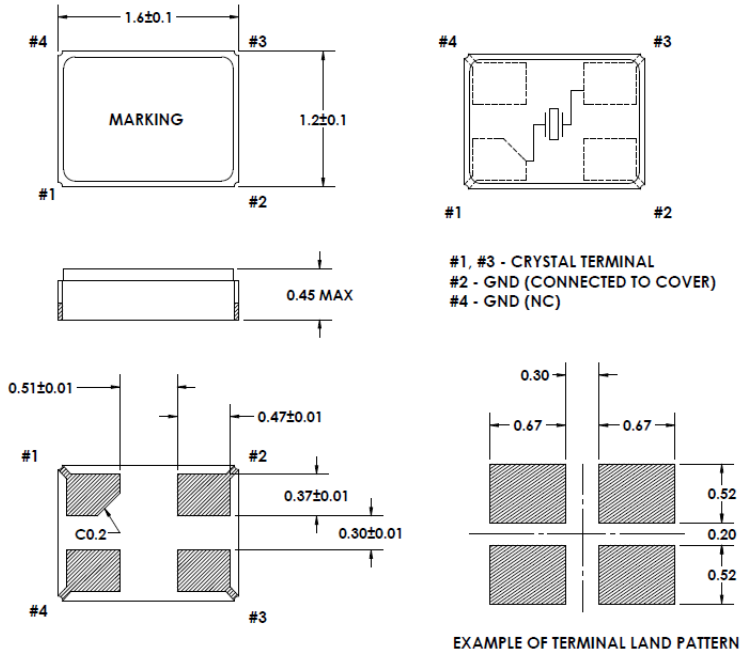
**Table 1. Electrical Performance**

| Parameter | Symbol | Min. | Typ | Max | Units |
|---|---|---|---|---|---|
| Nominal Frequency | $F_{NOM}$ | 24.000 | | 54.000 | MHz |
| Mode | | Fundamental, AT - Cut | | | |
| Operating Temperature Range | $T_{OP}$ | 0/70, -10/70, -20/70, -40/85 | | | °C |
| Stability Over $T_{OP}$ [1] | $F_{STAB}$ | ±15 | | ±100 | ppm |
| Frequency Tolerance[2] | $F_{TOL}$ | | ±15 | | ppm |
| Load Capacitance | $C_L$ | 6 | | 32 | pF |
| Shunt Capacitance | $C_o$ | | | 5 | pF |
| Drive Level | | | 10 | 100 | uW |
| Aging / 1st year (at 25 °C) | $F_{AGE}$ | | | ±5 | ppm |
| Insulation Resistance | | 500 | | | MOhm |
| Storage Temperature | $T_{STO}$ | -40 | | 90 | °C |
| Equivalent Series Resistance | | | | | |
| Crystal Frequency<br>24.000MHz-37.399MHz<br>37.400MHz-54.000MHz | ESR | | | <br>100<br>80 | Ohm |

Notes:
1. Referenced to the Frequency at 25 °C.
2. Frequency measured at 25 °C ± 3 °C.

Product is compliant to RoHS directive and fully compatible with lead free assembly.

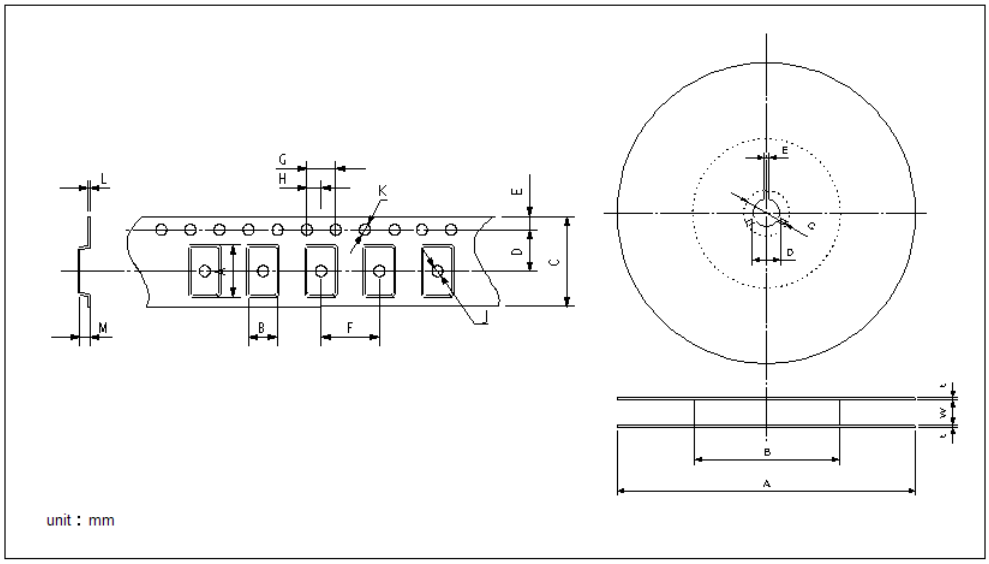
## Package Drawing



# Tape & Reel

**Table 7. Tape and Reel Dimensions (mm)**

| Tape | | | | | | | | | | | | Reel | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | J | K | L | M | A | B | C | D | E | W | T |
| 1.85 | 1.45 | 8.0 | 3.5 | 1.75 | 4.0 | 4.0 | 2.0 | 0.5 | 1.55 | 0.25 | 0.45 | 180 | 60 | 21.0 | 13.0 | 2.0 | 9.0 | 2.0 |




# Reliability & IR Compliance

Solderprofile:

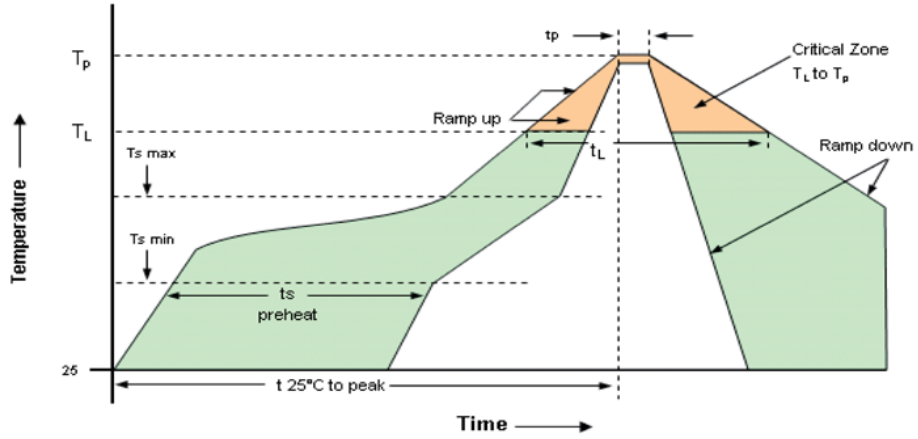



**Table 2: Reflow Profile**

| Parameter | Symbol | Value |
|---|---|---|
| PreHeat Time<br>Ts-min<br>Ts-max | $t_S$ | 60 sec Min, 260 sec Max<br>150°C<br>200°C |
| Ramp Up | $R_{UP}$ | 3 °C/sec Max |
| Time Above 217 °C | $t_L$ | 60 sec Min, 150 sec Max |
| Time To Peak Temperature | $T_{AMB-P}$ | 480 sec Max |
| Time at 260 °C | $t_P$ | 30 sec Max |
| Ramp Down | $R_{DN}$ | 6 °C/sec Max |

Pads are Au over Ni and compatible with either SnPb or Pb free attachment.
MSL: 1

## Ordering Information

**VXN1 - XXX - XX- xxMxxxxxxx**

**Product**
1.6 x 1.2mm, Crystal

**Mode**
**1:** Fundamental

**Temp Stability**
**D:** 15ppm
**E:** 20ppm
**F:** 25ppm
**G:** 30ppm
**H:** 35ppm
**I:** 40ppm
**J:** 45ppm
**K:** 50ppm
**S:** 100ppm

**Frequency in MHz**

**Load Capacitance**
00: Series Resonance
06-32pF

**Operating Temperature**
**E:** -40 to 85 °C
**J:** -20 to 70 °C
**W:** -10 to 70 °C
**T:** 0 to 70 °C

**Note: not all combination of options are available.*
*Other specifications may be available upon request.*

*15ppm stability not available for -40 to 85°C*

## Revision History

| Revision Date | Approved | Description |
|---|---|---|
| August 23, 2016 | RC | Initial datasheet for factory approval and release to customer. |

## For Additional Information, Please Contact


***USA:***
Vectron International
267 Lowell Road, Suite 102
Hudson, NH 03051
Tel: 1.888.328.7661
Fax: 1.888.329.8328

***Europe:***
Vectron International
Landstrasse, D-74924
Neckarbischofsheim, Germany
Tel: +49 (0) 3328.4784.17
Fax: +49 (0) 3328.4784.30

***Asia:***
Vectron International
68, Yin Cheng Road (C), 22nd Floor
One LuJiaZui
Pudong, Shanghai 200120, China
Tel: 86.21.6194.6886
Fax: 86.21.6194.6699



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