

## Features:

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package
- Moisture Sensitivity Level (MSL) : Level-1

## Description and Applications:

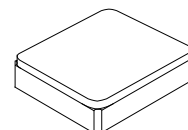
Surface mount 2.5 mm x 2.0 mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

## Electrical Specifications:

<b>XTL2077G-2</b>	<b>Specification</b>
Nominal Frequency	32.000000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-40°C to +125°C
Operating Temperature Range	-40°C to +85°C
Frequency Stability over Operating Temperature Range	+/-15 ppm @ -30°C to +85°C +/-20 ppm @ -40°C to +85°C (referred to the value at 25°C)
Frequency Make Tolerance (FL)	+/-10 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	40 Ω max
Frequency Perturbation	+/- 6 ppm max over 2°C
Nominal Drive Level	10uW typical and 200uW max
Shunt Capacitance (Co)	2.0 pF max
Load Capacitance (CL)	8 pF
Aging	+/-5 ppm/ 5 years
Insulation Resistance	500 MΩ min./DC 100V
Marking	Laser Marking
Unit Weight	9.5 +/-0.5mg

**XTL2077G-2**

**32.000000 MHz  
Crystal Unit**



SM2520-4



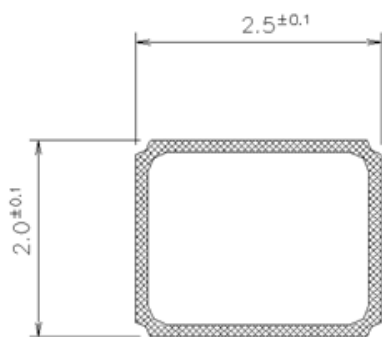
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**NOTES:**

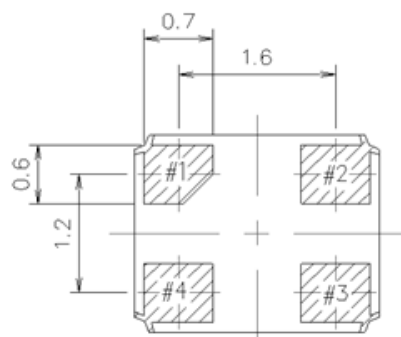
1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

## Mechanical Dimensions (unit: mm):

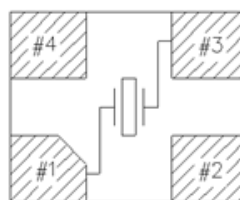
### Base



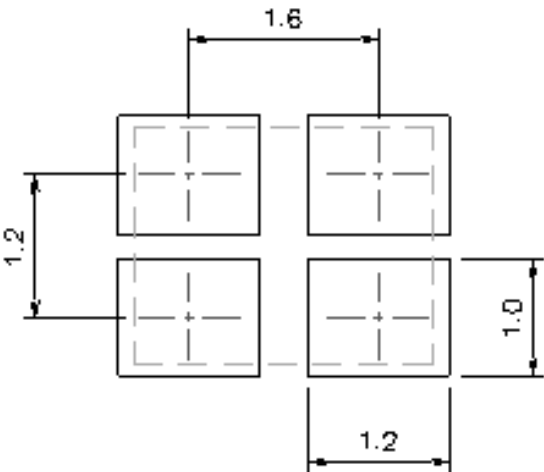
	Pin Connection
#1 pin	IN/OUT
#2 pin	GND
#3 pin	IN/OUT
#4 pin	GND



Internal Connections  
(Top View)

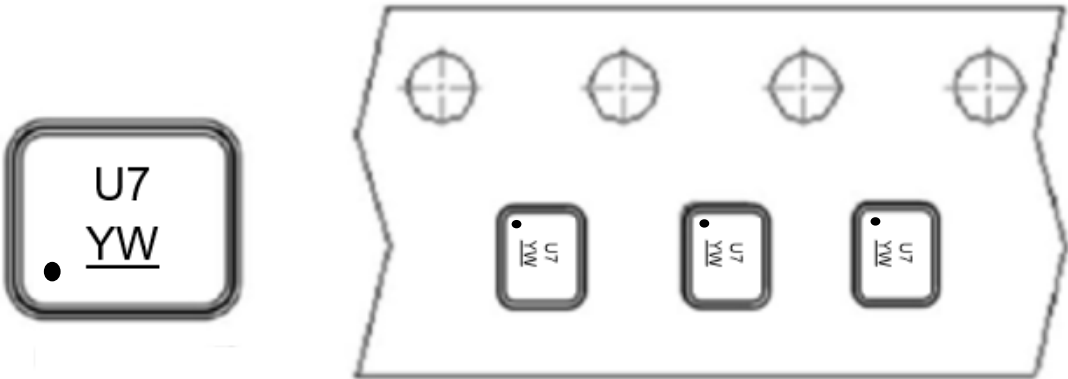


Recommended Land Pattern: (unit: mm)



Marking:

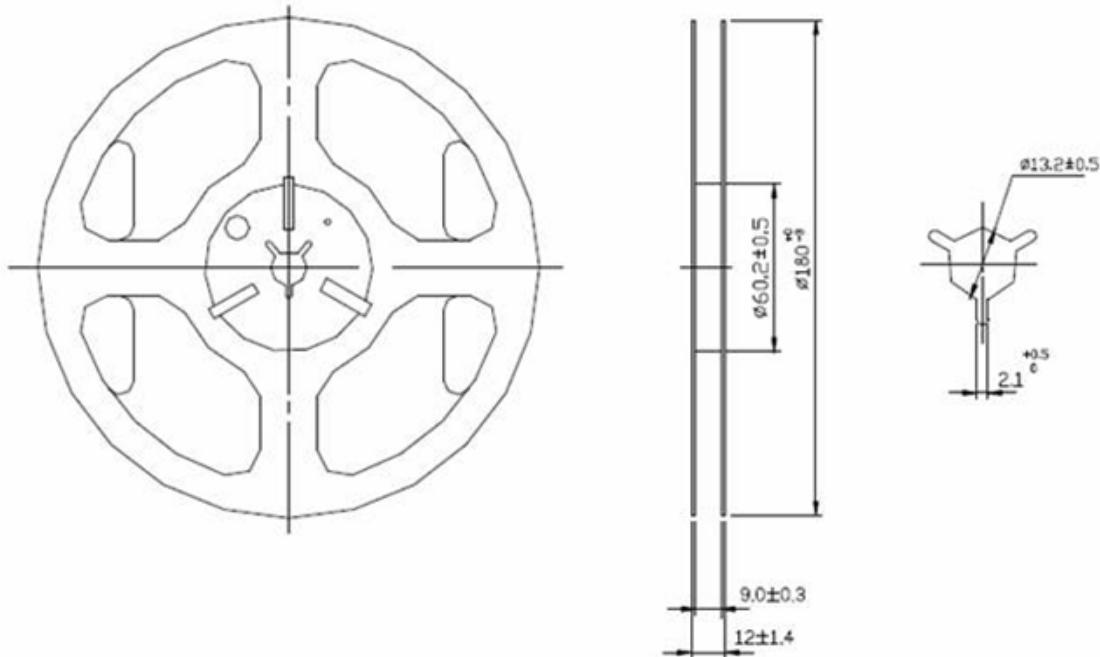
Y = Year, W = Week



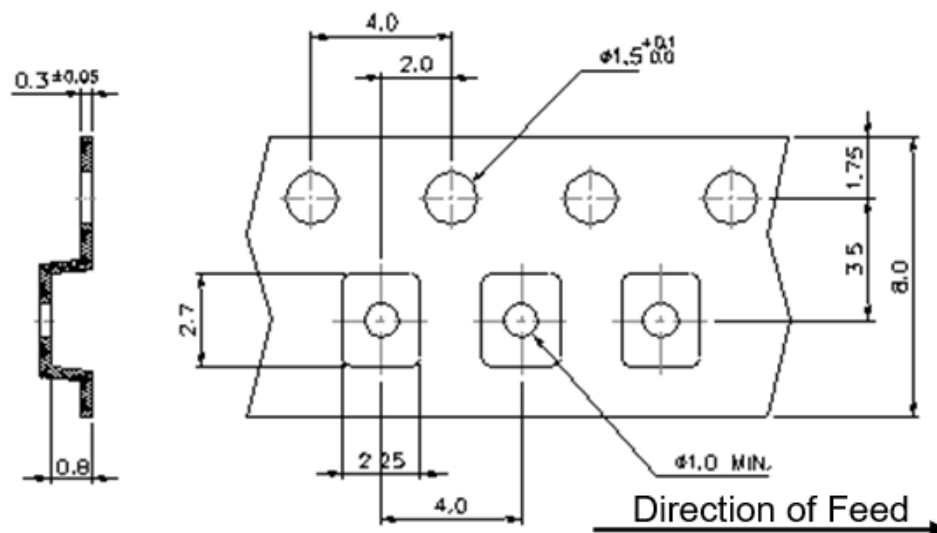
# Reel Dimensions

Reel Count: 7" = 3000

Tape and Reel Standard per ANSI/EIA-481



## Tape Dimensions

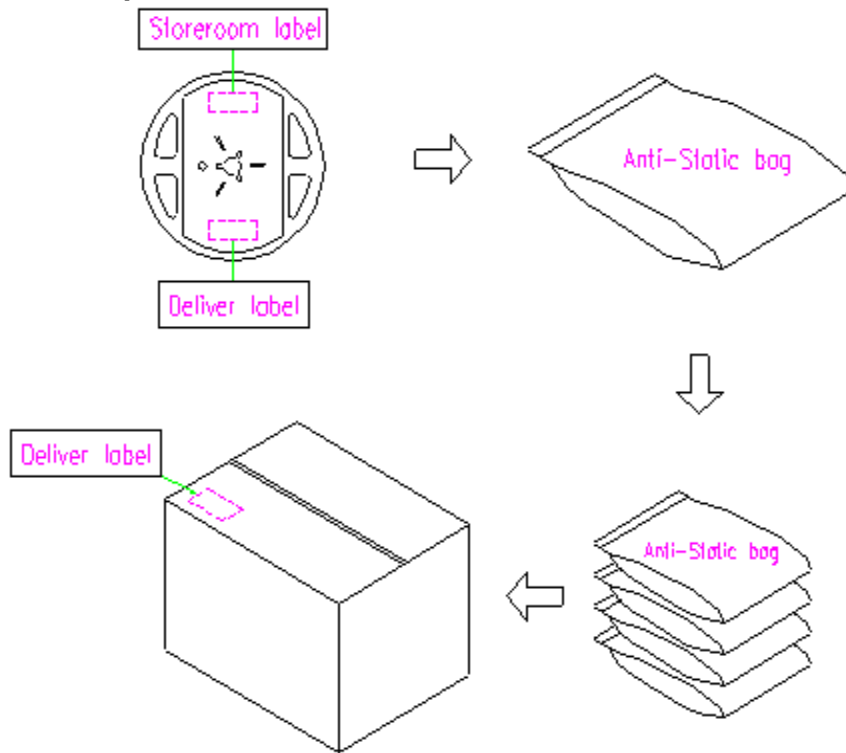


[NOTE]:

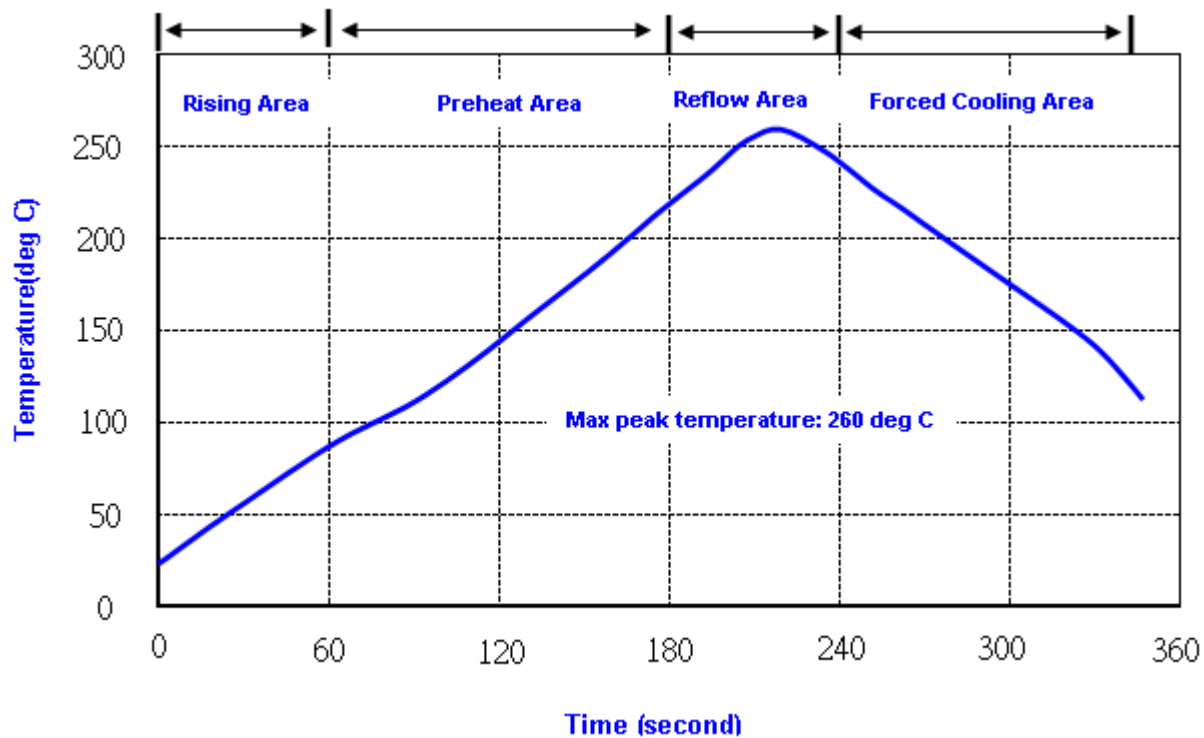
1. Unless otherwise specified tolerance on dimension  $\pm 0.1$  mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance  $\pm 0.2$  mm.

## Packing Quantity/Packing:

3K pcs maximum per reel



## Reflow Profile:



**Note: 1. Max peak temperature: 260 $\pm$ 5 deg C; Time: 10 $\pm$ 2 sec**  
**2. Temperature: 217 $\pm$ 5 deg C; Time: 90~100 sec**

## Reliability Specifications

Test name	Test process / method	Reference standard
<b>Mechanical characteristics</b>		
resistance to Soldering heat (IR reflow)	Temp./ Duration : 265°C /10sec ×2 times Total time : 4min.(IR-reflow)	EIAJED-4701  -300(301)M(II)
Vibration	Total peak amplitude : 1.5mm Vibration frequency : 10 to 2000 Hz Sweep period : 20 minute Vibration directions : 3 mutually perpendicular Duration : 2 hr / direc.	MIL-STD 202G method 204
Mechanical Shock	directions : 3 impacts per axis Acceleration : 3000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202G method 213
Solderability	Solder Temperature:265±5°C Duration time: 5±0.5 seconds.	J-STD-002
<b>Environmental characteristics</b>		
Thermal Shock	Heat cycle conditions -40 °C (30min) ↔ 85 °C (30min) * cycle time : 10 times	MIL-STD 883G method 1010.8
Humidity test	Temperature : 85 ± 2 °C Relative humidity : 85% Duration : 96 hours	MIL-STD 202G method 103
Dry heat ( Aging test )	Temperature : 125 ± 2 °C Duration : 168 hours	MIL-STD 202G method 108A
Cold resistance (Low Temp Storage)	Temperature : -40 ± 2 °C Duration : 96 hours	IEC 60068-2-1