

# SMD CERAMIC RESONATORS

ZTACC/CS/CV series without built-in capacitors

ZTTCC/CS/CV series with built-in capacitors

U.S.Electronics Inc.

Ph: (314)423 7550

Fax: (314) 423 0585

## FEATURES

- High temperature withstanding ceramic case,available in wide frequency range
- Rectangular shape allows easy pick and placement
- Small & low profile less than 2.0mm height max
- Reflow Solderable



## TECHNICAL CHARACTERISTICS:

ZTACC/CS/CV series without built-in capacitors

Part Number	Freq. Range (MHz)	Freq. Accuracy at 25°C (%)	Stability In Temp. -20°C~+80°C	Aging For Ten Yrs(%)	Equivalent Murata Series
ZTACC MG	2.00 ~ 6.99	± 0.5	± 0.3%	± 0.3	CSACC MG
ZTACS/CV MT	7.00 ~13.00	± 0.5	± 0.4%	± 0.3	CSACV MT
ZTACS/CV MX	13.01~50.00	± 0.5	± 0.3%	± 0.3	CSACV MX

ZTTCC/CS/CV series with built-in capacitors

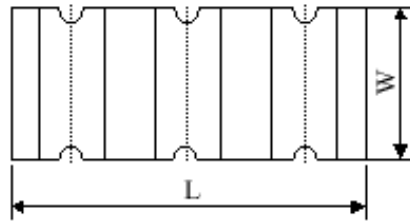
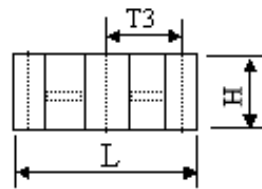
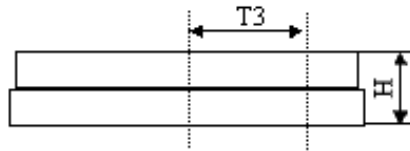
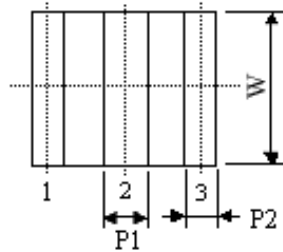
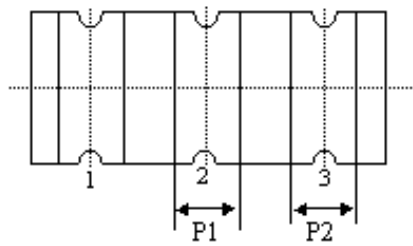
Part Number	Freq. Range (MHz)	Freq. Accuracy at 25°C (%)	Stability In Temp. -20°C~ +80°C	Aging For Ten Yrs(%)	Equivalent Murata Series
ZTTCC MG	2.00 ~ 6.99	± 0.5	± 0.3%	± 0.3	CSTCC MG
ZTTCS/CV MT	7.00~13.00	± 0.5	± 0.4%	± 0.3	CSTCV MT
ZTTCS/CV MX	13.01~50.00	± 0.5	± 0.3%	± 0.3	CSTCV MX

**DIMENSIONS:**( No middle terminal for ZTACC series.)

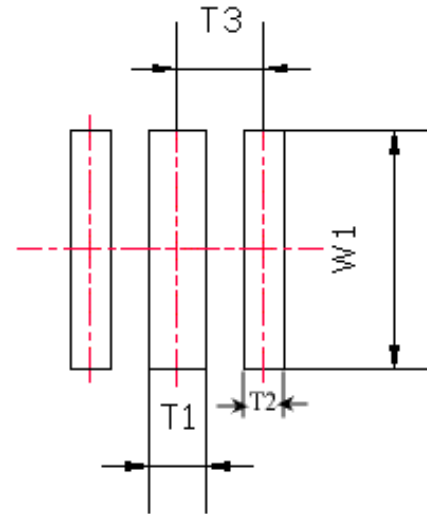
ZTCC MG/ZTACC MG

ZTCS/CV MT/MX / ZTACS/CV MT/MX

LAND PATTERN:



1. Input
2. Ground
3. Output



**ZTACC/CV/CS DIMENSIONS (Unit: mm )**

Part Number	Dimensions							
	L	W	H	P2	T1	T2	T3	W1
ZTACC MG	7.4 ± 0.3	3.4 ± 0.3	1.8 ± 0.3	1.2 ± 0.3	1.5 ± 0.3	1.3 ± 0.3	2.5 ± 0.3	4.0 ± 0.3
ZTACS MT/MX	4.7 ± 0.2	4.1 ± 0.2	1.6 ± 0.3	0.8 ± 0.4	1.3 ± 0.2	0.8 ± 0.2	1.95 ± 0.2	5.1 ± 0.2
ZTACV MT/MX	3.7 ± 0.2	3.1 ± 0.2	1.2 ± 0.3	0.7 ± 0.3	1.0 ± 0.2	0.7 ± 0.2	1.5 ± 0.2	4.1 ± 0.2

**ZTCC/CV/CS DIMENSIONS (Unit: mm )**

Part Number	Dimensions								
	L	W	H	P1	P2	T1	T2	T3	W1
ZTCC MG	7.4 ± 0.3	3.4 ± 0.3	1.8 ± 0.3	1.2 ± 0.3	1.2 ± 0.3	1.5 ± 0.3	1.3 ± 0.3	2.5 ± 0.3	4.0 ± 0.3
ZTCS MT/MX	4.7 ± 0.2	4.1 ± 0.2	1.6 ± 0.3	1.0 ± 0.4	0.8 ± 0.4	1.3 ± 0.2	0.8 ± 0.2	1.95 ± 0.2	5.1 ± 0.2
ZTCCV MT/MX	3.7 ± 0.2	3.1 ± 0.2	1.2 ± 0.3	0.9 ± 0.3	0.7 ± 0.3	1.0 ± 0.2	0.7 ± 0.2	1.5 ± 0.2	4.1 ± 0.2

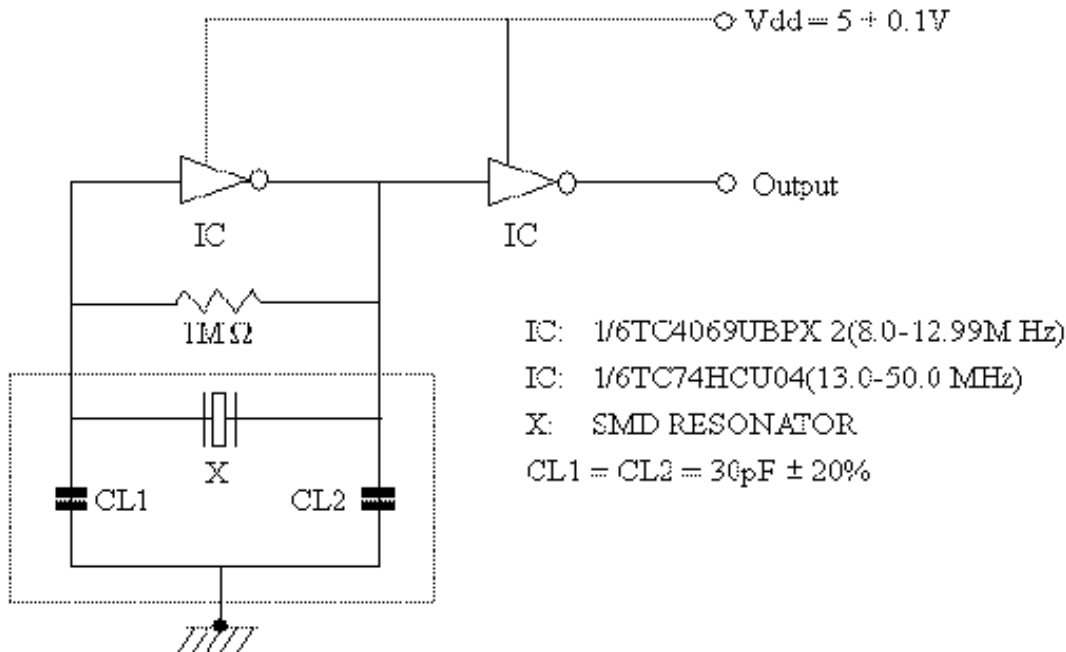
**ZTACC/CS/CV Series:**

Part Number	Frequency	Frequency Accuracy	Stability in Temperature	Aging for Ten Years
	(MHz)	25 °C	(-20 ~ +80 °C)	
ZTACC2.00MG	2.00	±0.5%	±0.3%	±0.3%
ZTACC3.58MG	3.58	±0.5%	±0.3%	±0.3%
ZTACC4.00MG	4.00	±0.5%	±0.3%	±0.3%
ZTACC4.19MG	4.19	±0.5%	±0.3%	±0.3%
ZTACC6.00MT	6.00	±0.5%	±0.3%	±0.3%
ZTACV8.00MT	8.00	±0.5%	±0.4%	±0.3%
ZTACS8.00MT	8.00	±0.5%	±0.4%	±0.3%
ZTACV10.00MT	10.00	±0.5%	±0.4%	±0.3%
ZTACS10.00MT	10.00	±0.5%	±0.4%	±0.3%
ZTACV12.00MT	12.00	±0.5%	±0.4%	±0.3%
ZTACS12.00MT	12.00	±0.5%	±0.4%	±0.3%
ZTACV16.00MX	16.00	±0.5%	±0.4%	±0.3%
ZTACS16.00MX	16.00	±0.5%	±0.4%	±0.3%
ZTACV20.00MX	20.00	±0.5%	±0.3%	±0.3%
ZTACS20.00MX	20.00	±0.5%	±0.3%	±0.3%

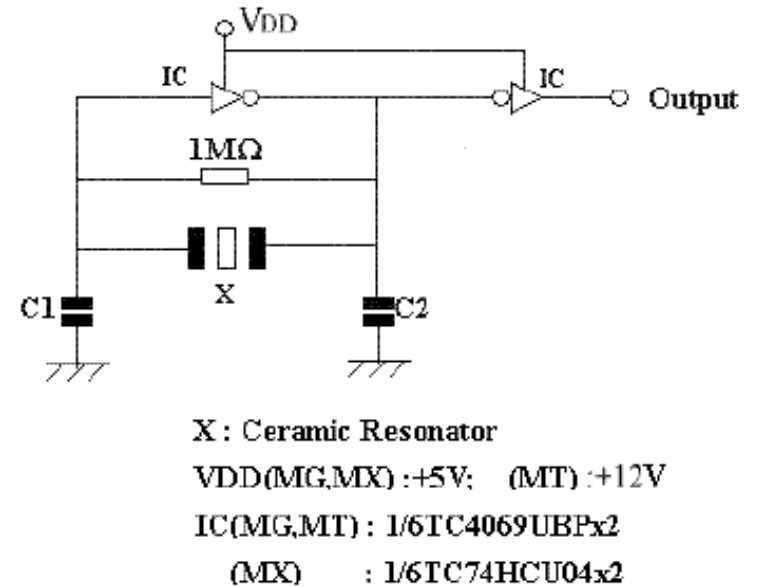
**ZTTCC/CS/CV Series:**

Part Number	Frequency	Frequency Accuracy	Stability in Temperature	Aging for Ten Years
	(MHz)	25 °C	(-20 ~ +80 °C)	
ZTTCC2.00MG	2.00	±0.5%	±0.3%	±0.3%
ZTTCC3.58MG	3.58	±0.5%	±0.3%	±0.3%
ZTTCC4.00MG	4.00	±0.5%	±0.3%	±0.3%
ZTTCC4.19MG	4.19	±0.5%	±0.3%	±0.3%
ZTTCC6.00MT	6.00	±0.5%	±0.3%	±0.3%
ZTTCV8.00MT	8.00	±0.5%	±0.4%	±0.3%
ZTTCS8.00MT	8.00	±0.5%	±0.4%	±0.3%
ZTTCV10.00MT	10.00	±0.5%	±0.4%	±0.3%
ZTTCS10.00MT	10.00	±0.5%	±0.4%	±0.3%
ZTTCV12.00MT	12.00	±0.5%	±0.4%	±0.3%
ZTTCS12.00MT	12.00	±0.5%	±0.4%	±0.3%
ZTTCV16.00MX	16.00	±0.5%	±0.4%	±0.3%
ZTTCS16.00MX	16.00	±0.5%	±0.4%	±0.3%
ZTTCV20.00MX	20.00	±0.5%	±0.3%	±0.3%
ZTTCS20.00MX	20.00	±0.5%	±0.3%	±0.3%

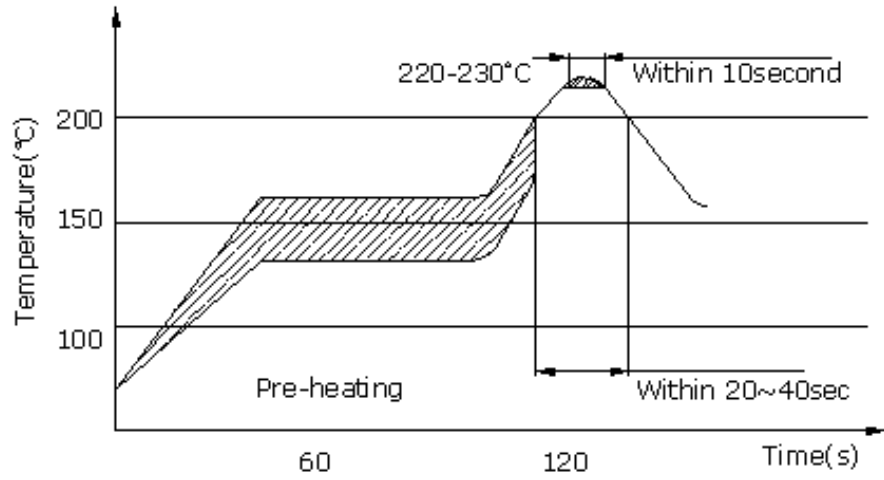
**ZTTCC/CS/CV TEST CIRCUIT**



**ZTACC/CS/CV TEST CIRCUIT**



**RECOMMENDED REFLOW SOLDERING:** [Tape & Reel Dimensions](#)(click here)



# SMD CERAMIC RESONATORS

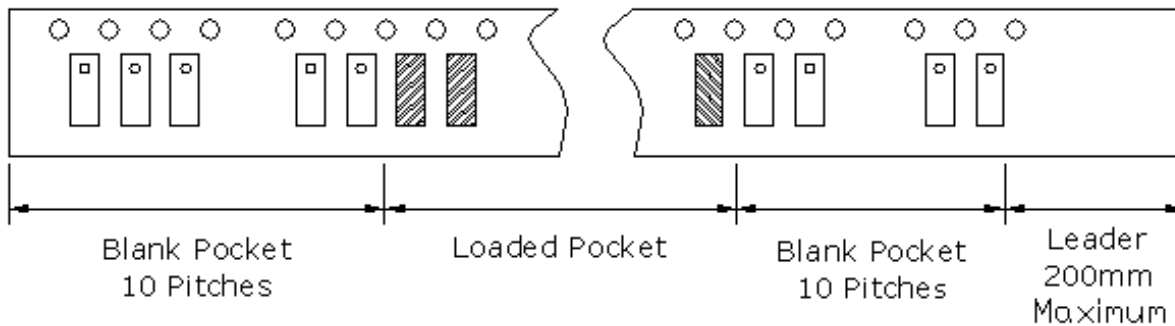
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## FEATURES

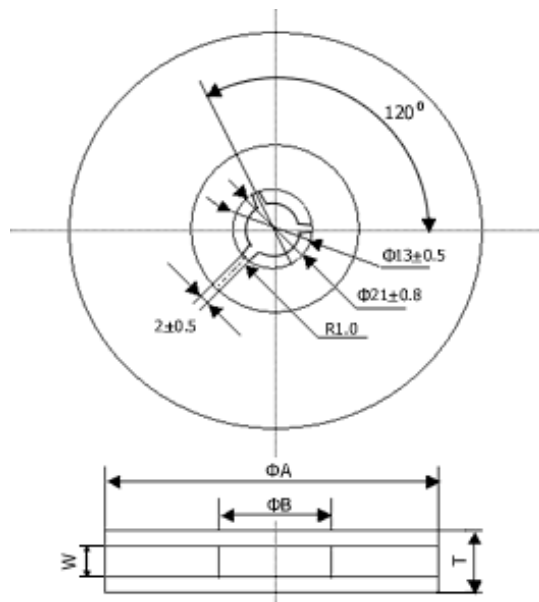
- Highly reliability, high temperature withstanding ceramic case,available in wide frequency range
- Rectangular shape allows easy pick and placement
- Small & low profile less than 2.0mm height max
- Reflow Solderable



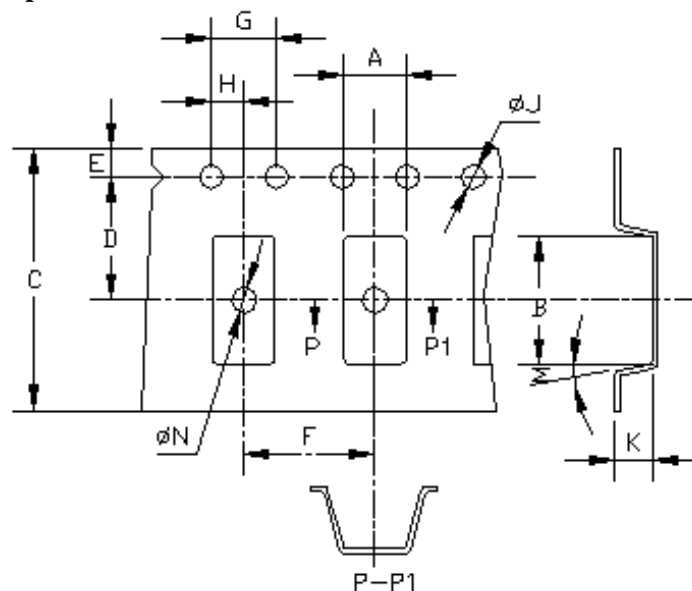
## Packaging Method:



## Reel



## Tape



**Reel Dimensions(mm)**

A	B	W	T	Pieces per reel	Carrier tape size
179±2	60 typ	12.4 min	19.4max	1000typ.	12
179±2	60 typ	16.4 min	22.4max	1000typ.	16
330±3	80 min	12.4 min	19.4max	4000typ.	12
330±3	80 min	16.4 min	22.4max	4000typ.	16

**Tape Dimensions(mm)**

Code / Tolerance	A±0.2	B±0.2	C±0.3	D±0.1	E±0.1	F±0.1	G±0.1	H±0.1	J±0.1	N±0.1	Mmax	Rmax	K±0.2	T±0.1
Series Number														
ZTACC MG ZTTCC MG	3.8	7.8	16.0	7.5									2.1	
ZTACS MT/MX ZTTCS 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
ZTACV MT/MX ZTTCV MT/MX	3.4	4.0	12.0	5.5									1.3	