



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

Specifications For Product

TYPE : Quartz Crystal Oscillator
SPEC : CXO3225/13.560M/3.3V/±30PPM
P/N : 83013560301
VER : A/2

R&D APPR. SIGNATURED			DEPT. 
ISSUE	CHECK	APPROVAL	
吴佳斌	程心婷	王秋贞	

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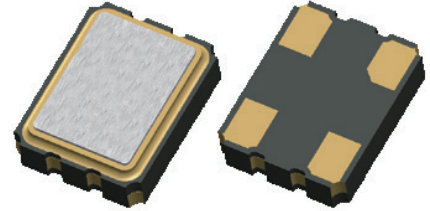
Specification Revision Record Sheet

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

83013560301

1. Scope:

- 1.1 This specification applies to the RoHS crystal oscillator with a frequency of 13.560MHz which will be used in electronic equipment.



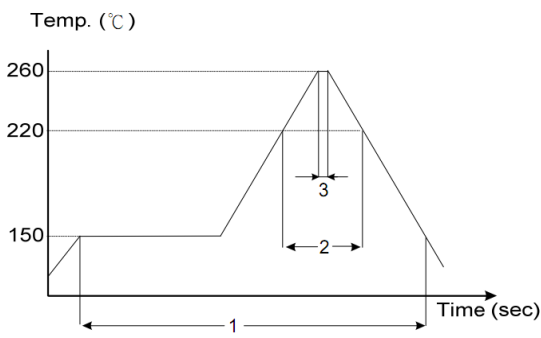
2. Construction:

- 2.1 Oscillators series: 83 series CXO3225
2.2 Package: SMD3.2×2.5

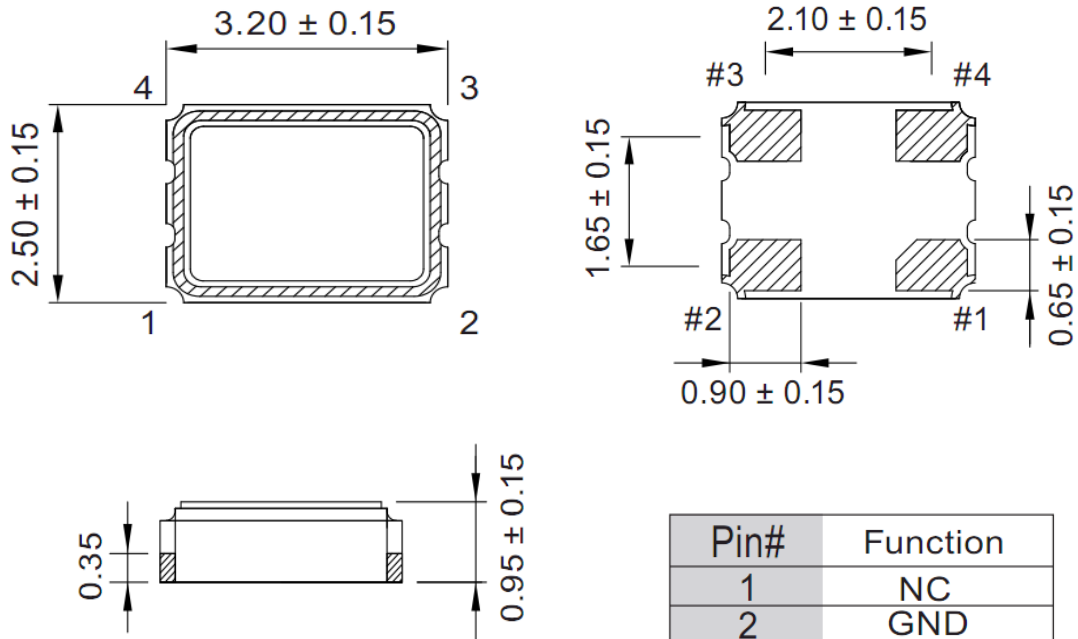
3. Electrical Characteristics

- | | | |
|------|---|---|
| 3.1 | Nominal Frequency: | 13.560MHz |
| 3.2 | Frequency Stability: | ±30ppm |
| | (incl. 25°C tolerance, tolerance over operating temperature range, input voltage change, load change, 1 year aging) | |
| 3.3 | Aging: | ±3ppm/year |
| 3.4 | Operating Temperature Range: | -40 to + 85°C |
| 3.5 | Storage Temperature Range: | -55 to + 125°C |
| 3.6 | Input Voltage (V_{DD}): | +3.3Vdc±10% |
| 3.7 | Input Current (I_{DD}): | 20mA max |
| 3.8 | Output Waveform: | CMOS |
| 3.9 | Output Symmetry: | 50±10% |
| 3.10 | Rise/Fall Time: | 8ns max |
| 3.11 | Output Voltage V_{OL} : | 10%VDD |
| | V_{OH} : | 90%VDD |
| 3.12 | Output Load: | 15pF |
| 3.13 | Output State Control: | Enable/disable |
| 3.14 | Start-up Time: | 10ms max |
| 3.15 | Standby current: | 10µA max |
| 3.16 | Phase Jitter (rms): | 1ps rms max 12kHz to 20MHz max |
| 3.17 | Oscillation mode: | Fundamental |
| 3.18 | Others: | Not recommended for safety applications |

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>Temp. ($^\circ\text{C}$)</p> <p>260 220 150</p> <p>Time (sec)</p> <p>1 2 3</p> <p>1. Max 200 sec 2. Max 80 sec 3. Max 10 sec</p>	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification

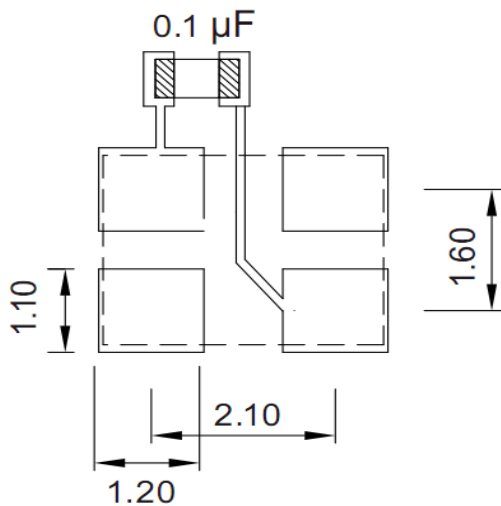
Package Outline Dimensions



Pin#	Function
1	NC
2	GND
3	Output
4	VDD

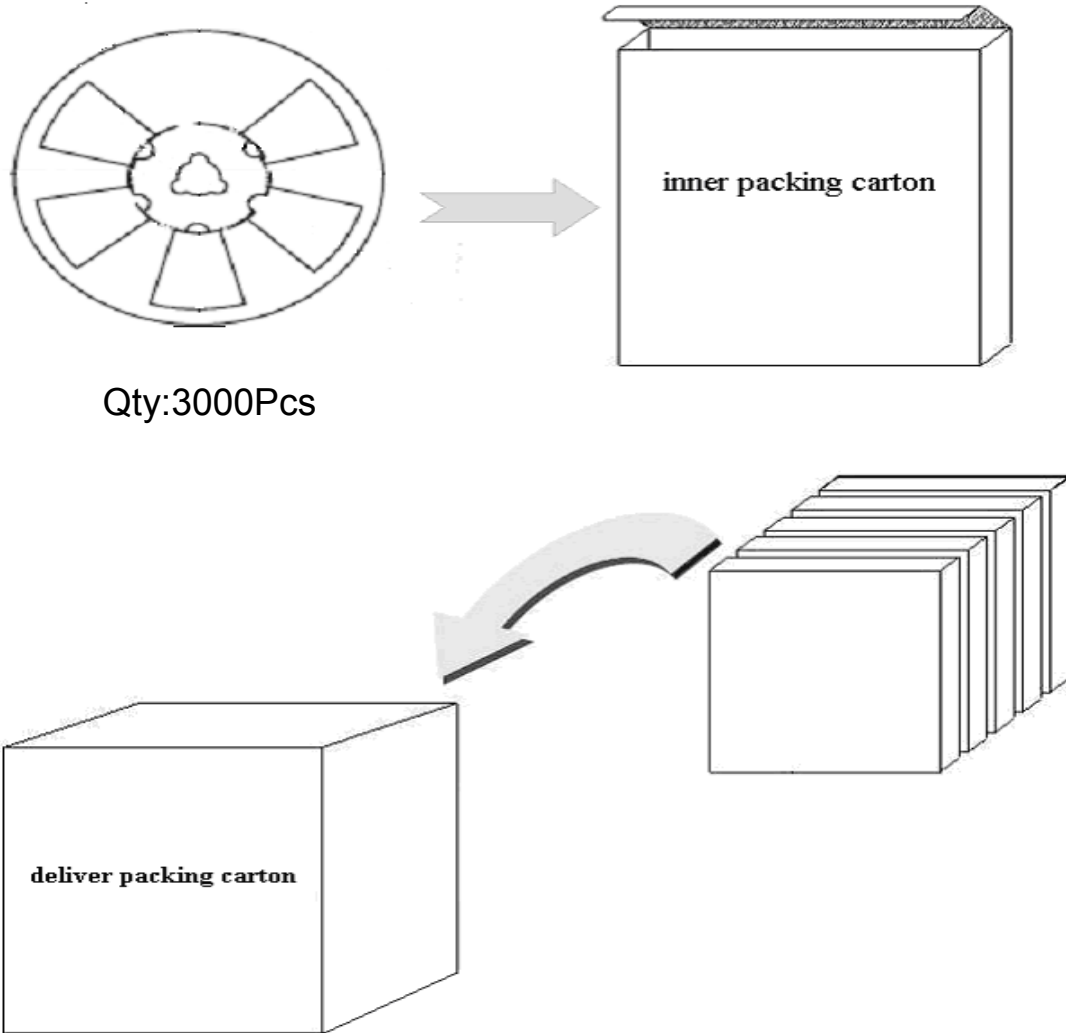
Units:mm

Suggested Pad Layout



To ensure optimal oscillator performance, place a by-pass capacitor of $0.1\mu\text{F}$ as close to the part as possible between Vdd and GND pads.

Packing Specification



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