



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:

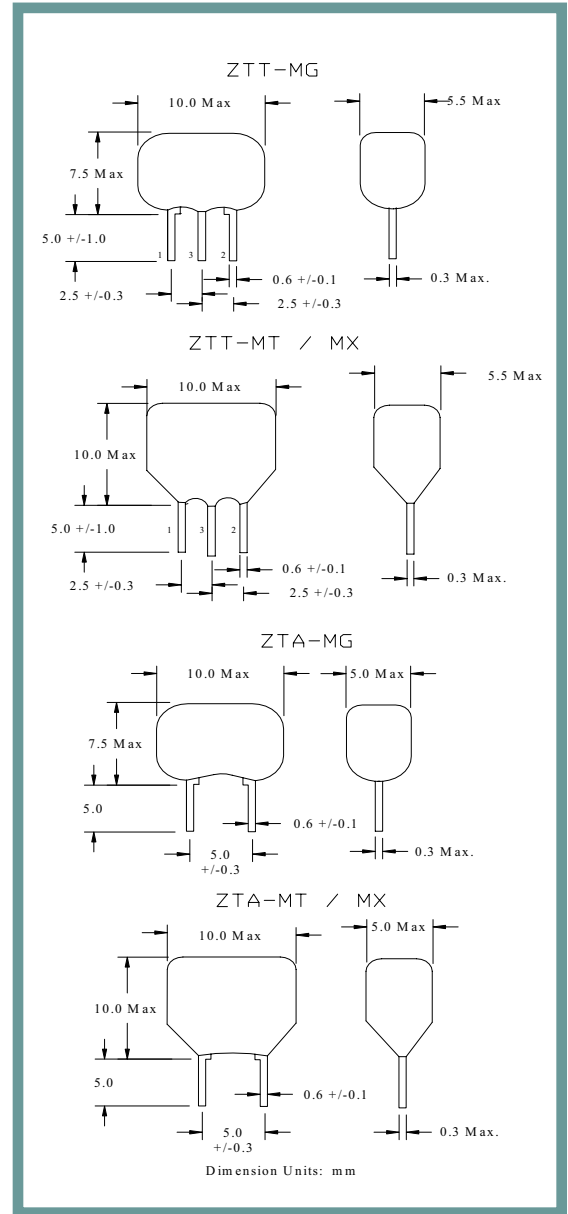
Storage Media
Home Appliance
Microprocessors
Office Automation

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

Part	Frequency (KHz)	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) ZTA -(must supply external capacitance for proper circuit operation)	MG MT MX	- 20.000 MHz	



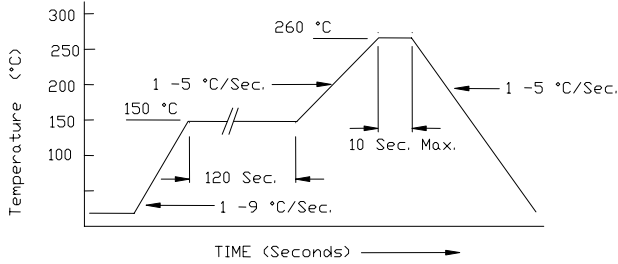
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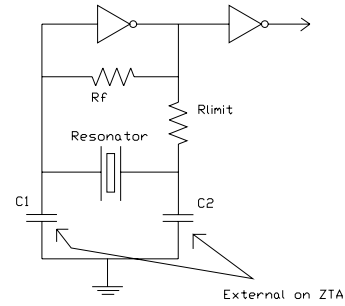
ZTT and ZTA Series

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)