HOSONIC TECHNOLOGY (GROUP) CO., LTD.

Temperature Compensated X'tal Oscillator Specifications

Customer	满度科技
Customer P/N	
Product	2520 TCXO
Nominal Frequency	26.000000MHz
HOSONIC P/N	G22TC26.000LW000E
Version	10C0
Issue Date	2024/8/16

HOSONIC		
Drawn	**Checked**	**Approved**
张盈盈	黄章伦	
Arielle Zhang	Hans Huang	K.Yasuda

Approved By Customer : _____

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Revised Record				
Rev.	Rev. Date	Item	Content	Remark
1.0	2024-08-16		Initial released	

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ELECTRICAL PARAMETERS

No.	Item	Symb.	Electrical Specification				Remark
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	F0		26.000000		MHz	
2	Supply Voltage	Vcc	1.71	1.8	1.89	V	
			2.66	2.8	2.94	V	
			3.14	3.3	3.47	V	Indicators used by customers
3	Current Consumption				1.5	mA	
4	Output Voltage		0.8	-	-	Vp-p	Clipped sine Wave (DC-Coupling)
5	Operating Temperature Range	TOPR	-40	-	85	℃	
6	Storage temp. range		-40	-	85	℃	
7	Output Load			10K Ω // 10 pF			
8	Frequency Stability						
	1. Frequency /Temp. characteristics		-0.5	-	0.5	ppm	-40 to +85℃
							Based on frequency at 25℃±2℃
	2 Frequency /Voltage coefficient		-0.2	-	0.2	ppm	Vcc±5%（at 25℃）
	3. Frequency /Load coefficient		-0.2	-	0.2	ppm	(10 KΩ//10 pF) ±10%
	4. Frequency tolerance		-2.0	-	2.0	ppm	at 25±2℃,after 2 times reflow soldering, based on nominal frequency. Note**
	5. Long-term frequency stability		-1.0	-	1.0	ppm	1 year
9	Start-up Time		-	-	2.0	mS	More than 90% of final output voltage
10	Symmetry		40	-	60	%	GND level (DC cut)
11	Phase noise (at 25℃)		-	-	-80	dBc/Hz	@10 Hz offset
			-	-	-105	dBc/Hz	@100 Hz offset
			-	-	-130	dBc/Hz	@1kHz offset
			-	-	-145	dBc/Hz	@10kHz offset
			-	-	-150	dBc/Hz	@100kHz offset
			-	-	-150	dBc/Hz	@1MHz offset

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

Note : Please leave after reflow in 2h or more at room ambient.**

Note* : DC-cut capacitor of output is not put in TCXO. Please add DC-cut capacitor (1000 pF) in output line**

STORAGE REQUIRMENT

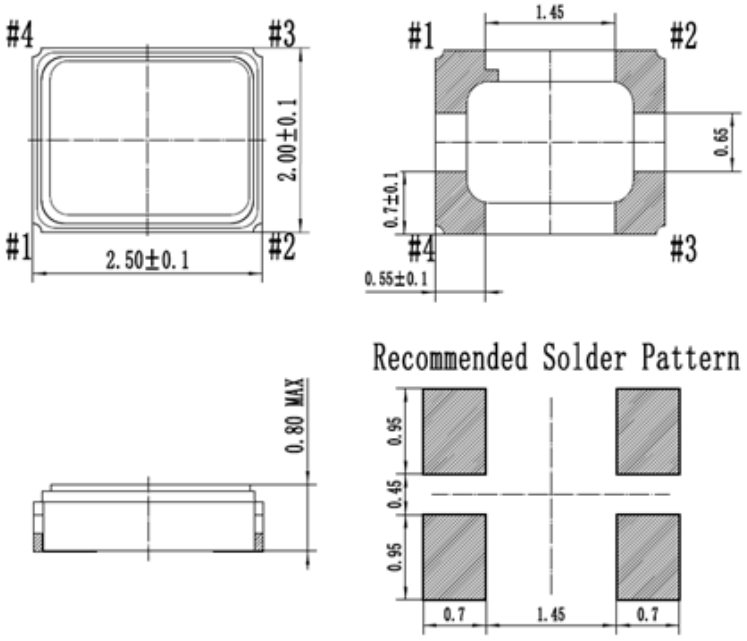
Storage environmental conditions: -4~40℃, 70%RH max.

Maximum storage time: 24 Months from date of manufacture.

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- **OUTLINE DIMENSIONS (UNIT: mm)**



Pin	Connection
1	GND or NC
2	GND
3	Output
4	Vcc

Note: ■ 10nF bypass capacitor should be placed between Vcc (pin 4) and GND (pin 2)to minimize power supply line noise;

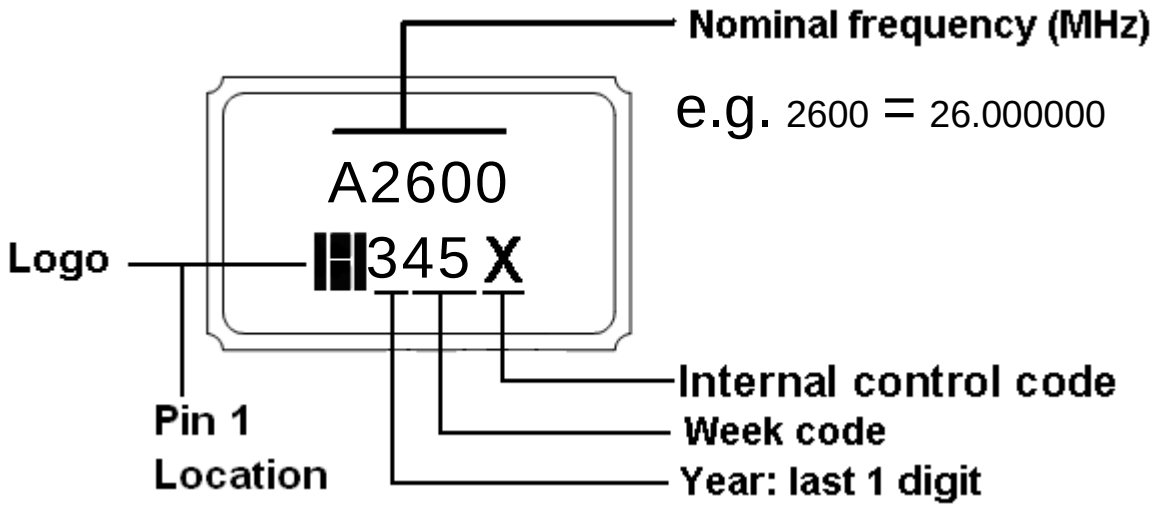
■ Line shouldn't be layed under the oscillator in the PCB to minimize signal interference.

■ Unlabeled tolerance：± 0.1mm

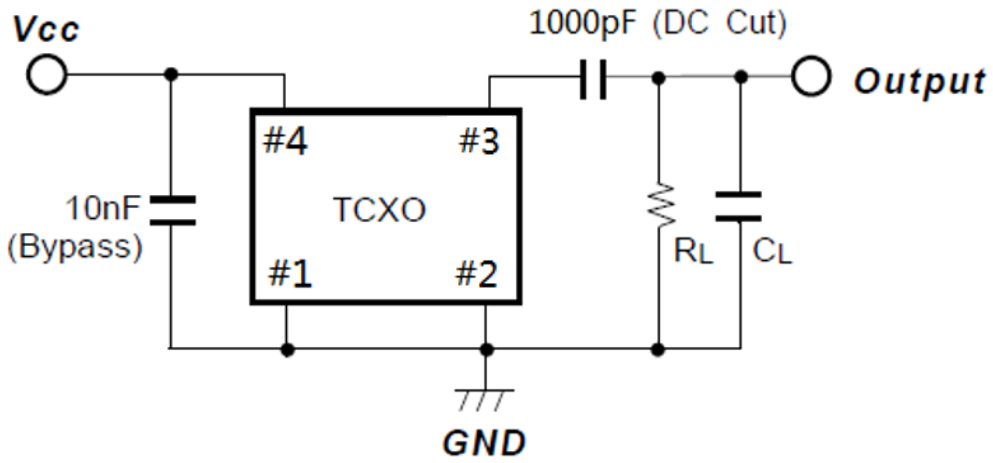
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- **MARKING:**

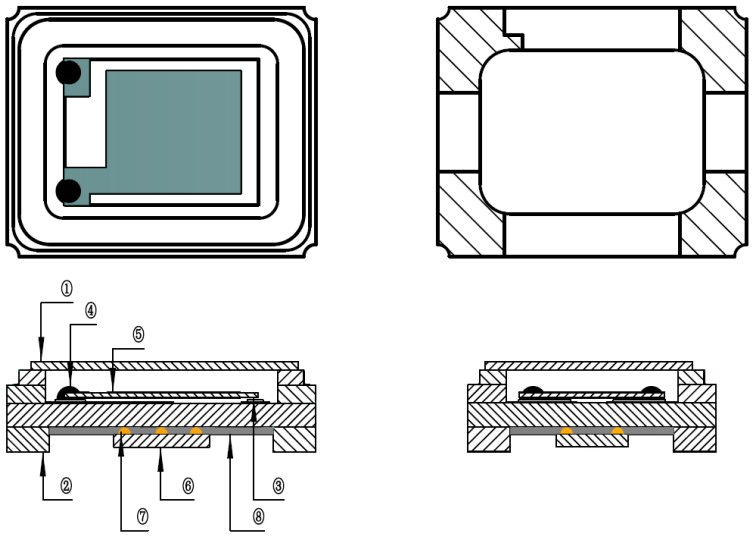


- **TEST CIRCUIT**



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- **PRODUCT LAYOUT**



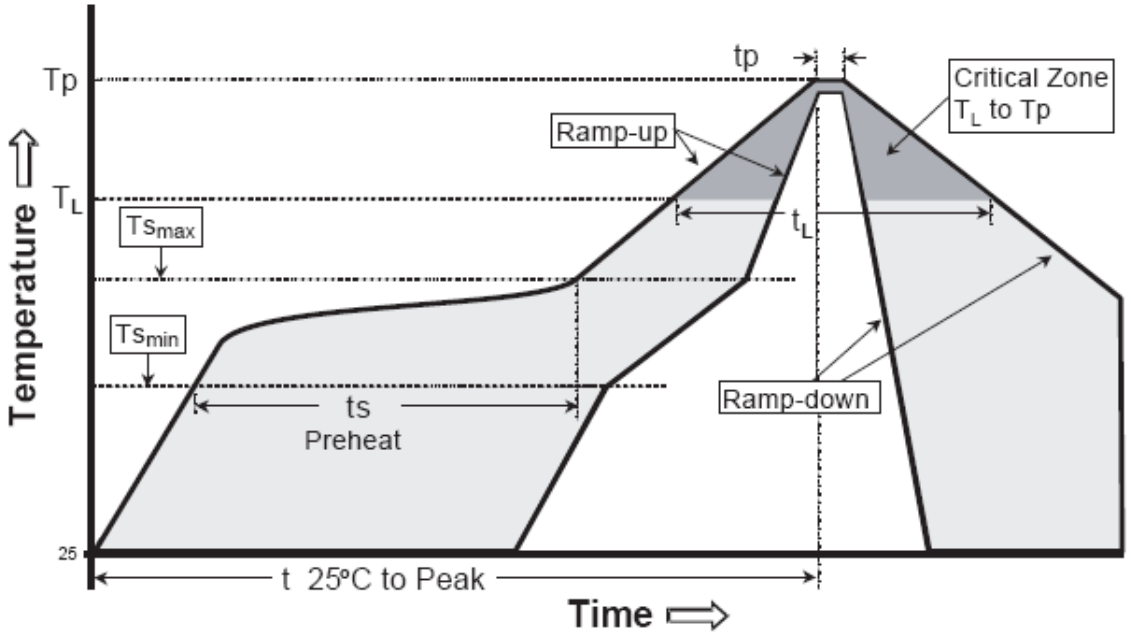
NO.	PART	MATERIAL	REMARK
1	LID	KOVAR(Fe+Co+Ni alloy)	
2	PKG	Al_2O_3	Base
3	BLANK	SiO_2	Quartz
4	ADHESIVE	Ag/Silicon	Support
5	Electrode	Noble metal	
6	IC	Si	
7	Gold Ball	Au	Connect
8	Underfill	Organic	Support

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- **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**



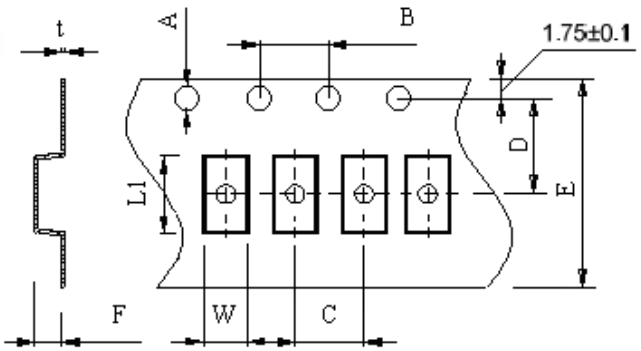
Remark：To reference JEDEC J-STD-020

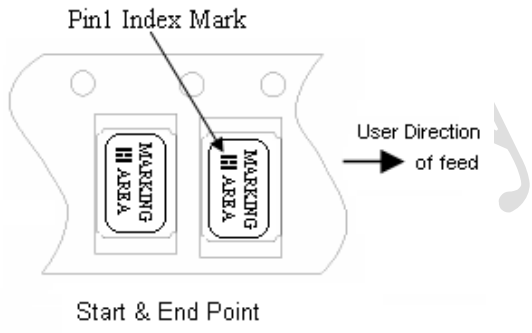
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- **PACKAGE**

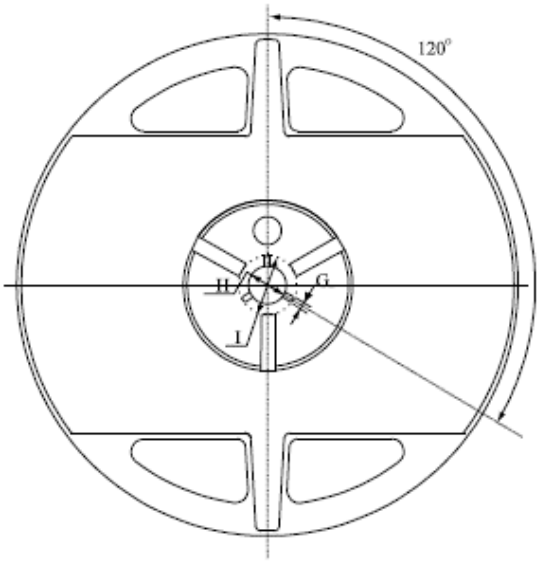
Tape Dimensions(unit : mm)

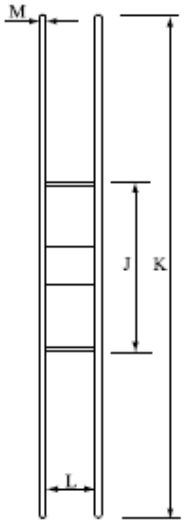




A	B	C	D	E	F	L1	W	t
1.5±0.1	4.0±0.1	4.0±0.1	3.5±0.1	8.0±0.1	1.15±0.1	2.75±0.1	2.25±0.1	0.25±0.05

Reel Dimensions(unit: mm)



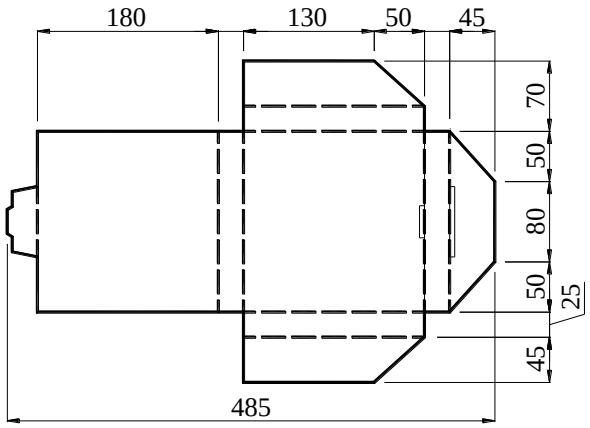


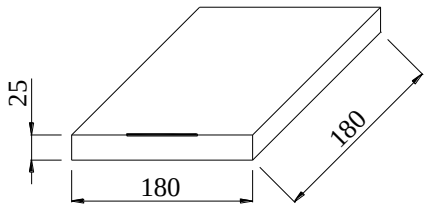
G	H	I	J	K	L	M
2.2±0.5	13.5±0.5	18.2±0.5	60.0±1.0	178.0±1.0	9.5±1.0	1.6±0.2

*3000pcs/Reel

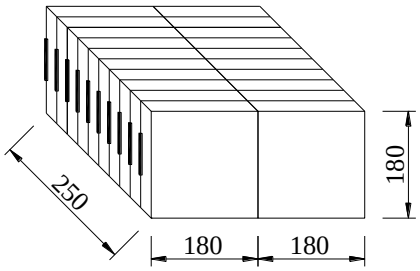
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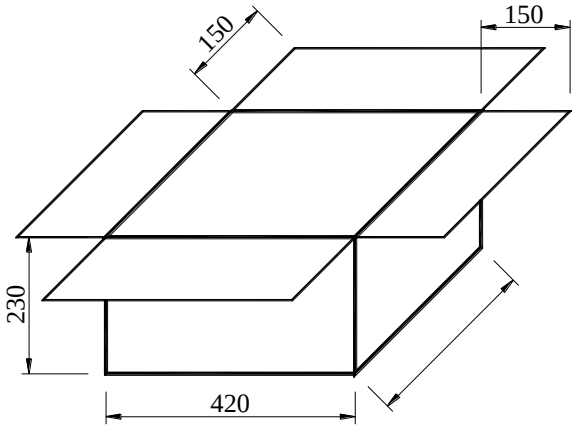
Carton Dimension (unit : mm)





1 reel = 1 Inner box





20 Inner boxes = 1 Carton

60kpcs = 1 Carton

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RELIABILITY SPECIFICATIONS

No.	Test Item	Test Conditions	Reference
1	High Temperature Storage	Temperature: 85℃±3℃ Time: 1000±12 Hours	MIL-STD-202 Method 108
2	Low Temperature Storage	Temperature: -40℃±3℃ Time: 1000±12 Hours	JIS-C7021 B-12
3	Temperature Cycle	Temperature 1: -40℃±3℃ Temperature 2: 85℃±3℃ Temperature change between T1 and T2 at soonest Run 1000 cycles, maintain T1 and T2 5minutes each in one cycle	JESD22 Method JA-104
4	Solder Heat Resistance	Temperature: 250℃±5℃, 30s±5sec Pre-Heating time: above 217° C, 60s ~ 150s	MIL-STD-202 Method 210
5	Drop Test	150g/150CM height free fall to cement floor 3 times*(x,y,z,-x,-y,-z)，18 times in total	IEC 60068-2-32
6	High Temperature, High Humidity Storage	Temperature: 85℃±5℃ Relative Humidity: 80%--85% Time: 1000Hours±12 Hours	MIL-STD-202 Method 103
7	Solderability	Dip in flux 5~10 seconds Temperature: 245℃±5℃ Time: 10 Seconds	J-STD-002
8	Aging	Temperature: 85℃±2℃ Time: 250±12Hours	MIL-STD-202 Method 108
9	Thermal Shock	Temperature 1: -40℃±3℃ Temperature 2: 85℃±3℃ 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

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