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Customer	
Customer P/N	E3SB12E00000CE
Product	3225 Seam Sealing X'tal
Nominal Frequency	12.000MHz
HOSONIC P/N	E3SB12E00000CE

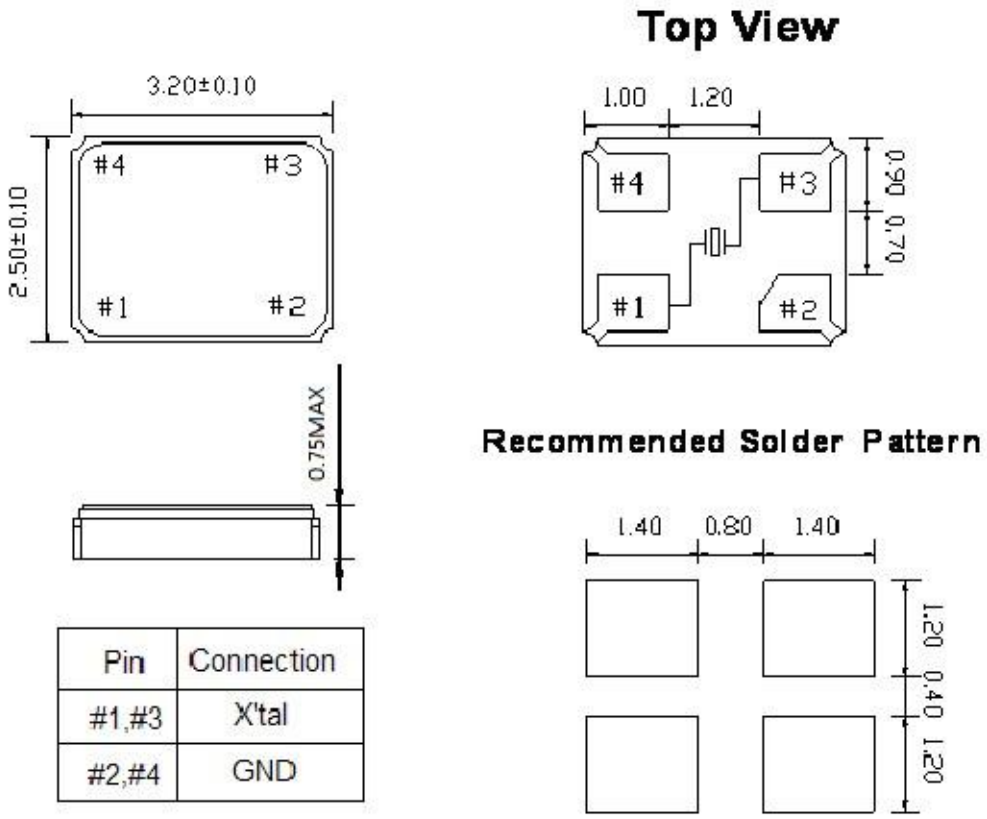
Drawn	Checked	Approved

Revised Record				
Rev.	Rev. Date	Item	Content	Remark
1.0			Initial released	

I ELECTRICAL PARAMETERS

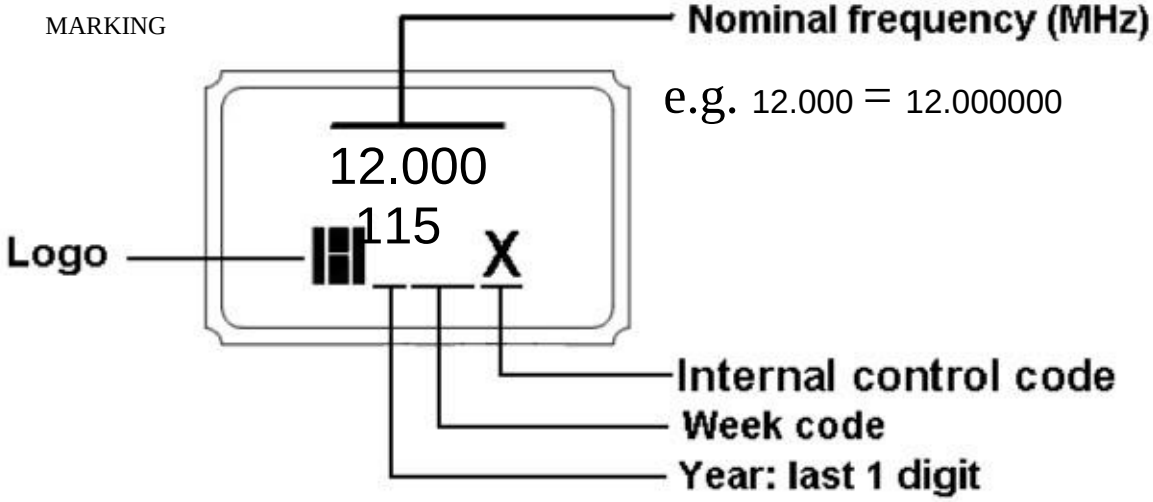
No.	Item	Symb.	Electrical Specification				Remark
			Min.	Type	Max.	Units	
1	Nominal Frequency	F0	12.000			MHz	
2	Mode of Vibration		Fundamental				
3	Frequency Tolerance	△	-10	-	10	ppm	at 25℃±3℃
4	Operating Temperature Range	T_{OPR}	-20	-	75	℃	
5	Frequency Stability	TC	-10	-	10	ppm	
6	Storage Temperature	T_{STG}	-40	-	85	℃	
7	Load capacitance	CL	-	9	-	pF	
8	Equivalent Series Resistance	ESR	-	-	60	Ω	
9	Drive Level	DL	-	50	100	μW	
10	Insulation Resistance	IR	500	-	-	MΩ	At 100V_{DC}
11	Shunt Capacitance	C0	-	-	3	pF	
12	Aging Per Year	Fa	-2	-	2	ppm	First Year
13	Package type	HCX-3SB					

I OUTLINE DIMENSIONS (UNIT: mm)

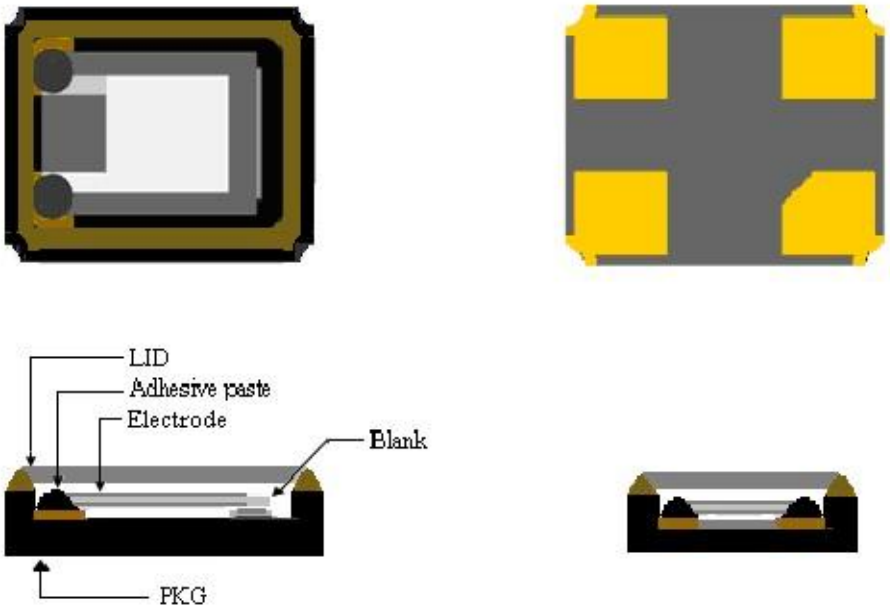


Pin	Connection
#1,#3	X'tal
#2,#4	GND

I MARKING



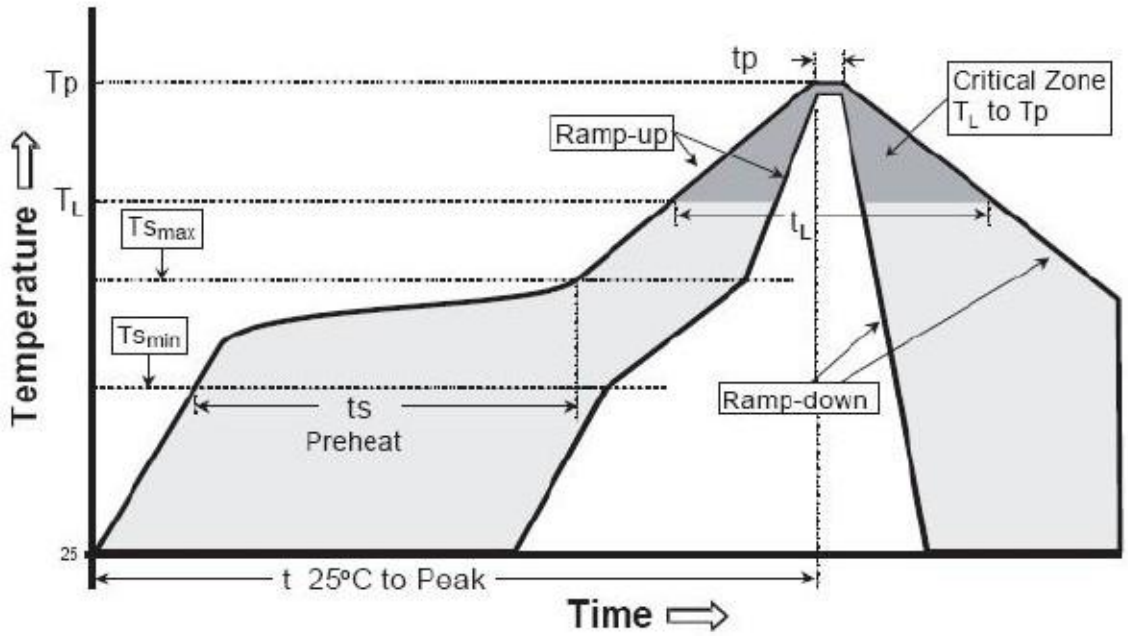
I PRODUCT LAYOUT



NO.	Part	Material	Remark
1	LID	KOVAR(Fe+Co+Ni alloy)	
2	PKG	Al_2O_3	Base
3	Blank	SiO_2	Quartz
4	Adhesive paste	Ag/Silicon	Support
5	Electrode	Noble metal	

I REFLOW PROFILES

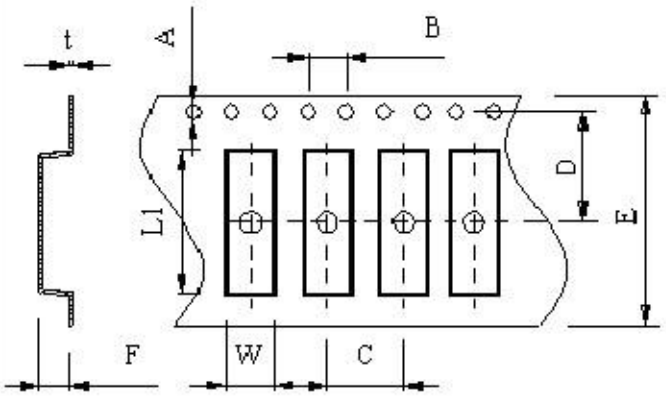
Profiles Feature	Pb-Free Assembly
Average Ramp-up Rate (Ts max to Tp)	3℃/second max.
Preheat ■ Temperature Min (Ts min) ■ Temperature Max (Ts max) ■ Time (ts min to ts max)	 125℃ 200℃ 60~180 seconds
Time maintained above ■ Temperature (T_L) ■ Time (t_L)	 217℃ 60~150 seconds
Peak/Classification Temperature (Tp)	260℃
Time within 5℃ of actual Peak Temperature (t_p)	
Ramp-down rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.
Suggest reflow times	3 Times max

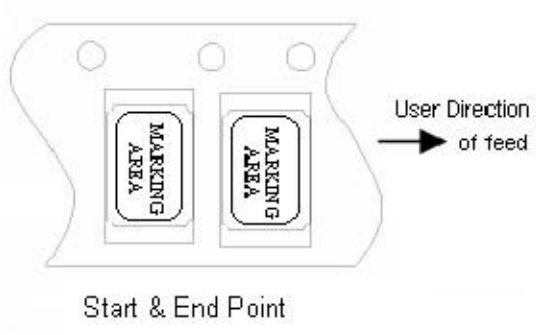


Remark：To reference JEDEC J-STD-020C

I PACKAGE

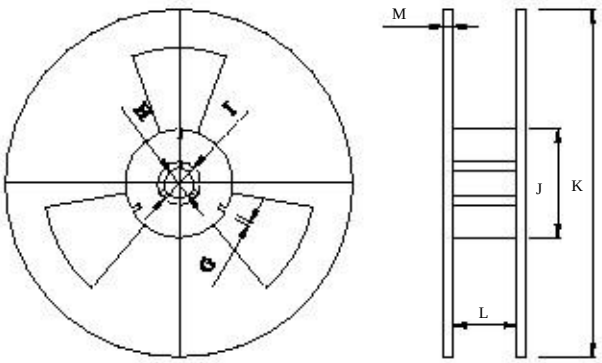
Tape Dimensions(unit : mm)





A	B	C	D	E	F	L1	W	t
1.50	4.0	4.0	3.5	8.0	1.0	3.6	2.9	0.3

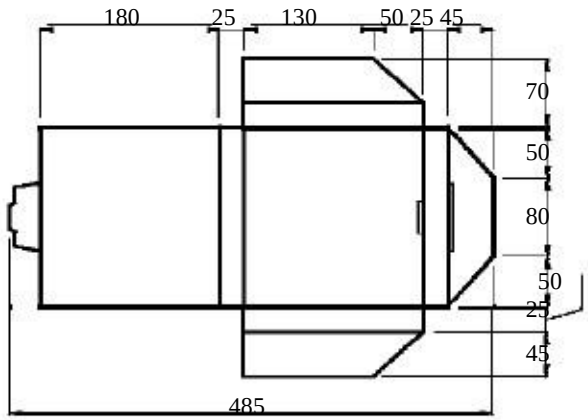
Reel Dimensions(unit: mm)

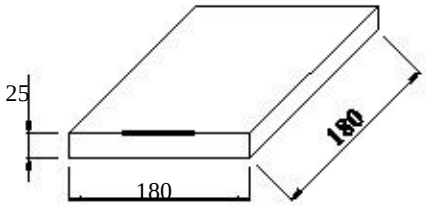


G	H	I	J	K	L	M
2.5	13.5	21.6	60.0	178	9.5	1.6

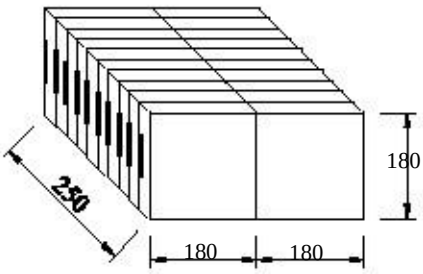
*3000pcs/Reel

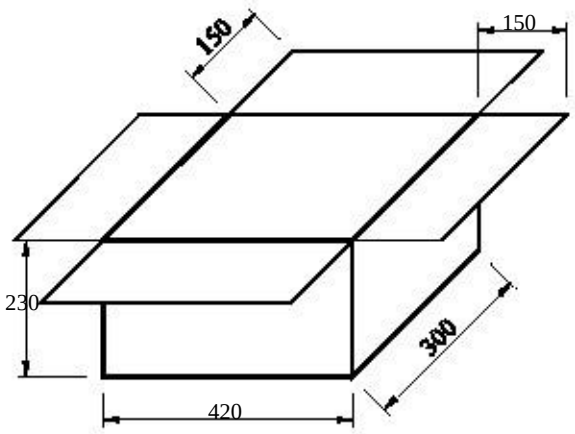
Carton Dimension (unit : mm)





1 reel = 1 Inner box





20 Inner boxes = 1 Carton

60kpcs = 1 Carton

I RELIABILITY SPECIFICATIONS

No.	Test Item	Test Conditions	Reference
1	High Temperature Storage	Temperature: 125℃±5℃ Time:1000±24 Hours	MIL-STD-883E-1016
2	Temperature Cycle	Temperature 1: -55℃±5℃ Temperature 2: 125℃±5℃ Temperature change between T1 and T2 at soonest Run 10 cycles, maintain T1 and T2 15minutes each in one cycle	MIL-STD-883E-1011.9B
3	Solder Heat Resistance	Pre-heat: 125℃ 60~120 Seconds Solder Temperature: 260℃±5℃ Time:30 Seconds	MIL-STD-202F 210 E
4	Drop Test	3 Times Free Fall from 75cm height table to 3cm thickness hard wood board	MIL-STD-202F-203B
5	High Temperature, High Humidity Storage	Temperature: 85℃±5℃ Relative Humidity: 80%--85% Time: 250Hours±24 Hours	MIL-STD-202 F-103B
6	Steam Aging	Temperature: 97℃±5℃ Time:8 Hours 260℃ solder pot to check solderability	MIL-STD-883 C-1008.2B
7	Solderability	Dip in flux 5~10 seconds Temperature: 245℃±5℃ Time:10 Seconds	MIL-STD-883E 2003
8	Aging	Temperature: 85℃±5℃ Time:250±12Hours	MIL-STD-202 F-108A B
9	Thermal Shock	Temperature 1: -55℃±5℃ Temperature 2: 125℃±5℃ Temperature change between T1 and T2: 5 seconds 10 cycles, maintain T1 and T2 for 30 minutes each in one cycle	MIL-STD-883E-1011.9B
10	Vibration	Frequency Range: 10Hz~2000Hz Amplitude:1.5mm or 20G 4Hours in each direction, total 12Hours	MIL-STD-202F