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| Issue | December 21, 2024 |
| Rev.  | 1.0               |
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# CRYSTAL UNIT SPECIFICATIONS

**客户批准 Customer Approval**

(请批准后回签一份 Please Return A Copy With Approval)

|                      |                                |
|----------------------|--------------------------------|
| <b>Customer</b>      |                                |
| <b>Customer P/N</b>  |                                |
| <b>Product</b>       | <b>CRYSTAL OSCILLATOR</b>      |
| <b>Spec</b>          | <b>POSC1612/1.500K~52.000M</b> |
| <b>A-Crystal P/N</b> | <b>AO1 Series</b>              |

|                   |                 |                 |
|-------------------|-----------------|-----------------|
| <b>Drawn</b>      | <b>Checked</b>  | <b>Approved</b> |
| <i>Caogaobang</i> | <i>Fengying</i> | <i>Tanqlong</i> |



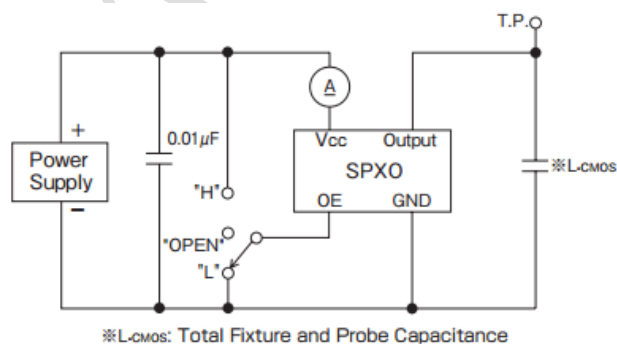
## 1. ELECTRICAL SPECIFICATIONS

### 1.1 Hold Type: POSC1612

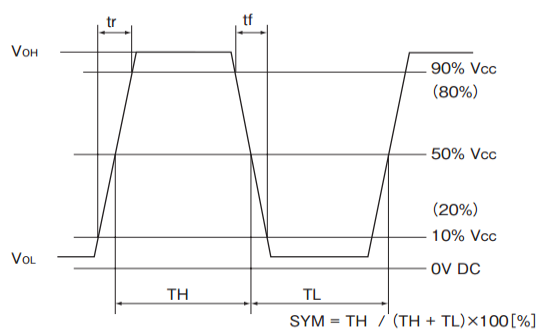
| No. | Item                        | Symb.   | Electrical Specification |      |            |                 | Remark                 |
|-----|-----------------------------|---|--------------------------|------|------------|-----------------|------------------------|
|     |                             |   | Min.                     | Type | Max.       | Units           |                        |
| 1   | Nominal Frequency           | F <sub>0</sub>  | 1.50K                    | -    | 52.000     | MHz             |                        |
| 2   | Frequency Stability         |   | -20<br>-50               | -    | +20<br>+50 | ppm             | All condition*         |
| 3   | Operating Temperature Range | TOPR  | 0<br>-40                 | -    | +60<br>+85 | °C              |                        |
| 4   | Storage Temperature         | TSTG  | -55                      | -    | +125       | °C              |                        |
| 5   | Power supply Voltage        | V <sub>DD</sub>   | 1.8                      | 3.3  | 3.6        | V               |                        |
| 6   | Aging Per Year              | Fa  | -3                       | -    | +3         | ppm             | First Year             |
| 7   | Supply current              | Ic  | -                        | -    | 3.5        | mA              |                        |
| 8   | Output symmetry             | Sym   | 45                       | 50   | 55         | %               |                        |
| 9   | Rise time                   | Tr  | -                        | -    | 5          | ns              | 10%~90%V <sub>DD</sub> |
| 10  | Fall time                   | Tf  | -                        | -    | 5          | ns              | 90%~10%V <sub>DD</sub> |
| 11  | Output voltage              | V <sub>OH</sub>   | 90%                      | -    | -          | V <sub>DD</sub> |                        |
|     |                             | V <sub>OL</sub>   | -                        | -    | 10%        | V <sub>DD</sub> |                        |
| 12  | Output load                 |   | -                        | -    | 15         | PF              |                        |
| 13  | Start-up Time               |   | -                        | -    | 2          | mS              |                        |
| 14  | Pin 1, tri-state function   | pin 1=H or open.....output active at pin 3<br>pin 1=L.....high impedance at pin 3 |                          |      |            |                 |                        |
| 15  | Package type                | 1.6*1.2*0.5   |                          |      |            |                 |                        |

All condition\*: Include 25deg C tolerance, operating temperature range , input voltage change, aging, load change, shock and vibration.

### 1.2 Test Circuit



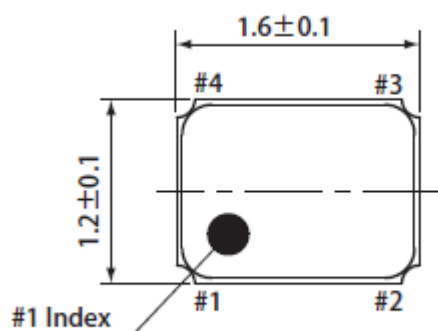
### 1.3 Output Waveform



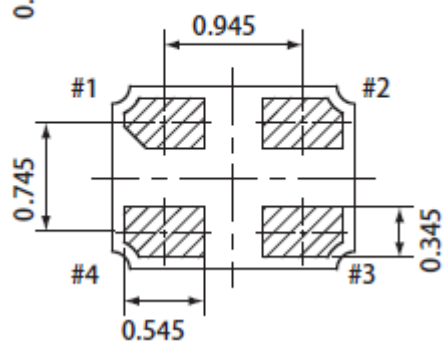
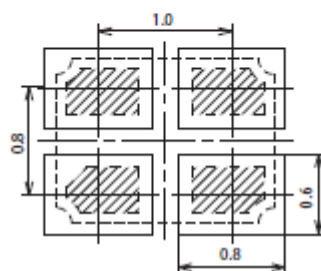


## 2. PRODUCT SIZE

### 2.1 Dimension (Unit: mm)



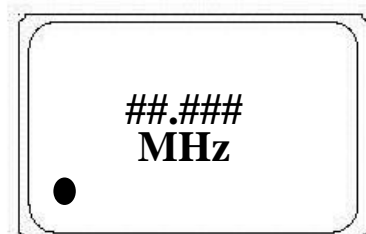
<Top View>



| Pin | Connection      |
|-----|-----------------|
| 1   | Tri-state       |
| 2   | GND             |
| 3   | Output          |
| 4   | V <sub>DD</sub> |

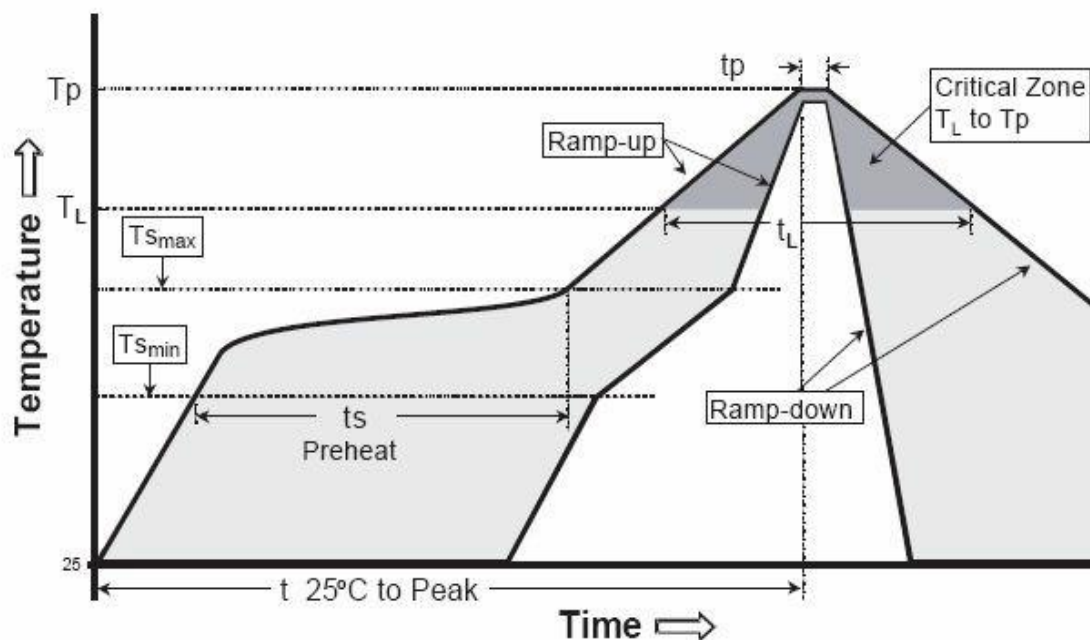
Note: 0.01uF bypass capacitor should be placed between VDD (pin 4) and GND (pin 20) to minimize power supply line noise.

### 2.2 Marking





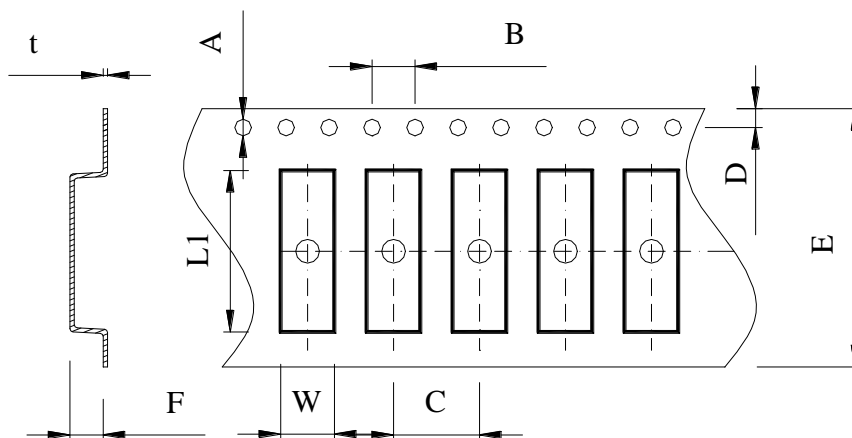
### 3. REFLOW PROFILES



$T_s = 200^{\circ}\text{C}/60 \sim 180\text{sec}$ ,  $T_L = 217^{\circ}\text{C}/60 \sim 150\text{sec}$ ,  $T_p = 260^{\circ}\text{C}/20 \sim 40\text{sec}$

### 4. PACKING

#### 4.1 Packing Method Sketch Map (Unit: mm)



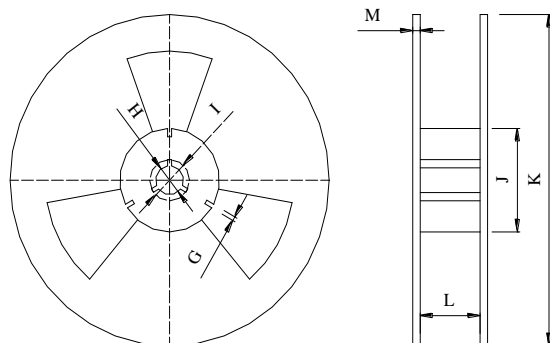
| A        | B       | C       | D        | E       | F       | L1      | W       | t         |
|----------|---------|---------|----------|---------|---------|---------|---------|-----------|
| 1.50±0.1 | 4.0±0.1 | 4.0±0.1 | 1.75±0.1 | 8.0±0.2 | 0.7±0.1 | 1.8±0.1 | 1.4±0.1 | 0.25±0.05 |



**ZHEJIANG A-CRYSTAL**  
**ELECTRONIC TECHNOLOGY CO., LTD.**



### 4.2 Reel Dimensions (Unit: mm)



| G        | H         | I        | J         | K          | L        | M        |
|----------|-----------|----------|-----------|------------|----------|----------|
| 2.0 ±0.5 | 13.0 ±0.5 | 21.0±0.5 | φ60 +1/-0 | φ180 +0/-3 | 9.0 ±0.3 | 1.2 ±0.3 |

\*3000pcs/Reel

## 5. Products Code

### 5.1 SMD CRYSTAL OSCILLATORS

| 公司代码<br>浙江一晶      | 产品型号<br>(2位)  | 工作频率<br>(全频点位数)      | 负载电容<br>(1位字母)      | 调整频差<br>(1位字母)          | 温度频差<br>(1位字母)               | 工作温度<br>(1位字母)                    | 其它      |
|-------------------|---------------|----------------------|---------------------|-------------------------|------------------------------|-----------------------------------|---------|
| A-crystal<br>Logo | Package       | Nominal<br>Frequency | Load<br>Capacitance | Frequency<br>Tolerating | Freq Temp<br>Characteristics | Operating<br>Temperature<br>Range | Others  |
| A                 | O1 (POSC1612) | 4M=04000             | Y=5.0V              | 01=5PPM                 | A=10PPM                      | 1=0~50                            | Special |
|                   |               | 12.000M=12000        | A=3.3V              | 02=10PPM                | B=15PPM                      | 2=-10~60                          |         |
|                   |               | 32.768K=32768        | M=3.0V              | 03=20PPM                | C=20PPM                      | 3=-10~70                          |         |
|                   |               |                      | C=2.5V              | 04=30PPM                | D=25PPM                      | 4=-20~70                          |         |
|                   |               |                      | D=1.8V              | 05=40PPM                | E=30PPM                      | 5=-30~85                          |         |
|                   |               |                      | B=2.8V              | 06=50PPM                | F=50PPM                      | 6=-40~85                          |         |
|                   |               |                      |                     | 07=100PPM               | G=100PPM                     | 7=-40~105                         |         |
|                   |               |                      |                     | 0A=15PPM                |                              | 8=-40~125                         |         |
|                   |               |                      |                     | 0B=25PPM                |                              |                                   |         |
|                   |               |                      |                     |                         |                              |                                   |         |
|                   |               |                      |                     |                         |                              |                                   |         |
|                   |               |                      |                     |                         |                              |                                   |         |
|                   |               |                      |                     |                         |                              |                                   |         |
|                   |               |                      |                     |                         |                              |                                   |         |
|                   |               |                      |                     |                         |                              |                                   |         |
|                   |               |                      |                     |                         |                              |                                   |         |