

SMD CRYSTAL OSCILLATOR SPECIFICATIONS

Customer	立创
Customer P/N	
Product	2520 OSC
Nominal Frequency	100.000000MHz
HOSONIC P/N	D2SX100E00003E
Version	10C0
Issue Date	2020/6/3

HOSONIC		
Drawn	Checked	Approved
LUCY	Richard	JOHN

Approved By Customer : _____



HOSONIC ELECTRONIC CO., LTD.



Revised Record

Rev.	Rev. Date	Item	Content	Remark
1.0	2020-06-03		Initial released	

● ELECTRICAL PARAMETERS

No.	Item	Symb.	Electrical Specification				Remark	
			Min.	Typ.	Max.	Units		
1	Nominal Frequency	F0	100.00000			MHz		
2	Frequency Stability		-25		25	ppm	All condition*	
3	Operating Temperature Range	TOPR	-40		85	°C		
4	Storage Temperature	TSTG	-55		125	°C		
5	Power supply Voltage	V _{DD}	1.8±10%			V		
6	Aging Per Year	F _a	-3.0		3.0	ppm	First Year	
7	Supply current	I _{DD}			10	mA		
8	Output symmetry	Sym	45		55	%		
9	Rise time	T _r			7	ns	10%~90%V _{DD}	
10	Fall time	T _f			7	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	D2SX						

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

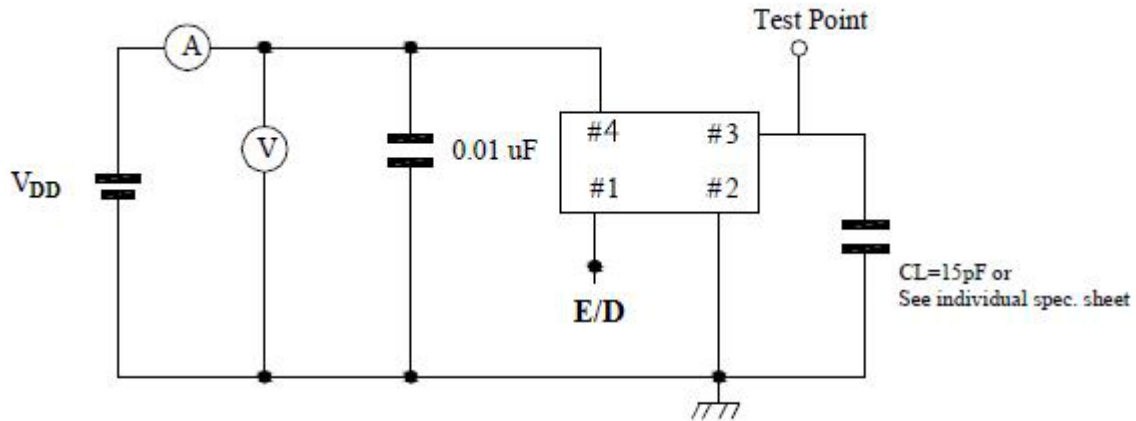
All condition*: Include 25°C tolerance, operating temperature range , input voltage change, aging, load change.

● STORAGE REQUIRMENT

Storage environmental conditions: -4~40°C, 70%RH max.

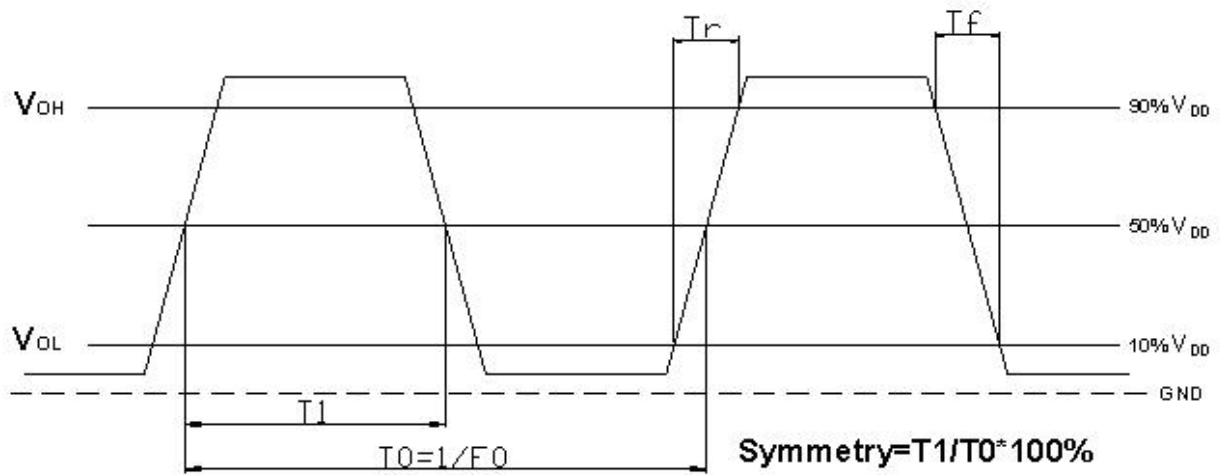
Maximum storage time: 24 Months from date of manufacture.

● **HCMOS Test Circuit**

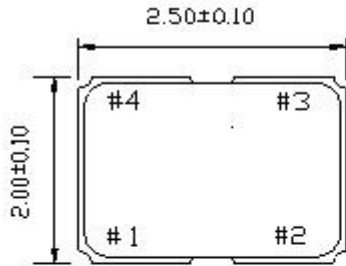


Enable/Disable Function	
Input (pin 1)	Output (pin 3)
Open	Enable
$V_{IH} \geq 0.7V_{DD}$	Enable
$V_{IL} \leq 0.3V_{DD}$	Disable

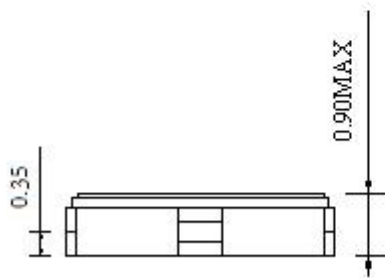
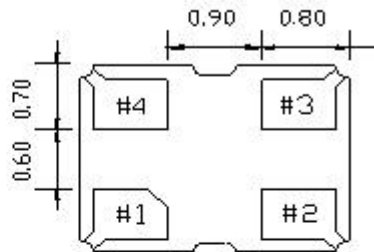
● **HCMOS OUTPUT WAVEFORM**



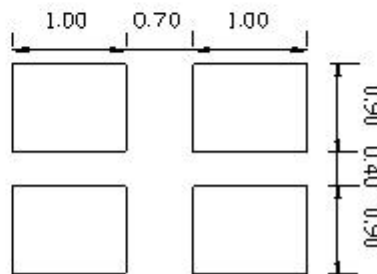
● **OUTLINE DIMENSIONS** (unit: mm)



Top View



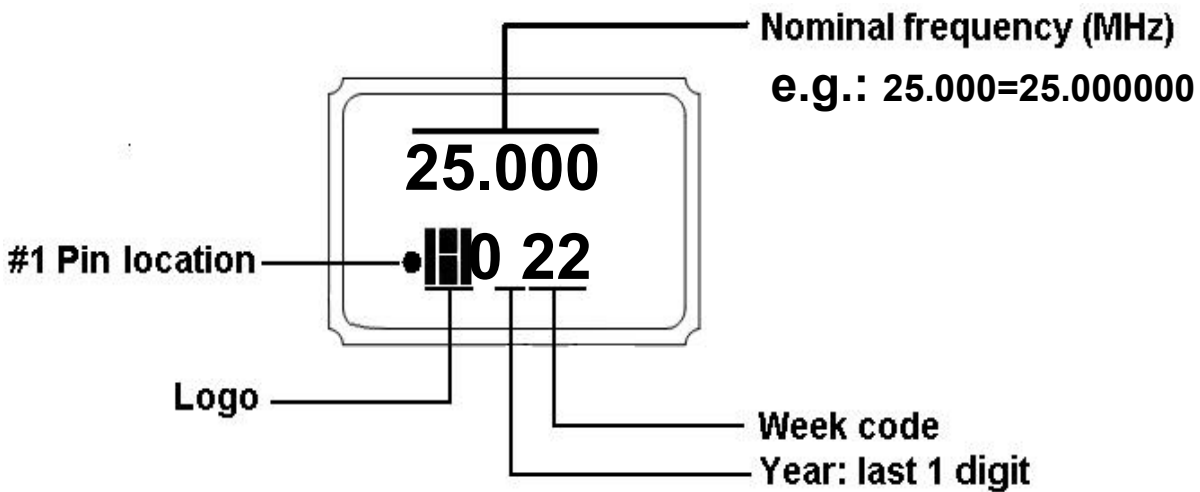
Recommended Solder Pattern



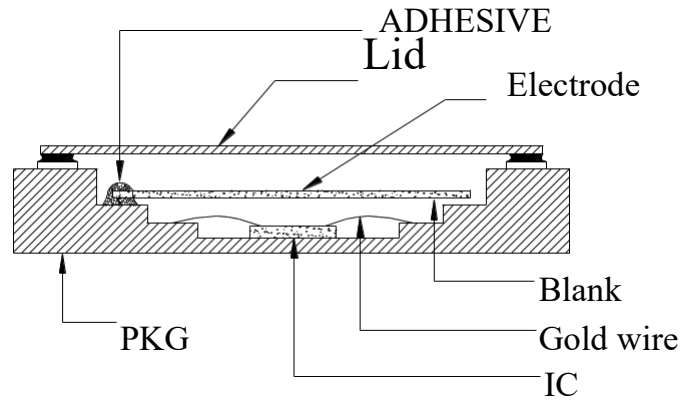
Pin	Connection
1	E/D
2	GND
3	Output
4	V _{DD}

- 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)
 - Unlabeled tolerance: ± 0.1mm

● **MARKING**



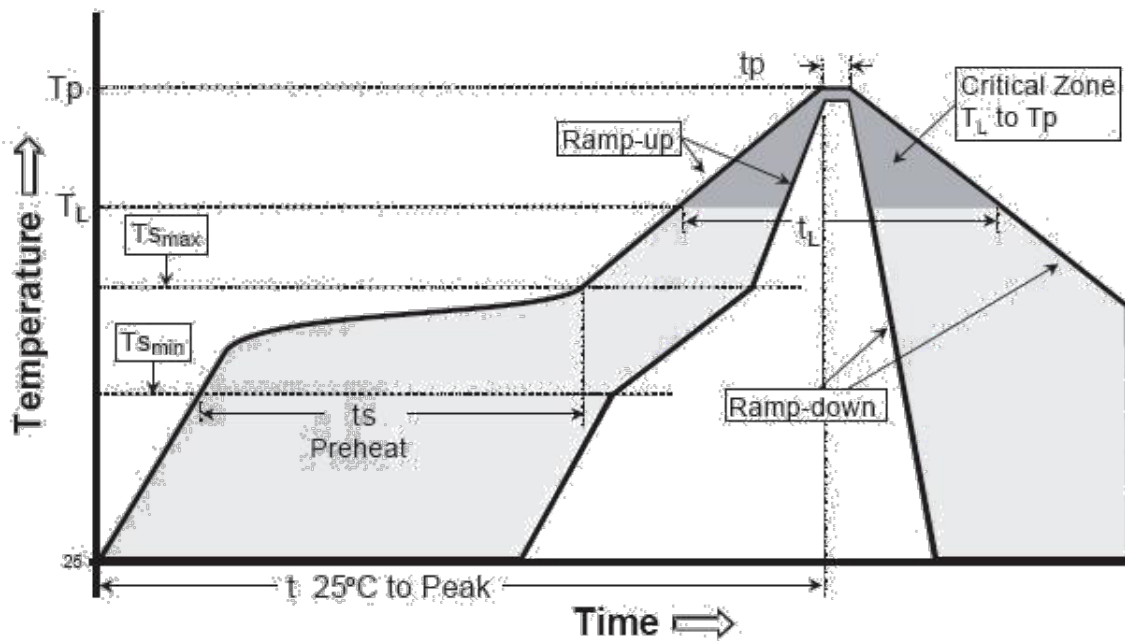
● **PRODUCT LAYOUT**



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

REFLOW PROFILES

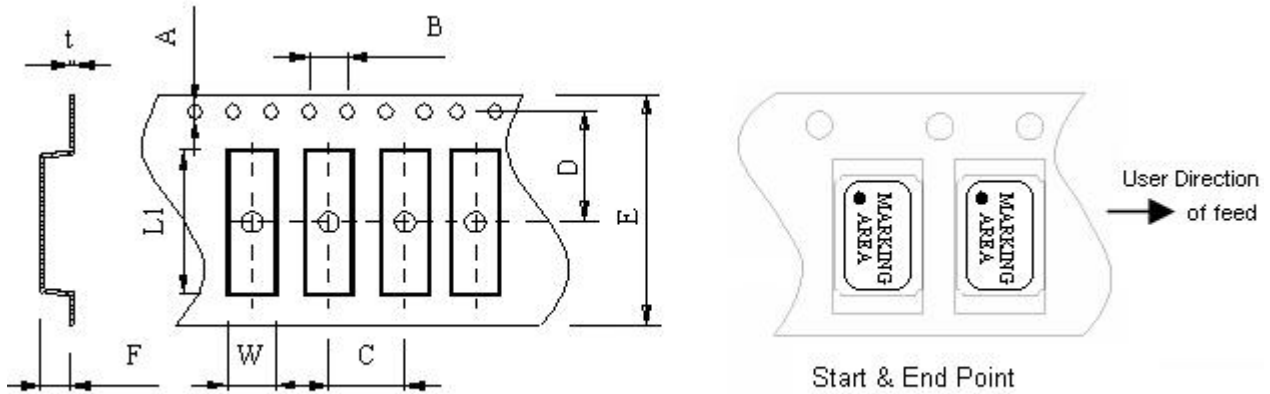
Profiles Feature	Pb-Free Assembly
Average Ramp-up Rate (Ts max to Tp)	3°C/second max.
Preheat ■ Temperature Min (Ts min) ■ Temperature Max (Ts max) ■ Time (ts min to ts max)	125°C 200°C 60~180 seconds
Time maintained above ■ Temperature (TL) ■ Time (tL)	217°C 60~150 seconds
Peak/Classification Temperature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



Remark: To reference JEDEC J-STD-020

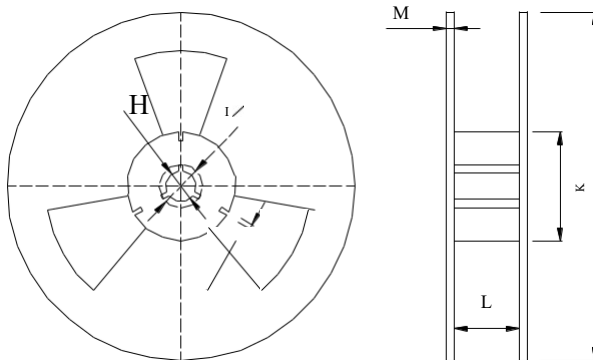
● **PACKAGE(reference to EIA-481)**

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	1.15	2.75 ± 0.1	2.25 ± 0.1	0.25

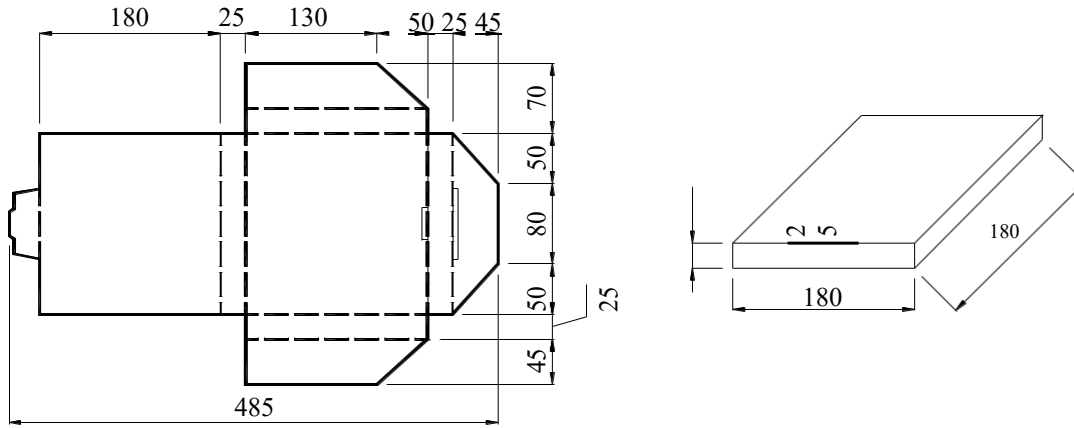
Reel Dimensions(unit: mm)



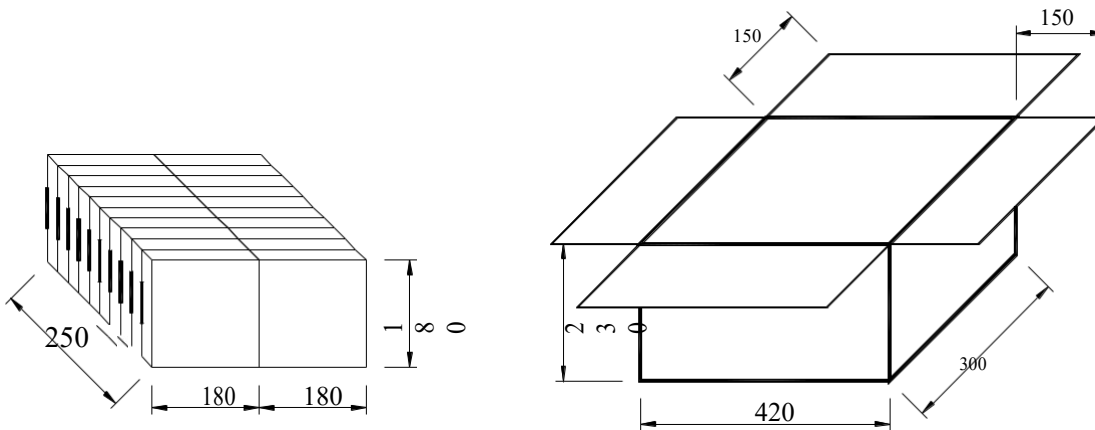
G	H	I	J	K	L	M
2.5	13.5	21.6	60.0	178	9.5	1.6

*3000pcs/Reel

Carton Dimension (unit : mm)



1 reel = 1 Inner box



20 Inner boxes = 1 Carton

60kpcs = 1 Carton

● RELIABILITY SPECIFICATIONS

No.	Test Item	Test Conditions	Reference
1	High Temperature Storage	Temperature: 125°C ±3°C Time: 1000±12 Hours	MIL-STD-202 Method 108
2	Temperature Cycle	Temperature 1: -55°C ±3°C Temperature 2: 125°C ±3°C 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°C 60~120 Seconds Solder Temperature: 260°C ±5°C Time: 30 Seconds	MIL-STD-202 Method 210
4	Drop Test	3 Times Free Fall from 150cm height to concrete floor.	IEC 68-2-32
5	High Temperature, High Humidity Storage	Temperature: 85°C ±5°C Relative Humidity: 80%--85% Time: 250Hours± 12 Hours	MIL-STD-202 Method 103
6	Steam Aging	Temperature: 97°C ±3°C Time: 24 Hours 260°C solder pot to check solderability	J-STD-002
7	Solderability	Dip in flux 5~10 seconds Temperature: 245°C ±5°C Time: 10 Seconds	J-STD-002
8	Aging	Temperature: 85°C ±2°C Time: 250±12Hours	MIL-STD-202 Method 108
9	Thermal Shock	Temperature 1: -55°C ±3°C Temperature 2: 125°C ±3°C Temperature change between T1 and T2: 5 seconds 100 cycles, maintain T1 and T2 for 30 minutes each in one cycle	MIL-STD-202 Method 107
10	Vibration	Frequency Range: 10Hz~2000Hz Amplitude: 1.5mm or 20G 4Hours in each direction, total 12Hours	MIL-STD-202 Method 204