

# Ceramic Resonator (MHz)

Product Name	Part Number	Package Type	Minimum Quantity <sup>1</sup> (Pieces)	
			Bulk	Tape
SMD Ceramic Resonator	ZTAC, ZTACS, ZTACV	SMD Type	-	1,000
Ceramic Resonator	ZTA	Lead Type	500	1,500
SMD Ceramic Resonator	ZTTC, ZTTCS, ZTTCV	SMD Type	-	1,000
Ceramic Resonator	ZTT	Lead Type	500	1,500

<sup>1</sup>The quantity of each delivery / order must be an integral multiple of the "Minimum Quantity"

## ● Dimension

### ZTAC / ZTTC

**Note:**  
Center terminal is omitted for ZTAC ceramic resonator.

**Tolerance: ±0.3mm**  
**Unit: mm**

### ZTACS / ZTACV / ZTTCS / ZTTCV

**Note:**  
Center terminal is omitted for ZTACS / ZTACV ceramic resonator.

**Tolerance: ±0.3mm**  
**Unit: mm**

Dimension	Part no.	
	ZTACS ZTTCS	ZTACV ZTTCV
L	4.7±0.2	3.7±0.2
W	4.1±0.2	3.01±0.2
H	1.6±0.3	1.2±0.3
P <sub>1</sub>	1.0±0.4	0.9±0.3
P <sub>2</sub>	0.8±0.4	0.7±0.3
P <sub>3</sub>	1.85±0.2	1.5±0.2

### ZTA (MG / MT / MX)

**Tolerance: ±0.3mm**  
**Unit: mm**

### ZTT (MGW / MT / MX)

**Tolerance: ±0.3mm**  
**Unit: mm**

## ● Electrical Characteristics of ZTAC / ZTTC

Part Number	Frequency Range (MHz)	Frequency Tolerance (%)	Resonant Resistance (Ω)	Temperature Characteristics of Oscillation Frequency (%)	Aging Rate (%)
ZTAC_MG / ZTTC_MGW	2.00 ~ 2.99	±0.3, ±0.5	100	±0.3	±0.5
	3.00 ~ 3.49	±0.3, ±0.5	50	±0.3	±0.5
	3.50 ~ 7.99	±0.3, ±0.5	30	±0.3	±0.5

<sup>1</sup> For other frequencies or specifications, please consult with our sales representatives for details.  
<sup>2</sup> For ZTTC only: C<sub>1</sub>=C<sub>2</sub>=22pF±20%. Other internal capacitance values are also available: 15pF, 20pF, 30pF and 33pF.  
<sup>3</sup> Withstanding voltage: DC100V (5 seconds max.)  
<sup>4</sup> Insulation resistance: 5x10<sup>8</sup>Ω min. (DC10V)

## ● Electrical Characteristics of ZTACS / ZTACV / ZTTCS / ZTTCV

Part Number	Frequency Range (MHz)	Frequency Tolerance (%)	Resonant Resistance (Ω)	Temperature Characteristics of Oscillation Frequency (%)	Aging Rate (%)
ZTACS_MT / ZTTCS_MT	8.00 ~ 13.00	±0.5	25	±0.3	±0.5
ZTACS_MX / ZTTCS_MX	13.01 ~ 50.00	±0.5	40	±0.3	±0.5
ZTACV_MT / ZTTCV_MT	8.00 ~ 13.00	±0.5	40	±0.3	±0.5
ZTACV_MX, / ZTTCV_MX	13.01 ~ 50.00	±0.5	40	±0.3	±0.5

<sup>1</sup> For other frequencies or specifications, please consult with our sales representatives for details.  
<sup>2</sup> For ZTTCS only: C<sub>1</sub>=C<sub>2</sub>= 30pF±0.1pF (8.00~13.00MHz); 15pF±0.1pF (13.01~40.00MHz); 5pF±0.1pF (40.01~50.00MHz).  
<sup>3</sup> For ZTTCV only: C<sub>1</sub>=C<sub>2</sub>= 15pF±0.1pF (13.01~40.00MHz); 5pF±0.1pF (40.01~50.00MHz).  
<sup>4</sup> Withstanding voltage: DC100V (5 seconds max.)  
<sup>5</sup> Insulation resistance: 5x10<sup>8</sup>Ω min. (DC10V)

## ● Electrical Characteristics of ZTA / ZTT

Part Number	Frequency Range (MHz)	Frequency Tolerance (%)	Resonant Resistance (Ω)	Temperature Characteristics of Oscillation Frequency (%)	Aging Rate (%)
ZTA_MG, ZTT_MG	2.00 ~ 2.99	±0.3, ±0.5	80	±0.3	±0.5
	3.00 ~ 3.49	±0.3, ±0.5	50	±0.3	±0.5
	3.50 ~ 8.00	±0.3, ±0.5	30	±0.3	±0.5
ZTA_MT, ZTT_MT	5.00 ~ 6.99	±0.5	30	±0.3	±0.5
	7.00 ~ 13.00	±0.5	25	±0.3	±0.5
ZTA_MX, ZTT_MX	13.01 ~ 50.00	±0.5	30	±0.3	±0.5

<sup>1</sup> For other frequencies or specifications, please consult with our sales representatives for details.  
<sup>2</sup> For ZTT\_MGW only: C<sub>1</sub>=C<sub>2</sub>= 22pF±20% or 30pF±20%  
<sup>3</sup> For ZTT\_MT / ZTT\_MX: C<sub>1</sub>=C<sub>2</sub>= 30pF±0.1pF (8.00~20.00MHz); 15pF±0.1pF (20.01~25.99MHz); 5pF±0.1pF (26.00~50.00MHz).  
<sup>4</sup> Withstanding voltage: DC100V (5 seconds max.)