Ceramic Resonators (CERALOCK®)

MHz Chip Type -Standard Frequency Tolerance for Automotive-

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.
Chip "CERALOCK" for automotive has achieved importance in the worldwide automotive market. This diverse series owes its development to MURATA's original mass production techniques and high reliability.

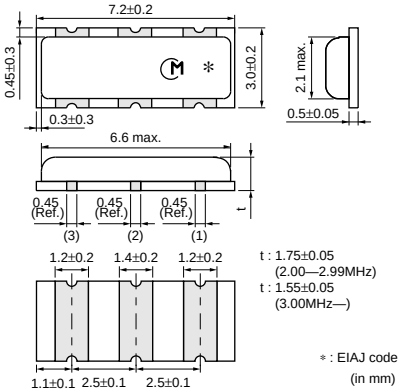
■ Features

1. The series has high reliability and is available for wide temperature range.
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.

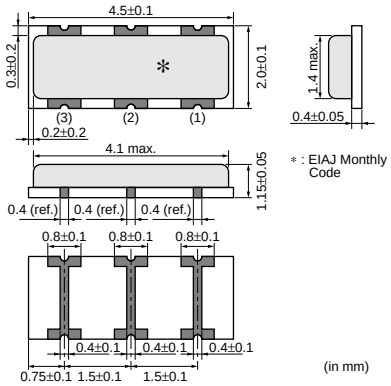
■ Applications

1. Cluster panel and Control panel
2. Safety control (Anti-lock Brake System, Electronic Stability Control, Airbag, etc.)
3. Engine ECU, Electronic Power Steering, Immobilizer, etc.
4. Car Air-conditioner, Power Window, Remote Keyless Entry system, etc.
5. Electronic Toll Collection system, Car Navigation, etc.

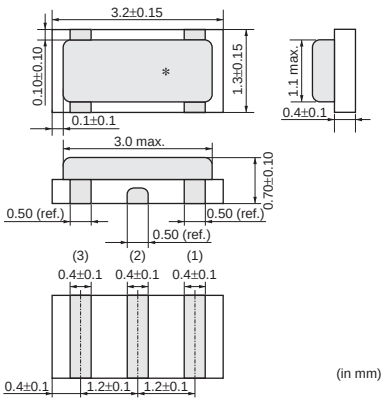
CSTCC_G_A
2.00-3.99MHz



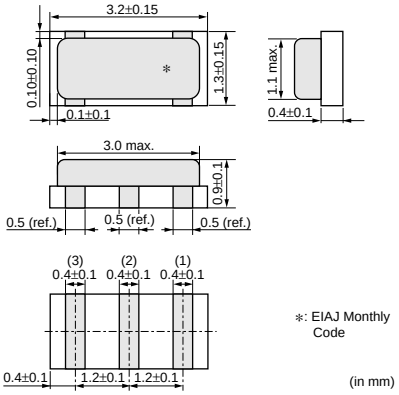
CSTCR_G_B
4.00-7.99MHz



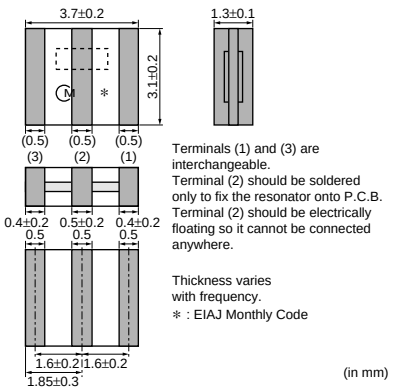
CSTCE_G_A
8.00-13.99MHz



CSTCE_V_C
14.00-20.00MHz



CSACV_X_Q
20.01-70.00MHz



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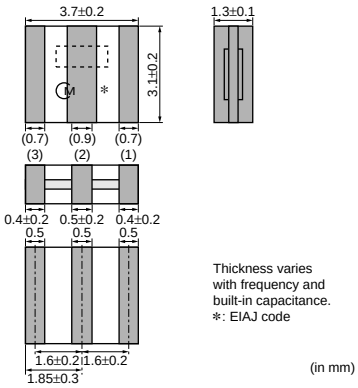
CSTCV_X_Q
20.01-70.00MHz



Thickness varies with frequency and built-in capacitance.
∗: EIAJ code

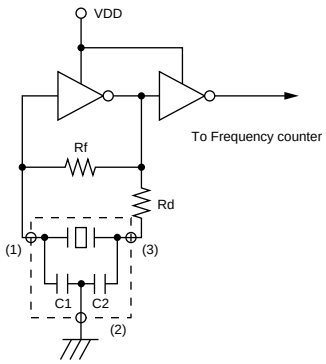
(in mm)

Part Number	Oscillating Frequency (MHz)	Initial Tolerance	Temp. Stability (%)	Temperature Range (°C)
CSTCC_G_A	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
CSTCR_G_B	4.00 to 7.99	±0.5%	±0.15	-40 to 125
CSTCE_G_A	8.00 to 13.99	±0.5%	±0.2	-40 to 125
CSTCE_V_C	14.00 to 20.00	±0.5%	±0.15	-40 to 125
CSACV_X_Q	20.01 to 70.00	±0.5%	±0.3	-40 to 125
CSTCV_X_Q	20.01 to 70.00	±0.5%	±0.3	-40 to 125

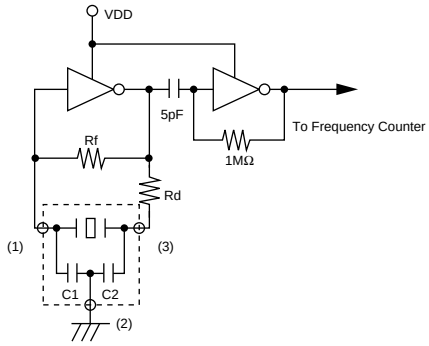
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

■ Oscillation Frequency Measuring Circuit

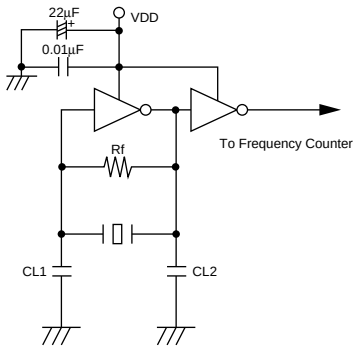
CSTCC_G_A



CSTCE_G_A/CSTCE_V_C/CSTCR_G_B/CSTCV_X_Q

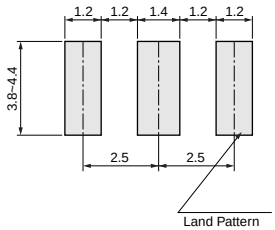


CSACV_X_Q



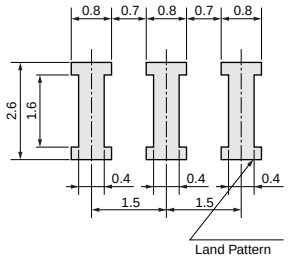
■ Standard Land Pattern Dimensions

CSTCC_G_A



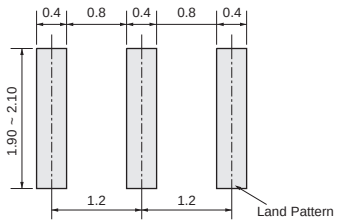
(in mm)

CSTCR_G_B



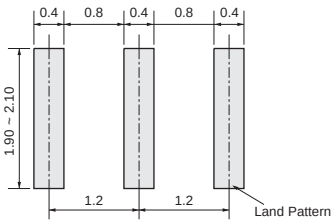
(in mm)

CSTCE_G_A



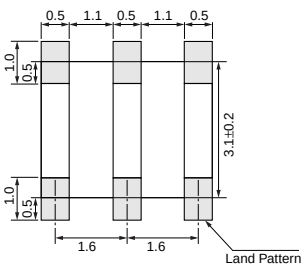
(in mm)

CSTCE_V_C



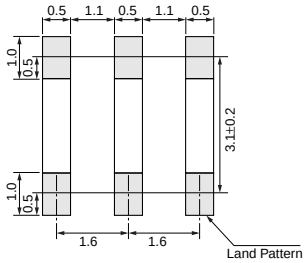
(in mm)

CSTCV_X_Q



(in mm)

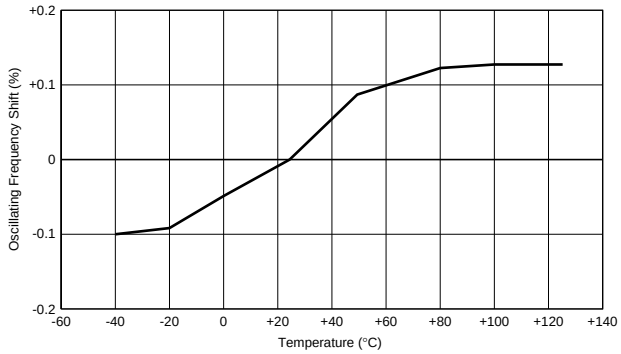
CSACV_X_Q



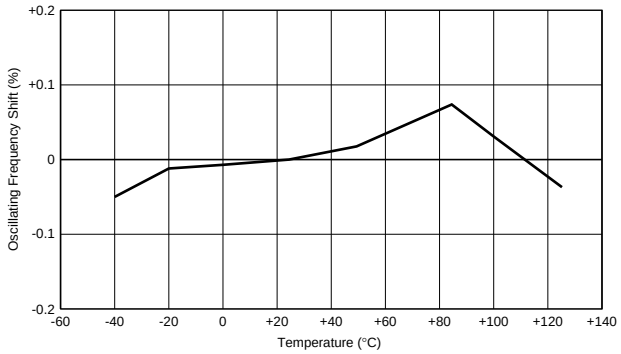
(in mm)

■ Oscillation Frequency Temperature Stability

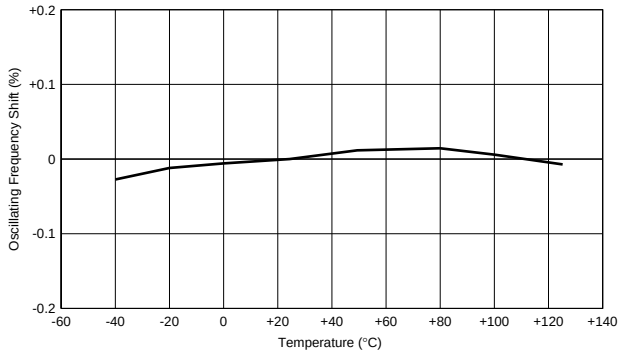
CSTCC_G_A



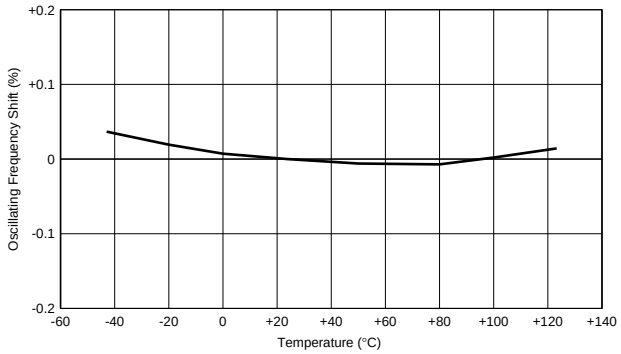
CSTCR_G_B



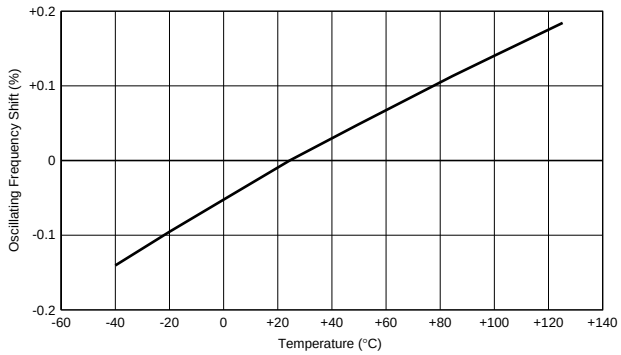
CSTCE_G_A



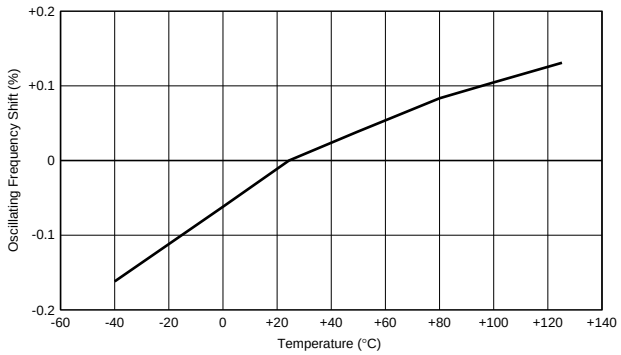
CSTCE_V_C



CSTCV_X_Q



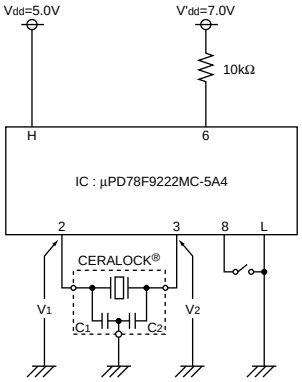
CSACV_X_Q



Application Circuits Utilization

■ uPD78F9222MC-5A4 (NEC Electronics)

8-bit Microcomputer

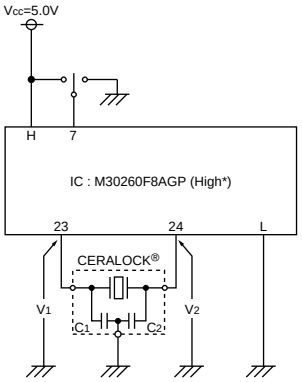


H: 5, 20
L: 1

CERALOCK®: CSTCR6M00G55B-R0
C1=39pF (Typ.)
C2=39pF (Typ.)

■ M30260F8AGP (Renesas)

16-bit Microcomputer



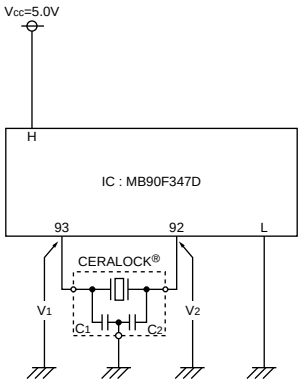
H: 11, 46, 47, 48
L: 4, 9, 44

*High: XIN-XOUT Drive Capacity Select Bit

CERALOCK®: CSTCE10M0G55A-R0
C1=33pF (Typ.)
C2=33pF (Typ.)

■ MB90F347D (Fujitsu)

16-bit Microcomputer

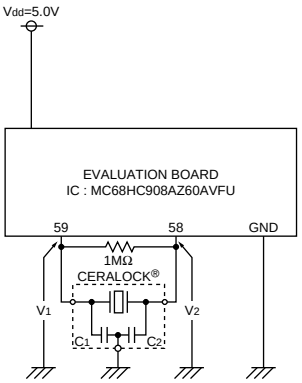


H: 15, 32, 65, 90
L: 16, 35, 44, 66, 91

CERALOCK®: CSTCE8M00G55A-R0
C1=33pF (Typ.)
C2=33pF (Typ.)

■ MC68HC908AZ60AVFU (Freescale)

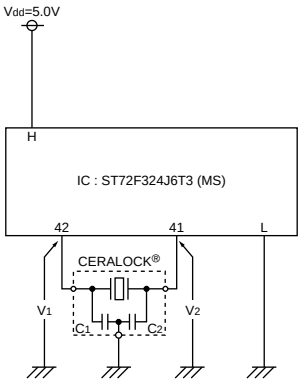
8-bit Microcomputer



CERALOCK®: CSTCE16M0V53C-R0
C1=15pF (Typ.)
C2=15pF (Typ.)

■ ST72F324J6T3 (MS) (ST Microelectronics)

8-bit Microcomputer

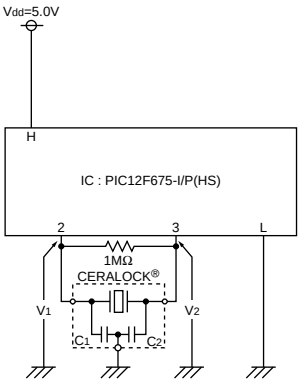


H: 13, 21, 32, 43
L: 14, 22, 33, 39, 40

CERALOCK®: CSTCR4M00G55B-R0
C1=39pF (Typ.)
C2=39pF (Typ.)

■ PIC12F675-I/P (HS) (Microchip)

8-bit Microcomputer



H: 1
L: 4, 8

CERALOCK®: CSTCE8M00G52A-R0
C1=10pF (Typ.)
C2=10pF (Typ.)