

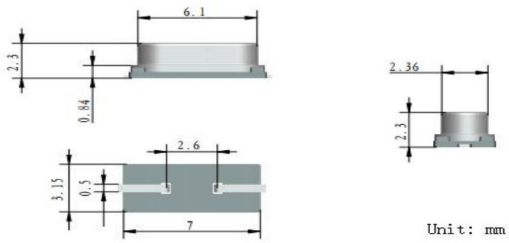


Victorlands Technical Specification

Product name	Quartz crystal unit
Model	M-49USSMD 24.000MHz
Product code	K2M24000H0H2A2
Product parameters	9PF/±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	9 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

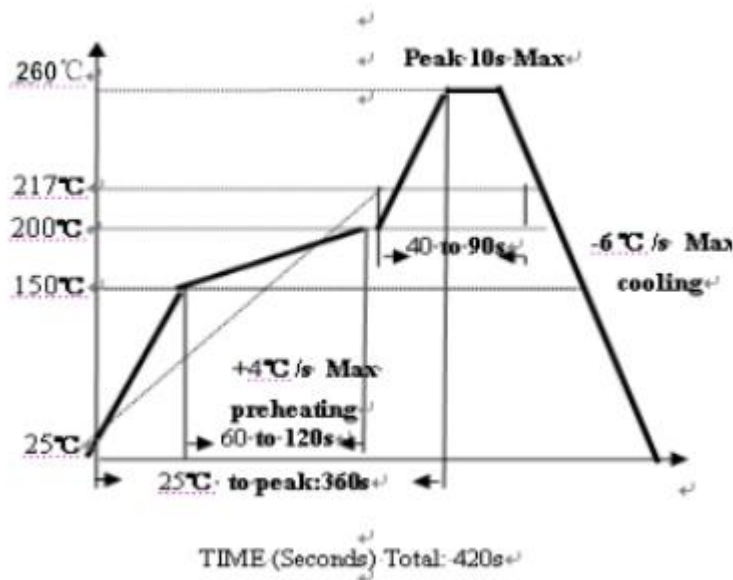
Projects	Inspection conditions and requirements	Demands
Vibration	Endurance condition by a frequency sweep shall be made. The entire frequency range from 10HZ to 50HZ and return to 10HZ, shall be transverse in 1min. Amplitude (total excursion): 1.5mm this motion shall be applied for a period of 2h each 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

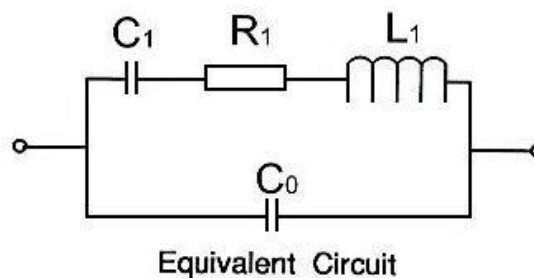
The unit shall be subjected to 5 successive change of temperature cycles, each as show in table below,then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made

	Temperature	Duration
1	-40℃±3℃	30min
2	Standard atmospheric conditions	Within 30s
3	100℃±3℃	30min
4	Standard atmospheric conditions	Within 30s

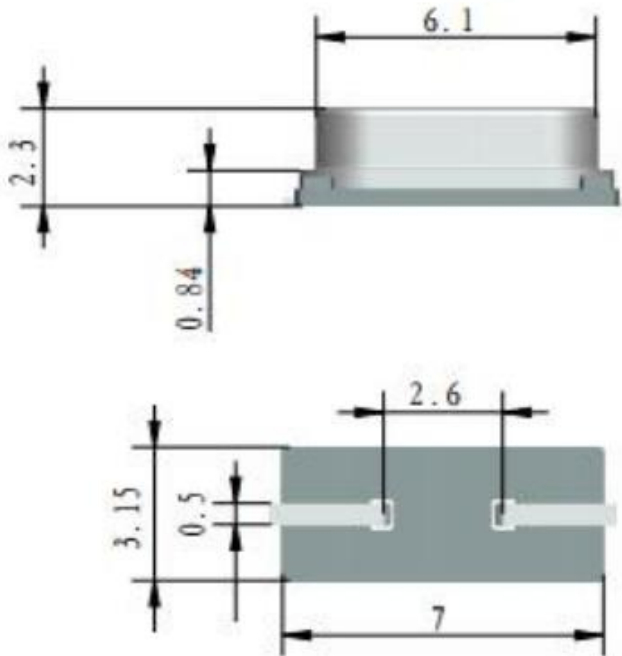
Resistance to soldering heat



EQUIVALENT CIRCUIT:

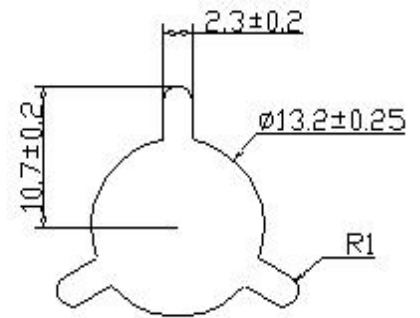
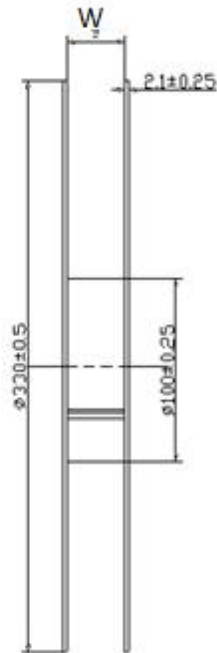
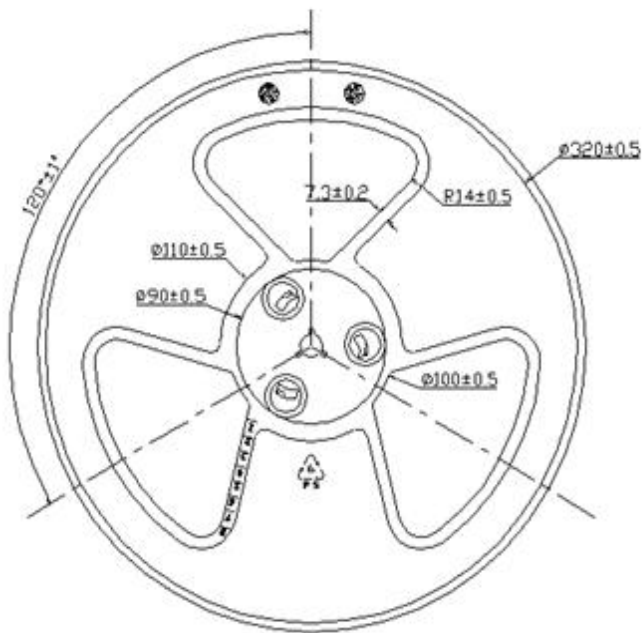


3. Dimensional drawing



Unit: mm

4. Packing form



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

5.Reel specification

