HF

PRODUCT SPECIFICATION

PRODUCT: Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose

TYPE: SYW SERIES（Y1:250V~/400V~）

CUSTOMER: _____

DOC. NO.: POE-D31-00-E-01

APPROVED BY CUSTOMER

VENDOR：

☐ **WALSIN TECHNOLOGY CORPORATION**
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TAO-YUAN, TAIWAN

☐ **PAN OVERSEAS (GUANGZHOU) ELECTRONIC CO.,LTD.**
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GUANG ZHOU ECONOMIC AND TECHNOLOGY
DEVELOPMENT ZONE,CHINA

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ZONE,DALANGTOWN,DONGGUAN CITY, GUANGDONG PROVINCE

PSA

POE

Record of change

Date	Version	Description	page
2021/1/7	00	1. First edition.	All
2021/6/30	01	2. Add “HF” logo	1

Table of Contents

1. Part number for SAP system:

(Ex.) **YU** **S YW** **102** **M** **P** **00**
(1) **(2)** **(3)** **(4)** **(5)** **(6)**

(1) Temperature characteristic (identified code)

CODE	Temperature characteristic	Cap. Change
SL	SL	-1000~+350PPM/℃ (+20℃~+85℃)
YP	B (Y5P)	±10%
YU	E (Y5U)	-56% to +22%
YV	F(Y5V)	-82% to +22%

(2) SMD Type： SYW (Y1:250Vac/400Vac)

(3) Capacitance (identified by 3-figure code):ex. 221=220pF , 102=1000pF

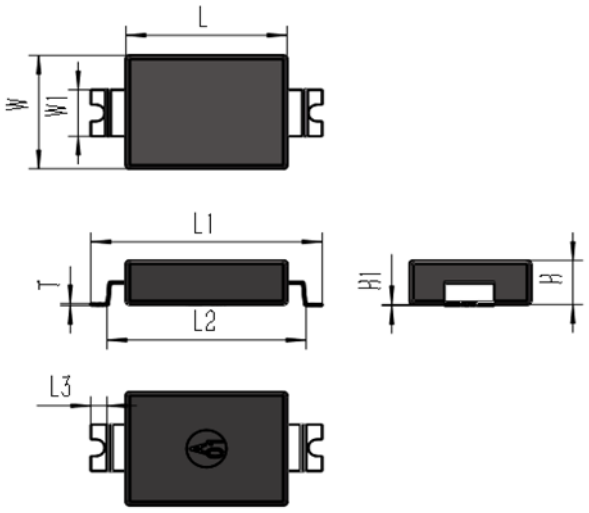
(4) Capacitance tolerance (identified by code): J:±5%,K:±10%,M:±20%

(5) Special Specification Code :

Code	Description
P	Pb Solder Product

(6) Internal code: 00--Normal, other code--Special control

2. Mechanical: Encapsulation：Epoxy resin, flammability UL94 V-0



Dimension(mm)			
L	7.8±0.1	W1	2.5±0.05
W	5.4±0.1	T	0.13±0.02
H	2.38±0.05	H1	0.05±0.03
L1	9.6±0.2	L3	0.5±0.1
L2	8.4±0.2		

3. Part numbering/T.C/Capacitance/ Tolerance：

SAP P/N	T.C.	Capacitance	Tolerance
SLSYW100JP00	SL	10 pF	±5%
SLSYW220JP00		22 pF	
SLSYW470JP00		47 pF	
SLSYW680JP00		68 pF	
YPSYW101KP00	Y5P	100 pF	±10%
YPSYW221KP00		220 pF	
YPSYW331KP00		330 pF	
YPSYW471KP00		470 pF	
YUSYW471MP00	Y5U	470 pF	±20%
YUSYW681MP00		680 pF	
YUSYW102MP00		1000 pF	
YUSYW152MP00		1500 pF	
YVSYW222MP00	Y5V	2200 pF	±20%

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4. Marking:

1.Company Name Code(Trade mark)	UK
2.Type/Series Designation	SYW
3.Code of Dielectric	SL / B(Y5P) / E(Y5U) / F(Y5V)
4.Nominal Capacitance	Identified by 3-Figure Code. Ex. 470pF→"471", 1000pF→"102"
5.Capacitance Tolerance	J:±5%,K:±10%,M:±20%
6.Class code/Rated Voltage Mark	Y1 / 250V~ ;400V~
7. Safety certification mark	UL/cUL: c UL us ; ENEC: ; CQC: ; KC:
8. Products ID (Manufactured Date code, add as needed)	Abbreviation ex.: NB210303 N:2021 year B: Sn-Pb-Ag Solder 21: Machine and batch (production line traceability) 03: March 03:date
Marking sample	
	

5. Scope:

THIS SPECIFICATION APPLIES TO CERAMIC INSULATED CAPACITORS RESIN MOLDING SMD TYPE USED IN ELECTRONIC EQUIPMENT.

5.1Applicable safety standard

This specification applies to the UL/CUL, VDE/ENEC, CQC and KC approved ceramic capacitors resin molding SMD type for antenna coupling, line-by-pass and across-the-line. X1, Y1 capacitor based on IEC60384-14.

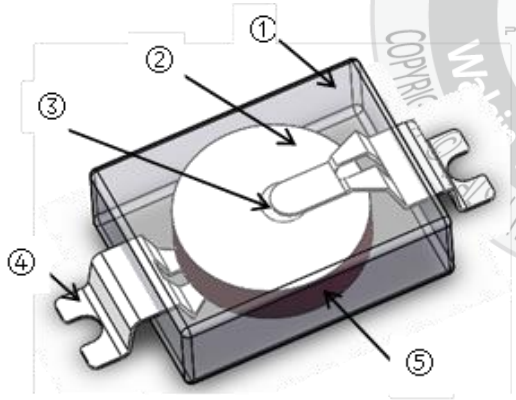
5.2 Safety standards approval and recognized no.

Safety Standard	Standard No.	Subclass	w.v.	Recognized No.
UL / CUL	ANSI/UL 60384-14	Y1	250Vac/400Vac	
ENEC	EN 60384-14:2013/A1:2016	Y1	250Vac/400Vac	
CQC	GB/T6346.14	Y1	400Vac	
KC	K60384-14	Y1	250Vac	

5.3 Exemption Clause

2010/571/EU 7(a)：Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)

5.4 Product Structure:



No.	名称 Part name	材料 Material	型号 Model	供应商 Maker
①	包封层 Coating	环氧树脂（UL94V-0 认定品）Epoxy molding compound (Conforming to UL94V-0 standard)	/	CHANGCHUN
②	电极 Electrode	银 Silver/铜 Copper	/	TRX
③	焊料 Solder	Sn-Pb-Ag 系焊料 Sn-Pb-Ag Solder	/	GUOTONG
④	引线 Lead wire	铜系合金 Copper alloys	/	BW
⑤	介质 Dielectric	陶瓷 Ceramic	全系列 All series	TRX

6. Specification and test method:

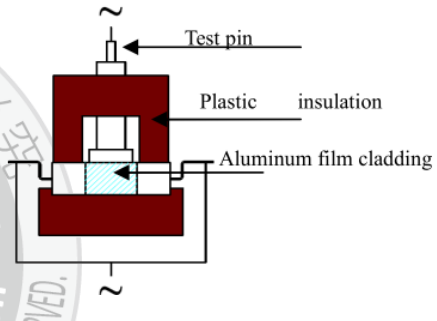
6.1 Operating Temperature Range: -40 to +125℃

6.2 Test condition:

Test and measurement shall be made at the standard condition. (temperature 15~35℃, relative humidity 45~75% and atmospheric pressure 860~1060hpa). Unless otherwise specified herein.

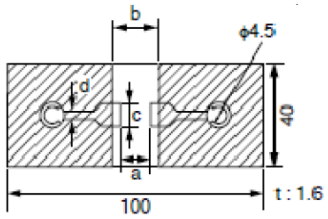
If doubt occurred on the value of measurement, and measurement was requested by customer capacitors shall be measured at the reference condition. (temperature 20±2℃or25 ± 2℃, relative humidity 60~70% and atmospheric pressure 860~1060hpa.)

6.3 Performance:

<table>
<tr><th>No</th><th colspan="2">Items</th><th>Specification</th><th>Testing method</th></tr>
<tr><td>1</td><td colspan="2">Appearance and dimensions</td><td>No marked defect on appearance form and dimensions.
Please refer to [Part number list].</td><td>The capacitor should be inspected by naked eyes for visible evidence of defect.
Dimensions should be measured with slide calipers.</td></tr>
<tr><td>2</td><td colspan="2">Marking</td><td>To be easily legible.</td><td>The capacitor should be inspected by naked eyes.</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Dielectric Strength</td><td>Between lead wires</td><td>No failure.</td><td>The capacitor should not be damaged when AC4000V(r.m.s.) <50/60Hz> is applied between the lead wires for 60 s.
(Charge/Discharge current ≦50mA.)</td></tr>
<tr><td>Body Insulation</td><td>No failure.</td><td>First, the terminals of the capacitor should be connected together, and the capacitor should be wrapped closely with an aluminum film around the body of the capacitor to a distance about 2 to 3mm from each terminal. Then, put the capacitor into the testing jig as shown in below figure.
Finally, apply AC4000V(r.m.s.) <50/60Hz> for 60 sec.
(Charge/Discharge current ≤ 50mA.)
 
</td></tr>
<tr><td>4</td><td>Insulation Resistance</td><td>Between terminals</td><td>6000MΩ min.</td><td>The insulation resistance should be measured with DC100±50V within 60±5 s of charging.
The voltage should be applied to the capacitor through a resistor of 1MΩ</td></tr>
<tr><td>5</td><td colspan="2">Capacitance</td><td>Within specified tolerance</td><td>Y5P,Y5U&Y5V: The capacitance shall be measured at 25±3℃ with 1KHz±20% and 1.0±0.2Vrms.
SL: The capacitance shall be measured at 25±3℃ with 1MHz±20% and 1.0±0.2Vrms</td></tr>
<tr><td>6</td><td colspan="2">Dissipation Factor(D.F.)
Q</td><td><table><tr><th>Char.</th><th>Specifications</th></tr><tr><td>B(Y5P)
E(Y5U)
F(Y5V)</td><td>2.5% max.</td></tr><tr><td>SL</td><td>1.0% max.</td></tr></table></td><td></td></tr>
<tr><td>7</td><td colspan="2">Temperature Characteristic</td><td><table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>B(Y5P)</td><td>Within ± 10%</td></tr><tr><td>E(Y5U)</td><td>Within +22/-56%</td></tr><tr><td>F(Y5V)</td><td>Within +22/-82%</td></tr></table>(Temp. range: -25 to +85°C)
<table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>SL</td><td>-1000~+350 ppm/℃</td></tr></table>(Temp. range: +20 to +85°C)</td><td>The capacitance measurement shall be made at each step specified in Table<table><tr><th>Step</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th></tr><tr><td>Temp.(℃)</td><td>+25±2</td><td>-25±2</td><td>+25±2</td><td>+85±2</td><td>+25±2</td></tr></table>Pre-treatment:
Capacitor shall be stored at 125±2℃ for 1hour, then placed at ※1room condition for 24±2hours before measurements.</td></tr>
<tr><td>8</td><td colspan="2">Solderability of Leads</td><td>Lead wire should be soldered with uniform coating on the axial direction over 3/4 of the circumferential direction.</td><td>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion).
Immerse in solder solution for 2±0.5 sec.
Immersing speed: 25±2.5mm/s
Temp. of solder: 245±5℃ Lead Free Solder (Sn-3.0Ag-0.5Cu)</td></tr>
</table>

※ "room condition" temperature：15~35℃, humidity：45~75%,atmospheric pressure：86~106kPa

※ "C" expresses nominal capacitance value (pF).

<table>
<tr><th>No</th><th colspan="2">Items</th><th>Specification</th><th>Testing method</th></tr>
<tr><td>9</td><td>Deflection</td><td>Appearance</td><td>No marked defect.
 

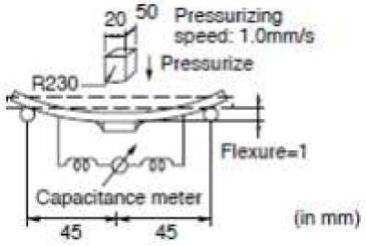
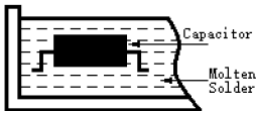
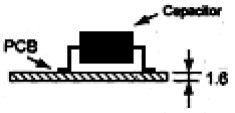
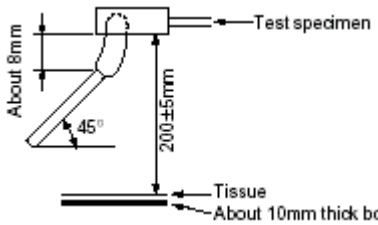
<table>
<tr><th colspan="4">Dimension(mm)</th></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td></tr>
<tr><td>9.6</td><td>11.7</td><td>2.7</td><td>1.0</td></tr>
</table></td><td>Solder the capacitor to the test jig(glass epoxy board)shown in Fig.1
Then apply a force in the direction shown in Fig.1. The soldering should be done using reflow method and should be conducted with care so that the soldering is uniform a free of defects such as heat shock.
 

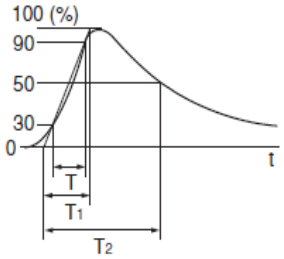
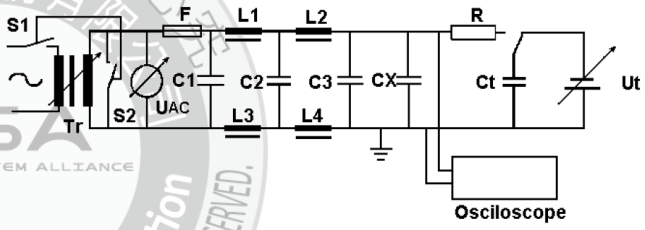
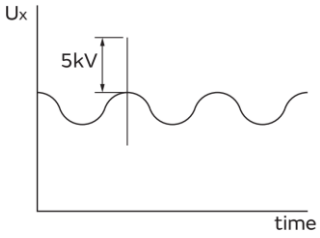
Fig.1</td></tr>
<tr><td rowspan="4">10</td><td rowspan="4">Resistance to Soldering Heat</td><td>Appearance</td><td>No marked defect.</td><td rowspan="4">Preheat the capacitor as in table.
Immerse the capacitor in solder solution at 260±5℃ for 10±1 sec. Let sit at room condition for 24±2 hrs., then measured.
Immersing speed: 25±2.5mm/s
 

Pretreatment for Y5P、Y5U char. Perform a heat treatment at 150±5℃ for 60±5 min. and then let sit for 24±2 hrs. at room condition.
Preheating:
<table>
<tr><th>Step</th><th>Temperature</th><th>Time</th></tr>
<tr><td>1</td><td>100 to 120℃</td><td>1 min.</td></tr>
<tr><td>2</td><td>170 to 200℃</td><td>1 min.</td></tr>
</table></td></tr>
<tr><td>I.R.</td><td>1000 MΩ min.</td></tr>
<tr><td>Dielectric Strength</td><td>Per item 3</td></tr>
<tr><td>Capacitance Change</td><td>B(Y5P)：Within ±10%
E(Y5U),F(Y5V)：Within ±20%
SL：Within±5% or ±0.5pF,
Whichever is large.</td></tr>
<tr><td>11</td><td>Vibration Resistance</td><td>Appearance</td><td>No marked defect.</td><td>Solder the capacitor to the test jig (glass epoxy board).
 

The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 to 55Hz.The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1min.This motion should be applied for a period of 2hrs.in each of 3 mutually perpendicular directions (total of 6hrs.).</td></tr>
<tr><td>12</td><td colspan="2">Passive Flammability</td><td>The burning time shall not be exceeded the time 30 sec. The tissue paper shall not ignite.</td><td>The capacitor under test shall be held in the position which best promotes burning. Each specimen shall only be exposed once to flame. Time of exposure to flame: 30sec.
Length of flame : 12±1mm
Gas burner: Length 35mm min.
Inside Dia. : 0.5±0.1mm
Outside Dia. : 0.9mm max.
Gas: Butane gas Purity 95% min.
 
</td></tr>
</table>

※ "room condition" temperature：15~35℃, humidity：45~75%,atmospheric pressure：86~106kPa

Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose SYW Series (Y1:250V~/400V~)	POE-D31-00-E-01	Ver: 01	Page: 10 / 17

No	Items		Specification	Testing method
13	Life	Appearance	No marked defect.	Impulse Voltage Each individual capacitor shall be subjected to 8kV impulses for three times. After the capacitors are applied to life test. The waveform will be determined by the test circuit parameters. Details of the test circuit are given in IEC 60384-14 Annex A.  Front time (T1) =1.2μs=1.67T Time to half-value (T2) =50μs The specimen capacitors are placed in a circulating air oven for a period of 1000 hours. The air in the oven is maintained at a temperature of 125±3℃. Throughout the test, the capacitors are subjected to an AC680Vrms. alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(rms.) for 0.1 sec. Pre-treatment: Capacitor shall be stored at 150±5℃ for 1hour.then placed at ※1room condition for 24±2hours before initial measurements. Post-treatment: Capacitor shall be stored for 1 to 2hours at ※1room condition.
		Capacitance Change	B(Y5P),E(Y5U),F(Y5V)： Within ±20% SL：Within±5% or ±1.0pF, Whichever is large.	
		I.R.	3000MΩ min.	
		Dielectric Strength	Per Item 3	
14	Active Flammability		The cheesecloth shall not be on fire.	The specimens shall be individually wrapped in at least one but more than two complete layers of cheesecloth. The specimens shall be subjected to 20 discharges. The interval between successive discharges shall be 5 sec. The UAC shall be maintained for 2 min after the last discharge.  C1,2：1uF±10% C3：0.033uF±5% 10KV L1-4：1.5mH±20% 16A Rod core choke R ：100Ω±2% Ct：3uF±5% 10KV Uac：Ur±5% Ur：Rated working voltage Cx ：Capacitor F ：Fuse, Rated 10A Ut ：Voltage applied to Ct 

※ "room condition" temperature：15~35℃, humidity：45~75%,atmospheric pressure：86~106kPa

<table>
<tr><th>No</th><th colspan="2">Items</th><th>Specification</th><th>Testing method</th></tr>
<tr><td rowspan="4">15</td><td rowspan="4">Humidity (Under Steady State)</td><td>Appearance</td><td>No marked defect</td><td rowspan="4">Sit the capacitor at 40±2℃ and relative humidity 90 to 95% for 500+24/-0h. Remove and let sit for 24±2h at room condition*, then measure.

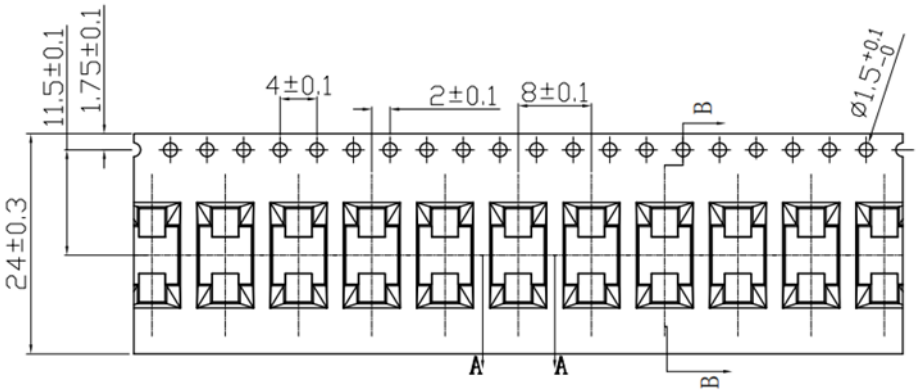
Pre-treatmen:
Capacitor should be stored at 150+0/-10℃ for 1h, and apply the AC4000V(r.m.s.) 60s then placed at room condition* for 24±2h berore initial measurements.</td></tr>
<tr><td>Capacitance Change</td><td>B(Y5P)： Within ±10%
E(Y5U),F(Y5V)： Within ±20%
SL：Within±5% or ±1.0pF,
Whichever is large.</td></tr>
<tr><td>D.F.</td><td><table><tr><th>Char.</th><th>Specifications</th></tr><tr><td>B(Y5P)
E(Y5U)
F(Y5V)</td><td>5.0% max.</td></tr><tr><td>SL</td><td>1.0% max.</td></tr></table></td></tr>
<tr><td>I.R.</td><td>B(Y5P),E(Y5U),F(Y5V)：3000MΩ min.
SL： 1000MΩ min.</td></tr>
<tr><td rowspan="4">16</td><td rowspan="4">Humidity Loading</td><td>Appearance</td><td>No marked defect</td><td rowspan="4">Apply the rated voltage at 40±2℃ and relative humidity 90 to 95% for 500+24/-0h. Remove and let sit for 24±2h at room condition*, then measure.

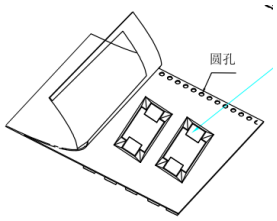
Pre-treatmen:
Capacitor should be stored at 150+0/-10℃ for 1h, and apply the AC4000V(r.m.s.) 60s then placed at room condition* for 24±2h berore initial measurements.</td></tr>
<tr><td>Capacitance Change</td><td>B(Y5P)： Within ±10%
E(Y5U),F(Y5V)： Within ±20%
SL：Within±5% or ±1.0pF,
Whichever is large.</td></tr>
<tr><td>I.R.</td><td>B(Y5P),E(Y5U),F(Y5V)：3000MΩ min.
SL： 1000MΩ min.</td></tr>
<tr><td>Dielectric strength</td><td>Per Item 3</td></tr>
<tr><td rowspan="5">17</td><td rowspan="5">Temperature Cycle</td><td>Appearance</td><td>No marked defect</td><td rowspan="5">The capacitor should be subjected to 5 temperature cycles,
<Temperature Cycle time: 5cycles>
<table><tr><th>Step</th><th>Temperature(℃)</th><th>Time(min)</th></tr><tr><td>1</td><td>-40+0/-3</td><td>30</td></tr><tr><td>2</td><td>Room temp.</td><td>3</td></tr><tr><td>3</td><td>125+3/-0</td><td>30</td></tr><tr><td>4</td><td>Room temp.</td><td>3</td></tr></table>
Pre-treatment: Capacitor shall be stored at 150±5℃ for 1hour.then placed at ※1room condition for 24±2hours before initial measurements.
Post-treatment: Capacitor shall be stored for 1 to 2hours at ※1room condition.</td></tr>
<tr><td>Capacitance Change</td><td><table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>B(Y5P)</td><td>Within ± 10%</td></tr><tr><td>E(Y5U)</td><td>Within ± 20%</td></tr><tr><td>F(Y5V)</td><td>Within ± 20%</td></tr><tr><td>SL</td><td>Within ± 10%</td></tr></table></td></tr>
<tr><td>D.F.</td><td><table><tr><th>Char.</th><th>Specifications</th></tr><tr><td>B(Y5P)</td><td>5.0% max.</td></tr><tr><td>E(Y5U)</td><td>7.5% max.</td></tr><tr><td>F(Y5V)</td><td>7.5% max.</td></tr><tr><td>SL</td><td>1.0% max.</td></tr></table></td></tr>
<tr><td>I.R.</td><td>3000MΩ min.</td></tr>
<tr><td>Dielectric strength</td><td>Per Item .3</td></tr>
</table>

※ “room condition” temperature：15~35℃, humidity：45~75%,atmospheric pressure：86~106kPa

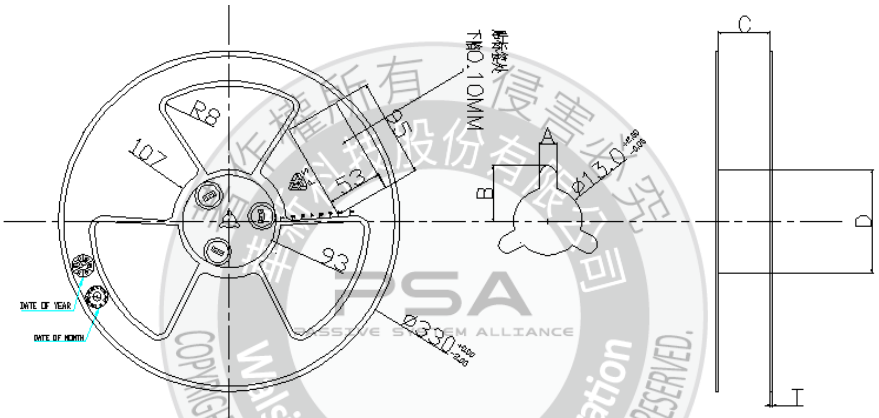
※ "C" expresses nominal capacitance value (pF).

7.Packing Description ：





Reel Drawing



SPEC	A±0.3	B±0.5	C +0.5 -0.0	D±0.5	T±0.2
24	2.3	10.75	24.4	Ø97	2.2

Q'ty/reel	reel size
3000pcs	13inch

Inner-packaging 内包装 ex.:

Reel Size：13inch
3.0Kpcs/Reel

Label 标签

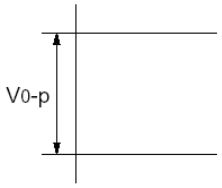
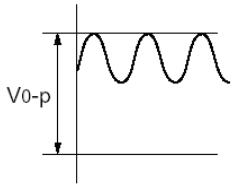
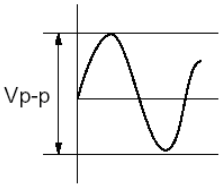
No.	Item
①	P/N 客户料号
②	Qty 数量
③	Mfr 料号
④	Date Code 生产日期
⑤	Lot# 生产批号
⑥	SPEC 规格

8. Caution:

8.1 Operating voltage

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the Vp-p value of the applied voltage or the Vo-p which contains DC bias within the rated voltage range.

When the voltage is started to apply to the circuit or it is stopped applying, the irregular voltage may be generated for a transit period because of resonance or switching. Be sure to use a capacitor within rated voltage containing these irregular voltage.

Voltage	DC Voltage	DC+AC Voltage	AC Voltage
Positional measurement			

8.2 Operating temperature and self-generated heat

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.

8.3 Test condition for withstanding voltage

(1) Test equipment

Test equipment for AC withstanding voltage should be used with the performance of the wave similar to 50/60 Hz sine wave.

If the distorted sine wave or over load exceeding the specified voltage value is applied, the defective may be caused.

(2) Voltage applied method

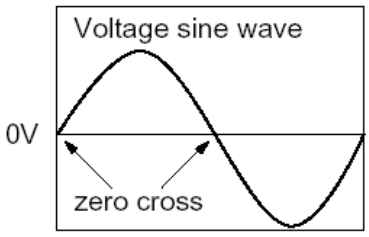
When the withstanding voltage is applied, capacitor's lead or terminal should be firmly connected to the out-put of the withstanding voltage test equipment, and then the voltage should be raised from near zero to the test voltage.

If the test voltage without the raise from near zero voltage would be applied directly to capacitor, test voltage should be applied with the *zero cross. At the end of the test time, the test voltage should be reduced to near zero, and then capacitor's lead or terminal should be taken off the out-put of the withstanding voltage test equipment.

If the test voltage without the raise from near zero voltage would be applied directly to capacitor, the surge voltage may arise, and therefore, the defective may be caused.

*ZERO CROSS is the point where voltage sine wave pass 0V.

- See the right figure –



8.4 Fail-Safe

When capacitor would be 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.

8.5 Vibration and impact

Do not expose a capacitor or its leads to excessive shock or vibration during use.

8.6 Soldering

When soldering this product to a PCB/PWB, do not exceed the solder heat resistance specification ofthe capacitor. Subjecting this product to excessive heating could melt the internal junction solder and may result in thermal shocks that can crack the ceramic element.

When soldering capacitor with a soldering iron, it should be performed in following conditions.

Temperature of iron-tip : 400℃ max.

Soldering iron wattage : 50W max.

Soldering time : 3.5s max.

8.7 Bonding, resin molding and coating

In case of bonding, molding or coating this product, verify that these processes do not affect the quality of capacitor by testing the performance of the bonded, molded or coated product in the intended equipment.

In case of the amount of applications, dryness / hardening conditions of adhesives and molding resins containing organic solvents (ethyl acetate, methyl ethyl ketone, toluene, etc.) are unsuitable, the outer coating resin of a capacitor is damaged by the organic solvents and it may result, worst case, in a short circuit.

The variation in thickness of adhesive, molding resin or coating may cause a outer coating resin cracking and/or ceramic element cracking of a capacitor in a temperature cycling.

8.8 Treatment after bonding, resin molding and coating

When the outer coating is hot (over 100 ℃) after soldering, it becomes soft and fragile.

So please be careful not to give it mechanical stress.

Failure to follow the above cautions may result, worst case, in a short circuit and cause fuming or partial dispersion when the product is used.

8.9 Operating and storage environment

The insulating Epoxy molded capacitors does not form a perfect seal; therefore, do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. And avoid exposure to moisture. Before cleaning, bonding or molding this product, verify that these processes do not affect produce quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. This one is MSL 3 product. So, in order to avoid the absorption of moisture, capacitors are packed in moisture-proof envelope.

Store the capacitors in the following conditions at all times, and use within 6 months after delivered.

Temperature:10 to 30℃

Humidity：60%max.

Solder the enclosed capacitors within 168 hours after opening the moisture-proof package. After opening, store the capacitors in moisture-proof package with a desiccant and HIC card and keep the above condition.

In case the storage period has been exceeded 6 months or the indicator color of a enclosed HIC card has changed when the package has been opened, perform baking (60℃x168hr)before soldering.

When the product is unpacked, the exposure time exceeds Floor time, the temperature and humidity around the product exceed the requirement.

Reference condition for drying mounted or unmounted SMD packages (user bake: Floor life begins at time=0 after bake)

Level	Bake@40℃ ≤5%RH	
	Saturated@30℃/85%RH	At limit of Floor life+72hr@30℃/60RH
3	79days	67days

Failure to follow the above cautions may result, worst case, in a short circuit and cause fuming or partial dispersion when the product is used.

8.10 Limitation of applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

1. Aircraft equipment
2. Aerospace equipment
3. Undersea equipment
4. Power plant control equipment
5. Medical equipment
6. Transportation equipment (vehicles, trains, ships, etc.)
7. Traffic signal equipment
8. Disaster prevention / crime prevention equipment
9. Data-processing equipment exerting influence on public
10. Application of similar complexity and/or reliability requirements to the applications listed in the above.

9. Notices:

9.1 Cleaning (ultrasonic cleaning):

To perform ultrasonic cleaning, observe the following conditions.

Rinse bath capacity : Output of 20 watts per liter or less.

Rinsing time : 5 min maximum.

Do not vibrate the PCB/PWB directly.

Excessive ultrasonic cleaning may lead to fatigue destruction of the lead wires.

9.2 Capacitance change of capacitors

Class 1 capacitors

Capacitance might change a little depending on a surrounding temperature or an applied voltage.

Please contact us if you use for the strict time constant circuit.

Class 2 capacitors

Class 2 capacitors like temperature characteristic B and E have an aging characteristic, whereby the capacitor continually decreases its capacitance slightly if the capacitor leaves for a long time. Moreover, capacitance might change greatly depending on a surrounding temperature or an applied voltage. So, it is not likely to be able to use for the time constant circuit.

Please contact us if you need a detail information.

9.3 Performance check by equipment

Before using a capacitor, check that there is no problem in the equipment's performance and the specifications.

Generally speaking, CLASS 2 ceramic capacitors have voltage dependence characteristics and temperature dependence characteristics in capacitance. So, the capacitance value may change depending on the operating condition in a equipment. Therefore, be sure to confirm the apparatus performance of receiving influence in a capacitance value change of a capacitor, such as leakage current and noise suppression characteristic.

Moreover, check the surge-proof ability of a capacitor in the equipment, if needed, because the surge voltage may exceed specific value by the inductance of the circuit.

10. Note

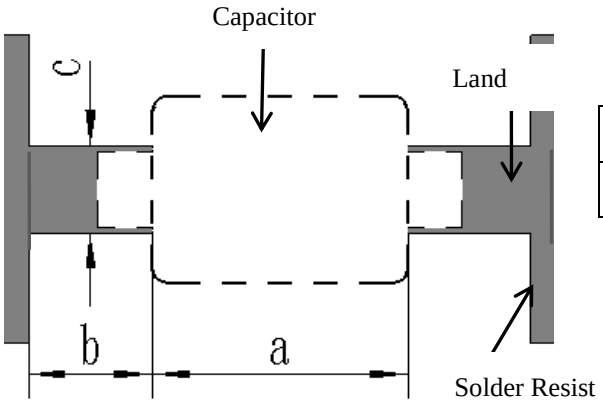
10.1 Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

10.2 You are requested not to use our product deviating from this specification.

10.3 Do not use these products in any Automotive Power train or Safety equipment including Battery charger for Electric Vehicles and Plug-in Hybrid.

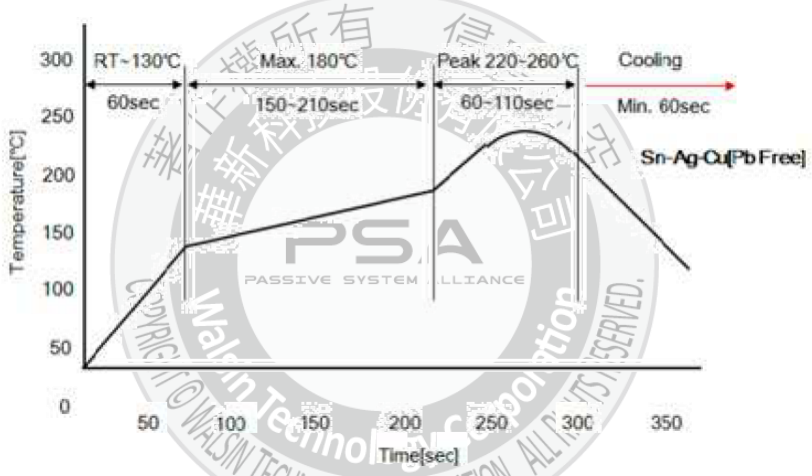
11. Soldering Recommendation:

11.1 Soldering Land Pattern Size:



Dimension	a(mm)	b(mm)	c(mm)
7.8x5.4	7.8	2.2	3.6

11.2 Reflow Soldering Temperature Profile：



Zone		Temp. range (℃)	Time(sec)	Remark
a	Curing	RT~130	60	Solder: Sn-Ag-Cu Peak time: less than 10 sec
b	Preheat	180 max	150~210	
c	Soldering	220~260(260 max)	60~110	
d	Cooling	220~RT	60 min	

Solder ability of tin plating termination pins might be deteriorated when a low temperature soldering profile where the peak solder temperature is below the melting point of tin is used. Please confirm the solder ability of tin plated termination pins before use

The maximum temperature in the air outlet and the space of Reflow soldering is 280℃ max., if the temperature exceed, it maybe a failure occur. Our company will not be held responsible for any adverse effects caused by over temperature using

单击下面可查看定价，库存，交付和生命周期等信息

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