



2 Pad and 3 Pad Ceramic Package, 5.5 mm x 10 mm



ZTT and ZTA Series

**Product Features:**

- Low Cost
- Compatible with Leadfree Processing

**Applications:**

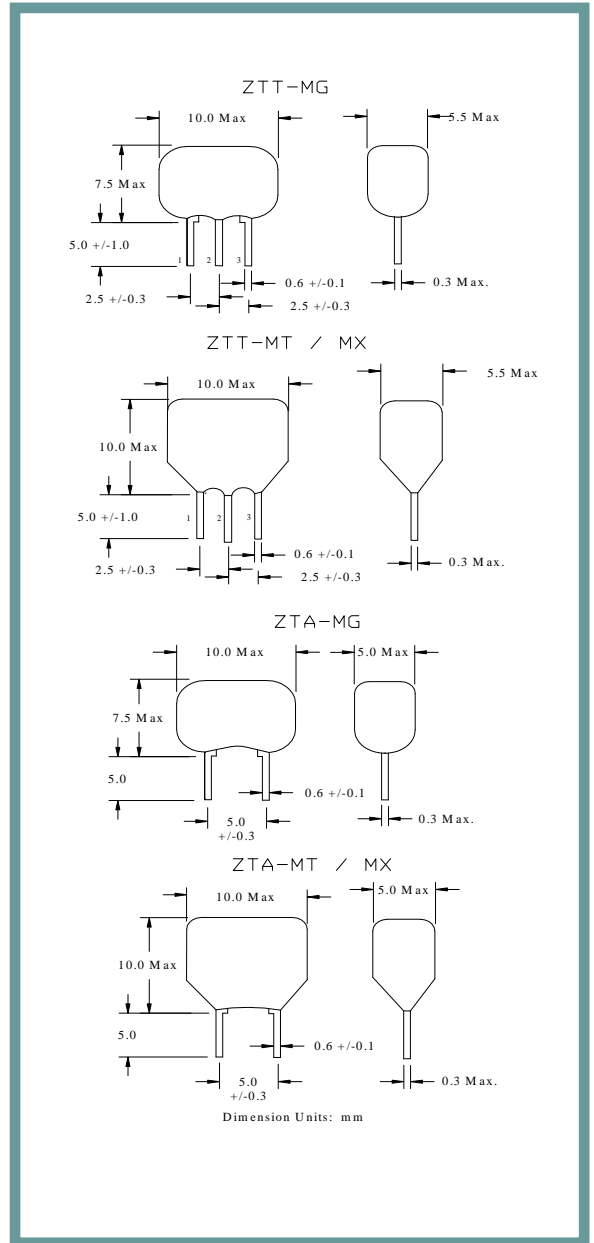
- Storage Media
- Home Appliance
- Microprocessors
- Office Automation

<b>Frequency</b>	1.8 MHz to 50 MHz
<b>ESR (Equivalent Series Resistance)</b>	See Table Below
<b>Frequency Tolerance @ 25° C</b>	±0.5%
<b>Frequency Stability over Temperature</b>	±0.3%
<b>Aging</b>	±0.3% Max. for 10 Years
<b>Temperature</b>	
<b>Operating</b>	-20° C to +80° C
<b>Storage</b>	-40° C to +85° C Standard

Part	Frequency (MHz)	ESR (Ω Max.)	C1 (pF)	C2 (pF)
ZTT-MG	1.8 to 4.9	80	30	30
ZTT-MT	5 to 12.9	50	22	22
ZTT-MX	13 to 19.9	40	22	22
ZTT-MX	20 to 25.9	40	15	15
ZTT-MX	26 to 50	40	5	5
ZTA-MG	1.8 to 4.9	80	30*	30*
ZTA-MT	5 to 12.9	50	22*	22*
ZTA-MX	13 to 19.9	40	22*	22*
ZTA-MX	20 to 25.9	40	15*	15*
ZTA-MX	26 to 50	40	5*	5*

\* Recommended external capacitance, not internal to the device.

The terminations of the ZTA and ZTT series ceramic resonator are Pb free. Pb may be contained in the ceramic resonator element of this device and is exempted via item 7 of the RoHS annex. This ceramic resonator series is considered RoHS compliant.



Part Number Guide	Sample Part Number:	ZTT - MX - 20.000	
Part Series	Package Code	Frequency	
ZTT - (internal capacitors)	MG	- 20.000 MHz	
ZTA -(must supply external capacitance for proper circuit operation)	MT		
	MX		



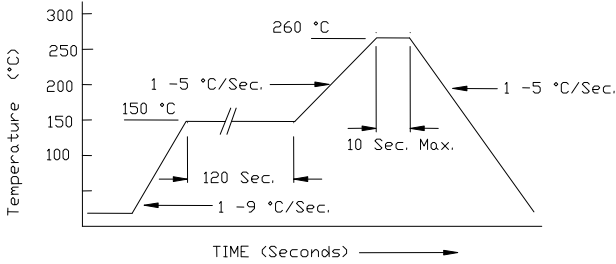
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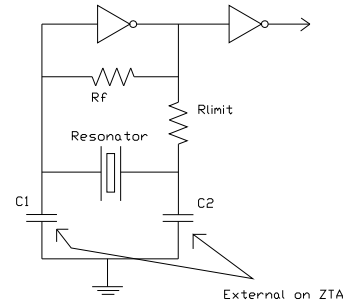
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**Pb Free Solder Reflow Profile:**

**Typical Circuit:**



\*Units are backward compatible with 240C reflow processes



**Package Information:**

MSL = 1  
Termination = e1 (Sn / Cu / Ag).

**Environmental Specifications**

Thermal Shock	MIL-STD-883, Method 1011, Condition A
Moisture Resistance	MIL-STD-883, Method 1004
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Mechanical Vibration	MIL-STD-883, Method 2007, Condition A
Resistance to Soldering Heat	J-STD-020C, Table 5-2 Pb-free devices (except 2 cycles max)
Hazardous Substance	Pb-Free / RoHS / Green Compliant
Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Terminal Strength	MIL-STD-883, Method 2004, Test Condition D
Gross Leak	MIL-STD-883, Method 1014, Condition C
Fine Leak	MIL-STD-883, Method 1014, Condition A2, R1=2x10-8 atm cc/s
Solvent Resistance	MIL-STD-202, Method 215

**Marking**

Line 1: Frequency, Date code (Packaging Only)