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## Victorlands Technical Specification

|                            |                            |
|----------------------------|----------------------------|
| <b>Product name</b>        | <b>Quartz crystal unit</b> |
| <b>Model</b>               | <b>49USSMD/12.000MHz</b>   |
| <b>Product code</b>        | <b>K2F12000S0H2A2</b>      |
| <b>Product parameters</b>  | <b>20PF/±10PPM</b>         |
| <b>Product reliability</b> | <b>P. 2-5</b>              |
| <b>Packing form</b>        | <b>P. 4</b>                |



## 1.GENERAL

|                         |                |
|-------------------------|----------------|
| 1.1 HOLDER TYPE         | 49USSMD        |
| 1.2 MODE OF VIBRATION   | AT CUT         |
| 1.3 OSCILLATION MODE    | FUND           |
| 1.4 TEST FACILITIES     | S&A KH-1240    |
| 1.5 STORAGE TEMPERATURE | -40°C TO +85°C |
| 1.6 DRIVER LEVEL        | 100 $\mu$ W    |

## 2.ELECTRICAL PARAMETER

|                                          |                          |
|------------------------------------------|--------------------------|
| 2.1 NORMAL FREQUENCY                     | 12.000 MHz               |
| 2.2 FREQUENCY TOLERANCE (25°C $\pm$ 2°C) | $\pm$ 10ppm              |
| 2.3 TEMPERATURE STABILITY                | $\pm$ 20ppm              |
| 2.4 OPERATING TEMPERATURE RANGE          | -20°C TO + 70°C          |
| 2.5 LOAD CAPACITANCE                     | 20PF                     |
| 2.6 MOTIONAL CAPACITANCE                 |                          |
| 2.7 SHUNT CAPACITANCE                    | 3PF MAX                  |
| 2.8 EFFECTIVE SERIES RESISTANCE          | 80 $\Omega$ MAX          |
| 2.9 INSULATION RESISTANCE                | 500M OHMS MIN AT DC 100V |

## 3.MECHANICAL PARAMETER

|                   |                                                                                                                   |
|-------------------|-------------------------------------------------------------------------------------------------------------------|
| 3.1 SOLDERABILITY | 95%COVERAGE BY USING 90/10<br>SOLD AT 245°C FOR 5 SEC. DIPPING<br>AFTER IMMERSION IN ALPHA 611<br>FLUX FOR 5 SEC. |
|-------------------|-------------------------------------------------------------------------------------------------------------------|



## I MECHANICAL ENDURANCE

Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

### ① SHOCK

Electrical characteristics shall be satisfied after dropping three time from the height of 50 cm onto Hard wooden board .

### ② VIBRATION

Electrical characteristics shall be satisfied after supplying following Vibration .

|                        |                       |
|------------------------|-----------------------|
| (1)VIBRATION FREQUENCY | 10—55Hz               |
| (2)REPEATED PERIOD     | 1—2min                |
| (3)FULL CYCLE          | 1.5mm P—P             |
| (4)DIRECTION           | X.Y.Z                 |
| (5)TIME                | 2hours/each direction |

### ③ STRENGTH OF TERMINALS/LEAD—WIRES

#### -1 PULLING

a)Body of specimen shall be fixed, and 900g of tension weight shall be supplied gradually to axial direction of terminals/lead-wires for 30 sec .

b)After above test a), there is no observation of any visual damages on the specimen.

#### -2 BENDING

a)Body of specimen shall be fixed, and 90degree bending shall be given, being supplied 225gs tension weight .

After that, terminals/lead-wires shall be straightened gradually .

Then the same bending and straightening shall be supplied to the opposite direction in the same axial . (Refer to Fig-1)

b)After above test a), there is no observation of any visual damages on the specimen .



#### ④ SEALING TIGHTNESS

There is no observation of gas bubble after specimen put in hot water at  $+90^{\circ}\text{C}$ — $+95^{\circ}\text{C}$  for 5 min .

#### ⑤ SOLDERING DIP

Terminals/lead-wires of specimen shall be dipped into solder melted tank at  $+230^{\circ}\text{C}$ — $\pm 5^{\circ}\text{C}$  for 3sec . Dipping depth shall be 2mm from the bottom of specimens body . (After applying ROSIN flux) Soldering portion shall be covered in over 90% of terminals/lead-wires dipped .

#### ⑥ SOLDER HEATING

Terminals/lead-wires of specimen shall be dipped into solder melted tank at

$+350^{\circ}\text{C}$ — $\pm 10^{\circ}\text{C}$  for  $\frac{1}{3}$  sec .

Electrical characteristics shall be satisfied after dipping depth shall be 2mm from edge of terminals/lead-wires .



## II ENVIRONMENTAL ENDURANCE

Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour .

### ① HUMIDITY

Electrical characteristics shall be satisfied after letting it alone at  $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$  in humidity of 90—95% for 250 hours .

### ② STORAGE IN LOW TEMPERATURE

Electrical characteristics shall be satisfied after letting it alone at  $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for 250 hours .

### ③ STORAGE IN HIGH TEMPERATURE

Electrical characteristics shall be satisfied after letting it alone at  $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for 250 hours .

### ④ TEMPERATURE CYCLE

Electrical characteristics shall be satisfied after supplying the following temperature cycle (3cycles) .

Temperature shift from low to high, high to low shall be done in  $1^{\circ}\text{C}/\text{min}$  (Refer to Fig-2) .

