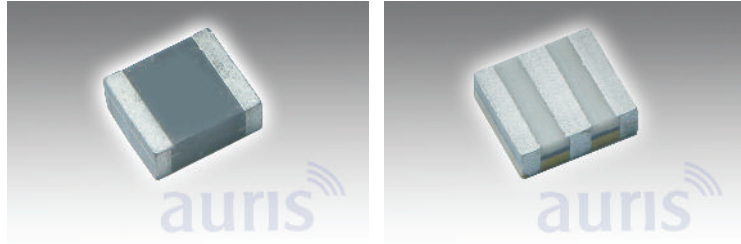


# Resonator SMD Ceramic, 2 & 3 Pin

## Features:



- SMD Ceramic Resonator
- Wide frequency range
- Low cost
- Small size
- Excelent clock generator
- Built-in capacitor (3 Pin)

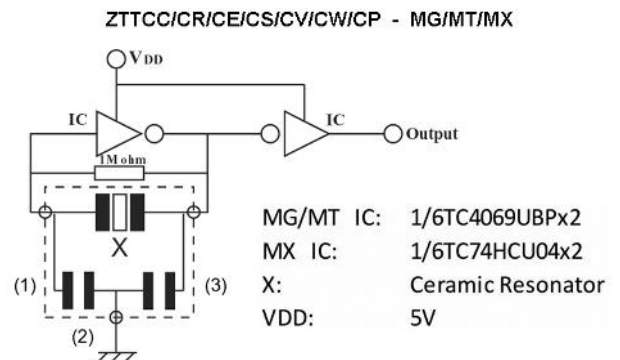
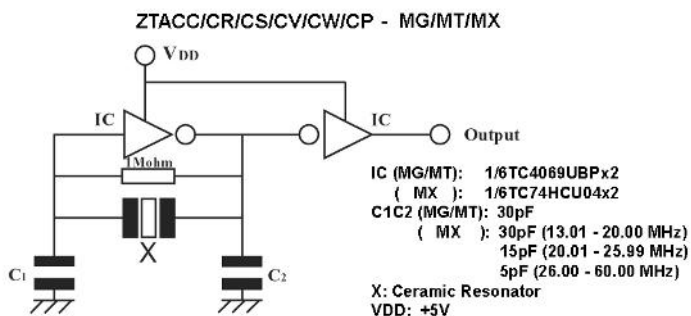


ZTA  
ZTT

## Main specification

part	build-in capacitor	frequency-range	frequency-accuracy	stability over temperature	operating temperature	aging over 10 years
ZTACC/MG	no	2.0 - 8.0 MHz	±0.5% @ 25°C	±0.3% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCC/MG	yes					
ZTACR/MG	no	4.0 - 8.0 MHz	±0.5% @ 25°C	±0.3% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCR/MG	yes					
ZTTCE/MG	yes	8.0 - 12.0 MHz	±0.5% @ 25°C	±0.3% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTACS/MT	no	6.0 - 13.0 MHz	±0.5% @ 25°C	±0.4% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCS/MT	yes					
ZTACV/MT	no	8.0 - 13.0 MHz	±0.5% @ 25°C	±0.4% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCV/MT	yes					
ZTACS/MX	no	13.01 - 60.0 MHz	±0.5% @ 25°C	±0.3% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCS/MX	yes					
ZTACV/MX	no	16.0 - 60.0 MHz	±0.5% @ 25°C	±0.3% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCV/MX	yes					
ZTACW/MX	no	20.0 - 60.0 MHz	±0.5% @ 25°C	±0.3% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCW/MX	yes					
ZTACP/MG	no	2.0 - 12.0 MHz	±0.5% @ 25°C	±0.3% over -20°C ~ +80°C	-20°C ~ +80°C	±0.3%
ZTTCP/MG	yes					

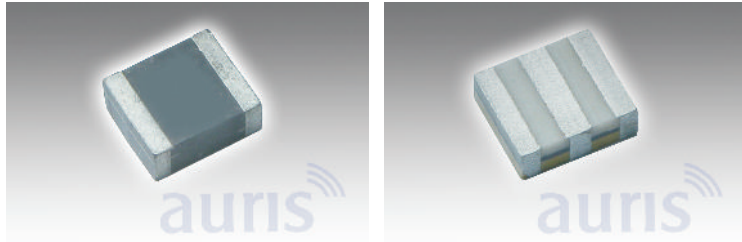
## Test circuit



**Features:**

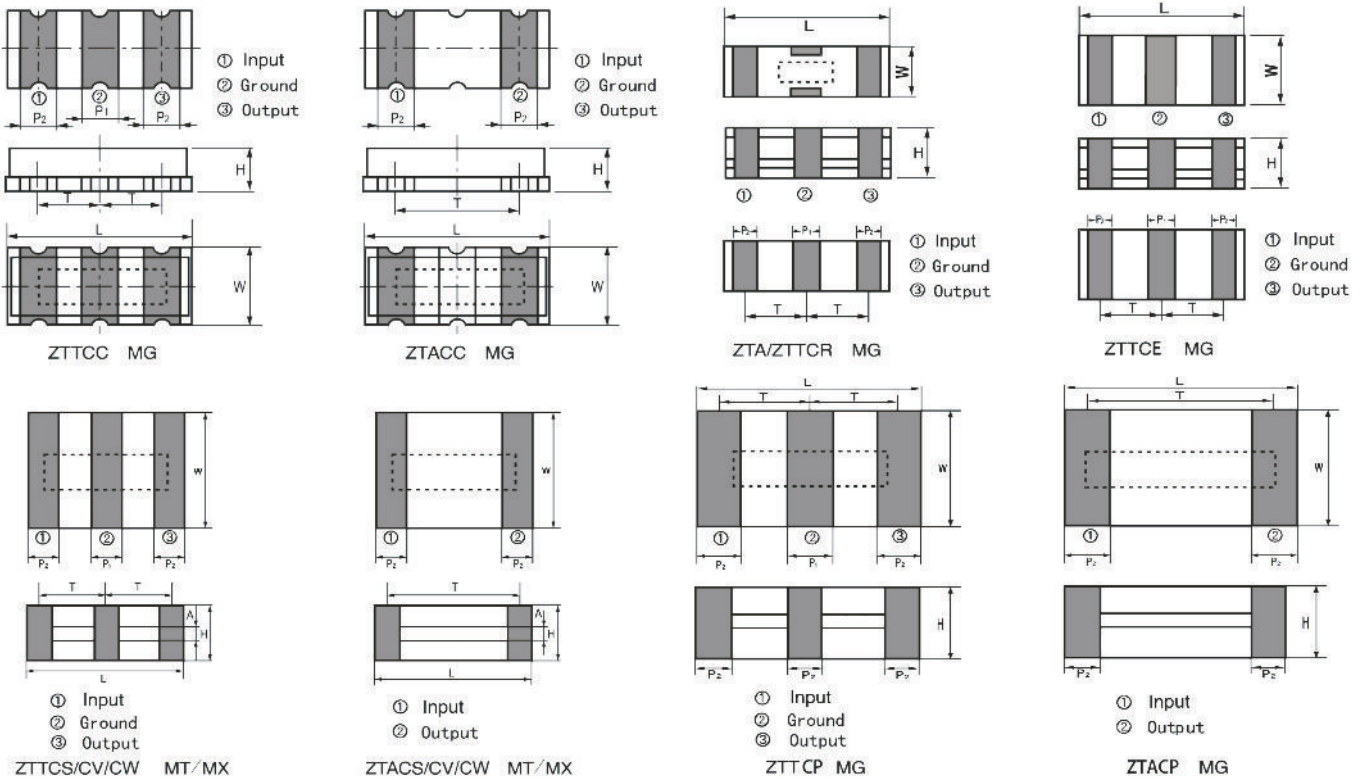


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**ZTA  
ZTT**

**Dimensions**



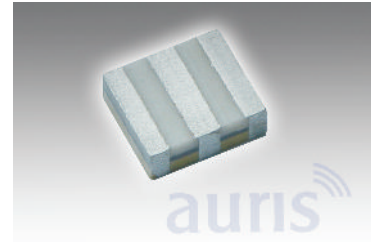
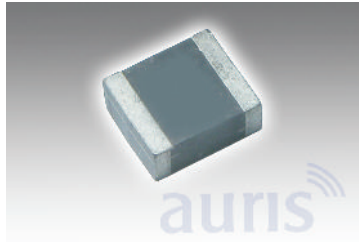
part	L	W	H	P1	P2	T
ZTACC/MG	7.4±0.2	3.4±0.2	1.8±0.2	1.2±0.2	1.2±0.2	5.0±0.2
ZTCC/MG						2.5±0.2
ZTACR/MG	4.5±0.2	2.0±0.2	1.2max	0.8±0.2	0.8±0.2	1.5±0.2
ZTTCR/MG						
ZTTCE/MG	3.2±0.2	1.3±0.2	1.0max	0.4±0.2	0.4±0.2	1.2±0.2
ZTACS/MT-MX	4.7±0.2	4.1±0.2	(1.2+A)±0.2	1.0±0.2	0.8±0.2	3.9±0.2
ZTTCV/MT-MX						1.95±0.2
ZTACV/MT-MX	3.7±0.2	3.1±0.2	(1.0+A)±0.2	0.9±0.2	0.7±0.2	3.0±0.2
ZTTCV/MT-MX						1.5±0.2
ZTACW/MX	2.5±0.2	2.0±0.2	1.2max	0.5±0.2	0.4±0.2	2.0±0.2
ZTTCW/MX						1.0±0.2
ZTACP/MG	6.0±0.2	3.0±0.2	1.8±0.2	1.2±0.2	1.2±0.2	5.0±0.2
ZTTCV/MG			1.5±0.2			2.5±0.2
ZTTCV/MG			1.7±0.2			

**Please note:** "A" stands for thickness of the ceramic element, which varies with the frequency. The range of the thickness difference is 0.1 to 0.7mm. No middle pad for ZTA series!

## Features:

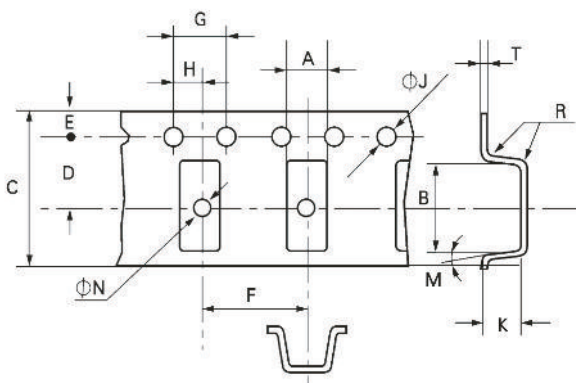
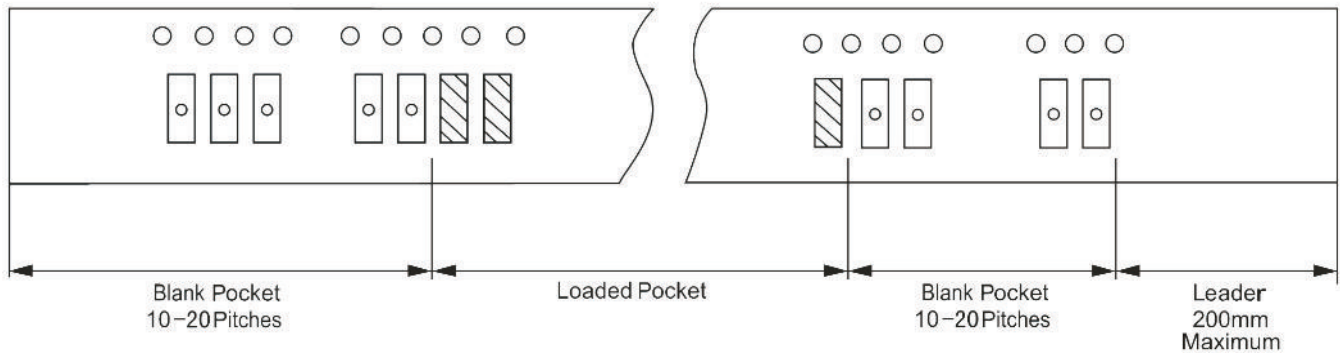


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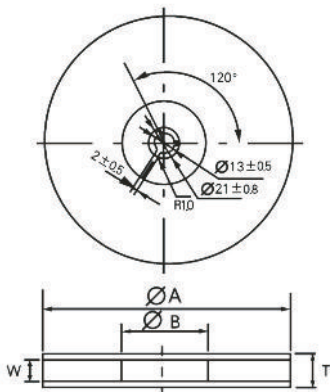


ZTA  
ZTT

## Tape dimension



size (mm)	A	B	C	D	E	F	G	H	Ø J	Ø N	M	R	K	T
tolerance	±0.2	±0.2	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	max.	max.	±0.2	±0.1
part														
ZTACC MG	3.8	7.8	16.0	7.5	1.75	8.0	4.0	2.0	1.5	1.6	10°	0.3	2.1	0.3
ZTTCC MG														
ZTACR/MG	2.2	4.7	12.0	5.5	1.75	4.0	4.0	2.0	1.6	1.6	3°	0.3	1.3	0.3
ZTTCR/MG														
ZTTCE/MG	1.5	3.4	8.0	3.5	1.75	4.0	4.0	2.0	1.6	1.1	3°	0.3	1.3	0.25
ZTACS/MT-MX	5.0	4.4	12.0	5.5	1.75	8.0	4.0	2.0	1.5	1.6	10°	0.3	1.8	0.3
ZTTCS/MT-MX														
ZTACV/MT-MX	3.4	4.0	12.0	5.5	1.75	8.0	4.0	2.0	1.5	1.6	10°	0.3	1.3	0.3
ZTTCV/MT-MX														
ZTACW/MX	2.3	2.8	8.0	3.5	1.75	4.0	4.0	2.0	1.6	1.1	3°	0.3	1.3	0.25
ZTTCW/MX														
ZTACP MG	3.4	6.4	16.0	7.5	1.75	8.0	4.0	2.0	1.5	1.6	10°	0.3	1.8	0.3
ZTTCP MG														

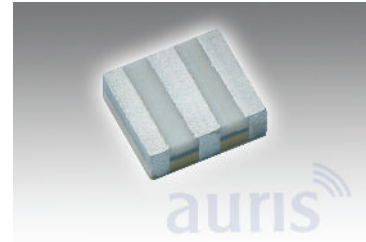
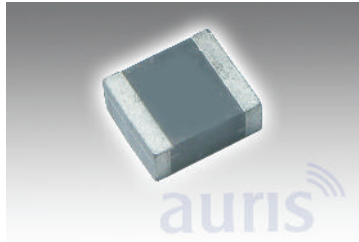


Ø A	Ø B	W	T	Pieces per reel	Carriertape size
179 ± 2	60 typ	8.4 min	12.4 max	3000 typ	8
179 ± 2	60 typ	12.4 min	19.4 max	3000 typ	12
179 ± 2	60 typ	12.4 min	19.4 max	1000 typ	12
179 ± 2	60 typ	16.4 min	22.4 max	1000 typ	16
330 ± 3	80 min	12.4 min	19.4 max	4000 typ	12
330 ± 3	80 min	16.4 min	22.4 max	4000 typ	16

**Features:**

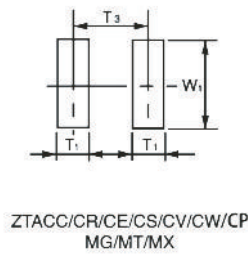
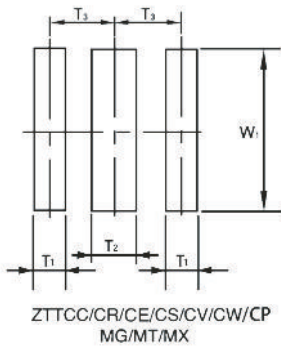


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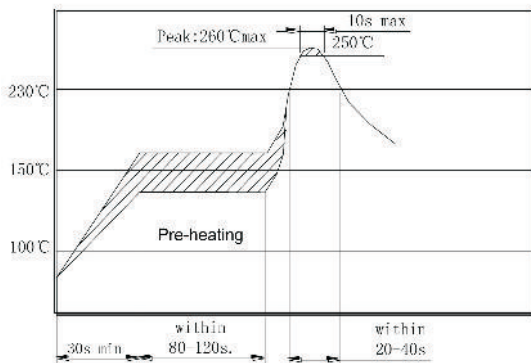
**ZTA  
ZTT**

**Solder pattern**



size (mm)	T1	T2	T3	W1
<b>part</b>				
ZTACC/CP MG	1.5±0.3	1.7±0.3	5.0±0.3	4.0±0.3
ZTTCC/CP MG			2.5±0.3	
ZTACR/MG	0.8±0.2	0.8±0.2	3.0±0.2	2.6±0.2
ZTTCR/MG			1.5±0.2	
ZTACE/MG	0.4±0.2	0.4±0.2	1.2±0.2	2.0±0.2
ZTTCE/MG				
ZTACS/MT-MX	0.8±0.2	1.3±0.2	3.9±0.2	5.1±0.2
ZTTCS/MT-MX			1.95±0.2	
ZTACV/MT-MX	0.7±0.2	1.0±0.2	3.0±0.2	4.1±0.2
ZTTCV/MT-MX			1.5±0.2	
ZTACW/MX	0.5±0.2	0.5±0.2	2.0±0.2	2.6±0.2
ZTTCW/MX			1.0±0.2	

**Soldering profile**



**Order key**

R	- 6.000000M	- ZTACC/MG	- 0.5	- 0.3	- H	- 30/30
Part	Frequency	Type/Package	Frequency tolerance	Temperature tolerance	Temperature range	Load capacitance
R=Resonator	M=MHz	ZTACC/MG ZTTCC/MG ZTACR/MG ZTTCR/MG ZTTCE/MG ZTACS/MT ZTTCS/MT ZTACV/MT ZTTCV/MT ZTACS/MX ZTTCS/MX ZTACV/MX ZTTCV/MX ZTACW/MX ZTTCW/MX ZTACP/MG ZTTCP/MG	±% (25°C)	±% (Temp. range)	H=-20°C ~ +80°C	pF C1/C2