



福建省长兴电子有限公司

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## 石英晶体振荡器产品确认书

Quartz Crystal Oscillator Specification For Approval

|                     |                           |
|---------------------|---------------------------|
| 产品型号:               | 7.0×5.0 OSC 125.000000MHz |
| Model               |                           |
| 客户名称:               |                           |
| Customer            |                           |
| 客户编号:               |                           |
| Customer's Part No. |                           |
| 长兴编号:               | 7KSC125GM033L             |
| Product No.         |                           |
| 发行日期:               |                           |
| Issue Date          |                           |

承办: 吴丽萍

审核: 杨启付

批准: 吕锡昌

内容:

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- 2、Electrical Specifications 电气参数
- 3、Dimensions 外型尺寸
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- 8、Reliability Specifications 可靠性规范

客户 Conclusion:

☐ Conditional Approval ☐ Full Approval ☐ Reject

|                  |  |
|------------------|--|
| 会<br>签<br>意<br>见 |  |
|------------------|--|

APPROVED BY :

ISSUED DATE :

## 7.0x5.0x1.3mm SMD Crystal Oscillators LVDS Output/7K Series

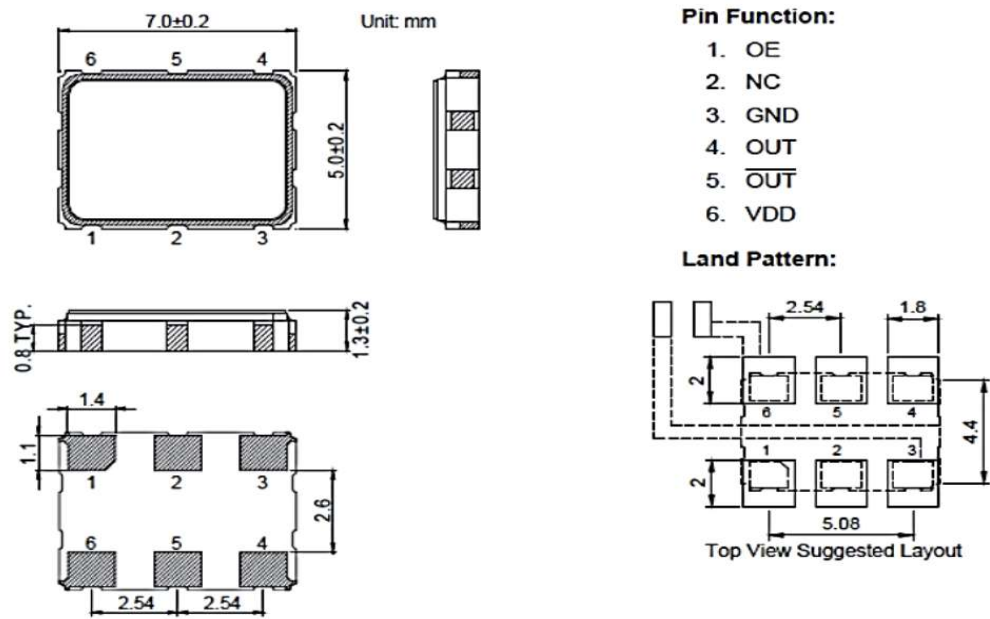
### ■ Features 特点

- . Fundamental or 3rd Overtone solution.
- . 3.3V and 2.5V operation operation available.
- . LVDS output, output frequencies 25 MHz to 200 MHz.
- . Excellent low phase noise and jitter.
- . Tri-state function available.
- . Applications : Fibre Channel, Gigabit Ethernet, Serial ATA, Serial Attached SCSI, PCI-Express, SDH/SONET.
- . RoHS compliant / Pb Free.

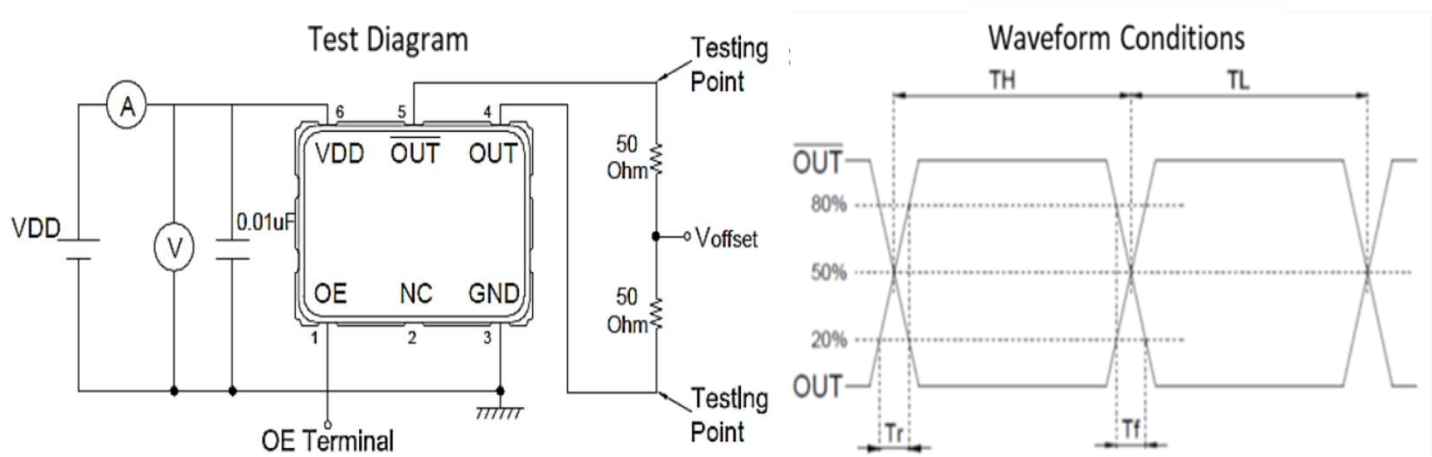
### ■ Electrical Specifications 电气参数

|                                     | Parameters               | SYMBOL                                                             | CONDITIONS                       | MIN       | TYP     | MAX      | UNIT |
|-------------------------------------|--------------------------|--------------------------------------------------------------------|----------------------------------|-----------|---------|----------|------|
| 1                                   | Normal Frequency Range   | —                                                                  |                                  | —         | 125.000 | —        | MHz  |
| 2                                   | Vibration Mode           | —                                                                  | 3rd                              | —         | —       | —        | —    |
| 3                                   | Frequency Tolerance      | $\Delta f/f_n$                                                     | @25±3°C                          | -10       | —       | +10      | ppm  |
| 4                                   | Frequency Stability      | F/T                                                                | Over<br>Operating<br>Temp. Range | -30       | —       | +30      | ppm  |
| 5                                   | Operating Temperature    | TA                                                                 |                                  | -40       | —       | +85      | °C   |
| 6                                   | Storage Temperature      | TSTG                                                               |                                  | -55       | —       | +125     | °C   |
| 7                                   | Operating Supply Voltage | Vcc                                                                | ±5%                              |           | 2.5~3.3 |          | V    |
| 8                                   | Start up time            | Tosc                                                               | To 90% of<br>Final<br>Amplitude  | —         | —       | 10       | mS   |
| 9                                   | Supply Current           | Icc                                                                |                                  | —         | —       | 80       | mA   |
| Enable Feature                      |                          |                                                                    |                                  | YES       |         |          |      |
| 10                                  | "H" Input Voltage        | VIH                                                                |                                  | Vcc*0.7   | —       | —        | V    |
| 11                                  | "L" Input Voltage        | VIL                                                                |                                  | —         | —       | Vcc*0.3  | V    |
| 12                                  | E/D(#1 引脚 E/D)           | Logic 1 Or Floating input,Outputs enable; Logic 0 ,Outputs disable |                                  |           |         |          |      |
| 13                                  | First Year Aging         | —                                                                  | @25°C                            | -3        |         | +3       | ppm  |
| Output                              |                          |                                                                    |                                  | LVDS      |         |          |      |
| 14                                  | "H" Output Voltage       | VOH                                                                | RL=50 ohms<br>to<br>(Vcc-2V)     | Vcc-1.025 | —       | Vcc-0.88 | V    |
| 15                                  | "L" Output Voltage       | VOL                                                                |                                  | Vcc-1.810 | —       | Vcc-1.62 | V    |
| 16                                  | Duty Cycle               | Duty                                                               | @Vcc-1.3V                        | 45        | 50      | 55       | %    |
| 17                                  | Rise and Fall Time       | Tr/Tf                                                              | @20%-80%                         | —         | —       | 0.5      | nS   |
| 18                                  | Phase Noise              |                                                                    | 10Hz                             | —         | —       |          | dBc  |
|                                     |                          |                                                                    | 100Hz                            | —         | —       |          | dBc  |
|                                     |                          |                                                                    | 1KHz                             | —         | —       |          | dBc  |
|                                     |                          |                                                                    | 10KHz                            | —         | —       |          | dBc  |
|                                     |                          |                                                                    | 100KHz                           | —         | —       |          | dBc  |
|                                     |                          |                                                                    | 1M                               | —         | —       |          | dBc  |
| 19                                  | Jitter                   | RMS                                                                | 12kHz to<br>20MH                 | —         | —       | 0.4      | ps   |
| MSL: Level 1 (IPC/JEDEC J-STD-033C) |                          |                                                                    |                                  |           |         |          |      |

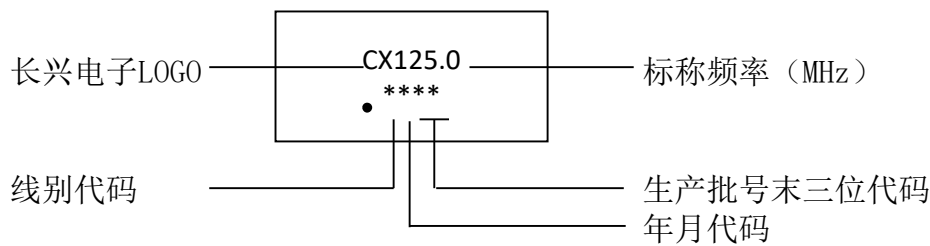
■ Dimensions外型尺寸



■ Test Diagram测试电路



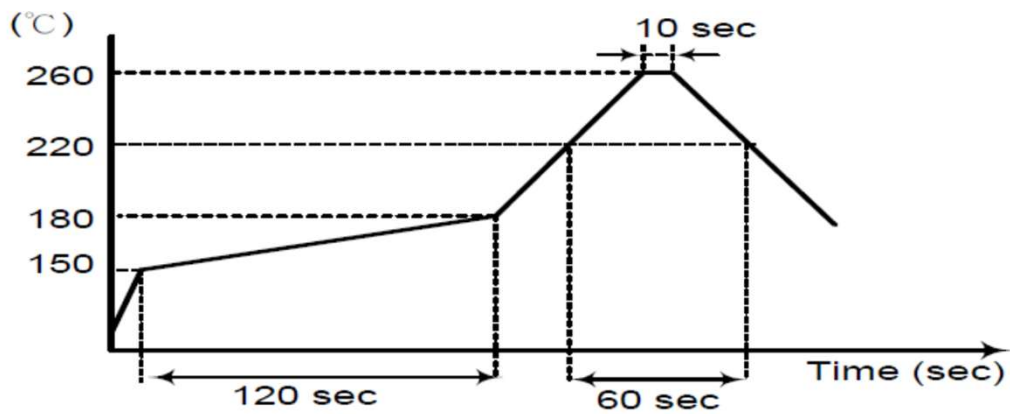
■ Marking印码



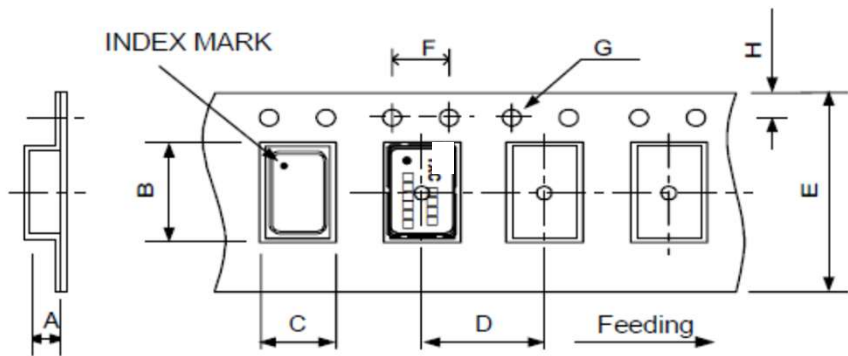
年月代码（四年一个周期）：

| 月份 |      | 一月 | 二月 | 三月 | 四月 | 五月 | 六月 | 七月 | 八月 | 九月 | 十月 | 十一月 | 十二月 |
|----|------|----|----|----|----|----|----|----|----|----|----|-----|-----|
| 年份 | 2023 | a  | b  | c  | d  | e  | f  | g  | h  | j  | k  | l   | m   |
|    | 2024 | n  | p  | q  | r  | s  | t  | u  | v  | w  | x  | y   | z   |
|    | 2025 | A  | B  | C  | D  | E  | F  | G  | H  | J  | K  | L   | M   |
|    | 2026 | N  | P  | Q  | R  | S  | T  | U  | V  | W  | X  | Y   | Z   |

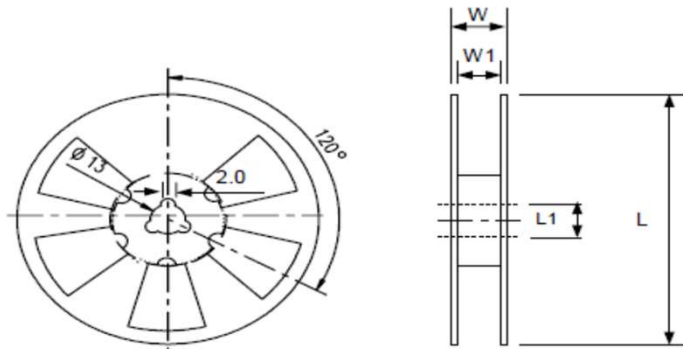
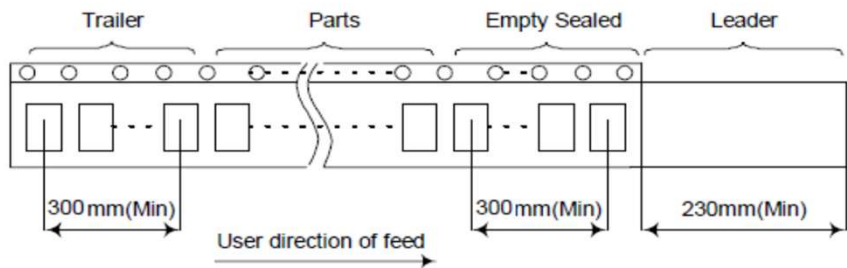
■ Reflow Condition回流焊条件



■ Packing包装 (EIA-481-2)



| DIMENSIONS | A        | B        | C        | D        | E        | F        | G         | H        |
|------------|----------|----------|----------|----------|----------|----------|-----------|----------|
| UNIT : mm  | 1.90±0.1 | 7.40±0.1 | 5.40±0.1 | 8.00±0.1 | 16.0±0.2 | 4.00±0.1 | 1.55±0.05 | 1.75±0.1 |



| DIMENSIONS | L       | L1     | W        | W1       | Standard Reel Quantity     |
|------------|---------|--------|----------|----------|----------------------------|
| UNIT : mm  | 180±1.0 | 13±0.5 | 16.5±0.2 | 12.0+1.0 | 1,000 pcs per reel (WHITE) |

■ Reliability Specifications (可靠性规范)

| Item                                                  | Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Reference         | Specifications                                                                              |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------|----------|---|----------|-----------|----|----------|-----------|----|-----------------|-------------------|-----------------|----------------------------------|
| Solderability                                         | Solder bath temperature:260℃ , dwell time:5 seconds,<br>Solder: 100% tin                                                                                                                                                                                                                                                                                                                                                                                                                      | IEC68-2-20:1979   | A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed. |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| Resistance to soldering heat                          | Solder temperature 260+/-3℃,Immersion time:10 S<br>Solder bath composition:100% tin                                                                                                                                                                                                                                                                                                                                                                                                           | IEC68-2-58:1989   | $\Delta F \leq \pm 5 \text{ppm}$                                                            |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| Vibration                                             | The entire frequency range: 10Hz to 55Hz ,Amplitude:1.5mm<br>This motion shall be applied for a period of 2 h in each of 3 mutually perpendicular axes(a total of 6h)                                                                                                                                                                                                                                                                                                                         | IEC 68-2-21:1992  | $\Delta F \leq \pm 5 \text{ppm}$                                                            |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| Drop test                                             | Drop from 75cm height on 3cm hard wooden board for 6 times                                                                                                                                                                                                                                                                                                                                                                                                                                    | IEC68-2-32:1990   | $\Delta F \leq \pm 5 \text{ppm}$                                                            |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| Cold Storage                                          | The quartz crystal unit shall be stored at a temperature of -40+/-3℃ for 1000 h.then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.                                                                                                                                                                                                                                                                                                   | IEC68-2-6:1982    | $\Delta F \leq \pm 5 \text{ppm}$                                                            |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| High temperature high humidity storage (steady state) | The quartz crystal unit shall be stored at a temperature of 40+/-2℃ with relative humidity of 95% for 1000h, then it shall be subjected to standard atmospheric conditions for 2h after which measurement shall be made.                                                                                                                                                                                                                                                                      | IEC60068-2-1:1990 | $\Delta F \leq \pm 5 \text{ppm}$                                                            |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| Thermal shock                                         | The quartz crystal unit shall be subjected to 50 successive Change of temperature cycles. Each as shown in table below ,then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made. <table><tr><td></td><td>Temperature</td><td>Duration</td></tr><tr><td>1</td><td>-40+/-3℃</td><td>15minutes</td></tr><tr><td>2.</td><td>100+/-2℃</td><td>15minutes</td></tr><tr><td>3.</td><td>Transition time</td><td>Within 10 seconds</td></tr></table> |                   | Temperature                                                                                 | Duration | 1 | -40+/-3℃ | 15minutes | 2. | 100+/-2℃ | 15minutes | 3. | Transition time | Within 10 seconds | IEC68-2-14:1986 | $\Delta F \leq \pm 5 \text{ppm}$ |
|                                                       | Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Duration          |                                                                                             |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| 1                                                     | -40+/-3℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 15minutes         |                                                                                             |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| 2.                                                    | 100+/-2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 15minutes         |                                                                                             |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| 3.                                                    | Transition time                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Within 10 seconds |                                                                                             |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| Sealing                                               | Helium leakage detector shall used to measure the leakage rate of gas through any faulty seal. Pressure:500Kpa, duration:120 minutes.                                                                                                                                                                                                                                                                                                                                                         | IEC68-2-3:1984    | Leakage rates $\leq 1 \times 10^{-9} \text{ Pa.m}^3/\text{S}$                               |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |
| High temperature Life test                            | The quartz crystal unit shall be stored at a temperature of 85+/-3℃ for 720h ,then it shall be subjected to standard atmospheric condition for 1h after which measurement shall be made.                                                                                                                                                                                                                                                                                                      | IEC60068-2-2:1974 | $\Delta F \leq \pm 5 \text{ppm}$                                                            |          |   |          |           |    |          |           |    |                 |                   |                 |                                  |