



# PRODUCT SPECIFICATION SHEET

CUSTOMER'S APPROVAL&DATE

[illegible]

|          |         |               |
|----------|---------|---------------|
| APPROVED | CHECKED | DESIGNED      |
| Xing Yue | Jin Qi  | Huang HuiFang |

MSL1  
RoHS Compliant



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## ATTACHMENT (optional)

- |                                    |   |                              |                                        |
|------------------------------------|---|------------------------------|----------------------------------------|
| • ELECTRICAL CHARACTERISTICS TEST  | A | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| • TEMPERATURE CHARACTERISTICS TEST | B | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |



|         |    |              |     |
|---------|----|--------------|-----|
| FL P/N: |    | 3S08000008-Q |     |
| VER:    | S0 | PAGE:        | 2/9 |

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## PRODUCT DESCRIPTION

### Standard atmospheric conditions

Unless otherwise specified. The standard range of atmospheric conditions for making measurement and tests are as follow:

Ambient temperature :  $25\pm 2^{\circ}\text{C}$   
 Relative humidity 40%~70%

If there is no doubt the results, measurement shall be made within the following limits:

Ambient temperature :  $25\pm 2^{\circ}\text{C}$   
 Relative humidity : 40%~70%

### Measure equipment

Electrical characteristics measured by S&A250B or equivalent.

### Crystal cutting type

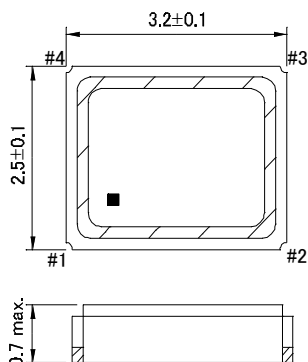
The crystal is using AT CUT (thickness shear mode)

## ELECTRICAL SPECIFICATIONS

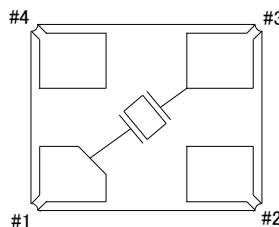
| No. | Items                        | Electrical Spec. |             |     |     |                    | Remarks                                                               |
|-----|------------------------------|------------------|-------------|-----|-----|--------------------|-----------------------------------------------------------------------|
|     |                              | Symbol           | Min         | Typ | Max | Units              |                                                                       |
| 1   | Nominal Frequency            | FL               | 8.000000    |     |     | MHz                |                                                                       |
| 2   | Oscillation Mode             | -                | Fundamental |     |     | -                  |                                                                       |
| 3   | Load Capacitance             | CL               | 12.0        |     |     | pF                 |                                                                       |
| 4   | Frequency Tolerance          | -                | $\pm 10$    |     |     | ppm                | at $25\pm 2^{\circ}\text{C}$                                          |
| 5   | Frequency Stability          | -                | $\pm 30$    |     |     | ppm                | at $-20\sim +70^{\circ}\text{C}$<br>(reference $25^{\circ}\text{C}$ ) |
| 6   | Shunt Capacitance            | C0               | -           | -   | 3   | pF                 |                                                                       |
| 7   | Aging (/1 year)              | -                | $\pm 3$     |     |     | ppm/year           | at $25\pm 2^{\circ}\text{C}$                                          |
| 8   | Operating Temperature        | -                | -20         | -   | 70  | $^{\circ}\text{C}$ |                                                                       |
| 9   | Storage Temperature          | -                | -40         | -   | 105 | $^{\circ}\text{C}$ |                                                                       |
| 10  | Equivalent series resistance | ESR              | -           | -   | 300 | ohms               |                                                                       |
| 11  | Insulation Resistance        | IR               | 500         | -   | -   | M-ohms             | at DC 100V                                                            |
| 12  | ESD                          | -                | HBM>4000V   |     |     | -                  | JESD22-A114-B                                                         |
| 13  | MSL                          | -                | Level 1     |     |     | -                  | IPC/JEDEC J-STD-033C                                                  |
| 14  | Drive Level                  | DL               | -           | -   | 100 | uW                 |                                                                       |



### DIMENSIONS unit:mm

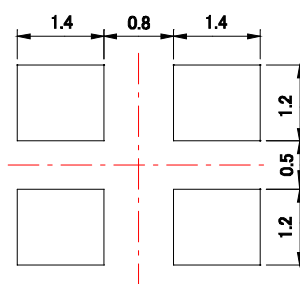
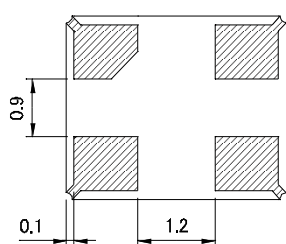


### CONNECTION DIAGRAM (TOP VIEW)

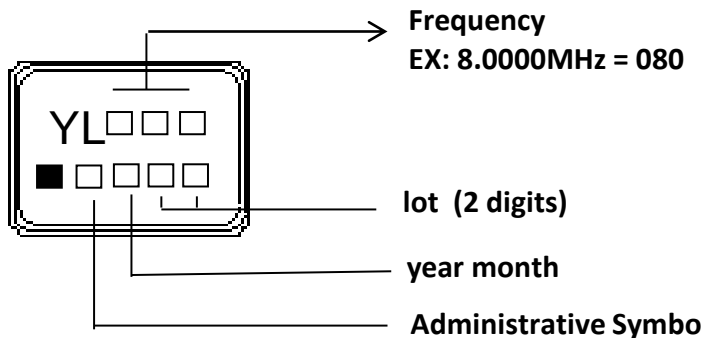


| Pin | Function               |
|-----|------------------------|
| #1  | Xtal terminal (Input)  |
| #2  | GND terminal           |
| #3  | Xtal terminal (Output) |
| #4  | GND terminal           |

### LAND PATTERN unit:mm



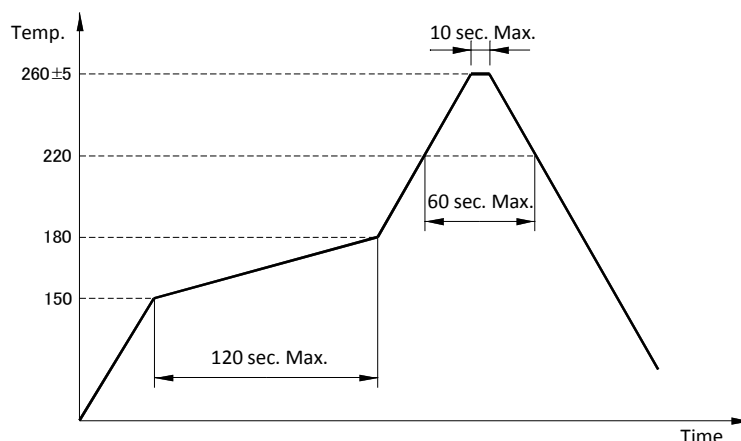
### MARKING



| month<br>year |      | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2021          | 2025 | A   | B   | C   | D   | E   | F   | G   | H   | J   | K   | L   | M   |
| 2022          | 2026 | N   | P   | Q   | R   | S   | T   | U   | V   | W   | X   | Y   | Z   |
| 2023          | 2027 | a   | b   | c   | d   | e   | f   | g   | h   | j   | k   | l   | m   |
| 2024          | 2028 | n   | p   | q   | r   | s   | t   | u   | v   | w   | x   | y   | z   |

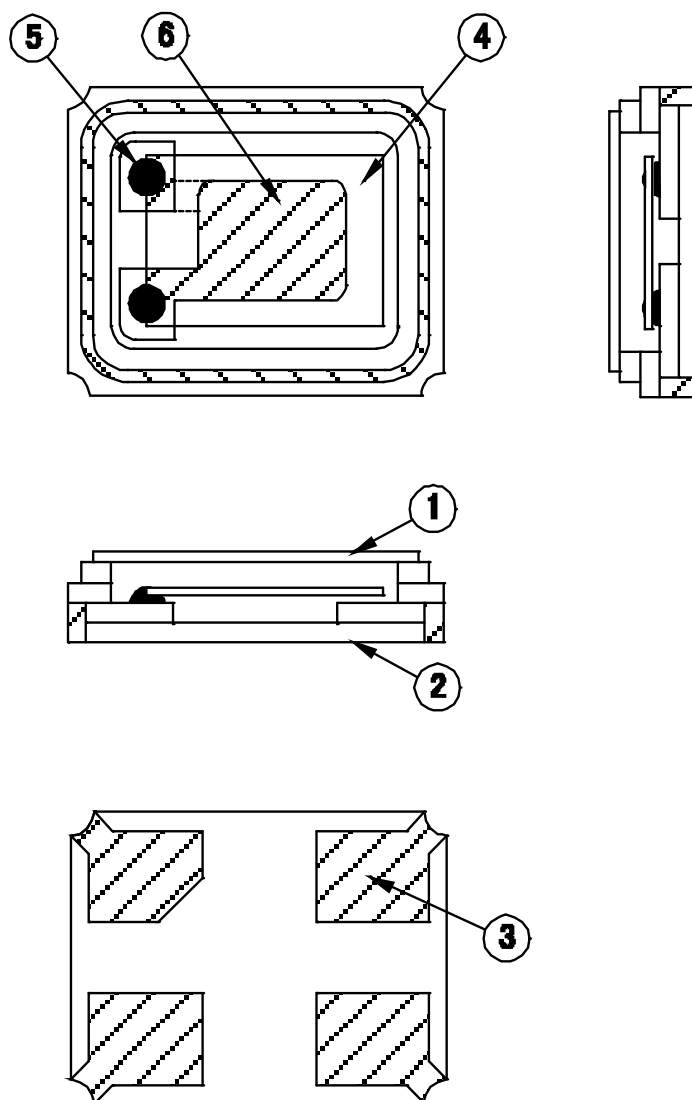
### SUGGESTED REFLOW PROFILE

Total time : 360 sec. Max.  
Solder melting point : 225 °C





## STRUCTURE ILLUSTRATION



| NO | COMPONENTS          | MATERIALS                                         | QTY | FINISH/SPECIFICATIONS |
|----|---------------------|---------------------------------------------------|-----|-----------------------|
| 1  | Cap(Lid)            | Kovar(Fe+Co+Ni)                                   | 1   | Ni plating            |
| 2  | Base(Package)       | Almina Ceramics (Al <sub>2</sub> O <sub>3</sub> ) | 1   |                       |
| 3  | Pad(Package)        | Ni + Au                                           | 4   | Ni+Au plating         |
| 4  | Crystal blank       | SiO <sub>2</sub>                                  | 1   | -                     |
| 5  | Conductive adhesive | Ag                                                | 2   | Silicone resin        |
| 6  | Electrode           | Noble metal                                       | 2   | -                     |



## RELIABILITY SPECIFICATIONS

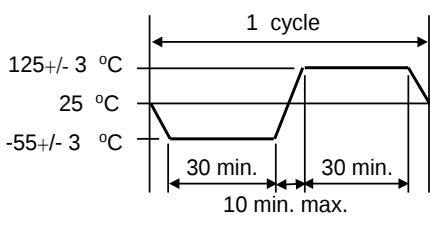
### 1.MECHANICAL ENDURANCE

| No. | Test Item                    | Test Methods                                                                                                                                             |                                                                                     |
|-----|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1   | Drop Test                    | 150 cm height, fall freely onto stainless plate 3 times.                                                                                                 | JIS C6701                                                                           |
| 2   | Shock Test                   | 150g/150cm Height, 3 times in the direction of $\pm x$ , $\pm y$ , $\pm z$ on concrete floor                                                             | IEC-68-02-27                                                                        |
| 3   | Mechanical Shock             | Device are shocked to half sine wave ( 1000 G ) three mutually pendicular axes each 3 times. 1.0m sec. duration time                                     | MIL-STD-202F                                                                        |
| 4   | Vibration                    | Frequency range 10 ~ 55 Hz<br>Amplitude 1.52 mm<br>Pendicular axes each test time 2 hours ( x,y,z Axis )<br>Total test time 6 hours                      | MIL-STD-883E                                                                        |
| 5   | Gross Leak                   | Standard Sample For Automatic Gross Leak Detector Test<br>Pressure 2kg/cm <sup>2</sup>                                                                   | MIL-STD-883E                                                                        |
| 6   | Fine Leak                    | Helium Bombing 4.5kgf/cm <sup>2</sup> for 2 hr                                                                                                           | MIL-STD-883E                                                                        |
| 7   | Solderability                | Temperature 260 °C $\pm$ 5 °C<br>Immersing depth 0.5 mm minimum<br>Immersion time 5 $\pm$ 1 seconds<br>Flux Rosin resin methyl alcohol solvent ( 1 : 4 ) | GB/T 2424.17-2008 / IEC 60068-2-44:1995;<br>GB/T 2423.28-2005 / IEC 60068-2-20:1979 |
| 8   | Resistance To Soldering Heat | Pre-heat temperature 125 °C<br>Pre-heat time 60 ~ 120 sec.<br>Test temperature 260 $\pm$ 5 °C<br>Test time 5 $\pm$ 1 sec.                                | MIL-STD-202F                                                                        |

\*Storage conditions : 18 months

\*Constant humidity : 40~70%

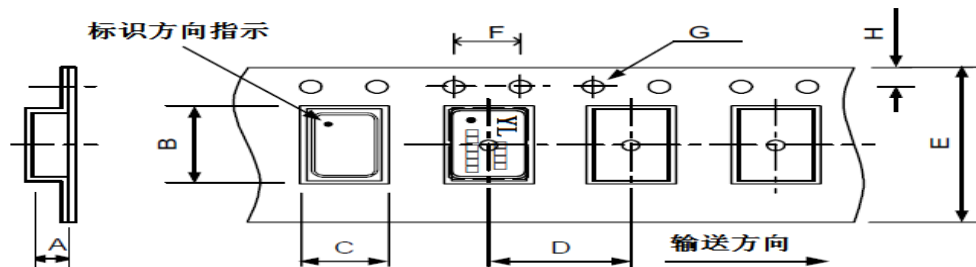
### 2.ENVIRONMENTAL ENDURANCE

| No. | Test Item          | Test Methods                                                                                                                                |              |
|-----|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 9   | High Temp. Storage | + 125 °C $\pm$ 3 °C for 500 $\pm$ 12 hours                                                                                                  | MIL-STD-883E |
| 10  | Low Temp. Storage  | - 40 °C $\pm$ 3 °C for 500 $\pm$ 12 hours                                                                                                   |              |
| 11  | Thermal Shock      | Total 100 cycles of the following temperature cycle<br> | MIL-STD-883E |
| 12  | High Temp&Homidity | 85°C $\pm$ 3°C, RH 85%,500Hrs                                                                                                               | JIS C5023    |

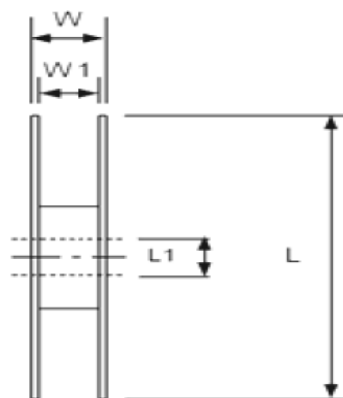
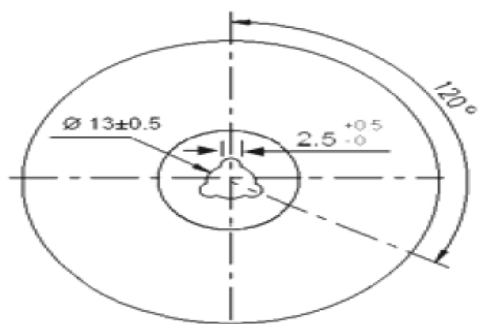
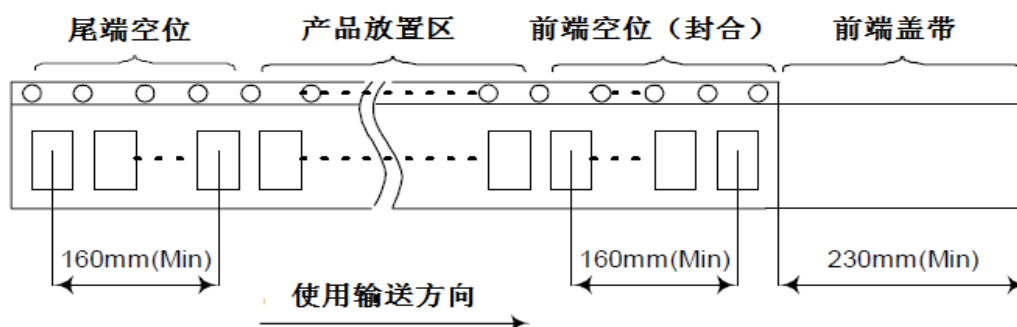


**PACKING :**

8mm-4mm, 3000pcs / reel,  $\phi 178$ ;



| Dimension | A                 | B                 | C                 | D    | E    | F    | G    | H    | Unit:<br>mm |
|-----------|-------------------|-------------------|-------------------|------|------|------|------|------|-------------|
|           | 1.40<br>$\pm 0.1$ | 3.40<br>$\pm 0.1$ | 2.70<br>$\pm 0.1$ | 4.00 | 8.00 | 4.00 | 1.50 | 1.75 |             |



| Dimension | L   | L1 | W    | W1 | Unit: mm<br>3000pcs / reel |
|-----------|-----|----|------|----|----------------------------|
|           | 178 | 13 | 11.5 | 8  |                            |



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FL P/N: 3S08000008-Q  
VER: S0 PAGE: 8/9

## SMD PRODUCT PACKING STANDARD

### Out-going packing instruction

| Reel Packing                                                                      | Inner Packing                                                                     | Carton                                                                                 |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| name: reel<br>standard: diameter 18cm<br>material: plastics                       | name: Bubble Wrap<br>standard: 430×330+20mm<br>material: HDPE(15 reels enter)     | name: carton<br>standard: 400×400×280mm<br>material: AB corrugated paper(4 bags 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.Part No.<br>2.Lot No.<br>3.Q'ty<br>4.Freq   | 70x50mm | White    |
|  | L2   | 条码标签<br>Bar Code<br>Label<br>(Chintz Paper) | 1.Part No.<br>2.Date Code<br>3.Q'ty<br>4.Freq | 70x50mm | 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                                  |
|----------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------|
| Banned Substances                                                                                                    | Maximum concentration<br>ppm(mg/kg) | Maximum concentration<br>ppm(mg/kg)               |
| 1. 镉及镉化合物<br>Cadmium and cadmium compounds                                                                           | 100                                 | 100                                               |
| 2. 铅及铅化合物<br>Lead and lead compounds                                                                                 | 1000                                | 100                                               |
| 3. 汞及汞化合物<br>Mercury and mercury compounds                                                                           | 1000                                | 100                                               |
| 4. 六价铬化合物<br>Hexavalent-Chromium VI (Cr+6)                                                                           | 1000                                | 100                                               |
| 5. 聚溴联苯 PBB<br>Polybrominated biphenyls                                                                              | 1000                                | N/A                                               |
| 6. 聚溴二苯醚 PBDE<br>Polybrominated diphenyl ethers                                                                      | 1000                                | N/A                                               |
| 7. 邻苯二甲酸二(2-乙基己基)酯 DEHP<br>Di (2-ethylhexyl) phthalate                                                               | 1000                                | N/A                                               |
| 8. 邻苯二甲酸丁苄酯 BBP<br>Butyl Benzyl Phthalate                                                                            | 1000                                | N/A                                               |
| 9. 邻苯二甲酸二丁酯 DBP<br>Dibutyl Phthalate                                                                                 | 1000                                | N/A                                               |
| 10 邻苯二甲酸二异丁酯 DIBP<br>Diisobutyl Phthalate                                                                            | 1000                                | N/A                                               |
| 11. 氟 (F)、氯 (Cl)、溴 (Br)、碘 (I)<br>Fluorine、Chlorine、Bromine、Iodine                                                    | 900、900、900、900<br>注: Br+Cl<1000    | N/A                                               |
| 12. 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 materials | N/A                                 | 100<br>铅(Pb) + 镉(Cd) + 汞(Hg) + 六价铬 (Cr+6) <100ppm |
| 13. 高度关注物质<br>SVHC-Substances of Very High Concern                                                                   | 1000                                | N/A                                               |

