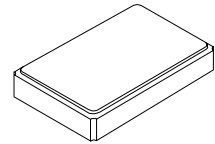





XTL1003-1

**13.56000 MHz
Crystal Unit**



SM5032-4 Case

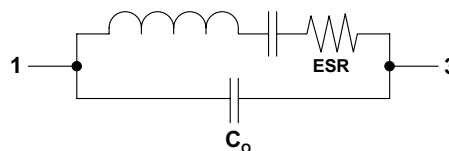
- **Surface Mount Seam-Weld Package**
- **Good Frequency Stability over Temperature**
- **Excellent Reliability**
- **Complies with Directive 2002/95/EC (RoHS)** 

The XTL1003-1 is a surface mount 5.0 x 3.2 mm crystal unit for use in wireless telecommunications devices, especially where an ultra-miniature package is needed for mobility.

Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Nominal Frequency				13.56000		MHz
Mode of Oscillation				Fundamental		
Storage Temperature Range, Crystal Only			-50		+125	°C
Storage Temperature Range, in Tape and Reel			-40		+85	°C
Operating Temperature Range			-20		+70	°C
Frequency Stability over Operating Temperature Range			±20 ppm (referred to the value at 25 °C)			
Frequency Make Tolerance	F _L		±10 ppm @ 25 °C ±3 °C			
Equivalent Series Resistance	ESR				40	Ω
Shunt Capacitance	C _O				2.0	pF
Motional Capacitance	C _M		4.2 ±20%			fF
Nominal Drive Level				10		μW
Load Capacitance	C _L			13.5		pF
Insulation Resistance at 100 VDC			500			MΩ
Aging			±1.0 ppm/year @ 25 °C			
Weight			0.037 ±0.005			g
Standard Shipping Quantity on 330 mm (13") Reel				3000		units
Lid Symbolization (in addition to Lot and/or Date Codes)			1003-1 <u>Y</u> <u>W</u> <u>W</u> <u>S</u>			

Crystal Equivalent Circuit



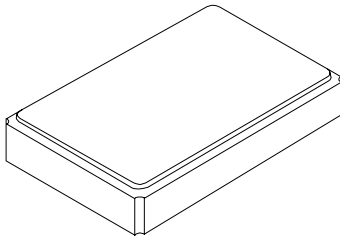
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

Notes:

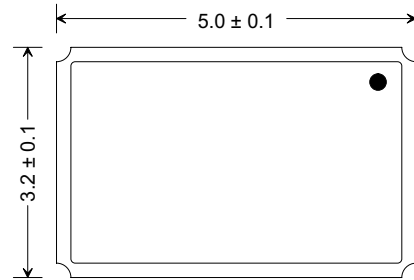
1. US and international patents may apply.
2. The design, manufacturing process, and specifications of this device are subject to change without notice.
3. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.

SM5032-4 Case

4-Terminal Surface-Mount Seam Weld Case 5.0 x 3.2 mm Nominal Footprint

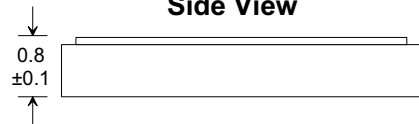


Top View

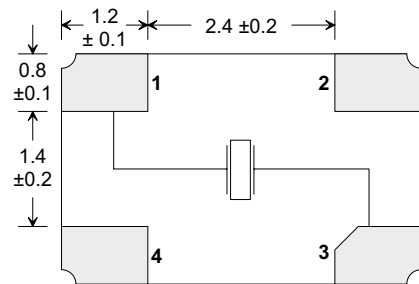


Dot indicates Pin 3 location

Side View



Bottom View

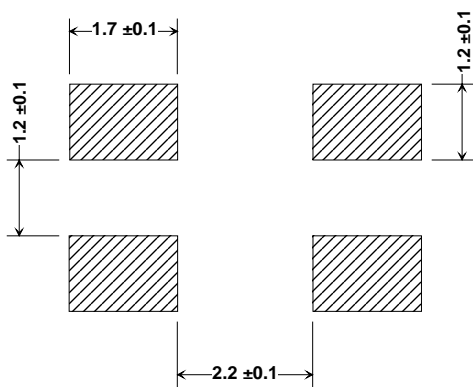


Pins 2 and 4 are connected to the lid

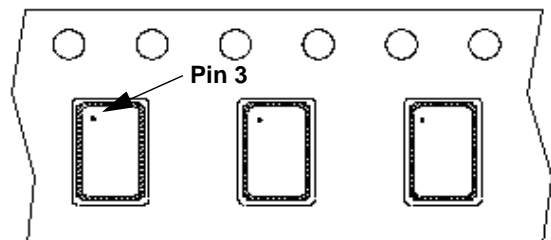
Dimensions are in mm

Electrical Connections

Pin	Connection
1	COSC
2	GND (lid)
3	FSKOUT
4	GND (lid)

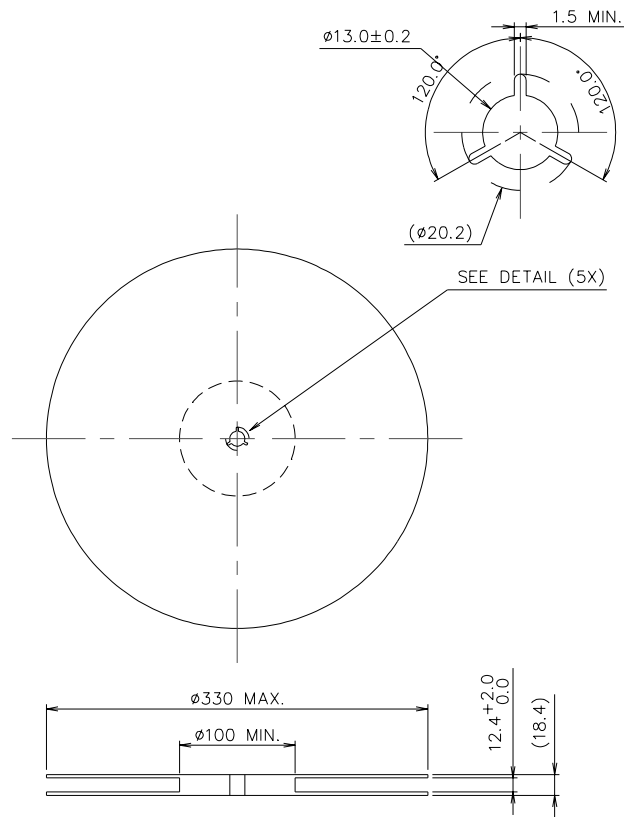


Footprint (mm)

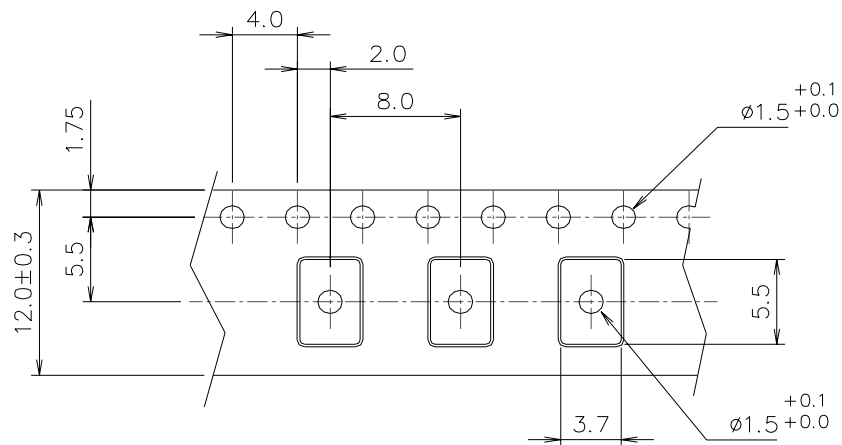


Package Orientation in Carrier Tape

Reel Dimensions



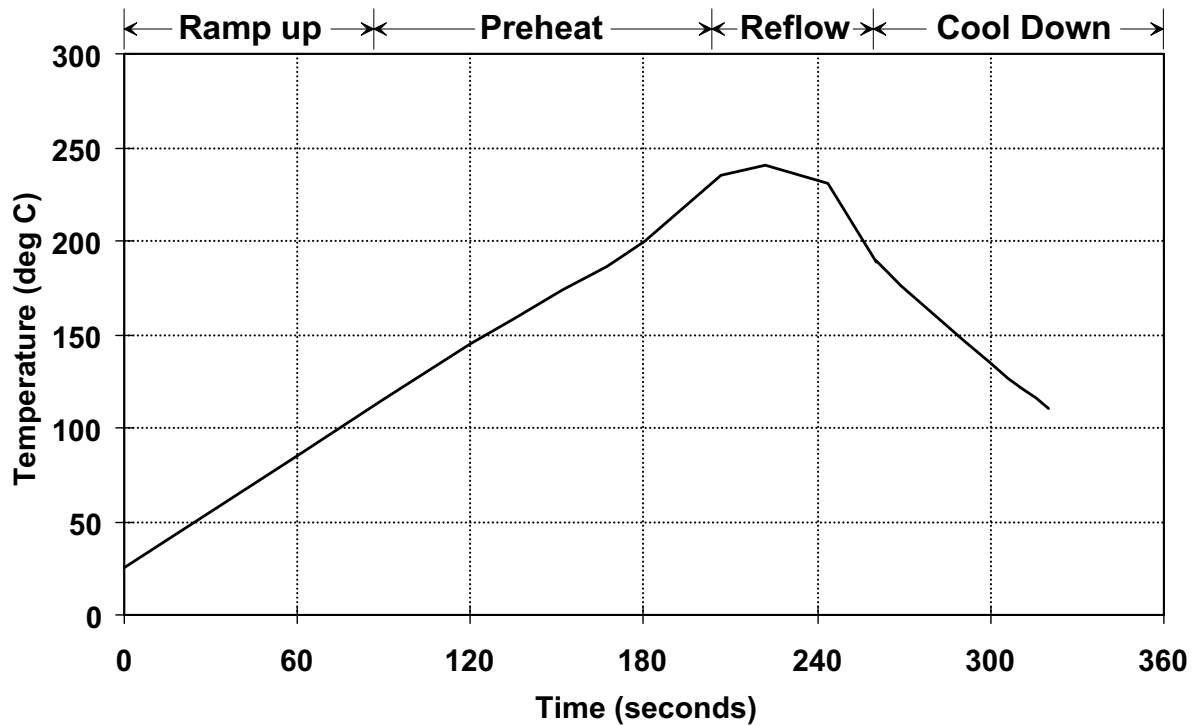
Tape Dimensions



Notes:

1. Unless otherwise specified, tolerance on dimensions is ± 0.1 mm
2. Material is black conductive polystyrene
3. 10 pitch cumulative tolerance is ± 0.2 mm

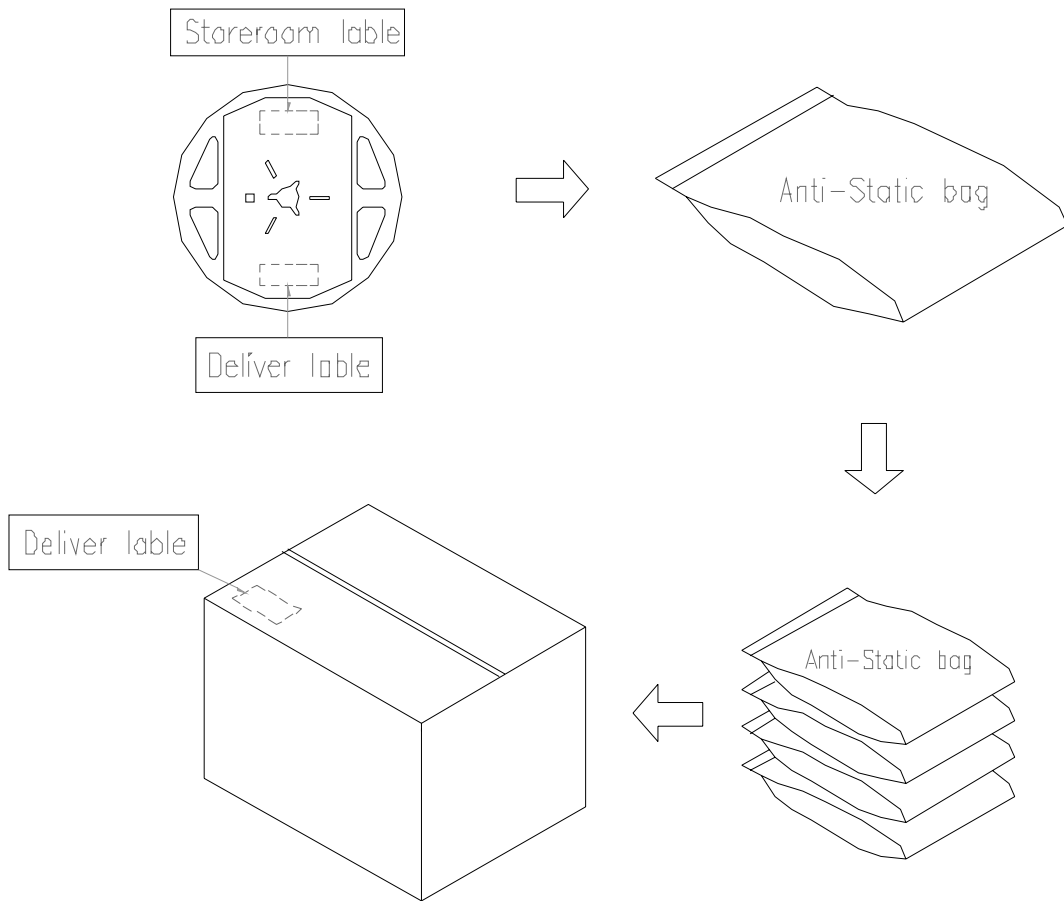
Typical Reflow Profile



Notes:

1. Maximum peak temperature: 265 degrees C for 8 to 12 seconds
2. Typical reflow temperature: 217 ± 5 degrees C for 90 to 100 seconds

Packing - 3,000 units per reel maximum



Deliver package carton
1. L36xW35xH21cm-10 reel max.
2. L38xW36xH32cm-15 reel max.

Reliability Specifications

Test name	Test process / method	Reference standard
Mechanical characteristics		
resistance to Soldering heat (IR reflow)	Temp./Duration : 260 °C /10 seconds x2 times Total time : 4 minutes (IR-reflow)	EIAJED-4701 -300(301)M(II)
Vibration	Total peak amplitude: 1.5 mm Vibration frequency: 10 to 55 Hz Sweep period: 1.0 minute Vibration directions: 3 mutually perpendicular Duration: 2 hours per direction	MIL-STD 202F method 201A
Mechanical Shock	Directions: 3 impacts per axis Acceleration: 3000g's, +20/-0 % Duration: 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202F method 213C
Solderability	Solder Temperature: 265 ±5°C Duration time: 5 ±0.5 seconds.	MIL-STD 883G method 2003
Environmental characteristics		
Thermal Shock	Heat cycle conditions -55 °C, 30 minutes <> 125 °C, 30 minutes * cycle time : 10 times	MIL-STD 883G method 1010.7
Humidity test	Temperature: 70 ± 2 °C Relative humidity: 90-95% Duration: 96 hours	MIL-STD 202F method 103B
Dry heat (Aging test)	Temperature: 125 ± 2 °C Duration: 168 hours	MIL-STD 883G method 1008.2 condition C
PCT test	Pressure: 2.06 kg/cm ² (2.03*10 ⁵ pa) Temperature : 121 ± 2 °C Relative humidity : 100% Duration: 24 hours	EIAJED-4701-3 B-123A