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# ***SPECIFICATION***

OF PRODUCTS

DISTRIBUTOR: MARITEX

NAME: Ceramic Resonator

MODEL: ZTA2.00MG

CUSTOM APPROVED COLUMN	

SUPPLIER APPROVED COLUMN	

**FT ELECTRONICS CO.,LTD**

1. SCOPE

This specification shall cover the characteristics of the ZTA2.00MG Ceramic Resonator.

2. CUSTOMER'S RELEVANT MATTERS

2-1 Customer's Part No. :

2-2 Customer's specification No. :

3. ELECTRICAL CHARACTERISTICS

Table 1

Item	Requirement	Note
3-01 Oscillating Frequency (Fosc)	2.00MHz	
3-02 Frequency Tolerance	$\pm 0.5\%$	
3-03 Resonant Impedance (Rfr)	$\leq 30 \Omega$	
3-04 Built-in Capacitance (C1,C2,)		
3-05 Temperature Stability	Fosc $\pm 0.5\%$	-20°C to +80°C
3-06 Rated Voltage		
(1) Maximum DC Voltage	6V DC	
(2) Maximum input signal oscillation	15Vp-p	
3-07 Insulation Resistance	$\geq 100 M \Omega$	DC 10V Test
3-08 Withstanding Voltage	DC 50V, 1 min.	
3-09 Operating Temperature Range	-20°C to +80°C	
3-10 Storage Temperature Range	-40°C to +85°C	

4. DIMENSIONS

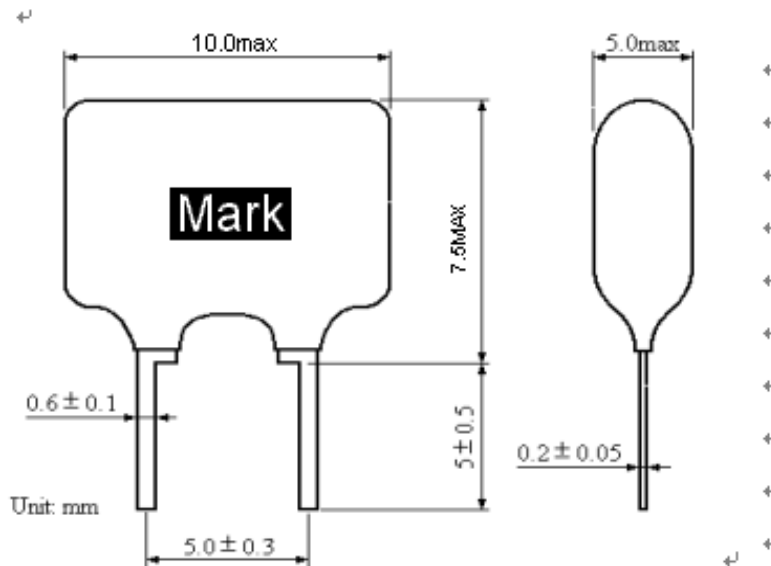
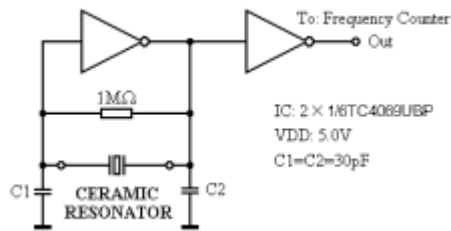
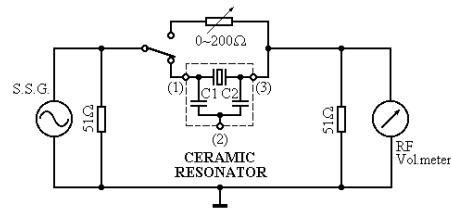


Fig 1. Appearance and Dimensions

## 5. TEST CIRCUIT



(1) Oscillation Frequency Test Circuit (Fig. 2)



(2) Resonant Impedance Test Circuit (Fig. 3)

## 6. MEASUREMENT

Table 2

Item	Requirement
6-1 Test Circuit	It shall be measured by the test circuit as shown in figure 1.
6-2 Measurement Condition	Standard condition: (1) Temperature $25 \pm 3^\circ\text{C}$ (2) Relative Humidity $60 \pm 10\%$ . The measurement shall be in the temperature range of $5^\circ\text{C}$ to $35^\circ\text{C}$ and the relative humidity range of 45% to 85% when there are no faults.

## 7. MECHANICAL STRENGTH

Table 3

Item	Requirement
7-1 Random Drop	It shall be measured after 3 times random drop from the height of 1m on concrete floor. It no visible damage and the measured values shall fulfill the specification of Table 5.
7-2 Vibration	It shall be measured after being applied vibration of amplitude of 1.5 mm with 10 to 55 Hz band of vibration frequency to each of 3 perpendicular directions for 1 hour. The measured values shall fulfill the specification of Table 5.
7-3 Resistance to Soldering Heat	Lead terminals are immersed up to 1.5 mm from it's body in solder of $280 \pm 5^\circ\text{C}$ for $5 \pm 1$ seconds. And then it shall be measured after being placed in natural condition for 1 hour. The measured values shall fulfill the specification of Table 5.
7-4 Terminal Pulling	After force 10 seconds of 500g applied to each terminal in axial direction. Then It shall be measured. The values shall fulfill the specification of Table 5 and it no visible damage.
7-5 Terminal Bending	After lead terminals shall be fixed at 2 mm from it's body .they shall be folded up to $90^\circ$ from their axial direction and folded back to $-90^\circ$ .Then folded back to their axial direction. The speed of folding shall be 3 seconds each. It shall be measured. The values shall fulfill the specification of Table 5 and no visible damage.
7-6 Solder ability	Lead terminals are immersed in rosin for 5 seconds and then immersed in soldering bath of $260 \pm 5^\circ\text{C}$ for $5 \pm 0.5$ seconds. The solder shall coat at least 90% of the lead terminal.

## 8. ENVIRONMENTAL CHARACTERISTICS

Table 4

Item	Requirement
8-1 High Temperature	After being placed in a chamber with $+85 \pm 2^{\circ}\text{C}$ for 500 hours and then being placed in natural condition for 1 hour. It shall be measured. The values shall fulfill the specification of Table 5.
8-2 Low Temperature	After being placed in a chamber with $-20 \pm 2^{\circ}\text{C}$ for 500 hours and then being placed in natural condition for 1 hour. It shall be measured. The values shall fulfill the specification of Table 5.
8-3 Humidity	After being placed in a chamber with 90 to 95 % R.H. at $+40 \pm 2^{\circ}\text{C}$ for 500 hours and then being placed in natural condition for 1 hour. It shall be measured. the values shall fulfill the specification of Table 5.
8-4 Temperature Shock	It shall be placed at temperature of $-25^{\circ}\text{C}$ . After 30 minutes at this temperature. It shall be placed at temperature of $+25^{\circ}\text{C}$ . After 5 minutes at this temperature. It shall be immediately placed at temperature of $+85^{\circ}\text{C}$ . After 30 minutes at this temperature It shall be returned to $-25^{\circ}\text{C}$ again. After 5 above cycles. It shall be placed in natural condition for 1 hour. Then it shall be measured. The values shall fulfill the specification of Table 5.
8-5 Temperature characteristics	It shall be measured within $-20^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ temperature range. Temperature coefficient of frequency is: $\leq \pm 50\text{ppm}/^{\circ}\text{C}$

## 9. CHANGE OF CHARACTERISTICS

Table 5

Item	Specification	Note
9-1 Oscillation Frequency Change	$\pm 0.5\%$ max.	Referenced to the initial value.
9-2 Resonant Impedance Change	$\pm 2 \Omega$ max.	Referenced to the initial value.

## NOTICE:

1. Do not use this product with bend. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
2. This specification limits the quality of the component as a single unit. Please make sure that the component is evaluated and confirmed the drawing when it is mounted to your product.