RSX-8

SMD Communication Crystals

Low profile SMD AT-cut quartz crystal in a ceramic package with a 3.2mm x 2.5mm footprint.



Product 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.

Applications

- Feature phone
- GPS

Features

- Excellent shock and vibration performance
- Low aging
- Very good short term stability

Specifications

1.0 SPECIFICATION REFERENCES

Line	Parameter	Description
1.1	Model description	RSX-8
1.2	RoHS compliant	Yes
1.3	Reference number	
1.4	Rakon part number	
1.5	Package	Package N, Y, W, M and AB

2.0 FREQUENCY CHARACTERISTICS

Line	Parameter	Test Condition	Value	Unit
2.1	Frequency		16 to 40	MHz
2.2	Calibration tolerance	Frequency at 25˚C ±2˚C and specified load capacitance	±10 to 50	ppm
2.3	Reflow shift	Two consecutive reflow as per attached profile after 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	±10 to 50	ppm
2.5	Temperature range	Operating temperature	-55 to 105	˚C
2.6	Frequency perturbations	Residual errors from the frequency versus temperature curve fitting 5th order. Minimum of 1 frequency reading every 3˚C over operating temperature range	0.1 to 1	ppm
2.7	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
2.8	Long term stability	Frequency drift over 1 year at 25°C	±1 max	ppm
2.9	g Sensitivity	Gamma vector of all three axes from 30Hz to 1500Hz	2 max	ppb/g

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	0.5 to 3	pF
3.3	Pullability	Load and crystal design dependant	0.5 min	ppm/pF
3.4	Drive level	Operating specification	50 max	µW
3.5	Equivalent series resistance (ESR)		60 max	Ω
3.6	Insulation Resistance	100V ±15V at 25°C	500 min	MΩ

(IR)

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 48 hours at 85°C 85% relative humidity non-condensing
4.3	Thermal shock	Exposed at -40°C for 30 minutes then to 85°C for 30 minutes constantly for a period of 5 days
4.4	Vibration	10g RMS 30 Hz to 1500 Hz duration for 6 hours
4.5	Storage temperature	-55 to 105°C

5.0 ENVIRONMENTAL

Line	Parameter	Description
5.1	Shock	2 cycle drop it onto concrete for six directions (x, y, z) and one corner. The height is 152 cm. Dummy is 120g weight.
5.2	Moisture Resistance	Temperature: 40ºC ±2ºC; Humidity : 90 ~ 95%; Time : for 240 hours; According to IEC 1178-1.4.8.15
5.3	Thermal Shock	100 temperature cycles, where each cycle consists of a 25 minute soak time at -40ºC followed by a 25 minute soak time at 85ºC, with a 60 second maximum transition time between temperatures. Air to air transition. According to IEC 1178-1.4.8.4
5.4	Vibration	Frequency: 10 ~ 55 Hz; Amplitude: 1.5 mm; Period: 1 min; Test time: X,Y,Z each direction 2h; According to IEC 1178-1.4.8.7
5.5	Storage temperature	-40 to 85ºC

6.0 MANUFACTURING INFORMATION

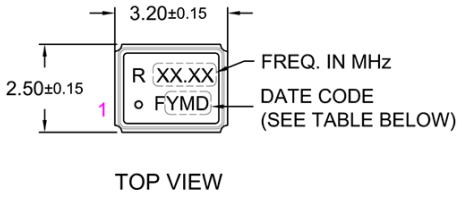
Line	Parameter	Description
6.1	Reflow	Able to withstand solder reflow process
6.2	Packaging description	Tape and Reel. Standard packing quantity is 3000 units per reel

7.0 MARKING

Line	Parameter	Description
7.1	Type	Laser engraved
7.2	Line 1	[R], [XX.XX]* = Frequency in MHz (e.g.: 8.000 = 8MHz, 19.20 = 19.2MHz, 100.0 = 100MHz)
7.3	Line 2	[o] = Pin 1, [F] = Factory code, [YMD] = Date code
7.4	* Frequency code	Frequency marking is only represented by the first four significant digits. For example, on a RSX-8 at 16.368MHz, its frequency marking will be 16.36MHz

Drawing Name: RSX-8 Model Drawing (Package N, Y, W & M)

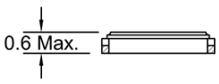
MODEL OUTLINE



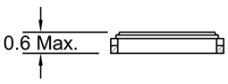
TOP VIEW

NOTE:
MARKING INFORMATION IS
DETAILED IN THE SPECIFICATION.

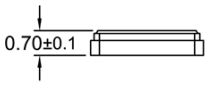
PIN	CONNECTIONS
1	CRYSTAL
2	GND
3	CRYSTAL
4	GND



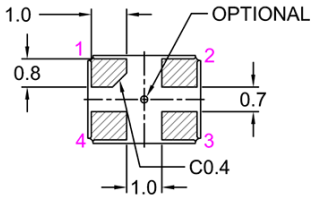
FRONT VIEW (Package N)



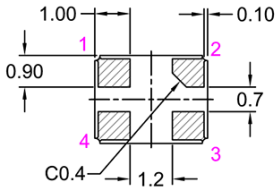
FRONT VIEW (Package Y, W)



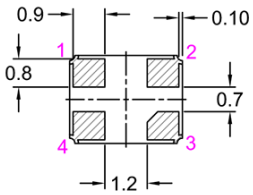
FRONT VIEW (Package M)



BOTTOM VIEW (Package N)

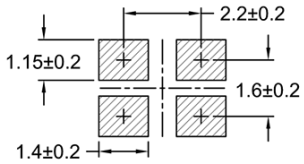


BOTTOM VIEW (Package Y, W)



BOTTOM VIEW (Package M)

RECOMMENDED PAD LAYOUT



TOP VIEW (Package N, Y, W & M)

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: RSX-8 MODEL (Package N, Y, W & M)

RELATED DRAWINGS:

FILENAME:	CAT257
REVISION:	H
DATE:	05-Jun-13
SCALE:	5 : 1
Millimetres	

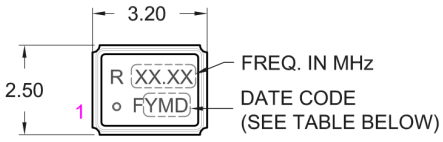
TOLERANCES:
XX =
X.X = ±0.2
X.XX = ±0.10
X.XXX =
X° =
Hole =

rakon

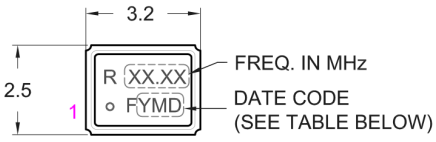
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Drawing Name: RSX3225S Model Drawing (Package AB & AC)

MODEL OUTLINE

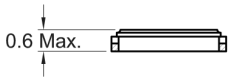


TOP VIEW (Package AB)

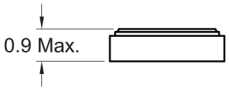


TOP VIEW (Package AC)

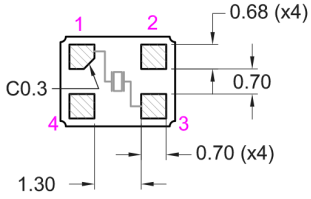
NOTE:
MARKING INFORMATION IS DETAILED IN THE SPECIFICATION.



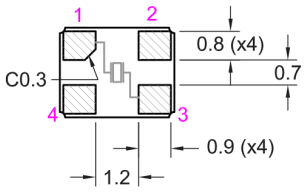
FRONT VIEW (Package AB)



FRONT VIEW (Package AC)



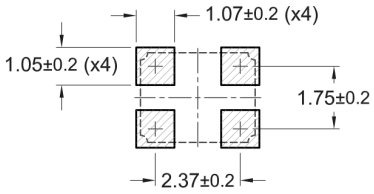
BOTTOM VIEW (Package AB)



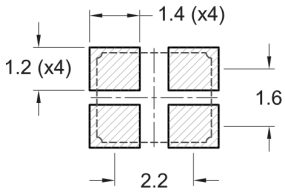
BOTTOM VIEW (Package AC)

PIN	CONNECTIONS
1	CRYSTAL
2	GND
3	CRYSTAL
4	GND

RECOMMENDED PAD LAYOUT - TOP VIEW



(Package AB)



(Package AC)

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: RSX-8 & RSX3225S MODELS (Package AB & AC)

RELATED DRAWINGS:

FILENAME: CAT803

REVISION: B

DATE: 05-Sep-13

SCALE: 5 : 1

Millimetres

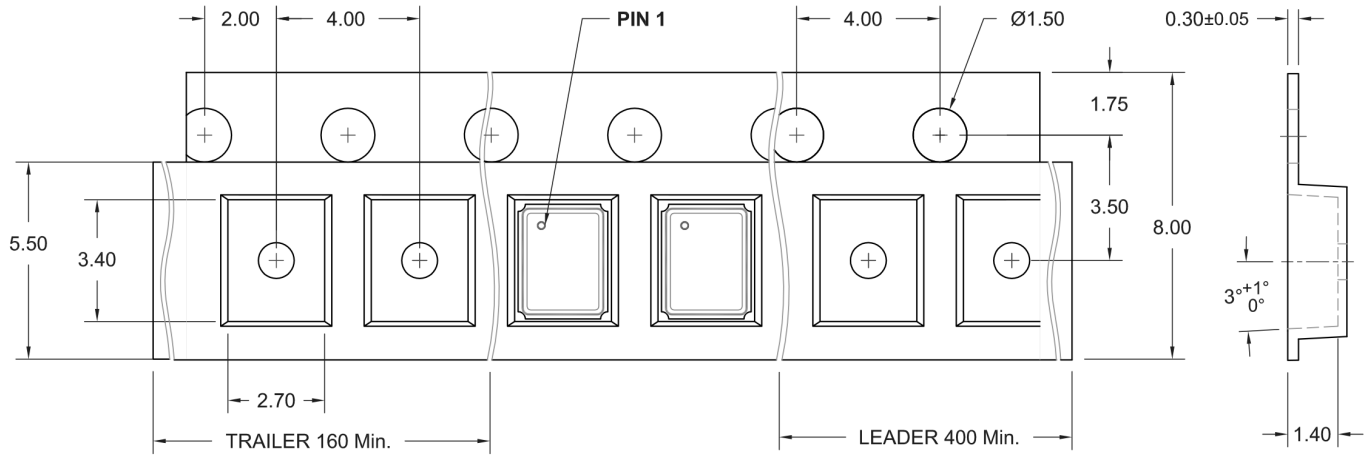
TOLERANCES:
XX =
X.X = ±0.2
X.XX = ±0.10
X.XXX =
X° =
Hole =

rakon

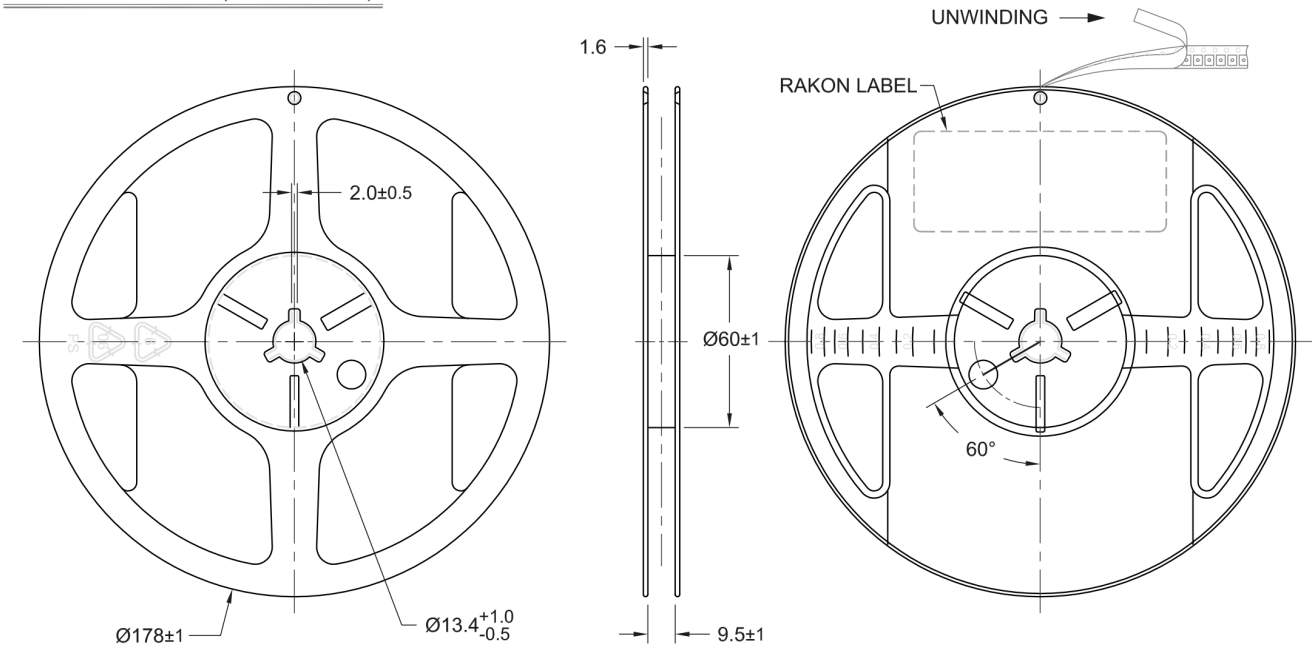
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Drawing Name: RSX3225S Tape & Reel (Package AC)

TAPE DETAIL (Scale 5 : 1)



REEL DETAIL (Scale 1 : 2.5)



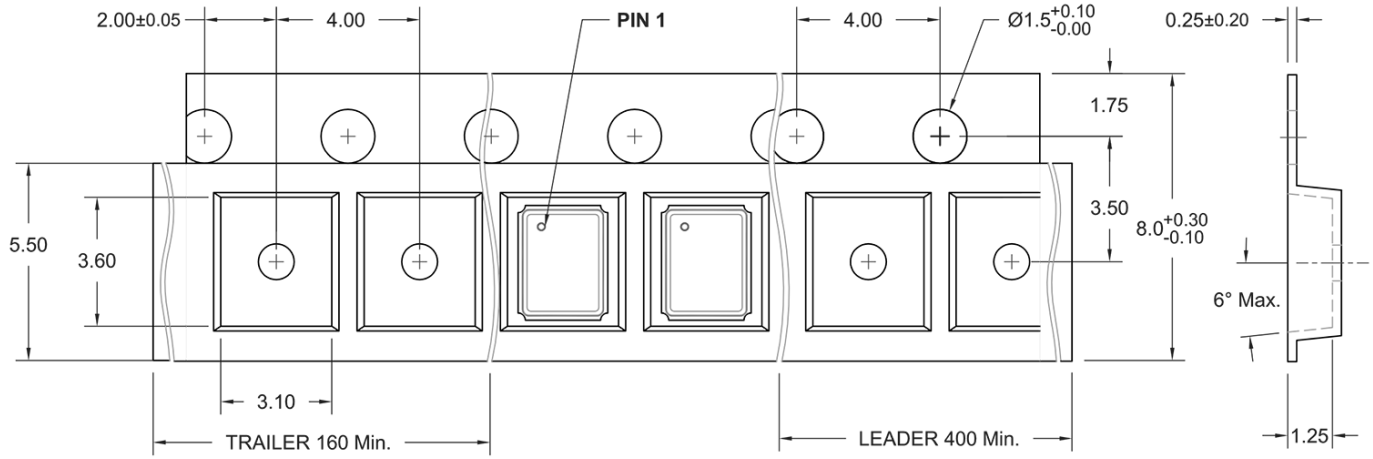
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RELATED DRAWINGS:	REVISION: A	X.X = ±0.2	
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		Hole =	

rakon

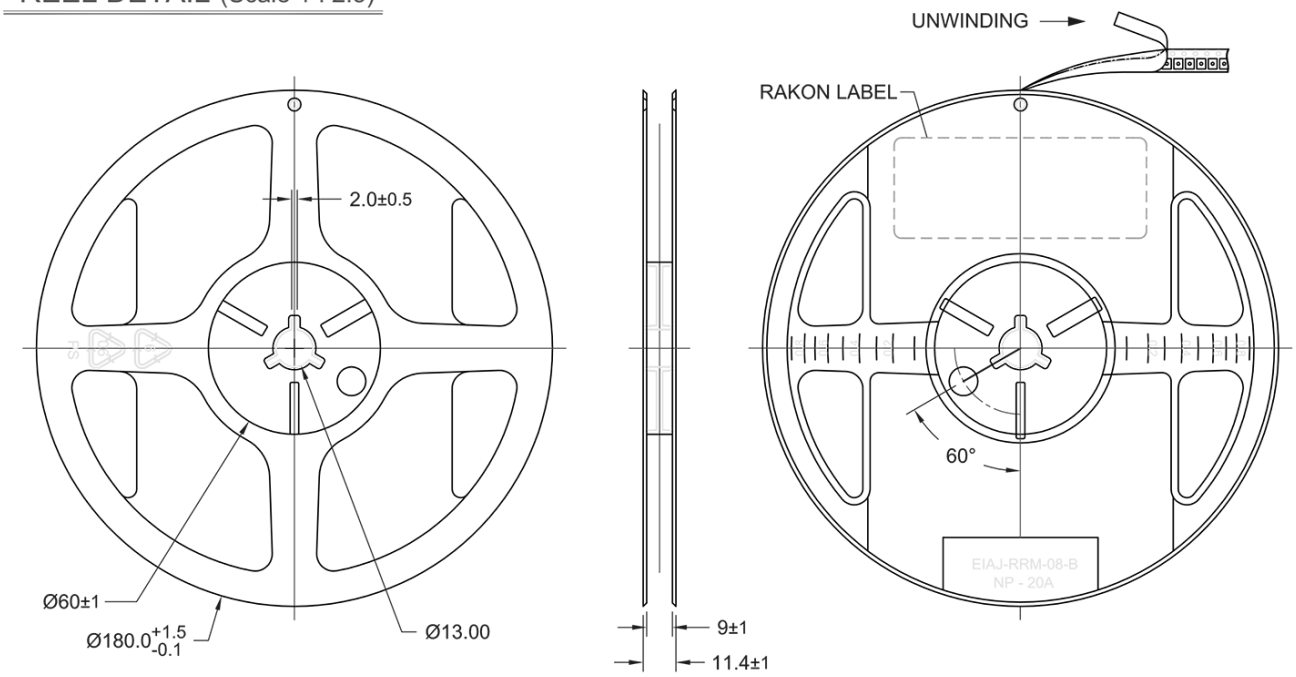
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Drawing Name: RSX-8 Tape & Reel (package N, E & W)

TAPE DETAIL (Scale 5 : 1)



REEL DETAIL (Scale 1 : 2.5)

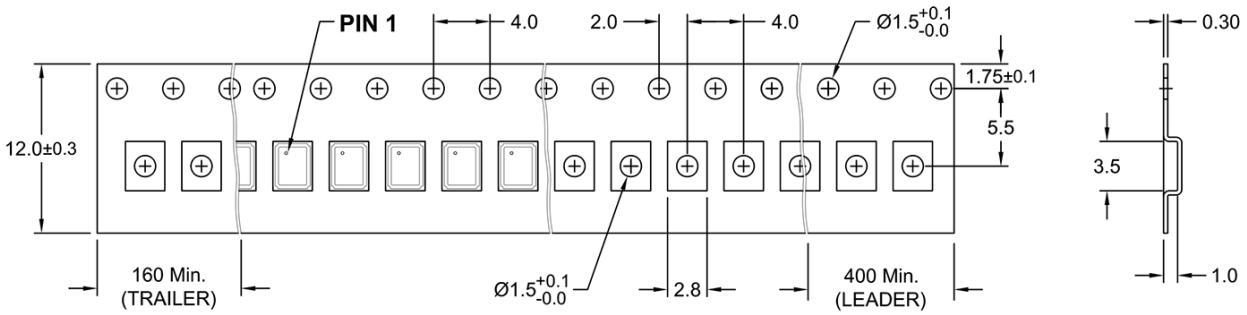


TITLE: RSX-8 3225 SERIES TAPE & REEL	FILENAME: CAT386	TOLERANCES:	
RELATED DRAWINGS:	REVISION: F	XX =	
	DATE: 16-Aug-13	X.X = ±0.2	
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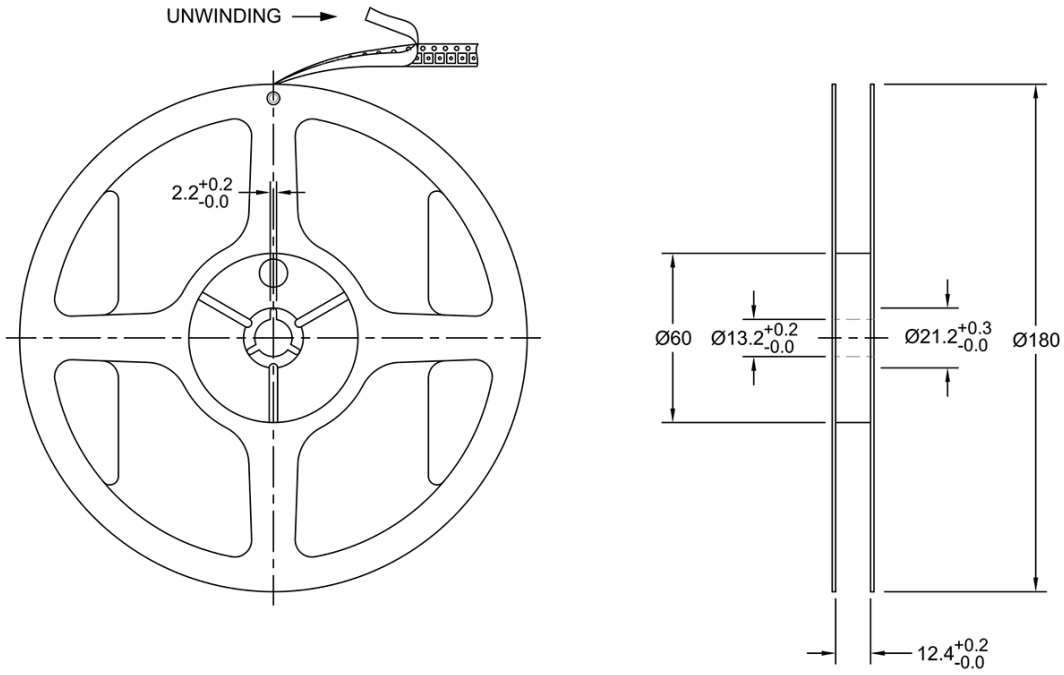
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Drawing Name: RSX-8 Tape & Reel (Package M)

TAPE DETAIL (SCALE 2 : 1)



REEL DETAIL (SCALE 1 : 2.5)

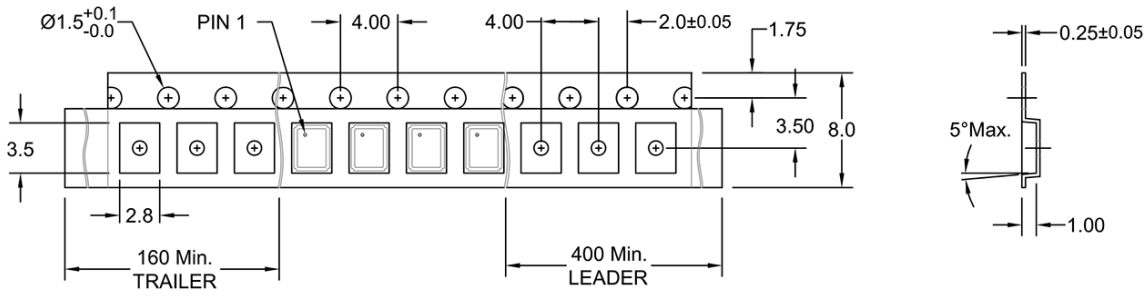


TITLE: RSX-8 TAPE & REEL (Package M)	FILENAME: CAT801	TOLERANCES:
RELATED DRAWINGS:	REVISION: A	XX =
	DATE: 12-Jun-13	X.X = ±0.1
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	Millimetres	X.XXX =
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		Hole =

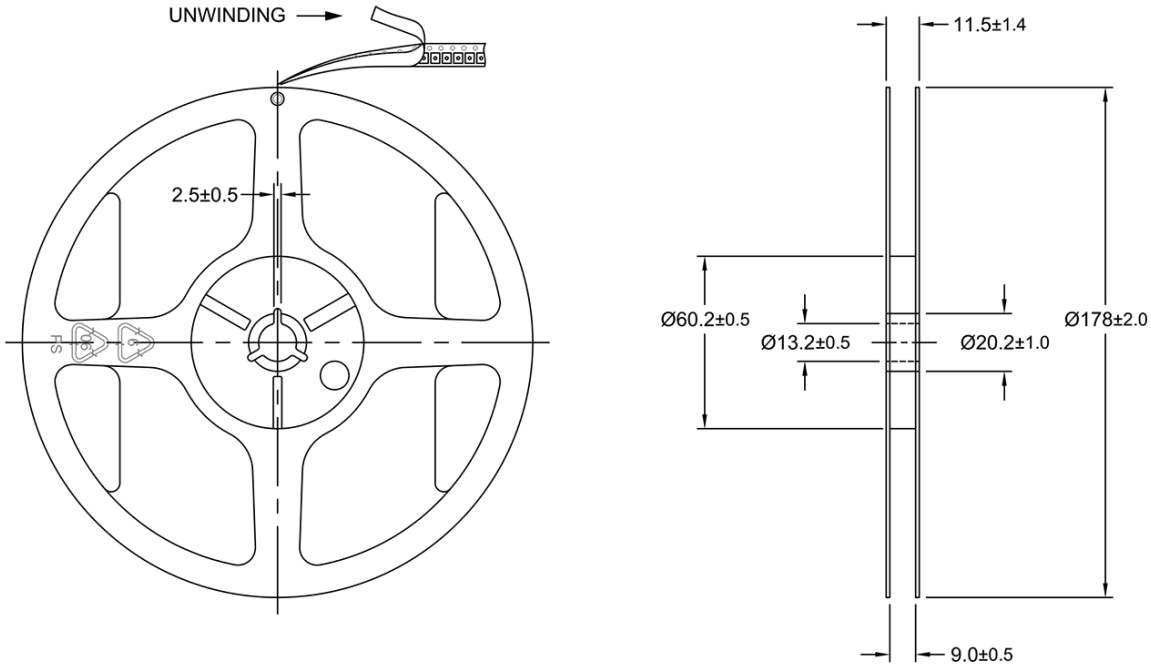
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Drawing Name: RSX-8 tape & Reel (Package AB)

TAPE DETAIL (SCALE 2 : 1)



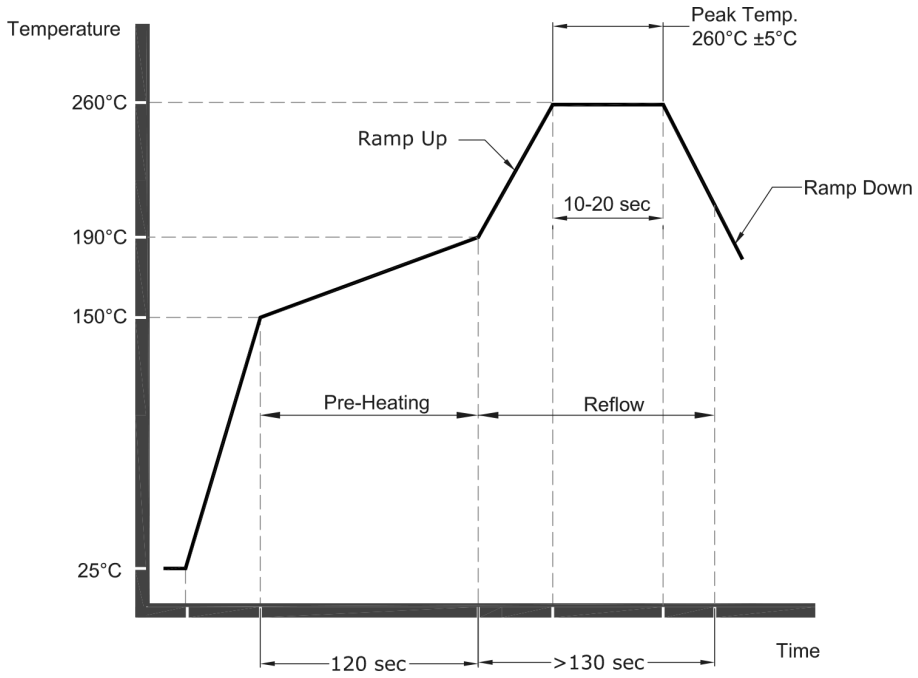
REEL DETAIL (SCALE 1 : 2.5)



TITLE: RSX-8 3225 TAPE & REEL (Package AB)	FILENAME: CAT804	TOLERANCES:	
RELATED DRAWINGS:	REVISION: A	XX =	
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Drawing Name: Pb-Free Reflow (Package AC)

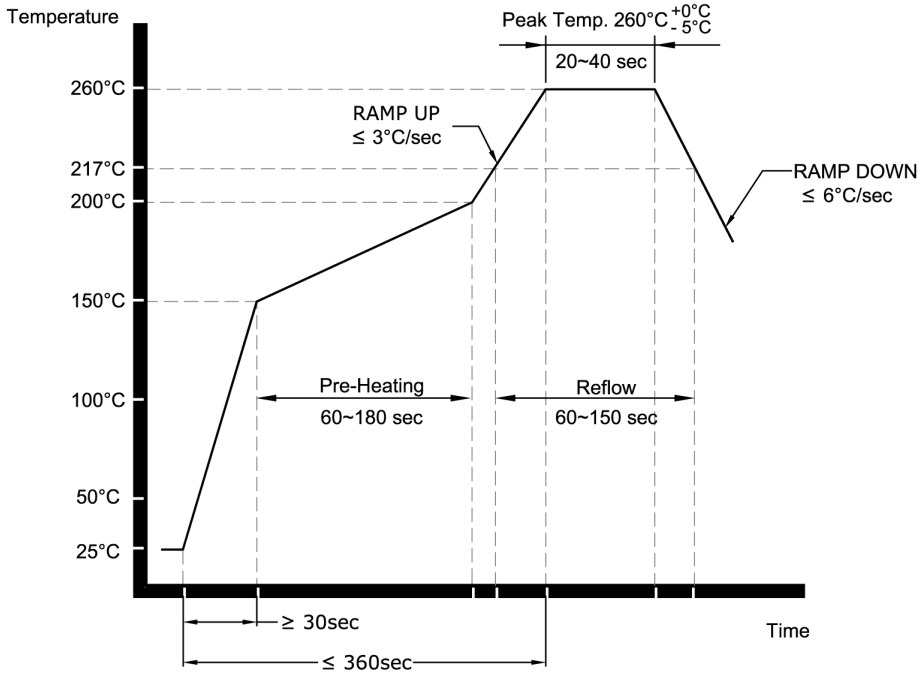


NOTE:
The product has been tested to withstand the Reflow Profile shown. The Reflow Profile used to solder Rakon products is determined by the solder paste Manufacturer's specification. It is recommended that the Reflow Profile used does not exceed the one shown above.

TITLE: Pb-FREE REFLOW (Package AC)	FILENAME: CAT828
RELATED DRAWINGS:	REVISION: A
	DATE: 05-Sep-13
	SCALE: NTS
	Millimetres

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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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