


Table 1. Electrical Performance

| Parameter | Symbol | Min. | Typ | Max | Units |
|---|-------------------|------------------------------|-----|--------|-------|
| Nominal Frequency | F _{NOM} | 3.500 | | 75.000 | MHz |
| Mode | | Fundamental, 3rd Overtone | | | |
| Operating Temperature Range | T _{OP} | 0/70, -10/70, -20/70, -40/85 | | | °C |
| Stability Over T _{OP} ¹ | F _{STAB} | ±10 | | ±100 | ppm |
| Frequency Tolerance ² | F _{TOL} | | ±10 | ±20 | 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 | ESR | | | | Ohm |
| 3.500MHz-4.000MHz | | | | 140 | |
| 4.001MHz-5.000MHz | | | | 120 | |
| 5.001MHz-6.000MHz | | | | 80 | |
| 6.001MHz-7.000MHz | | | | 70 | |
| 7.001MHz-9.000MHz | | | | 45 | |
| 9.001MHz-13.000MHz | | | | 40 | |
| 13.001MHz-16.000MHz | | | | 35 | |
| 16.001MHz-20.000MHz | | | | 30 | |
| 20.001MHz-30.000MHz, Fundamental | | | | 25 | |
| 24.001MHz-32.000MHz, 3rd Overtone | | | | 120 | |
| 32.000MHz-80.000MHz, 3rd Overtone | | | | 80 | |

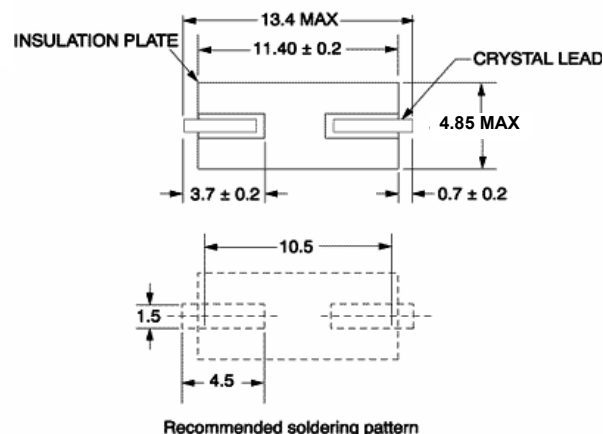
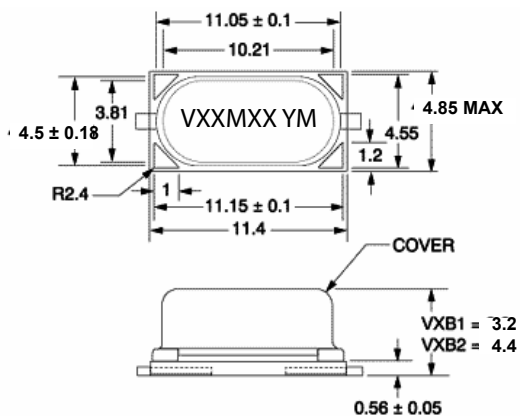
Notes:

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



Part Marking:

V = Vectron
 XXMXX = Frequency
 Y = Last digit of the year
 M = Month Code
 A=January
 B=February
 C=March
 D=April
 E=May
 F=June
 G=July
 H=August
 I=September
 J=October
 K=November
 L=December

All Dimensions in mm

Table 2. Environmental Compliance

| Parameter | Conditions |
|----------------------------|---------------------------------------|
| Mechanical Shock | MIL-STD-883, Method 2002, Condition B |
| Mechanical Vibration | MIL-STD-883, Method 2007, Condition A |
| Temperature Cycle | MIL-STD-883, Method 1010, Condition B |
| Solderability | MIL-STD-202-210, Condition B |
| Gross and Fine Leak | MIL-STD-883, Method 1014 |
| Altitude | MIL-STD-883, Method 1001, Condition B |
| Moisture Sensitivity Level | MSL 1 |
| Weight | 575 mg |

Reliability & IR Compliance

Solderprofile:

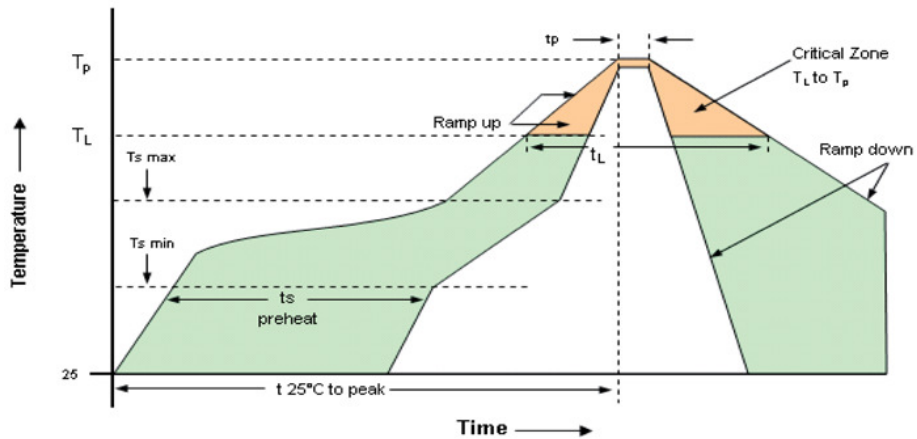


Table 3: Reflow Profile

| Parameter | Symbol | Value |
|----------------------------------|-------------|---|
| PreHeat Time Ts-min Ts-max | t_s | 60 sec Min, 260 sec Max 150°C 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 |

Tape & Reel

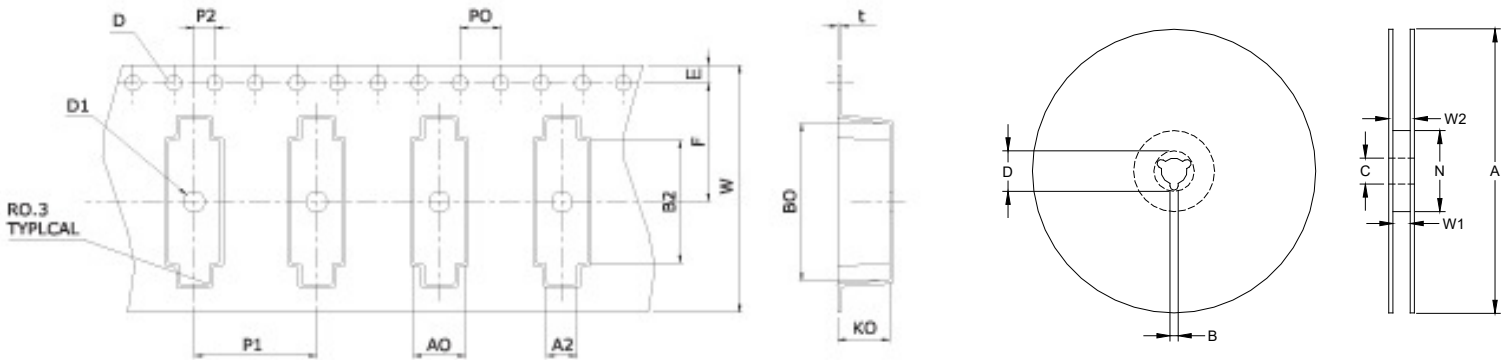
Table 4a. Tape and Reel Dimensions (mm)

| Tape | | | | | | | | | | | | | | |
|---------|-----|-----|------|------|------|-----|------|------|-----|-----|------|-----|-----|------|
| Package | A0 | A2 | B0 | B2 | D | D1 | E | F | K0 | P0 | P1 | P2 | t | W |
| VXB1 | 5.1 | 3.0 | 16.1 | 11.9 | 1.55 | 1.6 | 1.75 | 11.5 | 3.4 | 4.0 | 12.0 | 2.0 | 0.4 | 24.0 |
| VXB2 | 5.1 | 3.0 | 16.1 | 11.9 | 1.5 | 2.0 | 1.75 | 11.5 | 4.3 | 4.0 | 12.0 | 2.0 | 0.4 | 24.0 |

Table 4b. Tape and Reel Dimensions (mm)

| Reel | | | | | | | |
|---------|-----|-----|----|------|------|------|-----|
| Package | A | A | C | D | W1 | W2 | N |
| VXB1 | 330 | 1.5 | 13 | 20.2 | 24.4 | 26.4 | 100 |
| VXB2 | 330 | 2.0 | 13 | 21.0 | 24.4 | 26.4 | 80 |

1K pieces per reel



Ordering Information

VXBX - XXX - XX - xxMxxxxxxxxXX

Product

VXB1: 3.2mm tall
VXB2: 4.4mm tall

Mode

1: Fundamental
3: 3rd Overtone

Temp Stability

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

Packaging

TR: Tape and Reel
 blank: Cut Tape / non Tape and Reel quantities

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.*

Example:

VXB2-1EE-12-25M0000000TR
VXB2-1EE-12-25M0000000

Tape and Reel
Cut Tape

Revision History

| Revision Date | Approved | Description |
|-----------------|----------|---|
| August 30, 2016 | RC | Initial datasheet for factory approval and release to customer. |
| August 10, 2018 | FB | Update logo and contact information |
| June 10, 2019 | FB | Update logo and contact information |
| April 30, 2020 | FB | Add tape and reel ordering option |

Previous Ordering Information for Reference Only
Do Not Use to Build a New Part Number

VXB1-1A2-10M000

Package

VXB1: 3.2mm tall
VXB2: 4.4 mm tall

Mode

1 : Fundamental
3: 3rd Overtone

Stability

A: ±100 ppm over -20° C to 70° C
B: ±50 ppm over -20° C to 70° C
C: ±100 ppm over -40° C to 85° C
D: ±50 ppm over -40° C to 85° C
F: ±30 ppm over -20° C to 70° C
I: ±25 ppm over -40° C to 85° C

Frequency

Load Capacitance

0: Series Resonant
1: 16 pf
2: 20 pf
3: 32 pf
4: 18 pf
5: 10 pF
6: 30 pf

The ordering codes for the VXB1/B2 were changed in 2016. If you had ordered a specific code based off this ordering method, it is still available for purchase under the old code however no new part numbers will be created using this system.

Due to the change in the 8th character from numeric to alphabetic, there is no opportunity for overlap between the two ordering

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