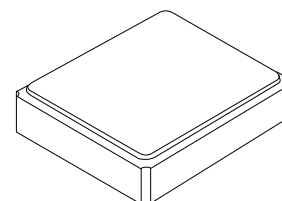


- **High Performance Crystal for Wireless Communications Devices**
- **Excellent Frequency Stability and Reliability**
- **Miniature Surface Mount Seam Weld Package**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Moisture Sensitivity Level: 1**

The XTL1020P is a high stability 12.8000 MHz crystal suitable for a wide range of communications applications where small size is important.

**XTL1020P**

**12.8000 MHz  
Crystal Unit**

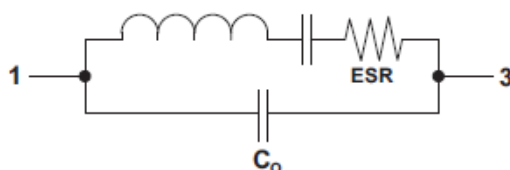


**SM3225-4 Case**

#### Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Nominal Frequency	$f_o$			12.8000		MHz
Mode of Oscillation			Fundamental			
Storage Temperature Range in Tape and Reel			-40		+85	°C
Operating Temperature Range			-40		+85	°C
Frequency Make Tolerance	$f_L$		$\pm 15$ ppm @ 25 °C $\pm 3$ °C			
Frequency Stability over Operating Temperature Range			$\pm 20$ ppm (referenced to the value at 25 °C)			
Equivalent Series Resistance	ESR				100	$\Omega$
Shunt Capacitance	$C_o$			3		pF
Nominal Drive Level					10	$\mu$ W
Load Capacitance	$C_L$			15		pF
Aging at 25 °C					$\pm 1.0$	ppm/yr
Insulation Resistance, 100 VDC			500			M $\Omega$
Standard Shipping Quantity on 178 mm (7") Reel				3000		units
Lid Symbolization (Y = year, WW = week, S = shift)	1020P YWWS					

**Crystal Equivalent Circuit**



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

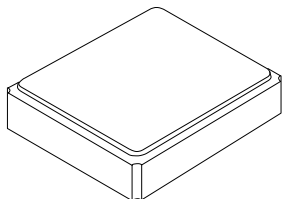
#### NOTES:

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.

# SM3225-4 Case

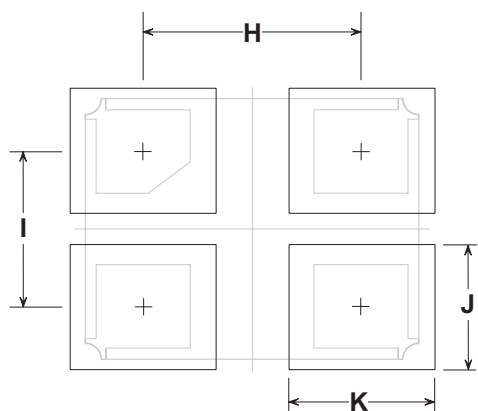
## 4 Terminal Surface Mount Seam Weld Case

3.2 x 2.5 mm Nominal Footprint



### Electrical Connections

Connection	Terminals
Input / Output	1
Ground	2
Input / Output	3
Ground	4

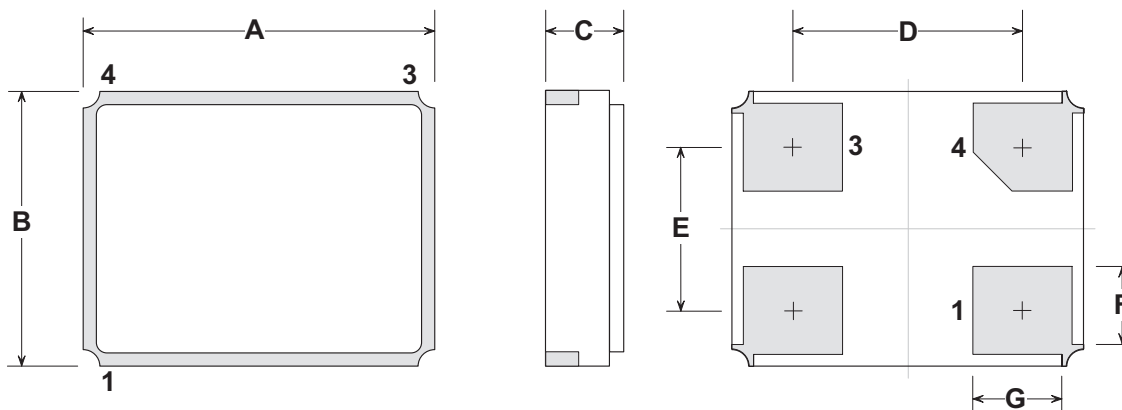


Typical PCB Land Footprint  
(Top View)

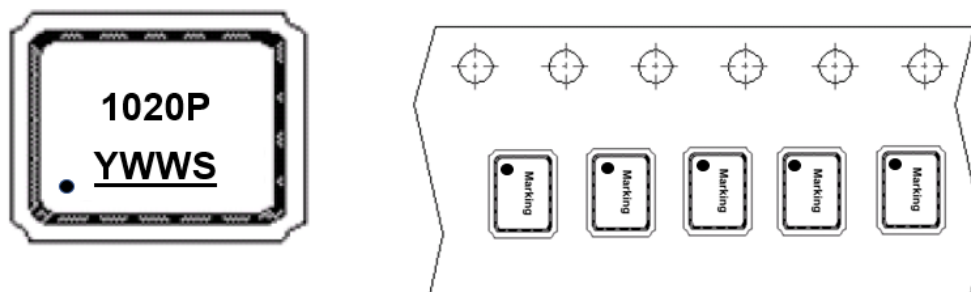
### Case and PCB Land Dimensions

Dimensions	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.10	3.20	3.30	0.122	0.126	0.130
B	2.40	2.50	2.60	0.094	0.098	0.102
C			0.70			0.028
D		2.10			0.083	
E		1.50			0.059	
F		0.80			0.031	
G		0.90			0.035	
H		2.10			0.083	
I		1.50			0.059	
J		1.20			0.047	
K		1.40			0.055	

### Case Outline Drawing



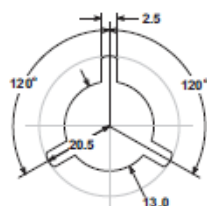
## Marking:



## Reel Dimensions

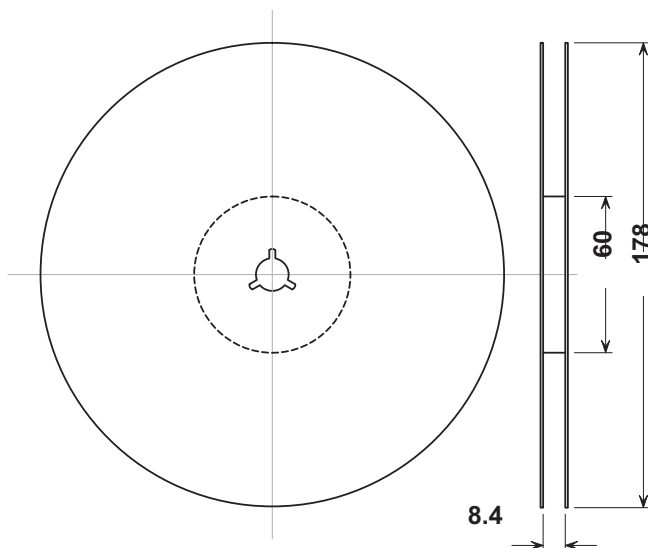
Reel Count"  
7" = 1000  
13" = 3000

Tape and Reel Standard per ANSI/EIA-481

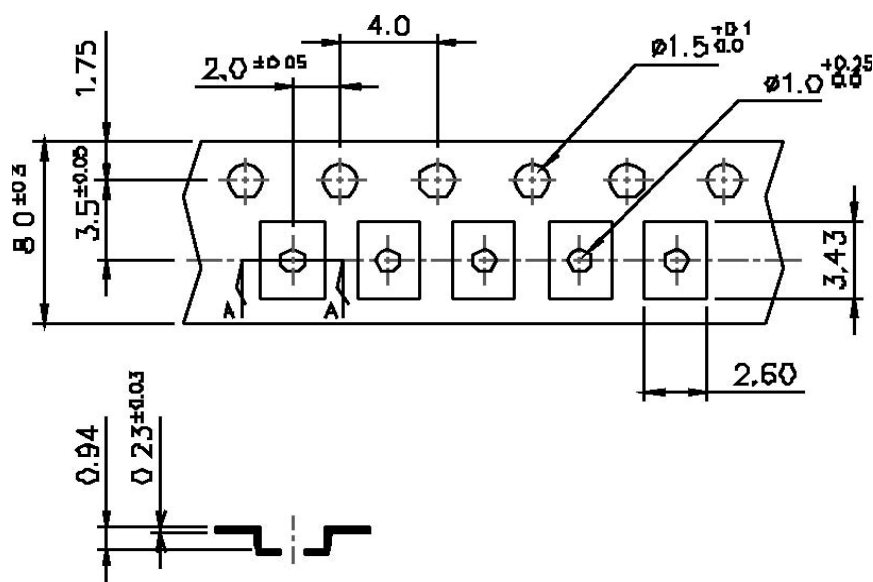


Reel Hub Detail

Dimensions in mm



## Tape Dimensions



SECTION "A-A"

## Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C +0/-5°C peak (10 seconds).
4. Time: 5 times maximum.

