

Helping Customers Innovate, Improve & Grow

Table 1. Electrical Performance

Parameter	Symbol	Min.	Typ	Max	Units
Nominal Frequency	F _{NOM}	8.000		54.000	MHz
Mode		Fundamental or 3rd Overtone			
Operating Temperature Range	T _{OP}	0/70, -10/70, -20/70, -40/85			
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
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	

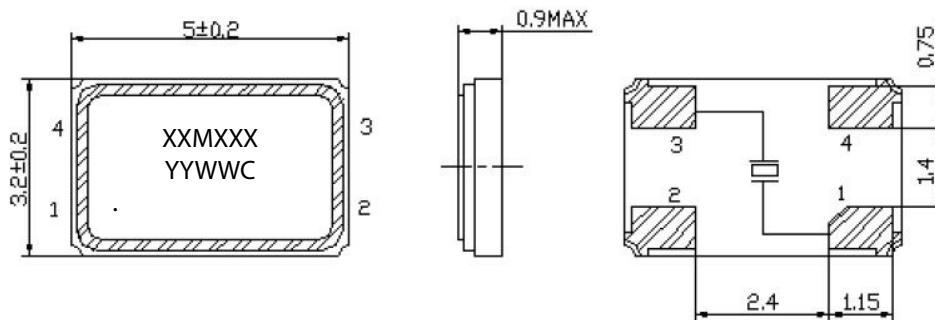
Notes:

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:

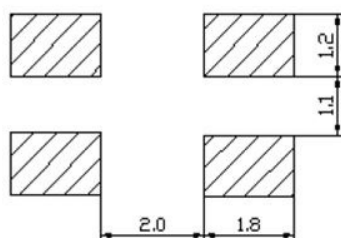
XXMXXX = Frequency

YYWWC

YY = Year

WW = Week

C = Manufacturing Location

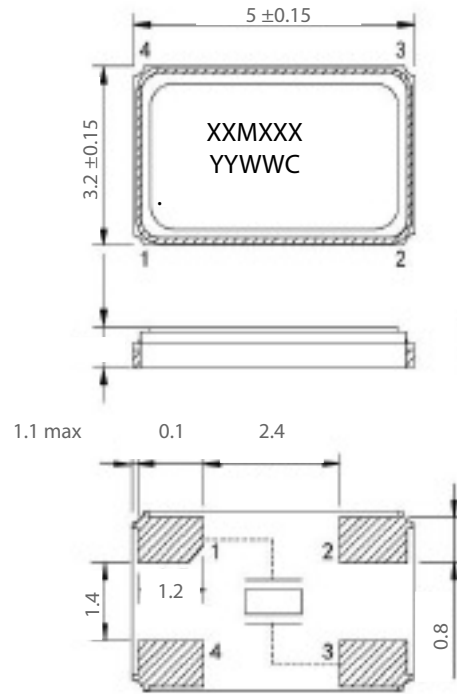


All Dimensions in mm

Table 2. Pinout

Pin	Function
1	Crystal
2	Connected to cover (Connect to GND)
3	Crystal
4	Connected to cover (Connect to GND)

Alternate Package Drawing



Bottom View

Part Marking:

XXMXXX = Frequency

YYWWC

YY = Year

WW = Week

C = Manufacturing Location

All Dimensions in mm

Table 3. 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 (0.3 um min) over Nickel
Weight	38 mg

Solderprofile:

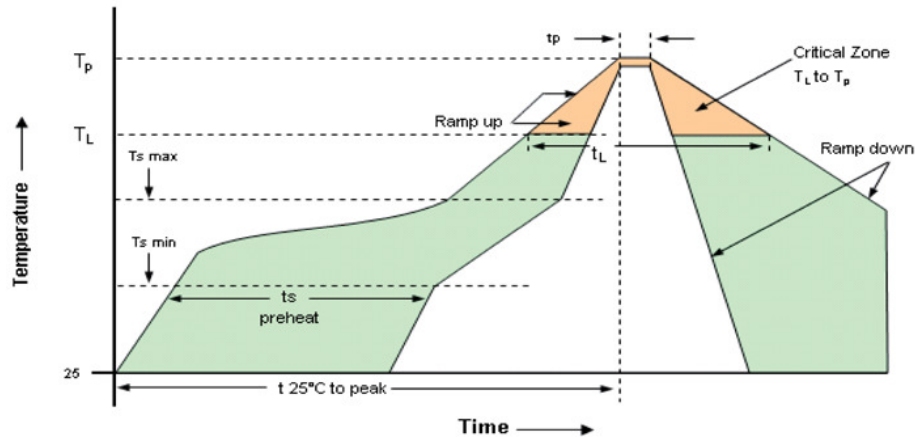


Table 4: Reflow Profile

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

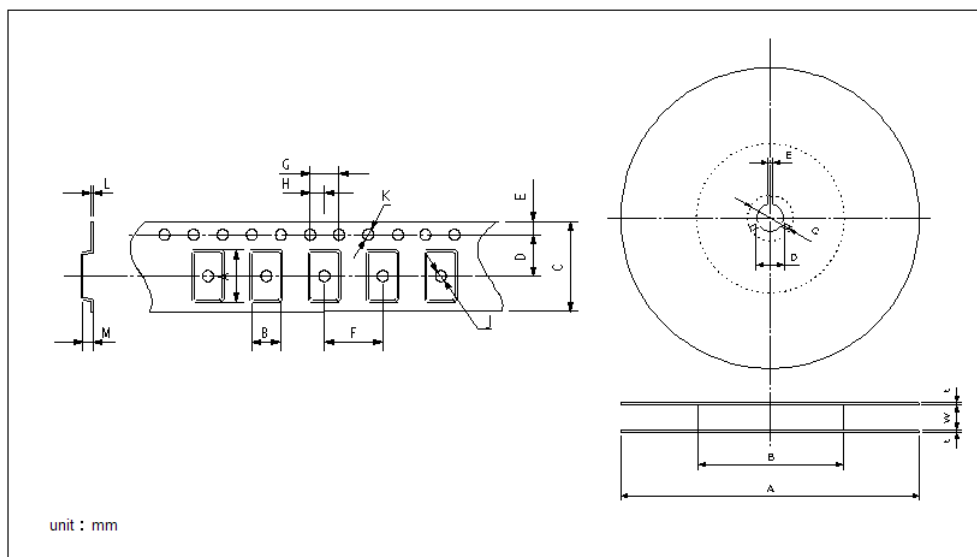
Pads are Au over Ni and compatible with either SnPb or Pb free attachment.

MSL: 1

Tape & Reel

Table 5. 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

Ordering Information

VXM5 - XXX - XX- xxMxxxxxxxxXX

Product

5.0 x 3.2mm, 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

Packaging

TR: Tape and Reel

blank: Cut Tape / non Tape and Reel quantities

_SNPB: Tin lead solder dipped

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.*

Example:

VXM5-1EE-12-25M0000000TR

Tape and Reel

VXM5-1EE-12-25M0000000

Cut Tape

VXM5-1EE-12-25M0000000_SNPB

Tin lead solder dipped

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
June 07, 2019	FB	Update logo and contact information, add Table 2 Environmental compliance, change "SNPBDIP" to "SNPB"
April 30, 2020	FB	Add tape and reel option ordering option

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

VXM5-1A2-10M000

Package

VXM5 : 5.0x3.2mm

Mode

1 : Fundamental

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
E: ± 25 ppm over -20°C to 70°C
F: ± 30 ppm over -20°C to 70°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 VXM5 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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