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DEMINT
Electronics Co., Ltd.

(ZTBY)
Surface Mountable Resonators

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Product Introduction

Introduction (ZTBY)

DeMint formed leads surface mountable resonator is compatible to Murata resonator CSBF. DeMint manufactures a broad range of high quality Ceramic Resonators covering both the KHz and MHz frequency ranges and a full range of industry standard Through Hole and Surface Mount resonators both with and without internal capacitors. The high quality and extensive coverage of this product line allows optimum design of almost any oscillating circuit.

The surface mountable Ceramic resonators (ZTBY) are one of (ZTB) device series with the frequency range of 375 kHz to 1,250 kHz. Initial frequency tolerance is ± 0.5% which compares very favorably to the nominal ±2% ~ ±3% requirements of one chip microprocessors. Stability and Aging Tolerance narrows to ± 0.3%. The (ZTBY) Resonator provides reliable start up and stable oscillation in microprocessor circuits across a wide variety of applications.

The (ZTBY) Ceramic resonators stand between quartz crystal oscillators and LC/RC oscillators in regard to accuracy but are considerably smaller, require no adjustments, have improved start-up times, and are low in cost. The (ZTBY) oscillation is dependent upon mechanical resonance associated with their piezoelectric crystalline structure and utilizes the area vibration mode of the piezoelectric element.

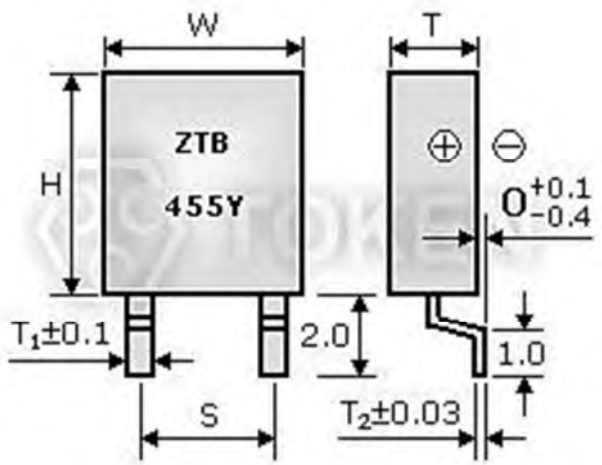
DeMint (ZTBY) resonators conform to the RoHS directive. Application of specific designs also available including different tighter tolerances specification adjusted to frequency requirements.

Contact us with your specific needs. For more information, please link to DeMint official website "Ceramic Resonators".

Dimensions

Dimensions (Unit: mm; Tolerance: ±0.3mm) (ZTBY)

Frequency Range (kHz)	W width	T thickness	H height	S lead space	T1	T2
375~429	8.0	3.5	9.0	5.0	1.0	0.15
430~509	7.5	3.3	8.5	5.0	1.1	0.15
510~699	7.0	3.0	8.5	5.0	1.1	0.15
700~1250	5.0	2.2	6.0	2.5	0.8	0.12



Surface Mountable KHz (ZTBY) Dimensions

Technical Characteristics

Technical Characteristics (ZTBY)

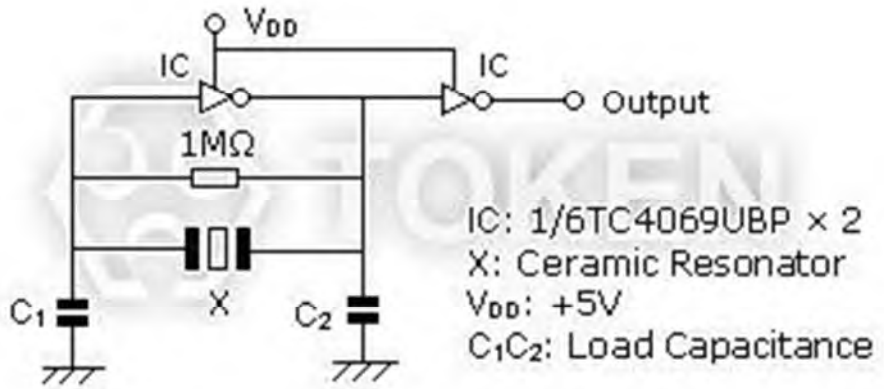
Part Number	Frequency Accuracy (at 25℃)	Resonant Impedance (Ω)	Stability in Temperature (-20℃ ~ +80℃) (%)	Aging For 10 Years (%)	Load Capacitance (pF)	
					C1	C2
ZTB375 ~ 429Y	±2kHz	≤20	±0.3	±0.3	120	470
ZTB430 ~ 509Y	±2kHz	≤20	±0.3	±0.3	100	100
ZTB510 ~ 699Y	±2kHz	≤30	±0.3	±0.3	100	100
ZTB700 ~ 999Y	±0.5%	≤70	±0.3	±0.3	100	100
ZTB1000 ~ 1250Y	±0.5%	≤100	±0.3	±0.3	100	100

Test Circuit for MOS IC

Resonator Selection - Test Circuit for MOS IC (ZTBY)

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.

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.
DeMint Engineers can help with the circuit design if needed.



(ZTBY) Test Circuit for MOS IC

Resonator Optimization - IC Evaluations (ZTBY)

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.

Order Codes

Order Codes (ZTBY)

ZTB	455	Y	P	
Part Number	Center Frequency (KHz)	SMD type	Package	
			P	Bulk
			TR	Taping Reel

General Information

DeMint Cuts Resonator Size and Cost

DeMint's Resonators are made of high stability piezoelectric ceramics that function as a mechanical resonator. This device has been developed to function as a reference signal generator. The frequency is primarily adjusted by the size and thickness of the ceramic element. With the advance of the IC technology, various equipment may be controlled by a single LSI (Large-Scale Integration) integrated circuit, such as the one-chip microprocessor.

Resonator can be used as the timing element in most microprocessor based equipment. In the future, more and more applications will use **ceramic resonator** because of its high stability non-adjustment performance, miniature size and cost savings.

Typical applications include TVs, VCRs, remote controls and toys, voice synthesizers, automotive electronic devices, copiers, telephones, cameras, communication equipment.

DeMint offers a full range of industry standard through hole and surface mount resonators both with and without internal capacitors. For standard Operating Temperatures (-20℃ to 80℃), and for Automotive applications (-40℃ to +125℃), with a wide range of frequencies and frequency stability options. Additionally, DeMint Application Engineering and Design capabilities allow for custom design and characterization requirements that meet the demands of most applications.