

**Table 1. Electrical Performance**

Parameter	Symbol	Min.	Typ	Max	Units
Nominal Frequency	$F_{NOM}$	12.000		60.000	MHz
Mode		Fundamental, AT - Cut			
Operating Temperature Range	$T_{OP}$	0/70, -10/70, -20/70, -40/85			°C
Stability Over $T_{OP}$ <sup>1</sup>	$F_{STAB}$	±10		±100	ppm
Frequency Tolerance <sup>2</sup>	$F_{TOL}$		±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
<b>Equivalent Series Resistance</b>					
Crystal Frequency	ESR				Ohm
12.000MHz-14.000MHz				100	
14.001MHz-19.000MHz				80	
19.001MHz-30.000MHz				60	
30.001MHz-60.000MHz				40	

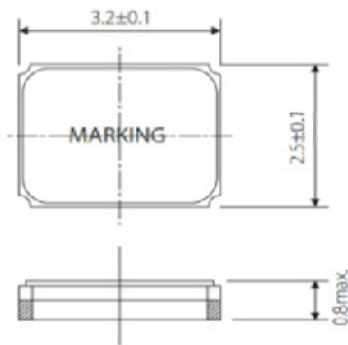
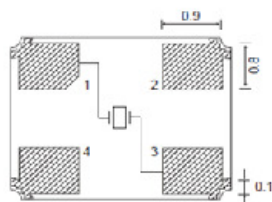
1. Referenced to the Frequency at 25 °C.

2. Frequency measured at 25 °C ± 3 °C.

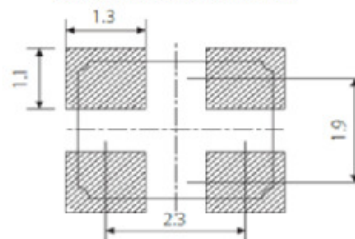
Product is compliant to RoHS directive and fully compatible with lead free assembly.



## Package Drawing


**BOTTOM VIEW**


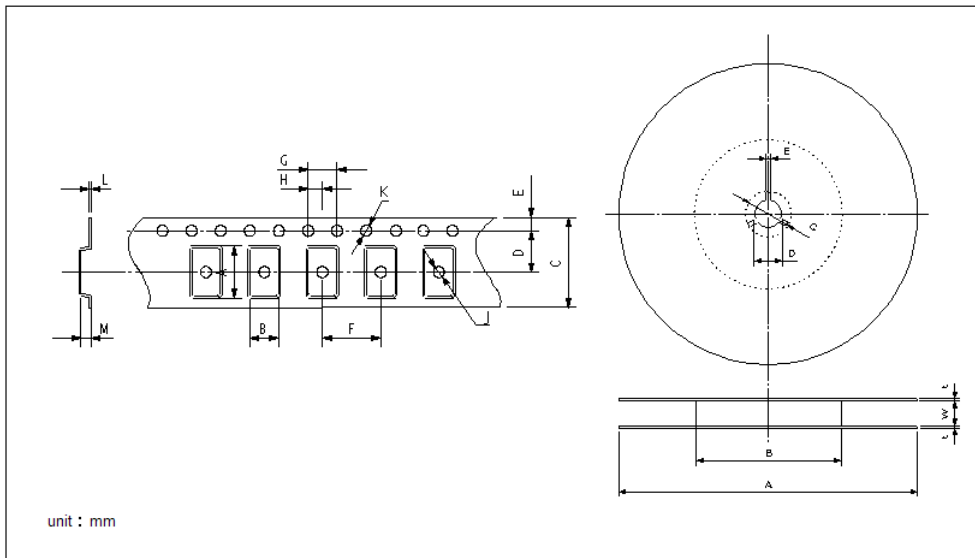
All Dimensions in mm

**RECOMMENDED PAD LAYOUT**


# Tape & Reel

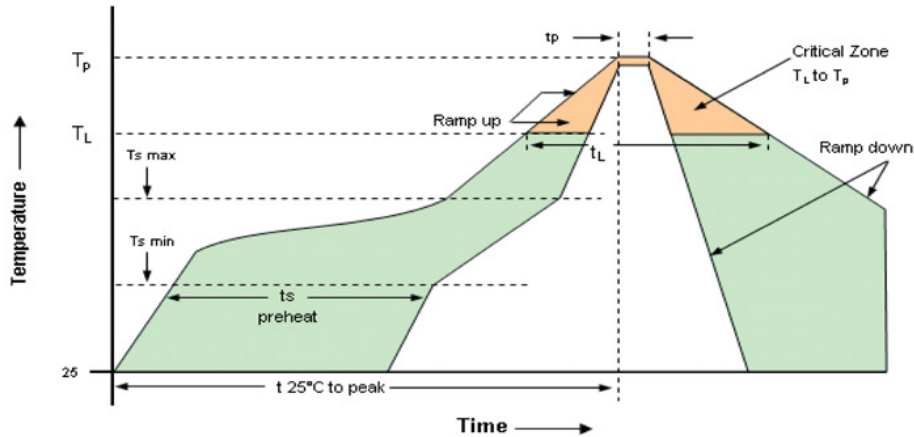
**Table 7. Tape and Reel Dimensions (mm)**

Tape												Reel							
A	B	C	D	E	F	G	H	J	K	L	M	A	B	C	D	E	W	T	
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	



## 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

### 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 SNPBDIP for tin lead solder dip**  
**Example: VXM7-1KE-18-26M000000\_SNPBDIP**

## 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.
August 10, 2018	FB	Update logo and contact information, add "SNPBDIP" ordering option



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