

SC-20S

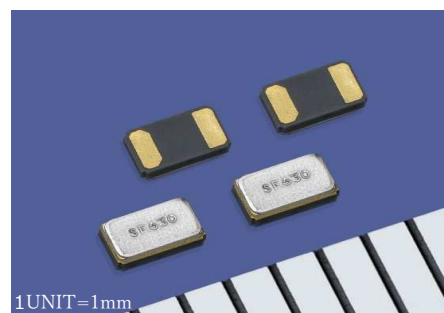
2012-Size 32 kHz Compact Tuning Fork Crystal Resonator

•Features

- 32kHz tuning fork crystal, small size 2.0 x 1.2 x 0.5 mm
- SMD type suitable for high-density mounting
- Excellent shock and heat resistance.
- Complies with EU RoHS directive (completely Pb-free)
- Built-in highly reliable photolithographic crystal Resonator

•Applications

- Smart ring
- Smartwatch
- Various microcontroller sub-clocks
- Various communication modules
- GPS module
- Smart hearing aid
- Reference clock for RTC

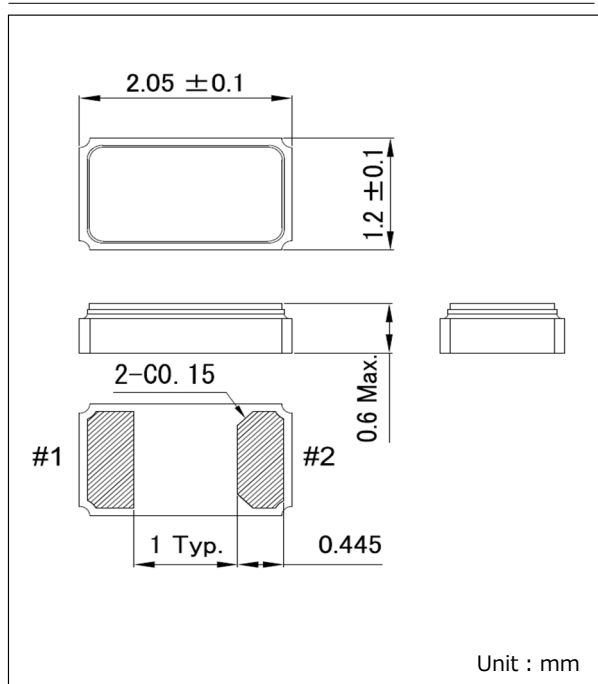


•Specifications

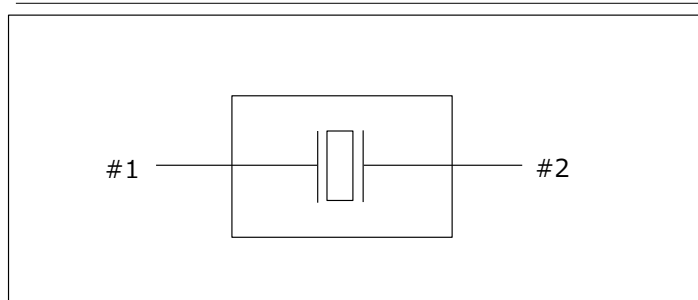
Conditions where not specified (Temperature: 25±2°C, DL;0.1μW)

Item	Symbol	Specifications	Conditions / Note
Nominal Frequency	f _{nom}	32.768kHz	
Frequency Tolerance	f _{tol}	±20×10 ⁻⁶	Please contact us regarding other deviations.
Turnover Temperature	T _i	25±5°C	
Parabolic Coefficient	β	(-0.030±10%) × 10 ⁻⁶ /°C ²	
Load Capacitance	CL	4pF, 6pF, 7pF, 9pF, 12.5pF	For other CLs, please contact us.
Motional Resistance (ESR)	R ₁	70kΩ Max.	
Absolute Max. Drive Level	DL _{max.}	1.0μW Max.	
Drive Level	DL	0.1μW Typ.	
Shunt Capacitance	C ₀	1.3pF Typ.	Reference value
Frequency Ageing	f _{age}	±3×10 ⁻⁶ /year	First year
Operating Temperature	T _{use}	-40~+85°C	
Storage Temperature	T _{stg}	-55~+125°C	Store individually

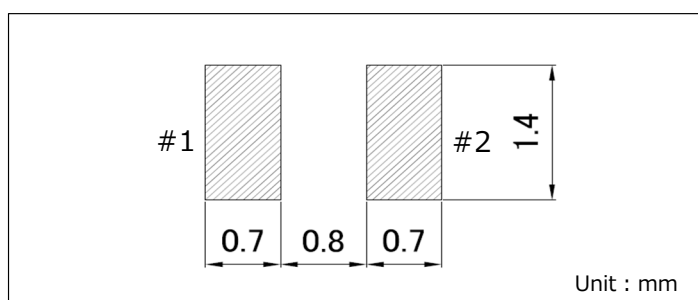
•Dimensions



•Internal Lead Connections



•Recommended Soldering Pattern



Remark: When designing the circuit board, do not place circuit patterns on the crystal resonator mounting area (bottom surface).

Seiko Instruments Inc.

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