CERAMIC RESONATORS 1.79 ~ 60.00 MHz

Token Ceramic Resonator (ZTT) is compatible to Murata CST Compatible

Preview



Ceramic resonators provide an attractive alternative to quartz crystals for oscillation frequency stabilization in many applications. when compared to quartz devices, ceramic resonators' easily mass production, low cost, mechanical ruggedness, and small size often outweigh the reduced precision to which frequencies can be controlled.

Additionally, ceramic resonators are better equipped to handle fluctuations in external circuit or power supply voltage due to their use of mechanical resonance and providing stable oscillation without adjustment. Further, these characteristics offer for a much faster rise times and are independent of drive level considerations.

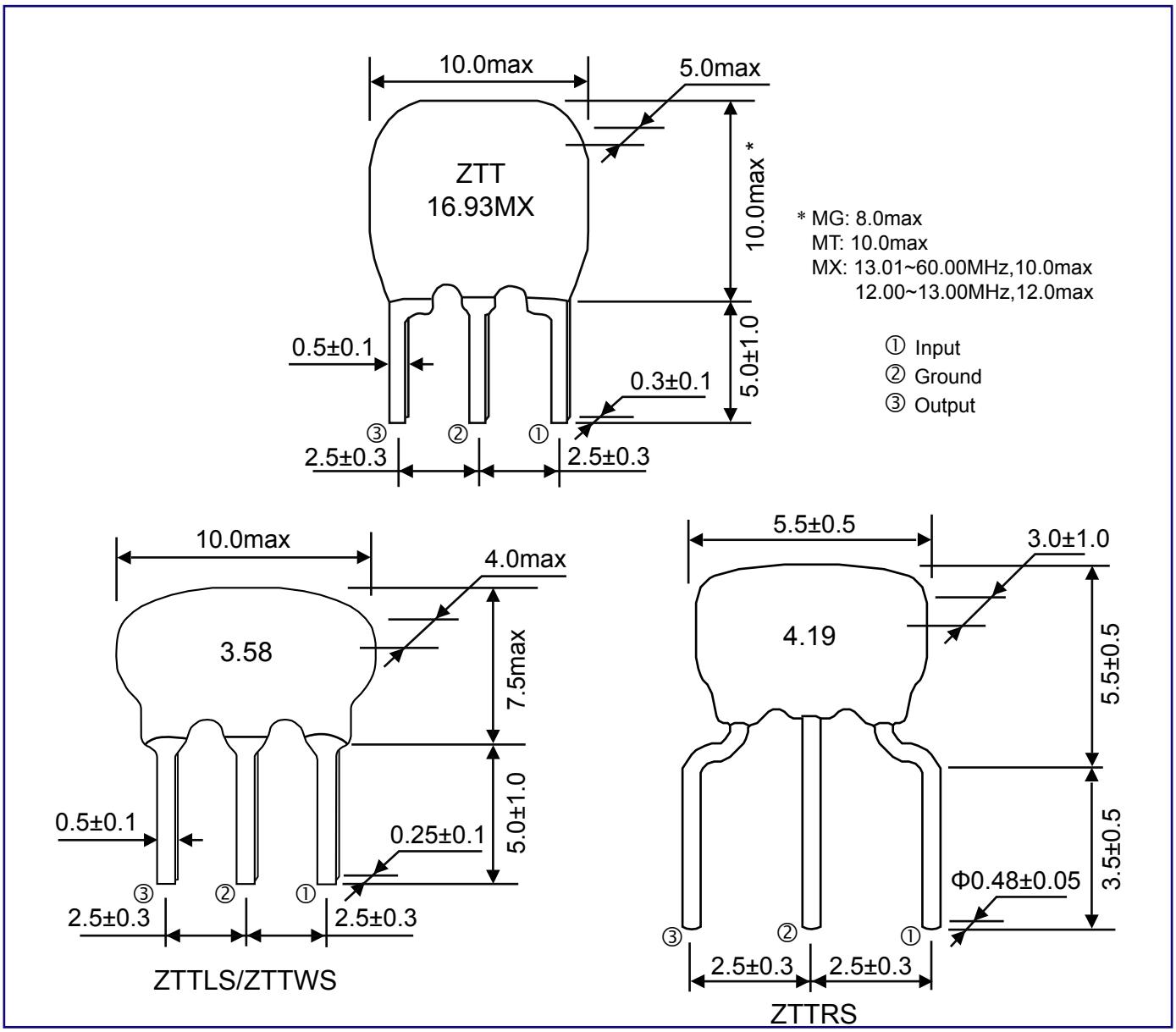
Token ceramic resonator ZTT series is used as standard clocks for microprocessors in various electronic devices. Token produces miniaturized, high-performance ZTT resonator series using its superior fabrication, assembly and packaging technologies. The ZTT device offers frequency range from 1.79 MHz to 60.00 MHz with an initial frequency tolerance of ± 0.5%, stability tolerance ± 0.3% at -20°C ~ +80°C, and aging tolerance ± 0.3%. The ZTT resonator features built-in capacitance with 3 lead terminals to eliminates any need for external loading capacitors and reduces component count. These devices conform to the RoHS directive.

Application of ceramic resonators specific designs also available including tighter tolerances and frequency adjusted to requirements.
Please contact Token sales for more information.

Benefit Features :

- Built-in load capacitance reduced parts cost and mounting cost.
- Faster start-up time as compared to quartz crystals.
- Excellent temperature stability (±0.3%).
- High density mounting.
- Simplified circuit.
- Low cost.

Dimensions

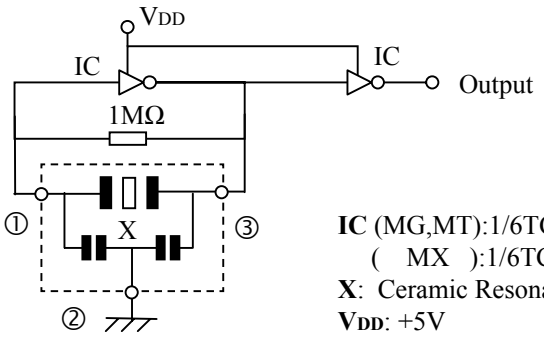


Technical Characteristics

Part Numbe	Frequency Range (MHz)	Frequency Accuracy (at 25°C) (%)	Stability in Temperature (-20°C ~ +80°C) (%)	Operating Temperature (°C)	Aging For Ten Years (%)
ZTT***MG	1.79 ~ 6.00	±0.5	±0.3	-20 ~ +80	±0.3
ZTTWS***MG	1.79 ~ 6.00	±0.5	±0.3	-20 ~ +80	±0.3
ZTTLS***MG	3.00 ~ 8.00	±0.5	±0.3	-20 ~ +80	±0.3
ZTTRS***MG	3.00 ~ 10.00	±0.5	±0.3	-20 ~ +80	±0.3
ZTT***MT	6.00 ~ 13.00	±0.5	±0.3	-20 ~ +80	±0.3
ZTT***MX	12.00 ~ 60.00	±0.5	±0.3	-20 ~ +80	±0.3

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.



IC (MG,MT):1/6TC4069UBP×2
(MX):1/6TC74HCU04×2
X: Ceramic Resonator
VDD: +5V

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.

Damping Resistor (Rd optional):
Abnormal harmonic oscillation can be suppressed using a dampening resistor. The dampening resistor and load capacitors work together as a low-pass filter to reduce gain in the MHz range of oscillation.

Bias resistor (Rb optional):
A Bias Resistor can be utilized in the Ceramic Resonator Oscillation Circuit to change the bias point when a reduction in IC gain is required, or to suppress unstable oscillation. This may be especially considered when a 3 stage buffered IC, or TTL IC, is used.
Token Engineers can help with the circuit design if needed.

(ZTT) Resonator Optimum - IC Evaluations

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

How to Order

ZTT16.93MX ❶ P ❷

❶ Part Number

❷ Package

Code	Package
P	Bulk
TR	Taping Reel

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