

**SMD Microprocessor Crystal**

Reliable resistance welded SMD microprocessor crystal with high stability and calibration tolerance options available.

**Product description**

Standard SMD microprocessor crystal packaged using a resistance welded metal enclosure. This model has a very low profile and is supplied on tape and reel.

**Applications**

- Consumer
- Industrial
- Telecommunications

**Features**

- Low cost
- High stability
- Wide frequency range
- AT/BT fundamental, or third overtone crystal modes

**Specifications****1.0 SPECIFICATION REFERENCE**

Line	Parameter	Description
1.1	Model description	RHC-49US SMD, 2 pin
1.2	RoHS compliant	Yes
1.3	Reference number	
1.4	Rakon part number	
1.5	Package	13 x 4.9 x 4.2 mm Max.

**2.0 FREQUENCY CHARACTERISTICS**

Line	Parameter	Test Condition	Value	Unit
2.1	Frequency	AT cut: 3.4875 to 36 MHz; BT cut: 24 to 44 MHz; 3rd overtone: 24.576 to 75 MHz	3.4875 to 75	MHz
2.2	Calibration tolerance	Frequency at 25°C ±2°C and specified load capacitance	±5 to 50	ppm
2.3	Frequency stability over temperature	Referenced to frequency reading at 25°C and the specified load capacitance	±3 to 50	ppm
2.4	Temperature range	Operating temperature	-40 to 85	°C
2.5	Long term stability	Frequency drift over 1 year at 25°C	±3 to 5	ppm

**3.0 ELECTRICAL**

Line	Parameter	Test Condition	Value	Unit
3.1	Load capacitance (CL)	Frequency is calibrated at room temperature	5 to 50	pF
3.2	Shunt capacitance (C0)	Operating specification	5 max	pF
3.3	Drive level	Typically 100 µW	1000 max	µW
3.4	Equivalent series resistance (ESR)		25 to 150	Ω
3.5	Insulation resistance (IR)	DC 100V ±15V at 25°C	500 min	MΩ

#### 4.0 ENVIRONMENTAL

Line	Parameter	Description
4.1	Shock	Half sine-wave acceleration of 100g peak amplitude for 11 ms duration, 3 cycles in each plane
4.2	Humidity	After 1000 hours at 40°C 95% relative humidity non-condensing
4.3	Thermal shock	50 temperature cycles, where each cycle consists of a 15 minute soak time at -40°C followed by a 15 minute soak time at 100°C, with a 10 second transition time between temperatures.
4.4	Vibration	Frequency swept from 10 Hz to 55 Hz back to 10 Hz in 1 minute. Amplitude of 1.5 mm displacement. A duration of 2 hours in each of the 3 perpendicular axes.
4.5	Storage temperature	-40 to 95°C

#### 5.0 MANUFACTURING INFORMATION

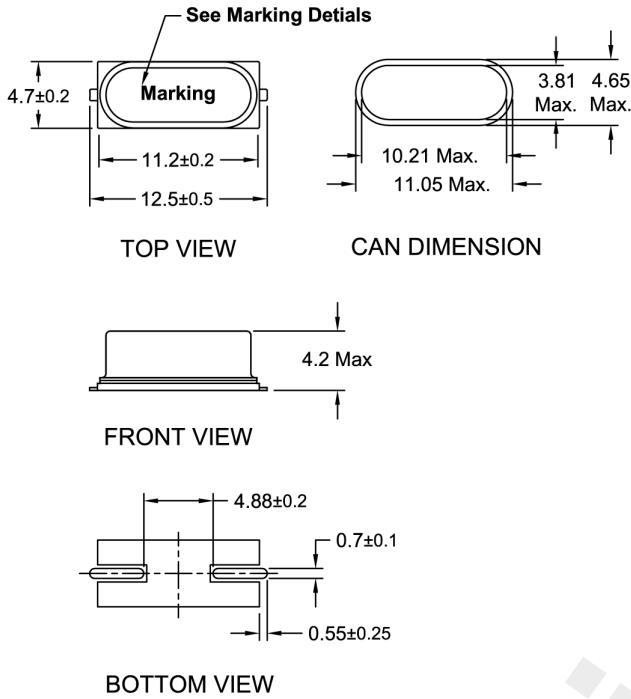
Line	Parameter	Description
5.1	Reflow	Solder reflow process as per attached profile.
5.2	Packaging description	Tape and Reel. Standard packing quantity is 1000 units per reel, 10 reel boxes per caton.

#### 6.0 MARKING

Line	Parameter	Description
6.1	Type	Laser marking
6.2	Marking	[R] Rakon, [XXXXXX] Frequency in MHz, [F] Manufacturing code, [YMD] Date code
6.3	Note	Placeholder 1: R; Placeholder 2 to 7: Frequency in MHz; Placeholder 8: Manufacturing code; Placeholder 9 to 11: Date code.

# Drawing Name: RHC-49US SMD Model Drawing

## MODEL OUTLINE



## MARKING DETAILS

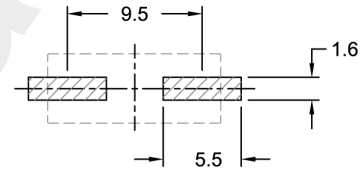
R XXXXXX F YMD

Date Code: 3 Characters.  
(Code details see table below)

Manufacturing Code: 1 Character.  
(Internal use only)

Frequency in MHz: 6 Characters.  
(i.e: 8.0000 = 8 MHz; 54.000 = 54 MHz)

## RECOMMENDED PAD LAYOUT - TOP VIEW



### 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: RHC-49US SMD MODEL

RELATED DRAWINGS:

FILENAME: CAT669

REVISION: A

DATE: 12-Sep-12

SCALE: 2 : 1

Millimetres

TOLERANCES:

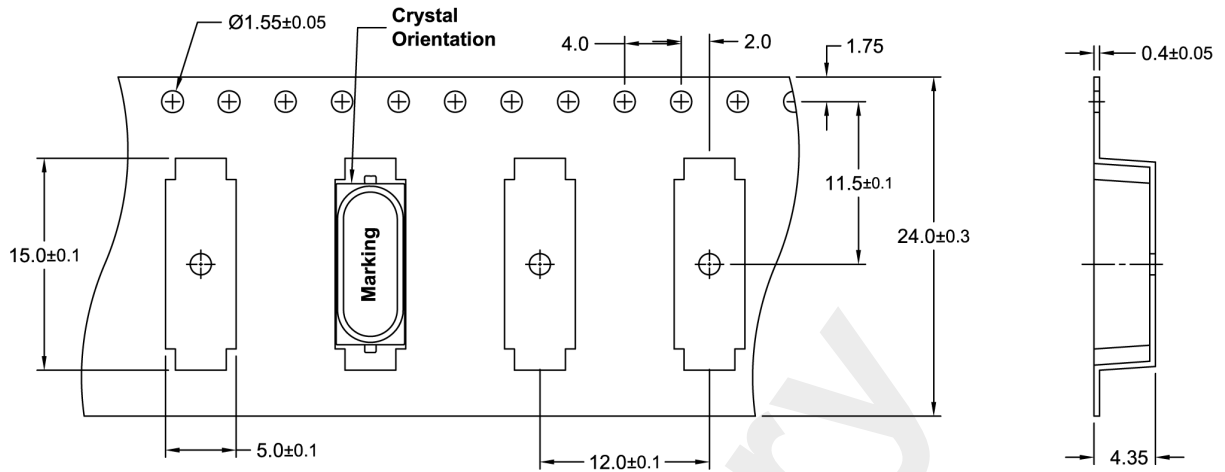
XX =  
X.X = ±0.2  
X.XX = ±0.10  
X.XXX =  
X° =  
Hole =

**rakon**

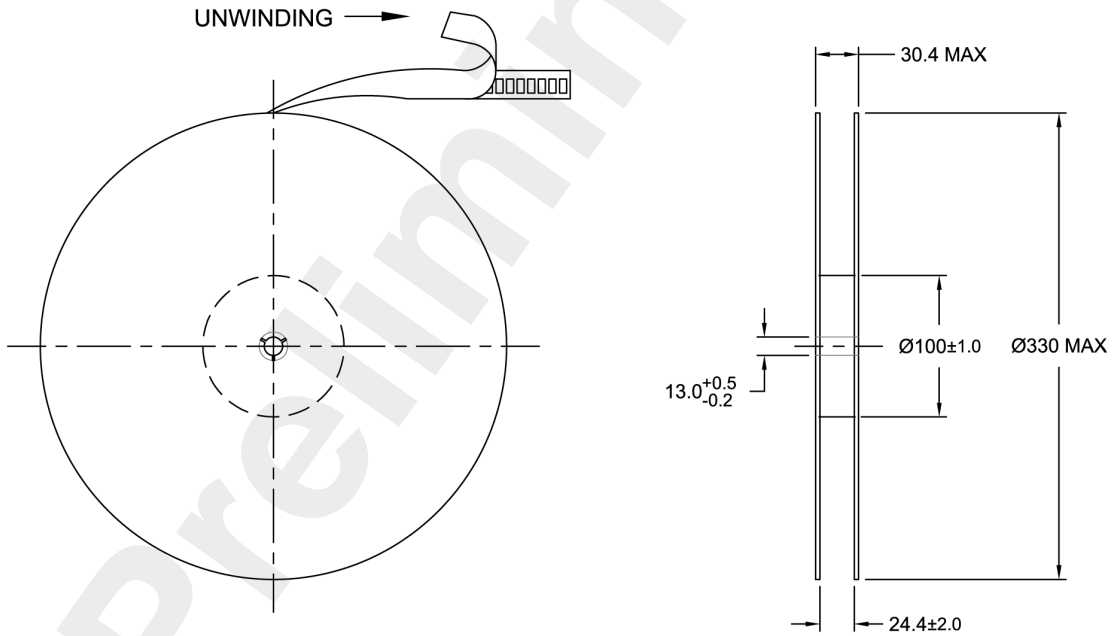
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# Drawing Name: RHC-49US SMD Series Tape & Reel

## TAPE DETAIL (SCALE 2 : 1)



## REEL DETAIL (SCALE 1 : 5)



TITLE: RHC-49US SMD TAPE & REEL

FILENAME: CAT670

TOLERANCES:

RELATED DRAWINGS:

REVISION: A

XX =

X.X =  $\pm 0.2$

DATE: 23-May-12

X.XX =  $\pm 0.10$

SCALE: 2 : 1

X.XXX =

X° =

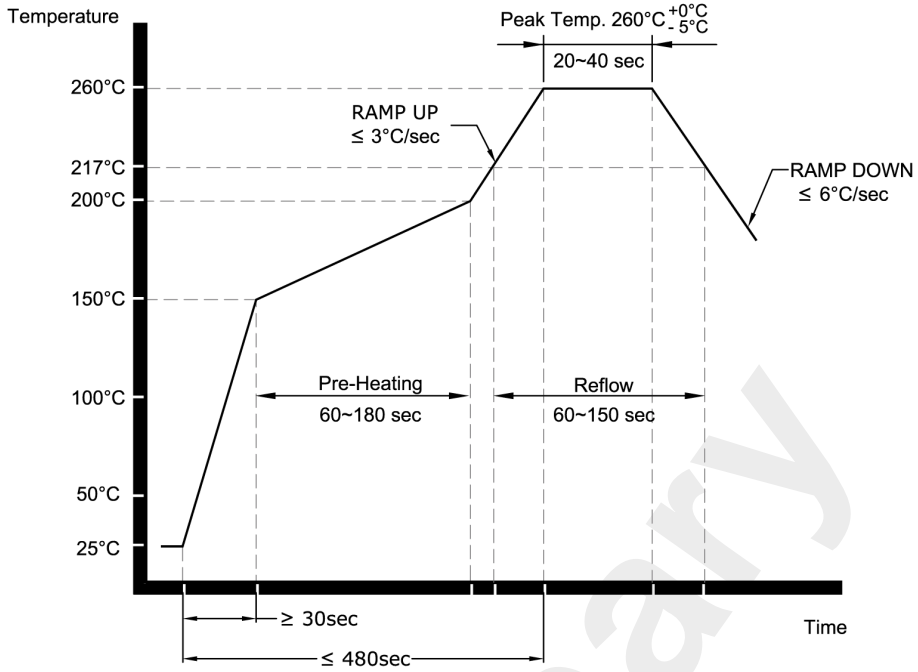
Millimetres

Hole =

**rakon**

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**Drawing Name: RSX/RGX Crystals Pb-free Reflow**



**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 CRYSTAL Pb-FREE REFLOW

FILENAME: CAT353

RELATED DRAWINGS:

REVISION: B

DATE: 01-Feb-07

SCALE: NTS

Millimetres

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