

# **MOBICON**

## **Electronic Components**

## **PRODUCT SPECIFICATION**

### **MEC**

### **Ceramic Resonator**

#### **SPECIFICATION**

This specifications is subject to change without notice.

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

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# MIEC

**PART NO. :**

**ZTT10.00MT**

## ELECTRICAL CHARACTERISTICS

### 1 SCOPE

This specification shall cover the characteristics of the ceramic resonator with the type ZTT10.00MT.

### 2 PART NO

| PART NUMBER | CUSTOMER PART NO | SPECIFICATION NO |
|-------------|------------------|------------------|
| ZTT10.00MT  |                  |                  |

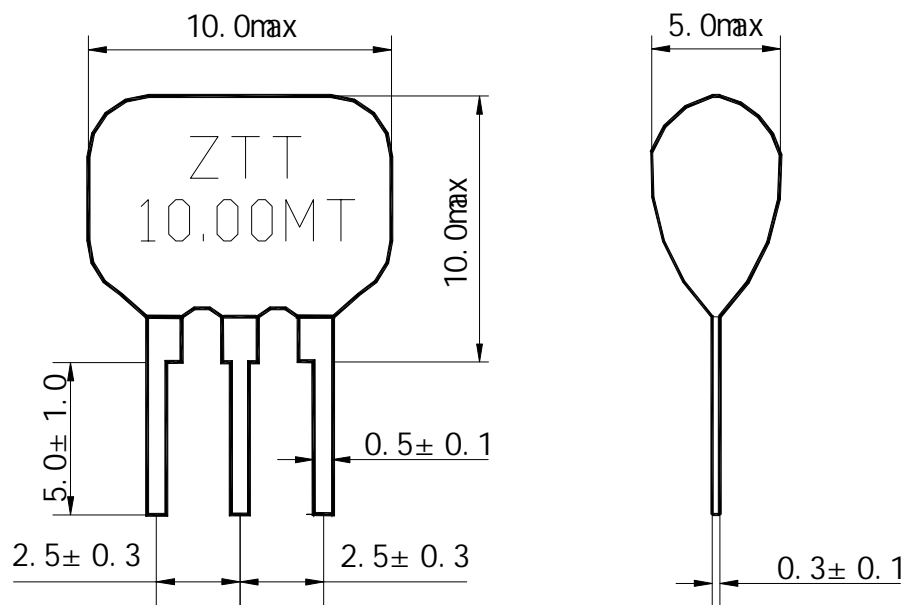
### 3 OUTLINE DRAWING AND DIMENSIONS

3.1 Appearance: No visible damage and dirt.

3.2 Construction: Leads are soldered on electrode and body is molded by resin.

3.3 Except the chip(ceramic element, ceramic base, capacitance slice), the materials don't contain lead.

#### 3.4 Dimensions



Input  
Ground  
Output

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## 4 RATING AND ELECTRICAL SPECIFICATIONS

### 4.1 RATING

| Items                                | Content             |
|--------------------------------------|---------------------|
| Withstanding Voltage (V)             | 50 (DC , 1min)      |
| Insulation Resistance Ri, ( M ) min. | 100 ( 100V , 1min ) |
| Operating Temperature Range ( )      | -20 ~ +80           |
| Storage Temperature Range ( )        | -40 ~ +85           |

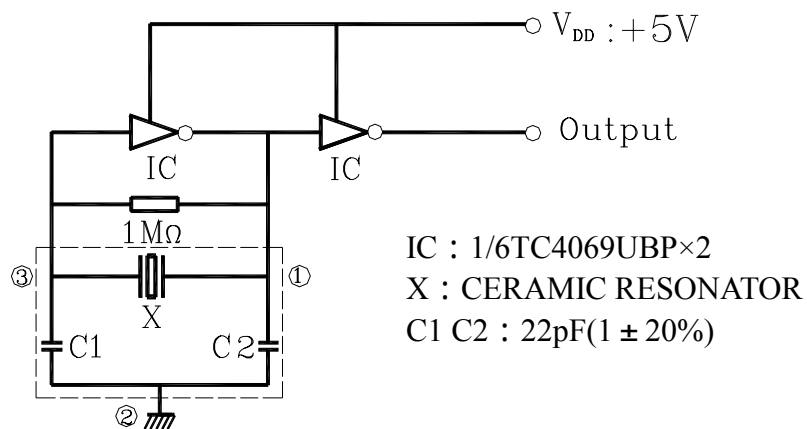
### 4.2 ELECTRICAL SPECIFICATIONS

| Items   | Content   |
|---|---|
| Oscillation Frequency Fosc ( MHz )                          | 10.000  |
| Frequency Accuracy ( % )                                    | ± 0.5   |
| Resonant Impedance Ro ( Ω ) max.                            | 25  |
| Temperature Coefficient of Oscillation Frequency ( % ) max. | ± 0.3 ( Oscillation Frequency drift , -20 ~ +80 ) |
| Rating Voltage UR ( V ) max.                                | 6V DC   |
|   | 15V p-p   |
| Aging Rate ( % ) max.                                       | ± 0.3 ( For Ten Years )                           |

## 5 MEASUREMENT

5.1 Measurement Conditions: Parts shall be measured under a condition ( Temp. : 20±15 ,Humidity : 65±20% R.H.) unless the standard condition(Temp. : 25±3 ,Humidity : 65±5% R.H.) is regulated to measure.

### 5.2 Test Circuit



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## 6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

| No. | Item                         | Condition of Test  | Performance Requirements   |
|-----|------------------------------|--|--|
| 6.1 | Humidity                     | Subject the resonator at $+40 \pm 2$ and 90%-95% R.H. for 500h, resonator shall be measured after being placed in natural conditions for 1h.   | It shall fulfill the specifications in Table 1.  |
| 6.2 | High Temperature Exposure    | Subject the resonator to $+85 \pm 5$ for 500h, resonator shall be measured after being placed in natural conditions for 1hr.   | It shall fulfill the specifications in Table 1.  |
| 6.3 | Low Temperature Exposure     | Subject the resonator to $-25 \pm 5$ for 500h, resonator shall be measured after being placed in natural conditions for 1h.  | It shall fulfill the specifications in Table 1.  |
| 6.4 | Temperature Cycling          | Subject the resonator to $-25$ for 30 min. followed by a high temperature of $+85$ for 30 min. Cycling shall be repeated 5 times. Resonator shall be measured after being placed in natural conditions for 1h. | It shall fulfill the specifications in Table 1.  |
| 6.5 | Vibration                    | Subject the resonator to vibration for 2h each in x y and z axis with the amplitude of 1.5mm, the frequency shall be varied uniformly between the limits of 10Hz-55Hz and then resonator shall be measured.    | It shall fulfill the specifications in Table 1.  |
| 6.6 | Mechanical Shock             | Resonator shall be measured after 3 times' random dropping from the height of 100cm on concrete floor.   | No visible damage and it shall fulfill the specifications in Table 1.                      |
| 6.7 | Resistance to Soldering Heat | Lead terminals are immersed up to 2 mm from resonator's body in soldering bath of $260 \pm 5$ for $5s \pm 1s$ and then resonator shall be measured after being placed in natural conditions for 1h             | It shall fulfill the specifications in Table 1.  |
| 6.8 | Solderability                | Lead terminals are immersed up to 2mm from resonator's body in soldering bath of $250 \pm 5$ for $2s \pm 0.5s$ .   | More than 95% of the terminal surface of the resonator shall be covered with fresh solder. |

(To be continued)

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## 6. PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

| No.   | Item              | Condition of Test   | Performance Requirements  |
|-------|-------------------|---|---|
| 6.9   | Terminal Strength |   |   |
| 6.9.1 | Terminal Pulling  | Force of 5N is applied to each lead in axial direction for 10s $\pm$ 1s.  | No visible damage and it shall fulfill the specifications in Table 1. |
| 6.9.2 | Terminal Bending  | When force of 5N is applied to each lead in axial direction, the lead shall be folded up 90 ° from the axial direction and folded back to the axial direction. The speed of folding shall be each 3s. |   |

Table 1

| Item  | Specification after test |
|---|--------------------------|
| Oscillation Frequency Change<br>fosc/fosc (%) max                               | $\pm 0.3$                |
| Resonant Impedance Ro ( ) max   | 25                       |
| Note: The limits in the above table are referenced to the initial measurements. |                          |

## 7 PACKAGE

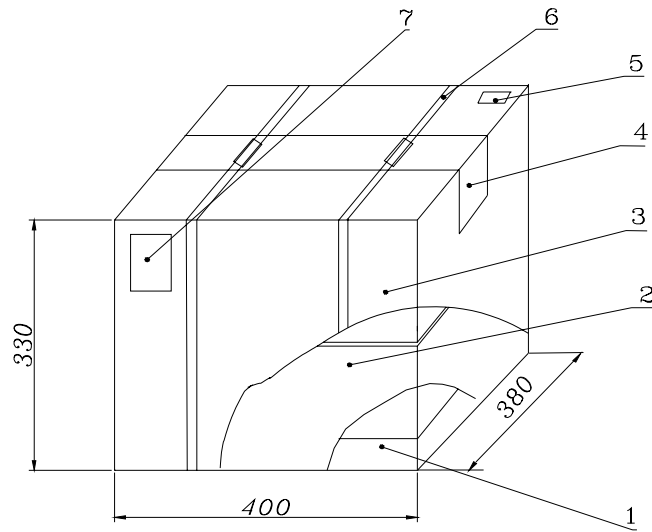
To protect the products in storage and transportation, it is necessary to pack them (outer and inner package). On paper pack, the following requirements are requested.

### 7.1 Dimensions and Mark

At the end of package, the warning (moisture proof, upward put) should be stuck to it.

Dimensions and Mark (see below)

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| NO. | Name                    | Quantity | Notes |
|-----|-------------------------|----------|-------|
| 1   | Inner Box               | 40       |       |
| 2   | Box                     | 2        |       |
| 3   | Package                 | 1        |       |
| 4   | Adhesive tape           | 1.2m     |       |
| 5   | Label                   | 1        |       |
| 6   | Belt                    | 2.9m     |       |
| 7   | Certificate of approval | 1        |       |

## 7.2 Section of package

Package is made of corrugated paper with thickness of 0.8cm. Package has 2 inner boxes, each has 20 inner box (each box for plastic bag).

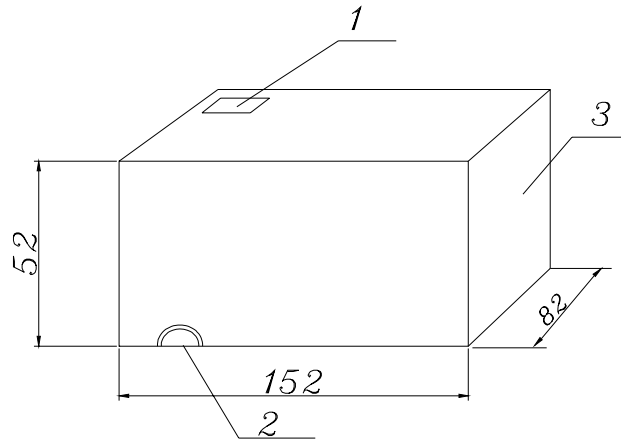
## 7.3 Quantity of package

Per plastic bag            500 pieces  
Per inner box            2 plastic bag  
Per package            40 inner boxes

( 40000 pieces of piezoelectric ceramic part )

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## 7.4 Inner box Dimensions



1.UNIT: mm

|   |           |
|---|-----------|
| 1 | Label     |
| 2 | QC Label  |
| 3 | Inner Box |

Pars shall be packaged in box with hold down tape upside. Part No., qty and lot No.

## 8 OTHER

### 8.1 Caution of use

8.1.1 Do not use this product with bend. Please don't apply excess mechanical stress to the component and terminals at soldering.

8.1.2 The component may be damaged when an excess stress will be applied.

8.1.3 This specification mentions the quality of the component as a single unit. Please insure the component is thoroughly evaluated in your application circuit.

### 8.2 Notice

8.2.1 Please return one of this specification after your signature of acceptance.

8.2.2 When something gets doubtful with this specifications, we shall jointly work to get an agreement.

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## 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.

### **When using our products, the following precautions should be taken.**

- (1) Safety designing of apparatus or a system allowing for failures of electronic components used in the system  
In general, failures will occur in electronic components at a certain probability. MOBICON HOLDINGS LTD makes every effort to improve the quality and reliability of electronic component products. However, it is impossible to completely eliminate the probability of failures. Therefore, when using MOBICON HOLDINGS LTD electronic component products, systems should be carefully designed to ensure redundancy in the event of an accident which would result in injury or death, fire, or social damage, to ensure the prevention of the spread of fire, and the prevention of faulty operation.
- (2) Quality Level of various kinds of parts, and equipment in which the parts can be utilized  
Electronic components have a standard quality level unless otherwise specified.
- (3) This specifications is subject to change without notice.  
The contents of this specifications are based on data which is correct as of 2002, and they may be changed without notice. If our products are used for mass-production design, please enquire consult with a member of our company's sales staff by way of precaution.
- (4) Reprinting and copying of this specifications without prior written permission from MOBICON HOLDINGS LTD are not permitted.
- (5) Industrial Property Problems  
In the event any problems associated with industrial property of a third party arising as a result of the use of our products. MOBICON HOLDINGS LTD assumes no responsibility for problems other than problems directly associated with the constitution and manufacturing method of the products.