WQC 东莞市威庆电子有限公司

DONGGUAN WEIQING ELECTRONIC CO., LTD

SPEC NO.:2021121801

REV.:B

承 认 书

SPECIFICATION

客户名称(CUSTOMER): 深圳市立创电子商务有限公司

产品名称(PRODUUCT NAME): Y1 安规电容

承认规格(APPROVE ITEM): 102M/400V P=10MM L=25MM Y5V

威庆料号(WEIQING PART NO.): O11G2102M06DL25010

客户料号(CUSTOMER PART NO.): C216498

送样日期(SUBMIT THE SAMPLE DATE):

产品尺寸(PRODUUCT SIZE): D*T=6*3.8mm

样品印字(SAMPLE PRINT): WQC 品牌

威 庆 确 认 表

WEIQING CONFIRM LIST

APPROVED	CHECKED	PREPARED
BASE	魏桂亮	何湘华

客 户 承 认 结 果

CUSTOMER ACKNOWLEDGE THE RESULT

地址：中国东莞松山湖高新技术产业开发区科技十路 7 号 12 栋
Add: Building 12,No.7 Tenth Road of Science&Technology, DongGuan SongShan Lake High-tech Industrial Development Zone China TEL：0769- 88956188/88956198 FAX：0769- 88956168

Approved/Recognized Type

Related Standard		Certificate NO	Approved Monogram
CQC (China)	GB/T6346.14-2015	CQC18001201774(Y1) CQC18001201460(Y2)	
UL(USA) CSA(Canada)	IEC 60384-14	E466405	
ENEC (EU)	EN 60384-14	ENEC-40049864	
VDE (Germany)	EN 60384-14	40050021(Y1) 40049864(Y2)	
KC（South Korea）	KC60384-14(2015-09) KC60384-1(2015-09)	SU03073-19002 (Y1) SU03073-19001 (Y2)	

Specifications

Operating Temp.Range	－40℃ to ＋125℃			
Applicable Standards	UL, CSA, CQC, ENEC, VDE		X1	Y1
			440VAC	400VAC
Dielectric Withstanding Voltage	Rted Voltage		Test Voltage	
	400VAC		4000 VAC for 1 min.漏电流小于 5MA	
Dissipation Factor (D.F)	Y5P Y5U	TANδ(DF) ≦2.5%,measured at 1KHz±10%,1.0 － 5.0 Vrms,25℃		
	Y5V	TANδ(DF) ≦5.0%,measured at 1KHz±10%,1.0 － 5.0 Vrms,25℃		
Capacitance(C)	Range	10 pF to 4700 pF. measured at 1KHz±10%, 1.0 － 5.0 Vrms, 25℃		
	Tolerance	±10%	Y5P	
		±20%	Y5U,Y5V	
Insulation Resiatance(IR)	10000 MΩ , 1 min , 100 VDC			
Temperature Characteristics	Type Code	Temp. Coeff.	Temp. Range	
	Y5P	±10%	－40℃ to ＋125℃	
	Y5U	+22~－56%	－40℃ to ＋125℃	
	Y5V	+22%~－82%	－40℃ to ＋125℃	

Ceramic Capacitor Part number system

The 18 digits part number is formed as follow:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
O	1	1	G	2	1	0	2	M	0	6	D	L	2	5	0	1	0

Digit 1~3 Type Code

Code	Type	Code	Type	Code	Type	Code	Type
O11	Y1 Y5V	O21	Y1 Y5U	O25	NPO	O29	Y5V
O12	Y2 Y5V	O22	Y2 Y5U	O26	SL	O30	N750
O13	Y1 Y5P	O23		O27	Y5P	O31	N3300
O14	Y2 Y5P	O24		O28	Y5U	O32	Y5R

Code explain:

Code	TYPE	NOTS
Ceramic Safety Capacitors		
O11	Y1 Y5V	Y1/400Vac 材质 Y5V 安规电容器
O12	Y2 Y5V	Y2/300Vac 材质 Y5V 安规电容器
O13	Y1 Y5P	Y1/400Vac 材质 Y5P 安规电容器
O14	Y2 Y5P	Y2/300Vac 材质 Y5P 安规电容器
O21	Y1 Y5U	Y1/400Vac 材质 Y5U 安规电容器
O22	Y2 Y5U	Y2/300Vac 材质 Y5U 安规电容器
Ceramic Capacitors		
O25	NPO	温度特性 0+/-60m\ppm/^{0}C
O26	SL	温度特性+100~-1000ppm/^{0}C
O27	Y5P	温度特性+/-10%
O28	Y5U	温度特性+22%-56%
O29	Y5V	温度特性+22%-82%
O30	N750	温度特性-750ppm/^{0}C
O31	N3300	温度特性-3300ppm/^{0}C
O32	NPO	温度特性+/-15%

Digit 4~5 Rated Voltage Code

	A	B	C	D	E	F	G	H	J	K	L	M	N
1		12	16	20	25			50	63			1100	
2	100	125	160	200	250	315	400	500	630	800	120		
3	1000	1250	1600	2000	2500	3000	4000	5000	6000	8000	1200	1400	
	P	Q	R	S	T	U	V	W	X	Y			
1	240	300	330	440	540	600	700	850	900				
2	275	305	350	450	520		760						
3	280	310		480									

Explanation:Refer to JIS standard,Letter and then number indicate AC,but number and then Letter indicate DC,for example,2A indicate 100VDC,A2 indicate 100VAC.

Digit 6~8 Capacitance Expressed in 3-digit code 3 Code

The first 2digits indicate significant figures,and the third digit specifies the number of zero to follow.

This gives the capacitance in picofarads.

For examples：

102=10*10^2PF=1,000PF=1.0nF=0.001uF 105=10*10^5PF=1,000,000PF=1000nF=1uF

Digit 9 Capacitance Tolerance Code

Tolerance	±0. 25PF	±0. 5PF	±5%	±10%	±20%	+50%/−20%	+80%/−20%	+100%/−0%
Code	C	D	J	K	M	S	Z	P

Digit 10~11 Diameter Size Code

Diameter Type

Diameter max(mm)徑	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	…
Case No.	05	06	07	08	09	10	11	12	13	***

Digit 12 Lead Spacing Code

Pitch	2.5	5.0	7.5	10	Special
Case No.	A	B	E	D	Z

Digit 13 Lead Form Code

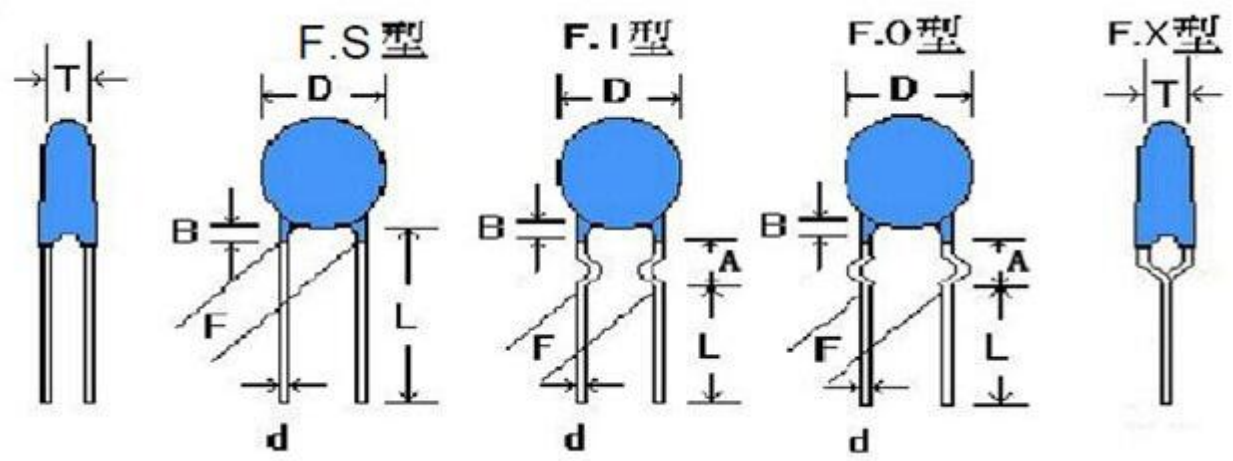
Lead Type

Code	L	H	K	M	O	P	R	T	S
Lead Type	Long line	Short line	Inside of bending	Outside of bending	Double curved	Before and afterbecome warped line	The bending line	Taping	Customer Special Require

Digit 14~16 Lead Length(Straight) and Tolerance of Lead Length(straight) and Expreesed in 3-Letter Code

Example：Code 035:35/10=3.5mm 230:230/10=23mm

Digit 17~18 Internal use Color\material group\packing\ place of production



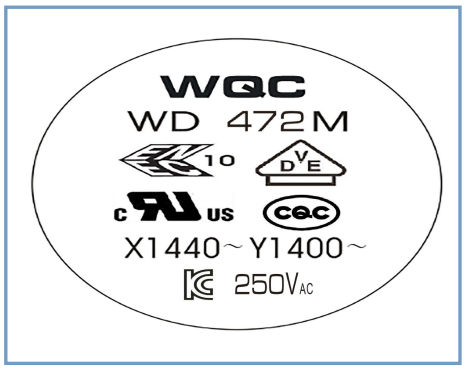
Dimensions and Tolerance
B=3.0mm max for AA
L=23mm

编带详细参数看 P11.

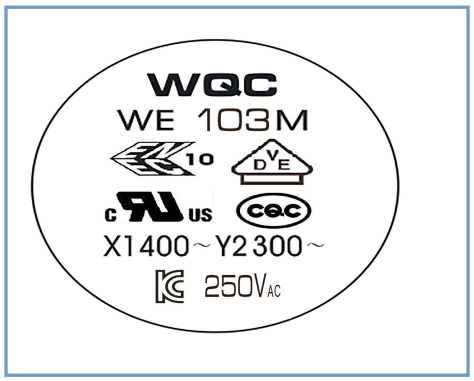
Approved Spec. Data

Name specification	D±0.5mm	F±0.8mm	L±3mm	T±0.5mm	d±0.1mm	B	A
Y5V 102M 400VAC	6	10	25	3.8	0.55	<2.5	<3.0

Y1 電容器實物樣式圖



Y2 電容器實物樣式圖



Marking:
a. Company name code WQC
b. Product Type WD&WE Series
c. Nominal Capacitance & Tolerance 102 = 1000pF, K= ±10%, M= ±20%
d. Safety Class such as Y1&Y2
e. Recognized Type

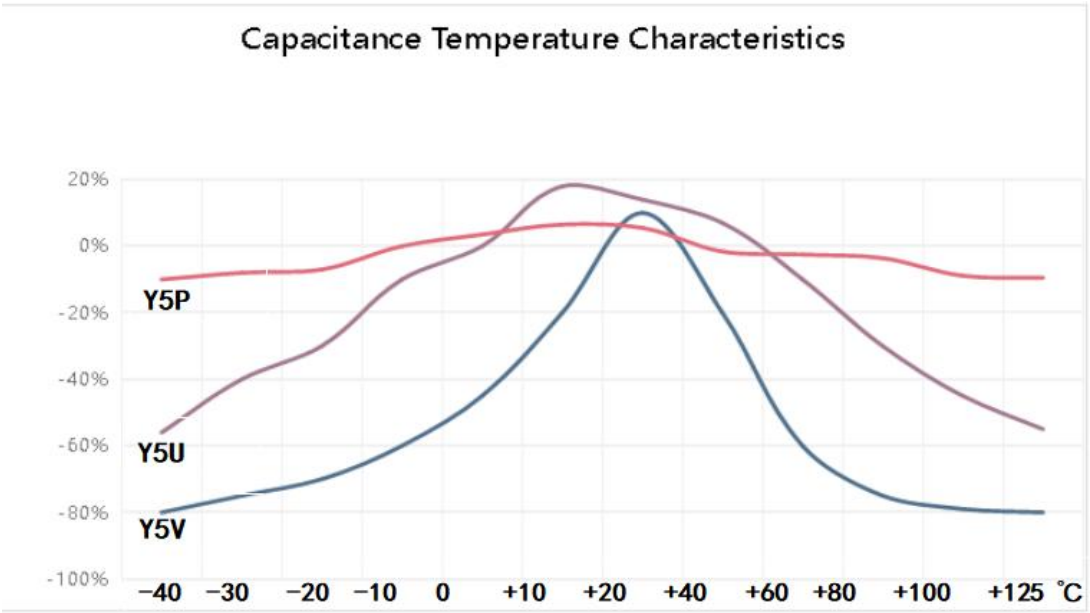
f. Rated Voltage

Packing Quantity:

Packing	Safety Capacitor	High Voltage Capacitor(Y1, Y2)	*Ceramic Capacitor DC*
Bulk	1000Pcs	1000Pcs	1000Pcs
Tape Ammo	2000Pcs	1500Pcs	2000Pcs

ROHS Compliance , SVHC

EIA TEMPERATURE CHARACTERISTIC CHART			
Firs Digit is low Temperature	Second Digit is High Temperature	Last Digit is Capacitance Change Over Temperature Range From + 25 C Reading	
X： - 55℃	4： + 65℃	A	± 1.0 %
Y： - 25℃	5： + 85℃	B	± 1.5 %
Z： + 10℃	6： + 105℃	C	± 2.2 %
	7： + 125℃	D	± 3.3 %
	8： + 150℃	E	± 4.7 %
		F	± 7.5 %
		P	± 10 %
		R	± 15 %
		S	± 22 %
		T	+ 22 % - 33 %
		U	+ 22 % - 56 %
		V	+ 22 % - 82 %



NO.	Item		Characteristic	Test Method	
1	Appearance and Dimensions		Please refer to figures and tables on page 2, 3 and 4.	1~1 1~2	"Production line visual inspection must be done in full and remove the defective products." "Dimensions measurement by micrometer and Caliper
2	Marks		Must be clean and clear.	2~1	Label need to be able endure wiping with Isopropanol
3	Withstand voltage test (I)	Between terminal	Can not have exceptions.	3~1	Rated voltage: 300VAC for Y2, test voltage 2000 VAC or 2600 VAC, time 60s, frequency: 50Hz/60Hz. **Rated voltage: 400VAC for Y1, test voltage 4000 VAC, Approval and period test: 60s, Lot inspection 100% and time 2s, dicharge current must ≦50 mA."**
		Between terminal and coating.	Can not have exceptions.	3~2	Use metal foil test method: use metal foil wrap around the capacitor body, each end extending at least 5mm, and keep 1mm/1kV distance minimum, between metal foil and terminals. for Y2, test voltage 2300VAC; for Y1, test voltage 4000VAC, test time 60s.
4	Withstand voltage test(III) (For safety symbol A2)		(1)Gauze shall not ignite. (2)Capacitors shall not in burned.	4~1	According to IEC 60384-14 and GB / T 14472 requirements.
5	Withstand voltage test (IV)(For safety symbol B2)		(3)Elements and coating must not scattered. (4)Terminals can not be moved away from the mounting position than 3mm.	5~1	According to IEC 60384-14 and GB / T 14472 requirements.
6	I R	Between terminals	More than 10000MΩ.	6~1	Measured voltage is 100 ± 15V within 1 minute, and IR keeps within the specified value.
		Between terminals and coating.	More than 10000MΩ.		
7	Capacitance		Within specified tolerance	7~1	The Capacitance shall be measured at 25℃, with 1±0.1kHz and 5Vrms max
8	Dissipation Factor(D.F)		B(Y5P) tan ≦2.5% E(Y5U) tan ≦2.5% F(Y5V) tan ≦5.0%	8~1	"The Dissipation Factor shall be measured at 25℃ with 1±0.1kHz and 5Vrms max

NO	Item	Characteristic			Test Method	
9	Temperature Characteristic	Temperature Coefficient (T.C. category applicable):			9~1	Temperature Coefficient (T.C. category applicable):
		TYPE Temp.Range	SL	YN	9~2	PPM/℃＝(Ct2－ Ct1) /Ct1*(t2－t1)

		20~85℃	+350~-1000ppm/℃	-800~-5800ppm/℃	9~3	Ct2：the capacitance of t2 Ct1：the capacitance of t1 t2：85℃±3℃ t1：20℃±2℃
		Temperature characteristics: (High Dielectric applicable) Capacitance change rate within the range: Type B Within ±10% Type E Within +22% −56% Type F Within + 30% − 80%			9~3	Temperature phase 1) 20±2℃ → 2) -25±2℃ → 3) 20±2℃ →4) 85±2℃ →5) 20±2℃ Capacitance change: (High Dielectric Category applicable) C .C(%)=(Ctx−Ct20)/Ct20*100 Ctx： Except Temp. phase 1、3、5, The capacitance of any temperature between phase 2 to phase 4. Ct20： The capacitance of phase 3 temp.
10	Robustness of terminations	Tensile	Lead wires not be snapped Capacitors not be damaged		10~1 10~2	Diameter (mm) / Load(kgs) / Time(sec) 0.5Φ / 0.5 / 10 0.6Φ~0.8Φ / 1 / 10 Fix the capacitor's body and apply a tensile weight gradually to each lead wire in the radial direction
		Bending	Lead wires not be fractured Capacitors not be damaged		10~3	Diameter (mm) / Load(kgs) / Bending angle is 90 more than twice. 0.5Φ / 0.25 0.6Φ~0.8Φ / 0.5
11	Vibration resistance	Appearance	No significant abnormal		11~1	Vibration frequency from 10Hz to 55Hz and back to 10Hz, amplitude 1.5mm, period time within 1 minute。
		Cap. Change	Within specification			
		Q or DF	Within initial specification			
12	Soldering Heat Resistance	Appearance	No significant abnormal		12~1	Solder temperature 350±10℃ Immersion time 3.0± 0.5sec Placed at room condition for 4~24 hours, and then to measure.
		Dielectric StrengthI	compliance with the characteristic as No.3		12~2	
		Capacitance change rate	B: within ±10% E: within ±15% F: within ±20%		12~3	
No.	Item	Characteristic	Test Method			

13	Solder ability	The round surface of lead wires, there must be 3/4 area welding with the solder.。	13~1 13~2		Solder temperature 275±10℃ Immersion time 2.0± 0.5sec
14	Humidity (Under Steady State)	Appearance	No significant abnormal	14~1 14~2 14~3 14~4	Temperature：40±2℃ Humidity：90~95%RH Time：500±12 Hrs Remove & placed at room condition for 1~2 hours, and then to measure.
		Dielectric StrengthI	Must meet the requirements of No.3		
		I R: Between terminals	More than the 1/2 value of No.6 requirements.		
		I R: Between terminal& coating			
		Capacitance change rate	Type B within ±15% Type E within ±20% Type F within ±30%		
		Dissipation Factor (D.F)	Type B & E, under 5%. Type F, under 7.5%		
15	Damp heat loading	Appearance	No significant abnormal	15~1 15~2 15~3 15~4 15~5 15~6	Temperature：40±2℃ Humidity：90~95%RH Time：500±12 Hrs Voltage: AC 180Vrms Current：Less than 50mA Remove & placed at room condition for 1~2 hours, and then to measure.
		Dielectric StrengthI	Must meet the requirements of No.3		
		IR: Between terminals Between terminal& coating	More than the 1/2 value of No.6 requirements.		
		Capacitance change rate	Type B within ±15% Type E within ±20% Type F within ±30%		
		Dissipation Factor (D.F)	Type B & E, under 5% Type F, under 7.5%.		

<table>
<tr><th>No</th><th>Item</th><th colspan="3">Characteristic</th><th colspan="2">Test Method</th></tr>
<tr><td rowspan="5">16</td><td rowspan="5">Endurance</td><td colspan="2">Appearance</td><td>No significant abnormal</td><td rowspan="5">16~1

16~2

16~3

16~4

16~5</td><td rowspan="5">Temperature：85±3℃; 125±5℃

Time： 1000±12 Hrs

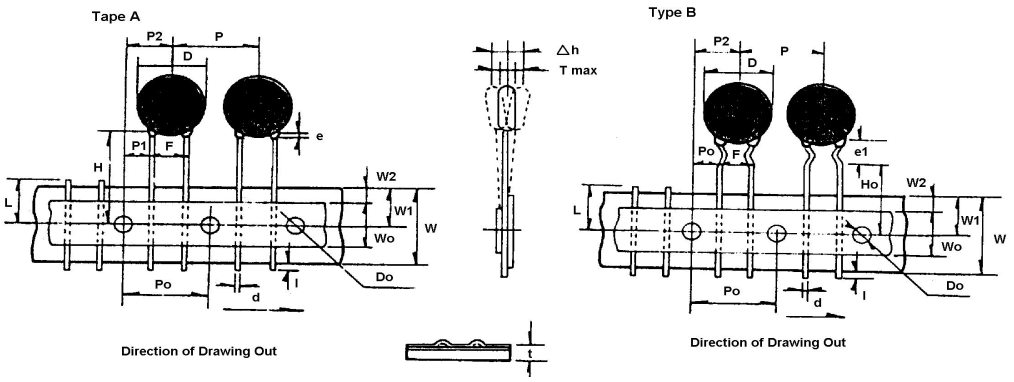
Voltage: rated voltage of 1.7UR

Current： less than 50mA

Remove & placed at room condition for 1~2 hours, and then to measure.</td></tr>
<tr><td colspan="2">Dielectric StrengthI</td><td>"Must meet the requirements of No.3</td></tr>
<tr><td rowspan="2">I R</td><td>Between terminals</td><td rowspan="2">More than the 1/2 value of No.6 requirements.</td></tr>
<tr><td>Between terminal&coating</td></tr>
<tr><td colspan="2">Capacitance change rate</td><td>Type B within ±15%
Type E within ±20%
Type F within ±30%</td></tr>
<tr><td colspan="2">Dissipation Factor (D.F)</td><td>Type B & E, under 5%
Type F, under 7.5%</td></tr>
<tr><td>17</td><td colspan="3">Flame Test</td><td>Applicable
safety symbols A2, B2.</td><td></td><td>The capacitor should be subjected to applied flame for 15 sec, and then removed for 15 sec, until 3 cycles are completed. And then continued to flame a minute and never to explode.</td></tr>
<tr><td>18</td><td colspan="3">Solvent Resistance (Body)</td><td>After the test must meet the standards of its electrical properties</td><td></td><td>The capacitor should be immersed into a isopropyl alcohol for 5±0.5 minutes, then removed and placed for 48 hrs. at room condition before post measurements.</td></tr>
<tr><td>19</td><td colspan="3">Solvent Resistance (Mark)</td><td>Marks should be legible</td><td></td><td>Use cotton yarn dips isopropyl alcohol, by force 5±0.5 N/1 cm^2, 1 second round trip twice to wipe mark on the body, and run 5 cycles.</td></tr>
<tr><td>20</td><td colspan="3">Rapid change oftemperature</td><td>No visible damage</td><td></td><td>TA=Lower category temperature
TB =Upper category temperature
5 cycles
Duration t1=30 min</td></tr>
</table>

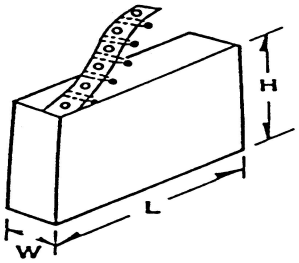
TAPING SPECIFICATIONS

Taping (Radial)--Lead Spacing F=7.5±0.8 or 10.0±0.8



Item		Code	Dimensions (mm)	Item	Code	Dimensions (mm)
Taping Pitch		P	12.7±1.0	Lead Protrusion	l	+0.5~1.0
Guide Pitch		Po	12.7±1.0	Diameter of Feed Hole	Do	4.0±0.3
Lead Spacing		F	5.0±0.8 7.5±0.8 9.5±0.8	Diameter of Lead	d	0.55+0.06-0.05
Feed Hole Position Capacitor Body		P2	6.35±1.3	Total Thickness of Tape	t	0.7±0.2
Feed Hole Position Capacitor Lead		P1	3.85±0.7	Thickness of Capacitor Body	T	Differ in each product
Diameter Of ISO		D	See table of each series	Alignment to FR. Direction	Δh	0±2.0
				Length of snipped Lead	L	3.5±0.3mm
Width Of Base Tape		W	18.0±0.5	Width of Hold-down Tape	Wo	12.5
Feed Hole Vertical Position		W1	9.0 +0.75 -0.05	Hold-down Tape Position	W2	1.5±1.5
Taping Height	For Straight	Ho	16.0±0.5	Coating Extention	e	3.0 以下
	For Crimp	H	20 +1.5 -1.0		e1	up to center of crimp

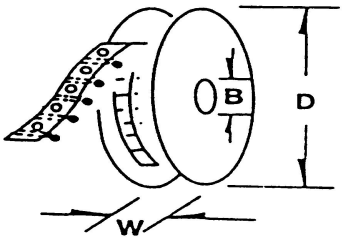
AMMO PACK



H =241±5 mm
L = 332±5 mm
W = 42 ±3 mm

Acceptable to standard radial type cartridge.

REE

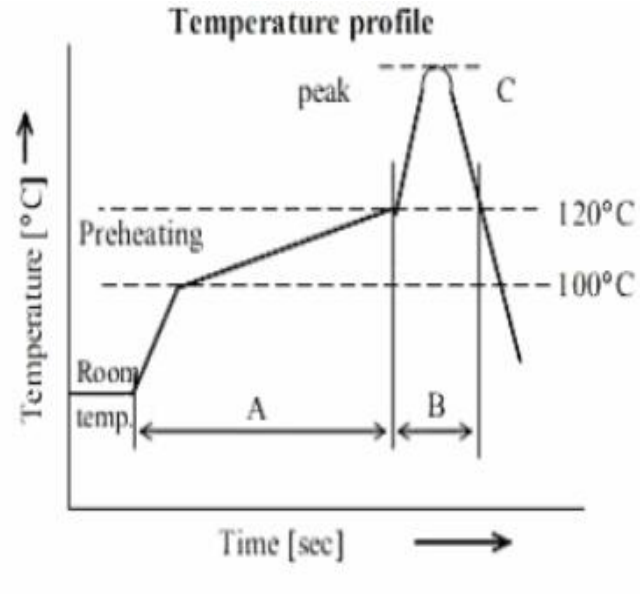


Acceptable to standard radial type cartridge with a few extra accessories. Reeled axials are also acceptable to standard axial type cartridge with a few accessories.

Lead Free wave soldering conditions

Component: Film Capacitors

1.Wave flow soldering



Recommendable condition

	Conditions	Values	Unit
A	Heating time	50-100	sec
	Heating temperature	100-120	℃
	Temp. rise gradient	1-2	℃/sec
B	Dipping time	<10	sec
C	Peak temperature	260	℃
	Peak-temp. hold time	Momentary	sec

2.Requirement (Wave flow soldering):

Polypropylene film capacitors body temperature less than 105℃, 60sec

Polyester film capacitors body temperature less than 120℃,60sec

此类薄膜系列电容在客户端过波峰焊操作时，绝对不能过回流焊和 2 次波峰焊，否则产品会因热收缩导致性能问题。

3.Wave Flow soldering (solder dipping)

Peak temperature	260°C
Dipping time	<10 sec
Soldering	1 time

component for Insertion :Dipping to the lead joint of component

4.Hand soldering

Soldering iron tip temperature	350℃
Soldering time	3 sec