

Table 1. Electrical Performance

| Parameter | Symbol | Min. | Typ | Max | Units |
|--------------------------------------|------------|------------------------------|-----|--------|-------|
| Nominal Frequency | F_{NOM} | 8.000 | | 60.000 | MHz |
| Mode | | Fundamental or 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 | | 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 |
| 8.000MHz-12.000MHz | | | | 100 | |
| 12.001MHz-16.000MHz | | | | 80 | |
| 16.001MHz-20.000MHz | | | | 70 | |
| 20.001MHz-60.000MHz | | | | 50 | |

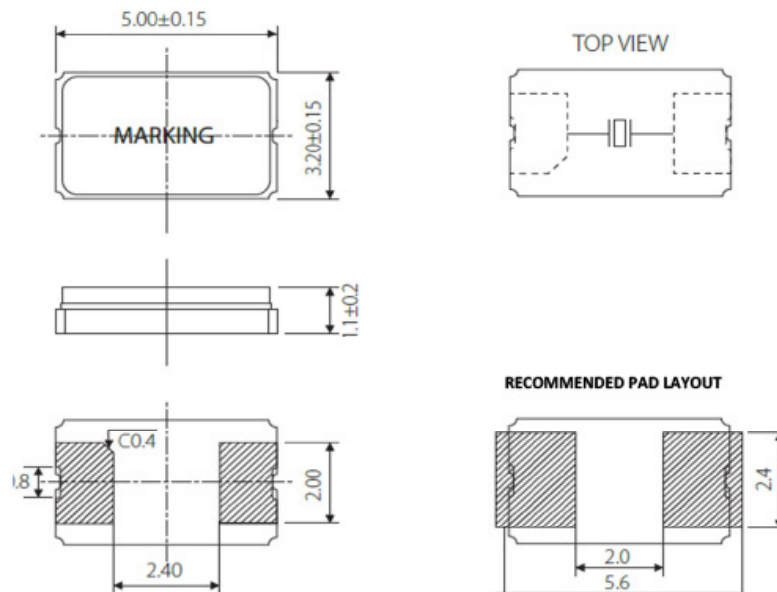
Notes:

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.



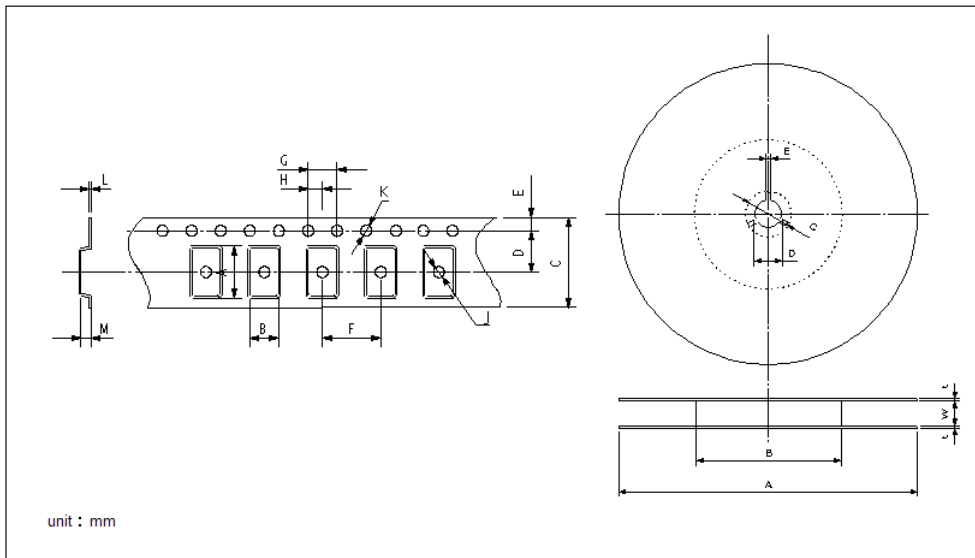
Package Drawing



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 | |
| 5.25 | 3.45 | 12.0 | 5.5 | 1.75 | 8.0 | 4.0 | 2.0 | 1.5 | 1.5 | 0.3 | 1.1 | 178 | 180 | 21.0 | 13.0 | 2.0 | 12.4 | 2.0 | |



Reliability & IR Compliance

Solderprofile:

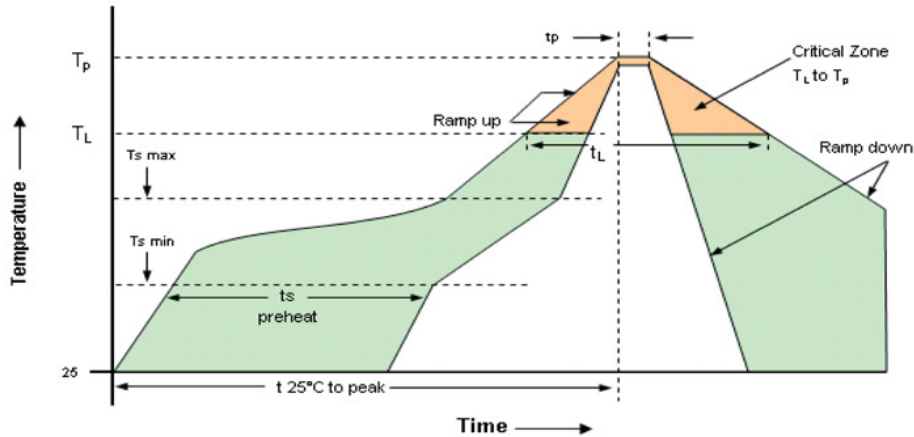


Table 2: Reflow Profile

| 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

Ordering Information

VXM1 - XXX - XX- xxMxxxxxxxx

| | | |
|--|--|--|
| Product 5.0 x 3.2mm, Crystal | Frequency in MHz | |
| Mode 1: Fundamental | Load Capacitance 0: Series Resonance 06-32pF | |
| Temp Stability C: 10ppm D: 15ppm E: 20ppm F: 25ppm G: 30ppm H: 35ppm I: 40ppm J: 45ppm K: 50ppm S: 100ppm | 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 _SNPBDIP for tin lead solder dip**
 Example: VXM1-1KE-18-10M0000000_SNPBDIP

Revision History

| Revision Date | Approved | Description |
|-----------------|----------|--|
| August 29, 2016 | RC | Initial datasheet for factory approval and release to customer. |
| August 10, 2018 | FB | Update logo and contact information, add "SNPBDIP" ordering option |



Microsemi, a wholly owned subsidiary of Microchip Technology Inc. (Nasdaq: MCHP), offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions; setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions; security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans, as well as custom design capabilities and services. Learn more at www.microsemi.com.

Microsemi Headquarters
 One Enterprise, Aliso Viejo, CA 92656 USA
 Within the USA: +1 (800) 713-4113
 Outside the USA: +1 (949) 380-6100
 Sales: +1 (949) 380-6136
 Fax: +1 (949) 215-4996
 email: sales.support@microsemi.com
www.microsemi.com

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

©2018 Microsemi, a wholly owned subsidiary of Microchip Technology Inc. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.