Product Description
The 4-pad FW Series seam seal devices incorporate a ultra-miniature AT-cut crystal resonator housed in a standard 2.0 x 1.6mm ceramic package. These compact crystals are ideal for surface mounting in densely populated or small form-factor PCB applications.

Product Features
- Rugged AT-cut crystal construction
- Miniature 2.0 x 1.6mm ceramic package
- Available on tape & reel; 8mm tape, 3000 units per reel
- Pb-free and RoHS/Green compliant

Typical Applications
- Portable / Hand-held PCs
- PCMCIA Cards
- Notebook PC
- Bluetooth
- Wireless LAN
- UWB
- ZigBee
- USB
- GPS
- HDD
- GSM, CDMA, GPRS

Package: (Scale: none; Dimensions are in mm)

Recommended Land Pattern:

Pin Functions:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Xtal</td>
</tr>
<tr>
<td>2</td>
<td>Case</td>
</tr>
<tr>
<td>3</td>
<td>Xtal</td>
</tr>
<tr>
<td>4</td>
<td>Case</td>
</tr>
</tbody>
</table>

Top View:

Part Ordering Information:

FW XXX YYYY
A: Product Family
B: XXX = Frequency Code
C: YYYY = Specification Code

Following the above format, Saronix-eCera part numbers will be assigned upon confirmation of exact customer requirements.
Miniature Quartz Crystal Ceramic SMD FW

**Frequency Range:**
- 16 MHz to 66.0000 MHz (Fundamental)

**Characteristics at 25°C ±2°C:**
- Frequency Calibration Tolerance: ±10ppm, ±20ppm, or ±30ppm
- Load Capacitance: 8 to 20pF or Series Resonance
- Effective Series Resistance (ESR):
  - 120Ω max (16 to 26.0000 MHz)
  - 100Ω max (26 to 32.0000 MHz)
  - 80Ω max (32 to 66.0000 MHz)
- Drive Level: 10µW typ. (100µW max)
- Shunt Capacitance: 3pF Max

**Temperature Range:**
- Operating: –20 to +70°C or –30 to +85°C or –40 to +125°C
- Storage: –40 to +125°C

**Frequency Stability (Reference to the Frequency at 25°C):**
- –20 to +70°C: ±10ppm to ±50ppm
- –30 to +85°C: ±20ppm to ±50ppm
- –40 to +125°C: ±50ppm to ±70ppm

**Aging at 25°C, First Year:**
- ±3ppm Max
- ±5ppm 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)