CERAMIC RESONATORS

Ceramic Resonators KHz (Murata CSB Compatible) - ZTB Series

Ceramic Resonators (ZTB) 190 ~ 1250 KHz

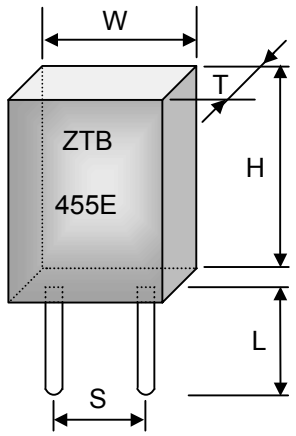
Preview

Token ceramic resonators are primarily designed for choking power lines and conform to the RoHS directive and Lead-free. Token ceramic resonators ZTB series can be customed designs and tighter tolerances available on request. Token supply you ceramic resonators high performance, quality and stability. Ceramic resonators provid reliable start up and stable oscillation in microprocessor circuits across a wide variety of applications.

Application of ceramic resonators specific designs also available including different inductance values and Q specifications adjusted to frequency requirements. Ceramic resonators utilizes the latest ceramic piezo technology enabling the most cost-effective designs.

Ceramic resonators KHz (ZTB) series is designed to provide the design engineer with a rugged, relatively low frequency device in the frequency range of 190 kHz to 1,250 kHz. Initial frequency tolerance is ± 0.5 % which compares very favorably to the norminal ± 2% ~ ± 3% requirements of one chip microprocessors. Token ceramic resonators ZTB series utilizes the area vibration mode of the piezoelectric element.

Dimensions



Frequency Range (kHz)	W width	T thickness	H height	S lead space	L lead length
190~249	13.5	3.6	14.7	10.0	8.0
250~374	11.0	3.6	12.2	7.7	7.0
375~429	7.9	3.6	9.3	5.0	6.0
430~699	7.0	3.5	9.0	5.0	4.0(6.0)
700~1250	5.1	2.2	6.3	2.5	4.0

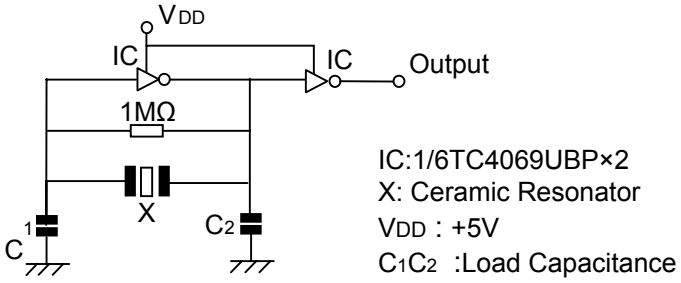
Technical Characteristics

Part Number	Frequency Accuracy (at 25°C)	Resonant Impedance (Ω)	Stability in Temperature (-20°C~+80°C)(%)	Aging For 10 Years (%)	Load Capacitance (pF)	
					C1	C2
ZTB82 ~ ZTB189 *	±2kHz	≤20	±0.3	±0.3	/	/
ZTB190D ~ ZTB249D	±1kHz	≤20	±0.3	±0.3	330	470
ZTB250D ~ ZTB374D	±1kHz	≤20	±0.3	±0.3	220	470
ZTB375P ~ ZTB429P	±2kHz	≤20	±0.3	±0.3	120	470
ZTB430E ~ ZTB509E	±2kHz	≤20	±0.3	±0.3	100	100
ZTB510P ~ ZTB699P	±2kHz	≤30	±0.3	±0.3	100	100
ZTB700J ~ ZTB999J	±0.5%	≤70	±0.3	±0.3	100	100
ZTB1000J ~ ZTB1250J	±0.5%	≤100	±0.3	±0.3	100	100

* **Note** : ZTB82 ~ ZTB189 series is new products of custom design.

KHz (ZTB) Resonator Selection - Test Circuit for MOS IC

Loading Capacitor (C1 & C2)



The stability of the oscillation circuit is mainly determined by the C1 & C2 values. If the load capacitance is too small, unstable oscillation will occur because of oscillation waveform distortion. If too high, a stop in oscillation can be expected. When comparing the same IC, oscillation circuits with lower frequencies require higher capacitance. Token Engineers can help with the circuit design if needed.

Feedback Resistor (R = 1MΩ):

A Feedback Resistor is used to determine the oscillation circuit bias. The feedback resistance will contribute to instability if it is too large by reducing feedback. Conversely, if it is too small, increases in current will be realized thereby reducing gain. Recent developments in IC design allows for the integration of the feedback resistor in many cases.

KHz (ZTB) Resonator Optimum - IC Evaluations

Due to the properties of ceramic resonators, IC matching must be studied and performed to satisfy oscillation conditions.

Tolerance is determined by the design of the resonator. However stability and correlation is determined by the IC evaluation. The microcontroller is evaluated with the ceramic resonators to determine the best possible circuit conditions to achieve stability and stable oscillation.

In addition, frequency correlation is measured to meet the tight initial frequency tolerance required. For the tight tolerance resonators the IC evaluation must be completed on the final circuit board layout. The final circuit boards provide the most accurate measurement of the frequency correlation.

This measurement will account for the effects of stray capacitance on the oscillation frequency. Once the correlation is determined the frequency of the resonator is adjusted to compensate for the correlation.

How to Order

ZTB455E ❶ P ❷

❶ Part Number

❷ Package

Code	Package
P	Bulk
TR	Taping Reel

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