

Through Hole Ceramic Resonators

U.S.Electronics Inc.

Ph: (314) 423) 7550

Fax : (314) 423 0585

ZTB/ZTA/ZTT Series

[Ceramic Resonator \(KHz\) ZTB Series](#) Compatible to Murata CSB : 190-1250KHz

| Part Number | Frequency | Frequency Accuracy | Resonant Impedance | Stability in Temperature | Aging for Ten Years | Load Capacitance (PF) | |
|-------------|-----------|--------------------|--------------------|--------------------------|---------------------|-----------------------|-----|
| | (KHz) | | | (20~80 °C) | | C1 | C2 |
| ZTB200D | 200 | ±1kHz | ≤20 | ±0.3% | ±0.3% | 330 | 470 |
| ZTB400D | 400 | ±1kHz | ≤20 | ±0.3% | ±0.3% | 220 | 470 |
| ZTB455E | 455 | ±2kHz | ≤20 | ±0.3% | ±0.3% | 100 | 100 |
| ZTB500E | 500 | ±2kHz | ≤20 | ±0.3% | ±0.3% | 100 | 100 |
| ZTB540P | 540 | ±2kHz | ≤20 | ±0.3% | ±0.3% | 100 | 100 |
| ZTB640P | 640 | ±2kHz | ≤30 | ±0.3% | ±0.3% | 100 | 100 |
| ZTB800J | 800 | ±0.5% | ≤50 | ±0.3% | ±0.3% | 100 | 100 |
| ZTB1000J | 1000 | ±0.5% | ≤50 | ±0.3% | ±0.3% | 100 | 100 |

[Ceramic Resonators \(MHz\) - ZTA Series](#) Compatible to Murata CSA : 1.80-50.00MHz

| Part Number | Frequency | Frequency Accuracy | Stability in Temperature | Operating Temperature | Aging for Ten Years |
|-------------|-----------|--------------------|--------------------------|-----------------------|---------------------|
| | MHz | | 25 °C | (-20 ~ +80 °C) | |
| ZTA2.00MG | 2.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA3.58MG | 3.58 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA4.00MG | 4.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA4.19MG | 4.19 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA6.00MT | 6.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA8.00MT | 8.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA10.00MT | 10.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA12.00MT | 12.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA16.00MX | 16.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |
| ZTA20.00MX | 20.00 | ±0.5% | ±0.3% | -20~+80 | ±0.3% |

Ceramic Resonators (MHz) - ZTT Series

Compatible to Murata CST : 1.80-50.00MHz

| Part Number | Frequency | Frequency Accuracy | Stability in Temperature | Aging for Ten Years |
|-------------|-----------|--------------------|--------------------------|---------------------|
| | (MHz) | 25 °C | (-20 ~ +80 °C) | |
| ZTT2.00MG | 2.00 | ±0.5% | ±0.3% | ±0.3% |
| ZTT3.58MG | 3.58 | ±0.5% | ±0.3% | ±0.3% |
| ZTT4.00MG | 4.00 | ±0.5% | ±0.3% | ±0.3% |
| ZTT4.19MG | 4.19 | ±0.5% | ±0.3% | ±0.3% |
| ZTT6.00MT | 6.00 | ±0.5% | ±0.3% | ±0.3% |
| ZTT8.00MT | 8.00 | ±0.5% | ±0.3% | ±0.3% |
| ZTT10.00MT | 10.00 | ±0.5% | ±0.3% | ±0.3% |
| ZTT12.00MT | 12.00 | ±0.5% | ±0.3% | ±0.3% |
| ZTT16.00MX | 16.00 | ±0.5% | ±0.3% | ±0.3% |
| ZTT20.00MX | 20.00 | ±0.5% | ±0.3% | ±0.3% |

Through Hole Ceramic Resonators

U.S.Electronics Inc.

ZTB Series

Ph:(314) 423 7550

Compatible to Murata CSB: 190 - 1250 KHz

Fax: (314) 423 0585

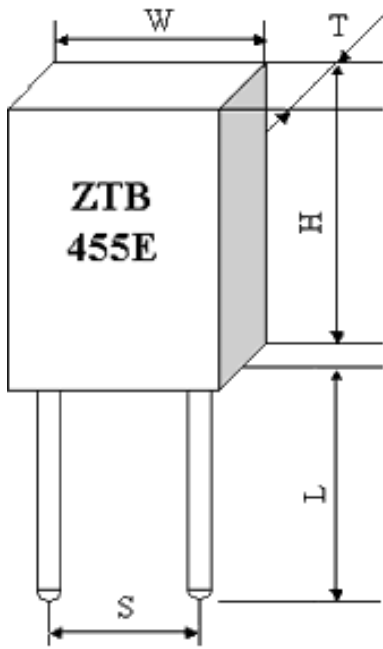
ZTB (KHz) Series is designed to provide the design engineer with a rugged, relatively low frequency device in the frequency range of 190 KHz to 1,250 KHz. Initial frequency tolerance is $\pm 0.5\%$ which compares very favorably to the nominal $\pm 2\% \sim \pm 3\%$ requirements of one chip microprocessors. ZTB series utilizes the area vibration mode of the piezoelectric ceramic element.

TECHNICAL CHARACTERISTICS:

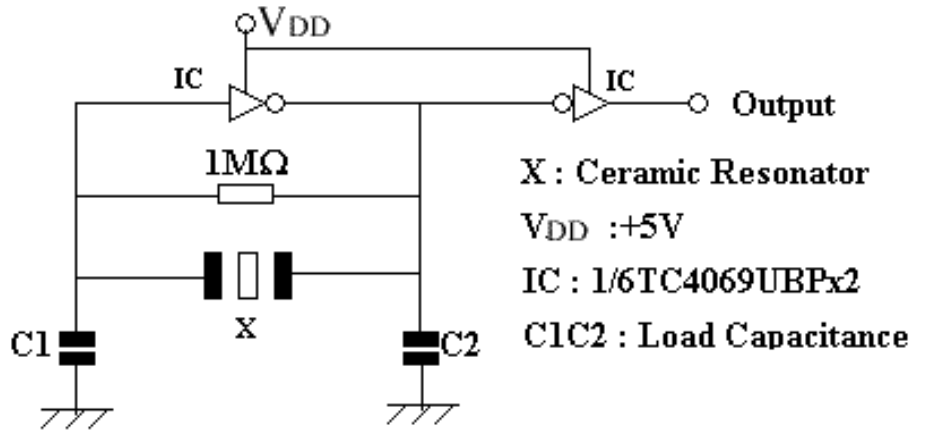
| Part Number | Frequency Accuracy (at 25°C) | Resonant Impedance (Ohm) max. | Stability in Temperature (-20°C ~ +80°C) | Aging For 10 Years (%) | Load Capacitance (pF) | |
|---------------------|------------------------------|-------------------------------|--|------------------------|-----------------------|-----|
| | | | | | C1 | C2 |
| ZTB190D ~ ZTB 249D | ± 1 kHz | ≤ 20 | ± 0.3 | ± 0.3 | 330 | 470 |
| ZTB250D ~ ZTB 374D | ± 1 kHz | ≤ 20 | ± 0.3 | ± 0.3 | 220 | 470 |
| ZTB375P ~ ZTB 429P | ± 2 kHz | ≤ 20 | ± 0.3 | ± 0.3 | 120 | 470 |
| ZTB430E ~ ZTB 509E | ± 2 kHz | ≤ 20 | ± 0.3 | ± 0.3 | 100 | 100 |
| ZTB510P ~ ZTB 699P | ± 2 kHz | ≤ 30 | ± 0.3 | ± 0.3 | 100 | 100 |
| ZTB700J ~ ZTB 999J | $\pm 0.5\%$ | ≤ 70 | ± 0.3 | ± 0.3 | 100 | 100 |
| ZTB1000J ~ ZTB1250J | $\pm 0.5\%$ | ≤ 100 | ± 0.3 | ± 0.3 | 100 | 100 |

| Frequency Range (kHz) | W(mm) width | T(mm) Thickness | H(mm) Height | S(mm) Lead Space | L(mm) Lead Length |
|-----------------------|-------------|-----------------|--------------|------------------|-------------------|
| 190~249 | 13.5 | 3.8 | 14.7 | 10.0 | 8.0 |
| 250~374 | 11.0 | 3.8 | 12.2 | 7.7 | 7.0 |
| 375~400 | 7.9 | 3.6 | 9.3 | 5.0 | 7.7 |
| 401~699 | 7.0 | 3.5 | 9.0 | 5.0 | 4.0 |
| 700~1250 | 5.2 | 2.8 | 6.8 | 2.5 | 4.0 |
| 1000J | 5.1 | 2.3 | 6.3 | 2.5 | 4.0 |

ZTB (kHz) DIMENSION (Unit: mm Tolerance :±0.3mm)



ZTB (kHz) TEST CIRCUIT



Through Hole Ceramic Resonators

U.S.Electronics Inc.

ZTA Series

Ph:(314) 423 7550

Compatible to Murata CSA : 1.80-50.00MHz

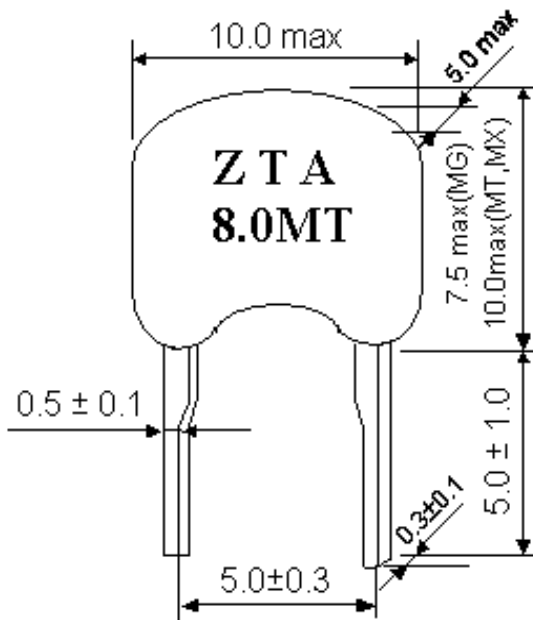
Fax: (314) 423 0585

ZTA (MHz) Series cover the frequency range of 1.80 MHz to 50.00 MHz with an initial frequency tolerance of $\pm 0.5\%$. Since the ZTA Series utilizes the thickness mode of vibration of the piezoelectric element, there is little dimensional change with frequency. All ZTA resonators are epoxy coated and completely washable. [Tape and Ammo](#) packaging is available.

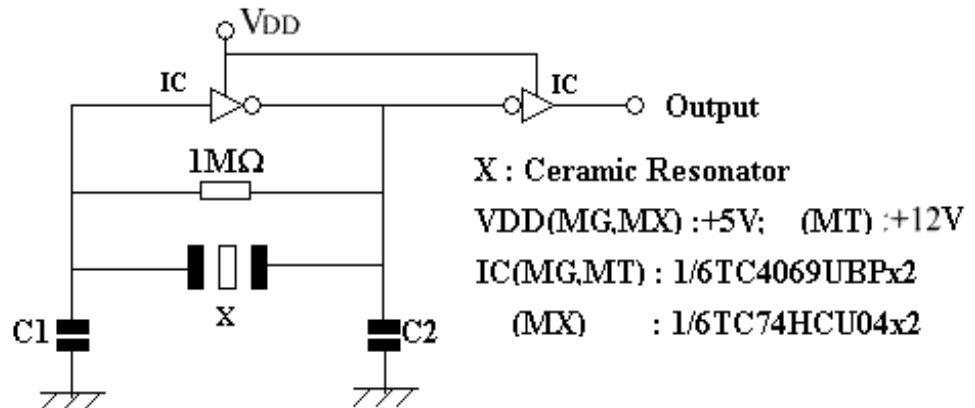
TECHNICAL CHARACTERISTICS:

| Part Number | Frequency Range (MHz) | Frequency Accuracy (at 25°C) | Stability in Temperature (-20°C ~ +80°C) | Operating Temperature . (°C) | Aging For Ten Years(%) |
|-------------|-----------------------|------------------------------|--|------------------------------|------------------------|
| ZTA__ MG | 1.80 ~ 6.00 | $\pm 0.5\%$ | $\pm 0.3\%$ | -20 ~ +80 | $\pm 0.3\%$ |
| ZTA__ MT | 6.01 ~ 13.00 | $\pm 0.5\%$ | $\pm 0.3\%$ | -20 ~ +80 | $\pm 0.3\%$ |
| ZTA__ MX | 13.01 ~ 50.00 | $\pm 0.5\%$ | $\pm 0.3\%$ | -20 ~ +80 | $\pm 0.3\%$ |

ZTA (MHz) DIMENSIONS



ZTA (MHz) TEST CIRCUIT



X : Ceramic Resonator

VDD(MG,MX) : +5V; (MT) : +12V

IC(MG,MT) : 1/6TC4069UBPx2

(MX) : 1/6TC74HCU04x2

C1C2 (MG,MT) : 30pF

C1C2 (MX) : 30pF (13.01 ~ 20.00 MHz)

C1C2 (MX) : 15pF (20.01 ~ 25.99 MHz)

C1C2 (MX) : 5 pF (26.00 ~ 50.00 MHz)

Through Hole Ceramic Resonators

U.S.Electronics Inc.

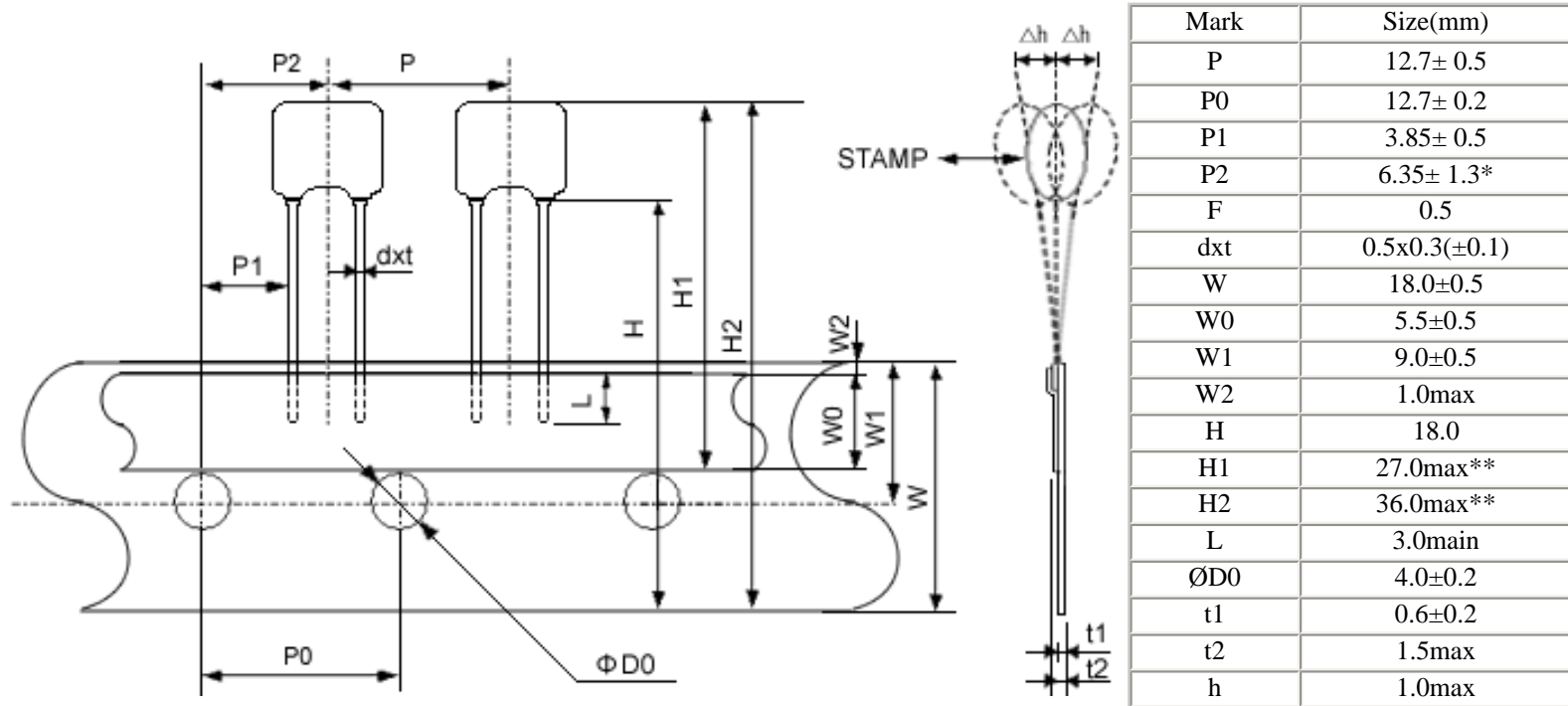
ZTA/ZTT Series

Ph:(314) 423 7550

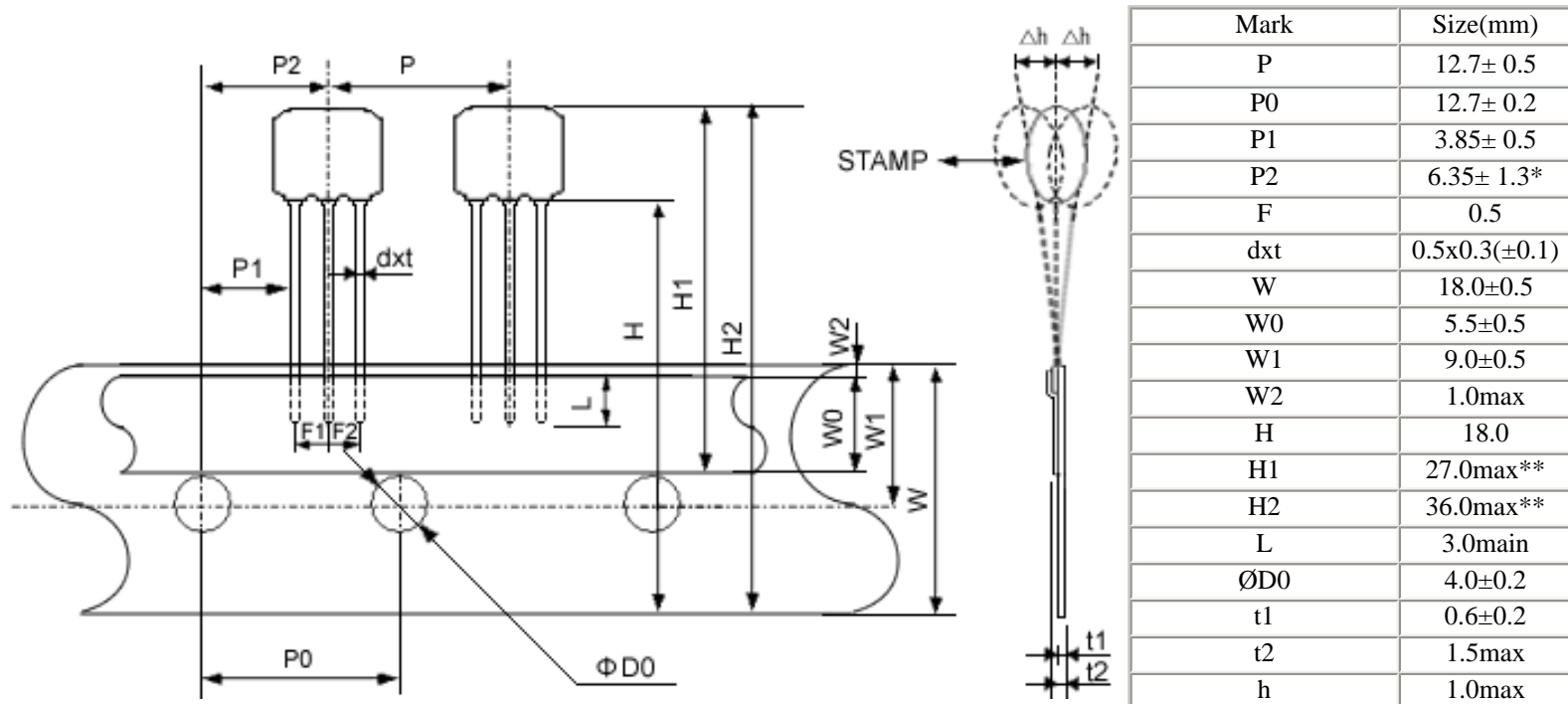
Tape And Ammo Package Dimensions

Fax: (314) 423 0585

ZTA Series TAPE and AMMO Dimensions



ZTT Series TAPE and AMMO Dimensions



Through Hole Ceramic Resonators

U.S.Electronics Inc.

ZTT Series

Ph:(314) 423 7550

Compatible to Murata CST : 1.80-50.00MHz

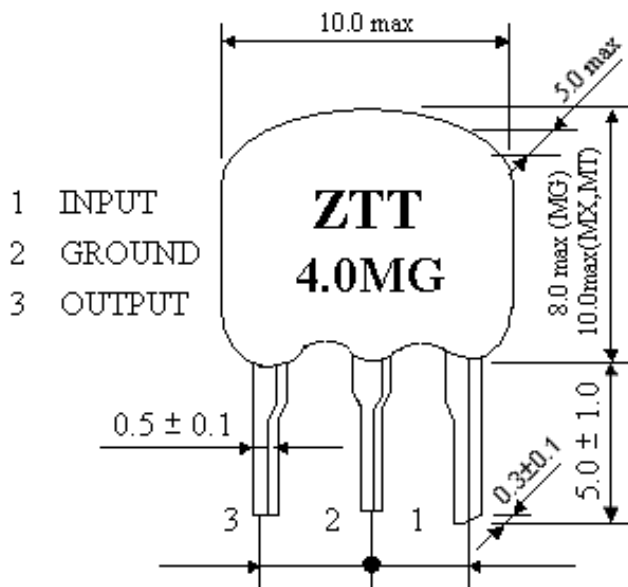
Fax: (314) 423 0585

ZTT (MHz) Series of ceramic resonators features a built-in load capacitance. This feature eliminates any need for external loading capacitors and reduces component count, increases reliability and reduces size. These unit are offered in the frequency range from 1.80 MHz to 50.00 MHz with an initial frequency tolerance of $\pm 0.5\%$. [Tape and Ammo](#) packaging is available.

ZTT TECHNICAL CHARACTERISTICS TABLE

| Part Number | Frequency Accuracy at 25°C (%) | Stability In Temperature -20°C~ +80°C (%) | Aging For Ten Years (%) |
|--------------------|--------------------------------|---|-------------------------|
| ZTT1.80 ~ 6.00MG | ± 0.5 | ± 0.3 | ± 0.3 |
| ZTT6.01 ~ 13.00MT | ± 0.5 | ± 0.3 | ± 0.3 |
| ZTT13.01 ~ 50.00MX | ± 0.5 | ± 0.3 | ± 0.3 |

ZTT DIMENSION (Unit: mm)



ZTT TEST CIRCUIT

