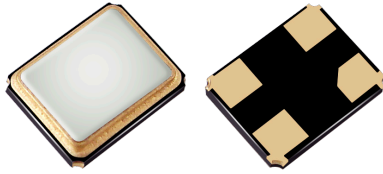


# Miniature Quartz Crystal Ceramic SMD

**XRQ**



Ceramic SMD



Infotainment Center/DVR

TPMS

## Product Features

- Rugged AT-cut crystal construction
- Support high temperature: -40°C to 125°C
- Mechanical shock up to 8000G
- Wide frequency range: 12~66MHz
- Support 1500G centrifugal force
- JIS-C0044 Drop Test compliant
- AEC-Q 200 compliant
  - Grade 3, Grade 2, Grade 1
- Various packages:
  - 2.0 x 1.6 mm
  - 2.5 x 2.0 mm
  - 3.2 x 2.5 mm
- Available on tape & reel; 8mm tape, 3000 units per reel
- Pb-free and RoHS/Green compliant

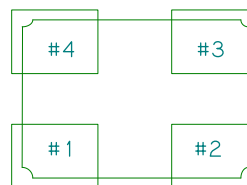
## Product Description

The 4-pad XRQ Series seam seal devices are housed in standard 3.2 x 2.5mm, 2.5 x 2.0mm and 2.0 x 1.6mm ceramic packages. The devices are ideal for surface mounting in densely populated or small form-factor PCB applications. The XRQ series is designed to be highly reliable in automotive applications, and perform accurately in harsh conditions. The crystals meet the requirements of AEC-Q 200 Grade 3, Grade 2 and Grade 1. The series supports operating temperature range of -40°C up to +125°C.

## Applications

- Tire-Pressure Monitoring System (TPMS)
- Infotainment & Telematics
- Advanced Driver Assisted System (ADAS)

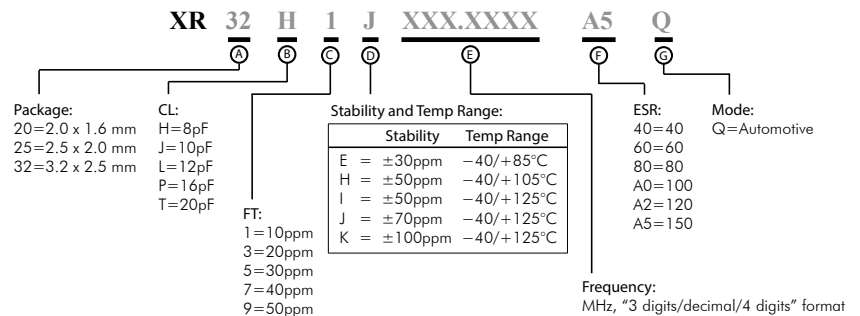
## Top View Pin Location



## Pin Functions:

Pin	Function
1	Xtal
2	GND
3	Xtal
4	GND

## Part Ordering Information:



Please contact us for custom requirements for your specific application needs.

## 2.0 x 1.6 Package

### Frequency Range:\*

- 24.0000 MHz to 66.0000 MHz (Fundamental)

### Characteristics at 25°C ±3°C:

- Frequency Calibration Tolerance: ±10ppm to ±50ppm\*
- Load Capacitance: 7 to 32pF or Series Resonance\*
- Effective Series Resistance (ESR):\*
  - 24.0000 MHz to 29.9999 MHz : 120Ω max
  - 30.0000 MHz to 59.9999 MHz : 80Ω max
  - 60.0000 MHz to 66.0000MHz : 60Ω max
- Drive Level: 10μW typ. (100μW max)
- Shunt Capacitance: 3pF Max

## 2.5 x 2.0 Package

### Frequency Range:\*

- 16.0000 MHz to 66.0000 MHz (Fundamental)

### Characteristics at 25°C ±3°C:

- Frequency Calibration Tolerance: ±10ppm to ±50ppm\*
- Load Capacitance: 7 to 32pF or Series Resonance\*
- Effective Series Resistance (ESR):\*
  - 16.0000 MHz to 19.9999 MHz : 150Ω max
  - 20.0000 MHz to 31.9999 MHz : 80Ω max
  - 32.0000 MHz to 66.0000 MHz : 60Ω max
- Drive Level: 10μW typ. (100μW max)
- Shunt Capacitance: 3pF Max

## 3.2 x 2.5 Package

### Frequency Range:\*

- 12.0000 MHz to 66.0000 MHz (Fundamental)

### Characteristics at 25°C ±3°C:

- Frequency Calibration Tolerance: ±10ppm to ±50ppm\*
- Load Capacitance: 7 to 32pF or Series Resonance\*
- Effective Series Resistance (ESR):\*
  - 12.0000 MHz to 19.9999 MHz : 100Ω max
  - 20.0000 MHz to 31.9999 MHz : 60Ω max
  - 32.0000 MHz to 66.0000 MHz : 40Ω max
- Drive Level: 10μW typ. (100μW max)
- Shunt Capacitance: 3pF Max

## 2.0 x 1.6, 2.5 x 2.0 and 3.2 x 2.5 Packages

### Temperature Range: \*

- Operating: -40 to +85°C or -40 to +105°C or -40 to +125°C
- Storage: -55 to +125°C

### Temperature Stability:\*

- ±30ppm to ±100ppm (-40 to 125°C)

### Aging at 25°C, First Year:

- ±3ppm Max

### Reflow Temperature:

- 260°C Max, 10 seconds Max

### Centrifugal Force:

- SAE J2657

### Mechanical:

- Shock: MIL-STD-202 Method 213
- Solderability: J-STD-002
- Vibration: MIL-STD-202 Method 204
- Resistance to Soldering Heat: MIL-STD-202 Method 210
- Drop Test: JIS-C0044

### Environmental:

- Gross Test Leak: JESD22-A11
- Fine Test Leak: MIL-STD-883E Method 1014
- High Temp & High Humidity : MIL-STD-202, Method 103
- Insulation Resistance: 500 MΩ min (100 VDC)
- High Temperature Exposure : MIL-STD-202, Method 108
- High Temperature Operation Life : MIL-STD-202 Method 108
- Temperature Cycling : JESD22-A104
- Board Flex: AEC Q200-005

**\*Note: See Part Ordering Information**

# Miniature Quartz Crystal Ceramic SMD XRQ

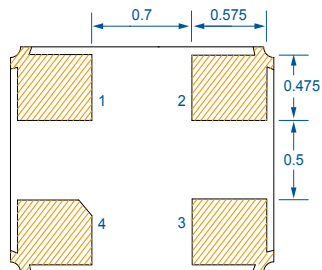
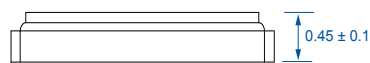
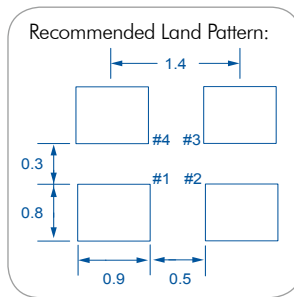
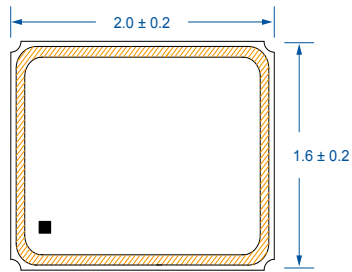


A product Line of  
Diodes Incorporated

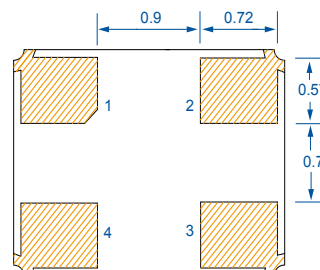
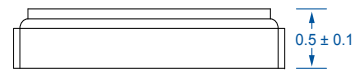
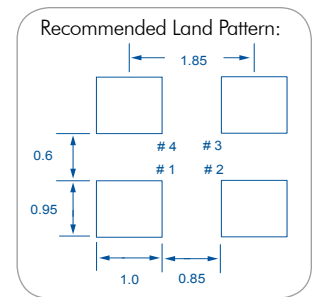
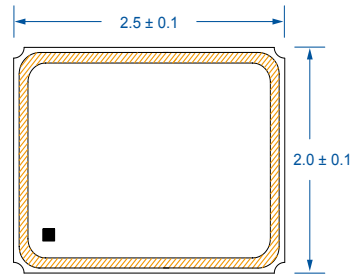


AEC-Q 200 Qualified  
High Reliability Crystal

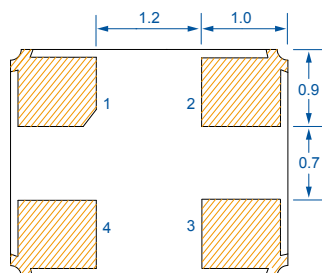
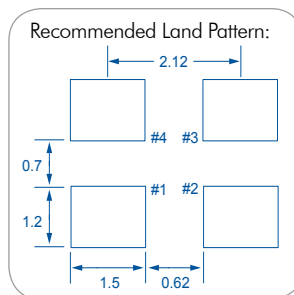
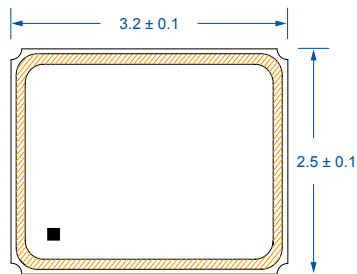
## 2.0 x 1.6 Package: (Scale: none; dimensions are in mm)



## 2.5 x 2.0 Package: (Scale: none; dimensions are in mm)



## 3.2 x 2.5 Package: (Scale: none; dimensions are in mm)



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