

深圳市炬焯科技有限公司  
CHIP SUN TECHNOLOGY CO., LTD

**APPROVAL  
SHEET**



CUSTOMER: Quartz 1

DESCRIPTION: SMD7050 125.000MHz LVDS Quartz Crystal Oscillator

MANUFACTURER PART NO.: FXO125.000M3.3SM7L-50D

CUSTOMER PART NO: \_\_\_\_\_

USED IN MODEL: \_\_\_\_\_

REVISION A1

承 认 APPROVAL		
工程部 TECHNOLOGY DEPT.	品质部 QUALITY DEPT.	采购部 PURCHASING DEPT.

Date: June 12, 2023



深圳市炬焯科技有限公司

CHIP SUN TECHNOLOGY CO., LTD

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<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
A1	ALL	Initial released	2023.06.10	N/A	DavidJiang

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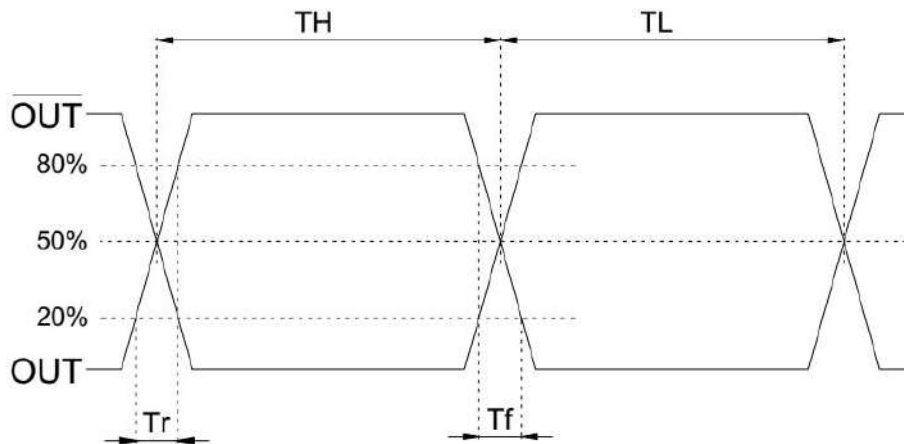
# 1. QUARTZ CRYSTAL OSCILLATOR SPECIFICATION

1.1 Frequency :	125.000MHz
1.2 Holder type :	SMD7050
1.3 Output :	LVDS ±50ppm Overall Temperature stability is Inclusive of all conditions: Calibration Tolerance at +25°C, frequency stability over the operating temperature range, supply voltage change, output load changes, shock, vibration, and 1st year aging at +25°C.
1.4. Frequency Stability :	
1.5 Supply voltage (V <sub>DD</sub> ) :	3.3V±5%
1.6 Input Current (I <sub>CC</sub> ) :	60mA max
1.7 Operable temperature range :	-40°C To +85°C
1.8 Storage temperature range :	-55°C To +125°C
1.9 Symmetry(Duty ratio) :	45~55%
1.10 Rise/ Fall Time (Tr / Tf) :	1nS max (20% ~ 80% Output Swing Level)
1.11 Output Load :	100ohms (Connected Between Q to QN)
1.12 Output Voltage High (V <sub>OH</sub> ) :	1.6V max
1.13 Output Voltage Low (V <sub>OL</sub> ) :	0.9V min
1.14 Enable Voltage High (V <sub>IH</sub> ) :	0.7V <sub>DD</sub> min      Output will be enable if OE is Logic 1 or open;
1.15 Enable Voltage Low (V <sub>IL</sub> ) :	0.3V <sub>DD</sub> max      Output will be disable if OE is Logic 0.
1.16 Output Voltage Swing :	0.25~0.45V
1.17 Output Offset Voltage (V <sub>OS</sub> ) :	1.125~1.4V, 1.3V Typ.
1.18 Enable Control :	Yes (Pin 1)
1.19 Start-up time :	10mS max
1.20 Phase Jitter RMS :	1.0ps max (Fj:12K~20MHz)
1.21 Phase Noise (typical)	-107 dBc / Hz Typ. @1KHz
1.22 Aging :	Less than ±3 ppm/Year
1.23 Insulation Resistance :	500M Ω (DC100±10V)min

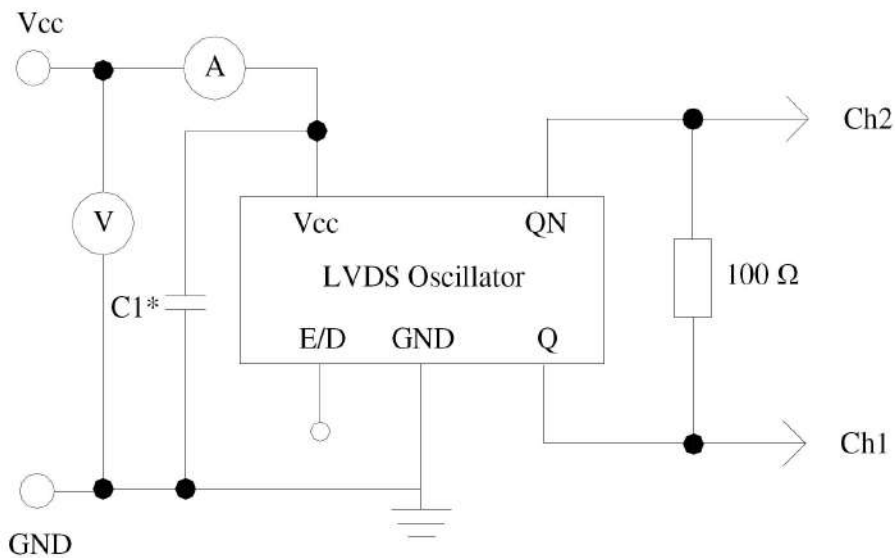
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## 2. Output Waveform



## 3. Test circuit



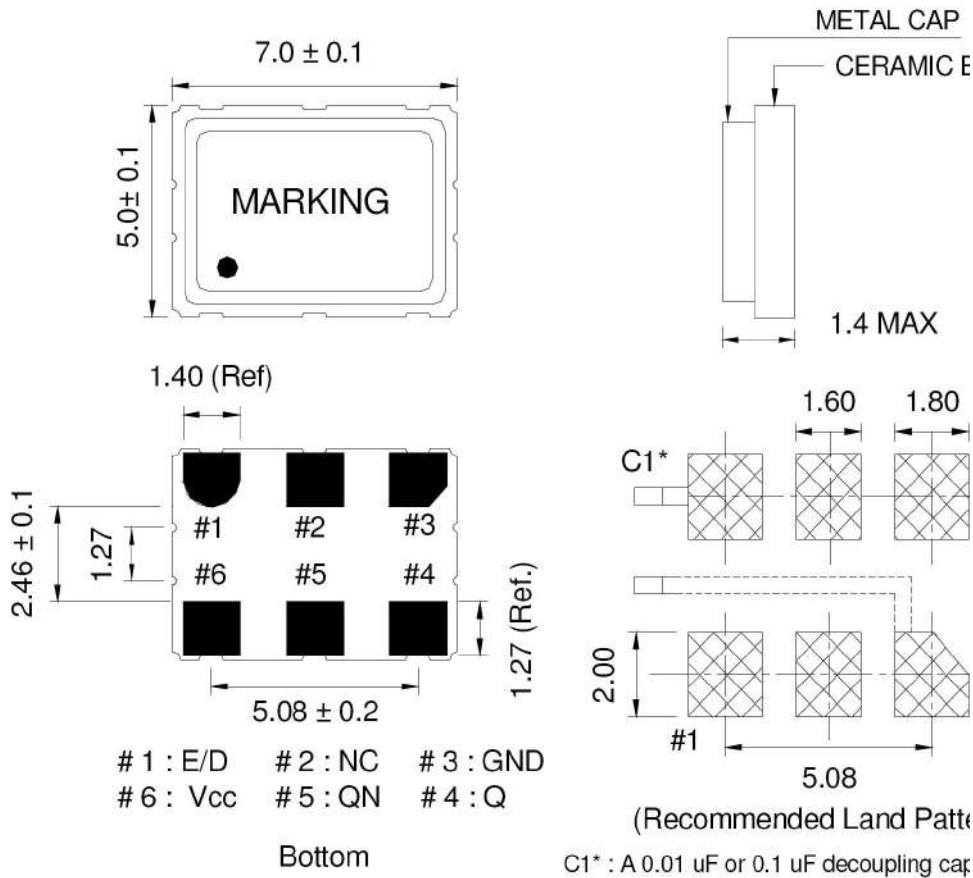
\*C1: A 0.01  $\mu\text{F}$  or 0.1  $\mu\text{F}$  decoupling capacitor is recommended.

Testing Circuit Note:

- 1) All the testing equipments are 50Ohm terminal.
- 2) OE terminal is open connection except OE function test.
- 3) Above testing circuits cover all the specifications except temperature test & Jitter measurement.

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## 4. MARKING & DIMENSIONS



\*Marking should be printed as following:

Logo, Nominal Frequency

\*Manufacturing Logo: FT

Base:	Alumina Ceramic ( $Al_2O_3$ ) Metallized Pad: W, Ni Plating, Au Plating
Cap:	Fe-Ni
(3) Crystal Enclosure Seal:	Seal Seam
(4) Crystal Blank	Rectangular At-Cut Quartz Crystal Blank
(5) Adhesive	Silver Conductive Polyimide Resin
(6) Electrode	Ag
(7) PAD	Alumina Ceramic (W. Ni. Au)

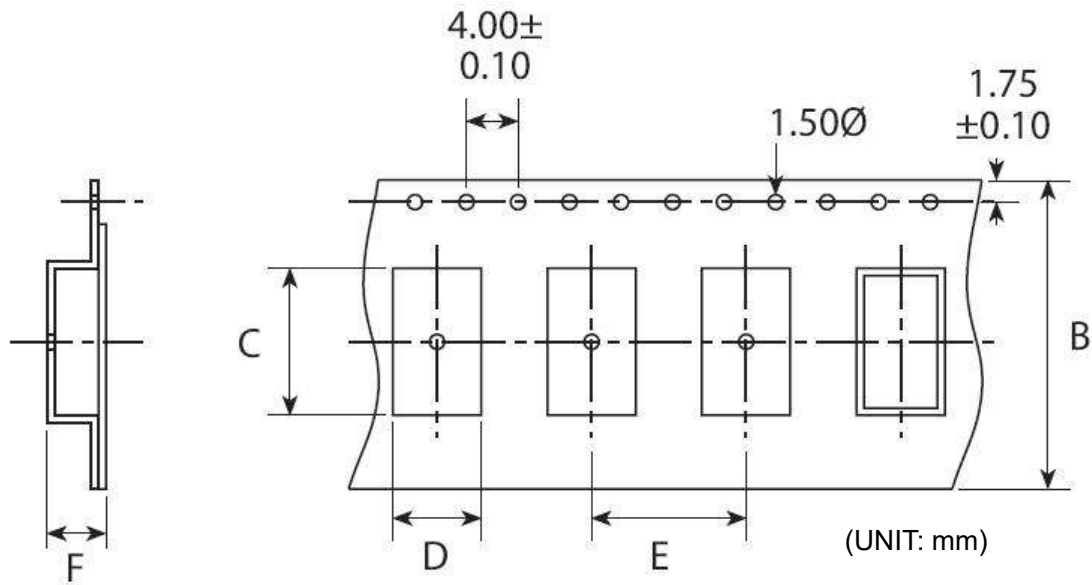
The use prohibition chemistry substance of Table 1 of DHE-0204-1 (QA-QM-08) is not included in this item.

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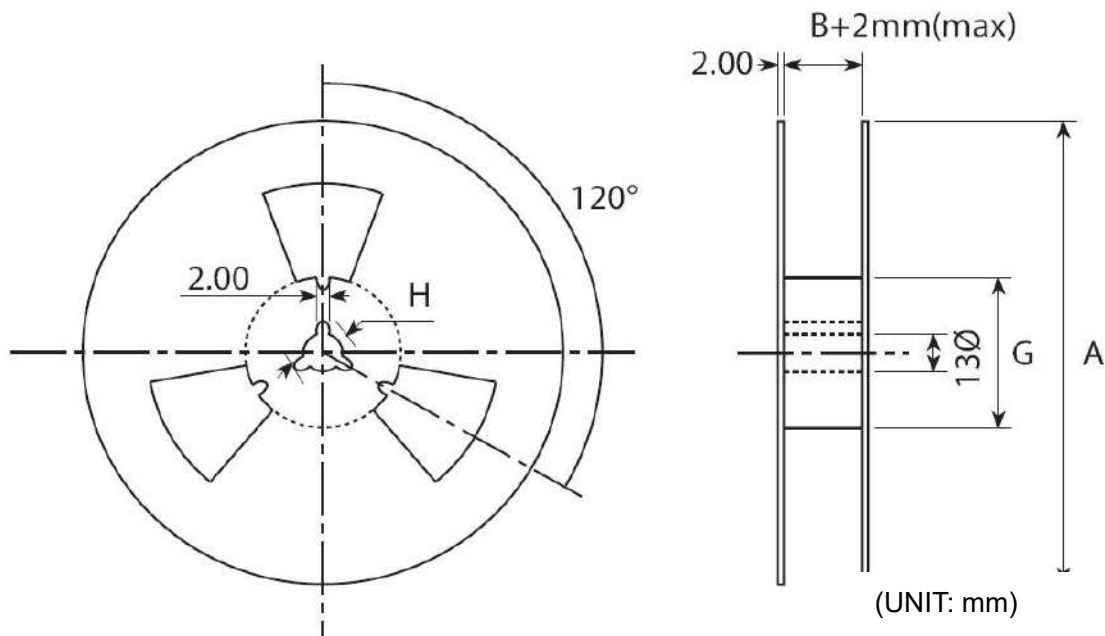
## 5. FX0751 EMBOSS CARRIER TAPE & REEL

### a.) Dimensions of Carrier Tape



	A	B	C	D	E	F	G
OSC-SMD7050	178±2.0	16.0±0.3	7.40±0.10	5.40±0.10	8.0±0.1	2.2±0.2	60.5±1.0

### b.) Dimensions of Reel



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c.) Storage condition

Temperature: +40°C Max.

Relative Humidity: 80% Max.

d.) Standard packing quantity

1,000PCS / REEL

e.) Material of the tape

Tape	Material
Carrier tape	A -PET
Top tape	Polyester

f.) Label contents

.The type of product

.Our specification No.

.Your Part No.

.Lot No.

.Nominal Frequency

.Quantity

.Our Company Name

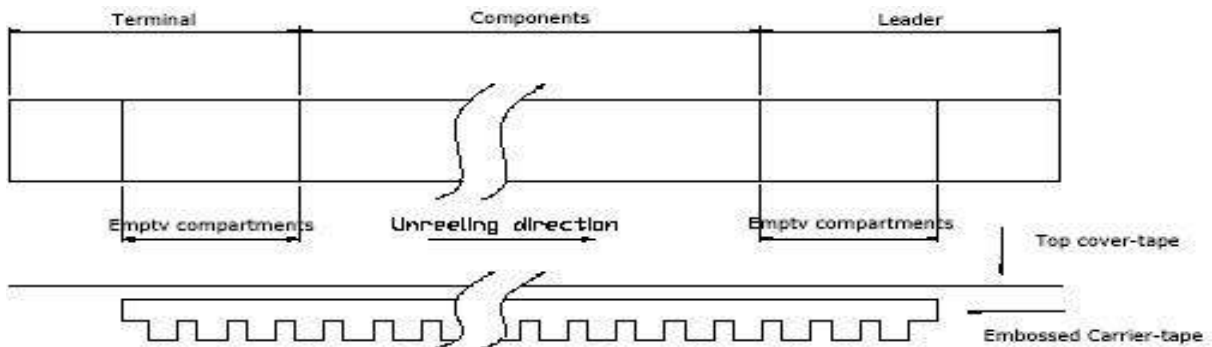
Sticks label for every reel.

PART NUMBER	
Lot. NO:	
HOLDER TYPE	
FREQUENCY	
REMAKS	
QUANTITY	
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g.) Taping dimension

Leader	Cover-tape	The length of cover-tape in the leader is more than 400 mm including empty embossed area.
	Carrier-tape	After all products were packaged, must remain more than twenty pieces or 400 mm empty area, which should be sealed by cover-tape.
Terminal	Cover-tape	The tip of cover-tape shall be fixed temporary by paper tape and roll around the core of reel one round.
	Carrier-tape	The empty embossed area which are sealed by top cover-tape must remain more the 40 mm.



h.) Joint of tape

The carrier-tape and top cover-tape should not be jointed.

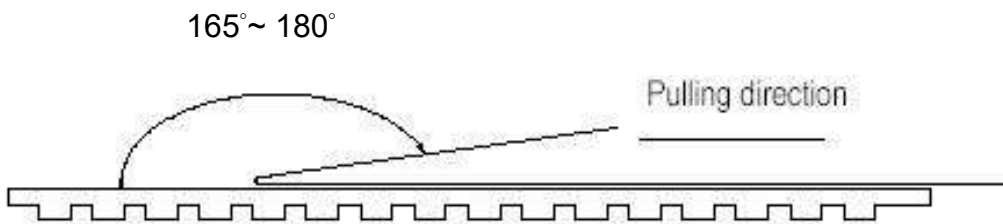
i.) Release strength of cover tape

It has to between 0.1N to 0.7N under following condition.

Pulling direction 165° to 180°

Speed 300mm/min.

Otherwise unless specified.



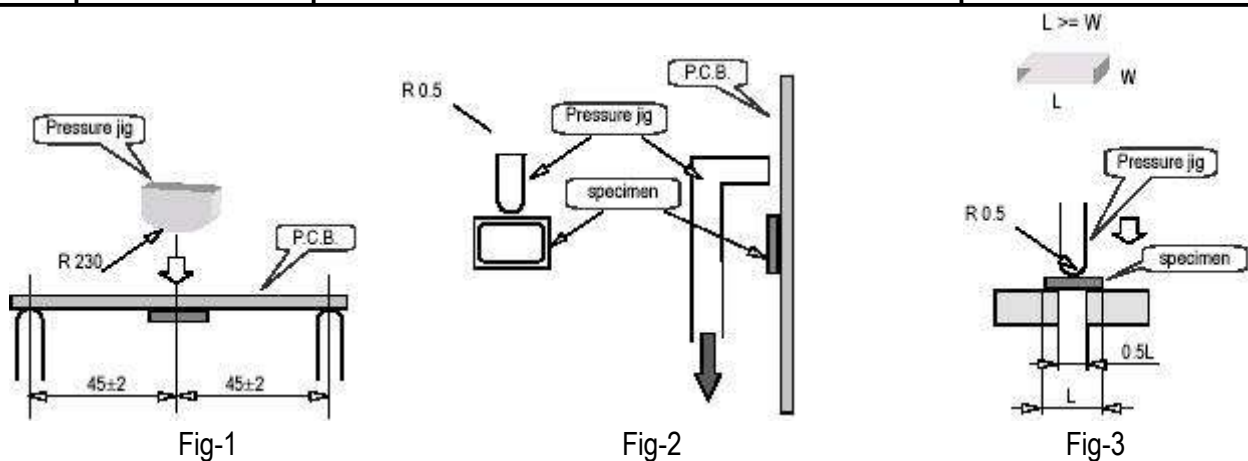
Other standards shall be based on JIS C 0806-1990.

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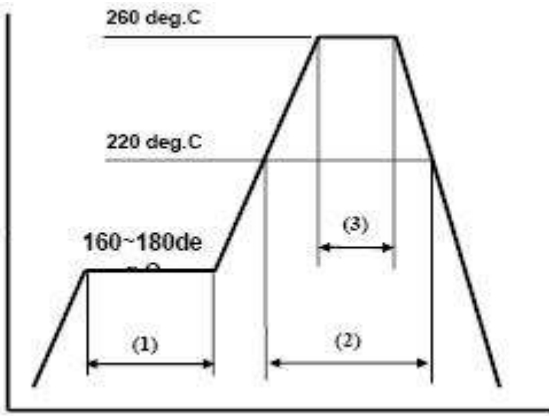
6. Mechanical Endurance: Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

	Item	Conditions	Specifications
1	Drop	Should be satisfied after dropping three times from the height of 100 cm onto hard wooden board of thickness more than 30mm.	The parameters of table 3 must be satisfied
2	Vibration	Should be satisfied after supplying following (1)Vibration Frequency: 10~55Hz (2)Cycle: 1 to 2 Min. (3)Full Cycle: 0.8mm P-P. (4)Direction: X.Y.Z (5)Time: 2 Hours / Each Direction	The parameters of table 3 must be satisfied
3	Substrate Bending	Mount the specimen on substrate. Apply the following pressure Direction: see Fig -1 Speed: 0.5 mm/sec Hours: 5 ± 1 sec Amount of substrate: 3 mm Max.	The parameters of table 3 must be satisfied
4	Adhesion	Mount the specimen on substrate. Apply the following pressure Direction: see Fig -2 Weight: 10N Hours: 10 ± 1 sec	The parameters of table 3 must be satisfied
5	Body strength	Mount the specimen on substrate. Apply the following pressure Direction: see Fig -3 Weight: 10N Hours: 10 ± 1 sec	The parameters of table 3 must be satisfied



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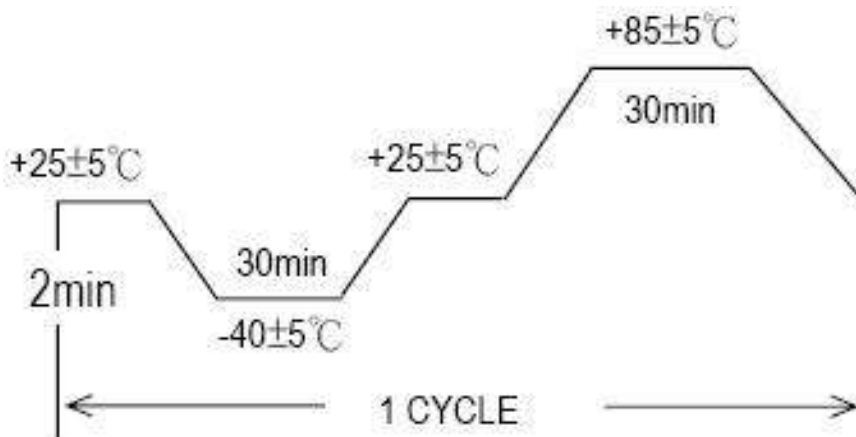
6	Seal	Less than $2.0 \times 10^{-9}$ Pa.m <sup>3</sup> /sec by Helium leak detector. Also, no serial bubble is observed by Fluorinate tests.													
7	Solder ability	3 sec Dip in 235°C±5°C solder. (Use ROSIN type flux for solder.)	More than 90% of lead shall be covered by new solder.												
8	Resistance to Soldering Heat	<p>Run in Reflow Reflow soldering shall be allowed Only two(2) time.</p> <p style="text-align: center;"><b>Available for Lead Free Soldering</b></p>  <table border="1" data-bbox="518 1209 1069 1332"> <tr> <td>(1)</td> <td>Preheat</td> <td>160~180 °C</td> <td>120sec.</td> </tr> <tr> <td>(2)</td> <td>Primary heat</td> <td>220 °C</td> <td>60sec.</td> </tr> <tr> <td>(3)</td> <td>Peak</td> <td>260 °C</td> <td>10sec. Max.</td> </tr> </table> <p>The parameters of table 3 must be satisfied</p>		(1)	Preheat	160~180 °C	120sec.	(2)	Primary heat	220 °C	60sec.	(3)	Peak	260 °C	10sec. Max.
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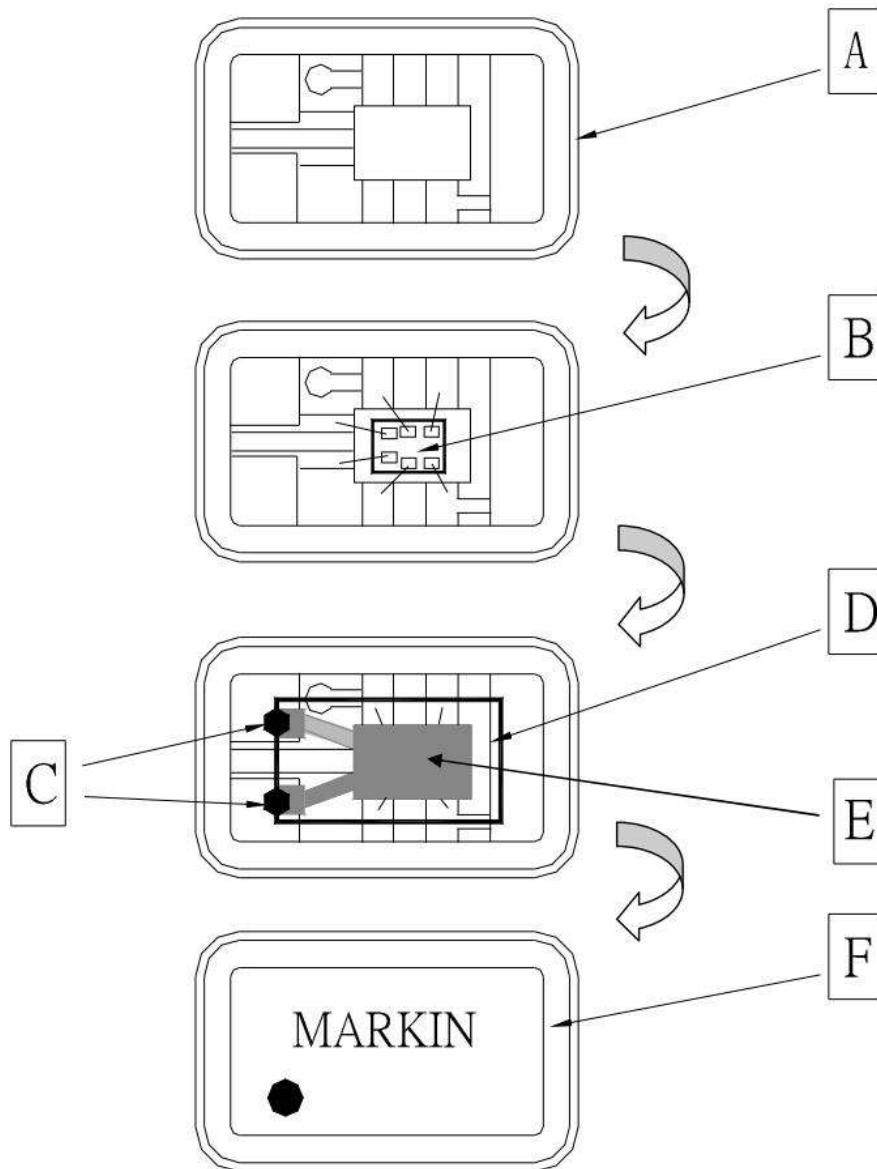
7. Environmental Endurance: Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

Item	Conditions	Specifications
1 Humidity	Should be satisfied after letting it alone at $+60^{\circ}\text{C}\pm 2^{\circ}\text{C}$ in humidity of 90%~95% for 500 hours.	The parameters of table 1 must be satisfied. No physical damage.
2 Storage in Low Temperature	Should be satisfied after letting it alone at $-40^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 500 hours.	The parameters of table 1 must be satisfied. No physical damage.
3 Storage in High Temperature	Should be satisfied after letting it alone at $+85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 500 hours.	The parameters of table 1 must be satisfied. No physical damage.
4 Temperature Cycle	Should be satisfied after supplying the following temperature cycle ( 100 cycles). (Refer to Fig-4). Temperature shift from low to high, high to low shall be done in $1^{\circ}\text{C}/\text{min}$ .	The parameters of table 1 must be satisfied. No physical damage.



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## 8. STRUCTURE ILLUSTRATION



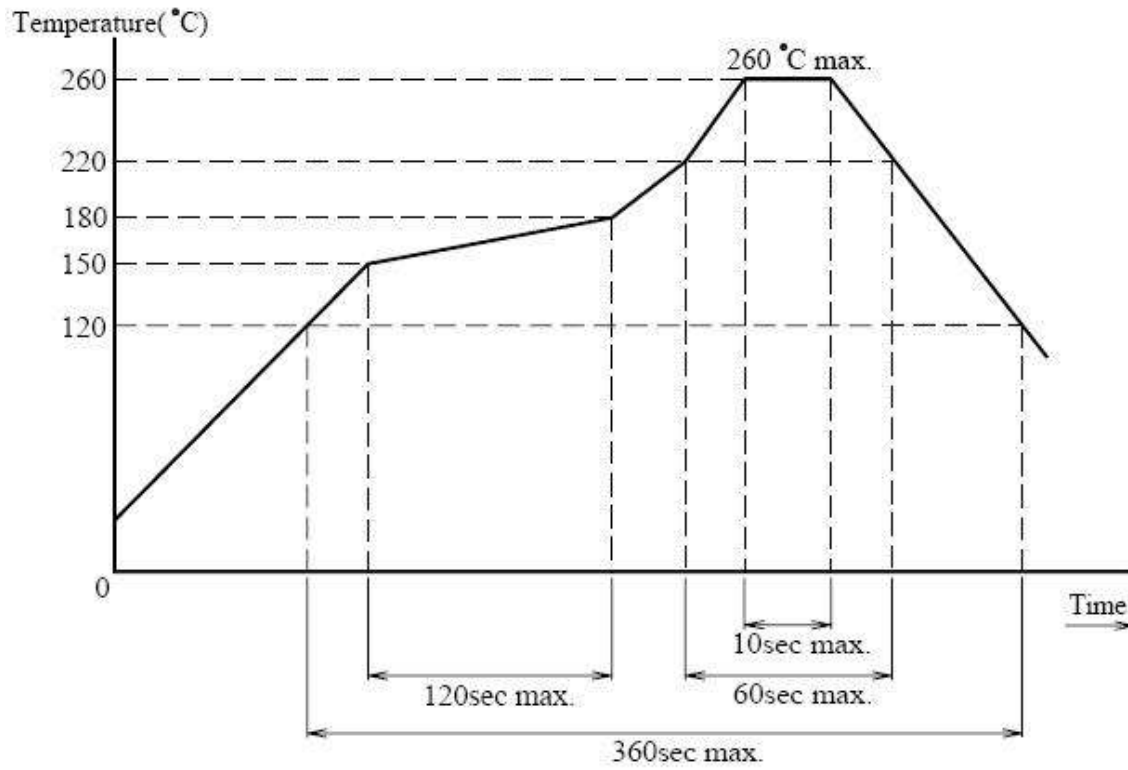
COMPONENTS		METERIALS	COMPONENTS		METERIALS
A	Base (Package)	Ceramic( $Al_2O_3$ ) + Kovar(Fe+Co+Ni)	D	Crystal blank	$SiO_2$
B	IC Chip	Si	E	Electrode	Cr+Ag
C	Conductive adhesive	Ag+Silicon resin	F	Lid	Kovar(Fe+Co+Ni)

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## 9. The production technical :

### Reflow Condition:



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