Hosonic

HOSONIC ELECTRONIC CO., LTD.

RoHS COMPLIANT

SMD CRYSTAL OSCILLATOR SPECIFICATIONS

Customer	
Customer P/N	
Product	3225 OSC
Nominal Frequency	12.288000MHz
HOSONIC P/N	D3SX12E0X000BE
Version	10C0
Issue Date	2018/5/3

HOSONIC		
Drawn	**Checked**	**Approved**
Drawn **LUCY**	**Richard**	**JOHN**

Approved By Customer : _____

Revised Record				
Rev.	Rev. Date	Item	Content	Remark
1.0	2018-05-03		Initial released	

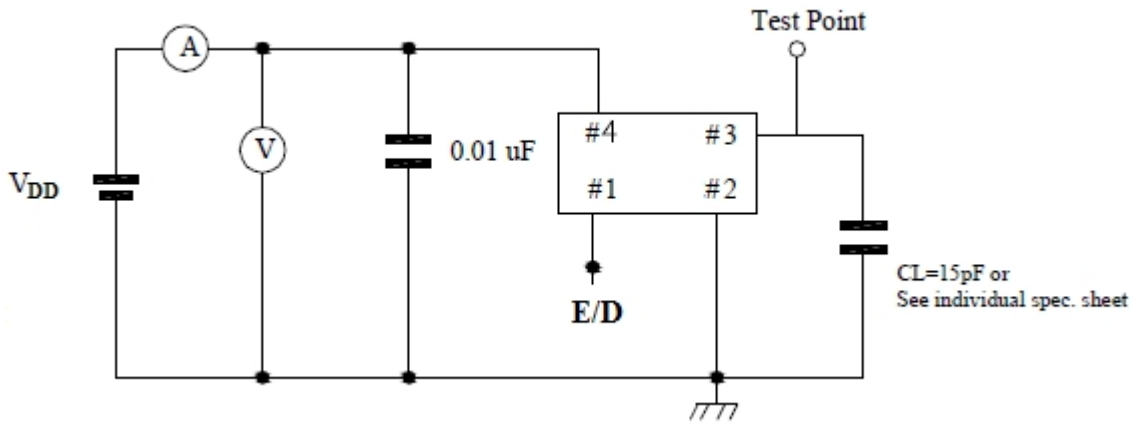
I ELECTRICAL PARAMETERS

No.	Item	Symb.	Electrical Specification				Remark
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	F0		12.288000		MHz	
2	Frequency Stability		-25		25	ppm	All condition*
3	Operating Temperature Range	TOPR	-20		70	℃	
4	Storage Temperature	TSTG	-55		125	℃	
5	Power supply Voltage	V_{DD}		1.8±10%		V	
6	Aging Per Year	Fa	-3.0		3.0	ppm	First Year
7	Supply current	I_{DD}			7	mA	
8	Output symmetry	Sym	45		55	%	
9	Rise time	Tr			7.0	ns	10%~90%V_{DD}
10	Fall time	Tf			7.0	ns	90%~10%V_{DD}
11	Output voltage	V_{OH}	90%			V_{DD}	
		V_{OL}			10%	V_{DD}	
12	Output load Hcmos Load				15	pF	
13	Start-up time				10	mS	
14	Pin 1, E/D function	pin 1=H or open.....output active at pin 3 pin 1=L.....high impedance at pin 3					
15	Package type	HXO-SE					

NOTE：Storage Temperature is only for the product itself,the temperature for the packing material is -4~40℃.

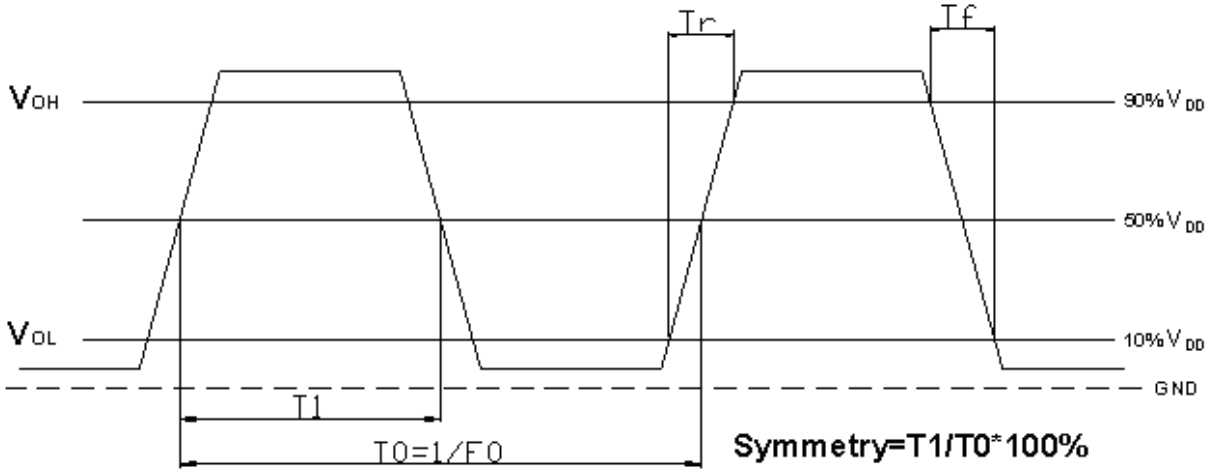
All condition*：Include 25℃ tolerance, operating temperature range , input voltage change, aging, load change.

I HCMOS Test Circuit

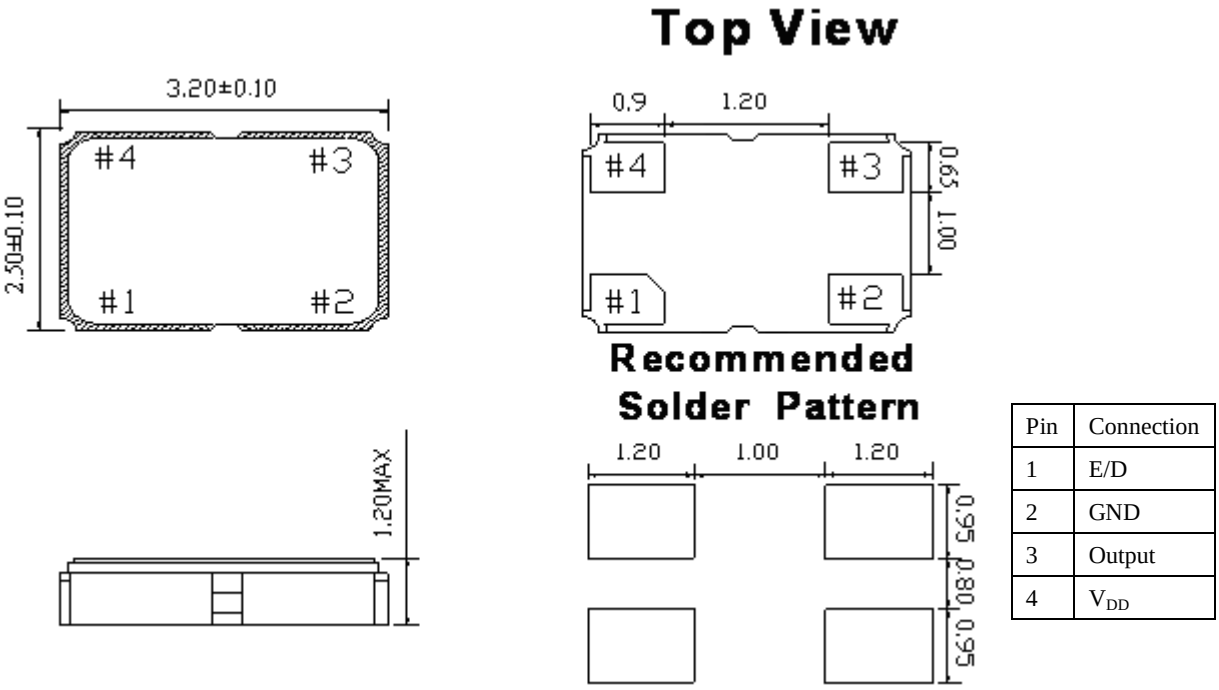


Enable/Disable Function	
Input (pin 1)	Output (pin 3)
Open	Enable
$V_{IH} \geqslant 0.7V_{DD}$	Enable
$V_{IL} \leqslant 0.3V_{DD}$	Disable

I HCMOS OUTPUT WAVEFORM



I OUTLINE DIMENSIONS (unit: mm)



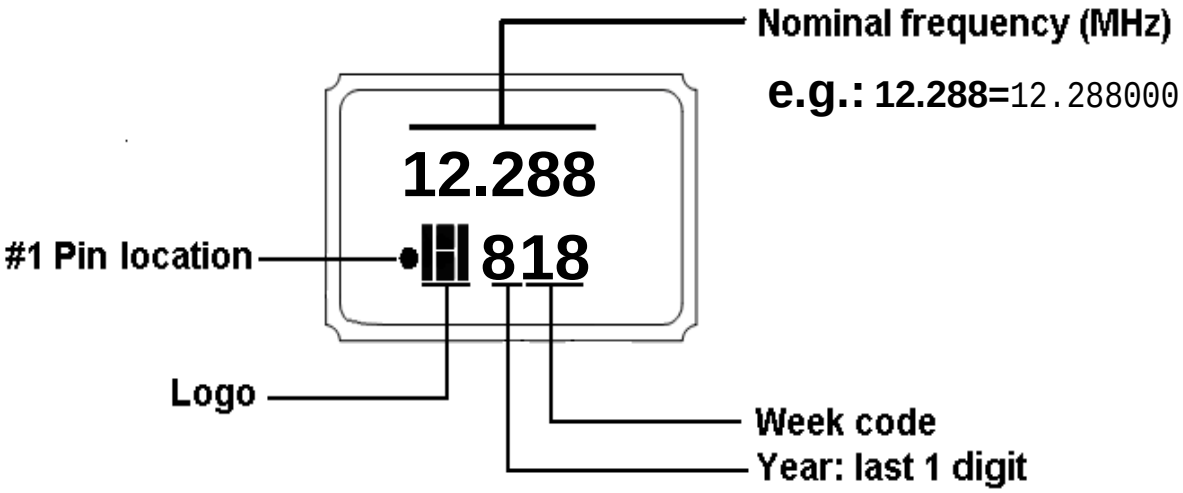
Pin	Connection
1	E/D
2	GND
3	Output
4	V_{DD}

Note: ■ 0.01uF bypass capacitor should be placed between V_{DD} (pin 4) and GND (pin 2)to minimize power supply line noise;

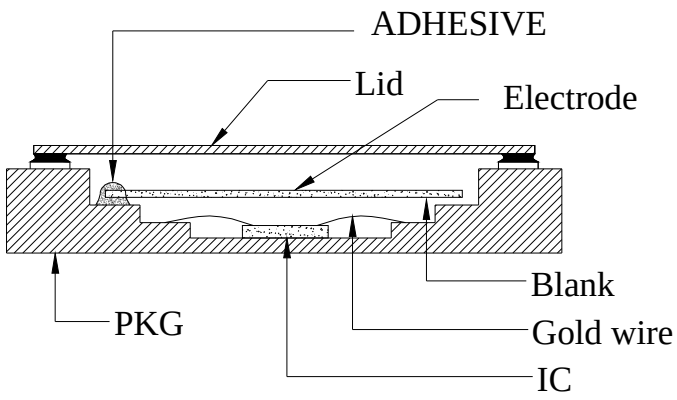
■ Line shouldn't be layed under the oscillator in the PCB to minimize signal interference.

■ The Load we advise is only 15pF (that means drive only 1 CMOS/TTL gate).

I MARKING



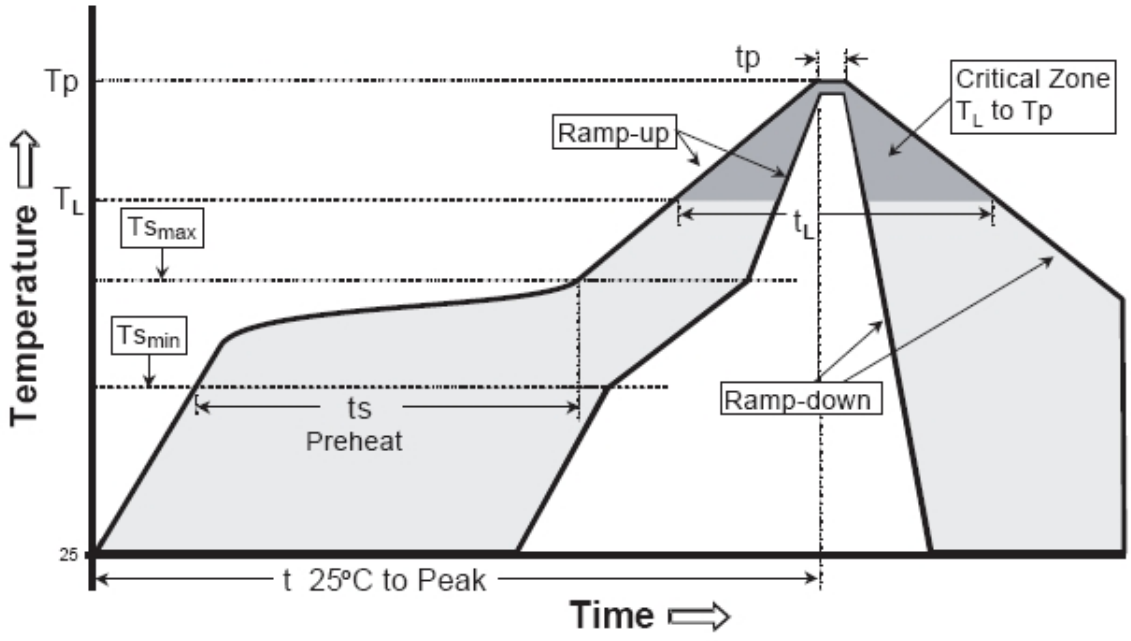
I PRODUCT LAYOUT



NO.	PART	MATERIAL	REMARK
1	LID	KOVAR(Fe+Co+Ni alloy)	
2	PKG	Al_2O_3	Base
3	BLANK	SiO_2	Quartz
4	ADHESIVE	Ag/Silicon	Support
5	Electrode	Noble metal	
6	IC	Si	
7	Gold wire	Au	Connect

I REFLOW PROFILES

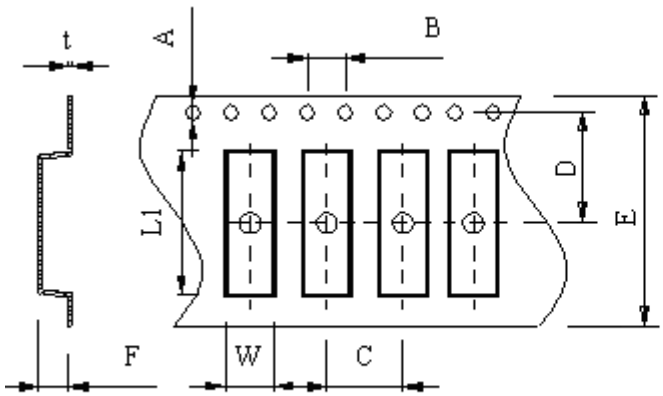
Profiles Feature	Pb-Free Assembly
Average Ramp-up Rate (Ts max to Tp)	3℃/second max.
Preheat ■ Temperature Min (Ts min) ■ Temperature Max (Ts max) ■ Time (ts min to ts max)	 125℃ 200℃ 60~180 seconds
Time maintained above ■ Temperature (T_L) ■ Time (t_L)	 217℃ 60~150 seconds
Peak/Classification Temperature (Tp)	260℃
Time within 5℃ of actual Peak Temperature (t_p)	20~40 seconds
Ramp-down rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.
Suggest reflow times	**3 Times max**

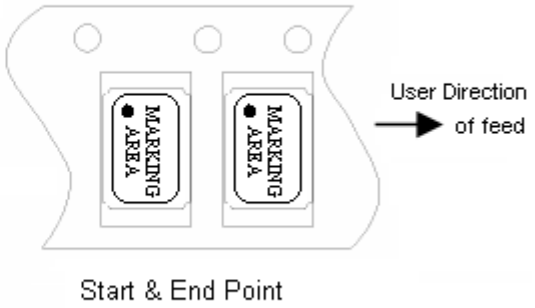


Remark：To reference JEDEC J-STD-020C

I PACKAGE(reference to EIA-481)

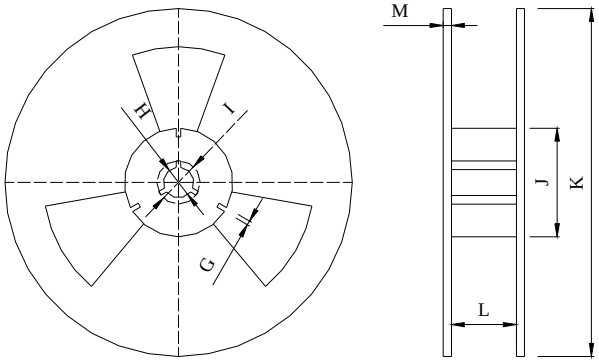
Tape Dimensions(unit : mm)





A	B	C	D	E	F	L1	W	t
1.50±0.2	4.0±0.2	4.0±0.1	3.5±0.2	8.0±0.2	1.3	3.4±0.1	2.7±0.1	0.3

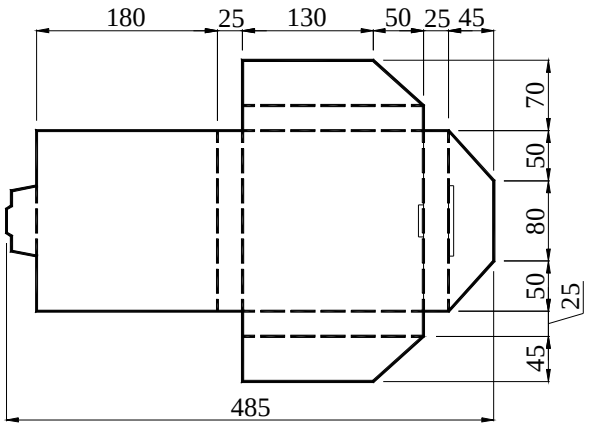
Reel Dimensions(unit: mm)

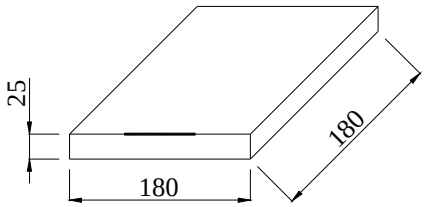


G	H	I	J	K	L	M
2.5	13.5	21.6	60.0	178	9.5	1.6

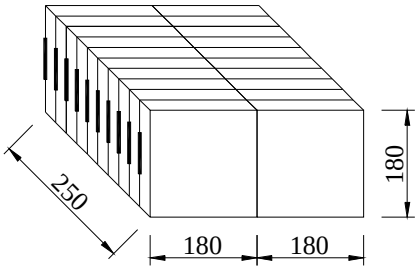
*3000pcs/Reel

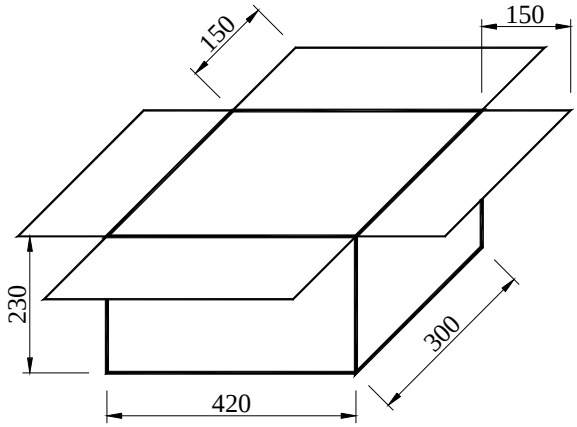
Carton Dimension (unit : mm)





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±12 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 1000 cycles, maintain T1 and T2 5minutes each in one cycle	JESD22 Method JA-104
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-202F-103B
6	Steam Aging	Temperature: 97℃±5℃ Time: 24 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-202F-208H
8	Aging	Temperature: 85℃±5℃ Time: 250±12Hours	MIL-STD-202 F-108A
9	Thermal Shock	Temperature 1: -55℃±5℃ Temperature 2: 125℃±5℃ Temperature change between T1 and T2: 5 seconds 100 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-204D

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