


Table 1. Electrical Performance

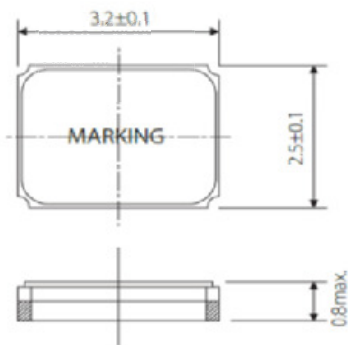
| Parameter | Symbol | Min. | Typ | Max | Units |
|--|-------------------|------------------------------|-----|--------|-------|
| Nominal Frequency ¹ | F _{NOM} | 12.000 | | 60.000 | MHz |
| Mode | | Fundamental, AT - Cut | | | |
| Operating Temperature Range, <i>ordering option</i> | T _{OP} | 0/70, -10/70, -20/70, -40/85 | | | °C |
| Stability Over T _{OP} ² , <i>ordering option</i> | F _{STAB} | ±10 | | ±100 | ppm |
| Frequency Tolerance ^{2,3} | F _{TOL} | | ±10 | ±20 | ppm |
| Load Capacitance, <i>ordering option</i> | 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 |
| 12.000MHz-14.000MHz | | | | 100 | |
| 14.001MHz-19.000MHz | | | | 80 | |
| 19.001MHz-30.000MHz | | | | 60 | |
| 30.001MHz-60.000MHz | | | | 40 | |

Notes:

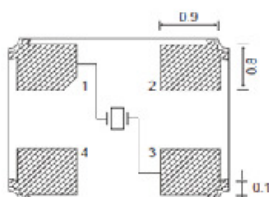
- Higher frequency 3rd OT crystals can be supplied, such as 114M285 and 125M000. Please contact factory with requirements.
- Referenced to the Frequency at 25 °C.
- Frequency measured at 25 °C ± 3 °C.

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

Package Drawing



BOTTOM VIEW



All Dimensions in mm

Marking Option 1

XXMXXX
YYWW C
were
XXMXX = Frequency
YY = Year
WW=Week
C = Manufacturing Location

Marking Option 2

VXXYM
were
V=Vectron
XX = Frequency
Y = Year
M = Month
A = January
L = December

RECOMMENDED PAD LAYOUT

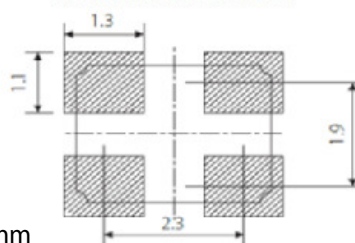


Table 2. Environmental Compliance

| 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 |
| Contact Pads | Gold (0.2 um min) over Nickel |
| Weight | 20 mg |

Reliability & IR Compliance

Solderprofile:

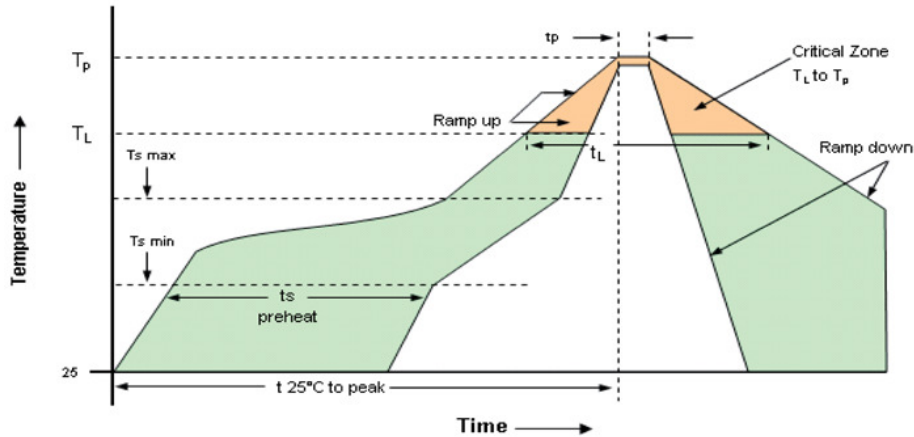


Table 3: Reflow Profile

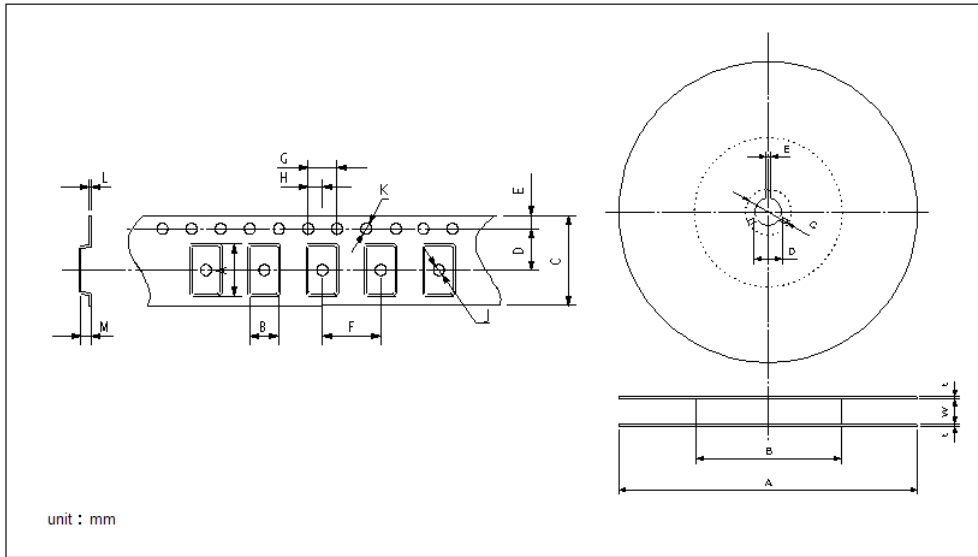
| Parameter | Symbol | Value |
|----------------------------------|-------------|---|
| PreHeat Time Ts-min Ts-max | t_s | 60 sec Min, 260 sec Max 150°C 200°C |
| Ramp Up | R_{UP} | 3 °C/sec Max |
| Time Above 217 °C | t_L | 60 sec Min, 150 sec Max |
| Time To Peak Temperature | T_{AMB-P} | 480 sec Max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

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

Tape & Reel

Table 4. 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 | |
| 3.6 | 2.9 | 8.0 | 3.5 | 1.75 | 4.0 | 4.0 | 2.0 | 0.5 | 1.55 | 0.25 | 1.0 | 180 | 60 | 21.0 | 13.0 | 2.0 | 9.0 | 2.0 | |



1K pieces per reel

Ordering Information

VXM7 - XXX - XX- xxMxxxxxxxx

Product
3.2 x 2.5mm, Crystal

Mode
1: Fundamental

Temp Stability
C: 10ppm
D: 15ppm
E: 20ppm
F: 25ppm
G: 30ppm
H: 35ppm
I: 40ppm
J: 45ppm
K: 50ppm
S: 100ppm

Frequency in MHz

Load Capacitance
 0: 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.*

10ppm stability not available for -40 to 85°C

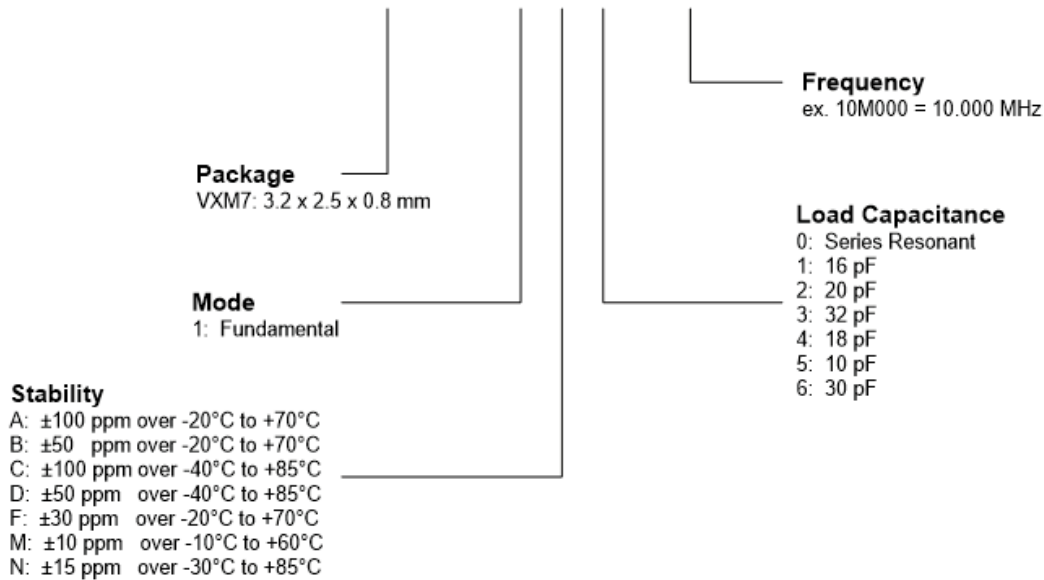
* Add **_SNPB** for tin lead solder dip
 Example: **VXM7-1KE-18-26M0000000_SNPB**

Revision History

| Revision Date | Approved | Description |
|--------------------|----------|---|
| December 5, 2016 | RC | Updated ESR Table |
| August 29, 2016 | RC | Initial datasheet for factory approval and release to customer. |
| September 18, 2018 | FB | Update logo and contact information, add 1K reel pieces per reel and "SNPBDIP" ordering option |
| June 7, 2019 | FB | Update logo and contact information, add Table 2 Environmental compliance, change "SNPBDIP" to "SNPB" |

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

VXM7-1M2-10M000



The ordering codes for the VXM7 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 methods.

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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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