

Helping Customers Innovate, Improve & Grow

Table 1. Electrical Performance

Parameter	Symbol	Min.	Typ	Max	Units
Nominal Frequency	F _{NOM}	3.500		75.000	MHz
Mode		Fundamental, 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
3.500MHz-4.000MHz				140	
4.001MHz-5.000MHz				120	
5.001MHz-6.000MHz				80	
6.001MHz-7.000MHz				70	
7.001MHz-9.000MHz				45	
9.001MHz-13.000MHz				40	
13.001MHz-16.000MHz				35	
16.001MHz-20.000MHz				30	
20.001MHz-30.000MHz, Fundamental				25	
24.001MHz-32.000MHz, 3rd Overtone				120	
32.000MHz-80.000MHz, 3rd Overtone				80	

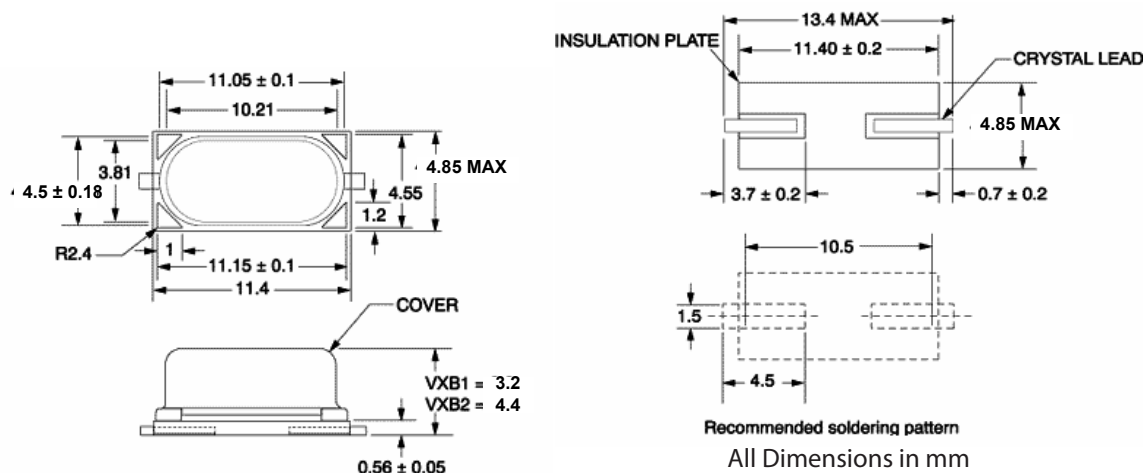
Notes:

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



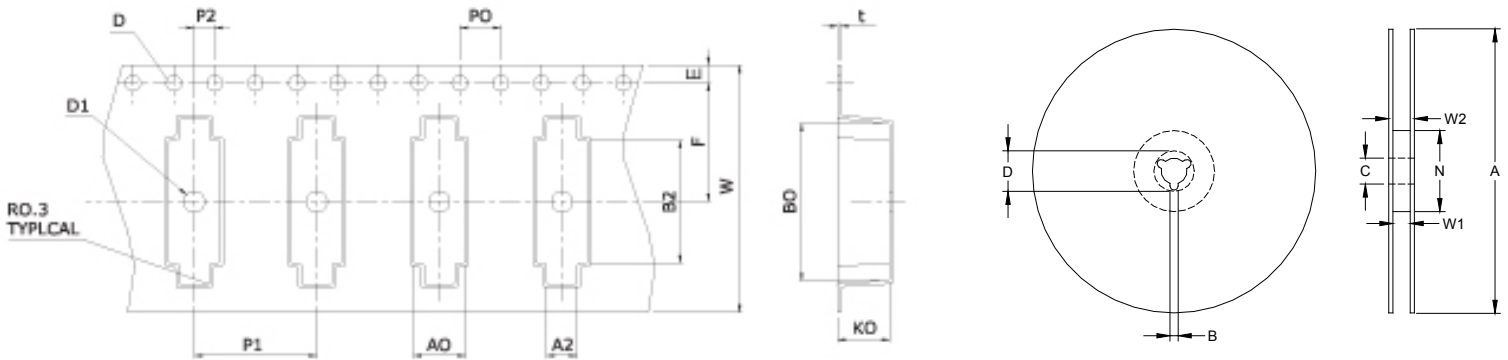
Tape & Reel

Table 7a. Tape and Reel Dimensions (mm)

Tape														
Package	A0	A2	B0	B2	D	D1	E	F	K0	P0	P1	P2	t	W
VXB1	5.1	3.0	16.1	11.9	1.55	1.6	1.75	11.5	3.4	4.0	12.0	2.0	0.4	24.0
VXB2	5.1	3.0	16.1	11.9	1.5	2.0	1.75	11.5	4.3	4.0	12.0	2.0	0.4	24.0

Table 7b. Tape and Reel Dimensions (mm)

Reel							
Package	A	A	C	D	W1	W2	N
VXB1	330	1.5	13	20.2	24.4	26.4	100
VXB2	330	2.0	13	21.0	24.4	26.4	80



Reliability & IR Compliance

Solderprofile:

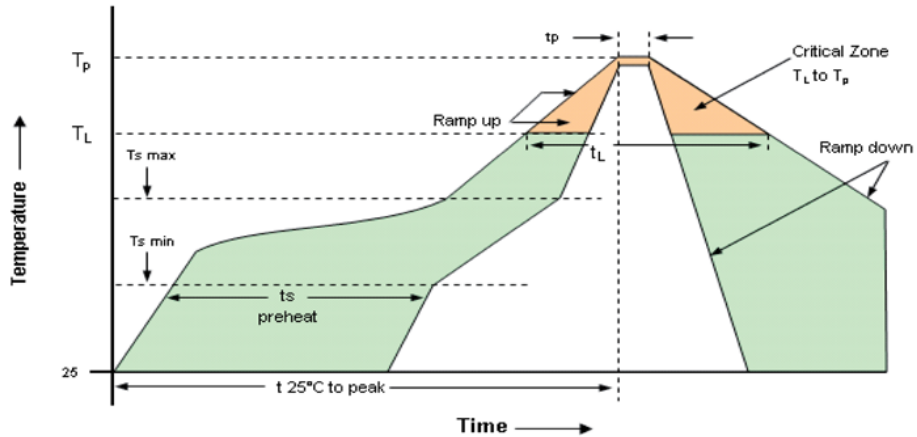


Table 2: Reflow Profile

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

Ordering Information

VXBX - XXX - XX- xxMxxxxxxx

Product

VXB1: 3.2mm tall
VXB2: 4.4mm tall

Mode

1: Fundamental
3: 3rd Overtone

Temp Stability

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

Frequency in MHz

Load Capacitance

00: 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.*

15ppm stability not available for -40 to 85°C

Revision History

Revision Date	Approved	Description
August 30, 2016	RC	Initial datasheet for factory approval and release to customer.

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