

# **MOBICON**

## **Electronic Components**

### **PRODUCT SPECIFICATION**

#### **MEC SMD RESONATOR**

#### **FREQUENCY COMPONENTS**

**ZTCC Series SMD RESONATOR SPECIFICATION**

| <b>MOBICON HOLDINGS LTD.</b> |              |                    |
|------------------------------|--------------|--------------------|
| <b>Prepared By</b>           | <b>Sign.</b> | <b>Approved By</b> |
| Leo Wong                     |              | C.H. Wong          |

**[www.mobicon.com](http://www.mobicon.com)**

# MIEC

## CERAMIC RESONATOR SPECIFICATION

**PART NO. :**

**ZTTCC4.19MG**

### ELECTRICAL CHARACTERISTICS

- |   |                                 |
|---|---------------------------------|
| 1. Oscillation Frequency (Fosc)                         | 4.19MHz $\pm$ 0.5%              |
| 2. Resonant Impedance (Ro)                              | 100 Ohm                         |
| 3. Temperature Characteristics of Oscillation Frequency | $\pm$ 0.3% max. (-20°C ~ +80°C) |
| 4. Rating Voltage:                                      |                                 |
| D.C. Voltage  | 6V                              |
| Load Voltage  | 15Vpp                           |
| 5. Insulation Resistance                                | 100 MOhm min. @ 10V DC          |
| 6. Frequency Drift vs Temperature                       | $< \pm$ 0.3%                    |
| 7. Operating Temperature Range                          | -20°C ~ +80°C                   |
| 8. Storage Temperature Range                            | -55°C ~ +85°C                   |
| 9. Frequency Aging                                      | $\pm$ 0.3% max. for 10 years    |

### MEASUREMENT

#### Measurement Condition

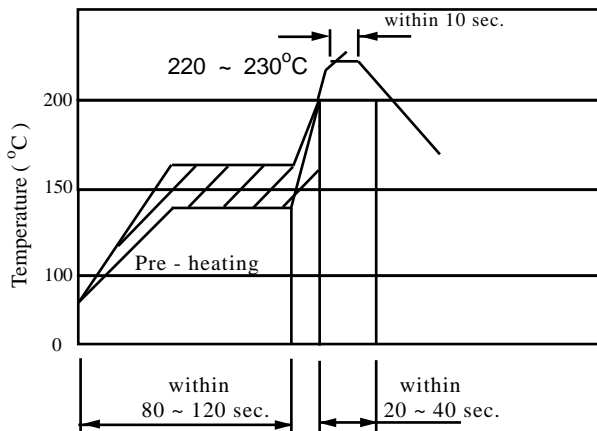
The reference temperature shall be 25°C  $\pm$  2°C. The measurement shall be performed at the temperature range of 5°C ~ 35°C unless otherwise the result is doubtful.

### MEASUREMENT CIRCUIT AND EQUIPMENT

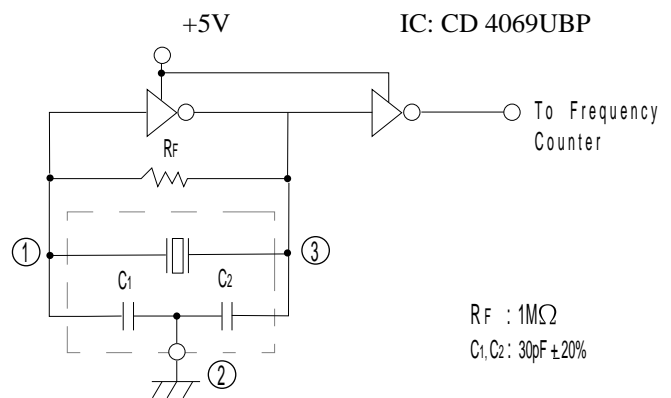
Oscillating frequency shall be measured by the standard test circuit.

Resonant impedance shall be measured by *HP8751A Network Analyzer*.

#### Recommended Reflow Soldering Standard Conditions



#### Test Circuit ( C<sub>1</sub>, C<sub>2</sub> = 30pF )

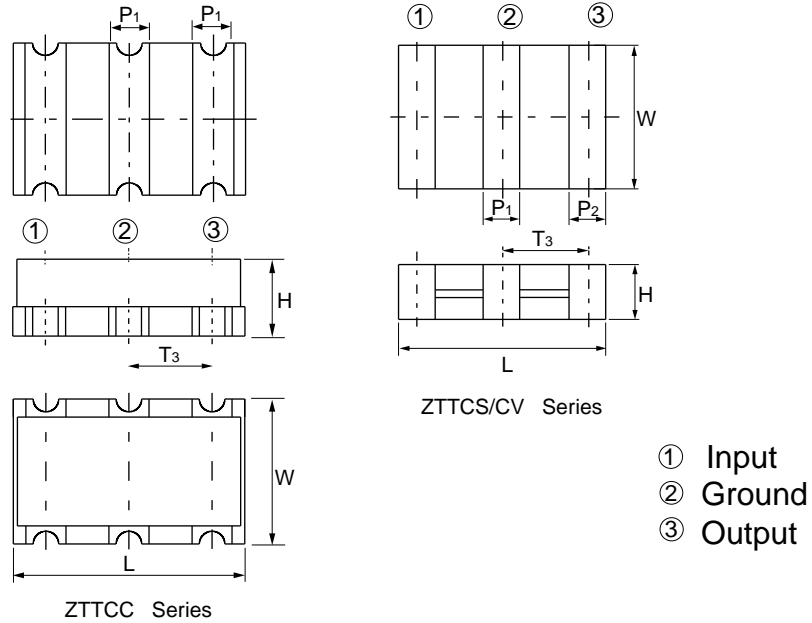


Prepared By: Leo Wong  
DOC. No: ZTTCC4.19MG

# MECC

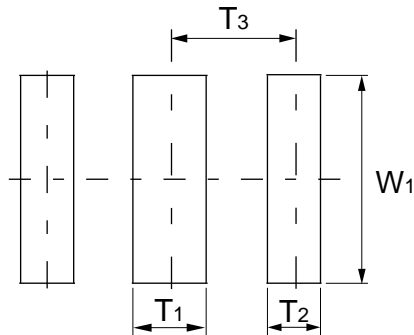
## CERAMIC RESONATOR SPECIFICATION

### MECHANICAL DIMENSIONS



| Item \ Type | DIMENSION (mm) |               |               |               |               |               |               |                |               |
|-------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|
|             | L              | W             | H             | P1            | P2            | T1            | T2            | T3             | W1            |
| ZTCC        | $7.4 \pm 0.3$  | $3.4 \pm 0.3$ | $1.8 \pm 0.3$ | $1.2 \pm 0.3$ | $1.2 \pm 0.3$ | $1.5 \pm 0.3$ | $1.7 \pm 0.3$ | $2.5 \pm 0.3$  | $4.0 \pm 0.3$ |
| ZTCS        | $4.7 \pm 0.3$  | $4.1 \pm 0.2$ | $1.6 \pm 0.3$ | $1.0 \pm 0.4$ | $0.8 \pm 0.4$ | $1.3 \pm 0.2$ | $0.8 \pm 0.2$ | $1.95 \pm 0.2$ | $5.1 \pm 0.2$ |
| ZTTCV       | $3.7 \pm 0.2$  | $3.1 \pm 0.2$ | $1.2 \pm 0.3$ | $0.9 \pm 0.3$ | $0.7 \pm 0.3$ | $1.0 \pm 0.2$ | $0.7 \pm 0.2$ | $1.5 \pm 0.2$  | $4.1 \pm 0.2$ |

### RECOMMENDED LAND PATTERN



Prepared By: Leo Wong  
DOC. No: ZTCC-MG

# MIEC

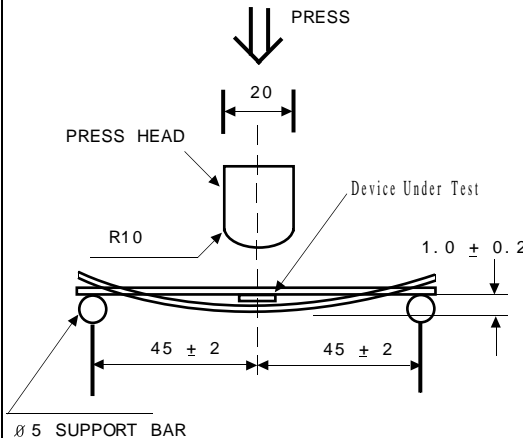
## CERAMIC RESONATOR SPECIFICATION

### PHYSICAL AND ENVIRONMENTAL CHARACTERISRICS

| No. | Item                      | Condition of Test  | Performance Requirements  |                  |
|-----|---------------------------|--|---------------------------|------------------|
| 1   | Humidity                  | Keep the resonator at $40 \pm 2^{\circ}\text{C}$ and 90~95% RH for $96 \pm 4$ hours. Then release the resonator into the room condition for 1 hour prior to the measurement. | <i>It</i>                 |                  |
| 2   | Vibration                 | Subject the resonator to vibration for 2 hours each in X, Y and Z axis with the amplitude of 1.5mm, the frequency shall be varied uniformly between the limits of 10~55Hz.   | <i>shall</i>              |                  |
| 3   | Mechanical Shock          | Drop the resonator randomly onto a wooden floor from the height of 100cm 3 times.  | <i>fulfill</i>            |                  |
| 4   | Soldering Test            | Passed through the reflow oven under the following condition, and left at room temperature for 1 hour before measurement.  | <i>the specifications</i> |                  |
|     |                           | Temperature at the surface of the substrate:   |                           | Time             |
|     |                           | Preheat $150 \pm 5^{\circ}\text{C}$  |                           | $60 \pm 10$ sec. |
|     |                           | Peak $240 \pm 5^{\circ}\text{C}$   |                           | $10 \pm 3$ sec.  |
| 5   | High Temperature Exposure | Subject the resonator to $80 \pm 5^{\circ}\text{C}$ for $96 \pm 4$ hours. Then release the resonator into the room conditions for 1 hour prior to the measurement.           | <i>on page 2.</i>         |                  |
| 6   | Low Temperature           | Subject the resonator to $-20 \pm 5^{\circ}\text{C}$ for $96 \pm 4$ hours. Then release the resonator into the room conditions for 1 hour prior to the measurement.          |                           |                  |

# MEC

## CERAMIC RESONATOR SPECIFICATION

|   |                     |  |  |
|---|---------------------|--|--|
| 7 | Temperature Cycling | Subject the resonator to $-20^{\circ}\text{C}$ for 30 min. followed by a high temperature of $85^{\circ}\text{C}$ for 30 min. cycling shall be repeated 5 times with a transfer time of 15 seconds. At the room temperature for 1 hour prior to the measurement.   | It shall fulfill the specifications on page 2.         |
| 8 | Solderability       | Dipped in $230 \pm 5^{\circ}\text{C}$ seconds with resin flux (25wt% ethanol solution.)  | The terminals shall be at least 95% covered by solder. |
| 9 | Board Bending       | Mount a glass epoxy board (width = 40mm, thickness = 1.6mm), then bend it to 1mm displacement and keep it for 5 seconds. (See the following figure)<br> <p>The diagram illustrates the board bending test setup. A device under test is mounted on a glass epoxy board supported by two Ø5 support bars. A press head with a 20mm diameter and R10 radius is applied to the board. The distance between the support bars is 45 ± 2 mm. The displacement of the board is 1.0 ± 0.2 mm.</p> | Mechanical damage such as breaks shall not occur.      |

### REVIEW OF SPECIFICATIONS

- 1) When something get doubtful with this specifications, we shall jointly work to get an agreement.
- 2) This specification limits the quality of the components as a single unit. Please insure the component is thoroughly evaluated in your application circuit.
- 3) Please do not use this component in any application that deviates from its intended use as noted within the specification. It may cause any mishaps.
- 4) Please return one of this specification after your signature of acceptance. In case of no return within 3 months from submission date. This specification should be treated as accepted.



Prepared by: Leo Wong  
DOC. No: ZTCC-MG