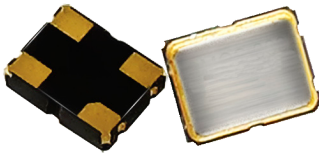


# Miniature Quartz Crystal Ceramic SMD

**FH**



2.5 x 2.0mm Ceramic SMD

## Product Description

The 4-pad FH Series seam seal devices incorporate a sub-miniature AT-cut crystal resonator housed in a standard 2.5 x 2.0mm ceramic package. These compact crystals are ideal for surface mounting in densely populated or small form-factor PCB applications.

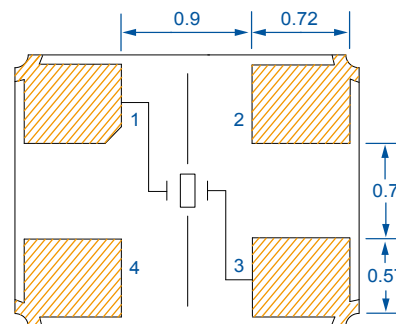
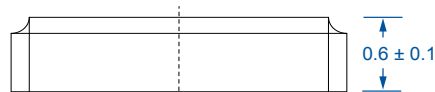
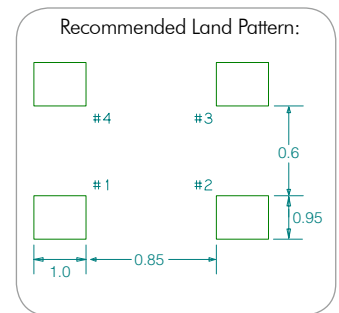
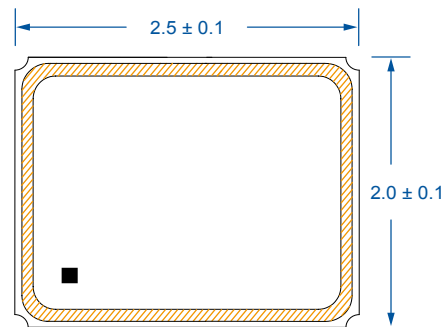
## Product Features

- Rugged AT-cut crystal construction
- Miniature 2.5 x 2.0mm 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

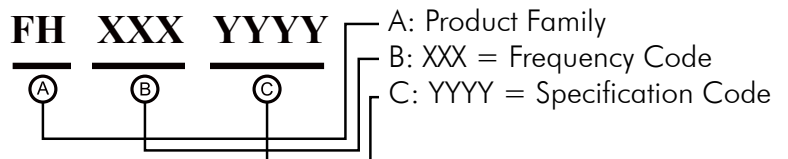
## Package: (Scale: non; dimensions are in mm)



## Pin Functions:

Pin	Function
1	Xtal
2	Case
3	Xtal
4	Case

## Part Ordering Information:



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

# Miniature Quartz Crystal Ceramic SMD FH



A product Line of  
Diodes Incorporated



**FH Series Quartz Crystal**  
**Legacy NKS2 Series | 2.5 x 2.0mm**

## Frequency Range:

- 12 MHz to 66.0000 MHz (Fundamental)

## Characteristics at 25°C ±2°C:

- Frequency Calibration Tolerance: ±10ppm, ±20ppm, or ±30ppm
- Load Capacitance: 7 to 32pF or Series Resonance
- Effective Series Resistance (ESR):
  - 150Ω max (12 to 19.9 MHz)
  - 80Ω max (20 to 29.9 MHz)
  - 60Ω max (30 to 66 MHz)
- Drive Level: 10μW typ. (100μW max)
- Shunt Capacitance: 5pF Max

## Temperature Range:

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

## Temperature Stability:

- ±10ppm, ±20ppm, ±30ppm, or ±50ppm (-20 to +70°C)
- ±30ppm, or ±50ppm (-40 to +85°C)
- ±50ppm, or ±70ppm (-40 to 125°C)

## Aging at 25°C, First Year:

- ±3ppm Max

## Reflow Temperature:

- 260°C Max, 10 seconds Max

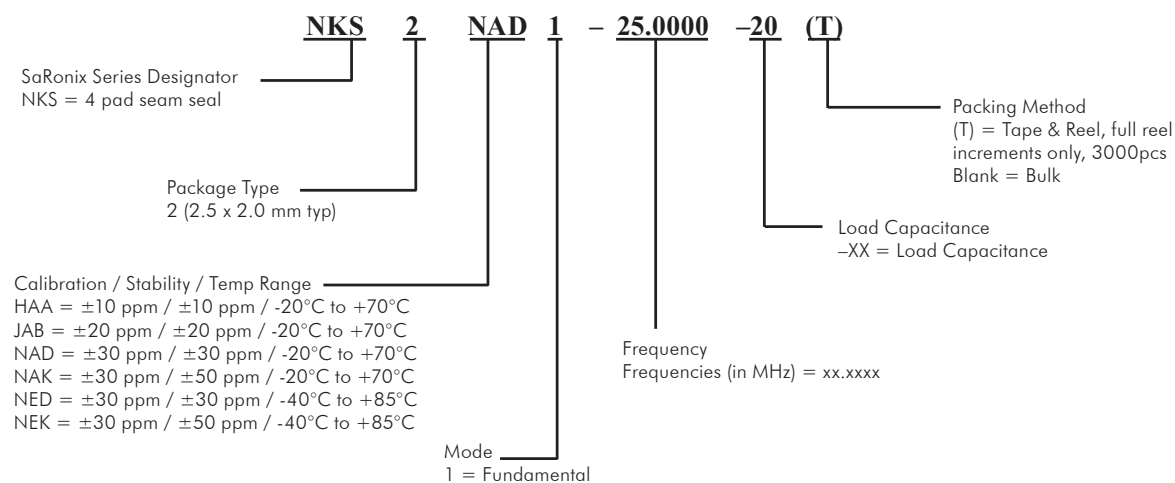
## Mechanical

- 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)

## Legacy Ordering Information - For Reference Only:



## Part Number Example:

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

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  - 2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.
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