

Through Hole Ceramic Resonators

U.S.Electronics Inc.

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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)	°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

ZTB Series

Compatible to Murata CSB: 190 - 1250 KHz

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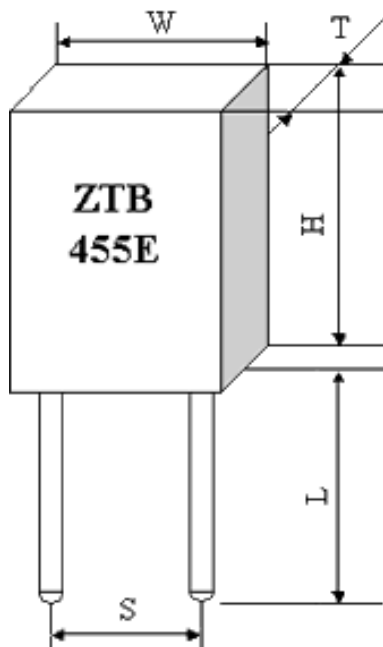
ZTB (KHz) Series is designed to provide the design engineer with a rugged, relatively low frequency device in the frequency range of 190 KHz to 1,250 KHz. Initial frequency tolerance is $\pm 0.5\%$ which compares very favorably to the nominal $\pm 2\% \sim \pm 3\%$ requirements of one chip microprocessors.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

TECHNICAL CHARACTERISTICS:

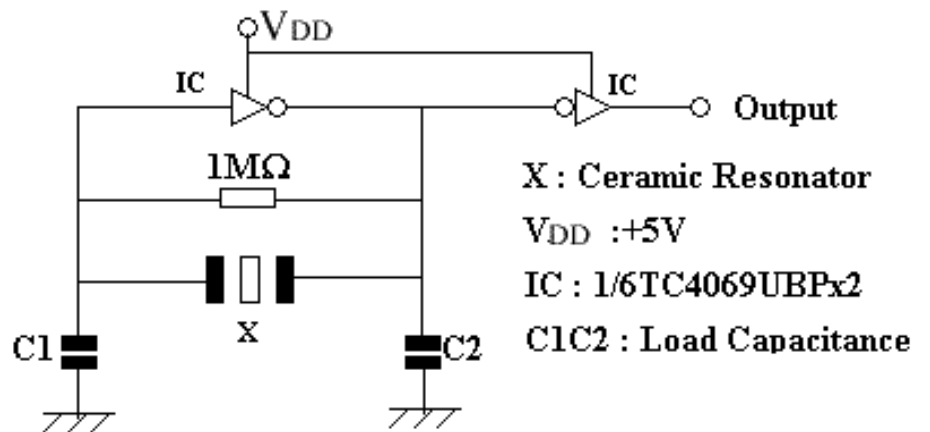
Part Number	Frequency Accuracy (at 25°C)	Resonant Impedance (Ohm) max.	Stability in Temperature (-20°C ~ +80°C)	Aging For 10 Years (%)	Load Capacitance (pF)	
					C1	C2
ZTB190D ~ ZTB 249D	± 1 kHz	≤ 20	± 0.3	± 0.3	330	470
ZTB250D ~ ZTB 374D	± 1 kHz	≤ 20	± 0.3	± 0.3	220	470
ZTB375P ~ ZTB 429P	± 2 kHz	≤ 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) Tickness	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

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ZTA Series

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Compatible to Murata CSA : 1.80-50.00MHz

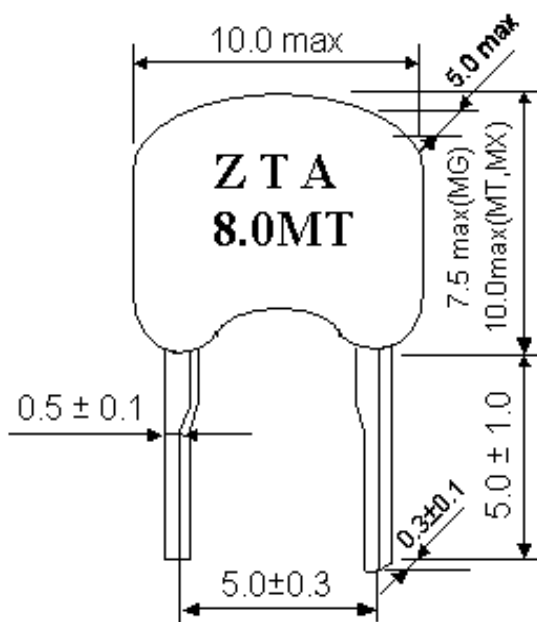
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ZTA (MHz) Series cover the frequency range of 1.80 MHz to 50.00 MHz with an initial frequency tolerance of $\pm 0.5\%$. Since the ZTA Series utilizes the thickness mode of vibration of the piezoelectric element, there is little dimensional change with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

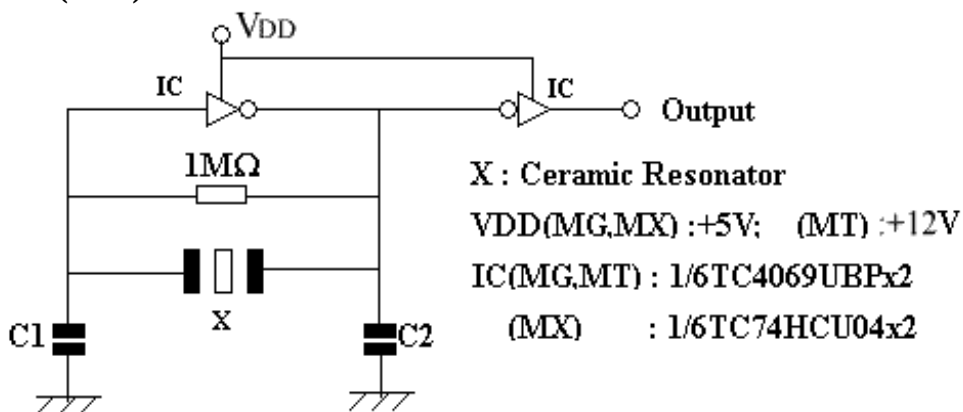
TECHNICAL CHARACTERISTICS:

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



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

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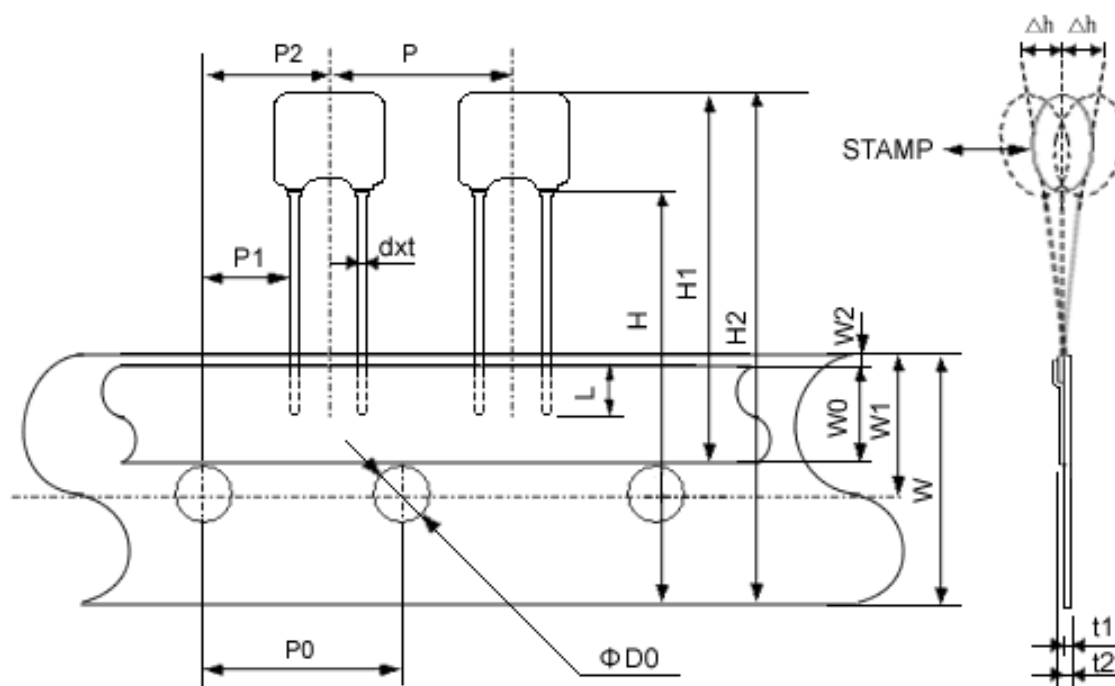
ZTA/ZTT Series

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Tape And Ammo Package Dimensions

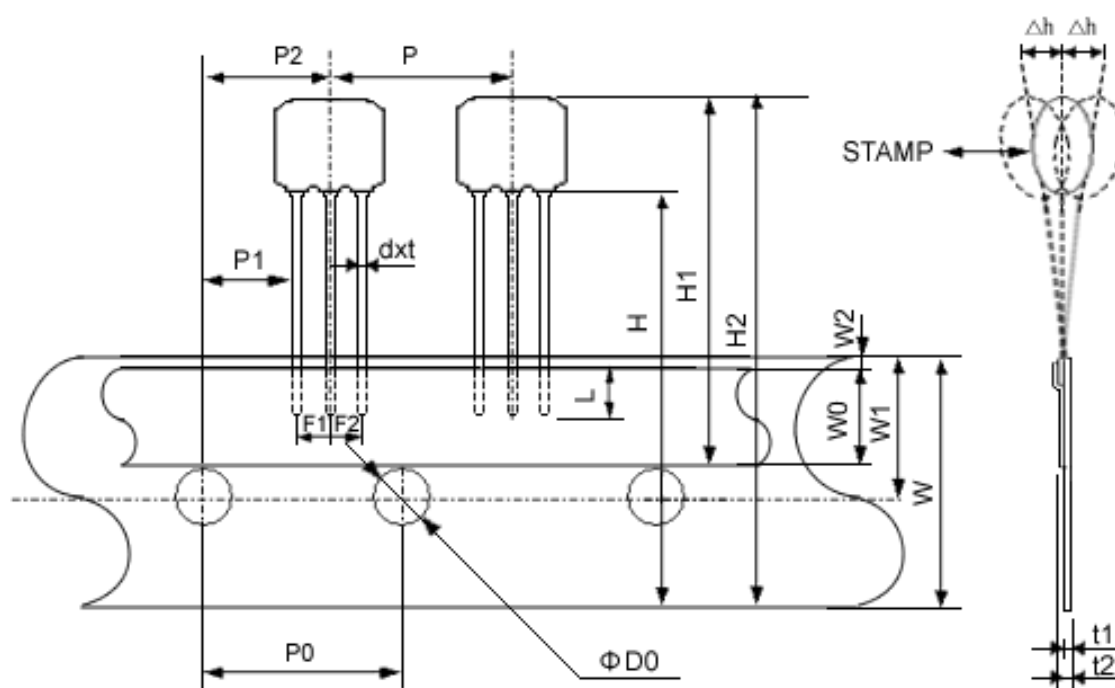
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ZTA Series TAPE and AMMO Dimensions



Mark	Size(mm)
P	12.7± 0.5
P0	12.7± 0.2
P1	3.85± 0.5
P2	6.35± 1.3*
F	0.5
dxt	0.5x0.3(±0.1)
W	18.0±0.5
W0	5.5±0.5
W1	9.0±0.5
W2	1.0max
H	18.0
H1	27.0max**
H2	36.0max**
L	3.0main
ØD0	4.0±0.2
t1	0.6±0.2
t2	1.5max
h	1.0max

ZTT Series TAPE and AMMO Dimensions



Mark	Size(mm)
P	12.7± 0.5
P0	12.7± 0.2
P1	3.85± 0.5
P2	6.35± 1.3*
F	0.5
dxt	0.5x0.3(±0.1)
W	18.0±0.5
W0	5.5±0.5
W1	9.0±0.5
W2	1.0max
H	18.0
H1	27.0max**
H2	36.0max**
L	3.0main
ØD0	4.0±0.2
t1	0.6±0.2
t2	1.5max
h	1.0max

Through Hole Ceramic Resonators

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ZTT Series

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Compatible to Murata CST : 1.80-50.00MHz

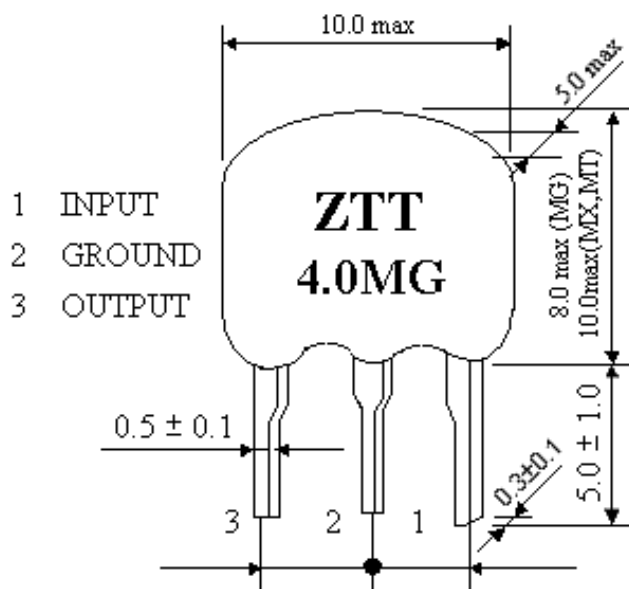
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ZTT (MHz) Series of ceramic resonators features a built-in load capacitance. This feature eliminates any need for external loading capacitors and reduces component count, increases reliability and reduces size. These unit are offered in the frequency 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

