

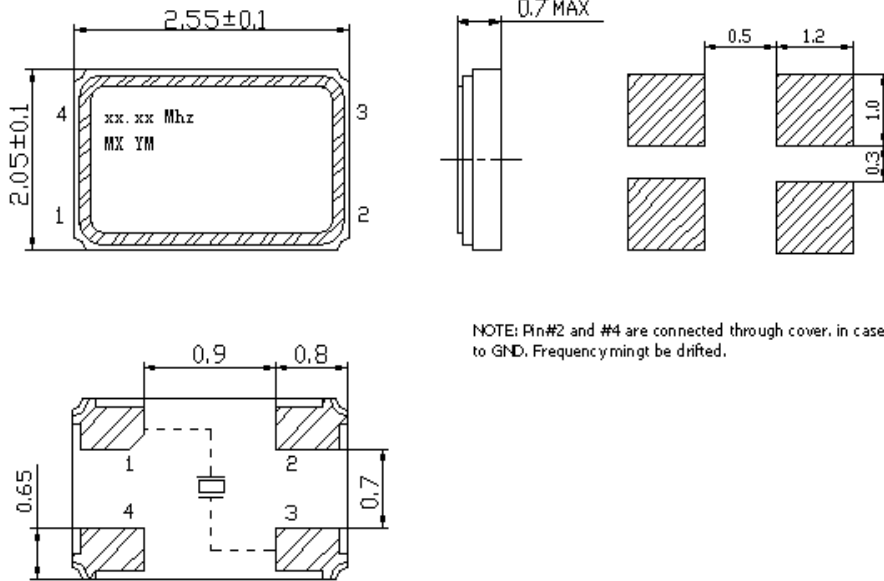
Lianyungang Macrobiz Co., Ltd.
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Specifications of Quartz Crystal
2.5*2.0SMD XQ22

DIMENSION AND MARKING



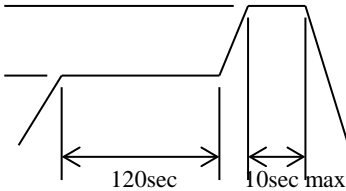
NOTE: Pin#2 and #4 are connected through cover, in case connected to GND, Frequency might be drifted.

ELECTRICAL SPECIFICATION

TYPE	: 2.5*2.0 SMD CRYSTAL	
Frequency Range (F0)	: 16Mhz to 60Mhz	
Frequency Tolerance (ΔF) (at 25 °C)	: ±10ppm to ±100ppm	
Frequency Drift (Tc)	: ±10ppm to ±100ppm	
Operating Temperature Range (T0)	: -10°C ~ +60°C or -40°C~ +85°C	
Storage Temperature Range	: -40°C ~ +85°C or -55°C~ +125°C	
Aging (25 °C)	: ±3ppm or ±5ppm Max / first year	
Shunt Capacitance (C0)	: 7pF Max	
Drive Level (DL)	: 10μW Typical	
Insulation Resistance (Ri)	: 500MΩMin / 100V±15V D.C.	
Load Capacitance (CL)	: Given by the customer	
Equivalent Series Resistance (ESR) and Mode of Oscillation (Mode)		
Frequency Range (Mhz)	ESR (Ω)	Mode
16.000-20.000	100 Max	Fundamental
20.000-30.000	80 Max	Fundamental
30.000-40.000	60 Max	Fundamental
40.000-60.000	40 Max	Fundamental

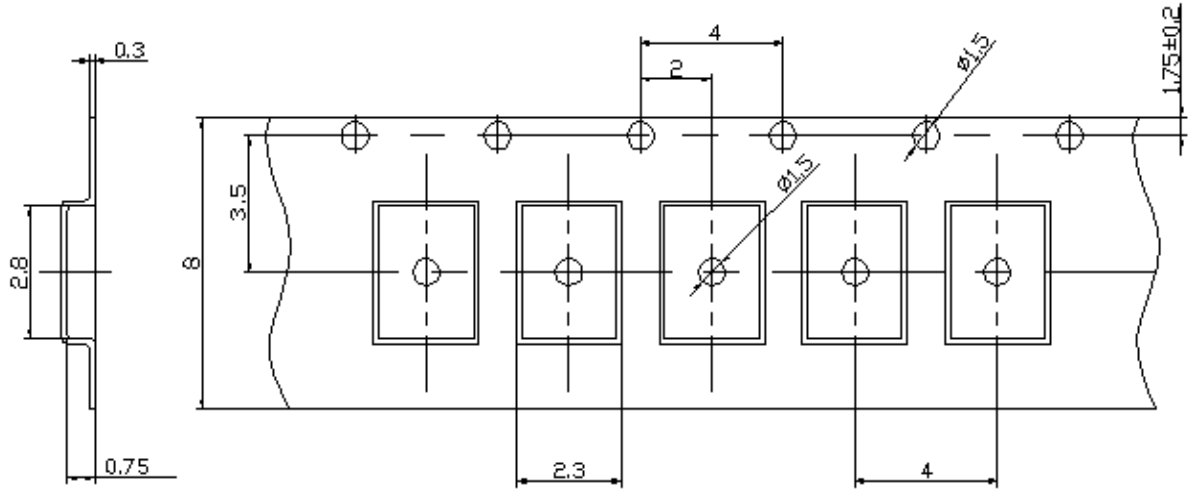
Special Instructions:
Tape and Reel
Rohs Compliant

NOTE:

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RELIABILITY			
NO	ITEM	CONDITIONS	BASIS OF VERDICT
1	DROP	High:100cm;Thickness:3cm;3tims	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is largrer)
2	VIBRATION	Frequency:10~57.7Hz: Amplitude: $\pm 0.75\text{mm}$ Frequency:57.7Hz~500Hz: acceleration rate: 98m/s^2 Cycle time:10-500-10Hz: 15min Direction:X, Y, Z Duration: 2 h/direction	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is largrer)
3	TEMPERATURE SHOCK	$-40^\circ\text{C} \pm 2^\circ\text{C}(30\text{min})$ -- $85^\circ\text{C} \pm 2^\circ\text{C}(30\text{min})$;For 10 cycles	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is largrer)
4	HUMIDITY	Temp: $40^\circ\text{C} \pm 2^\circ\text{C}$;Humidity:90-95%;Times:96h	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is largrer)
5	COLD RESISTANCE	Temp: $-40^\circ\text{C} \pm 2^\circ\text{C}$;Times:96h	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is larger)
6	HEAT RESISTANCE 1	Temp: $100^\circ\text{C} \pm 2^\circ\text{C}$;Times:96h	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (Whichever is larger)
7	HEAT RESISTANCE 2	Temp: $155^\circ\text{C} \pm 2^\circ\text{C}$;Times:2h	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is larger)
8	REFLOW	$270^\circ\text{C} \pm 5^\circ\text{C}$ $150^\circ\text{C} \pm 5^\circ\text{C}$  CYCLE TIME: 200sec Max.	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is largrer)
9	SALT SPRAY	Salt density:5%;Temp: 35°C ;Times:96h	$\Delta FL \pm 5\text{ppm Max}$ $\Delta RS 5\Omega \text{ Max or } \pm 10\% \text{ Max}$ (whichever is largrer)
10	AGING	Temp: 85°C ;Times:30days	$\Delta FL \pm 10\text{ppm Max}$ $\Delta RS 5\Omega \text{ or } \pm 10\% \text{ Max}$ (whichever is largrer)
11	LEAKAGE	He(0.6~0.65MPa):10min	$3 \times 10^{-9} \text{Pa} \cdot \text{m}^3/\text{s Max}$
12	SOLDER	Temp: $235^\circ\text{C} \pm 5^\circ\text{C}$	the solder immersion surface 90% Min



Tape



Reel

