

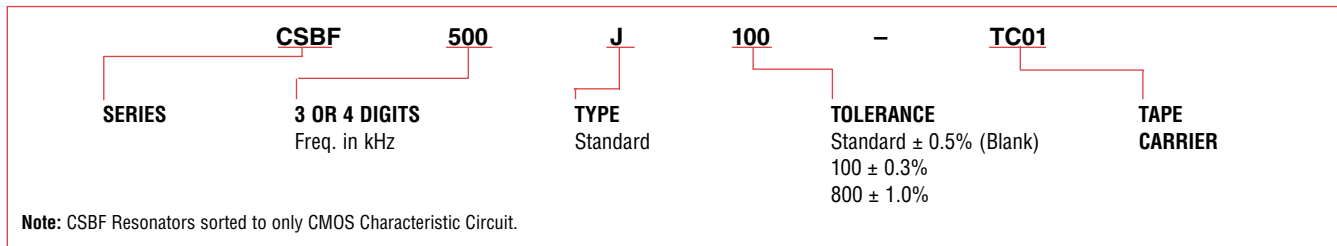
## CSBF/CSAC, CSACV/CSACW Series



Increasing demand for size reduction and the economies realized through Surface Mount Technology, have led Murata Electronics to develop the CSBF and CSAC ceramic resonators. The CSBF is a miniaturized leaded unit offering size compatibility with most commonly available surface mount devices, while the CSKCC and the CSAC are true surface mountable component.

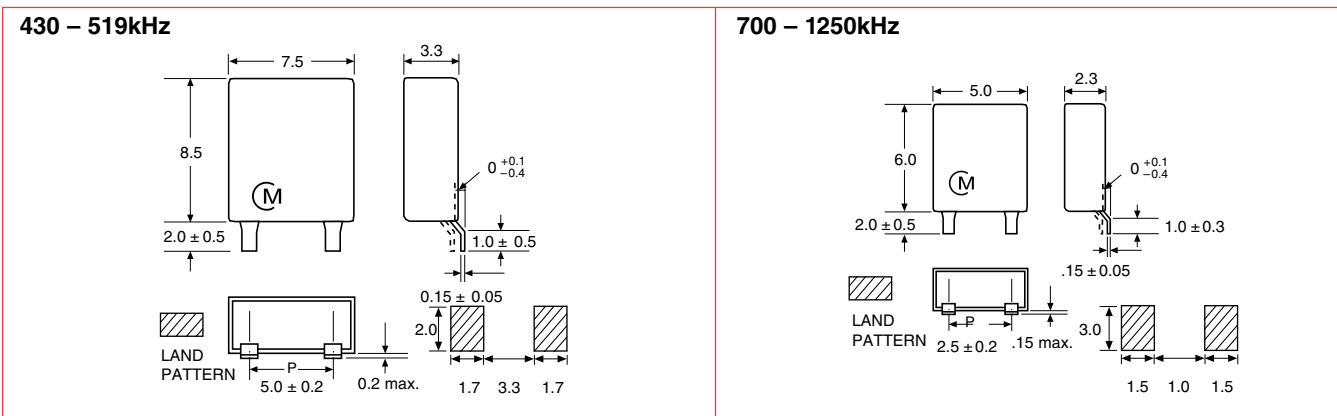
Both devices are available in tape and reel packaging compatible with most auto-placement equipment.

### PART NUMBERING SYSTEM



### DIMENSIONS: MM

#### CSBF SERIES – 430 to 1250kHz

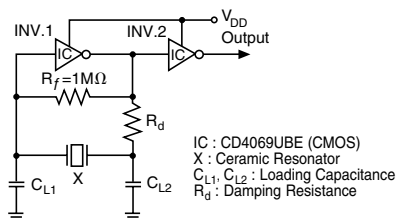


### SPECIFICATIONS

Frequency Range	430 – 519kHz	700 – 1250kHz
Standard Initial Frequency Tolerance (25°C)	±0.5%	±0.5%
Temperature Stability (-20°C to +80°C)*	±0.3%	±0.3%

\*Unavailable for certain frequency ranges.

### STANDARD TEST CIRCUIT



**Note:** Also available in automotive temp. grade.

CERAMIC RESONATORS

## CSAC, CSACV/CSACW Series

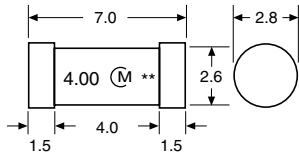
CSA series is being de-emphasized in favor of the GST series.

### CSAC/CSACV/CSACW SERIES – 1.80 to 60.00MHz

SPECIFICATIONS	CSAC□MGC/MGCM-TC	CSACV□MTJ-TC20	CSACV□MXJ040-TC20	CSACW□MX-T
Frequency Range	1.80 to 6.00MHz	6.01 to 13.0MHz	13.50 to 20.00MHz	20.01 to 70.00
Standard Initial Frequency Tolerance	±0.5%	±0.5%	±0.5%	±0.5%
Storage Temperature Range	-40°C to +85°C			-55°C to +85°C
Temperature Tol. (-20°C to +80°C)	±0.3%	±0.5%	±0.3%	±0.2%
Withstand Voltage	50 VDC max.			100 VDC max.

#### DIMENSIONS: mm

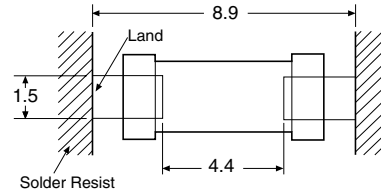
##### CSAC□MGC-TC



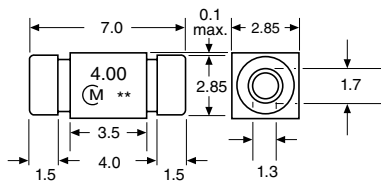
\*\* : EIA-J Date Code

#### LAND PATTERN: mm

##### CSAC□MGC-TC

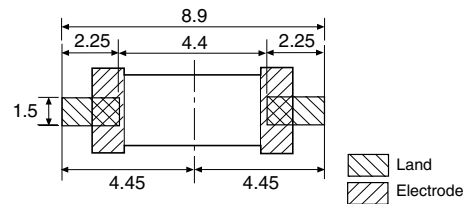


##### CSAC□MGCM-TC

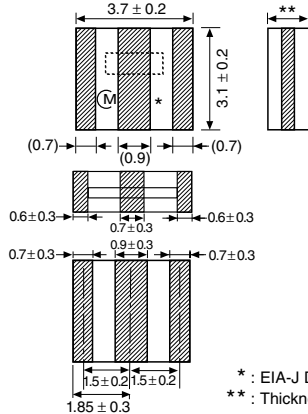


\*\* : EIA-J Date Code

##### CSAC□MGCM-TC

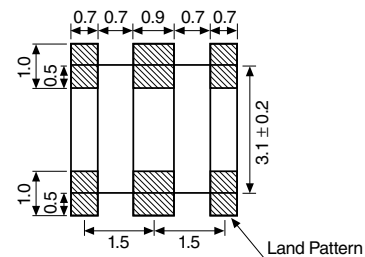


##### CSACV□MTJ/MXJ-TC20

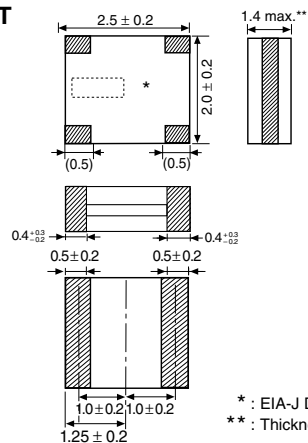


\* : EIA-J Date Code  
\*\* : Thickness varies by frequency

##### CSACV□MTJ/MXJ-TC20

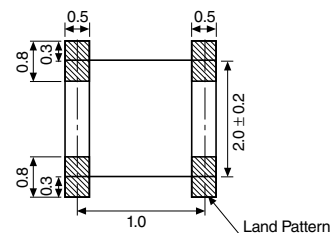


##### CSACW□MX-T



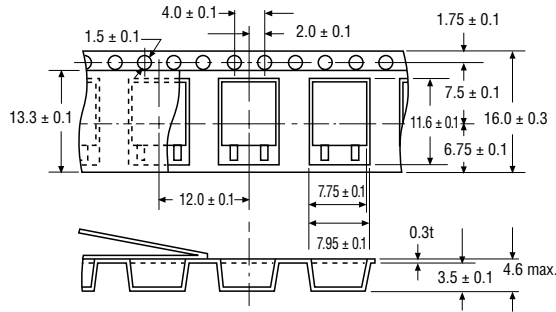
\* : EIA-J Date Code  
\*\* : Thickness varies by frequency

##### CSACW□MX-T

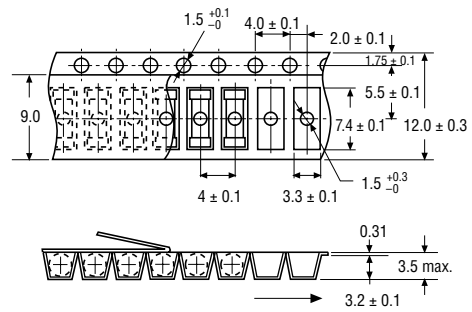


#### PLASTIC TAPE DIMENSIONS: mm

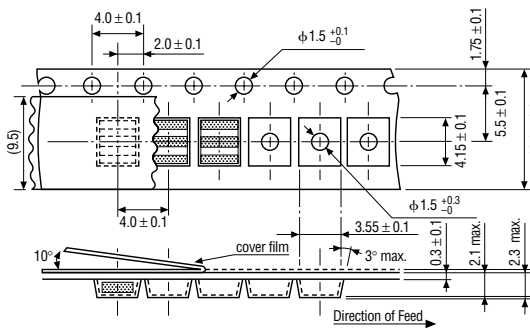
**CSBF 430 – 519kHz**



**CSAC MGC/M**



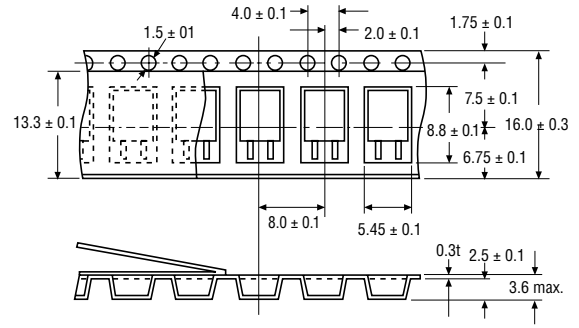
**CSACV □ MTJ/MXJ**



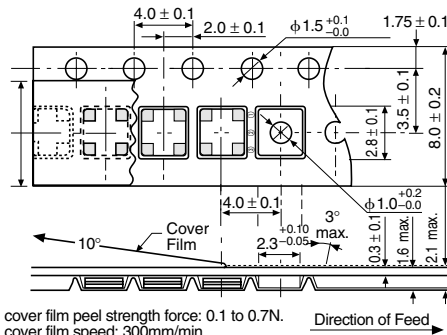
The cover film peel strength force: 20 ~ 70gr.

The cover film peel speed: 300mm/min.

**CSBF 700 – 1250kHz**



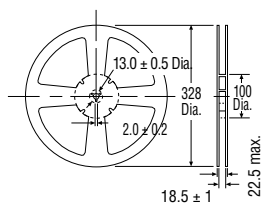
**CSACW □ MX-T**



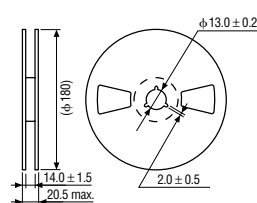
The cover film peel strength force: 0.1 to 0.7N.  
The cover film speed: 300mm/min.

#### PLASTIC REEL DIMENSIONS: mm

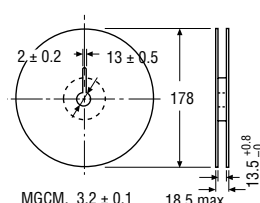
**CSBF 328mm Dia.**



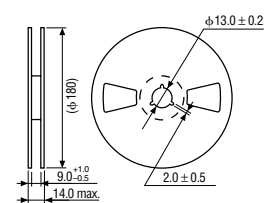
**CSACV □ MTJ/MXJ-TC20**



**CSAC MGC/M**



**CSACW □ MX-T**



CERAMIC RESONATORS

# CERAMIC RESONATORS

## SURFACE MOUNT WITH BUILT-IN LOAD CAPACITORS

### MECHANICAL CONSIDERATIONS

## CSTCC, CSTCV, CSTCW Series

### PART NUMBERING SYSTEM

<b>CSTCC 4.00 MG 1 00 - TC</b>			<b>CSTCW 2000 MX 0 3 001 - T</b>									
<b>SERIES</b>	<b>3 OR 4 DIGIT FREQUENCY</b>	<b>TYPE</b>	<b>INITIAL TOLERANCE</b>	<b>Denotes Sorting IC circuit and load cap value.</b>	<b>TAPE CARRIER</b>	<b>SERIES</b>	<b>4 DIGIT FREQUENCY</b>	<b>TYPE</b>	<b>TOLERANCE</b>	<b>LOAD CAP VALUE</b>	<b>CUSTOM MARK (Optional)</b>	<b>TAPE CARRIER</b>
			Blank or 0 = ± 0.5% 1 = ± 0.3% 2 = ± 0.2% 8 = ± 1.0%	Blank or 00 = CMOS 40 = HCMOS					0 = ± 0.5% std. 1 = ± 0.3% 2 = ± 0.2% 4 = ± 0.1% 8 = ± 1.0%	1 = 6pF 3 = 15pF		

### SURFACE MOUNT RESONATORS WITH BUILT-IN LOAD CAPACITORS

**NEW**

Part Number (note 1)	CSTCC□□MG-TC	CSTCR□□MG-RO	CSTCC□□MG-TC	CSTCV□□□MTJ-TC20	CSTCV□□□MXJ-TC20	CSTCW□□□MX-T
Available Frequencies (note 2)	2.00 to 3.99MHz	4.00 to 7.99MHz	8.00 to 10.00MHz	10.01 to 13.49MHz	13.50 to 20.00MHz	20.01 to 70.00MHz
Std. Initial Tolerance	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Temperature Tol. -20°C TO +80°C	±0.3%	±0.2%	±0.3%	±0.4%	±0.3%	±0.3%
Aging Stability (for 10 yrs @ 25°C)	±0.3%	±0.1%	±0.3%	±0.3%	±0.3%	±0.3%
Built-in Capacitance (note 3)	15pF ± 20% (blank) 47pF ± 20% (H6)	15pF ± 20% (3) 47pF ± 20% (6)	15pF ± 20% (blank) 47pF ± 20% (H6)	22pF ± 20% (C4)	22pF ± 20%...13.50 to 15.99MHz (H4) 22pF ± 20%...16.00 to 17.99MHz (C4) 22pF ± 20%...18.00 to 19.99MHz (H4)	6pF ± 2pF (1) 15pF ± 20% (3)

**Note 1:** For CSTCC□□MG, 2.00, 3.58, 3.68, 8.00, 8.19, 9.00, 10.00MHz are common values.  
For CSTCR□□MG, 4.00, 4.19, 4.91, 5.00, 6.00MHz are common values.  
For CSTCV□□□MTJ, 11.00, 11.059, 12.00MHz are common values.  
For CSTCV□□□MXJ, 13.50, 14.72, 14.74, 16.00, 16.93, 20.00MHz are common values.  
For CSTCW□□□MX, 24.00, 27.00, 32.00, 33.86, 40.00, 50.00MHz are common values.  
For other frequency values, please contact Murata Electronics.

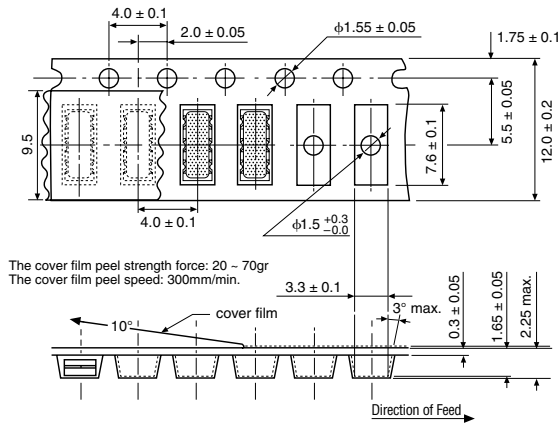
**Note 2:** Load capacitance value and tolerance are reference value.

**Note 3:** Please contact Murata Electronics for proper selection of circuit values.

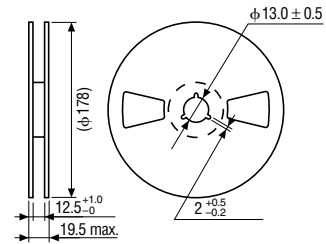
DIMENSIONS: mm	RECOMMENDABLE LAND PATTERN	TEST CIRCUIT
<b>CSTCC□□MG-TC</b> 	<b>CSTCC□□MG-TC</b> 	<b>CSTCC□□MG-TC</b> <p>CSTCC (2~3.99) IC : 1/6TC4069UBPX2 X : Ceramic Resonator C<sub>1</sub>, C<sub>2</sub> : 15pF ±20%</p> <p>CSTCC (8.0~10.0) IC : 1/6TC74HCV04X2 X : Ceramic Resonator C<sub>1</sub>, C<sub>2</sub> : 15pF ±20%</p>
<b>CSTCR□□MG-RO</b> 	<b>CSTCR□□MG-RO</b> 	<b>CSTCR□□MG-RO</b> <p>CSTCR IC : 1/6TC4069UBPX2 X : Ceramic Resonator C<sub>1</sub>, C<sub>2</sub> : 15pF ±20%</p>
<b>CSTCV□□□MTJ/MXJ-TC20</b> 	<b>CSTCV□□□MTJ/MXJ-TC20</b> 	<b>CSTCV□□□MTJ/MXJ-TC20</b> <p>CSTCV□□□MTJ IC : 1/6TC40H004PX2 X : Ceramic Resonator C<sub>1</sub>, C<sub>2</sub> : 22pF ±20%</p> <p>CSTCV□□□MXJ IC : 1/6TC74HCV04X2 (13.50~15.99) 1/6TC40H004PX2 (16.00~17.99) 1/6TC74HCV04X2 (18.00~20.00) X : Ceramic Resonator C<sub>1</sub>, C<sub>2</sub> : 22pF ±20%</p>
<b>CSTCW□□□MX-T</b> 	<b>CSTCW□□□MX-T</b> 	<b>CSTCW□□□MX-T</b> <p>CSTCW IC : 1/6TC74HC004X2 X : Ceramic Resonator C<sub>1</sub>, C<sub>2</sub> : 15pF ±20% (20.01~24.99MHz) 6pF ± 2pF (25.00~70.00MHz)</p>

#### PLASTIC TAPE DIMENSIONS: mm

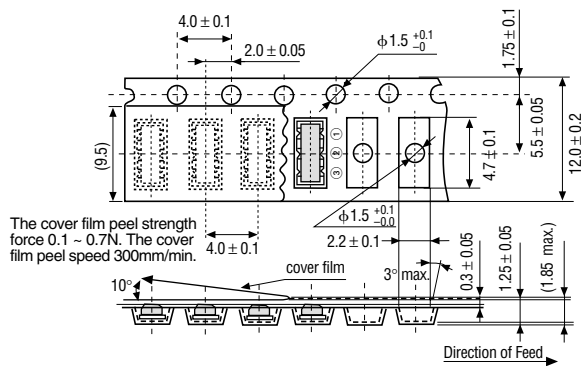
**CSTCC□.□□MG-TC**



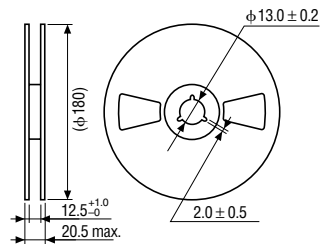
**CSTCC□.□□MG-TC**



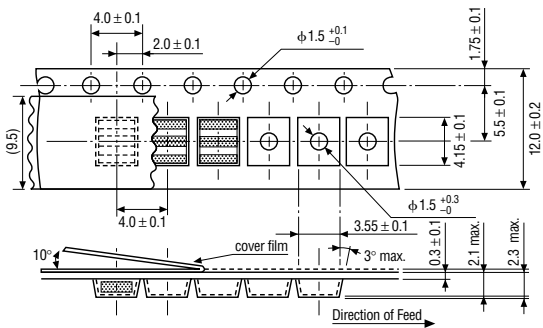
**CSTCR□M□□G□□-RO**



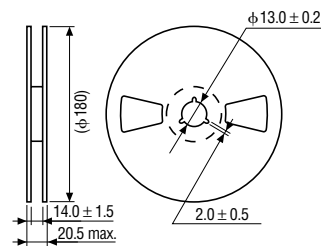
**CSTCR□M□□G□□-RO**



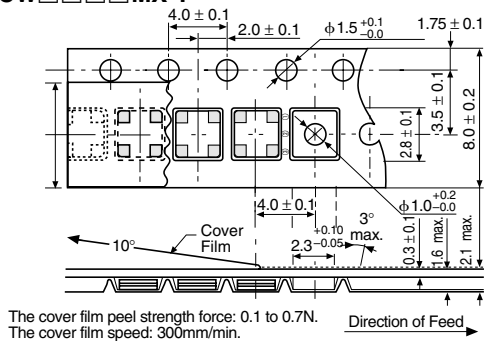
**CSTCV□□.□□MTJ/MXJ-TC20**



**CSTCV□□.□□MTJ/MXJ-TC20**



**CSTCW□□□□MX-T**



**CSTCW□□□□MX-T**

