

Ceramic Resonators (CERALOCK®)



MHz Chip Type -Tight Frequency Tolerance for Automotive-

Chip type CERALOCK(R) with built-in load capacitors provides high accuracy in an extremely small package. MURATA's frequency adjustment and package technology expertise has enabled the development of the chip CERALOCK(R) with built-in load capacitors. This diverse series owes its development to MURATA's original mass production techniques and high reliability, and has achieved importance in the worldwide automotive market.

■ Features

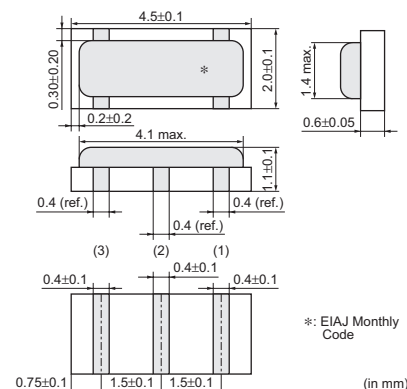
1. The series are high accuracy resonators whose total tolerance is available for less than $\pm 3,000\text{ppm}$.
2. The series has high reliability and is available for a wide temperature range.
3. Oscillation circuits do not require external load capacitors.
4. The series is available for a wide frequency range.
5. The resonators are extremely small and have a low profile.
6. No adjustment is necessary for oscillation circuits.

■ Applications

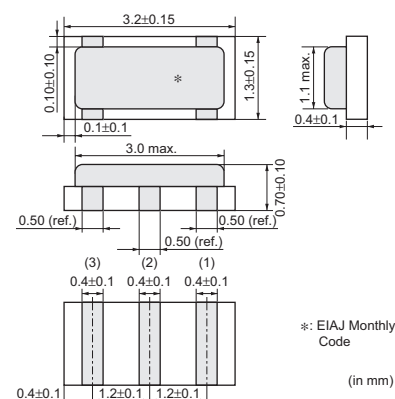
1. Cluster panel and Control panel
2. Safety control
(Anti-lock Brake System, Electronic Stability Control, Airbag, etc.)
3. Engine ECU, Electronic Power Steering, Immobilizer, etc.
4. Car Air conditioner, Power Window, Remote Keyless Entry system, etc.
5. Intelligent Transportation System
(Lane Keeping System, Millimeter wave radar, etc.)
6. Battery control for hybrid cars



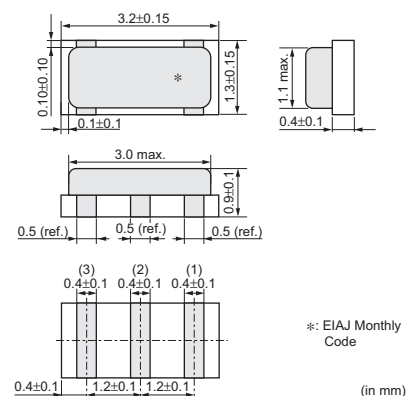
CSTCR_G15C
4.00-7.99MHz



CSTCE_G15C
8.00-13.99MHz



CSTCE_V13C
14.00-20.00MHz

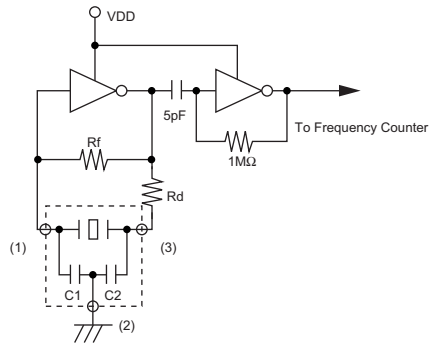


Part Number	Oscillating Frequency (MHz)	Initial Tolerance	Temperature Stability (%)	Temperature Range (°C)
CSTCR_G15C	4.00 to 7.99	$\pm 0.1\%$	± 0.13	-40 to 125
CSTCE_G15C	8.00 to 13.99	$\pm 0.1\%$	± 0.13	-40 to 125
CSTCE_V13C	14.00 to 20.00	$\pm 0.1\%$	± 0.13	-40 to 125

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

■ Oscillation Frequency Measuring Circuit

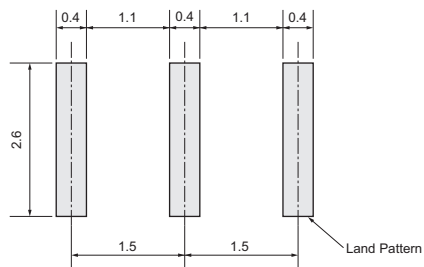
1



■ Standard Land Pattern Dimensions

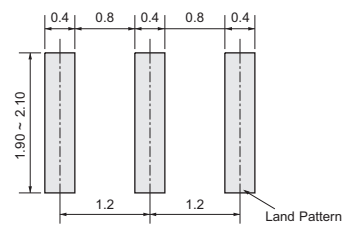
CSTCR_G15C

(* This Land Pattern is not common to CSTCR_G.)



(in mm)

CSTCE_G15C

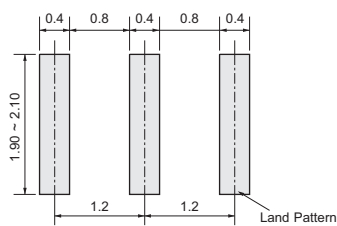


(in mm)

■ Oscillation Frequency Temperature Stability

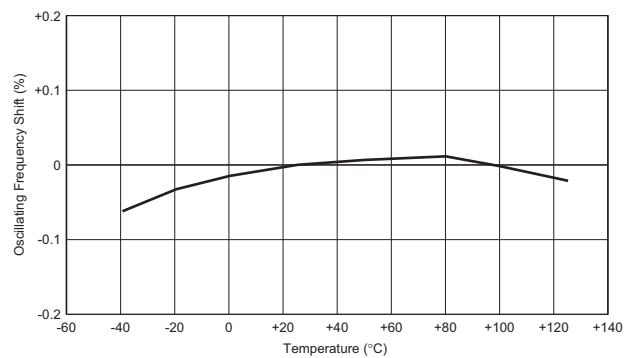
CSTCE_V13C

(* This Land Pattern is not common to CSTCE_V.)

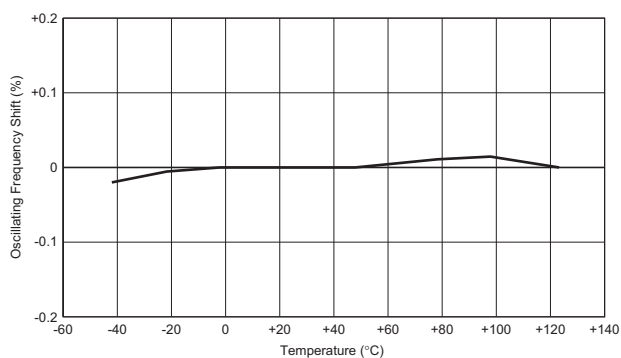


(in mm)

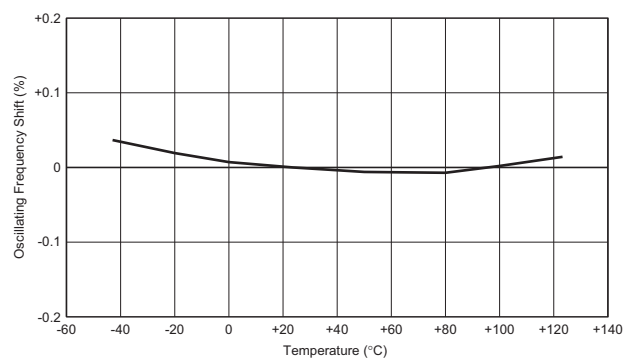
CSTCR_G15C



CSTCE_G15C

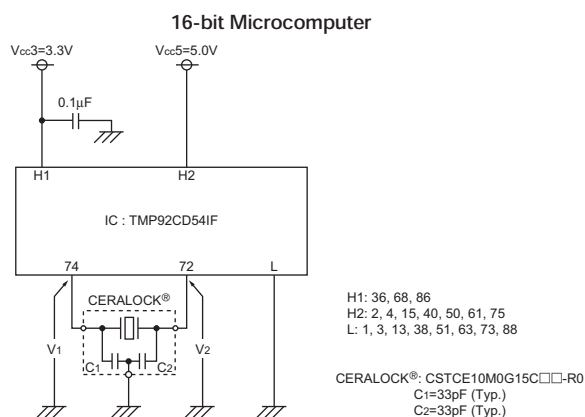


CSTCE_V13C

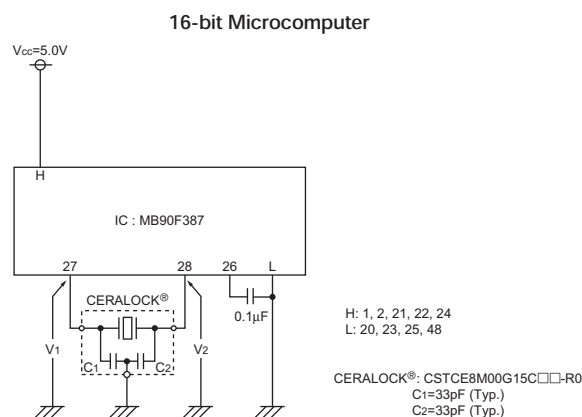


Application Circuits Utilization

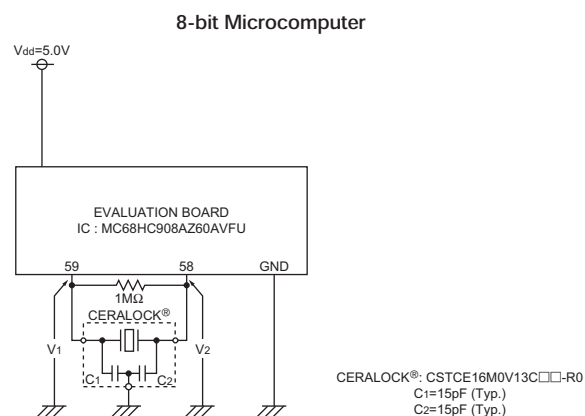
■ TMP92CD54IF (Toshiba)



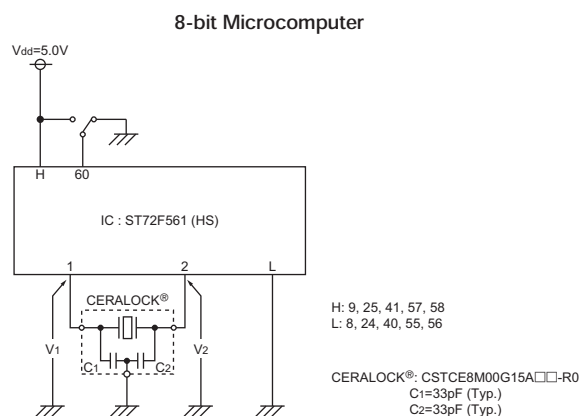
■ MB90F387 (Fujitsu)



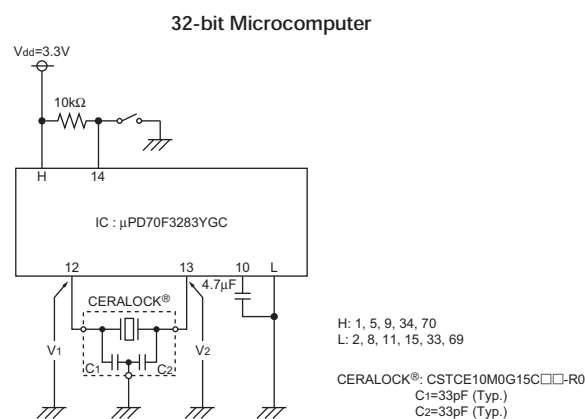
■ MC68HC908AZ60AVFU (Freescale)



■ ST72F561 (HS) (ST Microelectronics)



■ µPD70F3283YGC (Renesas)



■ M30842MCT-XXXGP (Renesas)

