

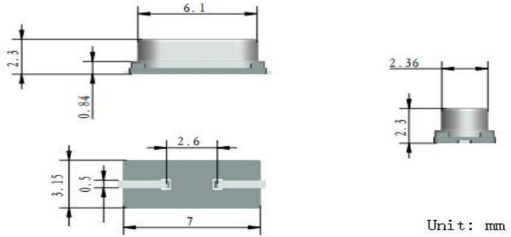


Victorlands Technical Specification

Product name	Quartz crystal unit
Model	M-49USSMD 24.000MHz
Product code	K2M24000P0H2A2
Product parameters	16PF/±10PPM
Product reliability	P. 3
Packing form	P. 4~8



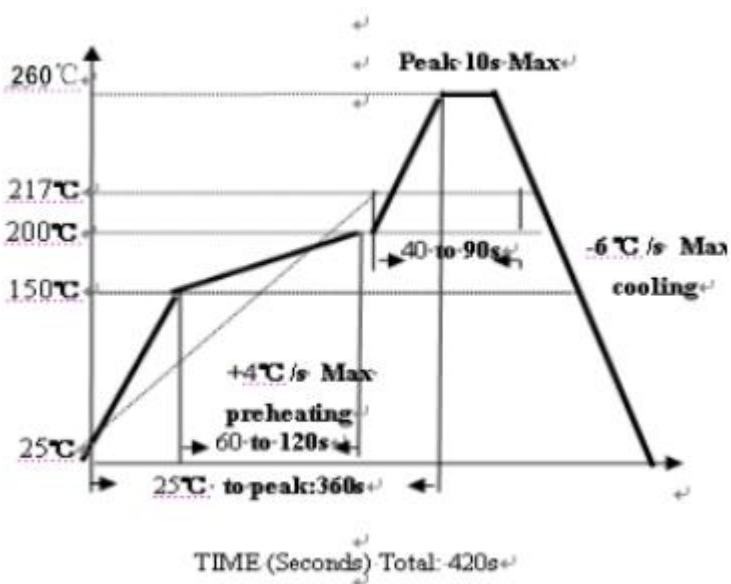
1.Product parameters

1	Nominal Frequency	24.000 MHz
2	Mode of Oscillation	AT FUND
3	Frequency Tolerance	±10PPM
4	Temperature Tolerance	±20PPM
5	Operating Temperature Range	-20℃～+70℃
6	Storage Temperature	-40℃～+85℃
7	Equivalency Resistance	≤ 40Ω
8	Load Capacitance	16 PF
9	Drive Level	100μW
10	Shunt Capacitance	≤7.0 PF
11	Insulation Resistance	≥500MΩ at DC 100V±15V
12	Aging	≤±5ppm/year
13	Hold Type (mm)	 Unit: mm
14	Marking	 Nominal Frequency

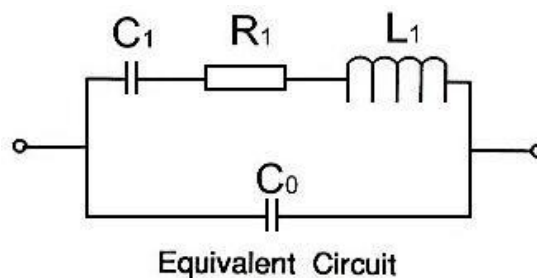


2. Reliability testing

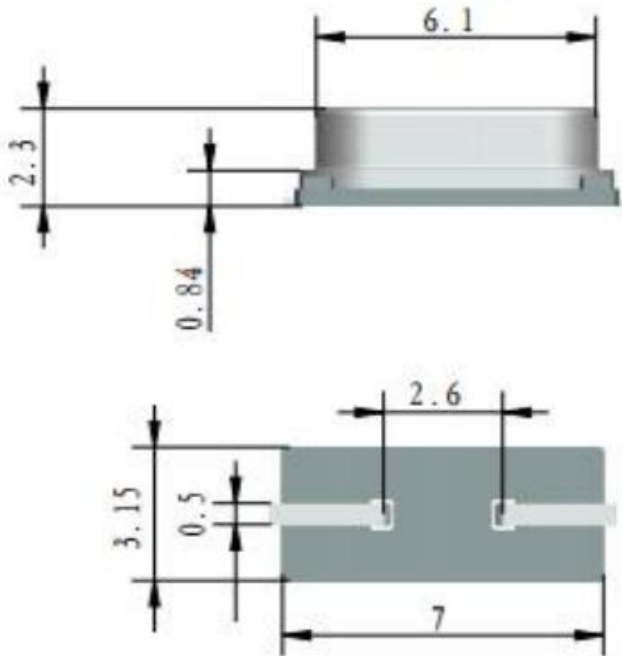
Projects	Inspection conditions and requirements	Demands
Vibration	Endurance condition by a frequency sweep shall be made. The entire frequency range from 10HZ to 50HZ and return to 10HZ, shall be transverse in 1min. Amplitude (total excursion): 1.5mm this motion shall be applied for a period of 2h each of 3 mutually perpendicular axes (a total of 6h)	(1).FL: +/-10ppm (2).Rr: +/-10 Ω
Drop	Form 70cm height 3 times on 3cm hard wooden floor	
Shock	Peak acceleration: 981m/s ² duration of the pulse :6ms three successive shocks shall be applied in both direction of 3 mutually perpendicular axes (a total of 18 shocks)	(1).FL: +/-10ppm (2).Rr: +/-10 Ω
Damp heat, constant	The unit shall be stored at a temperature of 40°C ± 2°C with relative humidity of 90% to 95% for 48h, then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made.	
Cold	The unit shall be stored at a temperature of -40°C ± 5°C for 48h, then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made.	
Dry heat	The unit shall be stored at a temperature of 100°C ± 5°C for 24h, then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made.	
Aging	The unit shall be stored at a temperature of 85°C ± 5°C for 7d then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made.	
Strength Test	No flaking, Pressure 10N ± 1 s, according to IEC 60068-2-21 standard	
Stripping test	No flaking, Pressure 10N ± 1 s, according to IEC 60068-2-21 standard	
Bending test	No flaking, Bending: 3 mm 5 ± 1 SEC. Thickness of test plate: 1mm.	

Temperature cycling	The unit shall be subjected to 5 successive change of temperature cycles, each as show in table below,then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made <table border="1"> <thead> <tr> <th></th><th>Temperature</th><th>Duration</th></tr> </thead> <tbody> <tr> <td>1</td><td>-40℃±3℃</td><td>30min</td></tr> <tr> <td>2</td><td>Standard atmospheric conditions</td><td>Within 30s</td></tr> <tr> <td>3</td><td>100℃±3℃</td><td>30min</td></tr> <tr> <td>4</td><td>Standard atmospheric conditions</td><td>Within 30s</td></tr> </tbody> </table>		Temperature	Duration	1	-40℃±3℃	30min	2	Standard atmospheric conditions	Within 30s	3	100℃±3℃	30min	4	Standard atmospheric conditions	Within 30s	
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2	Standard atmospheric conditions	Within 30s															
3	100℃±3℃	30min															
4	Standard atmospheric conditions	Within 30s															
Resistance to soldering heat																	

EQUIVALENT CIRCUIT:

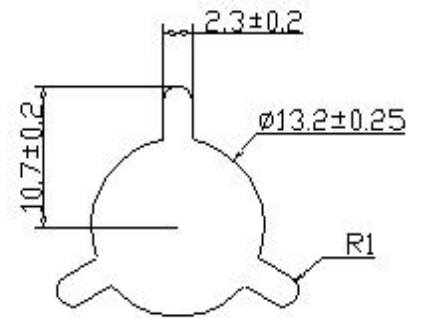
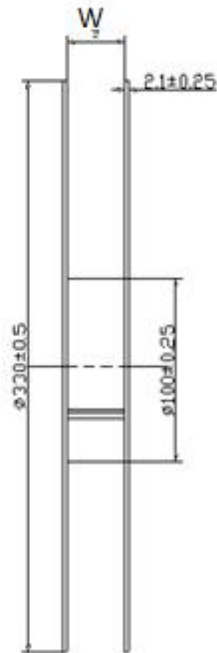
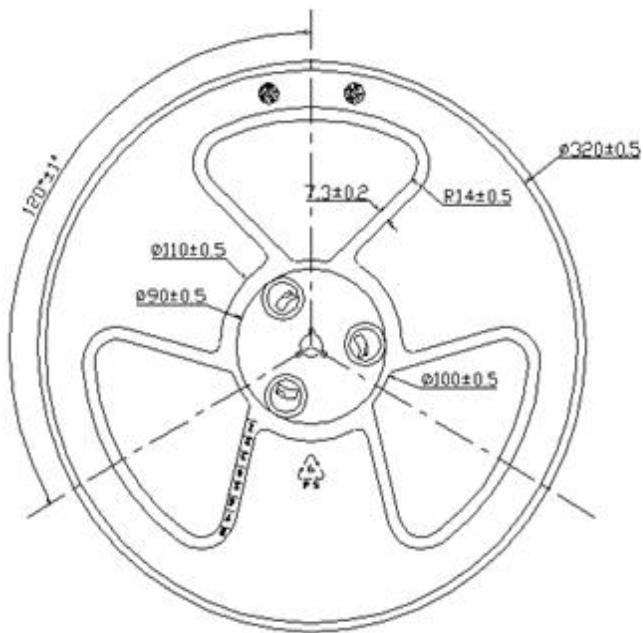


3. Dimensional drawing



Unit: mm

4. Packing form



Available Reel Size (mm) ↗	
Tape width ↗	W±0.3 mm ↗
24 mm ↗	24.4 ↗

5.Reel specification

