

1 SCOPE

This specification shall cover the characteristics of the ceramic resonator with the type ZTA6.0MT.

2 PART NO.

PART NUMBER	CUSTOMER PART NO	SPECIFICATION NO
ZTA6.0MT		

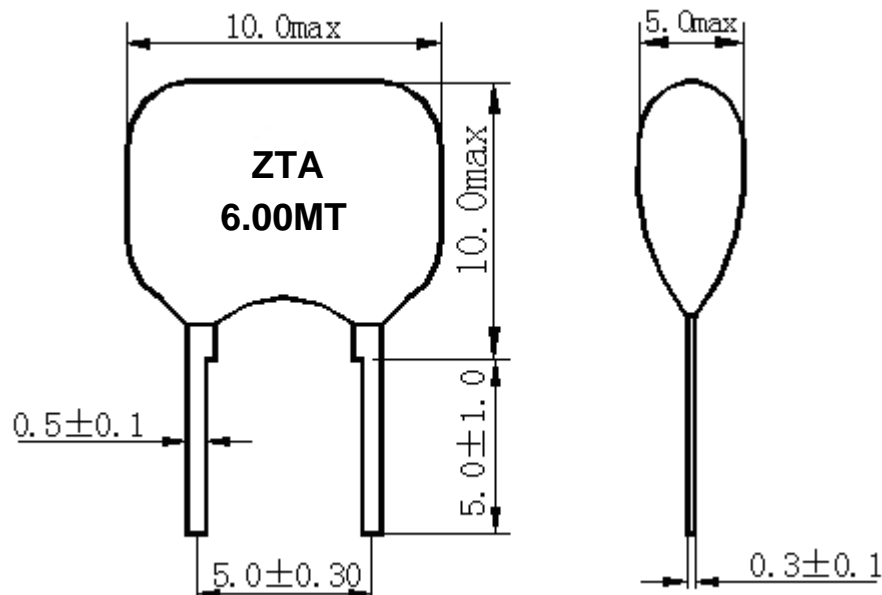
3 OUTLINE DRAWING AND DIMENSIONS

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



UNIT: mm

4 RATING AND ELECTRICAL SPECIFICATIONS

4.1 RATING

Items	Content
Withstanding Voltage (V)	50 (DC, 1min)
Insulation Resistance R_i , ($M\Omega$) min.	100 (100V, 1min)
Operating Temperature Range ($^{\circ}C$)	-20~+80
Storage Temperature Range ($^{\circ}C$)	-35~+85

4.2 ELECTRICAL SPECIFICATIONS

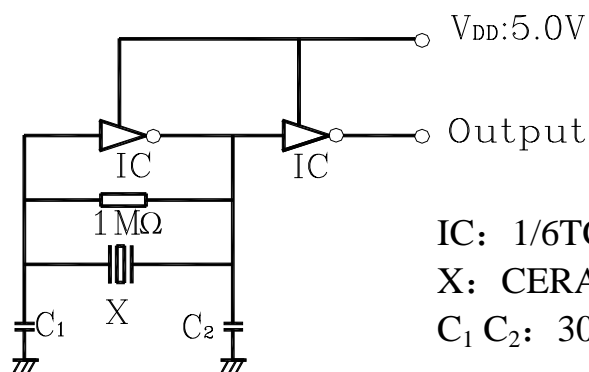
Items	Content
Oscillation Frequency F_{osc} (MHz)	6.000
Frequency Accuracy (%)	± 0.5
Resonant Impedance R_o (Ω) max.	30
Temperature Coefficient of Oscillation Frequency (%) max.	± 0.3 (Oscillation Frequency drift, $-20^{\circ}C \sim +80^{\circ}C$)
Rating Voltage U_R (V) max.	6V DC
	15V p-p
Aging Rate (%) max.	± 0.5 (For Ten Years)

5 MEASUREMENT

5.1 Measurement Conditions

Parts shall be measured under a condition (Temp.: $20^{\circ}C \pm 15^{\circ}C$, Humidity : $65\% \pm 20\%$ R.H.) unless the standard condition (Temp.: $25^{\circ}C \pm 3^{\circ}C$, Humidity : $65\% \pm 5\%$ R.H.) is regulated to measure.

5.2 Test Circuit



IC: 1/6TC4069UBP×2
 X: CERAMIC RESONATOR
 $C_1 C_2$: 30pF



6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

No	Item	Condition of Test	Performance Requirements
6.1	Humidity	Subject the resonator at $+40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 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 $+85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 500h, resonator shall be measured after being placed in natural conditions for 1h.	It shall fulfill the specifications in Table 1.
6.3	Low Temperature Exposure	Subject the resonator to $-25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 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°C for 30min. followed by a high temperature of $+85^{\circ}\text{C}$ for 30min. 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 2mm from resonator's body in soldering bath of $+260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 5s ± 1 s and then resonator shall be measured after being placed in natural conditions for 1h.	It shall fulfill the specifications in Table 1.

(To be continued)

6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

6.8	Solderability	Lead terminals are immersed up to 2mm from resonator's body in soldering bath of $+250^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for $2\text{s} \pm 0.5\text{s}$.	More than 95% of the terminal surface of the resonator shall be covered with fresh solder.
6.9	Terminal Strength	Force of 5N is applied to each lead in axial direction for $10\text{s} \pm 1\text{s}$. 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	No any visible damage and it shall fulfill the specifications in Table 1.
6.9.1	Terminal Pulling		
6.9.2	Terminal Bending		

Table 1

Item	Specification after test
Oscillation Frequency Change $\Delta f_{osc}/f_{osc}$ (%) max.	± 0.5
Resonant Impedance R_o (Ω) max.	25
The limits in the above table are referenced to the initial measurements.	