

CERAMIC RESONATOR

ZTTCP Series With Built-In Capacitor SMD Type



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SPECIFICATION

PN: ZTTCP2.450MG

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FEATURE

This specification shall cover the characteristics of the ceramic resonator with the type **ZTTCP2.450MG**

ELECTRICAL SPECIFICATIONS (电气参数)

2.1 RATING

Items	Requirement
Withstanding Voltage (V)	100 (DC, 5s max)
Insulation Resistance R_i , ($M\Omega$) min.	500 (10V, 1min)
Operating temperature	-25°C ~ +85°C
Storage temperature	-55°C ~ +85°C
Rating Voltage U_R (V)	6V DC
	15V p-p AC

2.2 ELECTRICAL SPECIFICATIONS

Items	Requirement
Oscillation Frequency F_{osc} (MHz)	2.4500
Frequency Accuracy (%)	±0.5
Resonant Impedance R_o (Ω) max.	30
Temperature Coefficient of Oscillation Frequency (%) max.	±0.25 (Oscillation Frequency drift, -25°C ~ +85°C)
Oscillation Frequency Aging Rate (%) max ^{*1}	±0.1 (From initial value)

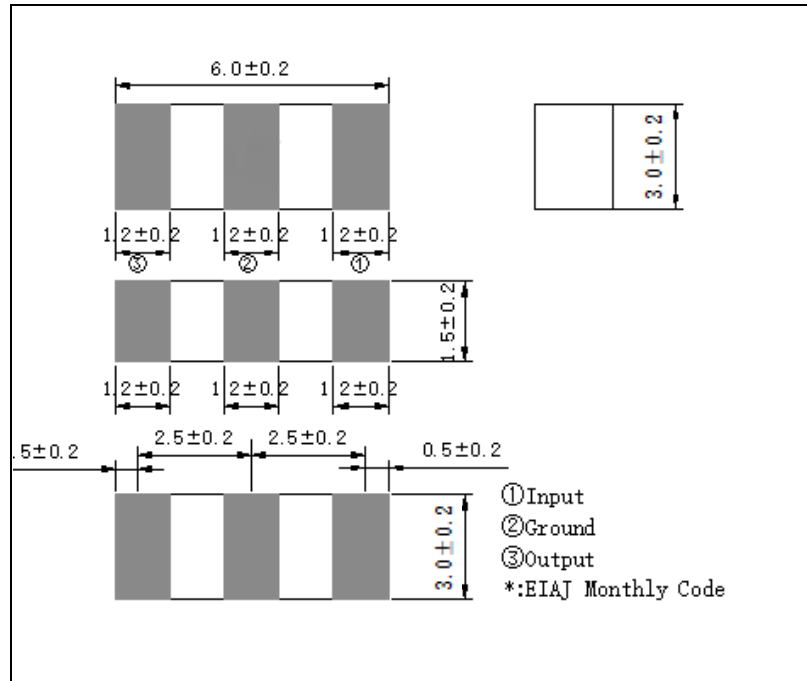
* Components shall be left in a chamber of +85±2°C for 1000 hours, then measured after leaving in natural condition for 1 hours.

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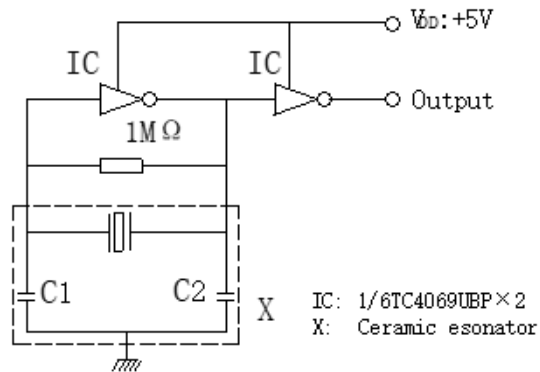


Dimension (尺寸) (Unit: mm)



TEST CIRCUIT

Parts shall be tested under the condition (Temp.: $20 \pm 15^\circ\text{C}$, Humidity : $65 \pm 20\%$ R.H.) unless the standard condition (Temp.: $25 \pm 3^\circ\text{C}$, Humidity : $65 \pm 10\%$ R.H.) is regulated to measure.



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RELIABILITY TEST SPECIFICATIONS (可靠性测试标准)

No	Item	Condition of Test	Performance Requirements	
6.1	Humidity	Keep the resonator at $60^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and 90%-95% RH for 96h. Then Release the resonator into the room Condition for 1h prior to the Measurement.	It shall fulfill the specifications in Table 1.	
6.2	High Temperature Exposure	Subject the resonator to $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 96h, then release the resonator into the room conditions for 1h prior to the measurement.	It shall fulfill the specifications in Table 1.	
6.3	Low Temperature Exposure	Subject the resonator to $-40^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 96h, then release the resonator into the room conditions for 1h prior to the measurement.	It shall fulfill the specifications in Table 1.	
6.4	Temperature Cycling	After temperature cycling of blow table was performed 5 times, resonator shall be measured after being placed in natural conditions for 1h.	It shall fulfill the specifications in Table 1.	
		Temperature		Time
		$-25\pm 3^{\circ}\text{C}$		30 \pm 3 min
		$85\pm 3^{\circ}\text{C}$		30 \pm 3 min
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 10 Hz—55Hz.	It shall fulfill the specifications in Table 1.	
6.6	Mechanical Shock	Drop the resonator randomly onto a wooden floor from the height of 100cm 3 times.	It shall fulfill the specifications in Table 1.	
6.7	Soldering Test	Components shall be measured after applying twice of the re-flow soldering with following temperature profile and leaving in natural condition for 1 hour.	It shall fulfill the specifications in Table 1.	
		<p>The graph shows a temperature profile for re-flow soldering. It starts with a pre-heating phase of at least 30 seconds. The temperature then ramps up to a peak of 260°C, which must be maintained for a maximum of 10 seconds. After the peak, the temperature cools down to 250°C, a process that should take between 20 and 40 seconds. The ramping up phase is specified to last between 80 and 120 seconds.</p>		

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PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

No	Item	Condition of Test	Performance Requirements
6.8	Solder Ability	Dipped in 245°C±5 °C solder bath for 3s±0.5 s with rosin flux (25wt% ethanol solution.)	The terminals shall be at least 95% covered by solder.
6.9	Board Bending	<p>Mountaglass-epoxyboard (Width=40mm,thickness=1.6mm),then bend it to 1mm displacement and keep it for 5s. (See the following figure)</p>	Mechanical damage such as breaks shall not occur.

Table 1

Item	Specification after test
Oscillation Frequency Change $\Delta F_{osc}/F_{osc}$ (%) max	±0.2
Resonant Impedance R_o (Ω) max.	35
The limits in the above table are referenced to the initial measurements.	