

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:

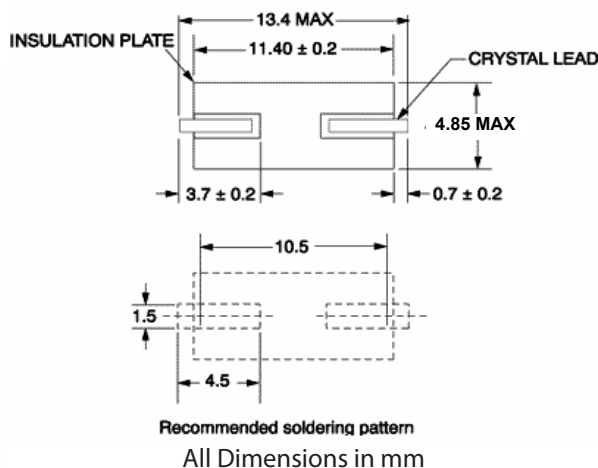
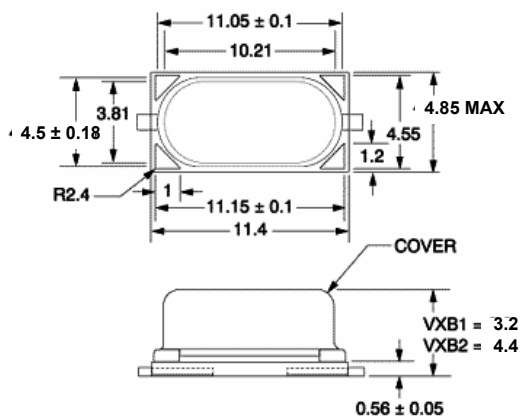
1. Referenced to the Frequency at 25 °C.

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

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



Package Drawing



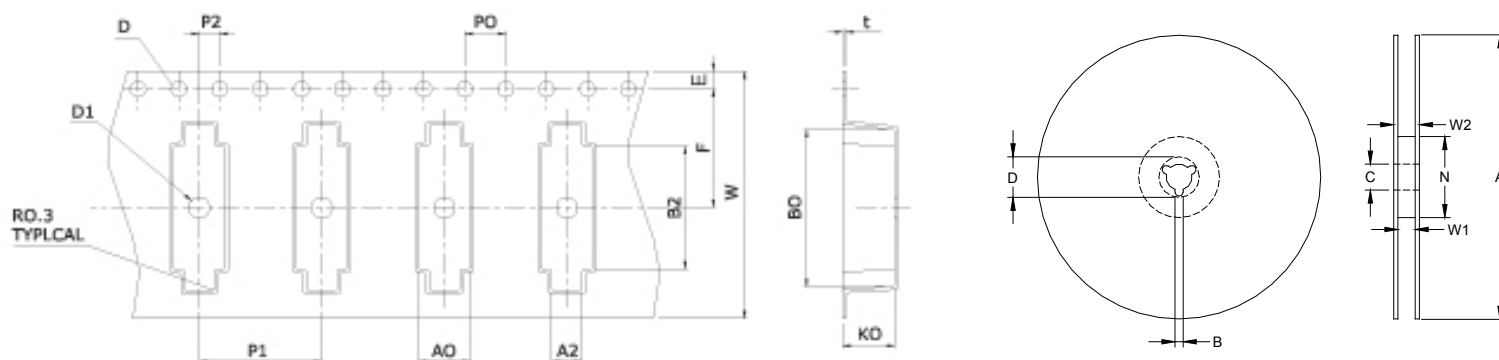
Tape & Reel

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

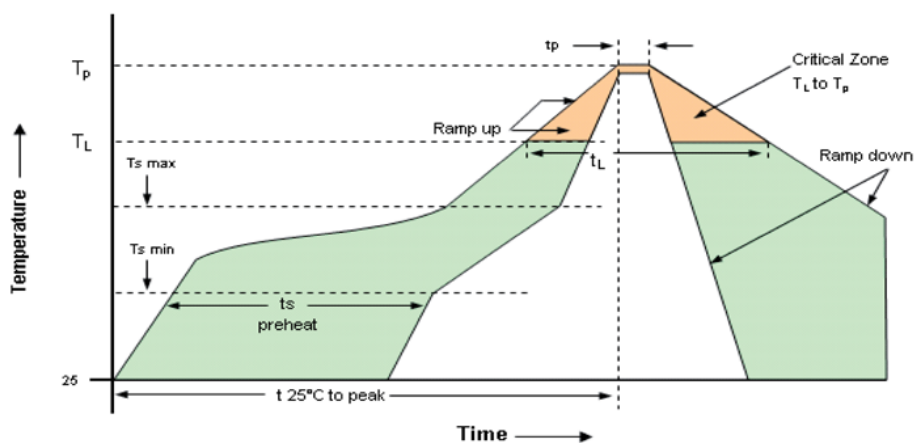
Table 7b. Tape and Reel Dimensions (mm)

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:



Time (s)	Temperature (°C)
0	25
10	150
20	200
30	250
40	260
50	260
60	260
70	260
80	260
90	260
100	260
110	260
120	260
130	260
140	260
150	260
160	260
170	260
180	260
190	260
200	260
210	260
220	260
230	260
240	260
250	260
260	260
270	260
280	260
290	260
300	260
310	260
320	260
330	260
340	260
350	260
360	260
370	260
380	260
390	260
400	260
410	260
420	260
430	260
440	260
450	260
460	260
470	260
480	260
490	260
500	260
510	260
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550	260
560	260
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580	260
590	260
600	260
610	260
620	260
630	260
640	260
650	260
660	260
670	260
680	260
690	260
700	260
710	260
720	260
730	260
740	260
750	260
760	260
770	260
780	260
790	260
800	260
810	260
820	260
830	260
840	260
850	260
860	260
870	260
880	260
890	260
900	260
910	260
920	260
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950	260
960	260
970	260
980	260
990	260
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1060	260
1070	260
1080	260
1090	260
1100	260
1110	260
1120	260
1130	260
1140	260
1150	260
1160	260
1170	260
1180	260
1190	260
1200	260
1210	260
1220	260
1230	260
1240	260
1250	260
1260	260
1270	260
1280	260
1290	260
1300	260
1310	260
1320	260
1330	260
1340	260
1350	260
1360	260
1370	260
1380	260
1390	260
1400	260
1410	260
1420	260
1430	260
1440	260
1450	260
1460	260
1470	260
1480	260
1490	260
1500	260
1510	260
1520	260
1530	260
1540	260
1550	260
1560	260
1570	260
1580	260
1590	260

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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