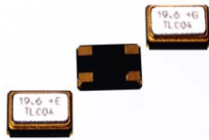


# Ceramic SMD Crystal Unit

Precision type  
Ceramic Package  
Ultra Miniature

Pb-free : RoHs compliance



## TFC-1612M

### Typical applications

- Pagers. PHS. Cordless Telephones. GPS. Bluetooth. etc.

### Features

- 30 to 60 MHz.
- Precision type Vacuum sealed unit.
- Ultra miniature type essential in the high density PCB.
- Package : Metal lid + Ceramic package.  
1.6×1.25×0.4mm

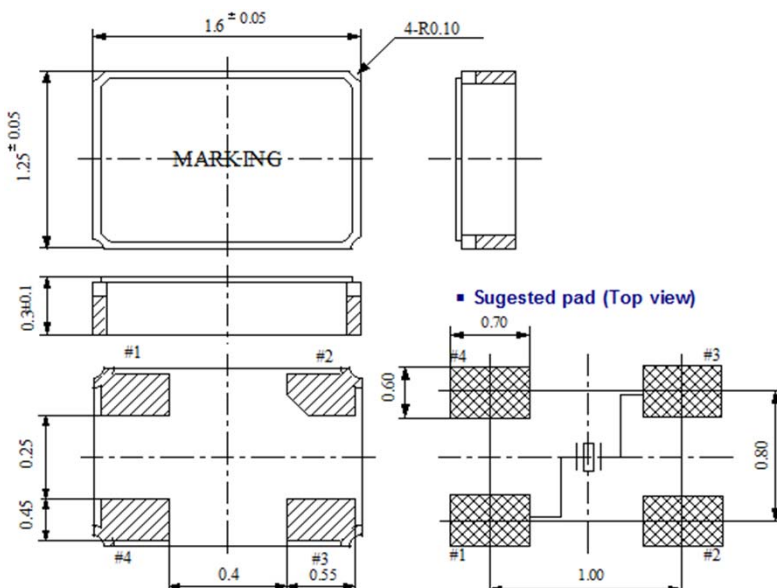
## Specifications

Model	TFC - 1612M	
Frequency Range ( Fr )	30.000 to 60.000 MHz Typical frequency : 32.000, 36.000, 38.400 40.000, 44.000 MHz	Fundamental
Frequency Tolerance (max) ( dF/F )	±10.0ppm to ±50.0ppm	at 25±3°C
Frequency Temperature Stability (max)	± 5.0ppm to ±30.0ppm ( 0 to +50°C) ±10.0ppm to ±30.0ppm (-10 to +60°C) ±15.0ppm to ±30.0ppm (-20 to +75°C)	
Operating Temperature Range	-20 to +75°C	
Storage Temperature Range	-40 to +90°C	
Equivalent Series Resistance (max) ( Rr )	See below table	
Load Capacitance (typical) ( CL )	8.0pF to Series Resonance	
Parallel Capacitance (max) ( Co )	7.0pF max.	
Drive Level (typical) ( DL )	10.0µW to 500µW	

## Environmental Characteristics

Description	Specification
Aging (at 25° C)	±1.0 ppm max / Year (at 25° C)
Fall Shock	Test : 3 time free drop onto concrete board from 150cm high Result: ±1.0 ppm max.
Vibration Shock	Test : Freq. 5-500Hz, Amplitude 1.5mm, Test time 4cycles/XYZ axis Result: ±1.0 ppm max.
Solderability	Test : Immersed into solder bath at 235±° C for 3 sec. Result: More than 95%
Humidity	Test : 90 to 95%RH at 60±3° C±500 hours Result: ±1.0 ppm max.
Reflow Heat	Test : 2 times of IR reflow soldering in accordance with reflow temperature profile as per the document No.:TR-0531 Result: ±1.0 ppm max.

## Outline Drawing & Suggested Pad



## Equivalent Series Resistance

Freq. Range	Rr (max)	Mode
30.0 to 60.0MHz	200 Ω	Fundamental

### Connection

- #1 Input
- #2 NC
- #3 Output
- #4 Ground