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# PRODUCT SPECIFICATION SHEET

CUSTOMER : \_\_\_\_\_  
PRODUCT TYPE : OSC 2.5X2.0(4PAD)  
NOMINAL FREQ. : 24.000000 MHz  
FL P/N : 2C24000002  
REVISION : SAMPLE  
CUSTOMER P/N : \_\_\_\_\_

CUSTOMER'S APPROVAL&DATE

|  |
|--|
|  |
|--|

FL CORPORATION

| APPROVED | CHECKED       | DESIGNED   |
|----------|---------------|------------|
| Jin Qi   | Peng YingMing | Sun MengYa |

RoHS Compliant



## CONTENTS

## PAGE

- ELECTRICAL SPECIFICATIONS 2
- DIMENSIONS & MARKING 3
- STRUCTURE ILLUSTRATION 4
- RELIABILITY TEST SPECIFICATIONS 5
- PACKAGING REQUIREMENT 6/7
- SPECIFICATION OF THE ENVIRONMENT-RELATED SUBSTANCES 8

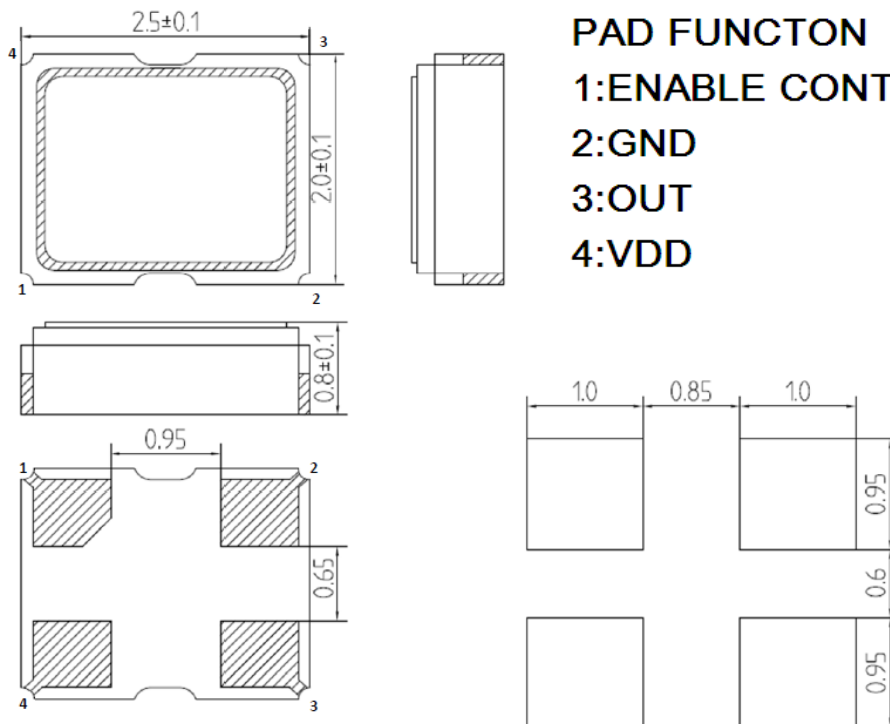
## ATTACHMENT ( optional )

- ELECTRICAL CHARACTERISTICS TEST A  YES  NO
- TEMPERATURE CHARACTERISTICS TEST B  YES  NO



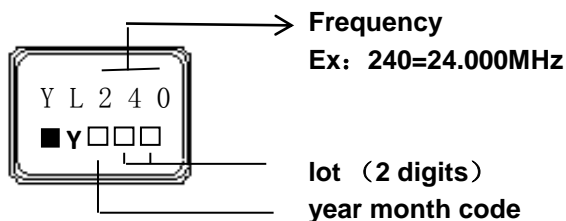


**DIMENSIONS**



**PAD FUNCTION**  
 1:ENABLE CONTROL  
 2:GND  
 3:OUT  
 4:VDD

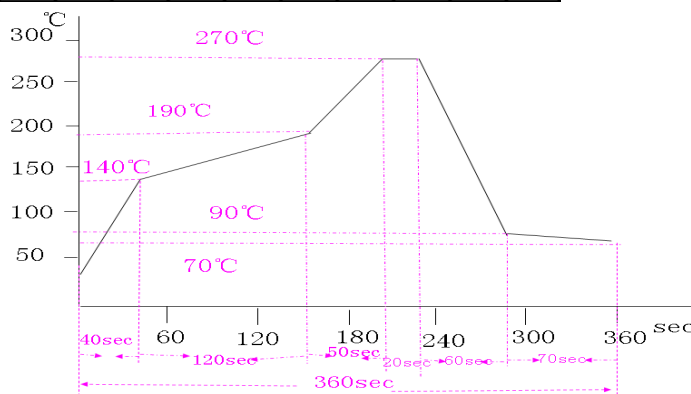
**MARKING**



| month |      | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|-------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| year  |      |     |     |     |     |     |     |     |     |     |     |     |     |
| 2013  | 2017 | A   | B   | C   | D   | E   | F   | G   | H   | J   | K   | L   | M   |
| 2014  | 2018 | N   | P   | Q   | R   | S   | T   | U   | V   | W   | X   | Y   | Z   |
| 2015  | 2019 | a   | b   | c   | d   | e   | f   | g   | h   | j   | k   | l   | m   |
| 2016  | 2020 | n   | p   | q   | r   | s   | t   | u   | v   | w   | x   | y   | z   |

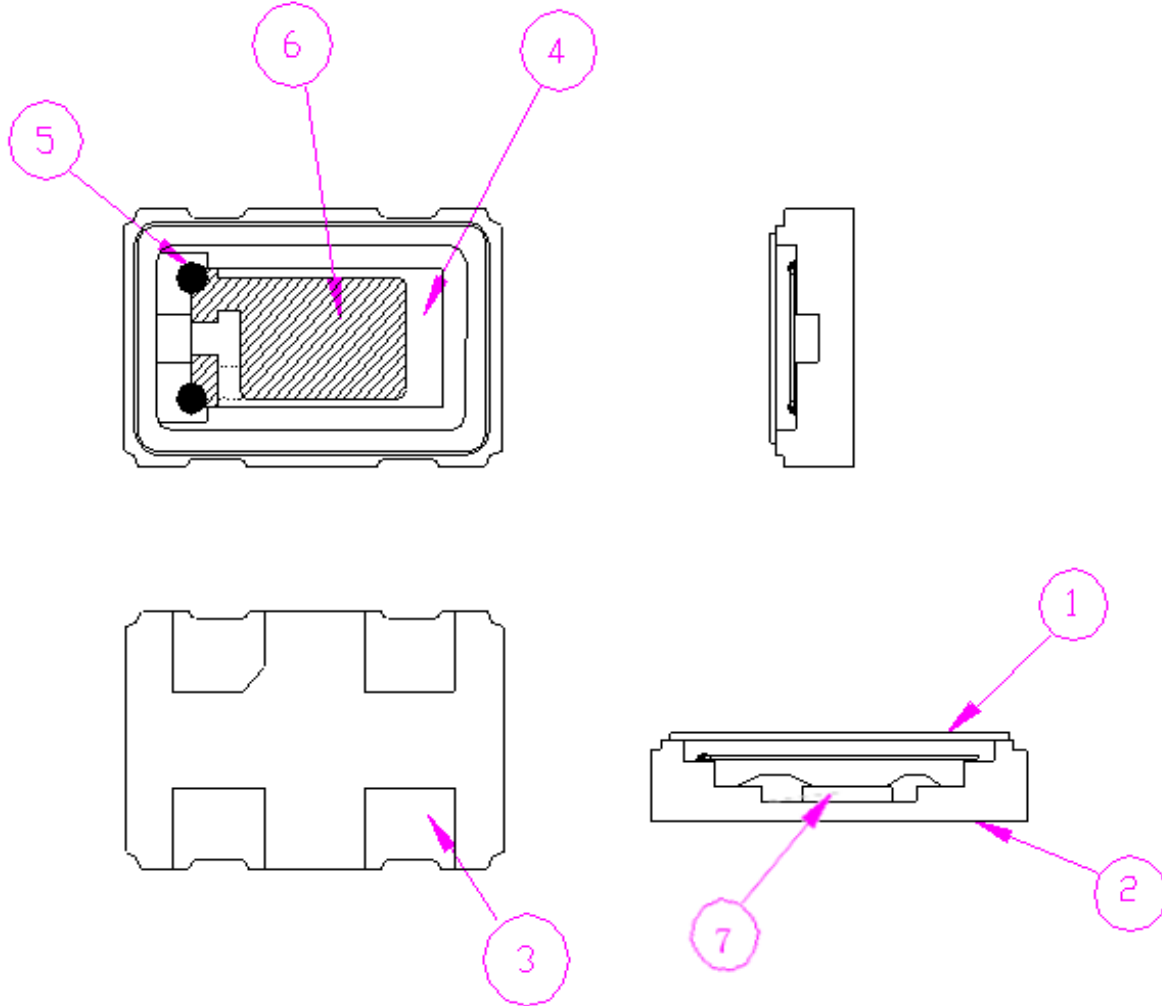
**SUGGESTED REFLOW PROFILE**

Total time : 360 sec. Max.  
 Solder melting point :185 °C





**STRUCTURE ILLUSTRATION**



| NO | COMPONENTS          | MATERIALS                                | QTY | FINISH/SPECIFICATIONS                           |
|----|---------------------|--|-----|---|
| 1  | Cap(Lid)            | Metal(Fe)                                | 1   | -   |
| 2  | Base(Package)       | Ceramic(Al <sub>2</sub> O <sub>3</sub> ) | 1   | Alumina ceramics                                |
| 3  | Pad(Package)        | Au                                       | 4   | Tungsten metalize<br>+Ni plating<br>+Au plating |
| 4  | Crystal blank       | SiO <sub>2</sub>                         | 1   | -   |
| 5  | Conductive adhesive | Ag                                       | 4   | Silicone resin                                  |
| 6  | Electrode           | Ag + Cr                                  | 2   | -   |
| 7  | IC                  |  | 1   | -   |

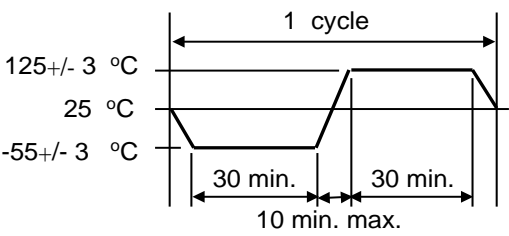


## RELIABILITY SPECIFICATIONS

### 1.MECHANICAL ENDURANCE

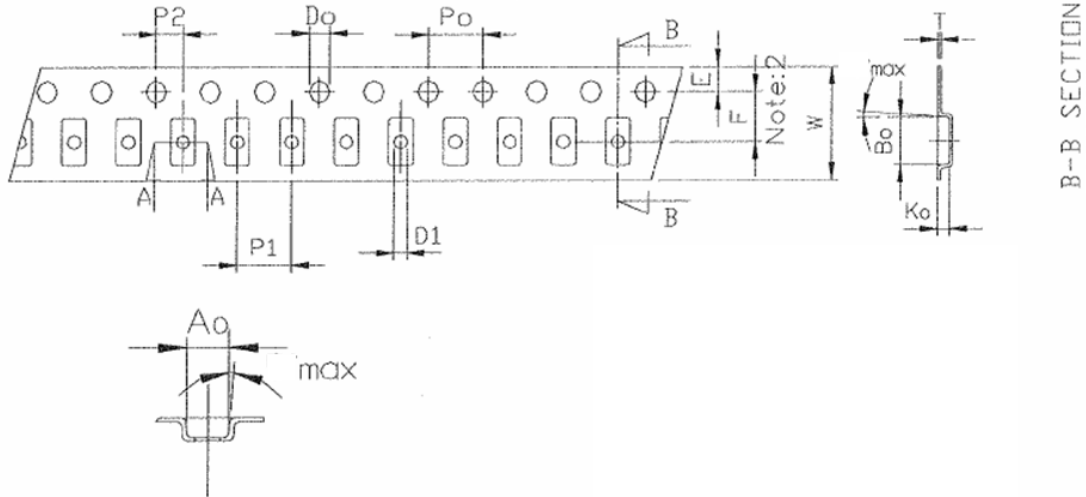
| No. | Test Item                    | Test Methods  |              |
|-----|------------------------------|---|--------------|
| 1   | Drop Test                    | 150 cm height, fall freely onto stainless plate 3 times.  | JIS C6701    |
| 2   | Mechanical Shock             | Device are shocked to half sine wave ( 1000 G ) three mutually perpendicular axes each 3 times. 1.0m sec. duration time                                 | MIL-STD-202F |
| 3   | Vibration                    | Frequency range 10 ~ 55 Hz<br>Amplitude 1.52 mm<br>Pencil axes each test time 2 hours (x,y,z Axis)<br>Total test time 6 hours                           | MIL-STD-883E |
| 4   | Solderability                | Temperature 215 °C +/- 5 °C<br>Immersing depth 0.5 mm minimum<br>Immersion time 10 +/- 0.5 seconds<br>Flux Rosin resin methyl alcohol solvent ( 1 : 4 ) | MIL-STD-883E |
| 5   | Resistance To Soldering Heat | Pre-heat temperature 125 °C<br>Pre-heat time 60 ~ 120 sec.<br>Test temperature 260 +/- 5 °C<br>Test time 5 +/- 1 sec.                                   | MIL-STD-202F |

### 2.ENVIRONMENTAL ENDURANCE

| No. | Test Item               | Test Methods  |              |
|-----|-------------------------|---|--------------|
| 6   | High Temp. Storage      | + 125 °C +/- 3 °C for 500 +/- 12 hours  | MIL-STD-883E |
| 7   | Low Temp. Storage       | - 40 °C +/- 3 °C for 500 +/- 12 hours   |              |
| 8   | Thermal Shock           | Total 100 cycles of the following temperature cycle<br><br> | MIL-STD-883E |
| 9   | High Temp. Operation    | + 85°C, VCC, for 1000 hours   | MIL-STD-883E |
| 10  | Low Temp. Operation     | - 40°C, VCC, for 1000 hours   | MIL-STD-883E |
| 11  | Pressure Cooker Storage | 120 +/- 3°C, RH100%, 2 bar, for 240 hours   |              |



PACKING : (EIA-481-2)



| Dimension<br>PKG Type | Unit : mm |          |          |           |       |          |          |
|-----------------------|-----------|----------|----------|-----------|-------|----------|----------|
|                       | A0        | B0       | K0       | T         | W     | E        | F        |
| 2520(8mm)             | 2.25±0.1  | 2.70±0.1 | 1.45±0.1 | 0.25±0.05 | 8±0.3 | 1.75±0.1 | 3.50±0.1 |
|                       | P1        | P2       | D1       | D0        | P0    |          |          |
|                       | 4±0.1     | 2±0.1    | 1±0.1    | 1.55±0.05 | 4±0.1 |          |          |

Standard Reel Quantity is 3,000 pcs per reel.

THE INSPECTION FOR TAPE TENSION


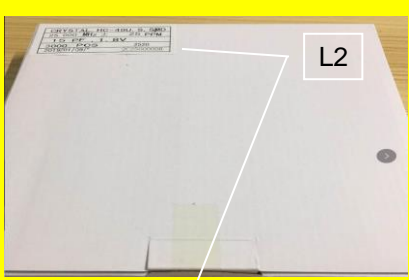


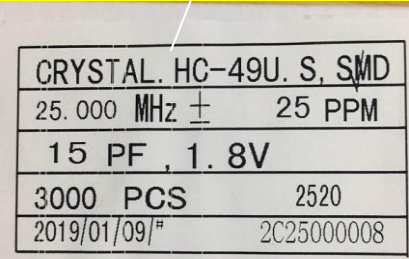

| ITEM         | Defect   | Method            |
|--------------|--|-------------------|
| Appearance   | ALL<br>1.The tape is not coincidence<br>2.The bubble | Visual inspection |
| Tape Tension | 8045、7050<br>6035-12mm<br>5032-12mm<br>3225-12mm     | Pull test         |
|              | 3225-8mm   |                   |
|              | 2520-8mm   |                   |
|              | 2016-8mm   |                   |
|              | 1612-8mm   |                   |
|              | 6035-16mm  |                   |
|              | 5032-16mm  |                   |

REMARK : NA

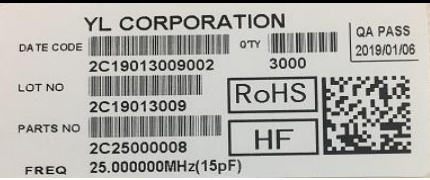
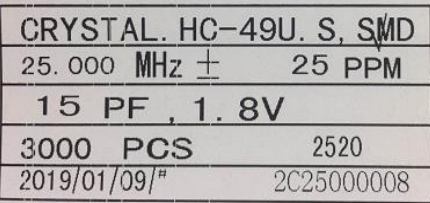
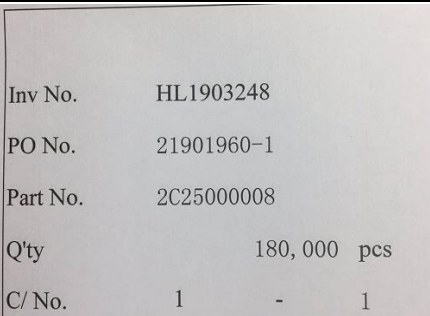


**SMD PRODUCT PACKING STANDARD**

**Out-going packing instruction**

| Reel Packing   | Inner Packing   | Carton   |
|--|---|--|
| name: reel<br>standard: diameter 18cm<br>material: plastics                        | name: inner box<br>standard: L19.0xW19.0xH2.5cm<br>material: B corrugated paper     | name: carton<br>standard: L34.0xW22.0xH22.0cm<br>material: AB corrugated paper(10 boxes enter) |
|   |   |             |
|  |  |            |

**The label instruction**

| Label Drawing   | Mark | Name of Article                               | Spec.   | Size      | Printing |
|---|------|---|---|-----------|----------|
|  | L1   | 条码标签<br>Bar Code<br>Label<br>(Chintz Paper)   | 1.Date Code<br>2.Lot No.<br>3.Part No.<br>4.Freq<br>5.Q'ty                  | 75x35mm   | White    |
|  | L2   | 机打标签<br>Printing Label<br>(Printing Paper)    | 1.Freq<br>2.Electrical Parameters<br>3.Q'ty<br>4.Part No.<br>5.Packing Date | 75x35mm   | White    |
|  | L3   | 运输标签(唛头)<br>Shipping Mark<br>(Printing Paper) | 1.inv No.<br>2.PO No.<br>3.Part No.<br>4.Q'ty<br>5.C/No.                    | 100x100mm | White    |

**Remark**

Specifications on the label is for the use of templates with different product specifications may vary.  
 If customer specified requirements for labels packaging, please provide the operation procedure.





| Range   | Products                         | Packing Material                 | Test Method   |
|---|----------------------------------|----------------------------------|---|
| Banned Substances   | Maximum concentration ppm(mg/kg) | Maximum concentration ppm(mg/kg) |   |
| 1.镉及镉化合物<br>Cadmium and cadmium compounds   | 5                                | 5                                | ICP-AES as per EN1122, method B2001 or other acid digestion.  |
| 2.铅及铅化合物<br>Lead and lead compounds   | 40                               | 100                              | ICP-AES after as per EPA 3050B or other acid digestion.   |
| 3.汞及汞化合物<br>Mercury and mercury compounds   | 5                                | 5                                | ICP-AES after as per EPA 3052 or other acid digestion.  |
| 4.六价铬化合物<br>Hexavalent-Chromium VI (Cr+6)   | 10                               | 10                               | As per US EPA 7196A and US EPA 3060A.   |
| 5.聚溴联苯 PBB<br>Polybrominated biphenyls  | 5                                | 5                                | With reference to USEPA 3540 or USEPA3550.<br>Analysis was performed by LPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS),83/261/EEC, and76/769/EEC) |
| 6.聚溴二苯醚 PBDE<br>Polybrominated diphenyl ethers  | 5                                | 5                                | With reference to USEPA3540or USEPA3550.<br>Analysis was performed by HPLC/DAD LC/MS or GC/MS.(prohibited by 2002/95/EC(RoHS), 83/264/EEC, and 76/769/EEC)    |
| 7.多氯联苯 (PCB)<br>Polychlorinated biphenyl  | 5                                | 5                                |   |
| 8.多氯化萘 (PCN)<br>Polychlorinated naphthalene   | 5                                | 5                                |   |
| 9.氯代烷烃 (CP)<br>Chlorinated paraffin   | 5                                | 5                                |   |
| 10.其他有机氯化物<br>Other chlorinated organic compounds   | 5                                | 5                                |   |
| 11.其他有机溴化合物<br>Other brominated organic compounds   | 5                                | 5                                |   |
| 12.有机锡化合物 (三丁基锡化合物,三苯基锡化合物)<br>Organic tin compounds (Tributyl tin category & Triphenyl tin category )    | 5                                | 5                                |   |
| 13.石棉<br>Asbestos   | 5                                | 5                                |   |
| 14.偶氮化合物<br>Azo compounds   | 5                                | 5                                |   |
| 15.甲醛<br>Formaldehyde   | 5                                | 5                                |   |
| 16.聚氯乙烯(PVC)以及聚氯乙烯混合物<br>Polyvinyl chloride (PVC) and PVC blends  | No detect                        | No detect                        |   |
| 17.包装材料中重金属(汞、镉、六价铬、铅、PBB、PBDE)之总量<br>Heavy metals (mercury, cadmium, lead, Cr+6,PBB and PBDE) in packing | N/A                              | <100                             |   |

Lead Free Products are "Directive 2002/95/EC of The European Parliament of 27 January 2003 on the restriction of certain hazardous substances (RoHS) in electrical and electronic equipment" and Sony SS-00259 Compliant.



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FAILONG CRYSTAL