

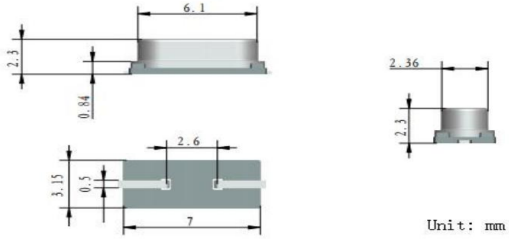


## Victorlands Technical Specification

|                            |                     |
|----------------------------|---------------------|
| <b>Product name</b>        | Quartz crystal unit |
| <b>Model</b>               | M-49USSMD 16.000MHz |
| <b>Product code</b>        | K2M16000S0Q2A2      |
| <b>Product parameters</b>  | 20PF/±20PPM         |
| <b>Product reliability</b> | P. 3                |
| <b>Packing form</b>        | P. 4~8              |



## 1.Product parameters

|    |                             |                                                                                                           |
|----|-----------------------------|-----------------------------------------------------------------------------------------------------------|
| 1  | Nominal Frequency           | 16.000 MHz                                                                                                |
| 2  | Mode of Oscillation         | AT FUND                                                                                                   |
| 3  | Frequency Tolerance         | ±20PPM                                                                                                    |
| 4  | Temperature Tolerance       | ±20PPM                                                                                                    |
| 5  | Operating Temperature Range | -20℃～+70℃                                                                                                 |
| 6  | Storage Temperature         | -40℃～+85℃                                                                                                 |
| 7  | Equivalency Resistance      | ≤ 60Ω                                                                                                     |
| 8  | Load Capacitance            | 20 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)              | <br>Unit: mm          |
| 14 | Marking                     | <br>Nominal Frequency |



## 2. Reliability testing

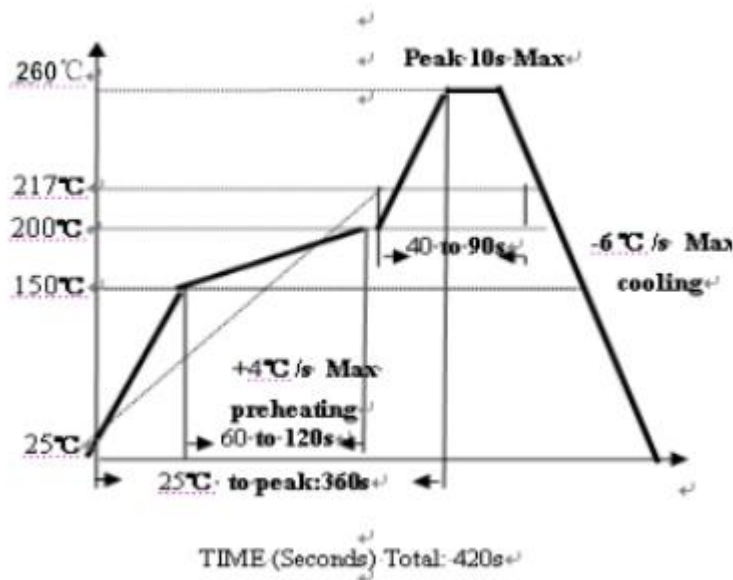
| Projects            | Inspection conditions and requirements                                                                                                                                                                                                                                                         | 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<br>(2).Rr: +/-10 $\Omega$ |
| Drop                | Form 70cm height 3 times on 3cm hard wooden floor                                                                                                                                                                                                                                              |                                            |
| Shock               | Peak acceleration: 981m/s <sup>2</sup> 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<br>(2).Rr: +/-10 $\Omega$ |
| 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**

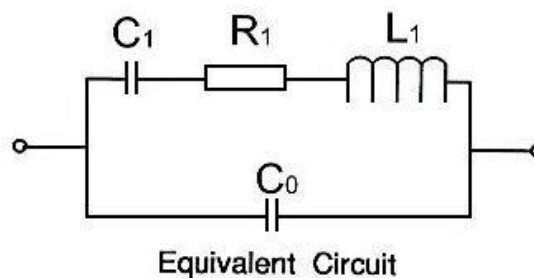
The unit shall be subjected to 5 successive change of temperature cycles, each as show in table below,then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made

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

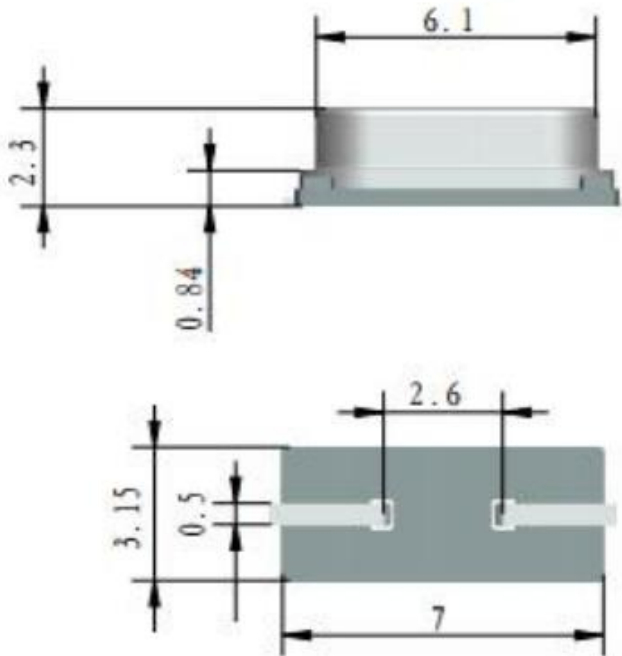
**Resistance to soldering heat**



EQUIVALENT CIRCUIT:

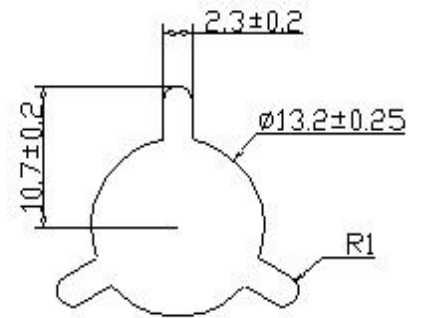
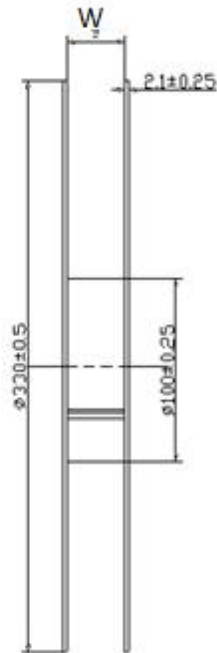
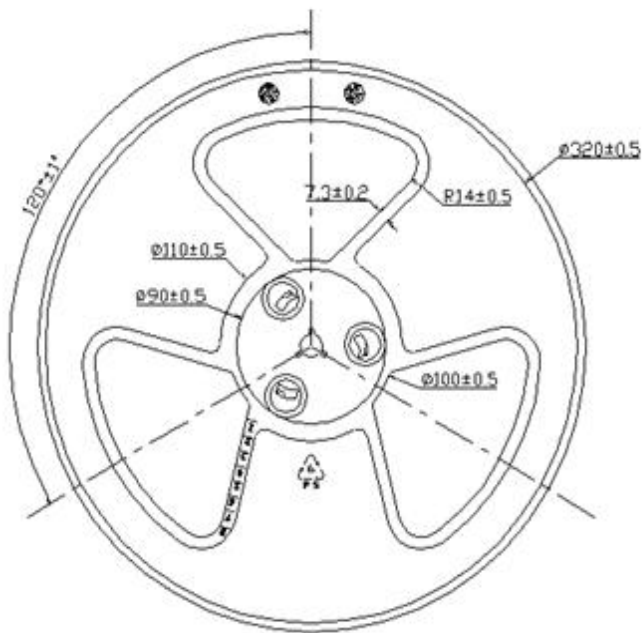


### 3. Dimensional drawing



Unit: mm

## 4. Packing form



| Available Reel Size (mm) ↗ |                                   |
|----------------------------|-----------------------------------|
| Tape width ↗               | $W \pm 0.3 \text{ mm} \leftarrow$ |
| 24 mm ↗                    | 24.4 ↗                            |

## 5.Reel specification

