

# Shoulder 好达

SHOULDER ELECTRONICS CO., LTD.

## CERAMIC RESONATOR Data Sheet

PRODUCT 产品: CERAMIC RESONATOR

MODEL NO 型号: ZTT....MX

PREPARED 编制: Fengyu

CHECKED 审核: York

APPROVED 批准:

DATE 日期: 2007-01-25

1. Scope:

The specification is fit for ceramic resonator 13.01-50.00MHz.

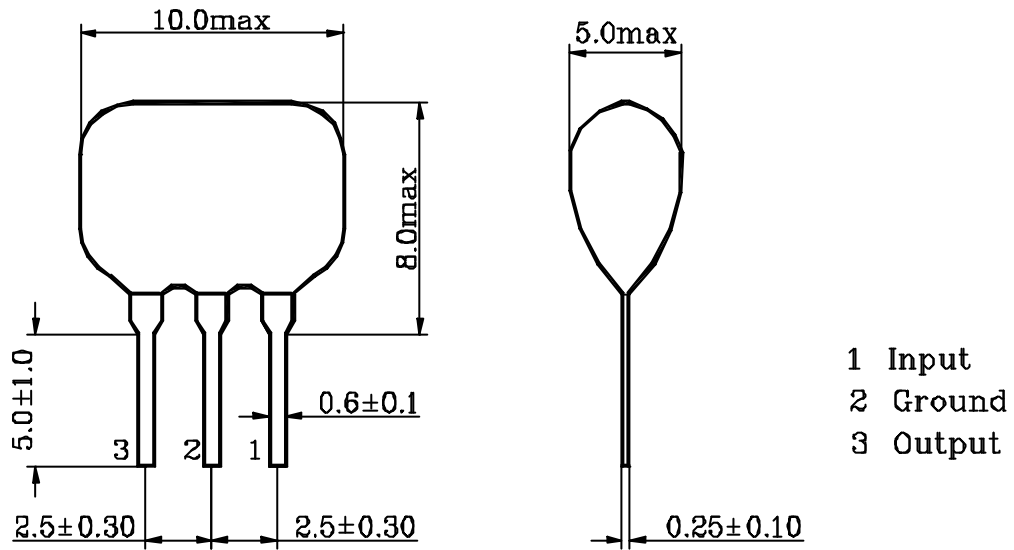
2. Model Name:

Model Name	Customer' s part number	Customer' s spec number
ZTT.MX		

3. Outside Dimensions:

3-1 Outsider: The mark is clear. The appearance is smooth, non-dirty & non-damage.

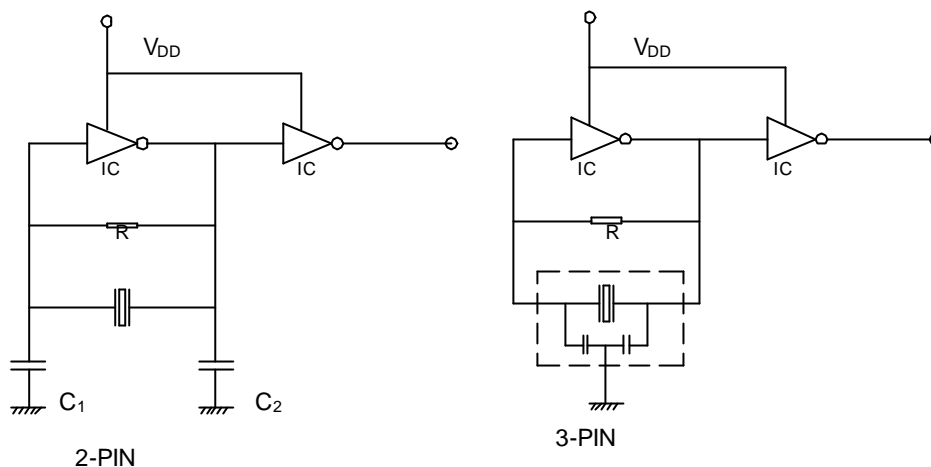
3-2 Outsider dimension:



4. Electrical Characteristics:

No.	Item	Characteristics
		ZTT.MX
4-1	Oscillate Frequency (MHz)	13.01-50.00
4.2	Frequency Tolerance max	±0.5%
4.3	Resonant Impedance max (Ω)	40
4.4	Built – in Capacitance (PF)	30
4.5	Insulate Resistance min (MΩ)	100
4.6	Withstanding Voltage D.C (V)	100 (max 5 sec)
4.7	Voltage (1) D.C Voltage max (V) (2) Input Voltage max (V)	6 15Vp-p
4.8	Temp characteristics of Oscillate Frequency max	±0.3%
4.9	Operating Temp Range (°C)	-20 ~ +80
4.10	Storage Temp (°C)	-55 ~ +85

## 5. Test Circuit:



IC : TC74HCU04  
 $V_{DD}$  :  $+5V \pm 0.1V$   
 R :  $1M\Omega$   
 $C_1, C_2$  : 30PF

## 6. Physical and Environmental Characteristics:

No	Item	Condition	Result
6-1	Terminal strength	Force of 1kg is applied to each lead in axial direction, keep for 10sec, then force of 0.5kg is applied to each lead in aerial direction. The lead shall be bend $90^\circ$ degree in one direction, then in the opposite direction and return to normal.	Non-evident damage.
6-2	Resistance to soldering heat	Lead terminals are immersed up to 2.0mm of body in a solder bath ( $260 \pm 5^\circ\text{C}$ ), keep for $5 \pm 0.5$ sec, then return to normal temp. For $24 \pm 2$ hrs.	Non-evident damage and meet table-1, the mark is clear.
6-3	Thermal shock	Temp: $-55 \sim +85^\circ\text{C}$ , 5cycles, keep for 30min, return to normal temp, for $24 \pm 2$ hrs.	Non-evident damage and meet table-1, the mark is clear.
	Vibration	Vibration: frequency: 10~55Hz, amplitude: 1.5mm, keep for 6hrs.	
	Shock	$V_a$ : $294\text{m/s}^2$ , pulse time: 18ms.	
6-4	High temperature	Temp: $+85^\circ\text{C}$ , keep for 16hrs.	Non-breakthrough, or arc and meet table-1, non-evident damage the mark is clear.
	Damp & heat (cyclic)	Trial Db, the first circle	
	Low temperature	Temp: $-55^\circ\text{C}$ , keep for 2hrs.	
	Low air pressure	Air press: 8.5kPa keep for 2hrs.	
	Damp & heat (cyclic)	Trial Db, the rest cycles, return to normal temp for $24 \pm 2$ hrs.	
6-5	Damp & heat (steady state)	Temp: $40 \pm 2^\circ\text{C}$ , humidity: 90~95%. Keep for 500hrs, return to normal temp for $24 \pm 2$ hrs.	Non-evident damage, the mark is clear, meet table-1.
6-6	Life test	Temp: $+85^\circ\text{C}$ , keep for 1000hrs, return to normal temp for.	Meet table-1.

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Table 1

No.	Test item	The value can be changed
1	Oscillate frequency max	$\pm 0.3\%$
2	Resonant impedance ( $\Omega$ ) max	$\pm 5$
3	Insulate resistance ( $M\Omega$ ) min	100