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DIRECT

Electronics Tech.

Ceramic Resonators (ZTB456/500/503/912F)

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▶ Product Introduction**Introduction (ZTB456/500/503/912F)****Benefit Features :**

- Highly reliable design with excellent environmental resistance.
- Standardized for use in low profile devices.
- Low cost.

Optimum Ceramic Resonator Selection of ZTB456/500/503/912F Oscillation. Optimum Resonator selection of Direct ZTB456/500/503/912F oscillation parameters make possible according to applications. The ZTB456/500/503/912F series provide reliable start up and stable oscillation in microprocessor circuits across a wide variety of applications.

The ZTB 456F multiplexer's series is designed to provide frequency modulation for HI-FI stereo application. These resonators are offered in the frequency accuracy $19\text{ kHz} \pm 38\text{Hz}$ and $456\text{ kHz} \pm 2\text{ kHz}$ with various applicable IC. The ZTB912F Multiplexers Series is specially designed to provide frequency modulation for HI-FI automobile stereo application. The ZTB 500/503F Series is designed for TV horizontal synthesizer circuits. These resonators are offered in the following frequency accuracy with applicable IC. All ZTB456/500/503/912F are Murata Compatible CSB456/503/912F.

Application of ceramic resonators specific designs also available including tighter tolerance specifications adjusted to frequency requirements. Products conform to the RoHS directive.

Direct will also produce devices outside these specifications to meet customer requirements, with comprehensive application engineering and design support available for customers worldwide.

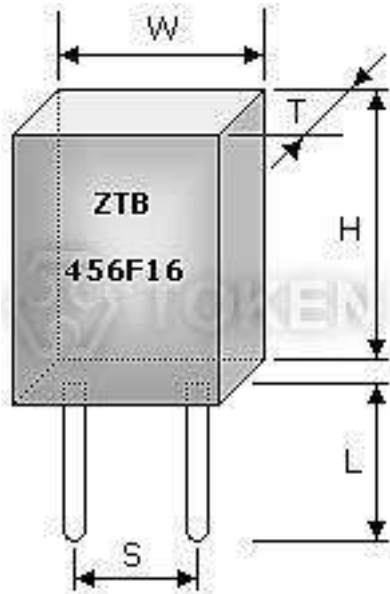
Contact us with your specific needs. For more information, please link to Direct official website "[Ceramic Resonators](#)".



► Dimensions

Dimensions (Unit: mm; Tolerance: ±0.3mm) KHz (ZTB456/500/503/912F)

| Type | ZTB 456 / 500 / 503F | ZTB 912F |
|-----------------|----------------------|----------|
| W (width) | 7.0 | 5.0 |
| T (thickness) | 3.5 | 2.2 |
| H (height) | 9.0 | 6.0 |
| S (lead space) | 5.0 | 2.5 |
| L (lead length) | 4.0 | 4.0 |



KHz (ZTB*F) Dimensions**

► Technical Characteristics

Technical Characteristics KHz (ZTB456/500/503/912F)

| Part Number | Frequency Accuracy | Applicable IC | |
|-------------|---------------------|---------------|------------|
| ZTB456F11 | 19.000 kHz ± 38 Hz | LA3430 | SANYO |
| ZTB456F15 | 19.000 kHz ± 38 Hz | LA1832 | SANYO |
| ZTB456F16 | 19.000 kHz ± 38 Hz | TA8122AN | TOSHIBA |
| ZTB456F18 | 19.000 kHz ± 38 Hz | TA8132N | TOSHIBA |
| ZTB456F33 | 456 kHz ± 2 Hz | LA2232 | SANYO |
| ZTB480E14 | 480+0.2%, -0.4% | TC31018P | TOSHIBA |
| ZTB500F2 | 500.0 kHz ± 2 kHz | μPC1401C | NEC |
| ZTB500F9 | 500.0 kHz ± 2 kHz | M51308SP | MITSUBISHI |
| ZTB500F25 | 15.680 kHz ± 0.4% | LA7680 | SANYO |
| ZTB500F40 | 15.680 kHz ± 0.4% | TA8691N | TOSHIBA |
| ZTB503F2 | 503.5 kHz ± 2 kHz | μPC1401C | NEC |
| ZTB503F5 | 504.5 kHz ± 2 kHz | LA7620 | SANYO |
| ZTB503F10 | 15.734 kHz ± 0.5% | TA7777P | TOSHIBA |
| ZTB503F12 | 503.5 kHz ± 2 kHz | LDA3586N | THOMSON |
| ZTB503F15 | 505.1 kHz ± 2 kHz | LA7650 | SANYO |
| ZTB503F30 | 503.5 kHz ± 1.5 kHz | TA8654AN | TOSHIBA |
| ZTB503F38 | 15.734 kHz ± 62 kHz | AN5302 | MATSUSHITA |
| ZTB912F | 923.0 kHz ± 0.3% | LA1780 | SANYO |
| ZTB912F101 | 918.5 kHz ± 0.3% | AN7291 | MATSUSHITA |
| ZTB912F104 | 925.0 kHz ± 0.3% | LA1867NM | SANYO |



▶ **Order Codes**

Order Codes KHz (ZTB456/500/503/912F)

| | | |
|-------------|---------|-------------|
| ZTB456F16 | P | |
| Part Number | Package | |
| | P | Bulk |
| | TR | Taping Reel |

▶ **General Information**

Direct Cuts Resonator Size and Cost

Direct'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.

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

