



江苏浩都频率科技有限公司
JIANGSU HD-CRYSTAL TECHNOLOGY CO., LTD

Specifications For Product

TYPE : Quartz Crystal Resonator
SPEC : 3225/32.000M/12PF
P/N : 7B032000M12
VER : A/3

| | | | |
|----------------------|-------|----------|-----------------------------------------------------------------------------------------------|
| R&D APPR. SIGNATURED | | | DEPT.  |
| ISSUE | CHECK | APPROVAL | |
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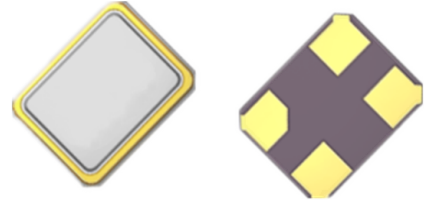
Specification Revision Record Sheet

| Rev. | Revise page | Revise Contents | Date | Ref. No. | Reviser |
|------|-------------|----------------------------------------------------------------------------------|-----------|----------|---------|
| A/0 | N/A | Initial released | 2018/3/30 | N/A | 吴佳斌 |
| A/1 | N/A | P/N revision | 2020/1/1 | N/A | 吴佳斌 |
| A/2 | 4 | package and pad layout change | 2022/2/8 | N/A | 吴佳斌 |
| A/3 | 4 | package change 0.65±0.1mm to 0.75±0.1mm package change 0.7mm Max to 0.8mm Max | 2022/5/31 | N/A | 吴佳斌 |
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7B032000M12

1. Scope:

- 1.1 This specification applies to the RoHS compliance quartz crystal unit with a frequency of 32.000MHz which will be used in crystal oscillator applications.



2. Construction:

- 2.1 Type of Quartz Resonator: SMD3225-4pads

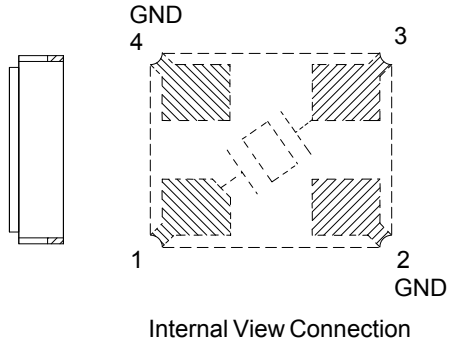
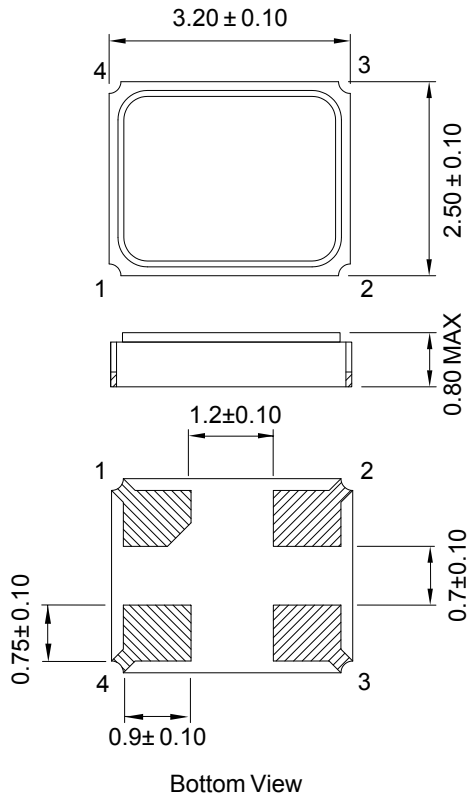
3. Electrical Characteristics

| | |
|-----------------------------------------------|----------------------|
| 3.1 Nominal Frequency(f): | 32.000MHz |
| 3.2 Load Capacitance(C_L): | 12pF |
| 3.3 Frequency Tolerance($\Delta f/f$): | ± 10 ppm |
| 3.4 Frequency Temperature Stability: | ± 20 ppm |
| 3.5 Resonance Resistance(ohm): | 25 ohms Max |
| 3.6 Osc mode: | Fundamental mode |
| 3.7 Shunt Capacitance(C_0): | 2pF Max |
| 3.8 Drive Level(D_L): | 100 μ W Max |
| 3.9 Operating Temperature Range(T_{OPR}): | -40 to + 85°C |
| 3.10 Storage Temperature Range(T_{STG}): | -55 to + 125°C |
| 3.11 Insulation Resistance(IR): | >500M ohms |
| 3.12 Aging(Δf_A): | ± 3 ppm/Year Max |

Reliability Specification

| | Item | Condition | Standard |
|----|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 1. | Drop characteristics | Free drop from 75cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.) | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |
| 2. | Mechanical shock | Device are shocked to half sine wave (1000g) three mutually perpendicular axes each 3 times | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |
| 3. | Shake characteristics | Shake frequency 10~55Hz, cyc1~2 minutes, swing 1.5mm, direction x/y/z, all 30 minutes, test after 1 hours. | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |
| 4. | Humidity characteristics | $+40 \pm 2^\circ\text{C}$ & 90%~95% R.H. 250 hours | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |
| 5. | Low temperature characteristics | $-40 \pm 2^\circ\text{C}$, 250 hours, put in room temperature, test after 1 hours. | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |
| 6. | High temperature characteristics | $+85 \pm 2^\circ\text{C}$, 250 hours, put in room temperature, test after 1 hours. | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |
| 7. | Temperature cycling | $-40 \pm 2^\circ\text{C}/30 \pm 3 \text{ min} \sim +85 \pm 2^\circ\text{C}/30 \pm 3 \text{ min}$, 5 cycles | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |
| 8. | Refluence examination | <p style="text-align: center;">Temp. ($^\circ\text{C}$)</p> <p style="text-align: center;">Time (sec)</p> <p style="text-align: center;">1. Max 200 sec 2. Max 80 sec 3. Max 10 sec</p> | Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification |

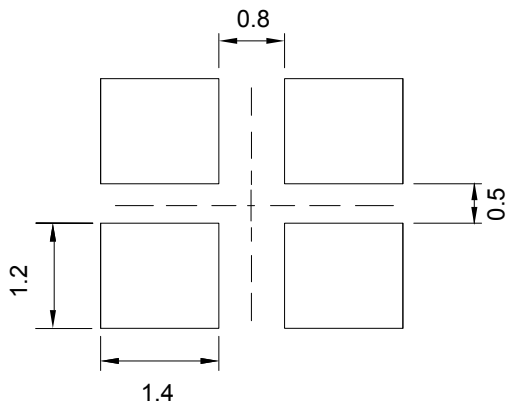
Package Outline Dimensions



| 引脚 | 功能 |
|----|---------|
| #1 | CRYSTAL |
| #2 | GND |
| #3 | CRYSTAL |
| #4 | GND |

Units:mm

Suggested Pad Layout



Units:mm

Packing Specification

