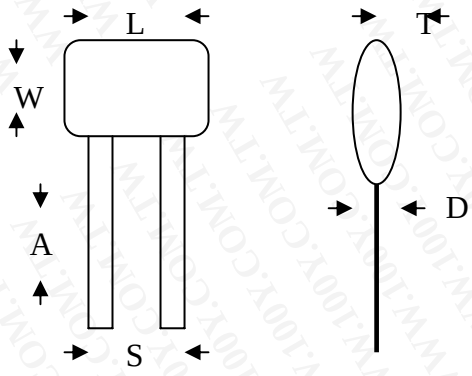
勝 特 力 材 料 886-3-5753170
胜特力电子(上海) 86-21-34970699
胜特力电子(深圳) 86-755-83298787
Http://www.100y.com.tw

MONOLITHIC CERAMIC CAPACITOR SPECIFICATICATION

CUSTOMER				CUST. P/N	102K/100V/X7R
P/N	R15XR102K10K1YU				
CAP.	1NF	TOL%	+/-10%	AT IKHZ 1 VRMS	
D.F.(Q)	< 2.5%				
WVDC	100 VDC				
FLASH	150 VDC				
I R	10GΩ AT 50 VDC				
T.C	X7R				

MARKING

102 OR



DIMENSIONS		D	0.53+/-0.5mm
L	3.3mm+/-1mm	S	2.54+/-0.9mm
W	3.0 mm+/-1mm	A	29mm+/-2mm
T	1.6 mm+/-1mm		

CHIP P/N	

NOTES:

DRAWN BY	WEI-KUO	SPEC DATE	

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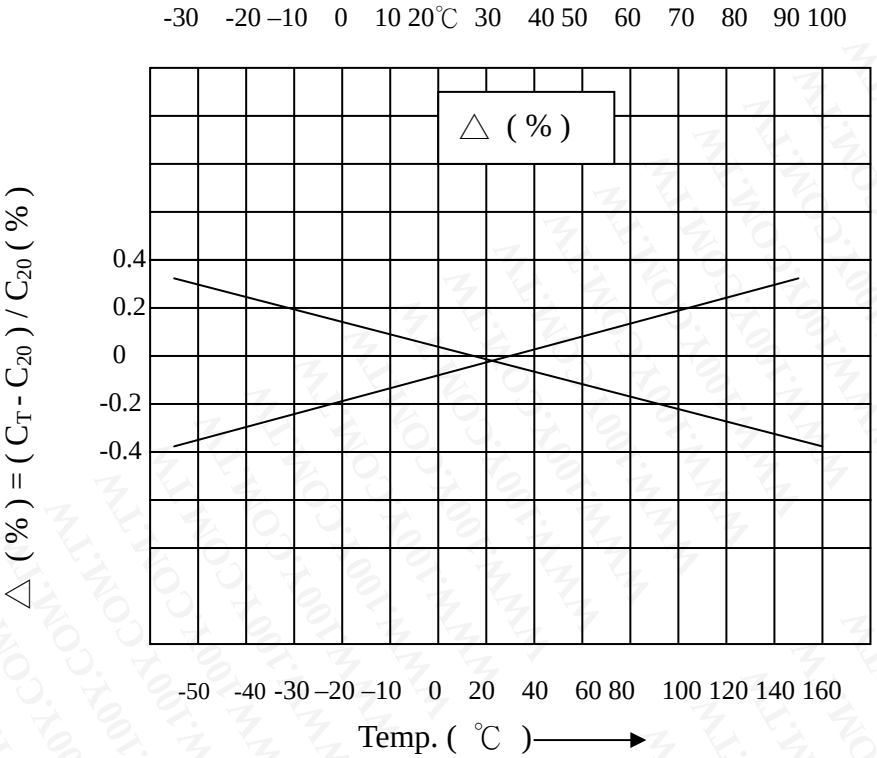
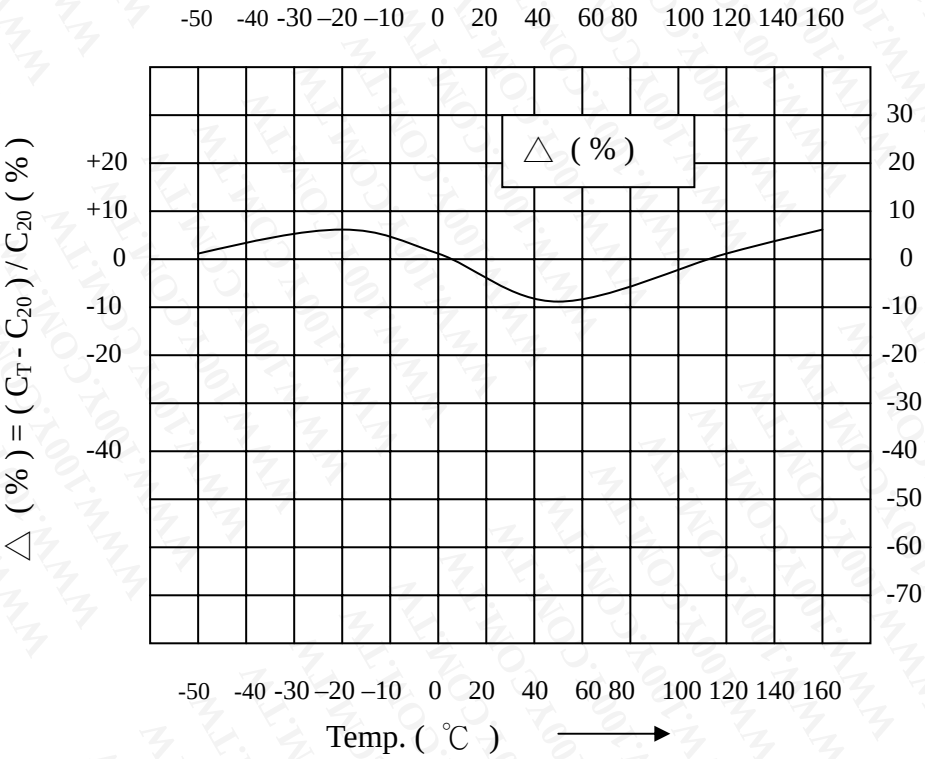
NPO



X7R



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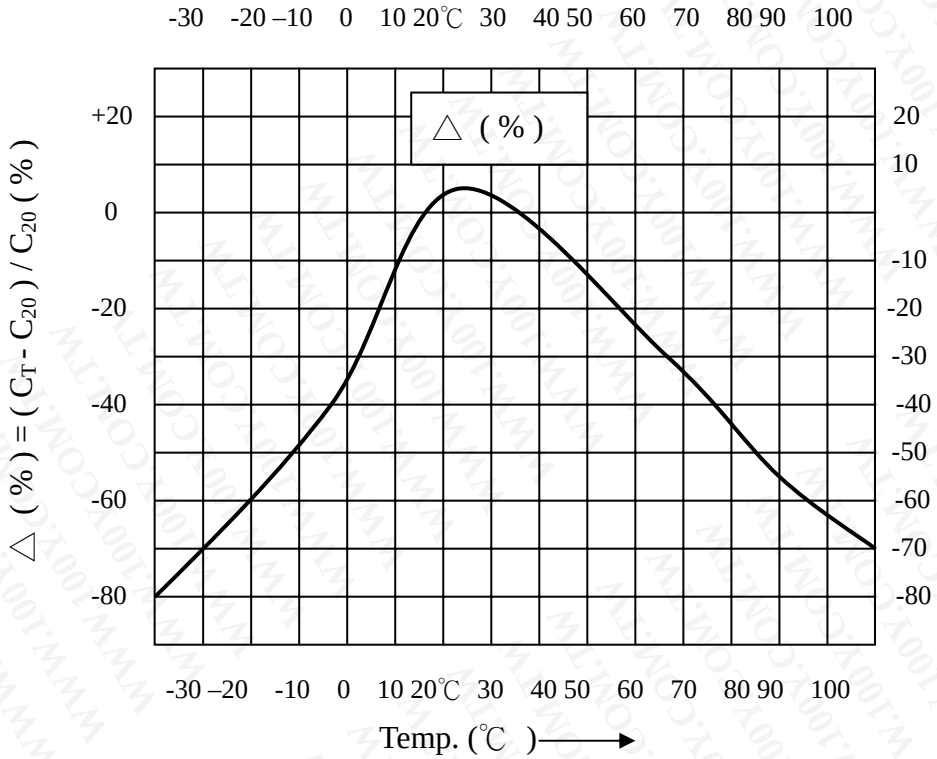
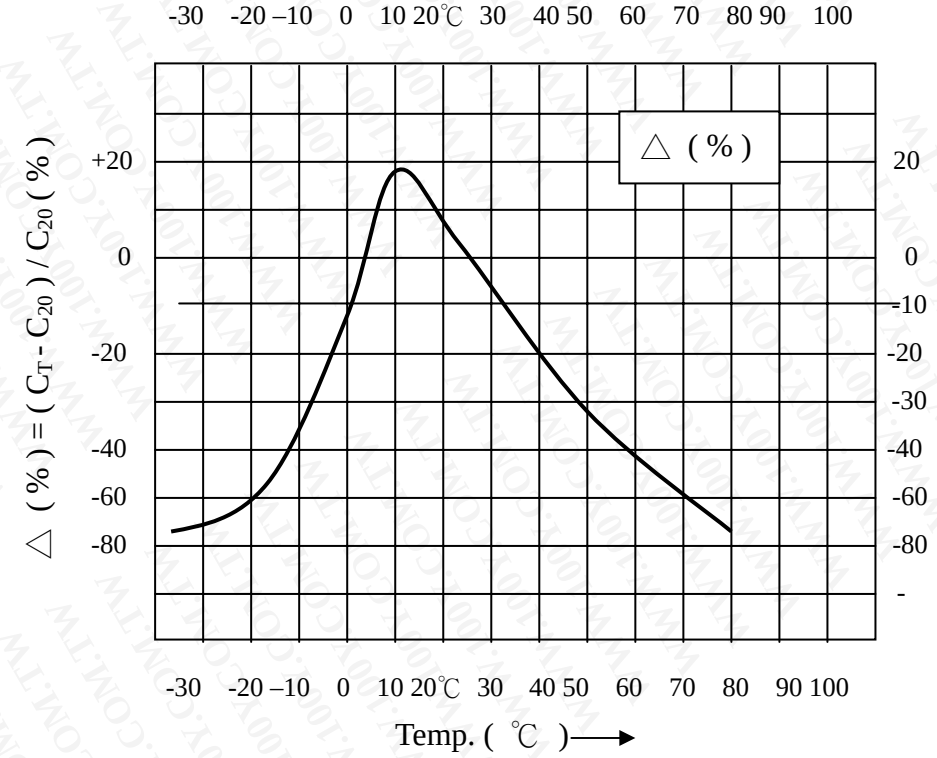
Z5U



Y5V



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電介質材料 Dielectric Material	NPO COG	X7R	Z5U	Y5V
電介質種類 Dielectric Type	Ⅰ類電介質 Stable Class Ⅰ Dielectric	Ⅱ類電介質 Stable Class Ⅱ Dielectric		
電氣性能 Electrical Properties	電氣性能最穩定,基本上不隨溫度、電壓和時間的改變而改變. With negligible dependence of electrical properties on temperature, voltage, frequency and time.	電氣性能較穩定,在溫度、電壓與時間改變時性能的變化不明顯,由於 X7R 是一種強電介質,因而能造出容量比 NPO 電介質更大的電容器. With predictable change of properties with temperature, voltage, frequency and time, this dielectric is ferroelectric and offers higher capacitance ranges than class Ⅰ.	具有較高的介電常數,常用於生產比容較大、標稱容量較高的大容量電容器產品,但其容量穩定性能較 X7R 差,容量損耗對溫度、電壓等測試條件敏感. With higher dielectric constant and greater variation of properties with temperature and test conditions, very high capacitance per unit volume and suited for bypaa and coupling application as well as filtering, transient supression blocking, and charge storage application.	
應用 Application	適用於穩定性要求高的高頻電路,如溫度補償電路、震盪電路等. Used in circuist requiring stable performance, such as temperature compensation circuits and smite circuits.	適用於隔直、偶合、旁路與對電容穩定性要求不太高的鑒頻電路. Used as blocking, coupling, By-passing and frequency discriminating elements.	適用於要求容量較大的電路,如儲能、記憶電路等. Suited for By-passing and coupling application such as store power and memory circuit.	
使用溫度 Operating Temperature	-55 ℃～+125 ℃	-55 ℃～+125 ℃	+10℃～ +85℃	-30℃～ +85 ℃
溫度係數 Temperature Coefficient	0 ± 30 ppm/℃	± 15%	+22%～-56%	+22%～-82%

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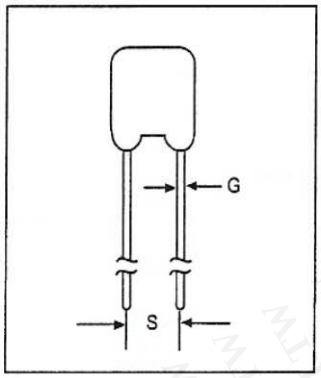
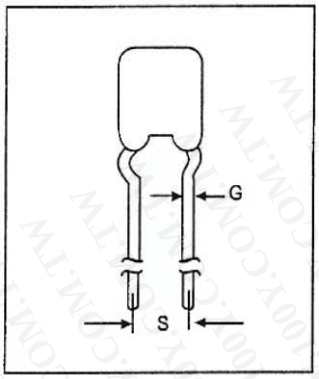
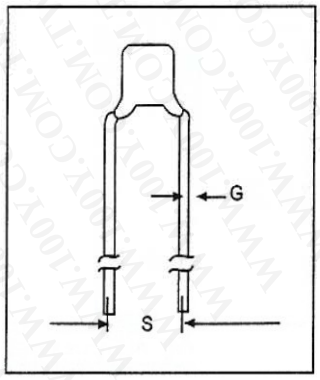
LEAD STYLES:



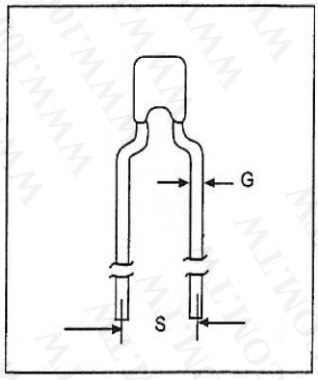
STYLE L
STRAIGHT LEAD



STYLE K
OUTWARD KINK



STYLE A
SLOPE SEATED



STYLE H
HIGH SEATED

HOW TO ORDER

Part Number are designed as :

R 20 Z U 104 Z 05 H2 B 5

Product Type :
R : Mono Radial
(Radial Leaded

Size Code :
See size chart for available size by value and voltage

Temperature Characteristic :
COG = CG
X7R = XR
Z5U = ZU
Y5V = YV

Capacitance (pf) :
The first two digits are significant of capacitance.
The last digit is multiplier
0 = *1 4 = *10000
1 = *10 5 = *100000
2 = *100 9 = *0.1
3 = *1000

Capacitance Tolerance :
C = 0.25PF K = 10%
D = 0.5PF M = 20%
G = 2% Z = +80% - 20%
J = 5%

Working Voltage :
02 = 25V
05 = 50V
10 = 100V
20 = 200V

Lead stye + Lead Spacing :
L1 : Straight leads 2.54 mm (0.100") = 1
A2 : slope angle 5.08 mm (0.200") = 2
H2 : High seated & right angle 5.08 mm (0.200") = 2
K1 : Outward Kink 2.54 mm (0.100") = 1

Color :
B = Blue
Y = Yellow

Lead Length :
Cut lead
3 = 3 mm 7 = 7 mm A = 2.5 mm
4 = 4 mm 8 = 8 mm B = 3.5 mm
5 = 5 mm 9 = 9 mm C = 4.5 mm
6 = 6 mm 0 = 10 mm D = 5.5 mm
S = 25 mm Min. (Long Leaded)
T = Tape & Reel
U = Tape & AMMD Pack

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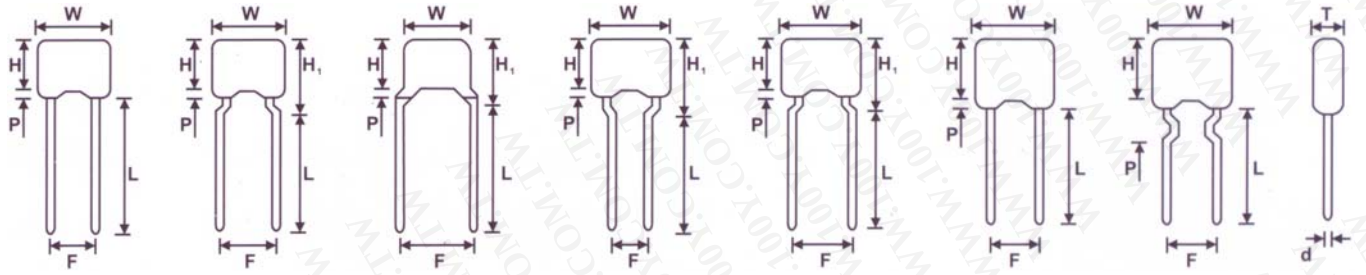
(三) 尺寸大小
Size Code Dimension

R15-2.5(L) R15-5.0(H) R15-5.0-(A) R20-2.5(L) R20-5.0(H) R30-5.0(L) R30-5.0(H)

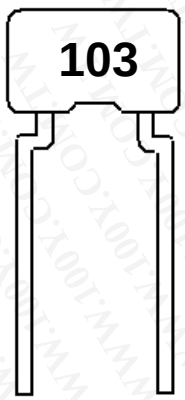


單位(unit) = mm

尺寸大小 Size Code	晶片大小 Chip Size	W .	T	H	H1	F	L	P Max.	d
R15-2.5	0603	3.0-3.8	1.8-2.8	2.6-3.8	--	2.5±0.25	5.0±0.5 6.0±0.5 10.0±0.5 16.0±1.0 30.0±1.0	1.5	0.5 ±0.05
R15-5.0	0603	3.0-3.8	1.8-2.8	2.6-3.8	5.6-7.6	5.0±0.5			
R15-5.0-A (45°角)	0603	3.0-3.8	1.8-2.8	2.6-3.8	5.6-7.6	5.0±0.5			
R15-2.5	0805	3.0-3.8	1.8-2.8	2.6-3.8	--	2.5±0.25			
R15-5.0	0805	3.0-3.8	1.8-2.8	2.6-3.8	5.6-7.6	5.0±0.5			
R15-5.0-A (45°角)	0805	3.0-3.8	1.8-2.8	2.6-3.8	5.6-7.6	5.0±0.5			
R20-2.5	1206/1210	5.0	3.0/3.8	5.0	7.6	2.5±0.25			
R20-5.0	1206/1210	5.0	3.0/3.8	5.0	7.6	5.0±0.5			
R30-5.0	1812	7.6	3.8	7.6	--	5.0±0.5			

(四) 印字
Marking

顏色 Color	黑色 Black	
電容量 Capacitance	允差 Tolerance	印字 Marking
100	J	10
220	J	22
470	J	47
101	J	101
471	J/K	471
102	J/K	102
103	J/K/M	103
104	K/M/Z	104
105	K/M/Z	105



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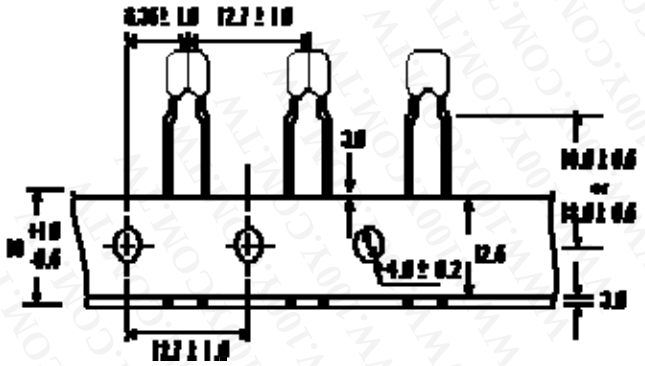
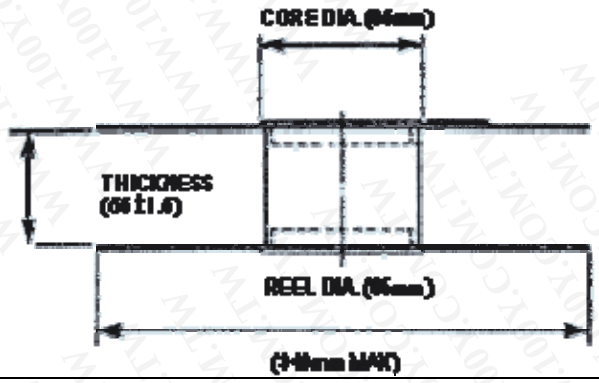
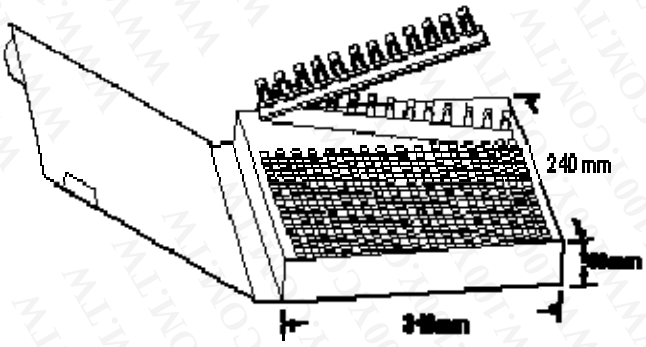
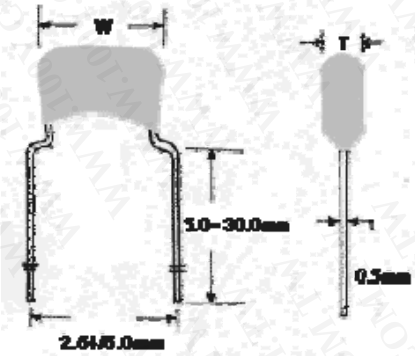
(五) 立式包裝規格
Radial Leaded Type - Packing Specification

編帶 ： Tape ：	捲軸 ： Reel ：
	
盒裝 ： Box Pack ：	散裝 ： Bulk ：
	

(六) 包裝數量
Packing Quantity

項目 Item	立式電容器 Radial Leaded Type	臥式電容器 Axial Leaded Type
編帶/捲裝 Tape & Reel	2500 pcs/捲 2500 pcs/Reel	10k pcs/捲(標準) 10K pcs/Reel(Standard)
編帶/盒裝 Tape & Box	2000 pcs/盒 2000 pcs/Box	5000 pcs/盒 5000 pcs/Reel
散裝 Bulk Pack	1000 pcs/包(標準) 1000 pcs/bag(Standard)	1000 pcs/包 1000 pcs/bag

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(七) 檢驗標準
Inspection Norm

檢驗項目 Item	檢驗標準 Inspection Norm			
	NPO/COG	X7R	Z5U	Y5V
電容量(C) Capacitance	測試頻率： Test Frequency： ≦1000PF=1Mhz ＞1000PF=1Khz	測試頻率： Test Frequency： 1Khz	測試頻率： Test Frequency： 1Khz	測試頻率： Test Frequency： 1Khz
	測試電壓： Test Voltage： 1 ± 0.2 Vrms	測試電壓： Test Voltage： 1 ± 0.2 Vrms	測試電壓： Test Voltage： 0.5 ± 0.1 Vrms	測試電壓： Test Voltage： 1 ± 0.2 Vrms
	在允差範圍內： In the tolerance： C=±0.25pf D=±0.50pf J=±5%	在允差範圍內： In the tolerance： J=±5%pf K=±10% M=±20%	在允差範圍內： In the tolerance： M=±20% Z=+80%/-20%	在允差範圍內： In the tolerance： M=±20% Z=+80%/-20%
消散係數(DF) Dissipation Factor	測試頻率： Test Frequency： ≦1000PF=1Mhz ＞1000PF=1Khz	測試頻率： Test Frequency： 1Khz	測試頻率： Test Frequency： 1Khz	測試頻率： Test Frequency： 1Khz
	測試電壓： Test Voltage： 1 ± 0.2 Vrms	測試電壓： Test Voltage： 1 ± 0.2 Vrms	測試電壓： Test Voltage： 0.5 ± 0.1 Vrms	測試電壓： Test Voltage： 1 ± 0.2 Vrms
	＜0.1 %	＜2.5%-100/50V ＜3.5%-25/16V	＜4.0 %	＜5.0%-100/50V ＜7.0%-25/16V
絕緣組抗(IR) Insulation Resistance 500Ω=C*R 500Ω/0.47Uf =1064MΩ	測試電壓： 額定電壓 Test Voltage： Rated Voltage	測試電壓： 額定電壓 Test Voltage： Rated Voltage	測試電壓： 額定電壓 Test Voltage： Rated Voltage	測試電壓： 額定電壓 Test Voltage： Rated Voltage
	兩個中的最小值： Whichever is less ≧10 Gohms or ≧1000 MΩ*μF	兩個中的最小值： Whichever is less ≧10 Gohms or ≧1000 MΩ*μF	兩個中的最小值： Whichever is less ≧10 Gohms or ≧100 MΩ*μF	兩個中的最小值： Whichever is less ≧10 Gohms or ≧100 MΩ*μF
耐電壓 50V(TV) Voltage	2 倍額定電壓 2×rated voltage	2 倍額定電壓 2×rated voltage	2 倍額定電壓 2×rated voltage	2 倍額定電壓 2×rated voltage

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(八) 信賴性實驗
Reliability

<table>
<tr><th>項目
(Item)</th><th>檢驗方法
(Test Methods)</th><th>檢驗標準
(Test Specifications)</th></tr>
<tr><td>焊錫性
Solderability</td><td>將電容器導線浸入松香溶液後浸入焊錫槽溫度爲 260±5℃的焊錫中 5 秒,浸入深度距離電容本體 2.5～3mm.
The lead wire of a capacitor shall be dipped into a rosin and then into molten solder of 260±5 ℃ for 5 seconds , in both cases the depth of dipping is up to about 2.5 to 3.0 mm from the root of lead wires.</td><td>導線表面均勻沾錫,上錫面積不小於總面積的 75%.
Lead wire shall be soldered with uniformly coated on the Axial or Radial direction over 75% of the circumferential direction.</td></tr>
<tr><td>耐焊性
Resistance to Soldering heat</td><td>焊錫溫度 260±5 ℃,時間 5±0.5 秒, 插入深度距離電容本體 2.5～3mm,試驗後 24±2 小時測量.
The lead wire shall be immersed into the melted solder of 260±5 ℃, up to about 2.5 to 3.0 mm from the main body and the specified items shall be measured after leaving for 24±2 hours.</td><td>1.外 觀 ：無損傷
Appearance：No marked defect
2.電容值變化(△C/C)：
Capacitance change：
<table>
<tr><th></th><th>COG</th><th>X7R</th><th>Z5U</th><th>Y5V</th></tr>
<tr><td>ΔC/C</td><td>≦±0.5%,
or ±0.5pf</td><td>≦±7.5%</td><td>≦±20%</td><td>≦±20%</td></tr>
</table></td></tr>
<tr><td>壽命實驗
Life Test</td><td>
<table>
<tr><td>條件
Condition</td><td>NPO</td><td>X7R</td><td>Z5U</td><td>Y5V</td></tr>
<tr><td>溫度
Temperature</td><td colspan="2">+125 ℃</td><td colspan="2">+85 ℃</td></tr>
<tr><td>時間
Time</td><td colspan="4">1000 小時(hours)</td></tr>
<tr><td>電壓
Voltage</td><td colspan="4">1.5×額定電壓
(rated voltage applied)</td></tr>
<tr><td>恢復時間
Recovery time</td><td colspan="4">24±2 小時(hours)</td></tr>
</table>
</td><td>1.外 觀 ：無損傷
Appearance：No marked defect
2.變 化 值 (Change value)：
<table>
<tr><th></th><th>COG</th><th>X7R</th><th>Z5U</th><th>Y5V</th></tr>
<tr><td>ΔC/C</td><td>≦±2%,
or ±2pf</td><td>≦±10%</td><td>≦±20%</td><td>≦±30%</td></tr>
<tr><td>DF</td><td colspan="4">≦1.5 × initial requirement</td></tr>
<tr><td>IR</td><td colspan="4">≧0.25 × initial requirement</td></tr>
</table></td></tr>
<tr><td>引出端強度
Strength of Lead</td><td>固定電容器並在兩端導線加力.
Fix the body of capacitor, apply a tensile weight gradually to each lead.</td><td>拉力：臥式電容器：＞3 kg
立式電容器：＞1 kg
Pull ：Axial ：＞3 kg
Radial：＞1 kg</td></tr>
</table>