

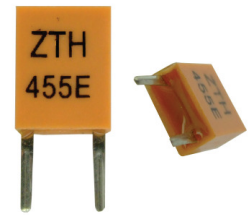
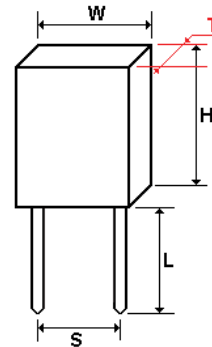
## DESCRIPTION

The ZTH ceramic resonator is the miniature low profile frequency control products of low frequency 190 to 1250 KHz for the clock oscillation. It is of very competitive price than quartz crystal parts and of high stability that make of substitute the quartz crystal when need lower price.

## ELECTRICAL SPECIFICATION

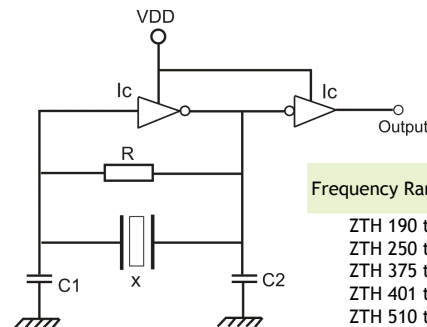
Resonant Frequency	190 to 1250 KHz
Resonant Impedance (Ro)	190 to 699 20Ω Max. 700 to 1250 50Ω Max.
Frequency Tolerance (at 25 °C)	190 to 249 ± 1 kHz 250 to 374 ± 1 kHz 375 to 400 ± 2 kHz 401 to 509 ± 2 kHz 510 to 699 ± 2 kHz 700 to 1250 ± 0.5%
Temperature Coefficient of Oscillation Frequency	±0,3% Maximum (-20 °C to +80 °C)
Operating Temperature Range	-20 °C to +80 °C
Storage Temperature Range	-20 °C to +80 °C
Insulation Resistance	100MΩ minimum (at 100VDC)
With Voltage	D.C. Voltage 50VDC A.C. Voltage 15Vpp
Aging Rate (F <sub>osc</sub> )(at 25 °C)	±0.3% Maximum (10 year)

## MECHANICAL DIMENSIONS (all in mm)



Frequency Range (kHz)	W Width	T Thickness	H Height	L Lead Length	S Lead Space
190 to 249	13.5	3.8	14.7	8.0	10.0
250 to 374	11.0	3.8	12.2	5.0	7.7
375 to 400	7.9	3.6	9.3	7.0	5.0
401 to 509	7.0	3.5	9.0	4.0	5.0
510 to 699	7.0	3.5	9.0	4.0	5.0
700 to 1250	5.2	2.8	6.8	3.5	2.5

## TEST CIRCUIT (FIG.1)



X= Ceramic Resonator  
VDD= +5V  
IC=1/6CD4069UBEx2  
R= 1M Ohms  
C1, C2= Load Capacitance

Frequency Range (MHz)	Load Capacitance (pF)
	C1 C2
ZTH 190 to 249	330 470
ZTH 250 to 374	220 470
ZTH 375 to 400	120 470
ZTH 401 to 509	100 100
ZTH 510 to 699	100 100
ZTH 700 to 1250	100 100

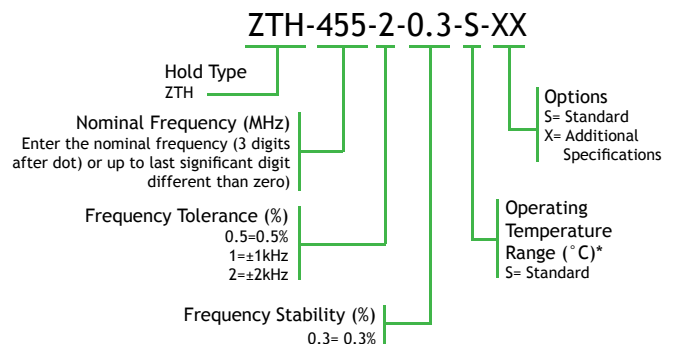
TABLE 1

Item	Specification
Oscillation Frequency Change	ΔF/Fosc ≤ 0.5%

## MEASUREMENT

Measurement Condition	The reference temperature shall be 25 °C ± 2 °C. The measurement shall be performed at the temperature range of 5 °C to 35 °C unless otherwise the result is doubtful.
Measurement Circuit and Equipment	Oscillating frequency shall be measured by the standard test circuit as shown in Fig 1-Test Circuit.

## PART NUMBERING SYSTEM (Example)



\* Operating Temperature Range: -20 to 80°C (Standard)  
\* Specific Operating Temperature Range under request.