

# Ceramic Resonators (CERALOCK®)



## Chip Type Three Terminals CSTCC/R/E/G/V/W Series

Chip "CERALOCK" with built-in load capacitance in an extremely small package.

MURATA's package technology expertise has enabled the development of the Chip "CERALOCK" with built-in load capacitors.

High-density mounting can be realized because of the small package and the elimination of the need for an external load capacitor.

### ■ Features

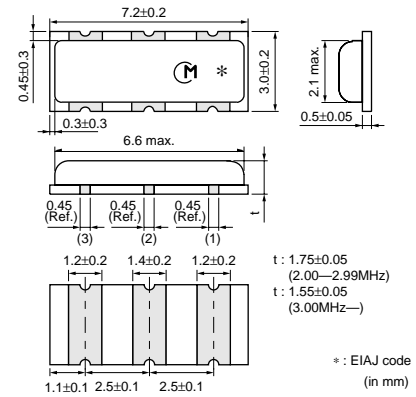
1. Oscillation circuits do not require external load capacitors.
2. The series is available in a wide frequency range.
3. The resonators are extremely small and have a low profile.
4. No adjustment is necessary for oscillation circuits.

### ■ Applicatons

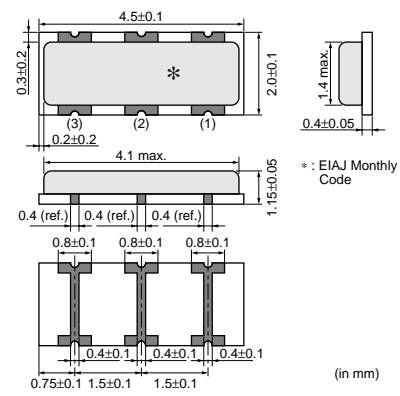
1. Clock oscillators for microprocessors
2. Electronic control circuits for small electronic equipment such as hand held video camera
3. Audio-visual applications (Camcorder, Remote Controller, etc.)
4. Office automation equipments (DVD, CD-ROM, HDD, FDD, etc.)
5. Automotive electronics (CSTCC\_G\_A series, CSTCR\_G\_B series, CSTCE\_G\_A series, CSTCE\_V\_A series, CSTCV\_X\_Q series)
6. Dual Tone Multi Frequency (DTMF) generator for cordless telephones



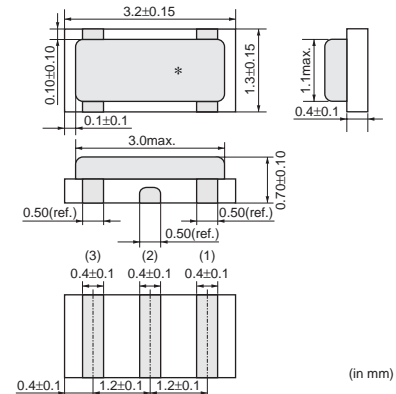
CSTCC\_G(A)  
2.00-3.99MHz



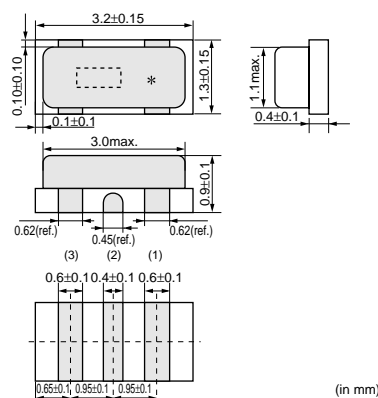
CSTCR\_G(B)  
4.00-7.99MHz



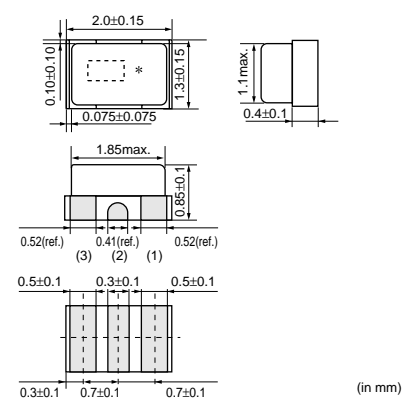
CSTCE\_G(A)  
8.00-12.50MHz



CSTCE\_V(A)  
12.51-20.00MHz



CSTCG\_V  
20.00-33.86MHz  
(Ultra small)

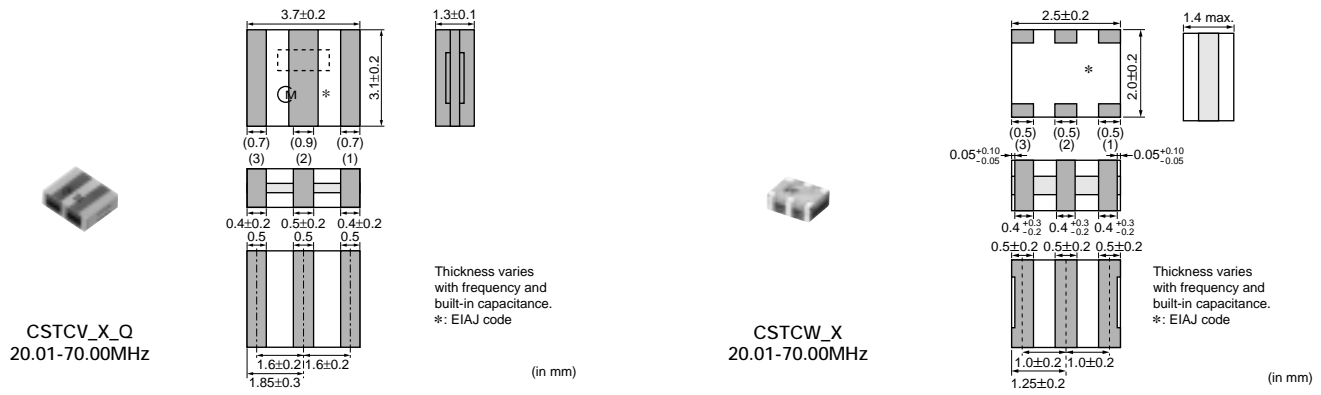


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⚠Note Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this PDF catalog to prevent smoking and/or burning, etc.  
This catalog has only typical specifications. Therefore, you are requested to approve our product specifications or to transact the approval sheet for product specifications before ordering.

Continued from the preceding page.

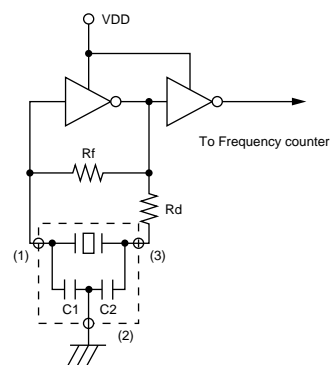
1



Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp. Stability (%)	Temperature Range (°C)	Use
<b>CSTCC_G</b>	2.00 to 3.99	±0.5	±0.3 [±0.4%:Built-in Capacitance 47pF type within Freq.2.00 to 3.49MHz]	-20 to +80	For consumer electronics
<b>CSTCC_G_A</b>	2.00 to 3.99	±0.5	±0.4 [-0.6% to +0.3%:Built-in Capacitance 47pF type within Freq.2.00 to 3.49MHz]	-40 to +125	For automotive electronics
<b>CSTCR_G</b>	4.00 to 7.99	±0.5	±0.2	-20 to +80	For consumer electronics
<b>CSTCR_G_B</b>	4.00 to 7.99	±0.5	±0.15	-40 to +125	For automotive electronics
<b>CSTCE_G</b>	8.00 to 12.50	±0.5	±0.2	-20 to +80	For consumer electronics
<b>CSTCE_G_A</b>	8.00 to 12.50	±0.5	±0.2	-40 to +125	For automotive electronics
<b>CSTCE_V</b>	12.51 to 20.00	±0.5	±0.3	-20 to +80	For consumer electronics
<b>CSTCE_V_A</b>	12.51 to 20.00	±0.5	±0.3	-40 to +125	For automotive electronics
<b>CSTCG_V</b>	20.00 to 33.86	±0.5	±0.3	-20 to +80	For consumer electronics
<b>CSTCV_X_Q</b>	20.01 to 70.00	±0.5	±0.3	-40 to +125	For automotive electronics
<b>CSTCW_X</b>	20.01 to 70.00	±0.5	±0.2	-20 to +80	For consumer electronics

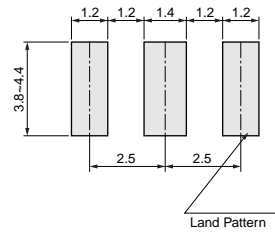
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

### ■ Oscillation Frequency Measuring Circuit



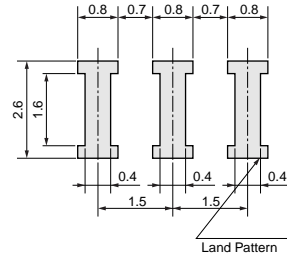
■ Standard Land Pattern Dimensions

CSTCC\_G(A)



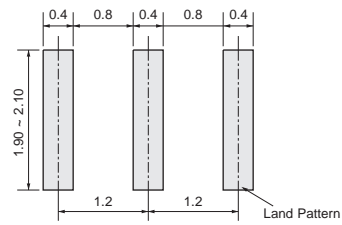
(in mm)

CSTCR\_G(B)



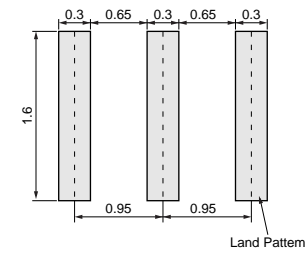
(in mm)

CSTCE\_G(A)



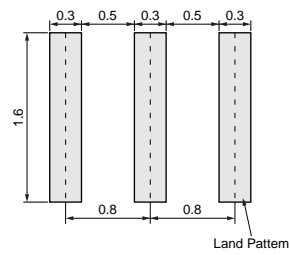
(in mm)

CSTCE\_V(A)



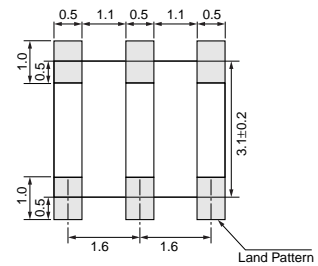
(in mm)

CSTCG\_V



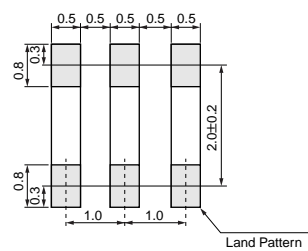
(in mm)

CSTCV\_X\_Q



(in mm)

CSTCW\_X

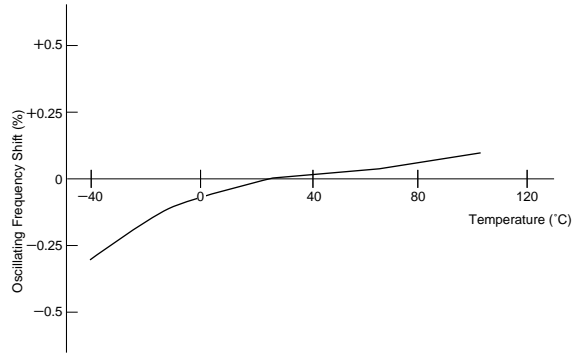


(in mm)

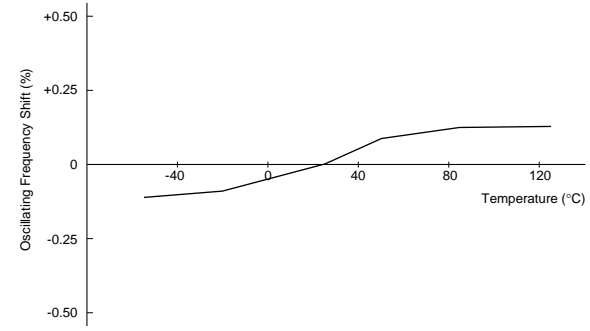
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■ Oscillation Frequency Temperature Stability

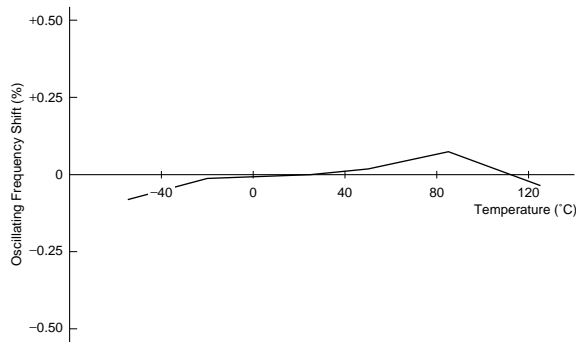
CSTCC\_G



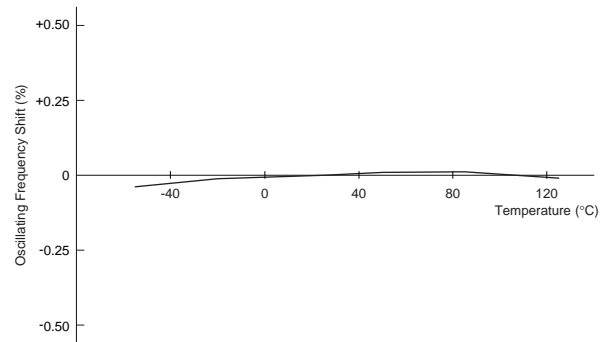
CSTCC\_G\_A



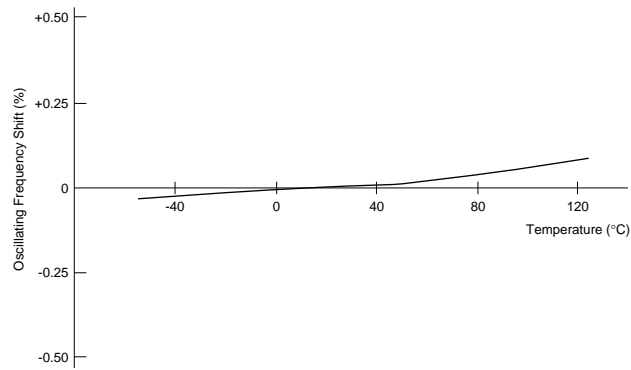
CSTCR\_G(B)



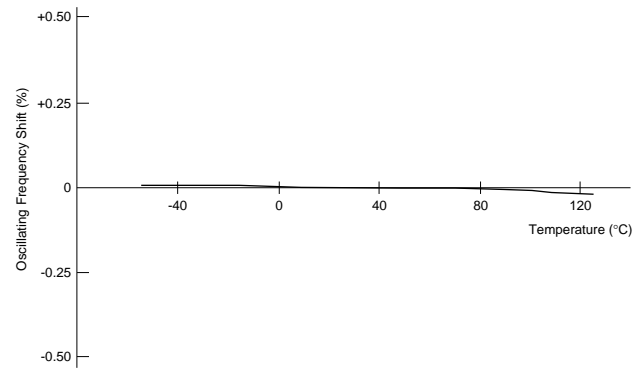
CSTCE\_G(A)



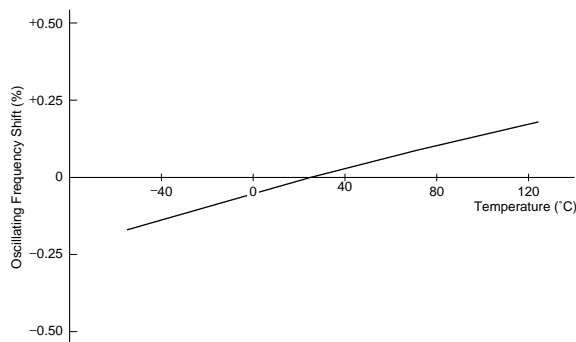
CSTCE\_V(A)



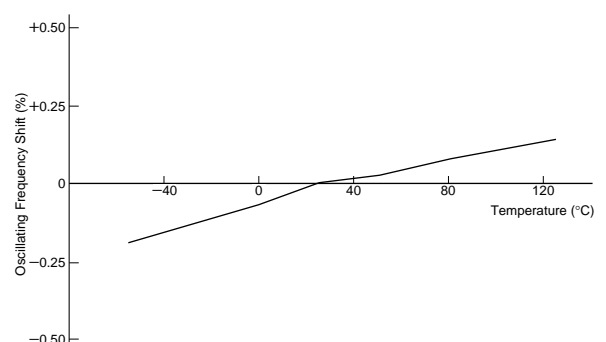
CSTCG\_V



CSTCV\_X(Q)



CSTCW\_X



## ● Part Numbering

### CERALOCK® (MHz)

(Part Number) 

CS	T	CE	16M0	V53	***	-R0
①	②	③	④	⑤	⑥	⑦

#### ① Product ID

Product ID	
<b>CS</b>	Ceramic Resonators

#### ② Frequency/Capacitance

Code	Frequency/Capacitance
<b>A</b>	MHz No capacitance built-in
<b>T</b>	MHz Built-in Capacitance

#### ③ Structure/Size

Code	Structure/Size
<b>LS</b>	Round Lead Type
<b>CC</b>	Cap Chip Type
<b>CR/CE/CG</b>	Small-cap Chip Type
<b>CV</b>	Monolithic Chip Type
<b>CW</b>	Small Monolithic Chip Type

#### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz).  
Decimal point is expressed by capital letter "M".

#### ⑤ Design

Code	Design
<b>G</b> □□	Thickness Shear mode
<b>T/V</b> □□	Thickness Expander mode
<b>X</b> □□	Thickness Expander mode (3rd overtone)

□□ indicates initial frequency tolerance and load capacity.

#### ⑥ Individual Specification

Code	Individual Specification
***	Three-digit alphanumerics express "Individual Specification".

With standard products, "⑥ Individual Specification" is omitted, and "⑦ Package Specification Code" is carried up.

#### ⑦ Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-A0</b>	Radial Taping H <sub>0</sub> =18mm
<b>-R0</b>	Plastic Taping ø=180mm
<b>-R1</b>	Plastic Taping ø=330mm

Radial taping is applied to lead type and plastic taping to chip type.

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