RSX1612

SMD Communication Crystal

Low profile SMD AT-cut quartz crystal in a ceramic package with a 1.6 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
- Feature phone

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
1.3	Reference number	
1.4	Rakon part number	
1.5	Package	W, M, or V

2.0 FREQUENCY CHARACTERISTICS

Line	Parameter	Test Condition	Value	Unit
2.1	Frequency		26 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 recovery at 25°C	±1 max	ppm
2.4	Frequency stability over temperature	Referenced to frequency reading at 25°C and the specified load capacitance	±15 to 50	ppm
2.5	Temperature range	Operating temperature	-40 to 85	°C
2.6	Frequency perturbations	Residual error from the frequency versus temperature 5th order polynominal curve fit. 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	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 at room temperature	5 to 32	pF
3.2	Shunt capacitance (C0)		0.5 to 3	pF
3.3	Pullability		0.5 min	ppm/pF
3.4	Drive level		30 max	µW
3.5	Equivalent series resistance (ESR)		85 max	Ω
3.6	Insulation resistance (IR)	100V ±15V at 25°C	500 min	MΩ

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 Method 213]
4.2	Moisture resistance	1000 hours at 85°C, 85% Relative Humidity. Biased. [MIL-STD-202 Method 106G]
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-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	-40 to 85°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 Pb-free Reflow drawing
5.3	Packaging description	Tape and reel. Standard packing quantity is 3000 units per ø180 mm reel.

6.0 PIN CONNECTIONS

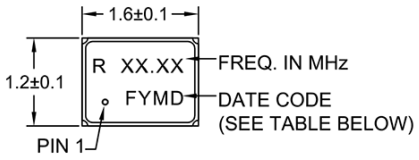
Line	Parameter	Description
6.1	Pin 1	Crystal
6.2	Pin 2	GND
6.3	Pin 3	Crystal
6.4	Pin 4	GND (NC for package M)

7.0 MARKING

Line	Parameter	Description
7.1	Type	Laser engraved
7.2	Line 1	R and [XX.XX] frequency in MHz
7.3	Line 2	Pin 1 and date code

Drawing Name: RSX1612 Model (Package W, M & V)

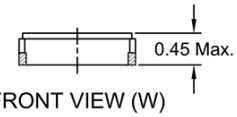
MODEL DRAWING



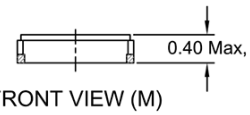
TOP VIEW

NOTE:

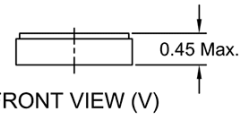
1. MARKING INFORMATION IS DETAILED IN THE SPECIFICATION.
2. PIN CONNECTIONS ARE DETAILED IN THE SPECIFICATION.



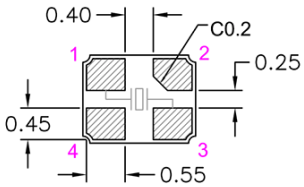
FRONT VIEW (W)



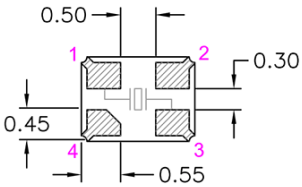
FRONT VIEW (M)



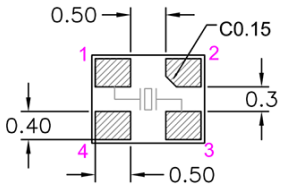
FRONT VIEW (V)



BOTTOM VIEW (W)

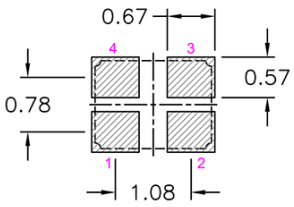


BOTTOM VIEW (M)

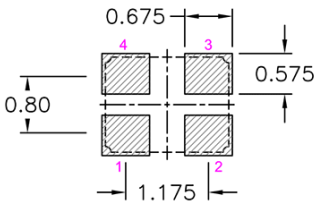


BOTTOM VIEW (V)

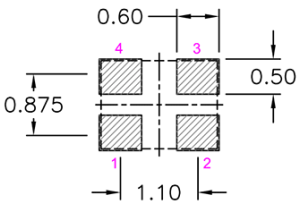
RECOMMENDED PAD LAYOUT - TOP VIEW



PACKAGE W



PACKAGE M



PACKAGE V

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 (Package W, M & V)

RELATED DRAWINGS:

FILENAME:	CAT785
REVISION:	B
DATE:	26-Apr-13
SCALE:	10 : 1
Millimetres	

TOLERANCES:

XX	=
X.X	= ±0.1
X.XX	= ±0.10
X.XXX	= ±0.05
X°	=
Hole	=

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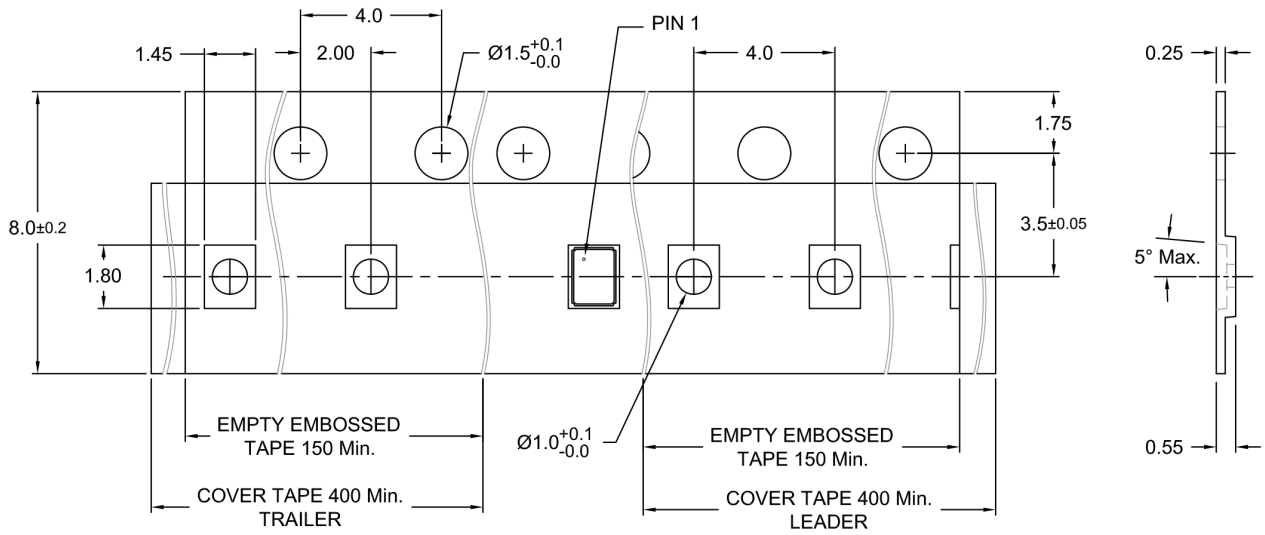
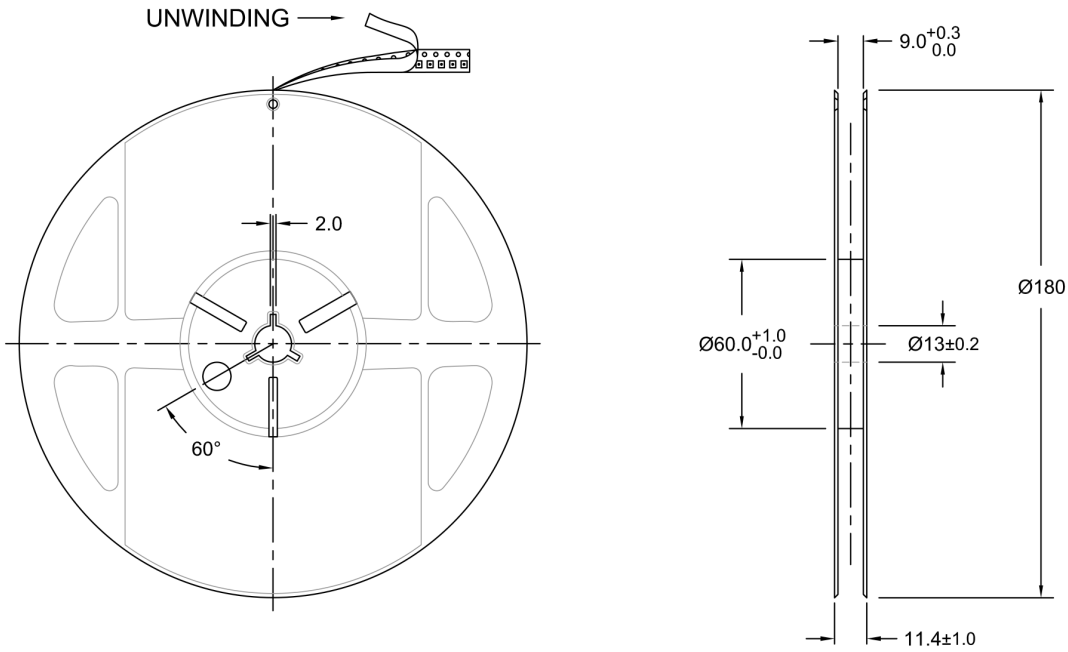
Drawing Name: RSX1612 Tape & Reel (Package W)

TAPE DETAIL (Scale 5 : 1)



REEL DETAIL (Scale 1 : 2.5)



TITLE: 1612 SERIES CRYSTAL TAPE & REEL (Package W)	FILENAME: CAT786	TOLERANCES:	
RELATED DRAWINGS:	REVISION: A	XX =	
	DATE: 21-Mar-13	X.X = ±0.1	
	SCALE: 5 : 1	X.XX = ±0.05	
	Millimetres	X.XXX =	
		X° =	
		Hole =	

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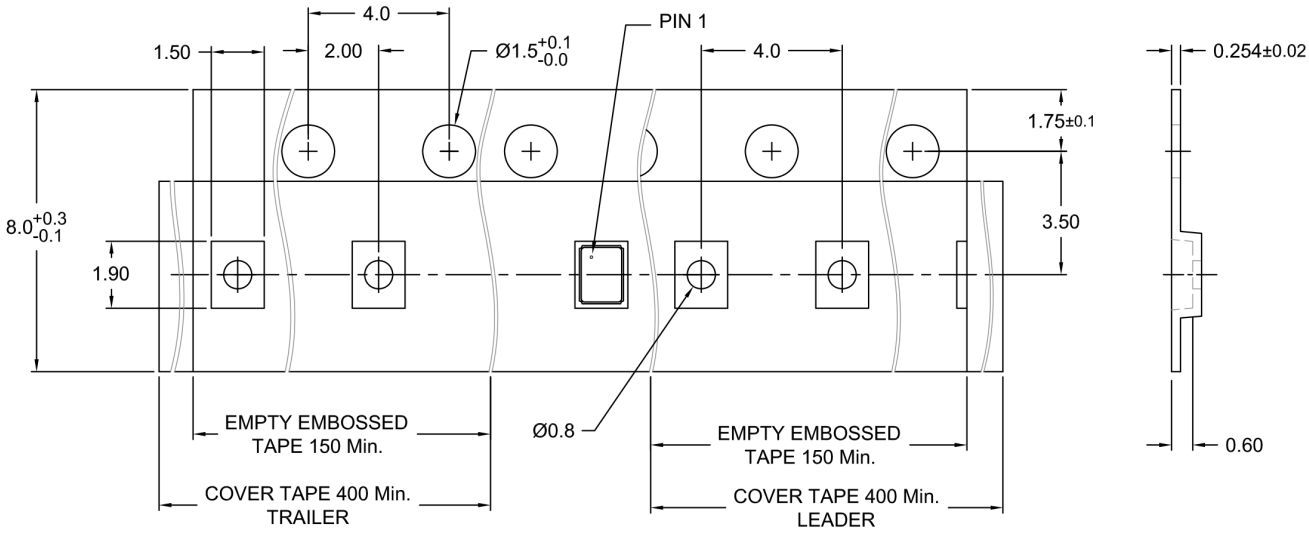
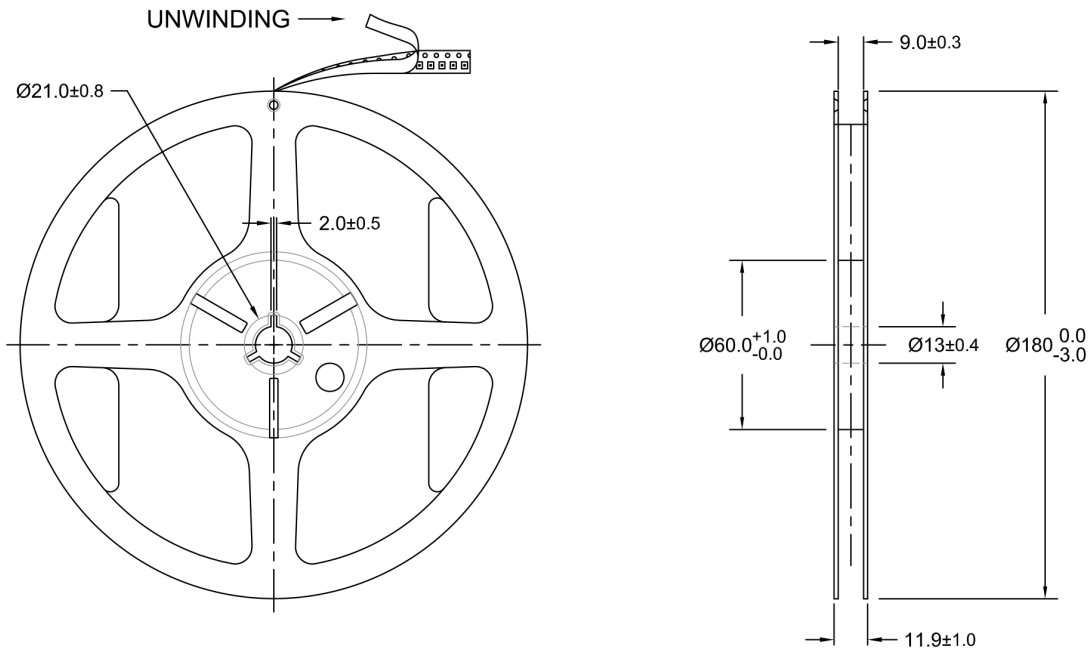
Drawing Name: RSX1612 Tape & Reel (Package M)

TAPE DETAIL (Scale 5 : 1)



REEL DETAIL (Scale 1 : 2.5)



TITLE: 1612 SERIES CRYSTAL TAPE & REEL (Package M)	FILENAME: CAT788	TOLERANCES:	
RELATED DRAWINGS:	REVISION: A	XX =	
	DATE: 21-Mar-13	X.X = ±0.1	
	SCALE: 5 : 1	X.XX = ±0.05	
	Millimetres	X.XXX =	
		X° =	
		Hole =	

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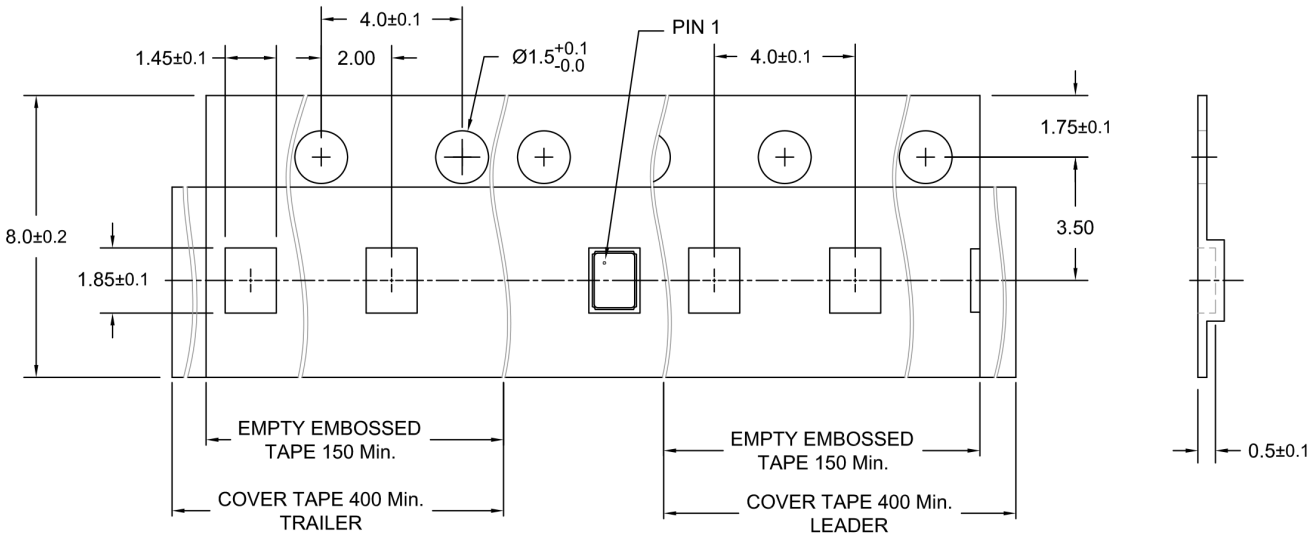
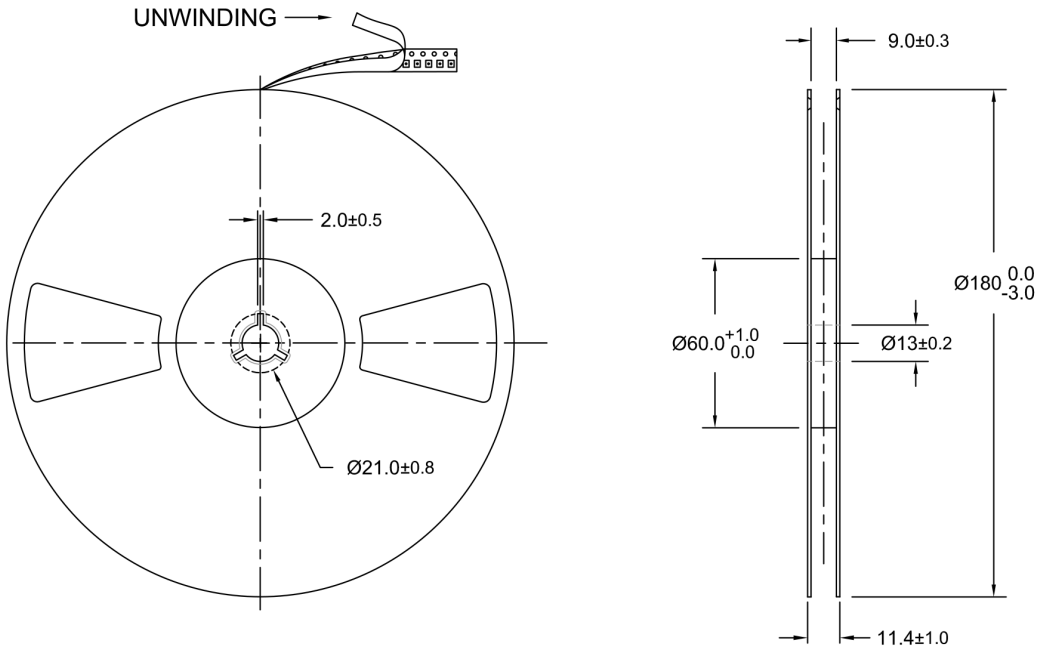
Drawing Name: RSX1612 Tape & Reel (Package V)

TAPE DETAIL (Scale 5 : 1)



REEL DETAIL (Scale 1 : 2.5)



TITLE: 1612 SERIES CRYSTAL TAPE & REEL (Package V)	FILENAME: CAT787	TOLERANCES:	
RELATED DRAWINGS:	REVISION: A	XX =	
	DATE: 21-Mar-13	X.X = ±0.1	
	SCALE: 5 : 1	X.XX = ±0.05	
	Millimetres	X.XXX =	
		X° =	
		Hole =	

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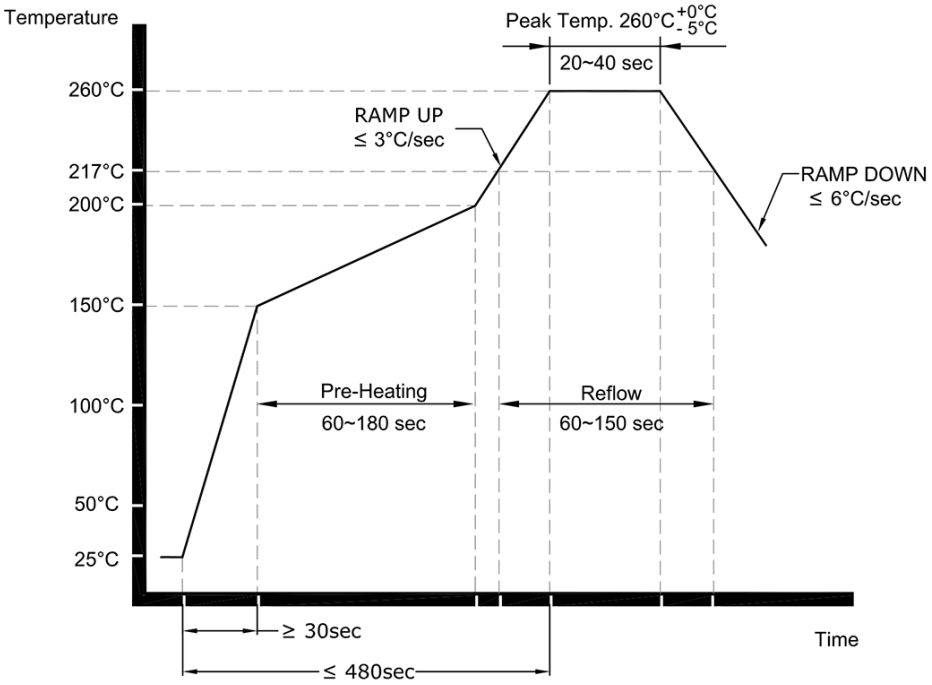
Drawing Name: RSX/RGX Crystals Pb-free Reflow



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: CRYSTAL Pb-FREE REFLOW	FILENAME: CAT353
RELATED DRAWINGS:	REVISION: B
	DATE: 01-Feb-07
	SCALE: NTS
	Millimetres