

5

Resonators

Ceramic Resonators (CERALOCK®)(MHz)

Ceramic Resonators (CERALOCK®)(kHz)

SAW Resonators

BGS Resonators

- **Part Numbering** (The structure of the "Global Part Numbers" that will be adopted from June 2001 and the meaning of each code are described herein.)
If you have any questions about details, inquire at your usual Murata sales office or distributor.

CERALOCK® (MHz)

(Global Part Number)

CS	T	CV	16M0	X53	***	-R0
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① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
CS	Ceramic Resonators

② Frequency/Capacitance

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

③ Structure/Size

Code	Structure/Size
LA	Lead Type
LS	Round Lead Type
CC	Cap Chip Type
CR	Small-cap Chip Type
CV	Monolithic Chip Type
CW	Small Monolithic Chip Type

④ Nominal Center Frequency

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

⑤ Design

Code	Design
G□□	Thickness Shear Vibration
T□□	Thickness Longitudinal Vibration
X□□	Thickness Longitudinal Vibration(3rd overtone)

□□ indicates initial frequency tolerance and load capacity.

CERALOCK® (kHz)

(Global Part Number)

CS	B	FB	1M00	J58	***	-R1
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① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
CS	Ceramic Resonators

② Frequency/Capacitance

Code	Frequency/Capacitance
B	kHz No capacitance built-in

③ Structure/Size

Code	Structure/Size
LA	Two-Terminal Lead Type
FB	SMD Type

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). If the unit is "kHz", it is expressed by three figures plus "K". If the unit is "MHz", a decimal point is expressed by the capital letter "M".

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
-B0	Bulk
-A0	Radial Taping H ₀ =18mm
-A1	Radial Taping H ₀ =16mm
-R0	Plastic Taping ø=180mm
-R1	Plastic Taping ø=330mm

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

⑤ Design

Code	Design
E□□	Area Shear Vibration
J□□	Area Shear Vibration (Closed Type)

□□ 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
-B0	Bulk
-R1	Plastic Taping ø=330mm

SAW Resonators

(Global Part Number)

SA	R	UK	433M92	B	X	M	0	R11
1	2	3	4	5	6	7	8	9

1 Product ID

Product ID	
SA	SAW

2 Function

Code	Function
R	Resonator

3 Structure/Size

Code	Structure/Size
UK	Package

4 Resonant Frequency

Expressed by six-digit alphanumerics. The unit is in hertz (Hz). A decimal point is expressed by the capital letter "M".

5 Design

Code	Design
B	1 port

6 Board

Code	Board
X	Crystal

7 Resonant Frequency Tolerance

Code	Resonant Frequency Tolerance
L	±50kHz
M	±75kHz
P	±100kHz

8 Customer Code

Expressed by a figure.

9 Packaging

Code	Packaging
R11	1000pcs. /ø178mm Reel
R04	4000pcs. /ø330mm Reel

BGS Resonators

(Global Part Number)

MK	R	KA	81M0	AB0	P	00	R11
1	2	3	4	5	6	7	8

1 Product ID

Product ID	
MK	BGS

2 Function

Code	Function
R	Resonator

3 Structure/Size

Code	Structure/Size
KA	Chip Type
GA	Lead Type

4 Nominal Center Frequency

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

5 Standard Specification Code

Code	Standard Specification Code
AB0	Three-digit alphanumerics express product specifications.

6 Piezoelectric Board

Code	Piezoelectric Board
P	An alphabet expresses a piezoelectric substrate material.

7 Individual Specification Code

Code	Individual Specification Code
00	Standard Type

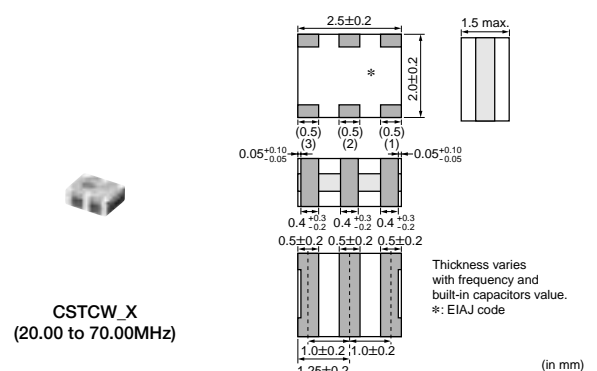
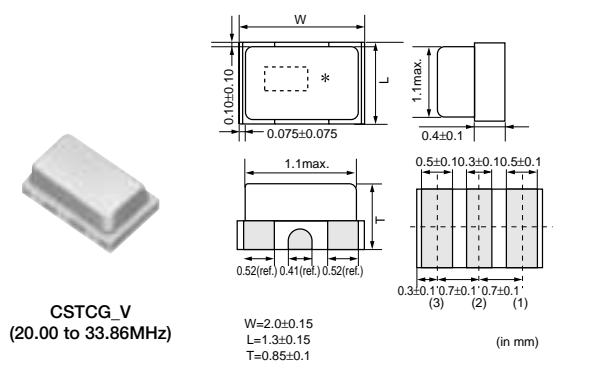
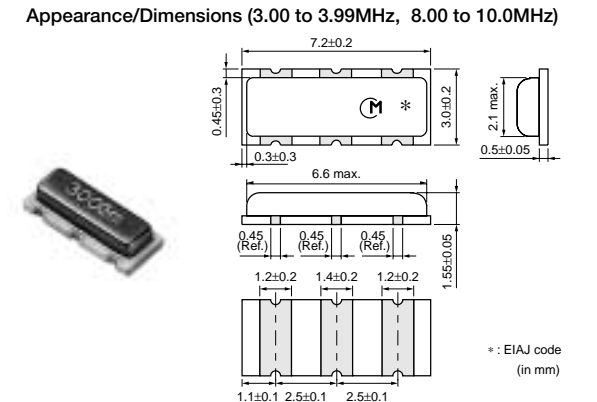
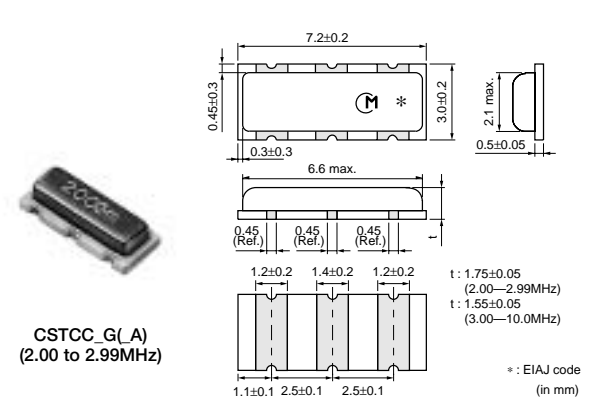
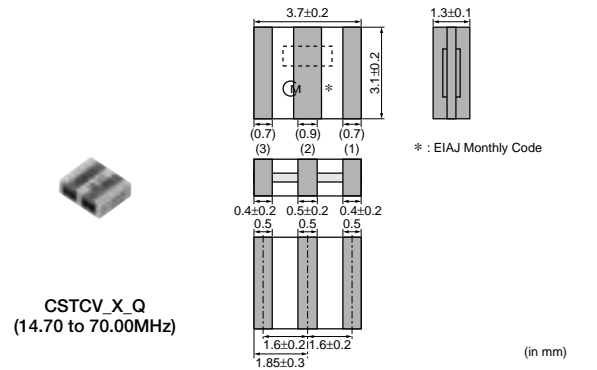
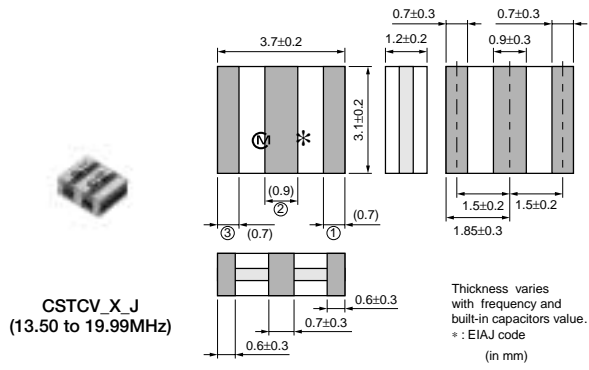
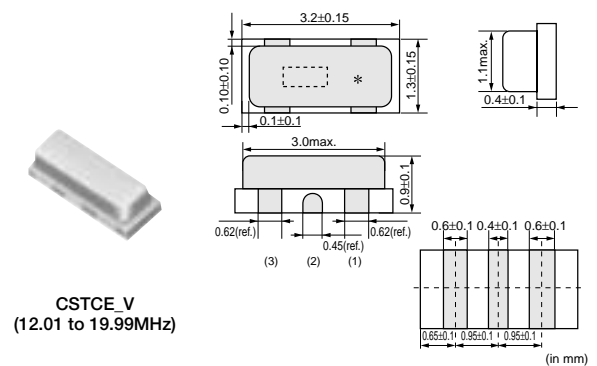
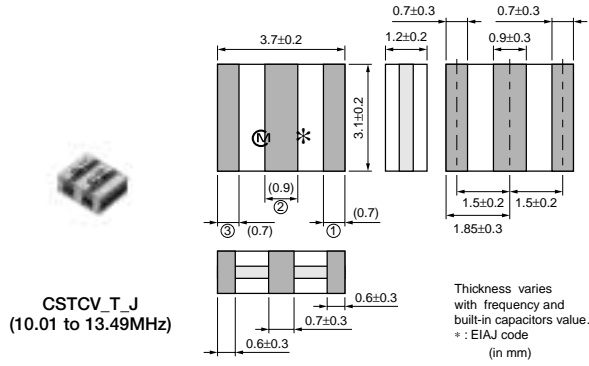
8 Packaging

Code	Packaging
R11	Plastic Taping ø=180mm
B05	Bulk

Plastic taping is only for chip type.

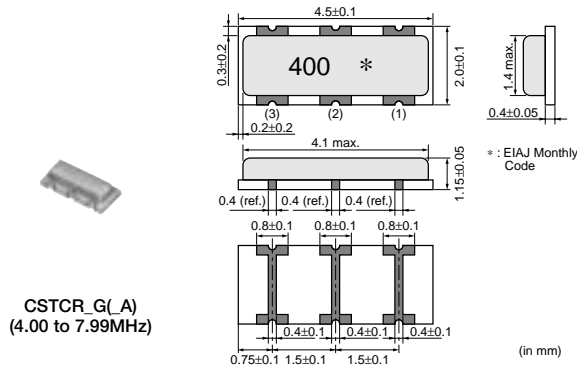
CERALOCK®(MHz)

● Chip Type Three-Terminals CSTCC/E/G/R/W Series



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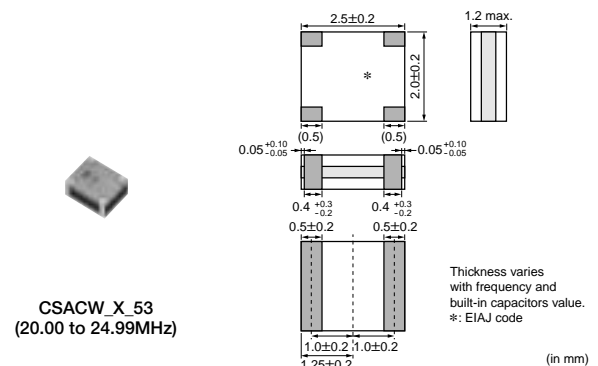
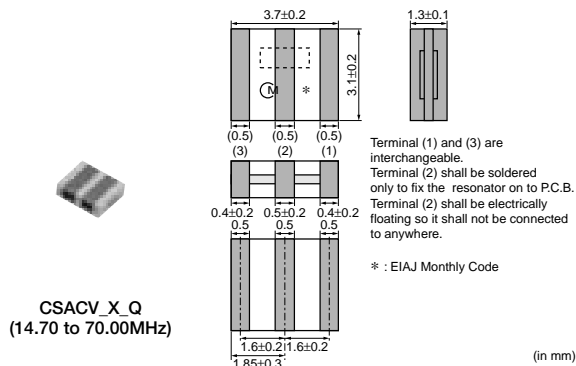
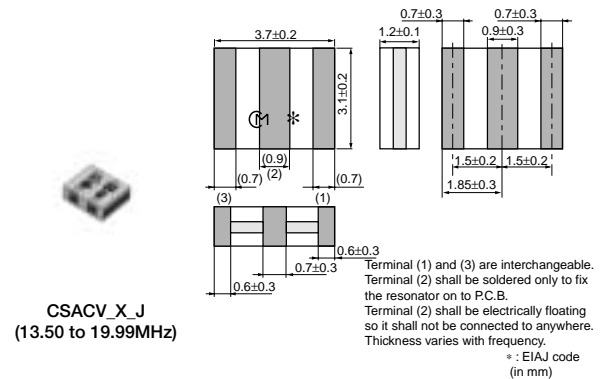
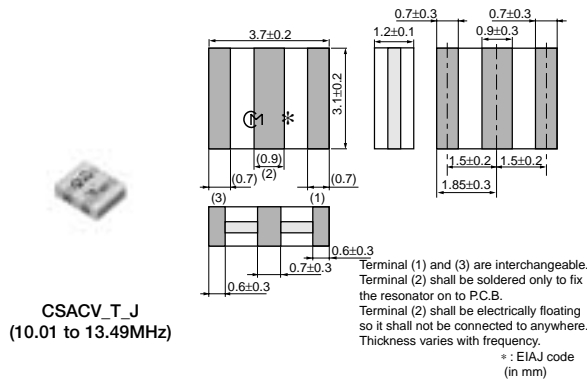
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Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSTCV_T_J	10.01 to 13.49	±0.5	±0.4	-20 to 80	±0.3	-
CSTCE_V	12.01 to 19.99	±0.5	±0.3	-20 to 80	±0.3	-
CSTCV_X_J	13.50 to 19.99	±0.5	±0.3	-20 to 80	±0.3	-
CSTCV_X_Q	14.70 to 70.00	±0.5	±0.3	-40 to 125	±0.1	for automotive electronics
CSTCC_G	2.00 to 3.99, 8.00 to 10.0	±0.5	±0.3	-20 to 80	±0.3	-
CSTCC_G_A	2.00 to 3.99, 8.00 to 10.0	±0.5	±0.4	-40 to 125	±0.3	for automotive electronics
CSTCG_V	20.00 to 33.86	±0.5	±0.3	-20 to 80	±0.3	-
CSTCW_X	20.00 to 70.00	±0.5	±0.2	-20 to 80	±0.1	-
CSTCR_G	4.00 to 7.99	±0.5	±0.2	-20 to 80	±0.1	-
CSTCR_G_A	4.00 to 7.99	±0.5	±0.3	-40 to 125	±0.1	for automotive electronics

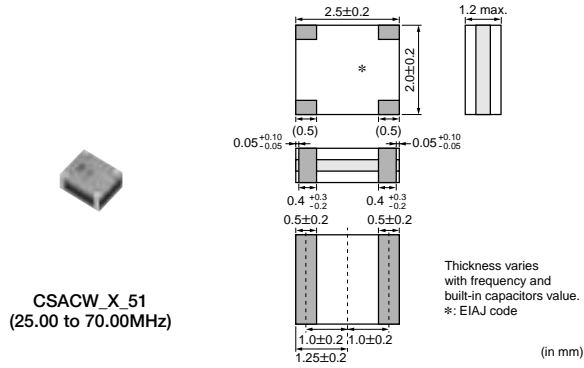
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

● Chip Type Two-Terminals CSACV/W Series



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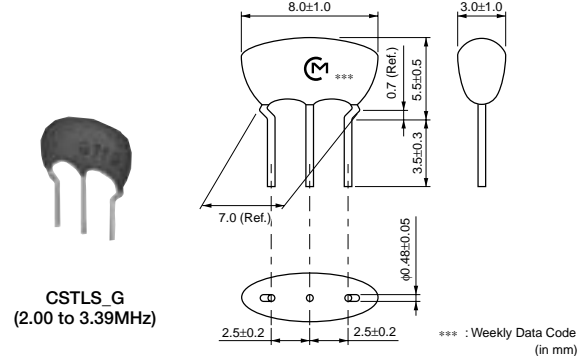
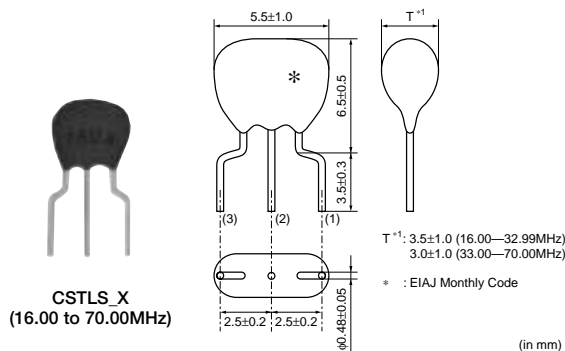
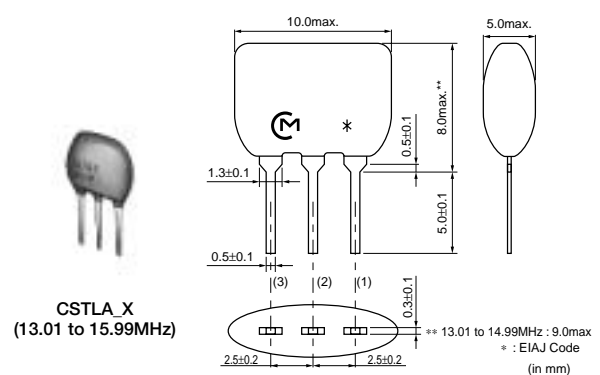
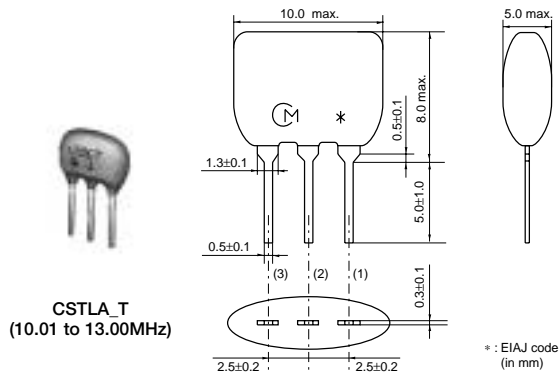
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Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSACV_T_J	10.01 to 13.49	±0.5	±0.5	-20 to 80	±0.5	-
CSACV_X_J	13.50 to 19.99	±0.5	±0.3	-20 to 80	±0.3	-
CSACV_X_Q	14.70 to 70.00	±0.5	±0.3	-40 to 125	±0.1	for automotive electronics
CSACW_X_53	20.00 to 24.99	±0.5	±0.2	-20 to 80	±0.1	-
CSACW_X_51	25.00 to 70.00	±0.5	±0.2	-20 to 80	±0.1	-

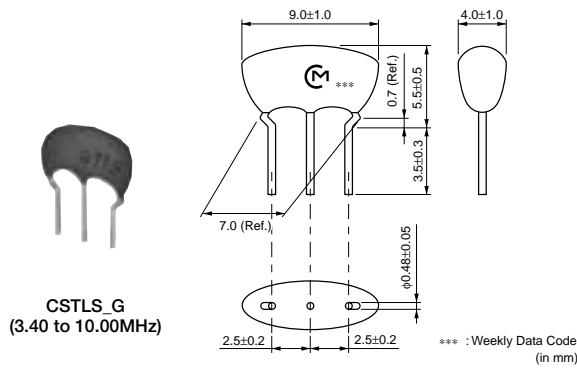
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

Lead Type Three-Terminals Built-in Capacitor CSTLA/CSTLS Series



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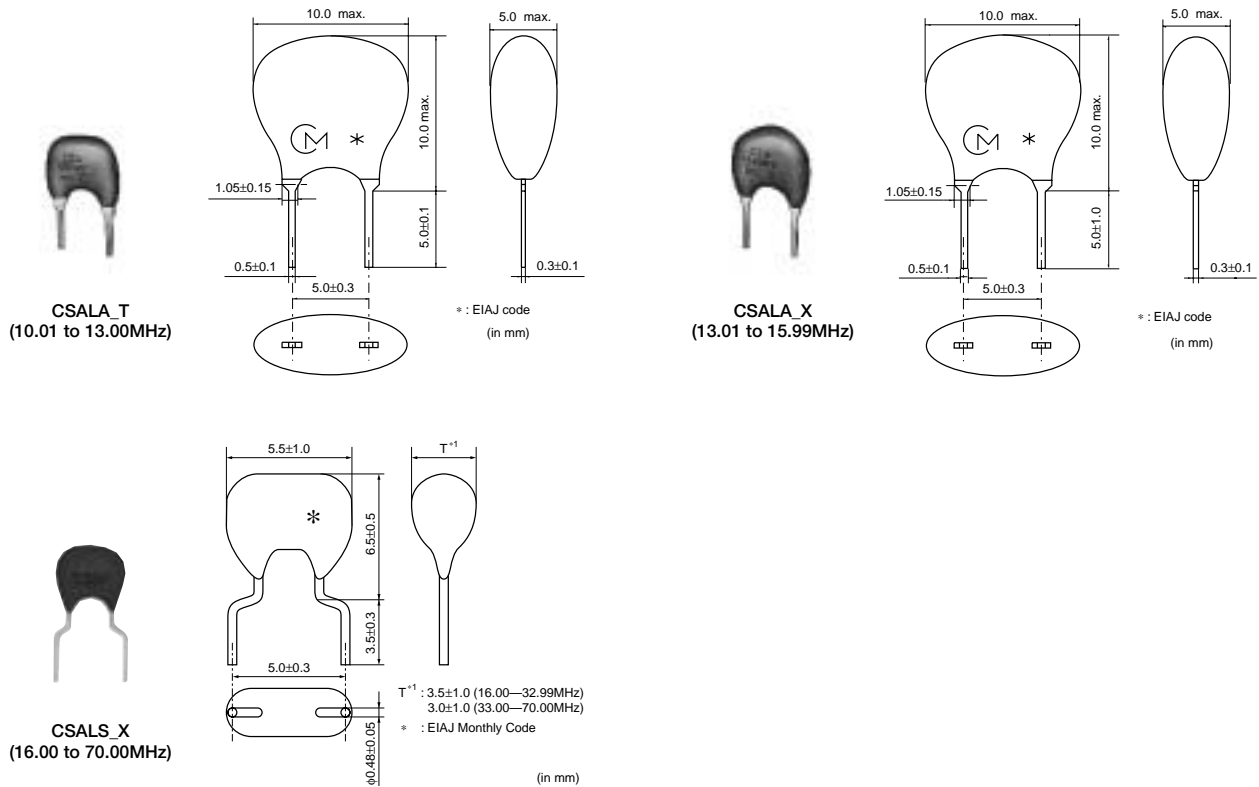
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Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSTLA_T	10.01 to 13.00	±0.5	±0.4	-20 to 80	±0.3	-
CSTLA_X	13.01 to 15.99	±0.5	±0.3	-20 to 80	±0.3	-
CSTLS_X	16.00 to 70.00	±0.5	±0.2	-20 to 80	±0.2	-
CSTLS_G	2.00 to 3.39	±0.5	±0.2	-20 to 80	±0.2	-
CSTLS_G	3.40 to 10.00	±0.5	±0.2	-20 to 80	±0.2	-

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.
The order quantity should be an integral multiple of the Minimum Quantity shown in the beginning of this catalog.

● Lead Type Two-Terminals Built-in Capacitor CSALA/CSALS Series

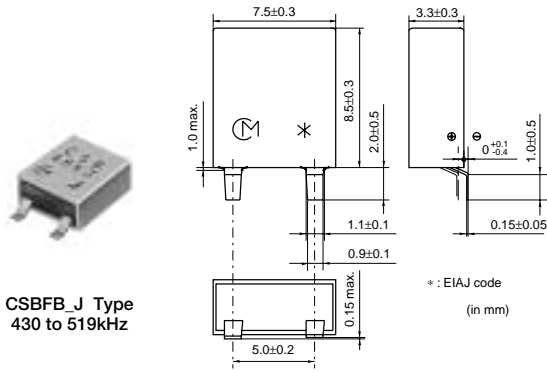


Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSALA_T	10.01 to 13.00	±0.5	±0.5	-20 to 80	±0.5	-
CSALA_X	13.01 to 15.99	±0.5	±0.3	-20 to 80	±0.3	-
CSALS_X	16.00 to 70.00	±0.5	±0.2	-20 to 80	±0.2	-

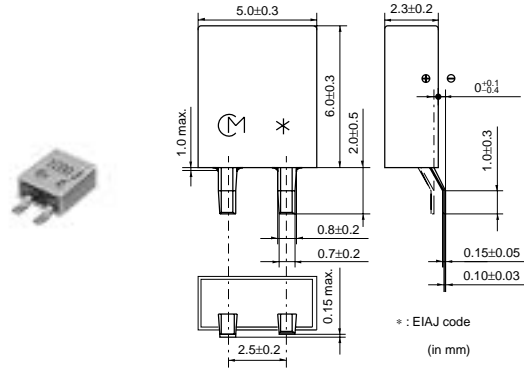
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.
The order quantity should be an integral multiple of the Minimum Quantity shown in the beginning of this catalog.

CERALOCK® (kHz)

● Chip Type Two-Terminals CSBFB Series



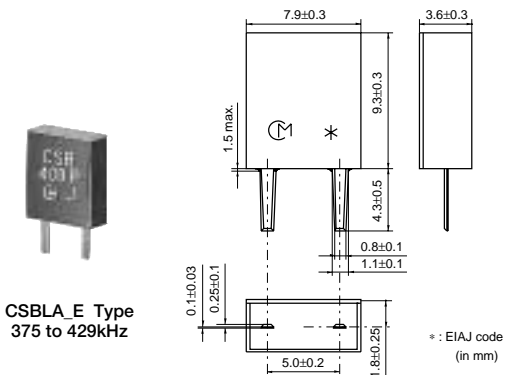
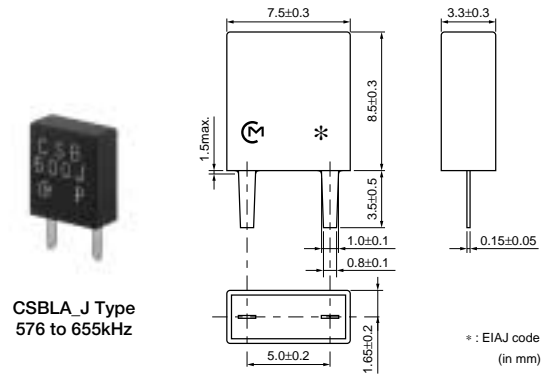
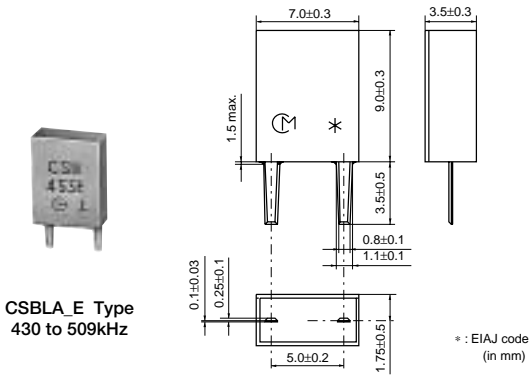
Appearance/Dimensions 2(700 to 1250kHz)



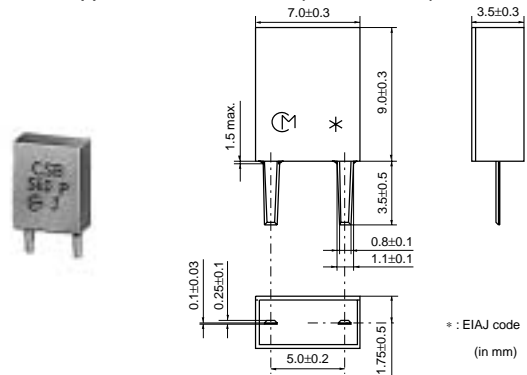
Part Number	Oscillating Frequency (kHz)	Initial Tolerance (%)	Temp. Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSBFB_J	430 to 519, 700 to 1250	± 0.5	± 0.3	-20 to 80	± 0.3	-

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

● Lead Type Two-Terminals CSBLA Series

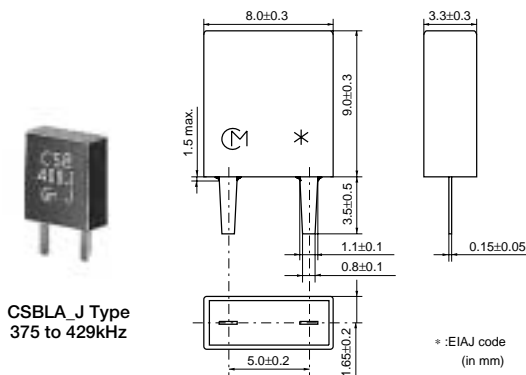


Appearance/Dimensions 2(510 to 699kHz)

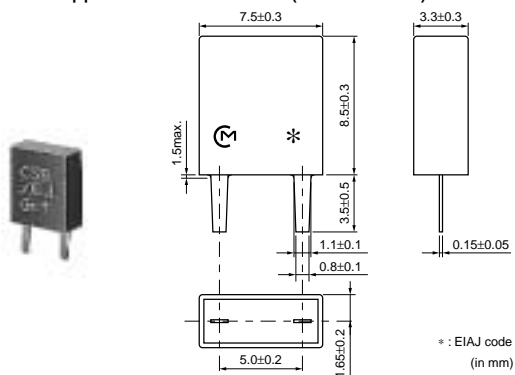


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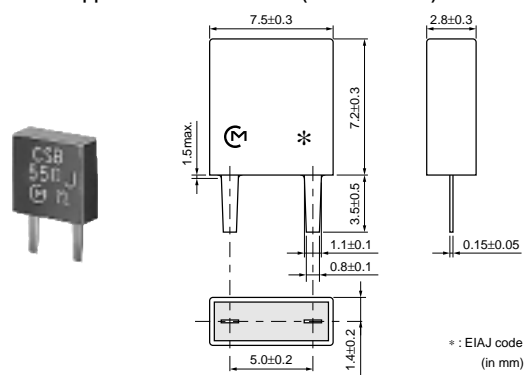
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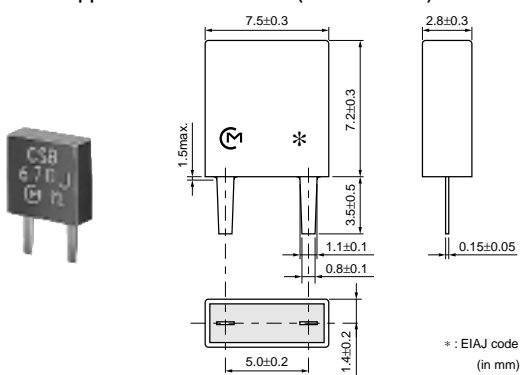
Appearance/Dimensions 2(430 to 519kHz)



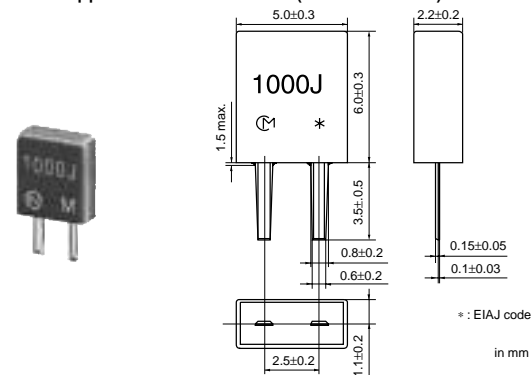
Appearance/Dimensions 3(520 to 575kHz)



Appearance/Dimensions 4(656 to 699kHz)



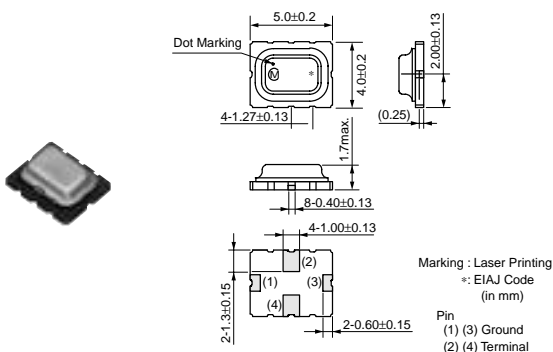
Appearance/Dimensions 5(700 to 1250kHz)



Part Number	Oscillating Frequency (kHz)	Initial Tolerance	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSBLA_E	375 to 429, 510 to 699	±2kHz	±0.3	-20 to 80	±0.3	-
CSBLA_E	430 to 509	±2kHz	±0.3	-20 to 80	±0.3	-
CSBLA_J	375 to 575, 656 to 1250	±0.5%	±0.3	-20 to 80	±0.3	-
CSBLA_J	576 to 655	±0.5%	±0.3	-20 to 80	±0.3	-

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.
The order quantity should be an integral multiple of the Minimum Quantity shown in the beginning of this catalog.

SAW Resonators

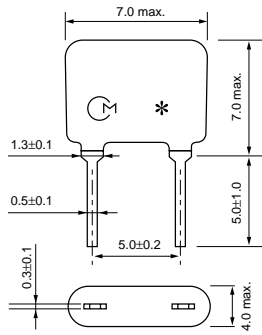


Part Number	Resonant Loss (dB)	Resonant Frequency (MHz)	Parallel Capacitance(at 1MHz) (pF)
SARUK308M04BXL0	2.2 max.	308.040	2.6
SARUK308M04BXM0	2.2 max.	308.040	2.6
SARUK308M04BXP0	2.2 max.	308.040	2.6
SARUK314M35BXL0	2.2 max.	314.350	2.7
SARUK314M35BXM0	2.2 max.	314.350	2.7
SARUK314M35BXP0	2.2 max.	314.350	2.7
SARUK314M95BXL0	2.2 max.	314.950	2.7
SARUK314M95BXM0	2.2 max.	314.950	2.7
SARUK314M95BXP0	2.2 max.	314.950	2.7
SARUK315M00BXL0	2.2 max.	315.000	2.7
SARUK315M00BXM0	2.2 max.	315.000	2.7
SARUK315M00BXP0	2.2 max.	315.000	2.7
SARUK417M95BXL0	2.5 max.	417.950	2.5
SARUK417M95BXM0	2.5 max.	417.950	2.5
SARUK417M95BXP0	2.5 max.	417.950	2.5
SARUK423M17BXL0	2.5 max.	423.170	2.5
SARUK423M17BXM0	2.5 max.	423.170	2.5
SARUK423M17BXP0	2.5 max.	423.170	2.5
SARUK433M37BXL0	2.5 max.	433.370	2.5
SARUK433M37BXM0	2.5 max.	433.370	2.5
SARUK433M37BXP0	2.5 max.	433.370	2.5
SARUK433M87BXL0	2.5 max.	433.870	2.5
SARUK433M92BXM0	2.5 max.	433.870	2.5
SARUK433M92BXP0	2.5 max.	433.870	2.5
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SARUL433M87BXM0	2.5 max.	433.870	2.5
SARUL433M87BXP0	2.5 max.	433.870	2.5
SARUK433M92BXL0	2.5 max.	433.920	2.5
SARUK433M92BXM0	2.5 max.	433.920	2.5
SARUK433M92BXP0	2.5 max.	433.920	2.5
SARUL433M92BXL0	2.5 max.	433.920	2.5
SARUL433M92BXM0	2.5 max.	433.920	2.5
SARUL433M92BXP0	2.5 max.	433.920	2.5
SARUK479M45BXP0	2.5 max.	479.450	2.5

BGS Resonators



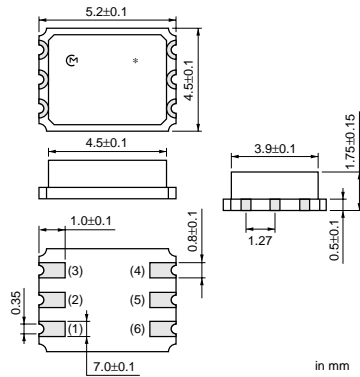
MKRGA



*: EIAJ Monthly code (in mm)

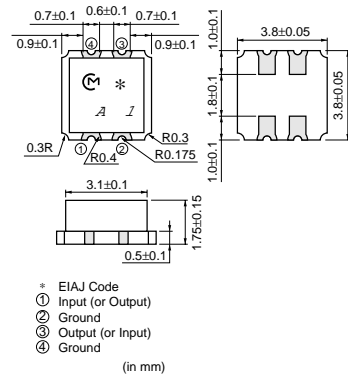


MKRKA Series
(10 to 32.2MHz)



in mm

Appearance/Dimensions 2(32.3 to 100MHz)



* EIAJ Code
 ① Input (or Output)
 ② Ground
 ③ Output (or Input)
 ④ Ground
 (in mm)

Part Number	Lead Type	Oscillating Frequency (MHz)	Initial Tolerance	Temperature Stability	Temperature Range
MKRGA	Lead	10 to 100	±0.5%	±0.1%	-20 to 80°C
MKRKA	SMD	10 to 100	±0.5%	±0.1%	-20 to 80°C

Frequency accuracy of ±0.3% and ±0.2% are also available.