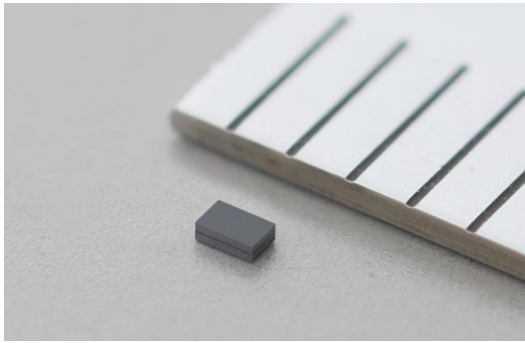


32.768kHz MEMS Resonator



Application

- Small and low-profile devices**
Ex. Medical patch devices, Smart cards, Wireless Module, Wearables, Wireless Earphone ,etc.
- Industrial Equipment**
Ex. Encoder, PLC(Programmable Logic Controller) FEMS (Factory Energy Management System) BEMS (Building Energy Management System), etc.
- Lighting**
- Embedding in ICs**
Ex. Microcomputers, real-time clocks, etc.

Product Concept

- World's smallest size 0.9 X 0.6 x 0.3 (in mm)**
 - Realizing 50% area saving compared with 1.2x1.0mm sized turning fork crystal.

- Built-in capacitance**
 - Space saving by reducing the external load capacitance for oscillation circuit.

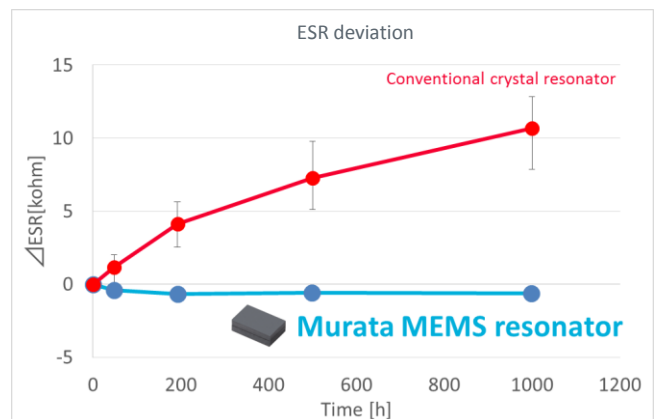
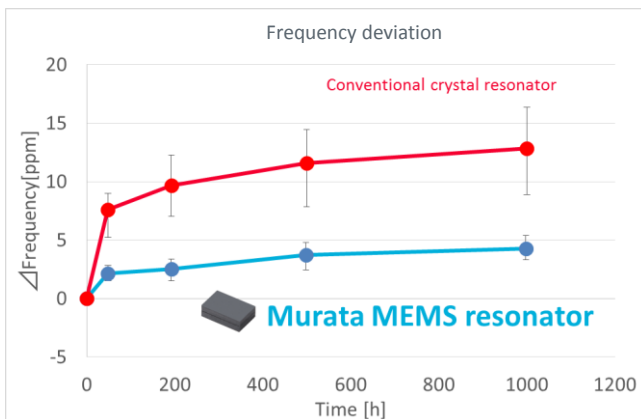
- Support high temperatures / High reliability**
 - Available for using high temperature required applications because of non organic adhesives.

- Low ESR**
 - Realizing lower power consumption by optimizing IC gain.



Support high temperatures / High reliability

The device realizes high reliability especially in high temperature condition because it does NOT use organic material inside package.

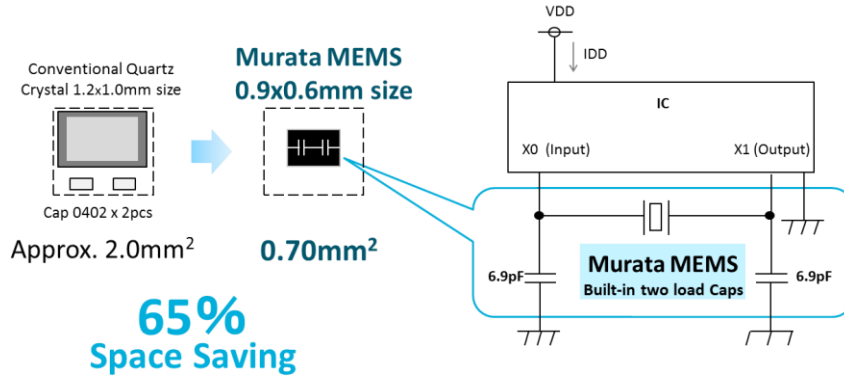


HAST*/PCT** Test Result
[Test condition] Temperature: 120°C, Humidity: 85%, Air pressure: 1.7atm

*High Accelerated Stress Test
**Pressure Cooker Test

Space saving

Realizing 65% space saving compared with circuit for 1.2x1.0mm sized crystal with 0.4x0.2mm sized capacitors.



Low power consumption

The low ESR characteristics can be utilized to lower the IC gain. This enables a reduction in the current consumption of the oscillation circuit and the power consumption of the overall set.

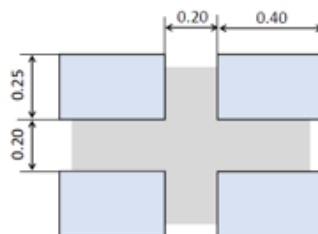
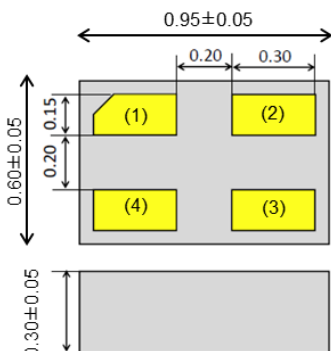
Resonator	ESR spec.	IC gain	Oscillation margin	Current Consumption
General 2012 and 1610 size crystal	90 kΩ max.	High	○ Good Enough	115.6 nA
		Low	△ Not Enough	100.9 nA
muRata MEMS	75 kΩ max.	High	◎ Excellent	115.5 nA
		Low	○ Good Enough	100.9 nA

13% saving!

Product lineup and dimensions

Part number	Operating Temperature Range	Frequency Tolerance	Frequency Shift by Temperature	Load Capacitance*	Equivalent Series Resistance
WMRAG32K76CS1C00R0	-30 to +85° C	±20ppm	-150 to +10 ppm	8pF	75 k Ω max.
WMRAG32K76CS2C00R0	-40 to +85° C		-200 to +10 ppm		
WMRAG32K76CS3C00R0	-40 to +105° C		-270 to +10 ppm		
WMRAG32K76CS4C00R0	-40 to +125° C				

*When considering replacement from a crystal resonator, note that the load capacitance value differs for crystal resonators and MEMS resonators.

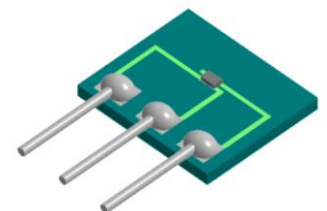


Unit : mm

Terminal No.

- (1) : Xin
- (2) : GND
- (3) : Xout
- (4) : GND or NC

If you need...



MEMS on PCB Sample Also Available!