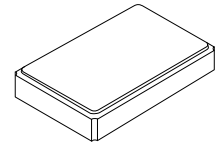


- **High Reliability Quartz Crystal**
- **Good Frequency Stability over Temperature**
- **Ultra-Miniature 2.5 x 2.0 mm SMD Package**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Moisture Sensitivity Level: 1**

The XTL1015 is a surface mount 2.5 x 2.0 x 0.6 mm crystal unit for use in wireless telecommunications devices, especially where an ultra-miniature package is needed for mobility.

**XTL1015**

**48.5300 MHz  
Crystal Unit**

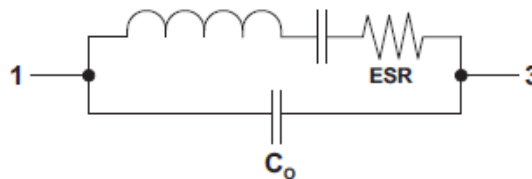


**SM2520-4 Case**

#### Electrical Characteristics

| Characteristic                                       | Sym   | Notes | Minimum                                       | Typical | Maximum | Units    |
|------------------------------------------------------|-------|-------|-----------------------------------------------|---------|---------|----------|
| Nominal Frequency                                    | $f_o$ |       |                                               | 48.5300 |         | MHz      |
| Load Capacitance                                     | $C_L$ |       |                                               | 10      |         | pF       |
| Mode of Vibration                                    |       |       | Fundamental                                   |         |         |          |
| Drive Level                                          |       |       |                                               | 10      |         | $\mu$ W  |
| Frequency Make Tolerance                             | $f_L$ |       | $\pm 30$ ppm @ 25 °C $\pm 3$ °C               |         |         | ppm      |
| Frequency Stability Over Operating Temperature Range |       |       | $\pm 30$ ppm (referred to the value at 25 °C) |         |         |          |
| Resistance                                           | ESR   |       |                                               |         | 50      | $\Omega$ |
| Static Shunt Capacitance                             | $C_o$ |       |                                               |         | 2       | pF       |
| Storage Temperature Range                            |       |       | -40                                           |         | +85     | °C       |
| Operating Temperature Range                          |       |       | -40                                           |         | +85     | °C       |
| Aging                                                |       |       |                                               |         | $\pm 1$ | ppm/yr   |
| Standard Shipping Quantity on 178 mm (7") Reel       |       |       |                                               | 3000    |         | units    |
| Lid Symbolization: Y = Year, W = Week                |       |       | 2G <u>YW</u>                                  |         |         |          |

**Crystal Equivalent Circuit**



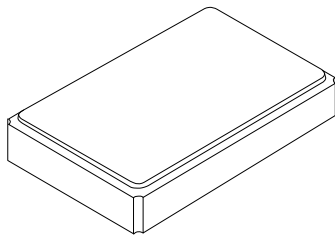
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### 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.

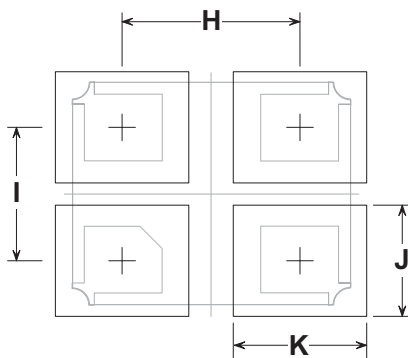
# SM2520-4 Case

## 4-Terminal Surface-Mount Case 2.5 x 2.0 mm Nominal Footprint



Electrical Connections

| Connection     | Terminals |
|----------------|-----------|
| Input / Output | 1         |
| No Connection  | 2         |
| Input / Output | 3         |
| Metal Cover    | 4         |

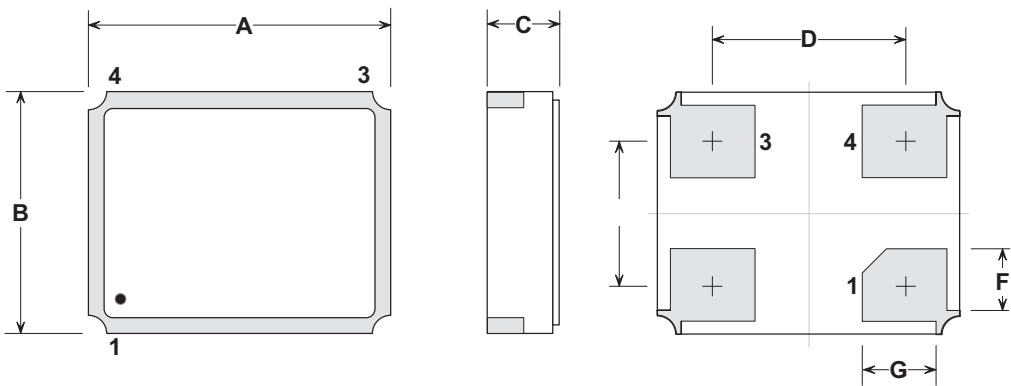


Typical PCB Land Footprint  
(Top View)

Case and PCB Land Dimensions

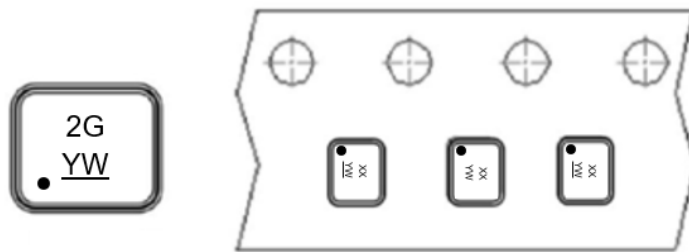
| Dimensions | Millimeters |      |      | Inches |       |       |
|------------|-------------|------|------|--------|-------|-------|
|            | Min         | Nom  | Max  | Min    | Nom   | Max   |
| A          | 2.40        | 2.50 | 2.60 | 0.095  | 0.098 | 0.102 |
| B          | 1.90        | 2.00 | 2.10 | 0.075  | 0.078 | 0.083 |
| C          |             |      | 0.60 |        |       | 0.024 |
| D          |             | 1.60 |      |        | 0.063 |       |
| E          |             | 1.20 |      |        | 0.047 |       |
| F          |             | 0.60 |      |        | 0.024 |       |
| G          |             | 0.70 |      |        | 0.028 |       |
| H          |             | 1.60 |      |        | 0.063 |       |
| I          |             | 1.20 |      |        | 0.047 |       |
| J          |             | 1.00 |      |        | 0.039 |       |
| K          |             | 1.20 |      |        | 0.047 |       |

Case Outline Drawing



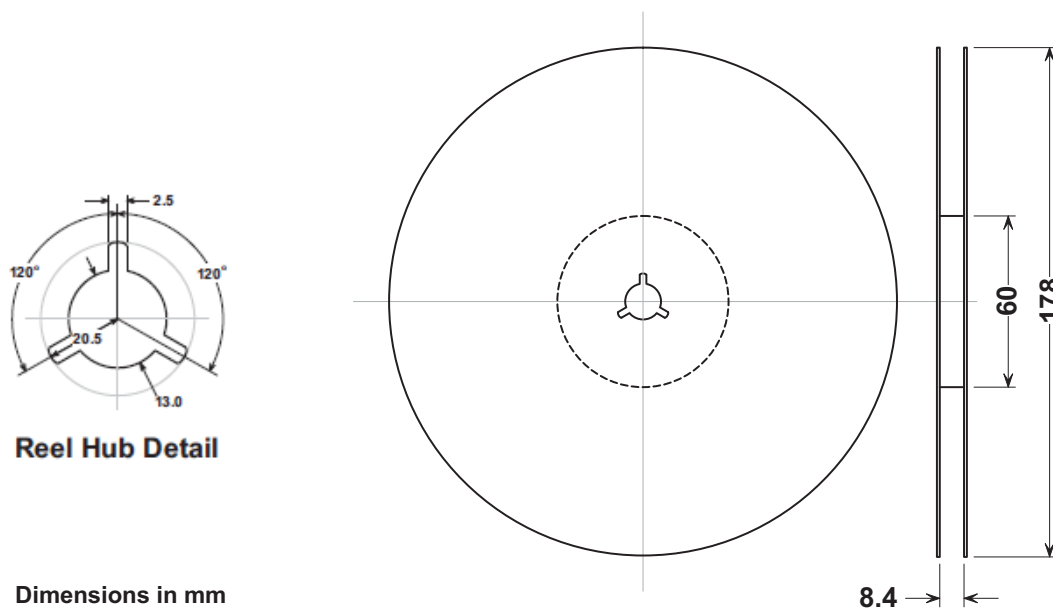
**Marking:**

Y = Year, W = Week

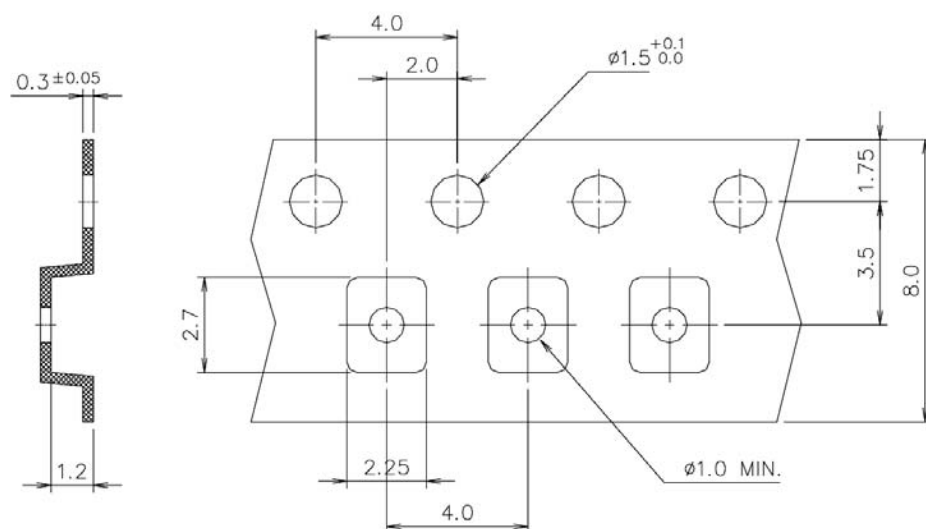


## Reel Dimensions

Tape and Reel Standard per ANSI/EIA-481



## Tape Dimensions



## 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.

