離 Hold position	9.0±0.75	9.0±0.75	9.0±0.75	9.0±0.75
W2	固定膠帶上沿到紙帶上沿距離 Hole down tape position	5.0max	5.0max	5.0max	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	20.0 +1.5/-1.0	20.0+1.5/-1.0	20.0+1.5/-1.0
H2	塗裝腳長度 Dip Length	3.0max	3.0max	3.0max	3.0max
D0	定位孔直徑 Feed hole diameter	4.0±0.2	4.0±0.2	4.0±0.2	4.0±0.2
t	紙帶總厚度 Total tape thickness	0.6±0.3	0.6±0.3	0.6±0.3	0.6±0.3
d	引線直徑 (Lead diameter)	See page 5			
D	外徑(Body Diameter)				
T	厚度(Body Thickness)				



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低散逸因數陶瓷電容器

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FILE NO.

QC-T4-07

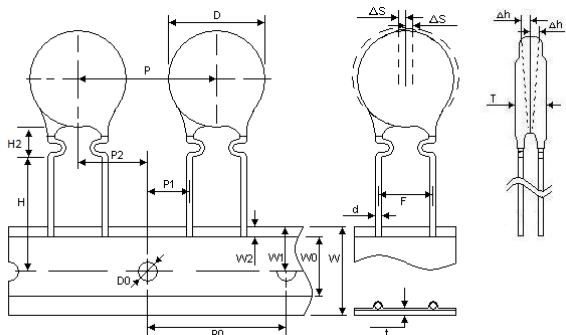
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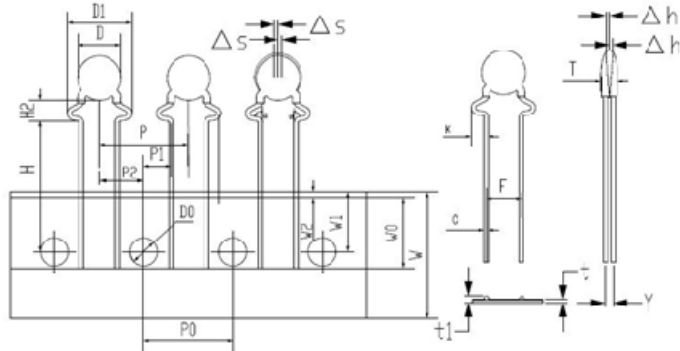
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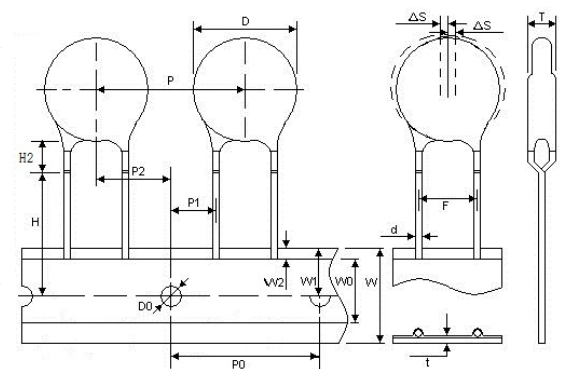
3.2.2 折彎型 (Kink Type)



內彎型 Inside crimped
(P0=12.7mm code: K P0=15.0mm code:U)



外彎型 Outside crimped
(P0=12.7mm code: N P0=15.0mm code:B)

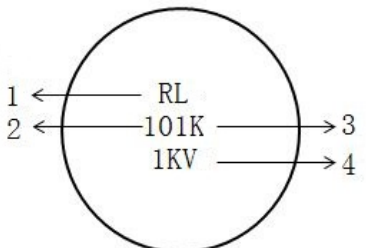
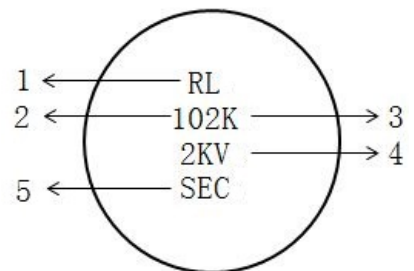


平浮腳 Vertical crimped tapping
(P0=12.7mm code: M P0=15.0mm code:R)

位置代字 (Symbol)	標示位置 (Item)	Dimensions(mm)			
		P0=12.7		P0=15.0	
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			
H	定位孔中心到導線折彎 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 page 5			
D	外徑(Body Diameter)				
T	厚度(Body Thickness)				

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四、標印 (Marking)

Temp. char. Nominal diameter	RL
D<8mm	
D≥8mm	
“1”表示溫度特性 (Temperature characteristic)	RL
“2”標稱電容 Nominal capacitance	Ex. 100PF → 標示為 “101” (Marking for “101”) 1000PF → 標示為 “102” (Marking for “102”)
“3”靜電容量許容差(Tolerance)	K=±10%
“4” 額定電壓 (Rated voltage)	額定電壓為 DC1000V 標印為 “1KV” ,額定電壓為 DC2000V 標印為 “2KV” In case of DC 1000V marked with 1KV , In case of DC 2000V marked with 2KV
“5” 公司代字 (Trade name)	標印為 SEC,但標稱外徑小于 8mm 則不需標印此項 Shall be marked as " SEC", but DΦ< 8 mm shall be omitted.

注：特殊要求標印另議(Please contact us if you have any marking request.)

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五・外觀及電氣特性 (Appearance & Electronic Characteristics)

5.1 外观尺寸检查 (Appearance and dimension)

元件表面清洁, 无异物附着, 标志清晰, 无可见损伤, 尺寸符合规定要求 (Clean surface, marking shall be legible, no visible damage. Dimension according to ordain requirement)

5.2 靜電容量(Capacitance)

類別(Type)	測量頻率 (Test Frequency)	測量电压(Test Voltage)	判定標準 (Standard)
RL	1KHz±20%	1±0.2Vrms	在允许的偏差等级范围内 To be within the specified tolerance.

5.3 散逸因數(DF 值)

類別(Type)	測量頻率 (Test Frequency)	測量电压(Test Voltage)	判定標準(Standard)
RL	1KHz±20%	1±0.2Vrms	RL:0.2%MAX.

5.4 絕緣阻抗(Insulation Resistance)

測量電壓 (Test Voltage)	測試時間 (Test Time)	充放电流(charge and discharge current)	判定標準 (Standard)
DC500V	60±3s	50 mA max	10GΩ min.

5.5 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)	DC1000V	DC2000V	1~5sec	50mA max	No breakdown
	DC2000V	DC3500KV	1~5sec	50mA max	
	DC3000V	DC4500V	1~5sec	50mA max	
端子與外殼間 Body Insulation	將電容器的引線連在一起, 主體外緊包一層金屬箔, 邊緣距引線 3-4mm, 在電容器引線和金屬箔間施加 DC1500V 电压一分钟。(The terminals of the capacitor shall be connected together, A metal foil shall be closely wrapped around the body of the capacitor to the distance of about 3-4 mm from each terminal, A voltage of DC1500V is applied between the capacitor lead wires and the metal balls for 1 min)				No breakdown

注意(Caution):

1、批量生產時測試時間為 1~5 秒鐘(Test 1~5seconds for lot production)

2、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)	標準气压 (atmospheric pressure)
15 ~ 35℃	45~85%	86 ~ 106kPa

当测试结果有争议时, 仲裁标况为: (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)	標準气压 (atmospheric pressure)
25±1℃	48 ~ 52%	86 ~ 106kPa

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六. 信賴性試驗(Reliability Test)

6.1 端子強度 – 抗拉強度(Terminal Strength – Tensile Strength)

測試條件(Testing condition)	判定標準(Standard)
固定待測電容器本體,在引線垂直方向施加 1kg 拉力,持續 10±1 秒。 (Fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 1.0kg and then keep applied the force 10±1s.)	端子無損傷或斷裂。 Termination not to be broken or loosened.

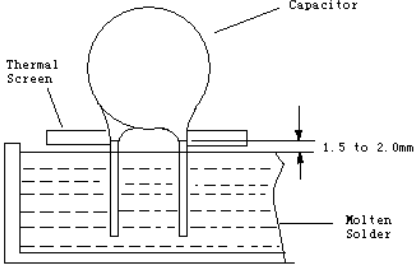
6.2 端子強度 – 抗彎折強度(Terminal Strength – Bending Strength)

測試條件(Testing condition)	判定標準(Standard)
在引線端施加 0.5kg 力,朝一方向做 90°角彎折後回到原點,再向另一方做 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。 (Each lead wire shall be subjected to a force of 0.25kg and then be bend 90° at the point of egress in one direction, Each wire is then returned to the original position and bend per 2~3 seconds, two time.)	端子無損傷或斷裂。 Termination not to be broken or loosened.

6.3 鉅錫附著性(Solder Ability)

測試條件(Testing condition)	判定標準(Standard)
鉅錫溫度(Solder temp.): 245±3℃ 鉅錫時間(Solder time): 3±0.3s	鉅錫覆蓋面積須達 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.)

6.4 鉅錫耐熱性(Resistance To Soldering Heat)

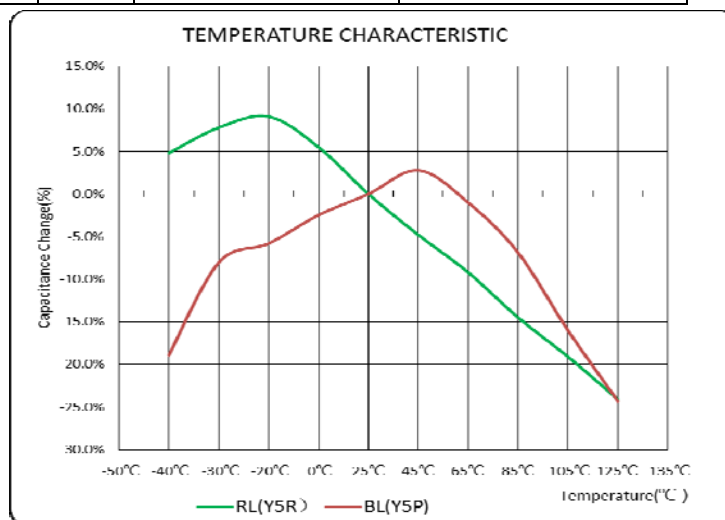
測試條件(Testing condition)	判定標準(Standard)
预处理:初次測量之前,將電容器存放在85±2℃條件下1小時。然後,在室內條件下存放24±2小時。 Pre-treatment: Capacitor shall be stored at 85±2℃ for 1 hour, then placed at room condition for 24±2 hour before initial measurements . 后處理: 電容器在室內條件下存放1至2小時。 Post-treatment: Capacitor shall be stored for 1 to 2 hours at room condition. 鉅錫溫度(Solder temp.): 260±5℃ 鉅錫時間(Solder time): 10±1s	外觀(Appearance): 無損傷(No damage)
	靜電容量變化率(Change from the value before) BL:±5% RL:±7.5%
	耐壓(Dielectric Withstand Voltage): To satisfy routine test No 5.5
	

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6.5.溫度特性(Temperature Characteristics) (EIA-198)

測試條件(Testing condition)	判定標準(Standard)		
以 25℃ 為基準溫度,測得最低與最高溫度,加以計算取得。(The change of capacitor should be got from the capacitor at 20℃, After capacitor measured from Min. Temp. to Max. Temp. It should be calculated from the formula below.) $(C2-C1)/C1 \times 100\%$ C1: Capacitance at standard temperature (25℃). C2: Capacitance at each temperature.	類型	溫度範圍	容量變化率
	Type	Temperature Range	MAX. CAP. CHANGE
	RL	-25~+125℃	+15%~-30%
		-30~+85℃	±15%
	BL	-30~+85℃	±10%

靜電容量-溫度特性曲線 (參考)



6.6 耐濕性試驗(Humidity Test)

測試條件(Testing condition)	判定標準(Standard)
预处理(Pre-treatment): Capacitor shall be stored at 125 ± 3℃ for 1 hour, then placed at room condition for 24 ± 2 hour before initial measurements . 試驗環境溫度(Ambient temperature) :40±2℃ 試驗環境濕度(Relative humidity) :90~95%R.H. 試驗時間(Duration) :500+24 / -0 hrs. 后处理(Post-treatment): Capacitor shall be stored for 1 to 2 hours at room condition.	外觀(Appearance) :No mechanical damage
	靜電容量變化率(Capacitance change) :RL:±10%
	散逸因數(DF):RL: 0.4%MAX.
	絕緣電阻(I.R.) :1000MΩ min.
	耐壓(Dielectric strength) : per routine test item 5.5

6.7 耐濕負荷試驗 (Humidity Loading Test)

測試條件(Testing condition)	判定標準(Standard)
预处理(Pre-treatment): Capacitor shall be stored at 125 ± 3℃ for 1 hour, then placed at room condition for 24 ± 2 hour before initial measurements . 試驗環境溫度(Ambient temperature) :40±2℃ 試驗環境濕度(Relative humidity) :90~95%R.H. 負荷電壓>Loading voltage) : Rated voltage 試驗時間(Duration) : 500+24 / -0hrs. 后处理(Post-treatment): Capacitor shall be stored for 1 to 2 hours at room condition.	外觀(Appearance) : No mechanical damage
	靜電容量變化率(Capacitance change) :RL:±10%
	散逸因數(DF):RL: 0.6%MAX.
	絕緣電阻(I.R.) :500 MΩ min.
	耐壓(Dielectric strength) : per routine test item 5.5

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6.8 高溫負荷試驗(High Temperature Load Exposure)

測試條件(Testing condition)	判定標準(Standard)
预处理(Pre-treatment): Capacitor shall be stored at $125 \pm 3^{\circ}\text{C}$ for 1 hour, then placed at room condition for 24 ± 2 hour before initial measurements . 試驗環境溫度(Ambient temperature) : $125 \pm 2^{\circ}\text{C}$ 負荷電壓>Loading voltage): 1.5times the rated voltage 試驗時間(Duration) : 1000 ± 48 /-0 hrs. 后处理(Post-treatment): Capacitor shall be stored for 1 to 2 hours at room condition.	外觀(Appearance) :No mechanical damage
	靜電容量變化率(Capacitance change) :BL /RL:±10%
	散逸因數(DF): RL: 0.4%MAX.
	絕緣電阻(I.R.) :2000MΩ min.
	耐壓(Dielectric strength) : per routine test item 5.5

6.9.振動實驗 (Vibration Resistance)

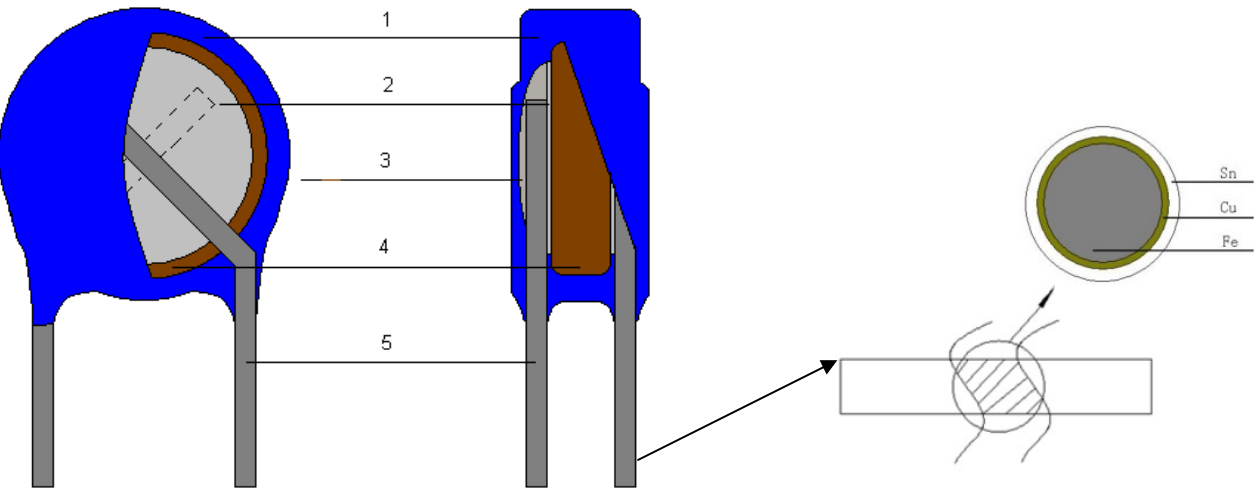
試驗方法 (Testing Method)	判定標準(Standard)
將電容器導線焊穩和調整振動頻率為 10-55Hz 總振幅為 1.5mm,振動從 10Hz 到 55Hz,然後再回到 10,大約一分鐘.(The capacitor could be limply soldered to the supporting lead wire and vibrated at a leadenly range of 10to55Hz,15mm In total amplitude, with about a 1 minute rate of vibration charge from 10Hz to 55Hz and back to 10Hz) 總時間六個小時,每兩個小時在相互垂直方向來回三次(Apply for a total of 6 hrs , 2hrs each In3 mutually perpendicular direction.)	外觀(Appearance):沒有可見損傷(No marked defect)
	靜電容量變化率(Capacitance change): Within the scope of the specification
	DF 值(DF value) : Within the scope of the specification
	絕緣阻抗(Insulation resistance) : Within the scope of the specification

6.10 冷熱衝擊 (Thermal Shock Test)

試驗方法（Testing Method）			判定標準(Standard)															
電容器應承受 5 次溫度循環測試，下表 1~4 為一個循環，The capacitor should be subjected to 5 temperature cycles.1 ~ 4 for a cycle <Temperature cycle> <table><tr><th>序號Step</th><th>溫度Temperature(℃)</th><th>時間Time</th></tr><tr><td>1</td><td>-40±3</td><td>30min</td></tr><tr><td>2</td><td>Room Temp.</td><td><5min</td></tr><tr><td>3</td><td>125±3</td><td>30min</td></tr><tr><td>4</td><td>Room Temp.</td><td><5min</td></tr></table> Remove and let sit 24±2 hour at room temperature.			序號Step	溫度Temperature(℃)	時間Time	1	-40±3	30min	2	Room Temp.	<5min	3	125±3	30min	4	Room Temp.	<5min	外觀(Appearance):沒有可見損傷(No marked defect)
			序號Step	溫度Temperature(℃)	時間Time													
			1	-40±3	30min													
			2	Room Temp.	<5min													
3	125±3	30min																
4	Room Temp.	<5min																
靜電容量變化率(Capacitance change):BL /RL:±10%																		
DF 值(DF value) :RL: 0.4%MAX.																		
絕緣阻抗(Insulation resistance) :IR≧1000MΩ																		
耐壓(Dielectric strength) : per routine test item 5.5																		

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七・結構說明(Product structure)



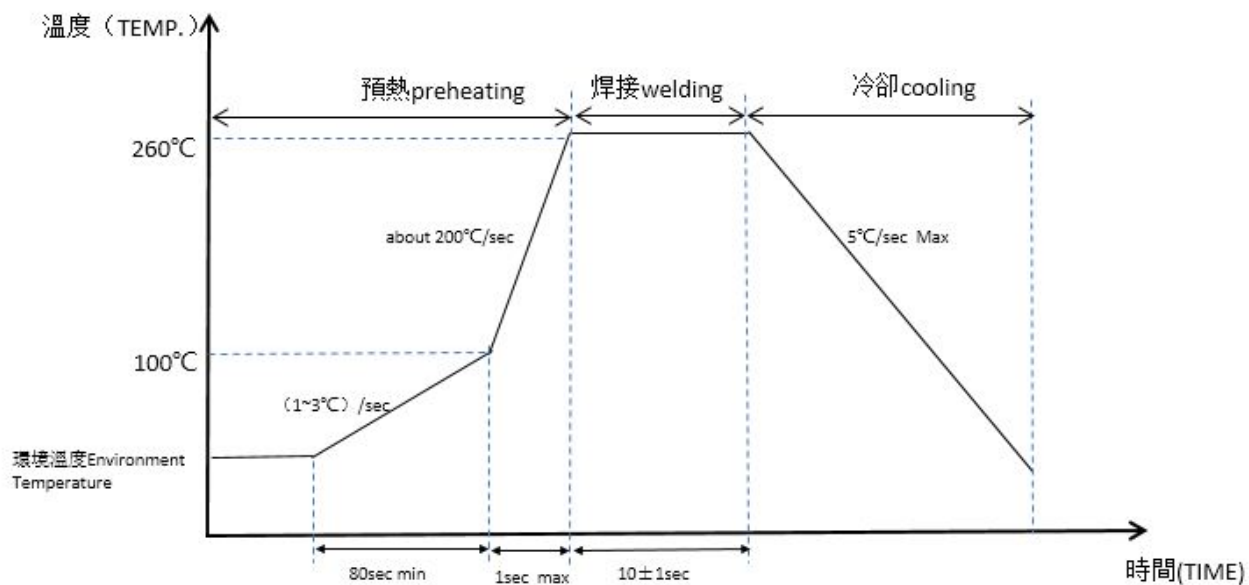
序號 S/N	PART	NAME	INGREDIENT	CAS NO.	Component percentage	Material%
1	包封層 (Coating)	環氧樹脂 (Epoxy Resin) UL94-V0	Epoxy resin	25036-25-3	32%	60%
			SiO2	60676-86-0		20%
			Phosphorus epoxy resin	秘密配方		10%
			C10H2O6	89-32-7		9.5%
			C8H4O3	85-44-9		0.5%
2	電極 (Electrode)	銀(Silver)	Ag	7440-22-4	2%	100%
3	焊料 (Solder)	錫(Alloy Tin)	Sn	7440-31-5	10%	96.50%
			Ag	7440-22-4		3%
			Cu	7440-50-8		0.50%
4	介質 (Dielectric)	陶瓷(Ceramic)	SrCO3	1633-05-2	40%	39%
			TiO2	13463-67-7		18%
			Bi2O3	1304-76-3		32%
			Pb3O4	1314-41-6		7%
			Others	秘密配方		4%
5	引線 (Lead Wire)	鍍錫銅包鋼線 (Tinned copper clad steel wire)	Fe	7439-89-6	16%	87%
			Cu	7440-50-8		10%
			Sn	7440-31-5		3%

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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)



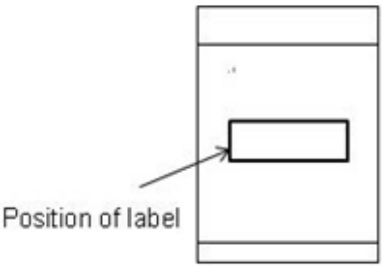
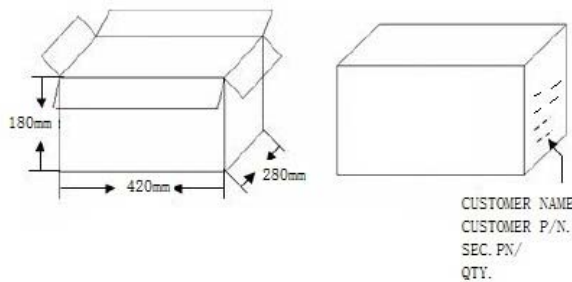
8.2 烙鐵焊接條件(Soldering iron welding):

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.

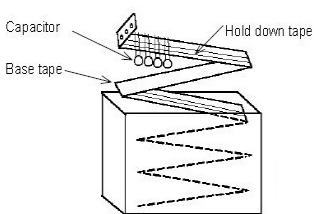
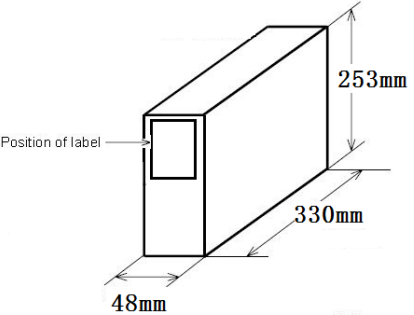
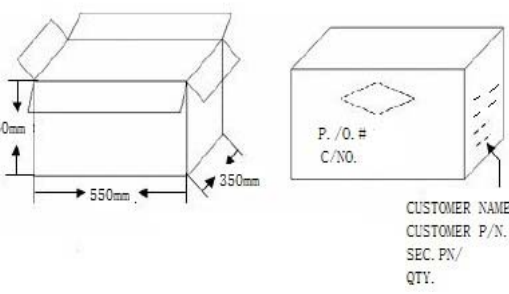
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九、包裝說明（packing description）：

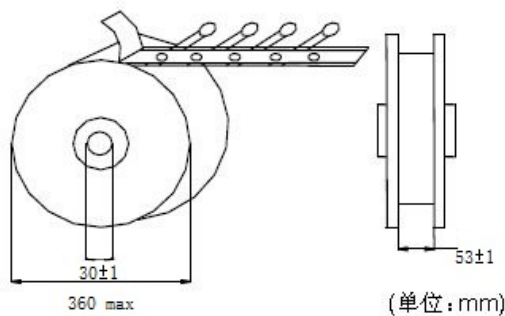
9.1 散裝包裝（Bulk）：

PE 袋（PE BAG）	外箱（OUT-BOX）
 Position of label	 CUSTOMER NAME. CUSTOMER P/N. SEC. PN/ QTY.
*****	裝 20 袋（20 bags）

9.2 編帶盒裝(Ammo)：

內箱說明（IN-BOX state）	內箱（IN-BOX）	外箱（OUT-BOX）
	 Unit : mm	 P. /O. # C/NO. CUSTOMER NAME. CUSTOMER P/N. SEC. PN/ QTY.
***	***	每外箱裝 10 個內箱（OUT-BOX=10*IN-BOX）

9.3 卷軸包裝(Reel)：



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9.4包裝數量 (Packing quantity) : 客戶有要求時依客戶要求 (Or according to customer's requirement)

9.4.1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

9.4.2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

9.5標籤的內容 : The content of the label

 V/N:1	5	
 C/N:2	 Qty:6	
 P/N:3	 D/C:7	 L:8
 L/N:4	SUCCESS ELECTRONICS CO.,LTD MADE IN CHINA TS16949/ISO9001/ISO14001/OHSAS18001   	

9.6 製造國 country of origin : Huizhou , China.

9.7 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 .

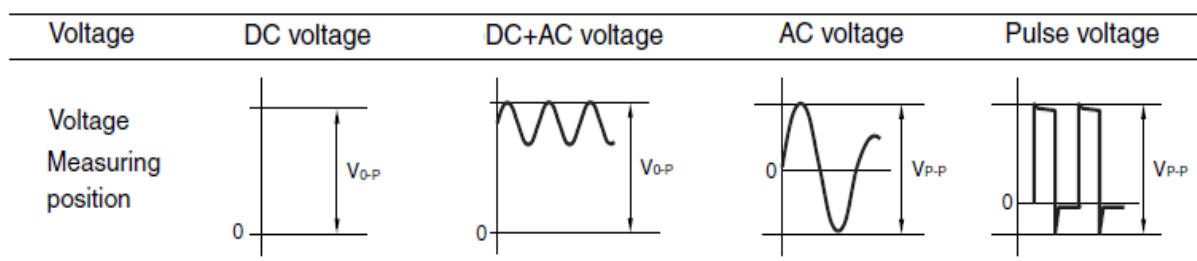
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十・注意事項HANDLING PRECAUTIONS FOR CERAMIC CAPACITORS

10.1 使用電壓（Operating voltage）

使用電容器時，端子間印加的電壓應該低於額定電壓。直流電壓上重疊加交流電壓時，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，用于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_{0-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).



10.2 工作溫度和自身發熱（Operating Temperature and Self-generated Heat）：

電容器的表面溫度應保持在其額定工作溫度範圍的上限以下。務必考慮到電容器自身發出的熱量。電容器在高频電流、沖擊電流等中使用時可能會因介電損耗自身發熱。所施加之正弦波電壓的頻率應低於200kHz。外加電壓應使自身發熱負荷在25℃周圍溫度條件下不超過20℃範圍。測量時應使用ø0.1mm小熱容量的（K）的熱電偶，而且電容器不應受到其它組件的散熱或周圍溫度波動影響。

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range. Be sure to take into account the heat generated by the capacitor itself. When the capacitor is used in a high frequency current, pulse current or similar current, it may self-generate heat due to dielectric loss. The frequency of the applied sine wave voltage should be less than 200kHz. The applied voltage load (*) should be such that the capacitor's self-generated heat is within 20℃ at an atmosphere temperature of 25℃. When measuring, use a thermocouple of small thermal capacity-K of ø0.1mm in conditions where the capacitor is not affected by radiant heat from other components or surrounding ambient fluctuations.

过热可能会导致电容器特性及可靠性下降(切勿在冷却风扇运转时进行测量，否则无法确保测量数据的精确性)。

Excessive heat may lead to deterioration of the capacitor's characteristics and reliability. (Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.)

10.3 失效安全性(Fail-Safe):

如果電容器破損，會導致短路電路故障。務必在本產品上適當提供例如保險絲等自動防故障功能，以免導致電擊、火災、或冒煙等（When capacitor is broken, failure may result in a short circuit. Be sure to provide an appropriate fail-safe function like a fuse on your product if failure would follow an electric shock, fire or fume）。

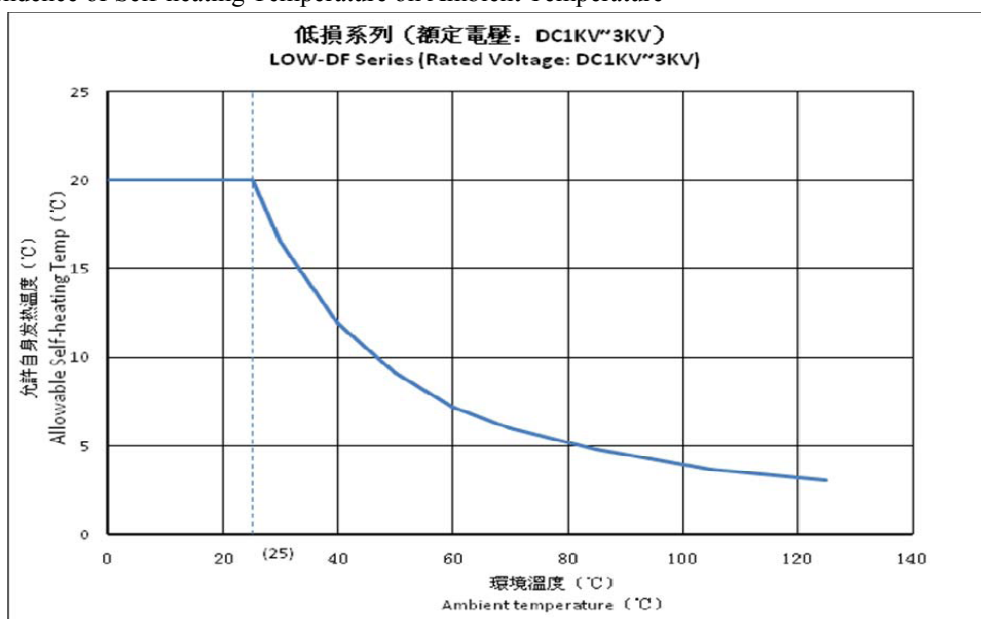


10.4 在施加高频和高电压过程中的负荷降低与自身发热（Load Reduction and Self-generated Heat During Application of High-frequency and High-voltage）：

如图1所示，自生热温度取决于周围温度。所以，如果无法保证25℃的周围温度，请与本公司销售代表或工程师联系（As shown in Fig. 1, the self-heating temperature depends on the ambient temperature. Therefore, if you are not able to set the ambient temperature to approximately 25°C, please contact our sales representatives or product engineers）。

<图1> 自身发热温度与周围温度的相关性

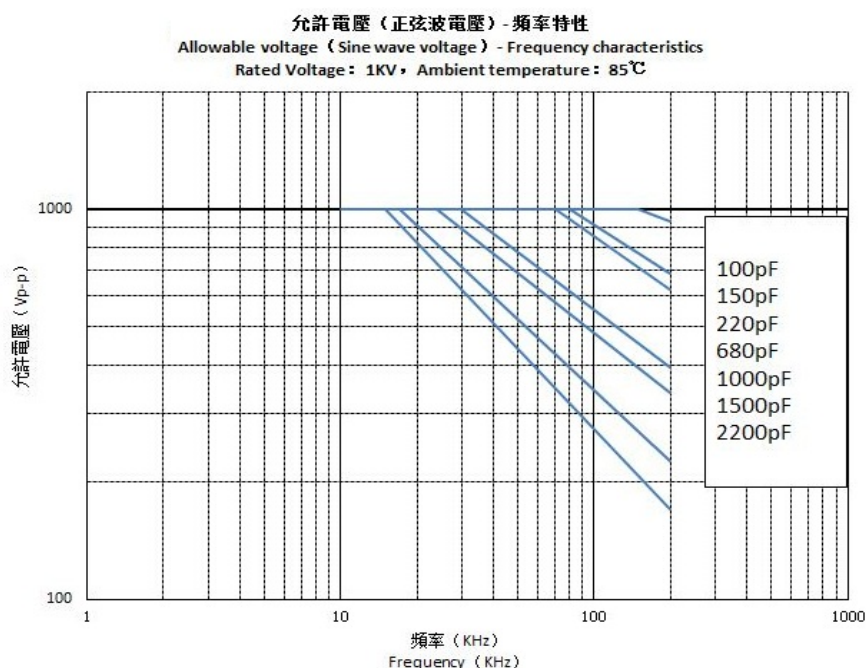
<Fig. 1> Dependence of Self-heating Temperature on Ambient Temperature



允许电压 (正弦波电压) — 频率特性 (在85°C周围温度时)

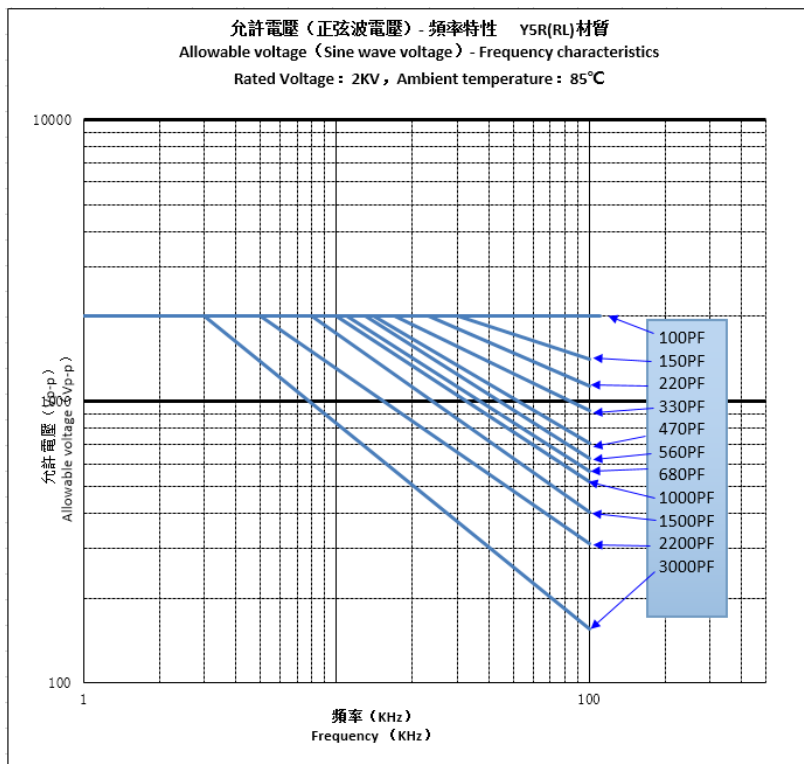
Allowable Voltage (Sine Wave Voltage) - Frequency Characteristics (At Ambient Temperature of 85°C)

1、DC1KV TYPE



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2、DC2KV TYPE



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

由於使用溫度和印加電壓的不同，電容器的靜電容量就有可能發生變化。而且，電容器在自然放置其間，靜電容量也有可能減少，也就是 Aging 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).

10.6 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、氯氣、氨氣等
Places of having corrosive gases, Such as hydrogen sulfide, sulfuric acid, chlorine, ammonia, 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75%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 75%. 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.

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10.7 焊錫(Solder)

★補焊作業的時候，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.

★用電烙鐵修正焊錫時，要特別注意電烙鐵的直徑以及功率。

When using soldering iron for installing capacitors or rework onto the PC board, you should use an adequate tip diameter with the soldering iron as well as a proper wattage.