

SAFETY STANDARDS REGULATED, REINFORCED **INSULATION TYPE, AH SERIES** 

POE-D10-00-E-24

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PRODUCT: CERAMIC DISC CAPACITOR SAFETY RECOGNIZED

P/N: YP0AH561K080L3CN0B

CUSTOMER: 凯铨

DOC. NO.: POE-D10-00-E-24

**DATE: 2022/6/17** 

# APPROVED BY CUSTOMER

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C	Customer	凯铨	SAP PART NO	YP0A	H561K080L3CN0B
CU 客	JSTOMER P/N 戶 料 號		REV. 修正		
	C A P. 電容量	560 pF TOL.允差 ±10%	WORKING VC 工作電壓	图	X1: 400 VAC Y1: 250 VAC
	D·F 散逸因素	2.5% MAX. AT 1KHz±20% 測試 1.0 Vrms	TEST VOLT 測試電壓		4000 VAC
	I .R . 絕緣電阻	10000MΩMIN.AT500VDC 檔位測試	T.C. 溫度特性	<u> </u>	Y5P TOL.±10%
脚	F 距	10.0±0.5 mm Lead st	cyle: L(Stra	aight lea	ad)
外	D 寬	9.0 mm max	D max.		T max.
厚	T 度	5.0 mm max	( )	For L≧ 20mm	
腳	L 長	3.3±0.5 mm	F T	L = 20mm /	
線	d 徑	0.55±0.05 mm		` For L<20mm	
	e 裝 腳 長	3.0mm Max			unit:mm
MA	( 4	K AH561K (E) (D) (S) (S) (D) (O) (O) (O) (O) (O) (O) (O) (O) (O) (O	BY COTTO BY	, ATUNED,	

"•": Individual specification code, it is added under the lot no.

REMARK



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#### 1. Part number for SAP system:

$(\mathbf{Ex.})$	<u>YP</u>	<u>0</u>	<u>AH</u>	<u>561</u>	<u>K</u>	<u>08</u>	_0_	<u>L</u>	<u>3C</u>	<u>N</u>	0	<u>B</u>
	<b>(1)</b>	(2)-1	(2)-1	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9</b> )	<b>(10)</b>	(11)

(1) Temperature characteristic (identified code)

CODE	Temperature characteristic	Cap. Change
YP	B(Y5P)	±10%

(2)-1 Rated voltage(identified by 1-figure code):

Code	Rated voltage
0	X1:400Vac/Y1:250Vac

(2)-2 Type(identified by 2-figure code): AH

(3)Capacitance (identified by 3-figure code):

Code	Capacitance (pF)
561	560

(4)Capacitance tolerance (identified by code):

Code	Tolerance
K	±10%

(5) Nominal body diameter dimension:

Code	Max Diameter of Body	Max thickness of body
08	9.0 場后	有 5.00

(6)Internal code: 0--Normal, other code--Special control

(7)Lead Style:

Code	Tolerance
L	Straight lead

(8)Packing mode:

Bulk Code	Description
3C	Lead length : 3.3mm

(9) Tolerance of lead length

Code	Description	Mr.
N	±0.5 mm	Short lead

(10)Lead space

Code	Description
0	10.0±0.5 mm

(11)Epoxy resin code

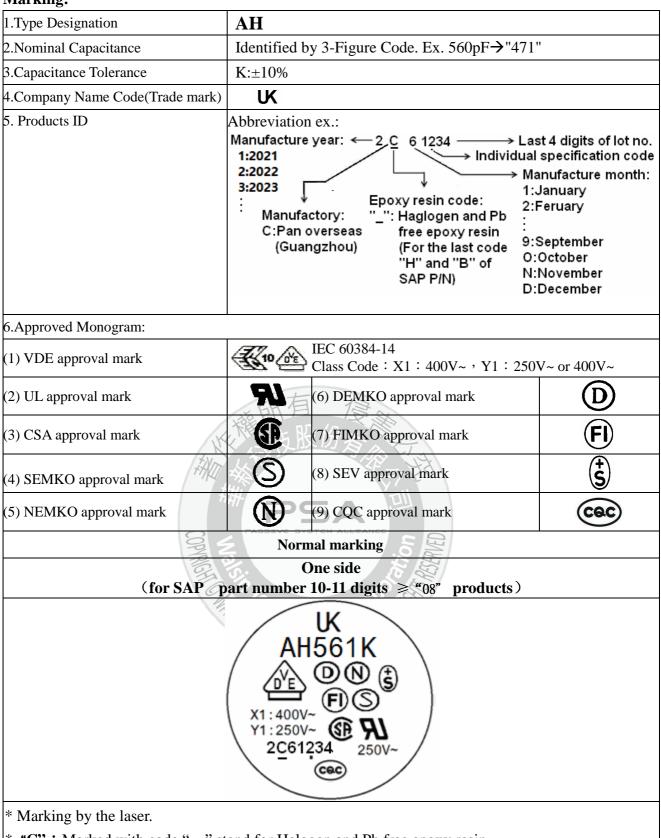
Code	Description
В	Halogen and Pb free, epoxy resin.



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# 2. Marking:



<sup>\* &</sup>quot;C": Marked with code "\_" stand for Halogen and Pb free epoxy resin.

<sup>\* &</sup>quot; • " : Individual specification code, it is added under the lot no.



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# 3. Scope:

THIS SPECIFICATION APPLIES TO CERAMIC INSULATED CAPACITORS DISK TYPE USED IN ELECTRONIC EQUIPMENT.

# 3.1Applicable safety standard

This specification applies to the VDE, SEV, SEMKO, FIMKO, NEMKO, DEMKO, KTL, UL, CSA approved ceramic capacitors disc type for antenna coupling, line-by-pass and across-the-line. X1, Y1 capacitor based on IEC60384-14. "UL, CSA recognized capacitor for across-the-line, line-by-pass" and antenna-isolation.

3.2 Safety standards approval and recognized no.

Safety Standard	Standard No.	Subclass	w.v.	Recognized No.	
UL	ANSI/UL 60384-14:2013	X1	400VAC	E146544	
	71101/02 00001 11.2010	Y1	250VAC/400VAC	E110311	
CSA	IEC60384-14 (ed.4) 2013	X1	400VAC	2347971	
	` ′	Y1	250VAC/400VAC		
VDE	EN 60384-14:2013/A1:2016	X1	400VAC	40001004	
(ENEC)	IEC 6.384-14:2013 IEC 6.384-14:2013/AMD1:2016	Y1	250VAC/400VAC	40001804	
SEV	EN 60384-14:2013 + A1:16	X1	400VAC	21.0554	
SEV	EN 00304-14.2013 + A1.10	Y1	250VAC/400VAC	21.0334	
SEMKO	EN 60384-14:2013+A1	X1 .	400VAC	1811992	
SLVIKO		Y1	250VAC/400VAC	1011772	
FIMKO	EN 60384-14:2013 + A1:16	X1	400VAC	NCS/FI 30462	
THVIKO	EN 00384-14.2013 TAI.10	Y1	250VAC/400VAC	NCS/11 30402	
NEMKO	EN 60384-14:2013;A1	X1_	400VAC	No. P18222946	
INLIMIKO	EN 00304-14.2013,A1	Y1 /	250VAC/400VAC	110.110222740	
DEMKO	EN 60384-14:2013/A1:2016	X1	400VAC	D-07609	
DEMIKO	EN 60384-14:2013	Y1	250VAC/400VAC	D-07009	
CQC	IEC60384-14:2013+AMDI:2016	X1:400	OVAC/Y1:400VAC	CQC03001003673	
CQC	GB/T6346.14-2015	X1:400	OVAC /Y1:250VAC	CQC11001055510	
	KC60384-1(2015-09)	naghton)	400VAC	SU03065-14004A	
KTL	KC60384-14(2015-09)	YIOMO	250VAC	SU03065-14005A	
	IEC 60384-14(ed.3)	Y1	400VAC	SU03065-14006A	



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#### 4. Specification and test method:

- 4.1 Operating Temperature Range: -40 to +125°C
- 4.2 Test condition:

Test and measurement shall be made at the standard condition. (temperature  $15\sim35^{\circ}$ C, relative humidity  $45\sim75\%$  and atmospheric pressure  $860\sim1060$ hpa). 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  $20\pm2\,^\circ\text{C}$  or  $25\pm2\,^\circ\text{C}$ , relative humidity  $60\sim70\%$  and atmospheric pressure  $860\sim1060$ hpa.)

4.3 Performance:

No	Items		Performance	Testing method		
4.3.1	Appearance And dimension		No visible defect, and dimensions are within specified range.	The capacitor should be visually inspected for evidence of defect. Dimensions should be measured with slide calipers.		
4.3.2	Ma	rking	To be easily legible.	The capacitor should be visually inspected.		
		Between terminals	No failure.	The capacitors shall not be damage when AC4000V (rms.) are applied between the lead wires for 60sec. (Charge/Discharge current ≤ 50mA.)		
4.3.3	Dielectric Strength	Body Insulation	No failure.	First, the terminals of the capacitor should be connected together.  Then, a metal foil should be closely wrapped around the body of the capacitor to the distance of about 3 to 6mm from each terminal. Then, the capacitor should be inserted into a container filled with metal balls of about 1mm diameter.  Finally, AC4000V (r.m.s.)<50/60Hz> is applied for 60 s between the capacitor lead wires and metal balls.  (Charge/Discharge current ≤ 50mA.)		
4.3.4	Insulation Resistance	Between terminals	10000MΩ or more.	The insulation resistance shall be measured with DC500±50V within 60±5sec of charging.		
4.3.5	Capa	citance	Within specified tolerance.	Y5P: The capacitance should be measured at 20°C with 1±0.2kHz and AC5V(r.m.s.) max.		
4.3.6		ipation or(tanδ)	Y5P: D.F. ≤ 2.5%	OF CONTROL		
		perature cteristic	Char. Capacitance Change Y5P Within ± 10%	The capacitance measurement shall be made at each step specified in Table 1.		
				Step         1         2         3         4         5		
4.3.7				Temp.(°C)         +20±2         -25±2         +20±2         +85±2         +20±2		
				Pre-treatment: Capacitor shall be stored at 125±2°C for 1hour, then placed at *1room condition for 24±2hours before measurements.		
4.3.8	Solderability of Leads		Lead wire should be soldered with uniform coating on the axial direction over 3/4 of the circumferential direction.	The lead wire of capacitor should be dipped into molten solder for $5 \pm 0.5$ sec. The depth of immersion is up to about 1.5 to 2.0 mm from the root of lead wires. Temp. of solder: Lead Free Solder (Sn-3Ag-0.5Cu) $245\pm5^{\circ}$ C		

<sup>%</sup> "room condition" temperature : 15~35°C, humidity : 45~75%, atmospheric pressure : 86~106kPa

<sup>※ &</sup>quot;C" expresses nominal capacitance value (pF).



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No	Items		Performance	Testing method
110	Titell	Tensile	Lead wire shall not cut off capacitor shall not be broken.	As shown in the figure at right, fix the body of the capacitor and apply a tensile weight gradually to each lead wire in the radial direction of the capacitor up to 10N and keep it for 10±1 sec.
4.3.9	4.3.9 Robustness of Terminations Ber		Lead wire shall not cut off. Capacitor shall not be broken.	With the termination in its normal position, the specimen is held by its body in such a manner that the axis of the termination is vertical; a mass applying a force of 5N is then suspended from the end of the termination. The body of the specimen is then inclined, within a period of 2 to 3sec, through an angle of approximately 90 in the vertical plane and then returned to its initial position over the same period of time; this operation constitutes one bend. One bend immediately followed by a second bend in the opposite direction.
		Appearance	No marked defect.	As shown in figure, the lead wires should be immersed in solder of $350 \pm 10$ °C or $260 \pm 5$ °C up to 1.5 to 2.0 mm from
		I.R.	1000 MΩ min.	the root of terminal for $3.5 \pm 0.5$ sec ( $10 \pm 1$ sec. for $260 \pm 5$ °C ).
		Dielectric Strength	Per item4.3. 3	Thermal Capacitor
4.3.10	Soldering Effect (Non-Preheat)	Capacitance Change	Y5P: Within ±10 %	Pre-treatment: Capacitor shall be stored at 125±2°C for 1hour.then placed at *1 room condition for 24±2hours before initial measurements.  Post-treatment: Capacitor shall be stored for 1 to 2hours at *1 room condition.
	Soldering	Appearance	No marked defect.  1000 MΩ min.	First the capacitor should be stored at 120+0/-5 °C for 60 +0/-5 sec.  Then, as in figure, the lead wires should be immersed solder of 260+0/-5 °C up to 1.5 to 2.0 mm from the root of terminal for 7.5+0/-1 sec.  Thermal Capacitor Screen 1.5  to 2.0 mm  Molten
4.3.11	Effect	Dielectric	Per item 4.3.3	Solder
	(On-Preheat)	Strength  Capacitance Change	Y5P: Within ±10 %	Pre-treatment: Capacitor shall be stored at 125±2°C 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.

 <sup>&</sup>quot;room condition" temperature : 15~35℃, humidity : 45~75%, atmospheric pressure : 86~106kPa

 $<sup>\</sup>mbox{\ensuremath{\%}}$  "C" expresses nominal capacitance value (pF).



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No	Iten	ns	Performance	Testing method
		Appearance	No marked defect.	Set the capacitor for 500±12hours at 40±2°C in 90 to 95%
Humidity 4.3.12 (Under steady State)		Capacitance Change	Y5P: Within ±10%	relative humidity.  Then capacitor shall be stored for 1 to 2 hours at *1room condition.  Pre-treatment:  Capacitor shall be stored at 125±2°C for 1hour.then placed at *1room condition for 24±2hours.
		D.F.	Y5P: 5.0% max.	Post-treatment: Capacitor shall be stored for 1 to 2hours at *1room condition.
4.3.13	Humidity Loading	I.R.	Y5P: 3000MΩ min.	Apply the rated voltage for 500±12 hours at 40±2°C in 90 to 95% relative humidity  Pre-treatment:  Capacitor shall be stored at 125±2°C for 1hour.then placed at*1room condition for 24±2hours.
Loading		Dielectric Strength	Per Item 4.3.3	Post-treatment:  Capacitor shall be stored for 1 to 2hours at *1room condition.
		Appearance	No marked defect.	Impulse Voltage
		Capacitance Change	Y5P: Within ±20%	Each individual capacitor shall be subjected to 8kV impulses for three times. After the capacitors are applied to life test.
		I.R.	3000MΩ min. 股份	0.9Vp (uS) (uS) (uS) (0S) (uS) (0S) (uS) (uS) (uS) (uS) (uS) (uS) (uS) (u
4.3.14	Life	Dielectric Strength	Per Item 4.3.3 nology	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°C. Throughout the test, the capacitors are subjected to an AC425Vrms.(for 0AH type) or AC680Vrms.(for 1AH type) alternating voltage of mains frequency.  Pre-treatment: Capacitor shall be stored at 125±2°C for 1hour.then placed at *1room condition for 24±2hours.  Post-treatment: Capacitor shall be stored for 1 to 2hours at *1room

<sup>%</sup> "room condition" temperature : 15~35°C , humidity : 45~75%,atmospheric pressure : 86~106kPa

<sup>&</sup>quot;C" expresses nominal capacitance value (pF).



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No	Items	Performance	Testing method		
4.3.15	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: 1µF±10%  C1,2: 1µF±10%  C3: 0.033µF±5% 10kV  C4: 3µF±5% 10kV  C5: Capacitor under test  C6: Capacitor under test  C7: Capacitor under test  C8: Capacitor under test  C8: Capacitor under test  C9: C4: Capacitor under test  C9: Capacitor under test  C9: Capacitor under test  C9: Capacitor under test  C9: Capacitor under test		
4.3.16	Passive Flammability	The burning time shall not be exceeded the time 30 sec. The tissue paper shall not ignite.	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.  Test specimen  About 10mm thick board		
4.3.17	Appearance  Char. Cal Char Y5P ≤±10  I.R.  Dielectric strength	mge   DF	The capacitor should be subjected to 5 temperature cycles, <temperature 5cycles="" cycle="" time:="">    Step   Temperature(°C)   Time(min)     1</temperature>		

<sup>&</sup>quot;room condition" temperature :  $15\sim35^{\circ}$ C, humidity :  $45\sim75\%$ , atmospheric pressure :  $86\sim106$ kPa

<sup>&</sup>quot;C" expresses nominal capacitance value (pF).



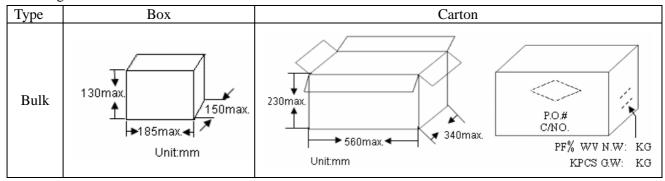
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#### **5.Packing Baggage**:

#### 5.1 Packing size:



#### 5.2 Packing quantity:

Packing type	Lead length	Size code of 10th to 11th in SAP P/N	MPQ (Kpcs/Bag)	Kpcs/Box
	Long lead	06~12	0.5	1.5
	$(L \ge 20 \text{mm})$	13-15	0.5	1
Bulk	Short lead	06~14	0.5	2
	(L < 20mm)	15	0.2	1
	All	16	0.2	1

#### 5.3 Label samples





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#### 6. Notices:

#### **6.1 Caution (Rating):**

#### (1). Operating Voltage

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 this irregular voltage.

Voltage	DC Voltage	DC+AC Voltage	AC Voltage	
Positional measurement	Vo-p	Vo-p	Vp-p	

## (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.

# (3). Test condition for withstanding Voltage

## I. Test Equipment

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

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

## II. Voltage Applied Method

When the withstanding voltage is applied, capacitor's lead or terminal shall be firmly connected to the output of the withstanding voltage test equipment, and then the voltage shall 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 shall be reduced to near zero, and then capacitor's lead or terminal shall be taken off the output 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.

0V Voltage sine wave

ZERO CROSS is the point where voltage sine wave pass 0V.- See the right figure.



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# III. Applied voltage

The voltages of Table shall be applied between the respective measuring points of 1 min for qualification approval and periodic testing and for a period of not less than 1 s for lot-by-lot quality conformance testing, a voltage proof test such as Test C shall be carried out only for qualification approval tests and periodic tests;

Attention is drawn to the fact that repetition of the voltage proof test by the user may damage the capacitor. If repetition of the voltage proof test is made by the user, the applied voltage should not be greater than 66 % of the test voltage specified in Table .

Table -Voltage proof

Class	Range of rated voltages	Test A	Test B or Test C
X1	≤1 000 V	4,3 UR (d.c.) c	2 <i>U</i> R + 1 500 V (a.c.) with a minimum of 2 000 V (a.c.) a
Y1	≤500 V	4 000 V (a.c.)	4 000 V (a.c.)

a For Delta and T-connected capacitor units according to Figures 5b and 5c, the test voltage for terminals to case shall be the appropriate test voltage for the Y-capacitors. b The UR in this d.c. test is the rated a.c.voltage value.

Note:

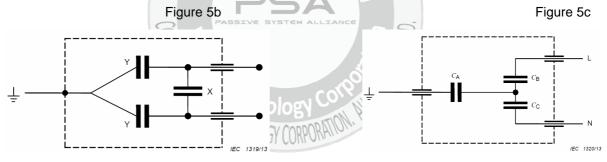
Test A - Between terminations

Test B - Internal insulation

Test C – External insulation (applicable only to insulated capacitors in nonmetallic case or in insulated metal case)

Figure 5b - Delta by-pass capacitor (in metallic housing)

Figure 5c – Example of a T-connected by-pass capacitor (in non-metallic housing)



\*For capacitors with non-metallic housings, the earth connection is brought out as a separate termination as is shown in Figure 5c.

#### (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.

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.



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#### **6.2** Caution (Storage and operating condition):

Operating and storage environment

The insulating coating of 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 product quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed -10 to 40 degrees centigrade and 15 to 85 % for 6 months maximum and use within the period after receiving the capacitors.

"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."

#### **6.3 Caution (Soldering and Mounting):**

#### 6.3.1 Vibration and impact:

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

#### 6.3.2 Soldering

When soldering this product to a PCB/PWB, do not exceed the solder heat resistance specification of the 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 degrees C. max.

Soldering iron wattage: 50W max.

Soldering time: 3.5 sec. max.

#### 6.3.3 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.

"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."



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## 6.3.4 List of substances that affect the insulation strength of coating:

#### **Epoxy resin solvent**

Category	Model			
Ketone	Acetone	Butanone	Cyclohexanone	
Esters	Ethyl acetate	Dibutyl phthalate		
Chlorinated hydrocarbons	Dichloromethane			

#### **Epoxy resin thinner**

Category		Model		
		HK-66 (Alkyl glycidyl ether)		
	Simple function group	501 (Butyl glycidyl ether)		
		690 (Phenyl Glycidyl Ether)		
		AGE (C12-14Aliphatic Polyalcohol Glycidyl Ether)		
		692 (Benzyl Glycidyl Ether)		
Reactive diluentactivated thinner	Two functional groups	D-678 (Neopentyl glycol diglycidyl ether)		
		622 (1,4-Butanediol diglycidyl ether)		
		669 (Ethylene glycol diglycidyl ether)		
		X-632 (Polypropylene glycol diglycidyl ether)		
		X-652 (1,6-Hexadiol diglycidyl ether)		
		D-691Epoxypropane o-methylphenyl ether		
		Anhydrous	Toluene	
		ethanol	Toruciic	
	水石 信	Ethyl acetate	Dimethylbenzene	
Non-activated th	inner	Dimethyl	Butyl acetate	
	大路份文	formamide	Butyr acctate	
HIT AND TO SEE THE PARTY OF THE		Acetone	Styrene	
		-Polyol	Benzyl alcohol	

Note: The above substances should not contact the coating of the product body, otherwise it will affect the insulation strength of the product

#### **6.4 Caution (Handling):**

Vibration and impact

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

"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."



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# 7. Soldering Recommendation:

#### 7.1 Wave Soldering Profile:

- Temperature conditions of the flow is recommended as shown in the chart
- Must implement the pre-heat
- Maximum peak flow temperature is recommended 265°C
- $\bullet$  Time "T" implement in the chart recommended within 20 sec. it temperature exceed 200°C
- Take care with the flow solder not to touch the capacitor body directly at mounting

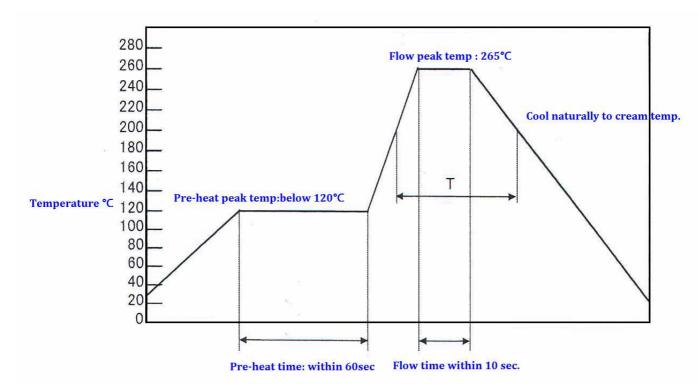


Chart to show flow recommended temp

#### 7.2 Recommended Reworking Conditions with Soldering Iron:

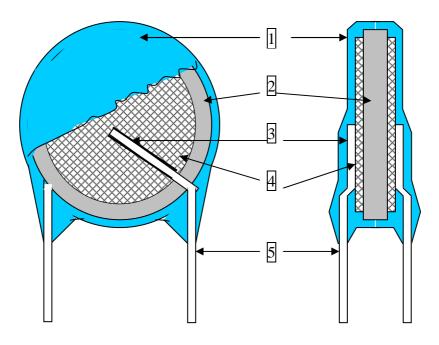
- Temperature of iron-tip: 400 degrees C. max.
- Soldering iron wattage: 50W max.
- Soldering time: 3.5 sec. max.
- Distance from coating body: 2 mm (min.)

#### 7.3 Reflow-Soldering: Lead Ceramic Cap. should not be soldered by reflow-soldering.



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# 8. Drawing of internal structure and material list:



#### Remarks:

No.	Part name	Material	Model/Type	Component
1	Insulation Coating	Epoxy polymer	EF-150 PCE-300 ECP-357	Epoxy resin、Pigment (Blue / UL 94 V-0) The minimum thickness of coating (reinforced insulation) is 0.4mm
2	Dielectric Element	Ceramic	Y5P	BaTiO <sub>3</sub>
3	Solder	Tin-silver	Sn96.5-Ag3-Cu0.5	Sn96.5-Ag3-Cu0.5
4	Electrodes	Ag	SP-160PL SP-260PL	Silver · Glass frit
5	Leads wire	Tinned copper clad steel wire	0.55±0.05mm	Substrate metal: Fe & Cu Surface plating: Sn 100%(3~7μm)

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B32022B3223K026 B32912A3104K026 46KF310050P0K 46KI3470DQM1K B32913A3154K MKPY2-.02230020P15 46KN333000M1M 46KN422000P0M DE1E3KX222MJ4BN01F 46KR422000M1K HUB2200-S 46KF268000M1M 46KI3150NDM2M PHE840MD6220MD13R30 PHE840MY6470MD14R06 PHE845VD5470MR06 R463N4100ZAM1K MKPX2R-1/400/10P27 YP500101K040B20C2P YU0AH222M090DAMD0B LS1808N102K302NX080TM CY1471KE1IEB46X2A2 CY1222ME5IEE48O2A2 MPX474K31DTEV158G0 H472M080FQ55250L750A CY1471ME19EE45W2A2 MPX104K31D2KN158HF MPX224K31D2KN158G0 PX104K2W1502 YU1AH222M090DASD0H C47S1472K60C000 MP2224K32C5J6LC H102M050FQ55250L750A MP2474K32D6R8LC MP2224K32C3J6LC MP2104K32C3J6LC PX334K2C1006 YU0AC222M080L20C7B MP2473K27B2X6LC MP2224K32D4J8LC MP2684K32D6T8LC ST3Y1Y5U332M500VAC ST3Y1Y5V472M500VAC MP2474K32D4X8LC MP2474K32D4J8LC YU0AH332M110L4EB0B CY1681ME1IEE45S2A2 Y1220J-E1I-B4-AC400V Y1120K-E1I-B4-AC400V MP2154K32D2R8LC