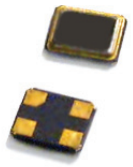
Quartz Crystal Ceramic SMD

FH



Actual Size

Product Description

The 4-pad FH Series devices incorporate a sub-miniature AT-cut crystal resonator housed in a standard 2.5x2.0mm 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 2.5x2.0mm ceramic package
- Available on tape & reel; 8mm tape, 3000/reel
- Pb-free and ROHS/Green compliant

Typical Applications

- HDD
- PCMCIA Cards
- Portable / Hand-held PCs
- Notebook PC
- GPS
- Bluetooth
- Wireless LAN
- GSM Cell Phone
- USB

Common Frequencies (MHz):

20.0000	32.7680
24.0000	33.0000
24.5760	37.5000
25.0000	38.4000
26.0000	40.0000
27.0000	48.0000
30.0000	52.0000
32.0000	54.0000

Frequency Range:

- 20 MHz to 54.0000 MHz (Fundamental)

Characteristics at 25°C ±2°C:

- Frequency Calibration Tolerance: ±10ppm, ±20ppm, ±30ppm
- Load Capacitance: 12 to 20pF
- Effective Series Resistance:
  - 80Ω max (20 to 29.9 MHz)
  - 60Ω max (30 to 54 MHz)
- Drive Level: 10μW typ. (100μW max)
- Shunt Capacitance: 5pF Max.

Temperature Range:

- Operating: –20 to +70°C or –40 to +85°C (as specified)
- Storage: –40 to +85°C

Temperature Stability (as specified):

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

Aging at 25°C, First Year:

- ±3ppm Typ., ±5ppm Max.

Mechanical:

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

Environmental:

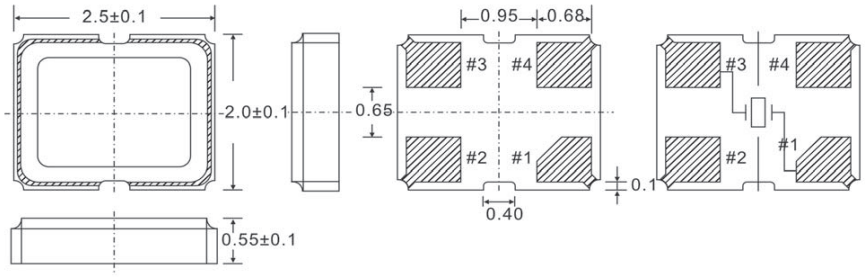
- Gross Test Leak: JESD22-A109 (Condition C)
- Fine Test Leak: JESD22-A109 (Condition A1)
- Moisture Resistance: JESD22-A113

Reflow Temperature:

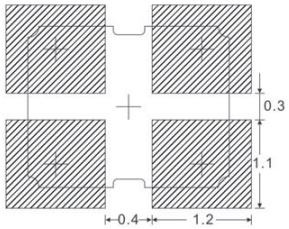
- 260°C Max

Mechanical Drawings: 2.0 x 2.5 Ceramic

Package Details



Recommended Land Pattern



New Part Number Example

FH Ⓐ **250** Ⓑ **0001** Ⓒ

A = Product Family
B = Frequency Code
C = Specification Code

Note: After July 1, 2007, a Saronix - eCera part number following the above format will be assigned upon confirmation of exact customer requirements.

Legacy Ordering Information

NKS 2 NAD 1 – 25.0000 –20 (T)

SaRonix Series Designator
NKS = 4 pad seam seal

Package Type
3 (3.2 x 2.5 mm typ)

Calibration / Stability / Temp Range
HAA = ±10 ppm / ±10 ppm / -20°C to +70°C
JAB = ±20 ppm / ±20 ppm / -20°C to +70°C
NAD = ±30 ppm / ±30 ppm / -20°C to +70°C
NAK = ±30 ppm / ±50 ppm / -20°C to +70°C
NED = ±30 ppm / ±30 ppm / -40°C to +85°C
NEK = ±30 ppm / ±50 ppm / -40°C to +85°C

Mode
1 = Fundamental

Frequency
Frequencies (in MHz) = xx.xxxx

Load Capacitance
–XX = Load Capacitance

Packing Method
(T) = Tape & Reel, full reel increments only, 3000pcs
Blank = Bulk

Part Number Example:

Spec: Freq 20MHz, ±30ppm calib, ±30ppm stab, -20 to +70°C, 16pF, T&R = NKS2NAD1-20.0000-16(T)

Mechanical:

- Shock: JESD22-B104 Condition B
- Solderability: MIL-STD-883, Method 2003 (non-RoHS package)
- Solderability: J-STD-002(RoHS package)
- Terminal Strength: MIL-STD-883 Method 2004
- Vibration: JESD22-B103
- Solvent Resistance: JESD22-B107
- Resistance to Soldering Heat: MIL-STD-202, Method 210, Condition I or J (Non-RoHS package)
- Resistance to Soldering Heat: J-STD-020C Table 5-2 Pb-free devices (3 cycles max) (RoHS package)

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)