PRODUCT SPECIFICATION SHEET



Customer	–		
Customer P/N	TBA		
Product Type	Temperature Compensated Crystal Oscillator		
Part Number	9T26000004	Version	S4
Part Description	SMD TCXO 2.0 x 1.6		
Nominal Frequency	26.000000MHz		

Prepared	Li Xiang
Reviewed	Jin Zhe
Approved	Xing Yue
Date	2023-2-14

Customer's Approval & Date：

廣東惠倫晶體科技股份有限公司
中国广东省东莞市黄江镇东环路鸡啼岗段68号
68 Donghuan Road, Jitigang Village, Huangjiang, Dongguan, Guangdong Province, P. R. China
WEB : http://www.dgylec.com/
TEL : +86 (0) 769 - 38879888
FAX : +86 (0) 769 - 38879889
EMAIL : yl@dgylec.com

RoHS COMPLIANT

Pb Lead-Free

Moisture Sensitivity Level 1

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1. History of Specification Revision

Ver.	Contents	Date	Reviser	Remark
S0	Initial release	2020-11-12	Han Shuang	
S1	Marking information update	2022-6-30	Li Xiang	
S2	Change electrical specifications	2022-8-5	Li Xiang	
S3	Change electrical specifications & Change reflow map	2023-1-29	Li Xiang	
S4	Change electrical specifications	2023-2-14	Li Xiang	

2. Electrical Specification

2.1 Operation conditions

#	Parameters	Min.	Typ.	Max.	Unit	Remark
1	Nominal frequency		26.000000		MHz	-
2	Supply voltage (V_{CC})	1.68	-	3.63	V	-
3	Current consumption	-	-	1.5	mA	-
4	Operating temperature range	-30	-	+85	°C	-
5	Storage temperature range	-40	-	+90	°C	-
6	ESD		HBM＞2000V		-	JESD22-A114-B
7	MSL		Level 1		-	IPC/JEDEC J-STD-033C

2.2 Output characteristics

#	Parameters	Min.	Typ.	Max.	Unit	Remark
1	Output type		Clipped sine wave		-	Decoupling capacitor is required in external circuit
2	Standard output load		10 KΩ//10 pF		-	-
3	Output level	0.8	-	-	V_{pp}	-
4	Duty cycle	40	50	60	%	-
5	Harmonics	-	-	-5	dBc	-
6	Start-up time vs. output level	-	-	2.0	ms	Reach 90% of final Vpp output level

2.3 Frequency characteristics

#	Parameters	Min.	Typ.	Max.	Unit	Remark
1	Nominal frequency		26.000000		MHz	-
2	Frequency tolerance before reflow	-1.0	-	+1.0	ppm	At 25±2°C, refer to nominal frequency
3	Frequency tolerance after reflow	-1.0	-	+1.0	ppm	At 25±2°C, after 2 times of reflow, refer to frequency before reflow (See below NOTE 1)
4	Frequency stability vs. temperature	-0.5	-	+0.5	ppm	Refer to frequency at 25° C within operating temperature range
5	Frequency slope vs. temperature 1	-0.2	-	+0.2	ppm/°C	Within -30 to -20°C (See below NOTE 2)
6	Frequency slope vs. temperature 2	-0.1	-	+0.1	ppm/°C	Within -20 to +70°C (See below NOTE 2)
7	Frequency slope vs. temperature 3	-0.2	-	+0.2	ppm/°C	Within +70 to +85°C (See below NOTE 2)
8	Frequency stability vs. supply voltage	-0.2	-	+0.2	ppm	±5% V_{CC} variation
9	Frequency stability vs. load variation	-0.2	-	+0.2	ppm	±10% load variation
10	Frequency Aging	-1.0	-	+1.0	ppm	Frist year

NOTE 1: Frequency is measured after 24 hours after reflow cycles.

NOTE 2: One frequency reading per 2°C.

2. Electrical Specifications (Cont.)

2.4 Phase noise characteristics

#	Parameters	Min.	Typ.	Max.	Unit	Remark
1	Phase noise at 10Hz offset	-	-91	-	dBc/Hz	-
2	Phase noise at 100Hz offset	-	-120	-	dBc/Hz	-
3	Phase noise at 1kHz offset	-	-138	-	dBc/Hz	-
4	Phase noise at 10kHz offset	-	-145	-	dBc/Hz	-
5	Phase noise at 100kHz offset	-	-143	-	dBc/Hz	-

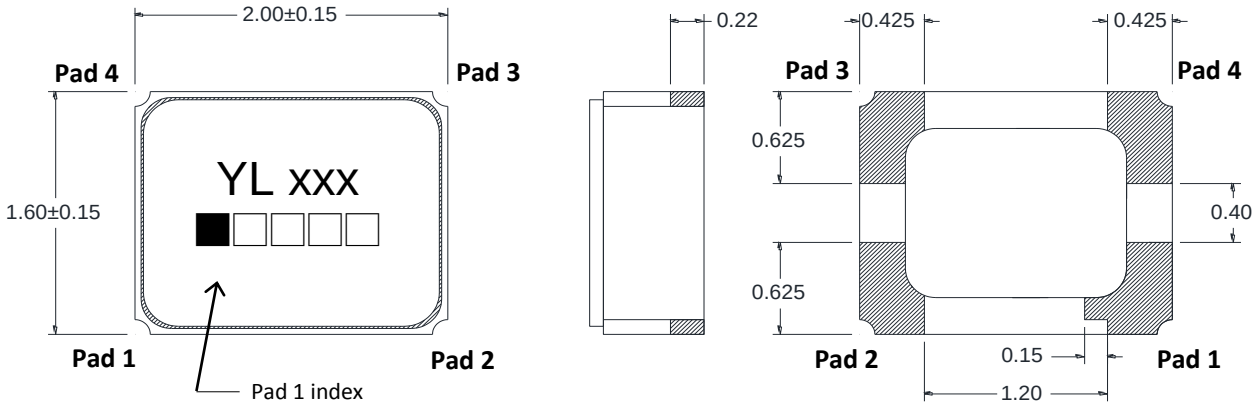
3. Product Design

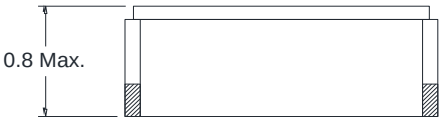
3.1 Package dimensions and pad functions

Top view

Unit : mm

Bottom view

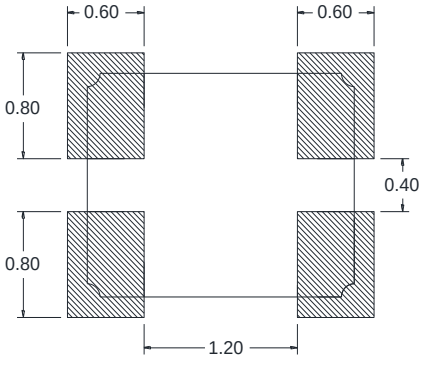




Lateral view

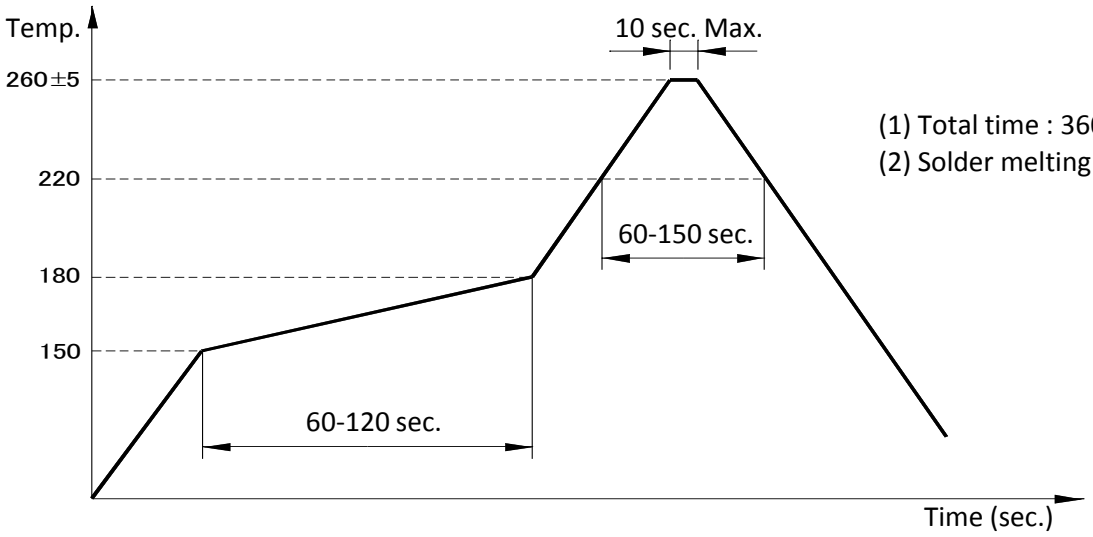
Pad	Function	Symbol
1	NC or GND (Ground recommended)	NC
2	Ground	GND
3	Output	OUT
4	Supply voltage	V_{DD}

3.2 Recommended land pattern



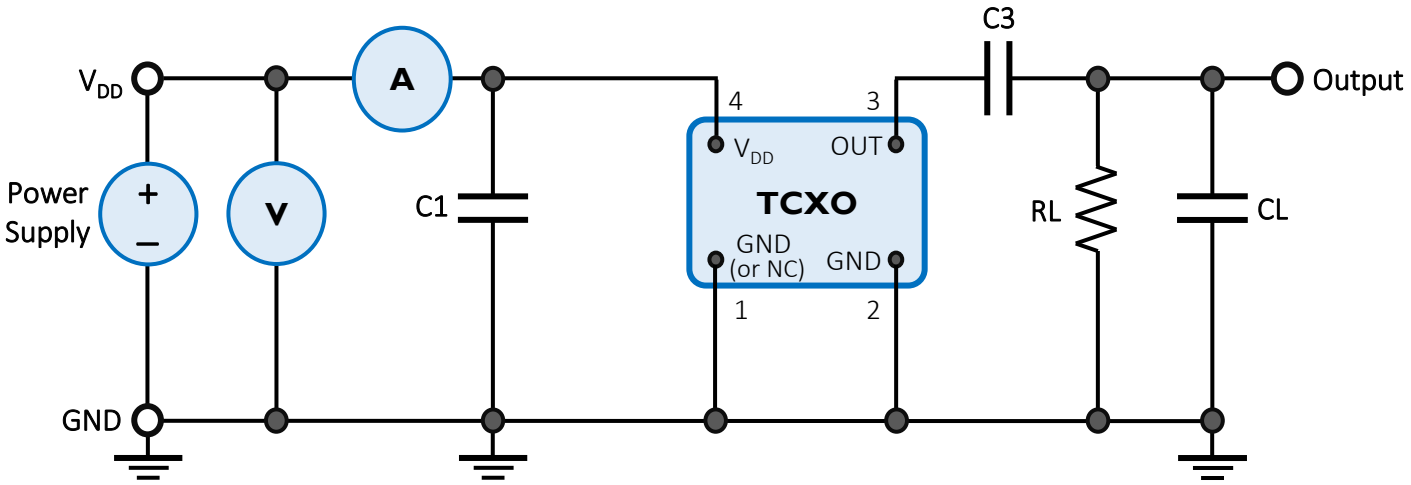
Unit : mm

3.3 Recommended reflow profile



(1) Total time : 360 sec. Max.
(2) Solder melting point : 225℃

4. Testing Circuit



External Components:

Parts	Function	Recommended
C1	AC noise bypass for V_{DD}	10nF
C3	DC block for output	10nF
RL	Load resistance	10KΩ
CL	Load capacitance	10pF