

RSX1612



SMD Communication Crystal

Low profile SMD AT-cut quartz crystal in a ceramic package with a 1.6 mm x 1.2 mm foot print.



Product description

Miniature low profile AT-cut quartz crystal. True SMD style, ceramic package with nickel plated lid, seam welded. The product is supplied on tape and reel.

Applications

- Automotive
- Communications
- GPS
- Consumer Products
- Handset
- LBS Handset
- PCMCIA CDPD cards
- PND
- PDA
- WiFi

Features

- Low aging
- Wide temperature range
- Low hysteresis

Specifications

1.0 SPECIFICATION REFERENCE

| Line | Parameter | Description |
|------|-------------------|-------------|
| 1.1 | Model description | RSX1612 |
| 1.2 | RoHS compliant | Yes |

2.0 FREQUENCY CHARACTERISTICS

| Line | Parameter | Test Condition | Value | Unit |
|------|--------------------------------------|---|------------|-------|
| 2.1 | Frequency | Frequency range available | 19.2 to 52 | MHz |
| 2.2 | Calibration tolerance | Frequency at 25°C ±2°C and specified load capacitance | ±10 to 50 | ppm |
| 2.3 | Reflow shift | Frequency shift after reflow with 4 hours at 25°C | ±1 max | ppm |
| 2.4 | Frequency stability over temperature | Referenced to frequency reading at 25°C and the specified load capacitance (Note 1) | ±15 to 50 | ppm |
| 2.5 | Temperature range | Maximum operating temperature | -40 to 85 | °C |
| 2.6 | Frequency perturbations | Residual error from the frequency versus temperature curve fit 5th order. Minimum of 1 frequency reading every 3°C over operating temperature range | 1 max | ppm |
| 2.7 | G sensitivity | Gamma vector of all three axes from 30 Hz to 1500 Hz at 10 RMS (Note 2) | 2 max | ppb/g |
| 2.8 | Long term stability | Frequency drift over 1 year at 25°C | ±1 max | ppm |

3.0 ELECTRICAL

| Line | Parameter | Test Condition | Value | Unit |
|------|------------------------------------|--|----------|--------|
| 3.1 | Load capacitance (CL) | Frequency is calibrated to a load at room temperature (Note 3) | 5 to 32 | pF |
| 3.2 | Shunt capacitance | Operating specification | 0.5 to 3 | pF |
| 3.3 | Pull ability | Load and frequency dependant | 0.5 min | ppm/pF |
| 3.4 | Drive level | Operating specification | 30 max | µW |
| 3.5 | Equivalent series resistance (ESR) | | 85 max | Ω |

4.0 ENVIRONMENTAL

| Line | Parameter | Description |
|------|---------------------|---|
| 4.1 | Shock | Half sine-wave acceleration of 3000g peak amplitude. Duration: 0.3ms, Velocity: 12.3ft/s [MIL-STD-202 M213] |
| 4.2 | Moisture resistance | 1000 hours at 85°C, 85% Relative Humidity. Biased. [MIL-STD-202 M106G] |
| 4.3 | Temperature cycling | 1000 temperature cycles, where each cycle consists of a 25 minute soak time at -45°C followed by a 25 minute soak time at 85°C, with a 60 second maximum transition time between temperatures. Air to air transition. [JESD22 METHOD JA-104C] |
| 4.4 | Vibration | 5g's for 20 minimum, 12 cycles in each of 3 orientations. Tested from 10-2000 Hz [MIL-STD-202 Method 204] |
| 4.5 | Storage temperature | -55 to 105°C |

5.0 MANUFACTURING INFORMATION

| Line | Parameter | Description |
|------|-----------------------|--|
| 5.1 | Washing | Able to withstand aqueous washing processes |
| 5.2 | Reflow | Able to withstand forced convection reflow process. Refer to "RSX/RGX crystals Pb-free Reflow" drawing |
| 5.3 | Packaging description | Tape and reel. |

6.0 MARKING

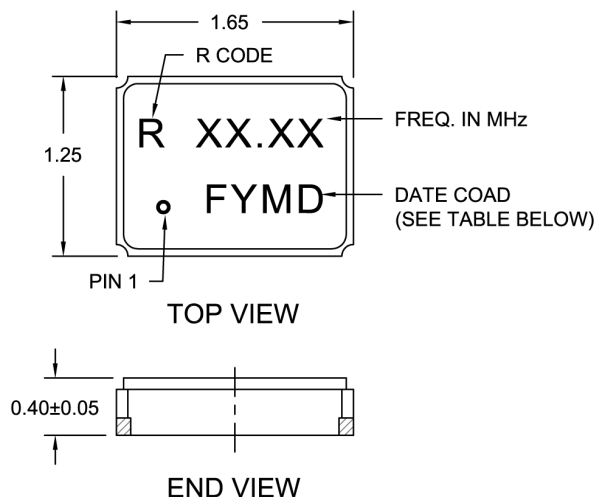
| Line | Parameter | Description |
|------|-----------|--------------------------------|
| 6.1 | Type | Laser engraved |
| 6.2 | Line 1 | R and [XX.XX] frequency in MHz |
| 6.3 | Line 2 | Pin 1 and date code |

7.0 SPECIFICATION NOTES

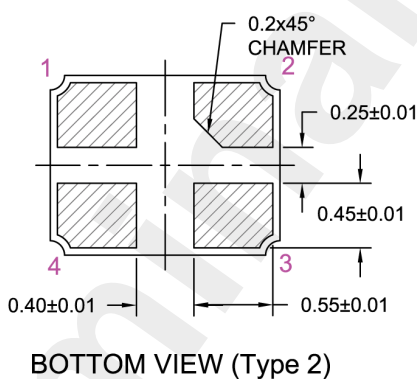
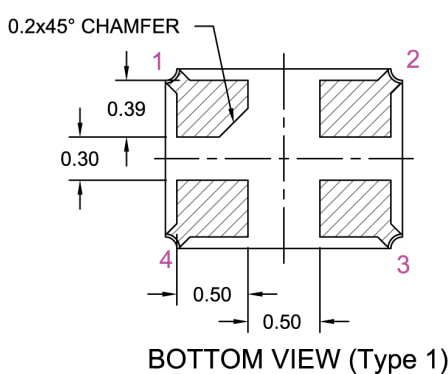
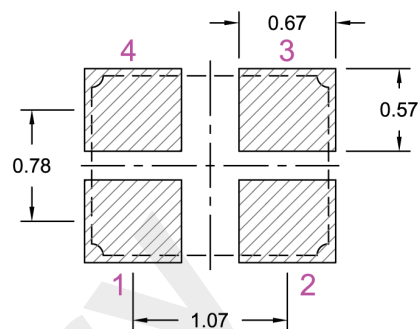
| Line | Parameter | Description |
|------|-----------|---|
| 7.1 | Note 1 | Maximum frequency stability over the temperature range needs to be specified. Available values will depend on temperature range selected |
| 7.2 | Note 2 | The maximum value is the specification. A minimum value, if present, indicates the tightest specification available |
| 7.3 | Note 3 | The frequency is calibrated to a load between minimum/maximum. Note that Series Resonance options are available for this model, and under certain conditions, loads above 50 pF may also be available |

Drawing Name: RSX1612 Model Drawing

MODEL DRAWING



RECOMMENDED PAD LAYOUT - TOP VIEW



PIN CONNECTIONS

- 1 CRYSTAL
- 2 GND
- 3 CRYSTAL
- 4 GND

Y - Year Code

| Code | Year | Code | Year |
|------|------|------|------|
| A | 2010 | N | 2023 |
| B | 2011 | O | 2024 |
| C | 2012 | P | 2025 |
| D | 2013 | Q | 2026 |
| E | 2014 | R | 2027 |
| F | 2015 | S | 2028 |
| G | 2016 | T | 2029 |
| H | 2017 | U | 2030 |
| I | 2018 | V | 2031 |
| J | 2019 | W | 2032 |
| K | 2020 | X | 2033 |
| L | 2021 | Y | 2034 |
| M | 2022 | Z | 2035 |

M - Month Code

| Code | Month |
|------|-------|
| 1 | Jan |
| 2 | Feb |
| 3 | Mar |
| 4 | Apr |
| 5 | May |
| 6 | Jun |
| 7 | Jul |
| 8 | Aug |
| 9 | Sep |
| A | Oct |
| B | Nov |
| C | Dec |

D - Day Code

| Code | Day | Code | Day | Code | Day |
|------|-----|------|-----|------|-----|
| 1 | 1 | E | 14 | R | 27 |
| 2 | 2 | F | 15 | S | 28 |
| 3 | 3 | G | 16 | T | 29 |
| 4 | 4 | H | 17 | U | 30 |
| 5 | 5 | I | 18 | V | 31 |
| 6 | 6 | J | 19 | | |
| 7 | 7 | K | 20 | | |
| 8 | 8 | L | 21 | | |
| 9 | 9 | M | 22 | | |
| A | 10 | N | 23 | | |
| B | 11 | O | 24 | | |
| C | 12 | P | 25 | | |
| D | 13 | Q | 26 | | |

TITLE: RSX1612 MODEL

RELATED DRAWINGS:

FILENAME: CAT591

REVISION: B

DATE: 11-Apr-11

SCALE: 20 : 1

Millimetres

TOLERANCES:

XX =

X.X =

X.XX = ±0.10

X.XXX = ±0.05

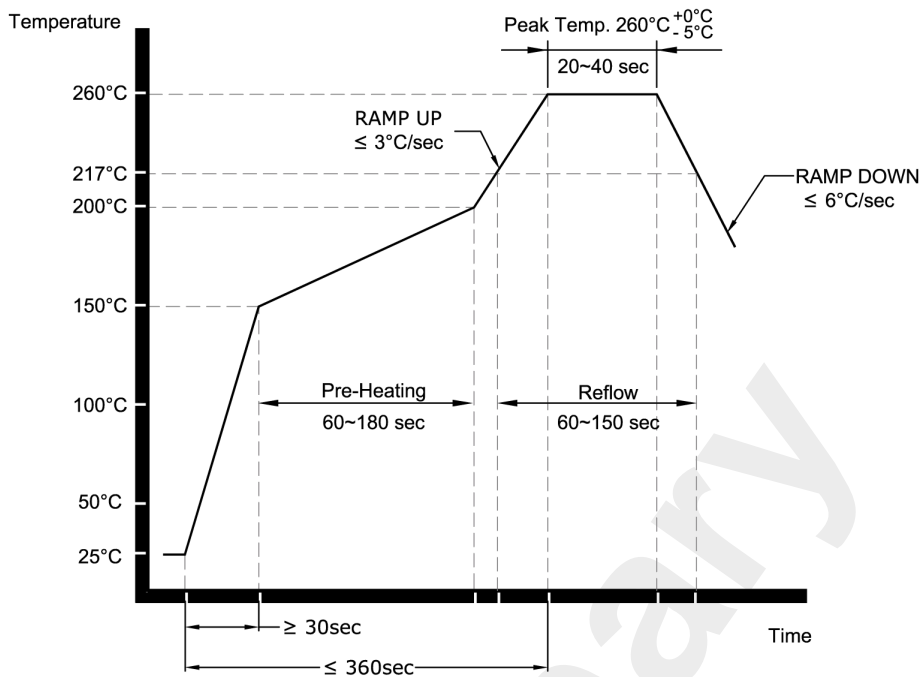
X° =

Hole =



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Drawing Name: Pb-Free Reflow



NOTE:

The product has been tested to withstand the Reflow Profile shown. The Reflow Profile used to solder Rakon products is determined by the solder paste Manufacturer's specification. It is recommended that the Reflow Profile used does not exceed the one shown above.

TITLE: Pb-FREE REFLOW

FILENAME: CAT541

RELATED DRAWINGS:

REVISION: B

DATE: 05-Sep-11

SCALE: NTS

Millimetres



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