



**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 : LVPECL/LVDS/HCSL  
P/N : 8X Series  
VER : A/0

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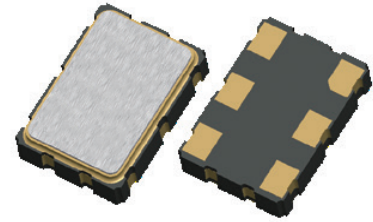
## Specification Revision Record Sheet

Rev.	Revise page	Revise Contents	Date	Ref. No.	Reviser
A/0	N/A	Initial released	2022/8/1	N/A	吴佳斌

## Product Description

### 1. Scope:

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



### 2. Construction:

- 2.1 Oscillators series: LVPECL/LVDS/HCSL Crystal Oscillator  
 2.2 Package: SMD3.2×2.5

### 3. Electrical Characteristics

Parameter	LVPECL				LVDS				unit
	3.3V		2.5V		3.3V		2.5V		
	Min	Max	Min	Max	Min	Max	Min	Max	
Supply Voltage Variation( $V_{DD}$ )	$V_{DD}-5\%$	$V_{DD}+5\%$	$V_{DD}-5\%$	$V_{DD}+5\%$	$V_{DD}-5\%$	$V_{DD}+5\%$	$V_{DD}-5\%$	$V_{DD}+5\%$	V
Frequency Range	10	250	10	250	10	250	10	250	MHz
Supply Current									
$10\text{MHz} \leq F_o < 160\text{MHz}$	-	70	-	70	-	50	-	50	mA
Output Level Output High	2.275	-	1.475	-	-	1.6	-	1.6	V
Output Low	-	1.68	-	0.88	0.9	-	0.9	-	
Transition Time: Rise/Fall Time <sup>+</sup>	-	1.0	-	1.0	-	1.0	-	1.0	nSec
Start Time	-	10	-	10	-	10	-	10	mSec
Tri-Start(Input to Pin 2 or Pin 1)									
Enable (High voltage or floating)	2.31	-	1.75	-	2.31	-	1.75	-	V
Disable (Low voltage or GND)	-	0.99	-	0.75	-	0.99	-	0.75	
RMS Phase Jitter									
(Integrated 12KHz-20MHz)									
$F_o < 80\text{MHz}$	-	1	-	1	-	1	-	1	pSec
$80\text{MHz} \leq F_o < 125\text{MHz}$	-	0.5	-	0.5	-	0.5	-	0.5	
$125\text{MHz} \leq F_o < 160\text{MHz}$	-	0.3	-	0.3	-	0.3	-	0.3	
Phase Noise@ 156.25MHz	100Hz	-95	-90	-90	-90	-90	-90	-90	dBc/Hz
	1KHz	-125	-125	-120	-120	-120	-120	-120	
	10KHz	-140	-140	-140	-140	-140	-140	-140	
Aging(@25 °C 1 st year)	-	±3	-	±3	-	±3	-	±3	ppm
Storage Temp. Range	-55	125	-55	125	-55	125	-55	125	°C

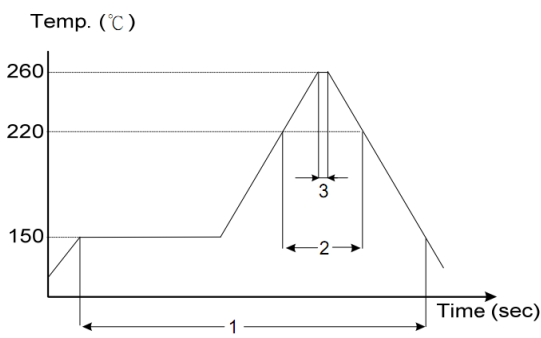
## Product Description

Parameter	HCSL				unit
	3.3V		2.5V		
	Min	Max	Min	Max	
Supply Voltage Variation(V <sub>DD</sub> )	V <sub>DD</sub> -5%	V <sub>DD</sub> +5%	V <sub>DD</sub> -5%	V <sub>DD</sub> +5%	V
Frequency Range	25	175	25	175	MHz
Supply Current 25MHz ≤ Fo < 160MHz	-	50	-	50	mA
Output Level Output High	0.6	-	0.58	-	V
Output Low	-	0.15	-	0.15	
Transition Time: Rise/Fall Time <sup>+</sup>	-	0.5	-	0.5	nSec
Start Time	-	10	-	10	mSec
Tri-Start(Input to Pin 2 or Pin 1)					V
Enable	0.7V <sub>DD</sub>	-	0.7V <sub>DD</sub>	-	
Disable	-	0.3V <sub>DD</sub>	-	0.3V <sub>DD</sub>	
RMS Phase Jitter (Integrated 12KHz-20MHz) 125MHz ≤ Fo < 160MHz	-	0.5	-	0.5	pSec
Aging(@25 °C 1 st year)	-	±3	-	±3	ppm
Storage Temp. Range	-55	125	-55	125	°C

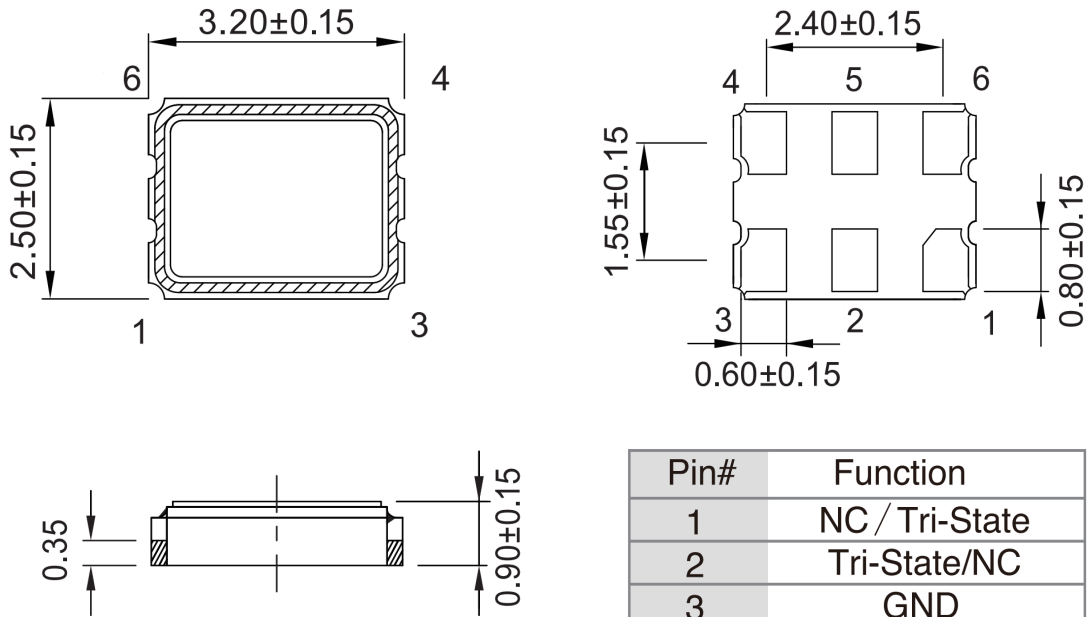
Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

+ Transition times are measured between 20% and 80% of V<sub>DD</sub>.

## Reliability Specification

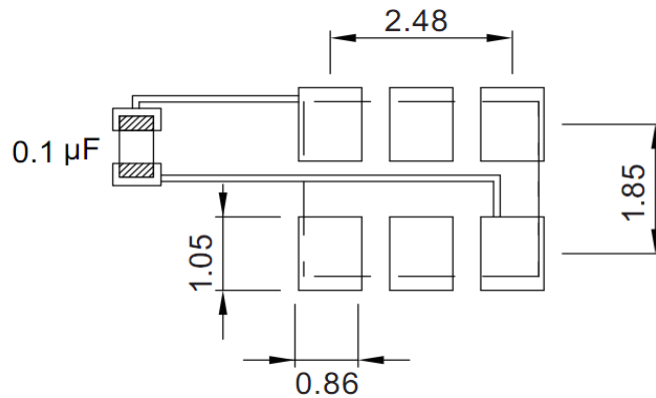
	Item	Condition	Standard
1.	Drop characteristics	Free drop from 75cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
2.	Mechanical shock	Device are shocked to half sine wave (1000g) three mutually perpendicular 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 $^{\circ}$ C & 90%~95% R.H. 250 hours	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
5.	Low temperature characteristics	-40 $\pm$ 2 $^{\circ}$ 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 $^{\circ}$ 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 $^{\circ}$ C/30 $\pm$ 3 min~+85 $\pm$ 2 $^{\circ}$ C/30 $\pm$ 3min, 5 cycles	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
8.	Refluence examination	 <p>1. Max 200 sec 2. Max 80 sec 3. Max 10 sec</p>	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
9.	Others		

## Package Outline Dimensions



Units:mm

## Suggested Pad Layout

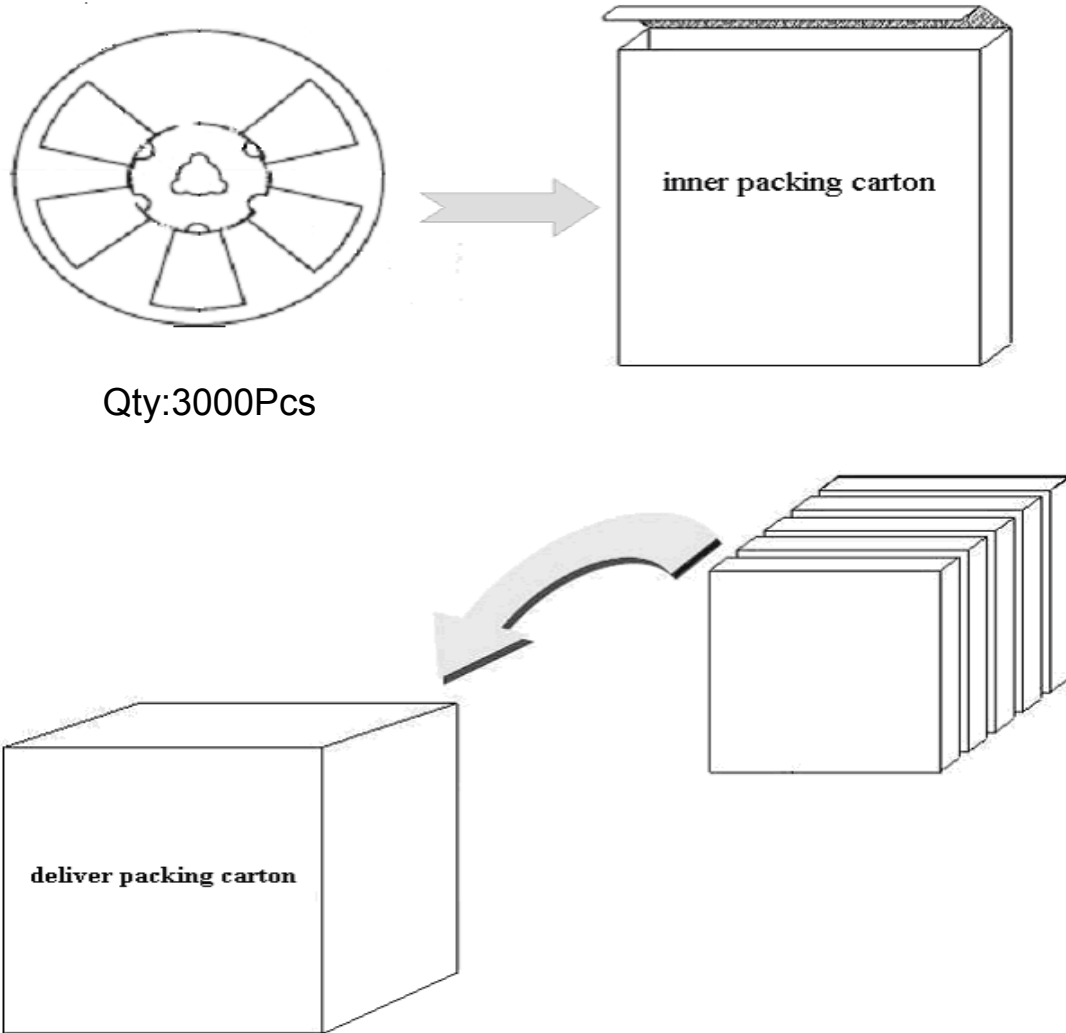


To ensure optimal oscillator performance, place a by-pass capacitor of 0.1µF as close to the part as possible between Vdd and GND pads.

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## Packing Specification

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