

Ceramic Resonators (CERALOCK®)



MHz Chip Type -Tight Frequency Tolerance for General Usage-

Chip type "CERALOCK" with built-in load capacitors in an extremely small package provides high accuracy. MURATA's frequency adjustment and 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

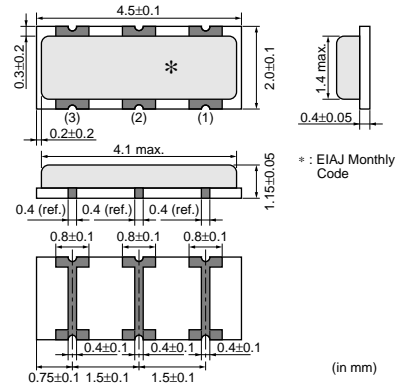
1. High accuracy resonator realizes initial tolerance of ± 250 ppm.
2. Oscillation circuits do not require external load capacitors.
3. The series is available in a wide frequency range.
4. The resonators are extremely small and have a low profile.
5. No adjustment is necessary for oscillation circuits.

■ Applications

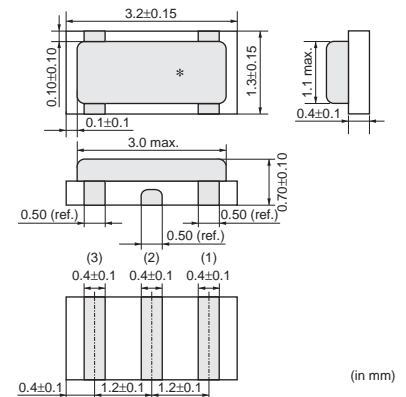
1. Clock oscillators for USB (High-speed and Full-speed) controller ICs
2. Storage devices with SATA interface (HDD, Optical storage device, etc.)
3. Audio equipment and musical instrument, etc.
4. Other applications for replacement from Crystal Oscillators



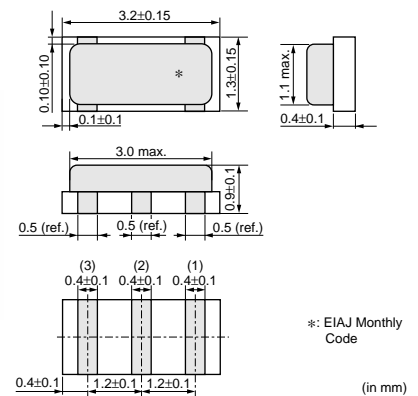
CSTCR_G15L
4.00-7.99MHz



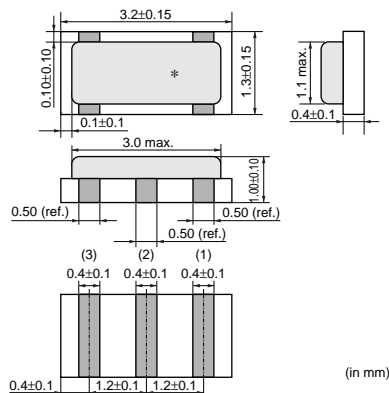
CSTCE_G15L
8.00-13.99MHz



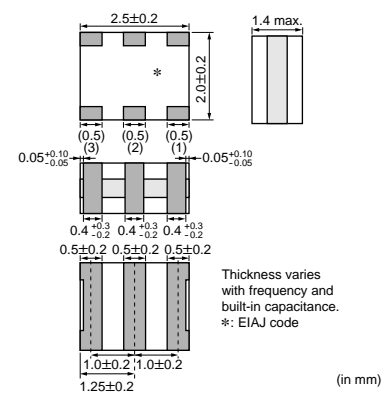
CSTCE_V13L
14.00-20.00MHz



CSTCE_XK, CSTCE_XT
24.00-27.20/30.00MHz

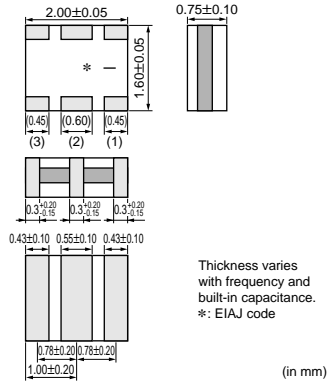


CSTCW_X11
20.01-29.99MHz



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Part Number	Oscillating Frequency (MHz)	Initial Tolerance	Temp. Stability (%)	Temperature Range (°C)
CSTCR_G15L	4.00 to 7.99	±0.1%	±0.08	0 to 70
CSTCE_G15L	8.00 to 13.99	±0.1%	±0.08	0 to 70
CSTCE_V13L	14.00 to 20.00	±0.1%	±0.08	0 to 70
CSTCW_X11	20.01 to 29.99	±0.1%	±0.1	0 to 70
CSTCE_XK	24.00 to 27.20 /30.00	+0.02 /-0.025%	±0.015	0 to 70
CSTCE_XT	24.00 to 27.20 /30.00	±0.027%	±0.015	0 to 70
CSTCZ_X12R	30.00 to 48.00	±0.15%	±0.05 [0 to 70°C:±0.03%]	-30 to 85

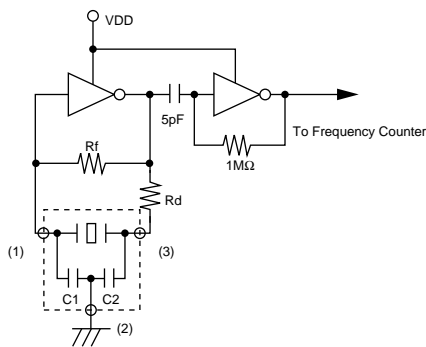
CSTCE_XK: Available Frequency is 24.00 to 27.20MHz and 30.00MHz.

CSTCE_XT: Initial tol. Includes freq. aging. Please contact us in case temp. range exceeds 0 to 70 degrees C.

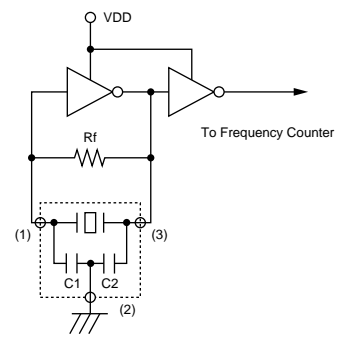
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

■ Oscillation Frequency Measuring Circuit

CSTCR_G15/CSTCE_G15L/CSTCE_V13L



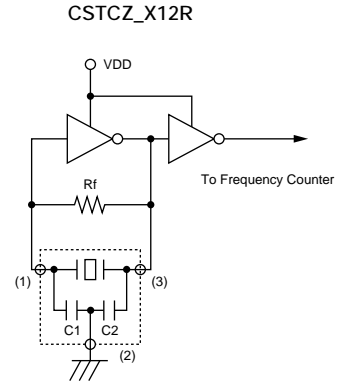
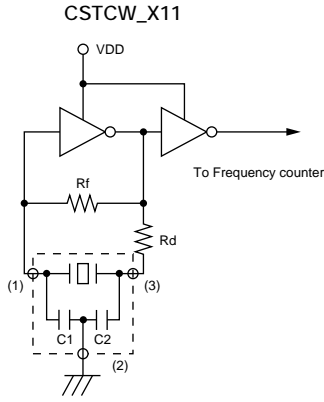
CSTCE_XK, CSTCE_XT



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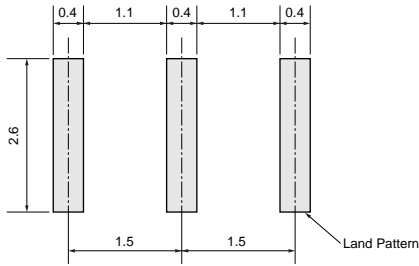
■ Oscillation Frequency Measuring Circuit



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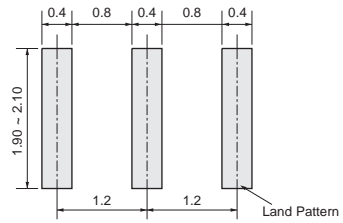
■ Standard Land Pattern Dimensions

CSTCR_G15L



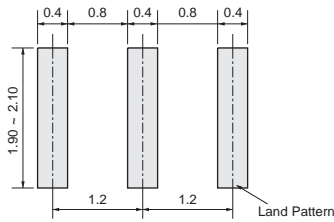
(in mm)

CSTCE_G15L



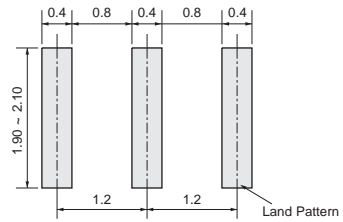
(in mm)

CSTCE_V13L



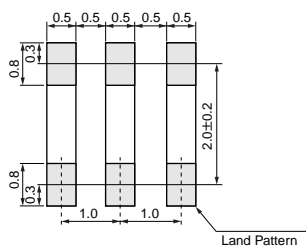
(in mm)

CSTCE_XK, CSTCE_XT



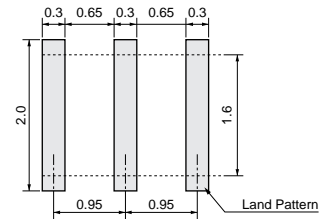
(in mm)

CSTCW_X11



(in mm)

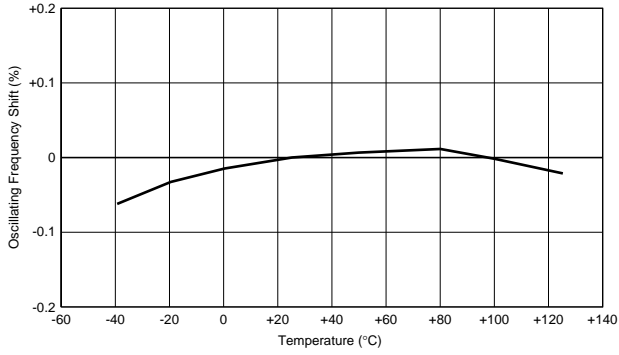
CSTCZ_X12R



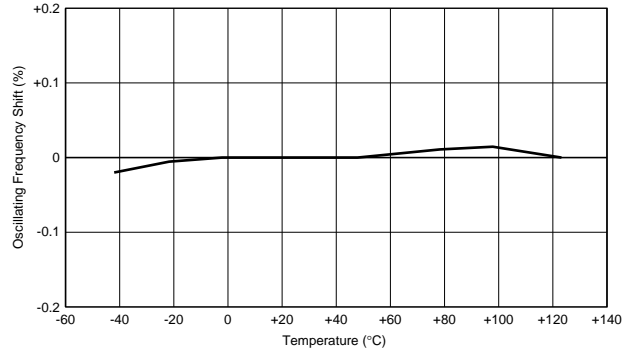
(in mm)

■ Oscillation Frequency Temperature Stability

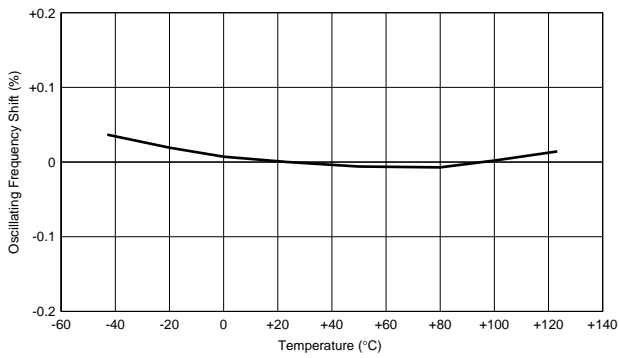
CSTCR_G15L



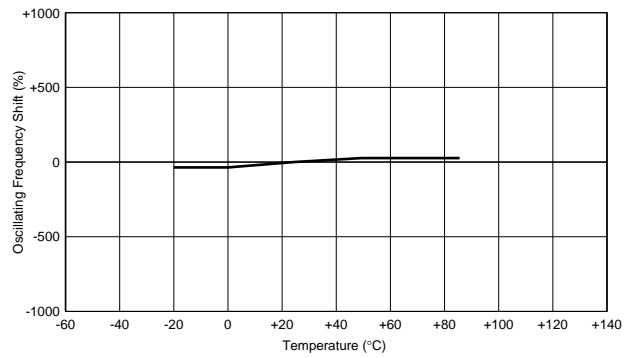
CSTCE_G15L



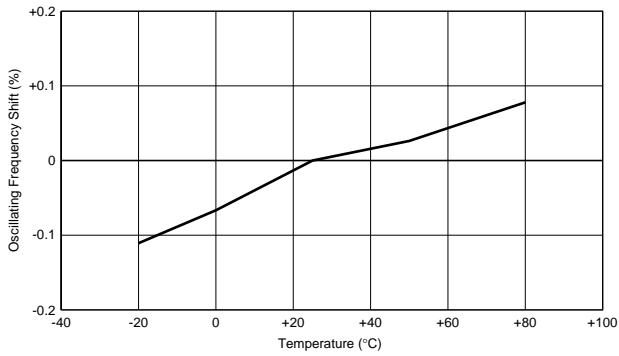
CSTCE_V13L



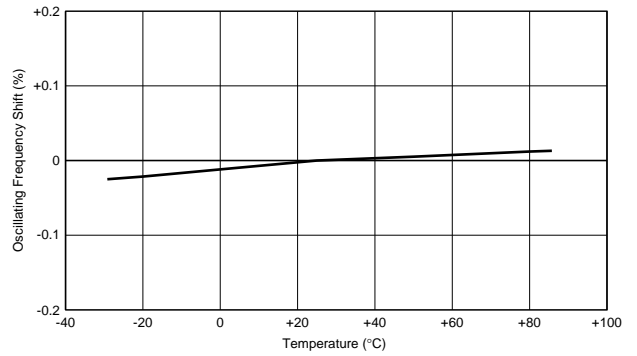
CSTCE_XK, CSTCE_XT



CSTCW_X11



CSTCZ_X12R

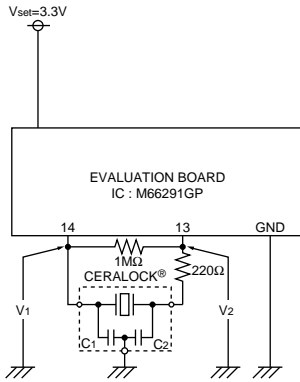


Application Circuits Utilization

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■ M66291GP (Renesas)

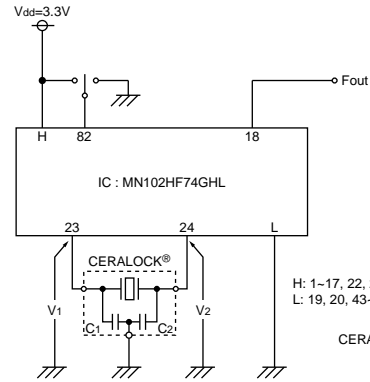
USB Transceiver



CERALOCK®: CSTCR6M00G15□□□-R0
 C1=39pF (Typ.)
 C2=39pF (Typ.)

■ MN102HF74GHL (Panasonic)

16-bit Microcontroller

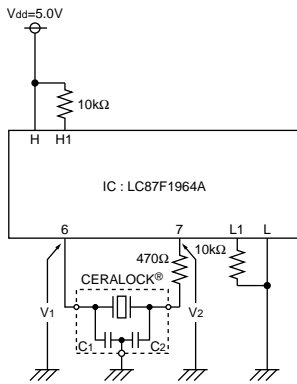


H: 1-17, 22, 25, 26-42, 54, 58-60, 66-81, 83-91
 L: 19, 20, 43-53, 56-57, 61-65, 82, 92-100

CERALOCK®: CSTCE12M0G15L□□□-R0
 C1=33pF (Typ.)
 C2=33pF (Typ.)

■ LC87F1964A (Sanyo)

8-bit Microcontroller

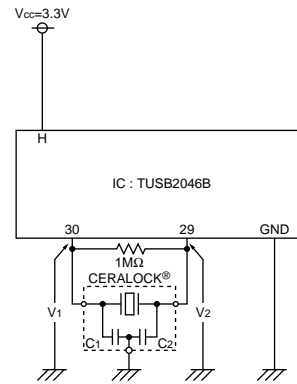


H: 8, 19, 39
 L: 5, 20, 40
 H1: 31, 33
 L1: 29, 30, 32, 34-36

CERALOCK®: CSTCE12M0G15L□□□-R0
 C1=33pF (Typ.)
 C2=33pF (Typ.)

■ TUSB2046B (Texas Instruments)

USB 4-port HUB

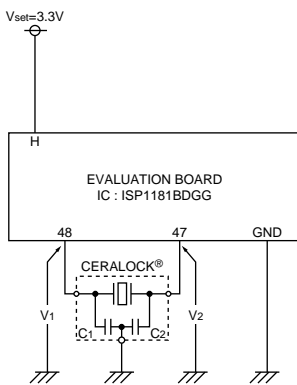


H: 3, 25
 L: 7, 28

CERALOCK®: CSTCR6M00G15□□□□-R0
 C1=39pF (Typ.)
 C2=39pF (Typ.)

■ ISP1181BDGG (Philips)

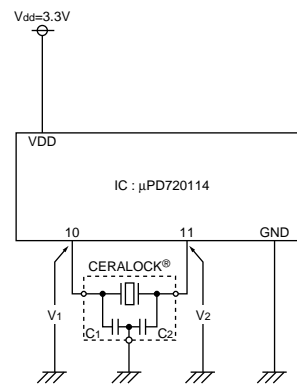
USB Controller



CERALOCK®: CSTCR6M00G15□□□□-R0
 C1=39pF (Typ.)
 C2=39pF (Typ.)

■ uPD720114 (NEC Electronics)

USB2.0 (Hi-speed) HUB Controller



CERALOCK®: CSTCE30M0XK1□□□□-R0
 C1=5pF (Typ.)
 C2=5pF (Typ.)