

RSX-5



Overview

Low profile SMD AT-cut quartz crystal in a ceramic package with a 5mm x 3.2mm footprint.

Description

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

Recommended Applications

Handset, GPS, PDA, Automotive, Consumer Products, PND, Communications, Military, Other.

Features

Excellent shock and vibration performance

Low aging

Very good short term stability

RSX-5 Specifications

1.0 Specification References

1.1	Model Description	RSX-5
1.2	RoHS compliant	Yes

2.0 Frequency Characteristics

	Parameter	Test Condition	Value	Units
2.1	Fundamental frequency range	Frequency range available	12 to 40	MHz
2.2	Calibration tolerance	Frequency at 23°C ±2°C (Note 1)	5 to 25	±ppm
2.3	Frequency stability over temperature	Referenced to frequency reading at 25°C and the specified Load Capacitance (Note 2)	5 to 50	±ppm
2.4	Temperature range	Maximum operating temperature available (Note 3)	-55 to 105	°C
2.5	Frequency perturbations	Peak-to-peak deviation from the frequency versus temperature curve fit. Minimum of 1 frequency reading every 3°C over operating temperature range (Note 3)	0.1 to 1	ppm
2.6	Static temperature hysteresis	Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C	0.4 max	±ppm
2.7	Short term stability	Root Allan Variance for 1 second Tau	1 max	ppb
2.8	Long term stability	Frequency drift over 1 year (Note 1)	0.5 to 1	±ppm
2.9	G Sensitivity	Gamma vector of all three axes from 30Hz to 1500Hz, typical values (Note 1)	2 max	ppb/G

3.0 Electrical

	Parameter	Test Condition	Value	Units
3.1	Load capacitance (CL)	Frequency is calibrated to a load at room temperature. Value required to be specified (Note 4)	5 to 50	pF
3.2	Shunt capacitance	Operating specification	3 max	pF
3.3	Pullability	Load and crystal design dependant. (Note 5)	3	ppm/pF
3.4	Drive level	Operating specification	100 max	micro W

4.0 ESR

	Parameter	Test Condition	Value	Units
4.1	Fundamental	12MHz to 40MHz (Note 1)	40 max	Ohms

5.0 Environmental

	Parameter	Test Condition	Value	Units
5.1	Shock	Half sine-wave acceleration of 100Gpeak amplitude for 11ms duration, 3		
5.2	Vibration	10G RMS 30Hz to 1500Hz duration of 6 hours.		
5.3	Humidity	After 48 hours at 85±2°C for 30 minutes constantly for a period of 5 days		
5.4	Thermal shock test	Exposed at -40°C for 30 minutes then to 85°C for 30 minutes constantly for a period of 5 days.		
5.5	Storage temperature	-55 to 105°C		

6.0 Manufacturing Information

Parameter	Test Condition
6.1 Reflow	Able to withstand solder reflow process
6.2 Packaging description	Tape and Reel. 2000pc per reel standard. Refer to drawing for details

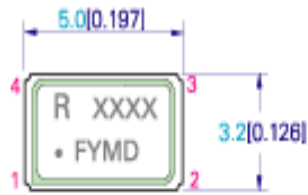
7.0 Marking

Parameter	Test Condition
7.1 Type	Laser engraved
7.2 Line 1	Rakon Logo and the last four characters of the Internal Part Number
7.3 Line 2	Pin 1 mark and Date Code

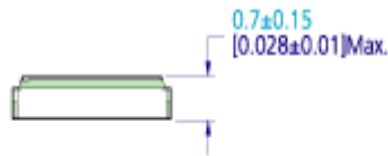
8.0 Specification Notes

Parameter	Test Condition
8.1 Note 1	The maximum value is the specification. A minimum value, if present, indicates the tightest specification available
8.2 Note 2	A maximum frequency stability over the temperature range needs to be specified. For this model, values between ± 1 and ± 25 ppm are available
8.3 Note 3	The operating temperature range needs to be specified
8.4 Note 4	The frequency of the crystal is calibrated to a load between minimum and maximum. Series Resonance options are available for this model, and under certain conditions, loads above 50pF may also be available
8.5 Note 5	The typical pullability of these crystals is between 3ppm/pF and 40ppm/pF. A more precise minimum and/or maximum may be specified should the exact pullability be of importance for a particular specification

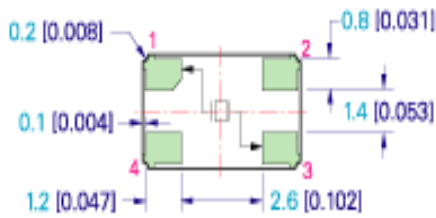
MODEL OUTLINE



TOP VIEW



SIDE VIEW

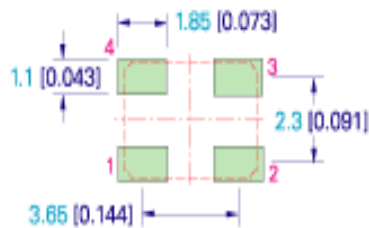


BOTTOM VIEW

PIN CONNECTIONS

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

RECOMMENDED PAD LAYOUT - TOP VIEW



TITLE: RSX-5 MODEL

RELATED DRAWINGS:

FILENAME: CAT126

REVISION: F

DATE: 07-Jun-07

SCALE: 5 : 1

Millimetres [inch]

Tolerance:

XX ± 0.5

X.X ± 0.2

X.XX ± 0.10

X.XXX ± 0.05

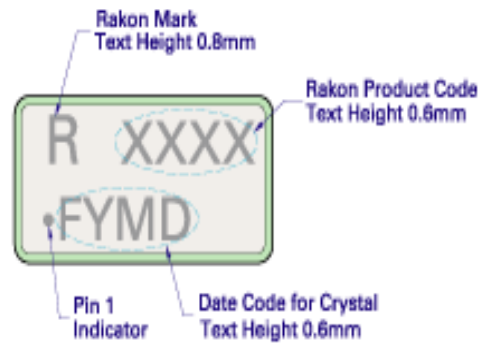
X^o $\pm 1.0^o$

Hole ± 0.10



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LID MARKING



M - Month code

Month	Code
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	A
11	B
12	C

D - Date code

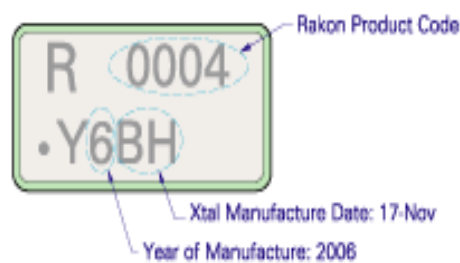
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1	1	13	D	25	P
2	2	14	E	26	Q
3	3	15	F	27	R
4	4	16	G	28	S
5	5	17	H	29	T
6	6	18	I	30	U
7	7	19	J	31	V
8	8	20	K		
9	9	21	L		
10	A	22	M		
11	B	23	N		
12	C	24	O		

F Y M D M D

- Date Code (1-9, A-V, V=31)
See The Date Code Chart Below
- Month Code (1-9, A-C, C=12)
See The Month Code Chart Below
- Date Code (1-9, A-V, V=31)
See The Date Code Chart Below
- Month Code (1-9, A-C, C=12)
See The Month Code Chart Below
- Year of Manufacture
(7=2007, 8=2008)
- RAKON Internal Code

Note: 1 MUST BE DIFFERENT TO I.

MARKING EXAMPLE



TITLE: RSX-5/RGX-5 SERIES LID MARKING

FILENAME: CAT191

RELATED DRAWINGS:

REVISION: C

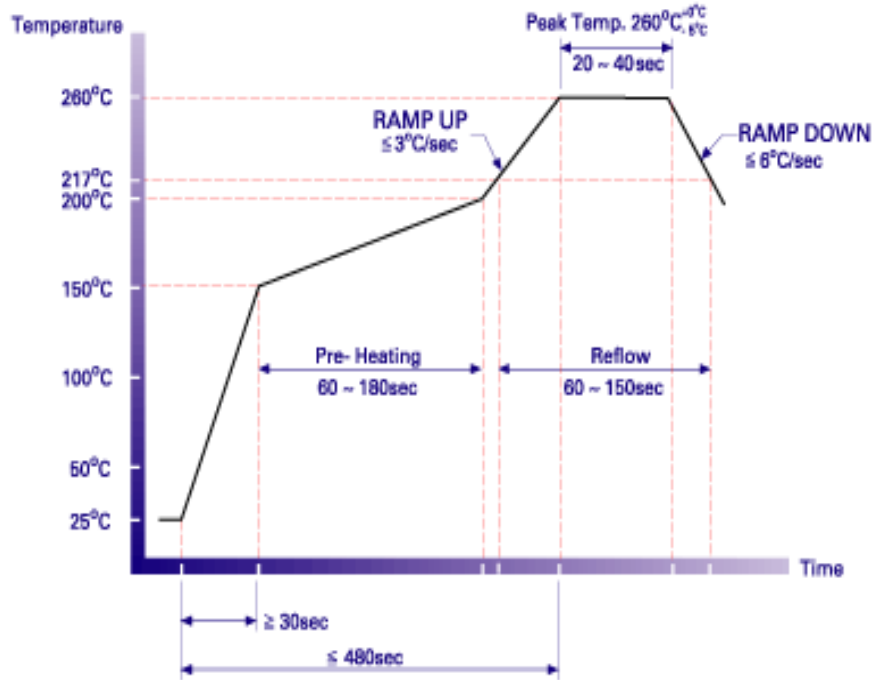
DATE: 27-Feb-07

SCALE: NTS

Millimetres [inch]

rakon

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NOTE:

The product has been tested to withstand the Reflow Profile shown. The Reflow Profile used to solder Rakon RSX/RGX crystals are determined by the solder paste manufacturer's specification. It is recommended that the Reflow Profile used does not exceed the one shown above.

TITLE: RSX/RGX CRYSTALS Pb-FREE REFLOW

FILENAME: CAT353

RELATED DRAWINGS:

REVISION: B

DATE: 01-Feb-07

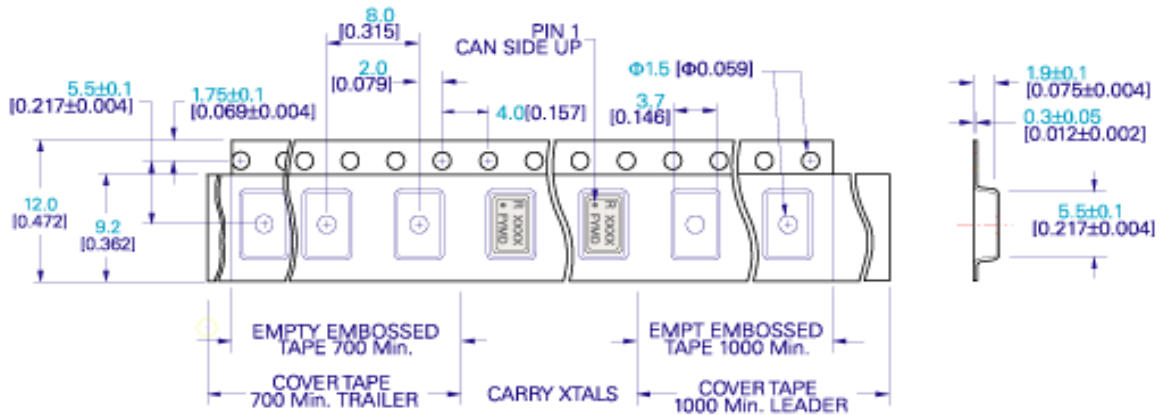
SCALE: NTS

Millimetres [inch]

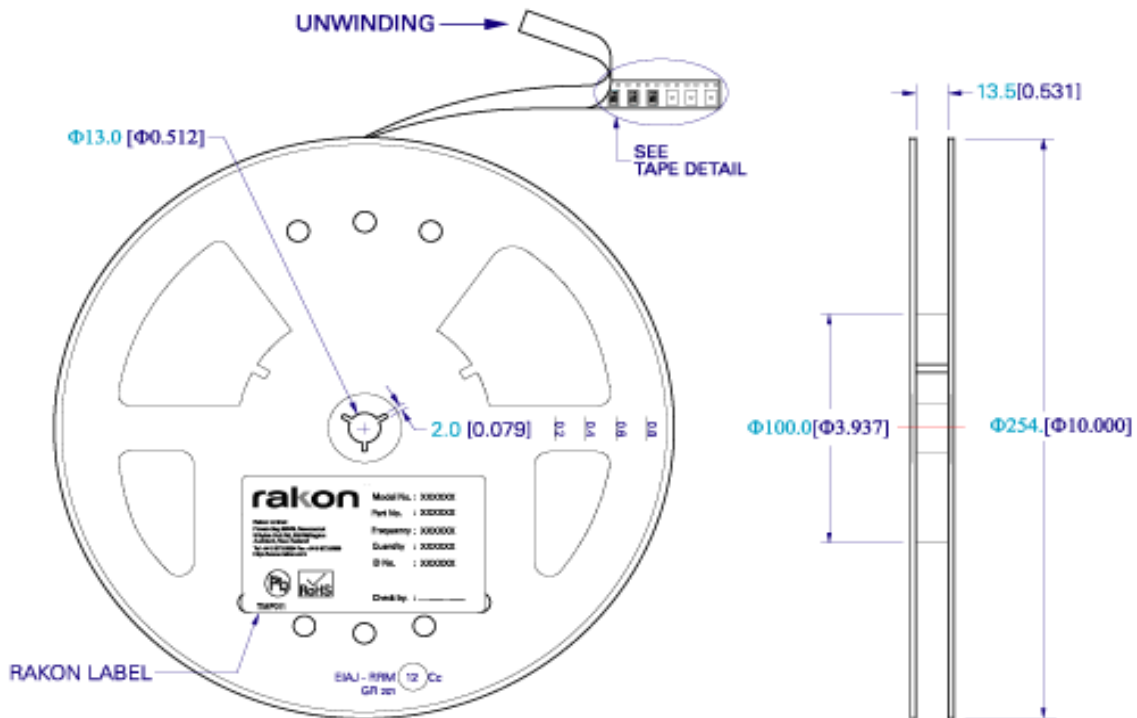
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TAPE DETAIL (SCALE 2 : 1)



REEL DETAIL (SCALE 1 : 5)



- NOTE: 1. Φ254mm REEL's MAXIMUM PACKING QUANTITY IS 2000 CRYSTAL REEL.
 2. LOGO NOT SHOW ON THE LABEL FOR GX-5 SERIES MODELS.

TITLE: RSX-5/RGX-5/RSX-6 TAPE & REEL
 RELATED DRAWINGS:

FILENAME: CAT127
 REVISION: H
 DATE: 11-Feb-09
 SCALE: See above
 Millimetres [inch]

Tolerance:
 XX = ±0.5
 X.X = ±0.2
 X.XX = ±0.10
 X.XXX = ±0.05
 X⁰ = ±1.0°
 Hole = ±0.10

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