

Ceramic Resonators (CERALOCK®)

muRata

MHz Chip Type -Standard Frequency Tolerance for General Usage-

Chip type CERALOCK(R) with built-in load capacitors provides an extremely small package.

MURATA's package technology expertise has enabled the development of the Chip CERALOCK(R) 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

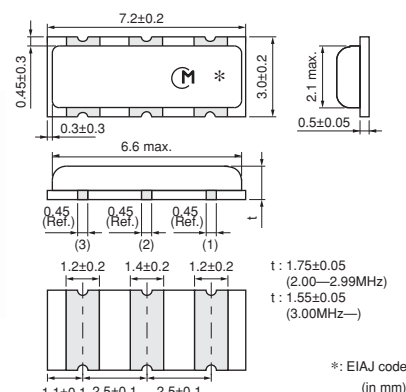
1. Oscillation circuits do not require external load capacitors.
2. Available in a wide frequency range.
3. Extremely small and have a low profile.
4. No adjustment is necessary for oscillation circuits.

■ Applications

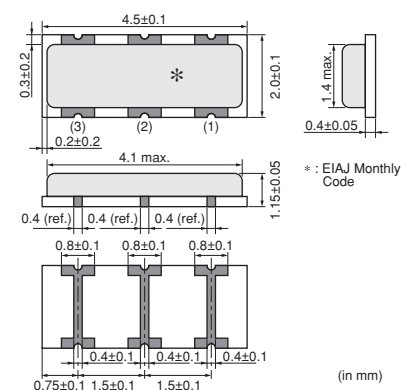
1. Clock oscillators for microprocessors
2. Small electronic equipment such as handheld phone, digital video camcorder (DVC), digital still camera (DSC), portable audio player, etc.
3. Storage media and memory (HDD, Optical storage device, FDD, Flash memory card, etc.)
4. Office automation equipment (Mobile PC, Mouse, Keyboard, etc.)
5. Audio-visual applications (TV, DVD-HDD recorder, Audio equipment, Remote control, etc.)
6. Home appliances (Air conditioner, Microwave oven, Refrigerator, Washing machine, etc.)



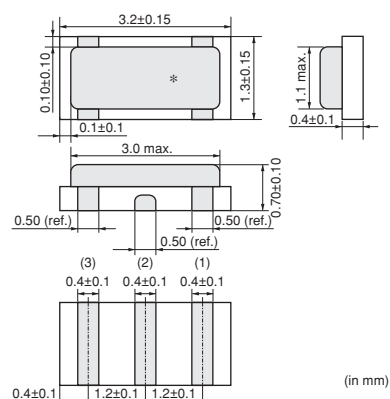
CSTCC_G
2.00-3.99MHz



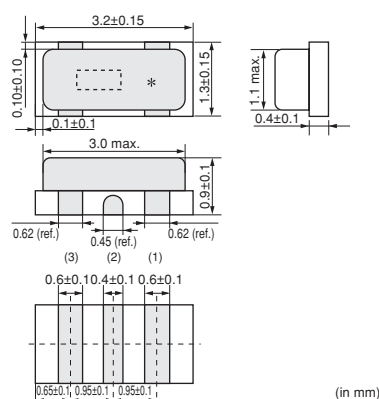
CSTCR_G
4.00-7.99MHz



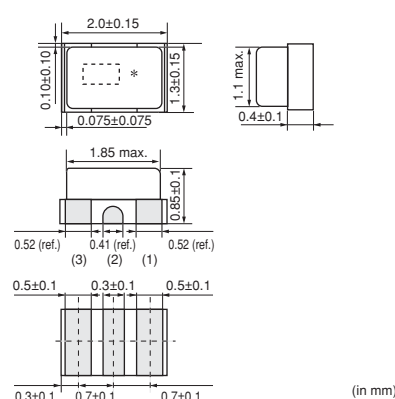
CSTCE_G/CSTCE_G_Z
8.00-13.99MHz



CSTCE_V
14.00-20.00MHz



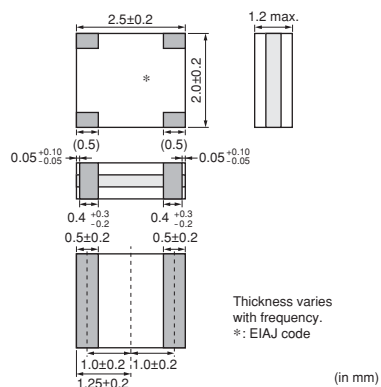
CSTCG_V
20.00-33.86MHz
(Ultra Small)



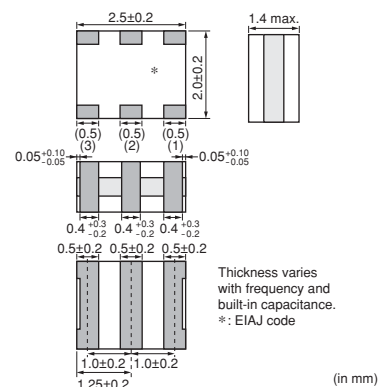
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CSACW_X
 20.01-70.00MHz



CSTCW_X
 20.01-70.00MHz

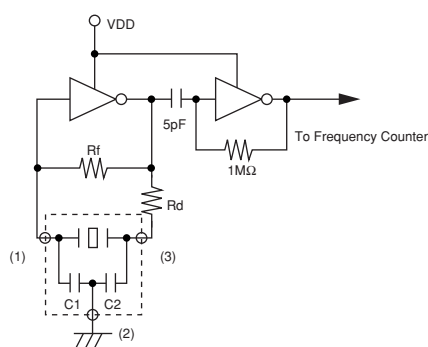


Part Number	Oscillating Frequency (MHz)	Initial Tolerance	Temperature Stability (%)	Temperature Range (°C)
CSTCC_G	2.00 to 3.99	±0.5%	±0.3 [±0.4%:Built-in Capacitance 47pF type within Freq.2.00 to 3.49MHz]	-20 to 80
CSTCR_G	4.00 to 7.99	±0.5%	±0.2	-20 to 80
CSTCE_G	8.00 to 13.99	±0.5%	±0.2	-20 to 80
CSTCE_G_Z	8.00 to 13.99	±0.5%	±0.2	-40 to 125
CSTCE_V	14.00 to 20.00	±0.5%	±0.3	-20 to 80
CSTCG_V	20.00 to 33.86	±0.5%	±0.3	-20 to 80
CSACW_X	20.01 to 70.00	±0.5%	±0.2	-20 to 80
CSTCW_X	20.01 to 70.00	±0.5%	±0.2	-20 to 80

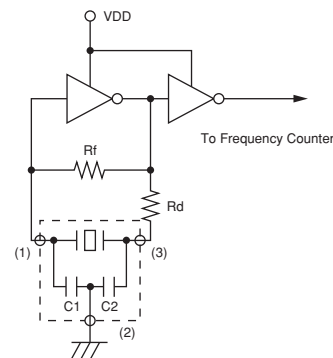
Irregular or stopped oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

Oscillation Frequency Measuring Circuit

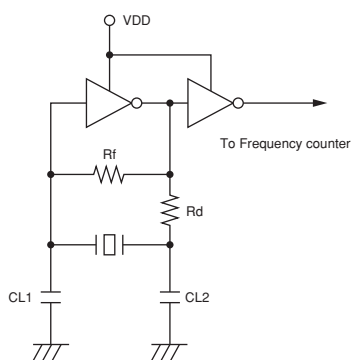
CSTCR_G/CSTCE_G_Z/CSTCE_V/CSTCG_V



CSTCC_G/CSTCW_X

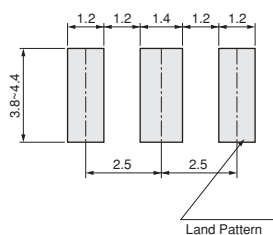


CSACW_X



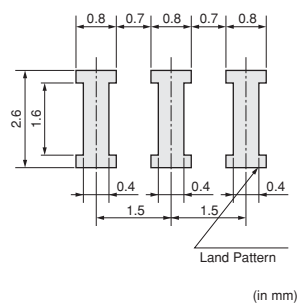
■ Standard Land Pattern Dimensions

CSTCC_G



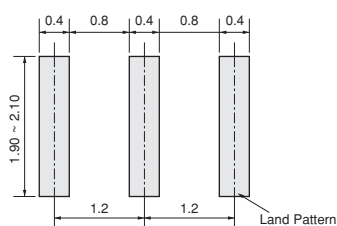
(in mm)

CSTCR_G
 (* This Land Pattern is not common to CSTCR_G15C, CSTCR_G15L, CSTCR_GH5L.)



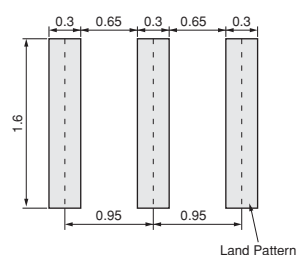
(in mm)

CSTCE_G/CSTCE_G_Z



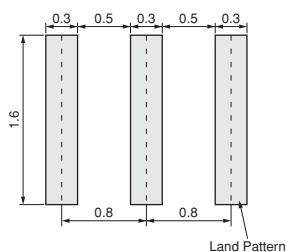
(in mm)

CSTCE_V
 (* This Land Pattern is not common to CSTCE_V13C, CSTCE_V_C, CSTCE_V13L, CSTCE_VH3L.)



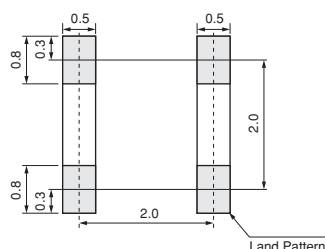
(in mm)

CSTCG_V



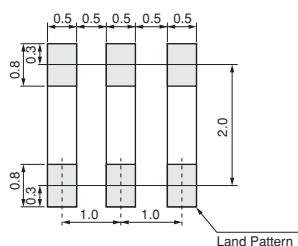
(in mm)

CSACW_X



(in mm)

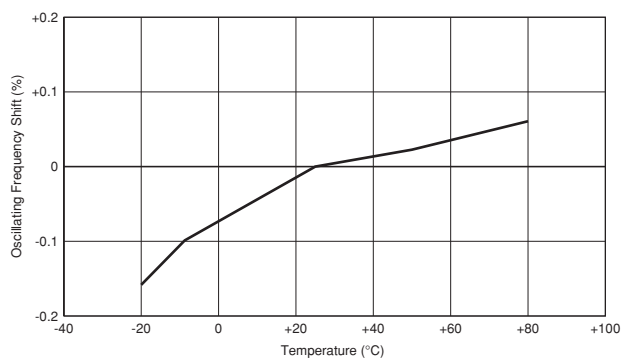
CSTCW_X



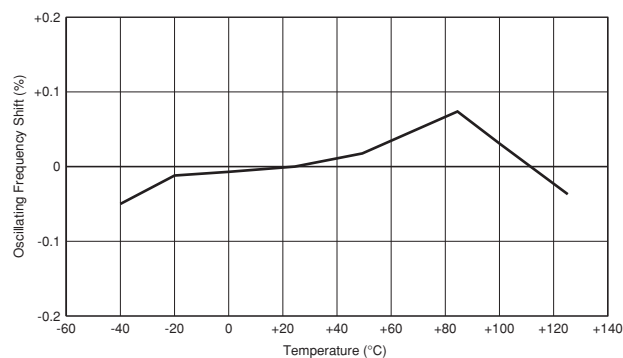
(in mm)

■ Oscillation Frequency Temperature Stability

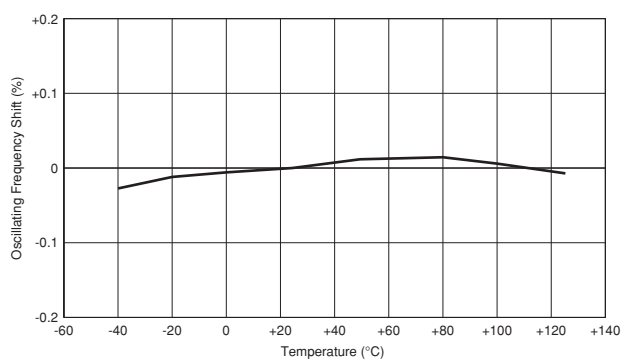
CSTCC_G



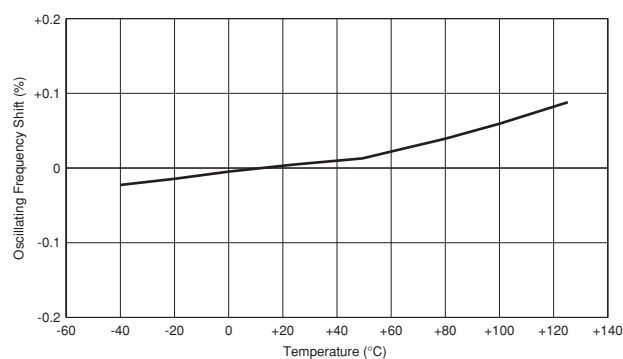
CSTCR_G



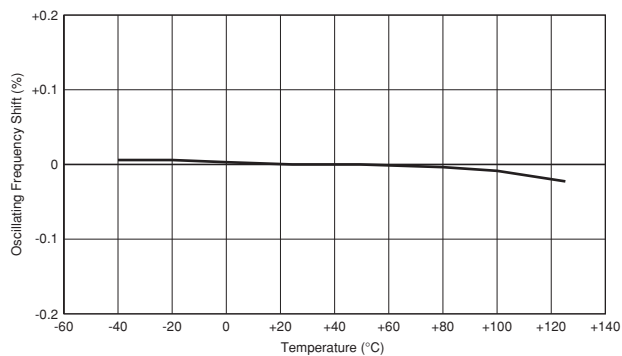
CSTCE_G/CSTCE_G_Z



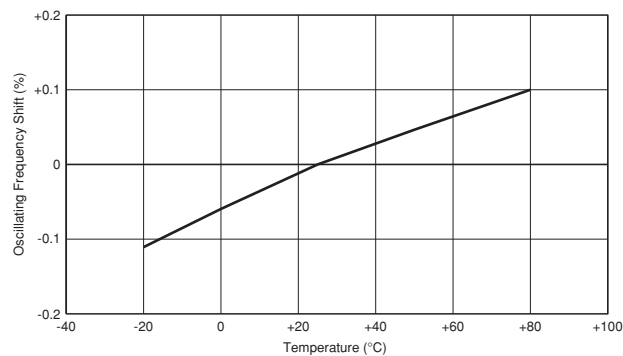
CSTCE_V



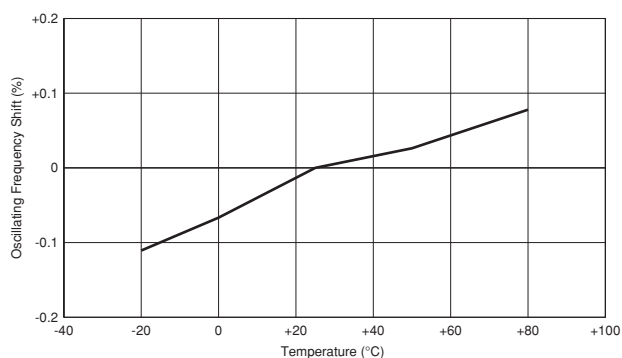
CSTCG_V



CSACW_X



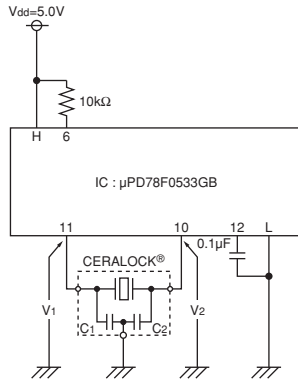
CSTCW_X



Application Circuits Utilization

■ μ PD78F0533GB (Renesas)

8-bit Microcomputer

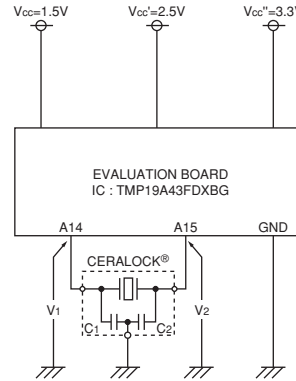


H: 15, 16, 47
L: 9, 13, 14, 48

CERALOCK®: CSTCR4M00G55-R0
C1=39pF (Typ.)
C2=39pF (Typ.)

■ TMP19A43FDXBG (Toshiba)

32-bit Microcomputer

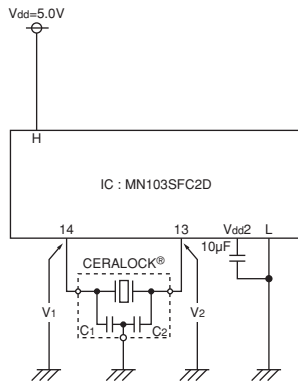


Xin: A14
Xout: A15

CERALOCK®: CSTCE10M0G52-R0
C1=10pF (Typ.)
C2=10pF (Typ.)

■ MN103SFC2D (Panasonic)

32-bit Microcomputer

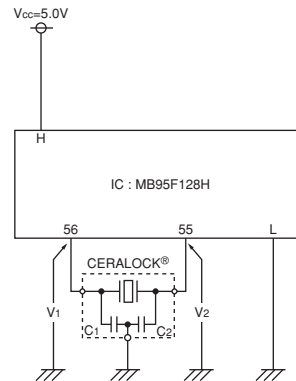


H: 9, 17, 34
L: 7, 15, 36
Vdd2: 16, 38

CERALOCK®: CSTCR5M00G55Z-R0
C1=39pF (Typ.)
C2=39pF (Typ.)

■ MB95F128H (Fujitsu)

8-bit Microcomputer

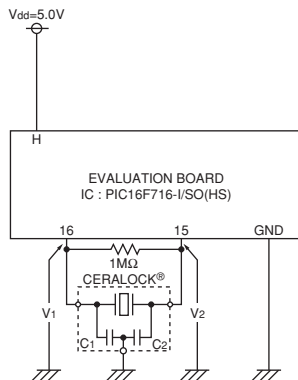


H: 3, 28, 51, 79
L: 4, 29, 54, 57

CERALOCK®: CSTCE8M00G52-R0
C1=10pF (Typ.)
C2=10pF (Typ.)

■ PIC16F716-I/SO (Microchip)

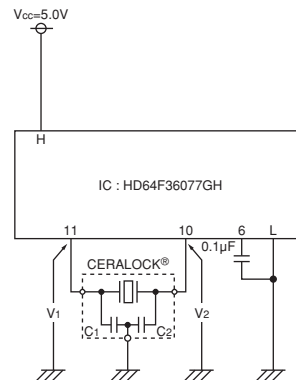
8-bit Microcomputer



CERALOCK®: CSTCE12M0G52-R0
C1=10pF (Typ.)
C2=10pF (Typ.)

■ HD64F36077GH (Renesas)

16-bit Microcomputer



H: 3, 7, 12
L: 8, 9

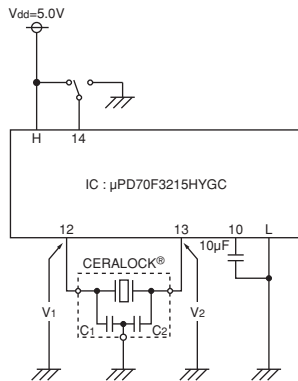
CERALOCK®: CSTCE8M00G52-R0
C1=10pF (Typ.)
C2=10pF (Typ.)

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Application Circuits Utilization

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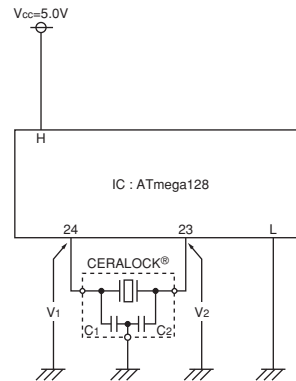
■ μ PD70F3215HYGC (Renesas) 32-bit Microcomputer



H: 1, 5, 9, 34, 70
L: 2, 8, 11, 33, 69

CERALOCK®: CSTCR5M00G55-R0
C1=39pF (Typ.)
C2=39pF (Typ.)

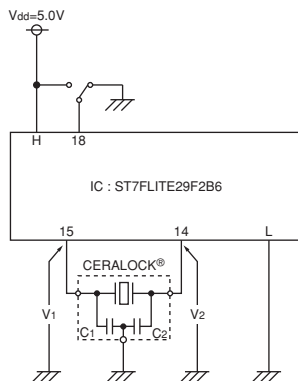
■ ATmega128 (Atmel) 8-bit Microcomputer



H: 21, 52, 64
L: 22, 53, 63

CERALOCK®: CSTCE8M00G52-R0
C1=10pF (Typ.)
C2=10pF (Typ.)

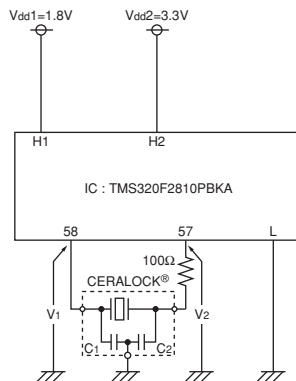
■ ST7FLITE29F2B6 (ST Microelectronics) 8-bit Microcomputer



H: 17
L: 16

CERALOCK®: CSTCE16M0V53-R0
C1=15pF (Typ.)
C2=15pF (Typ.)

■ TMS320F2810PBKA (Texas Instruments) 32-bit Microcomputer



H1: 20, 29, 42, 56, 63, 74, 82, 94, 99,
100, 102, 110, 114
H2: 1, 13, 14, 25, 49, 52, 83, 104, 118
L: 12, 15, 17, 26, 30, 39, 53, 59, 62, 73,
88, 95, 103, 109, 115, 117, 128

CERALOCK®: CSTCE15M0V53-R0
C1=15pF (Typ.)
C2=15pF (Typ.)