

Helping Customers Innovate, Improve & Grow

Table 1. Electrical Performance

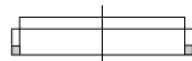
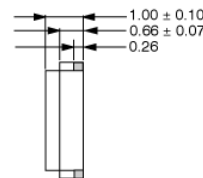
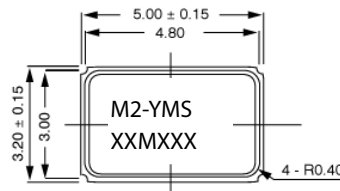
Parameter	Symbol	Min.	Typ	Max	Units
Nominal Frequency	F_{NOM}	8.000		150.000	MHz
Mode		Fundamental or 3rd Overtone			
Operating Temperature Range	T_{OP}	0/70, -10/70, -20/70, -40/85			°C
Stability Over T_{OP} ¹	F_{STAB}	±10		±100	ppm
Frequency Tolerance ²	F_{TOL}		±10		ppm
Load Capacitance	C_L	6		32	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				80	
12.001MHz-16.000MHz				60	
16.001MHz-20.000MHz				50	
20.001MHz-24.000MHz				40	
24.001MHz-54.000MHz				30	
40.000MHz-150.000MHz, 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.

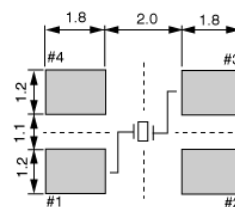
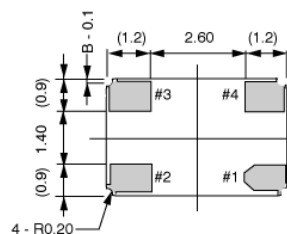
Package Drawing



CONNECTION
#1 : INPUT
#2 : NC
#3 : OUTPUT
#4 : GROUND

Marking
M2 =VXM2
Y = Year
M=Month
A=January
L = December
S= Manufacturing location
XXMXXX = Frequency

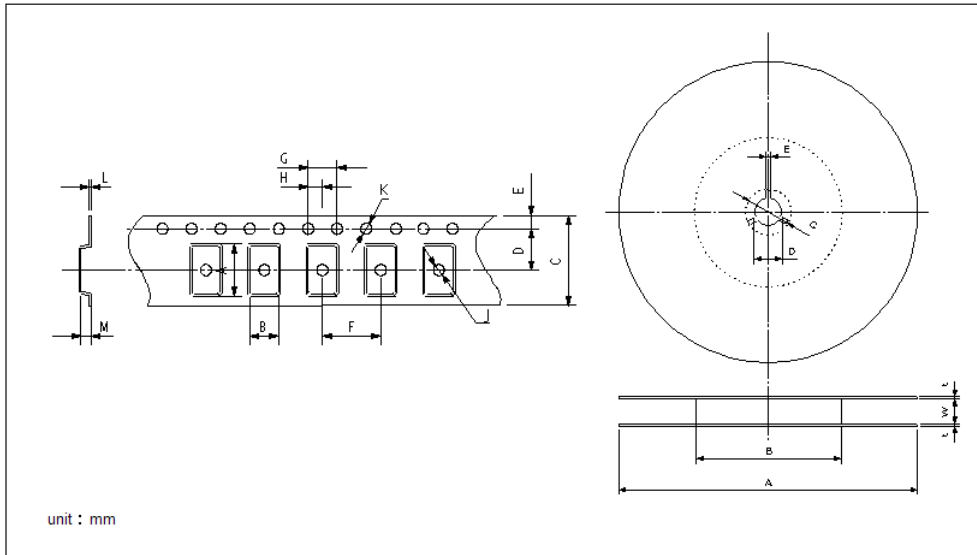
TOP VIEW



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	



1K pieces per reel

Reliability & IR Compliance

Solderprofile:

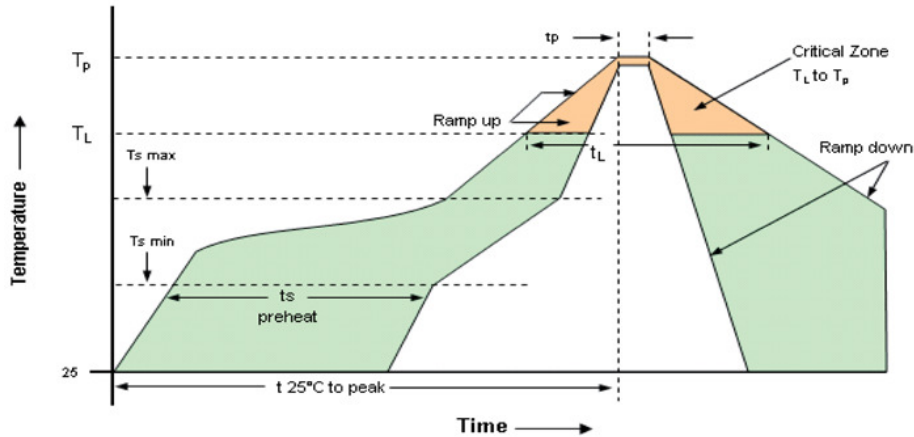


Table 2: Reflow Profile

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

VXM2 - XXX - XX- xxMxxxxxxxx

Product
5.0 x 3.2mm, Crystal

Mode
1: Fundamental
3: 3rd Overtone

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: VXM2-1KE-18-10M0000000_SNPBDIP

Revision History

Revision Date	Approved	Description
August 29, 2016	RC	Initial datasheet for factory approval and release to customer.
September 17, 2018	FB	Update loo and contact information, add 1K pieces per reel and "SNPBDIP" ordering option



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