

SPECIFICATION

OF PRODUCTS

CUSTOMER : _____

PRODUCT NAME: CERAMIC RESONATOR

PART NUMBER : ZTT 2 . 0 0MG

| Approved by | Checked by | Drawn by |
|-------------|------------|----------|
| | | |
| | | |

1. SCOPE

This specification shall cover the characteristics of the ceramic resonator with the type ZTT2.00MG.

2. PART NO.:

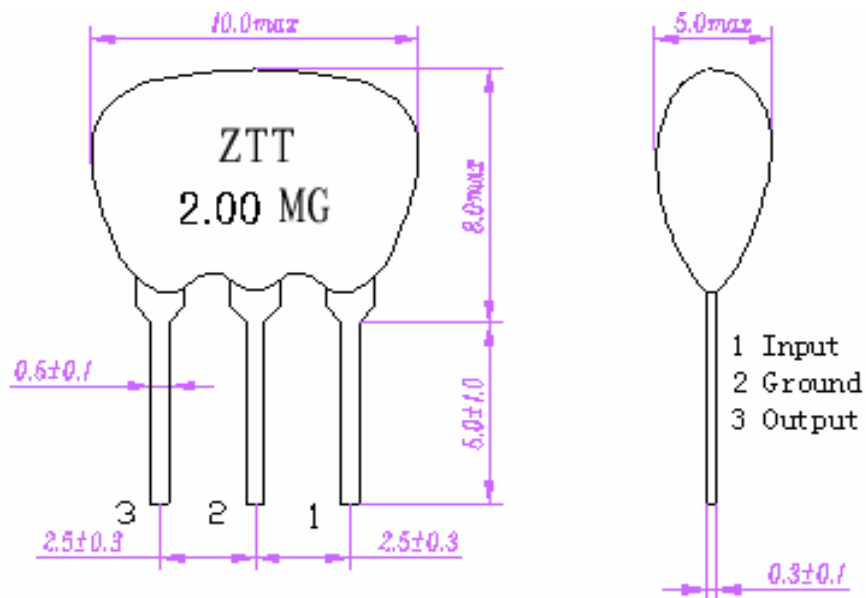
| PART NUMBER | CUSTOMER PART NO | SPECIFICATION NO |
|-------------|------------------|------------------|
| ZTT2.00MG | | |

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 Dimensions:



UNIT: mm

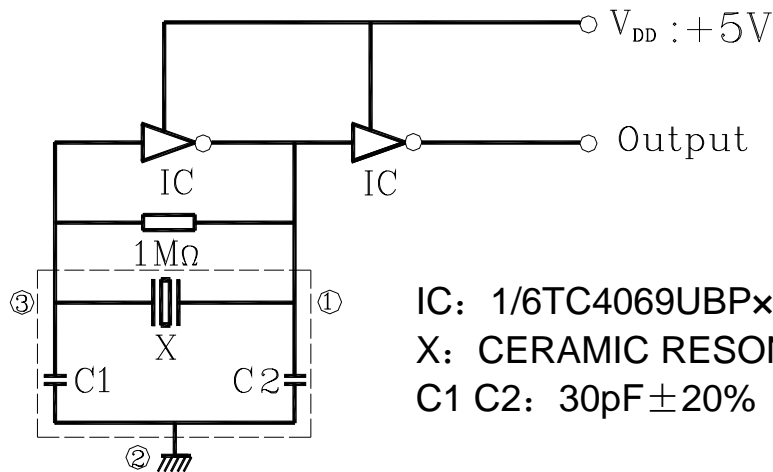
ELECTRICAL SPECIFICATIONS:

| | |
|--|---|
| Oscillation Frequency Fosc (MHz) | 2.000 |
| Frequency Accuracy (%) | ±0.5 |
| Resonant Impedance Ro (Ω) max | 30 |
| Temperature Coefficient of Oscillation Frequency (%) max | ±0.3 (Oscillation Frequency drift, -25°C~+85°C) |
| Aging Rate (%) max | ±0.3 (For Ten Years) |
| Rating Voltage UR (V) max | 6VDC 15Vp-p |
| Insulation Resistance Ri, (MΩ) min | 100 (100V, 1min) |
| Withstanding Voltage | 50VDC, 1min |

4. MEASUREMENT

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

4.2 Test Circuit:



IC: 1/6TC4069UBP×2
X: CERAMIC RESONATOR
C1 C2: 30pF ± 20%

5. PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

| No | Item | Condition of Test | Performance Requirements |
|-----|------------------------------|--|--|
| 6.1 | Humidity | Subject the resonator at $+40 \pm 2^\circ\text{C}$ and 90%-95% R.H. for 500 hours, resonator shall be measured after being placed in natural conditions for 1 hour. | It shall fulfill the specifications in Table 1. |
| 6.2 | High Temperature Exposure | Subject the resonator to $+85 \pm 5^\circ\text{C}$ for 500 hours, resonator shall be measured after being placed in natural conditions for 1 hour. | It shall fulfill the specifications in Table 1. |
| 6.3 | Low Temperature Exposure | Subject the resonator to $-25 \pm 5^\circ\text{C}$ for 500 hours, resonator shall be measured after being placed in natural conditions for 1 hour. | It shall fulfill the specifications in Table 1. |
| 6.4 | Temperature Cycling | Subject the resonator to -25°C for 30 min. followed by a high temperature of $+85^\circ\text{C}$ for 30 min. Cycling shall be repeated 5 times. Resonator shall be measured after being placed in natural conditions for 1 hour. | It shall fulfill the specifications in Table 1. |
| 6.5 | 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 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 $260 \pm 5^\circ\text{C}$ for 5 ± 1 seconds and then resonator shall be measured after being placed in natural conditions for 1 hour | 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 $235 \pm 5^\circ\text{C}$ for 2 ± 0.5 sec. | More than 95% of the terminal surface of the resonator shall be covered with fresh solder. |

4. PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

(Continued from the preceding page)

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

Table 1

| Item | Specification after test |
|--|--|
| Oscillation Frequency Change $\Delta f_{osc}/f_{osc}$ (%) max | ± 0.3 (Refer to the initial value) |
| Resonant Impedance R_o (Ω) max | 30 |

Note : The limits in the above table are referenced to the initial measurements.

5. REVIEW OF SPECIFICATIONS

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