

# Quartz Crystal Ceramic SMD

**FF**


4.0 x 2.5mm Ceramic SMD

## Product Features

- Rugged AT-cut crystal construction
- Miniature 4.0 x 2.5mm ceramic package
- Available on tape & reel; 12mm tape, 1000 units per reel
- Pb-free and RoHS/Green compliant

## Product Description

The 4-pad FF Series seam seal devices incorporate a sub-miniature AT-cut crystal resonator housed in a standard 4.0 x 2.5mm ceramic package. These compact crystals are ideal for surface mounting in densely populated or small form-factor PCB applications.

## Typical Applications

- HDD
- PCMCIA Cards
- Portable / hand-held PCs
- Digital Tuner
- GPS
- Blue Tooth
- Wireless LAN
- GSM, CDMA, GPRS
- UWB
- ZigBee
- Pen Driver

## Frequency Range:

- 12.0000 MHz to 66.0000 MHz (Fundamental)

## Characteristics at 25°C ±2°C:

- Frequency Calibration Tolerance: ±10ppm, ±20ppm, or ±30ppm
- Load Capacitance: 8 to 32pF or Series Resonance
- Effective Series Resistance (ESR):  
40 to 150Ω max depending on frequency
- Drive Level: 10μW typ. (100μW max)
- Shunt Capacitance: 5pF Max

## Temperature Range:

- Operating: -20 to +70°C or -40 to +85°C
- Storage: -55 to +125°C

## Temperature Stability:

- ±10ppm, ±20ppm, ±30ppm, or ±50ppm (-20 to +70°C)
- ±30ppm, or ±50ppm (-40 to +85°C)

## Aging at 25°C, First Year:

- ±3ppm Max

## Reflow Temperature:

- 260°C Max., 10 seconds Max

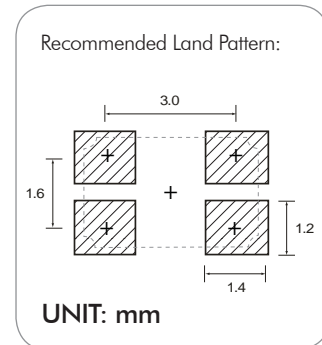
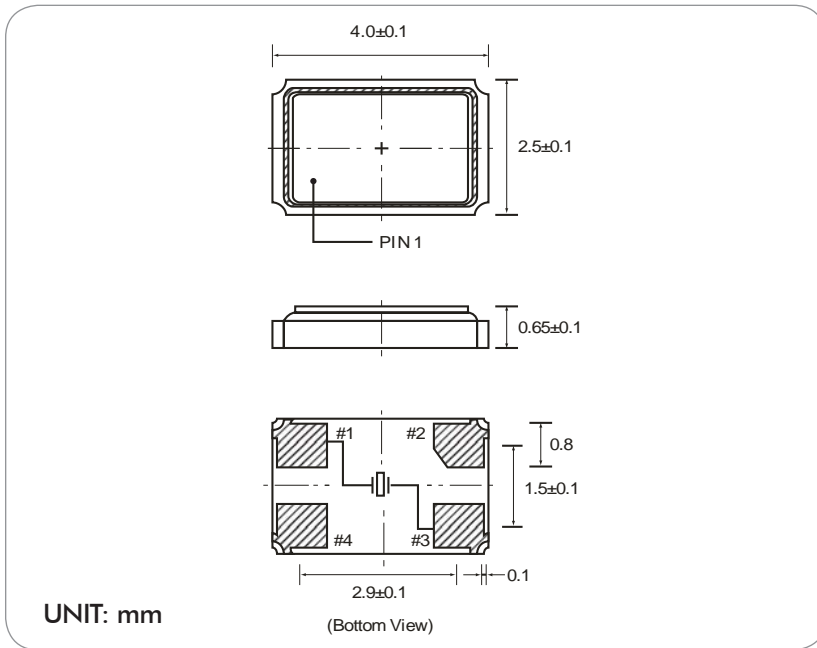
## Mechanical

- Shock: JESD22-B104 Condition B
- Solderability: J-STD-002
- Terminal Strength: MIL-STD-883 Method 2004
- Vibration: JESD22-B103
- Solvent Resistance: JESD22-B107
- Resistance to Soldering Heat: J-STD-020C Table 5-2 Pb-free devices (3 cycles max)

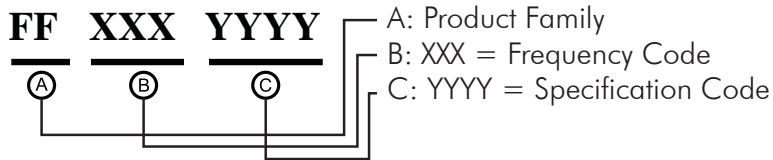
## Environmental

- Gross Test Leak: JESD22-A109, Condition C
- Fine Test Leak: JESD22-A109, Condition A1
- Moisture Resistance: JESD22-A113
- Insulation Resistance: 500 MΩ min (100 VDC)

### Mechanical Drawings:



### Part Ordering Information:



Following the above format, Saronix-eCera part numbers will be assigned upon confirmation of exact customer requirements.