



PRODUCT SPECIFICATION SHEET



Customer			
Customer P/N	-		
Product Type	Temperature Compensated Crystal Oscillator		
Part Number	9T26000002	Version	S3
Part Description	SMD TCXO 2.0 x 1.6		
Nominal Frequency	26.000000MHz		

Prepared	Li Xiang
Reviewed	Jin Zhe
Approved	Xing Yue
Date	2022-6-22

Customer's Approval & Date :

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Moisture Sensitivity Level 1

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1. History of Specification Revision

Ver.	Contents	Date	Reviser	Remark
S0	Initial release	2020-10-30	Han Shuang	
S1	Update electrical Specifications	2022-3-2	Han Shuang	
S2	Change 2.3 #5 & #6	2022-6-20	Li Xiang	
S3	Update electrical specifications	2022-6-22	Li Xiang	

2. Electrical Specifications

2.1 Operation conditions

#	Parameters	Min.	Typ.	Max.	Unit	Remark
1	Nominal frequency	26.000000			MHz	
2	Supply voltage (V_{DD})	2.85	3.00	3.15	V	
3	Current consumption	-	-	1.5	mA	
4	Operating temperature range	-40	-	+85	°C	
5	Storage temperature range	-40	-	+90	°C	

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 K Ω //10 pF			-	
3	Output level	0.8	-	1.5	V_{pp}	
4	Duty cycle	40	50	60	%	
5	Harmonics	-	-	-5	dBc	
6	Start-up time vs. frequency	-	-	2.0	ms	Within ± 1.0 ppm of final frequency
7	Start-up time vs. output level	-	-	2.0	ms	Reach 90% of final V_{pp} 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 $25\pm 2^\circ\text{C}$, before reflow, refer to nominal frequency
3	Frequency tolerance after reflow	-2.0	-	+2.0	ppm	At $25\pm 2^\circ\text{C}$, after 2 times of reflow, refer to nominal frequency (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 stability vs. supply voltage	-0.1	-	+0.1	ppm	$\pm 5\%$ V_{DD} variation
6	Frequency stability vs. load variation	-0.1	-	+0.1	ppm	$\pm 5\%$ load variation
7	Aging over 1st year	-1.0	-	+1.0	ppm	At $25\pm^\circ\text{C}$
8	ESD	HBM > 2000V			-	JESD22-A114-B
9	MSL	Level 1			-	IPC/JEDEC J-STD-033C

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

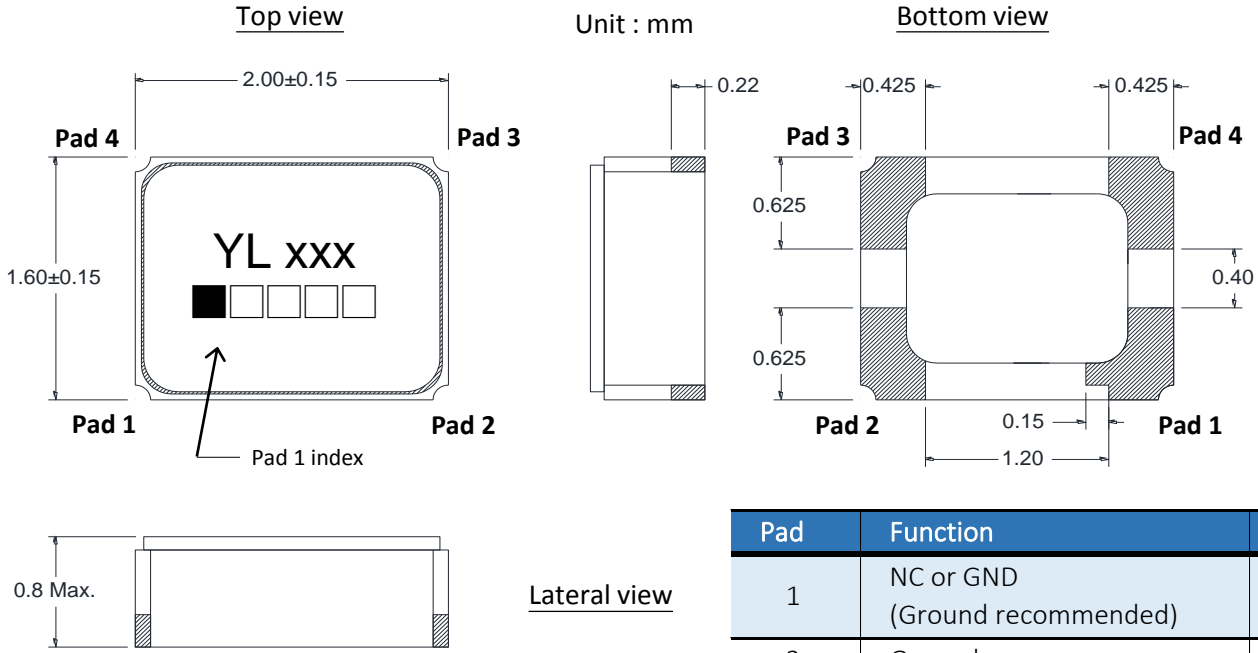
2. Electrical Specifications (Cont.)

2.4 Phase noise characteristics

#	Parameters	Min.	Typ.	Max.	Unit	Remark
1	Phase noise at 10Hz offset	-	-	-83	dBc/Hz	
2	Phase noise at 100Hz offset	-	-	-108	dBc/Hz	
3	Phase noise at 1kHz offset	-	-	-135	dBc/Hz	
4	Phase noise at 10kHz offset	-	-	-148	dBc/Hz	
5	Phase noise at 100kHz offset	-	-	-148	dBc/Hz	
6	Phase noise at 1MHz offset	-	-	-148	dBc/Hz	

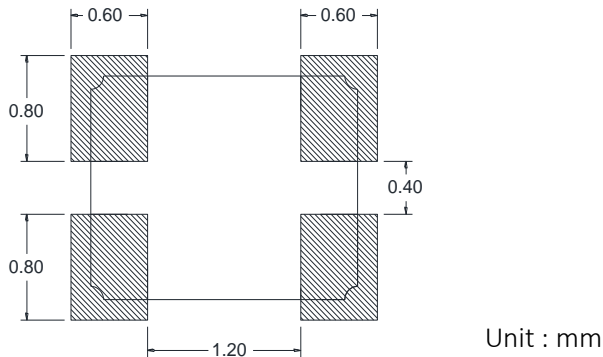
3. Product Design

3.1 Package dimensions and pad functions

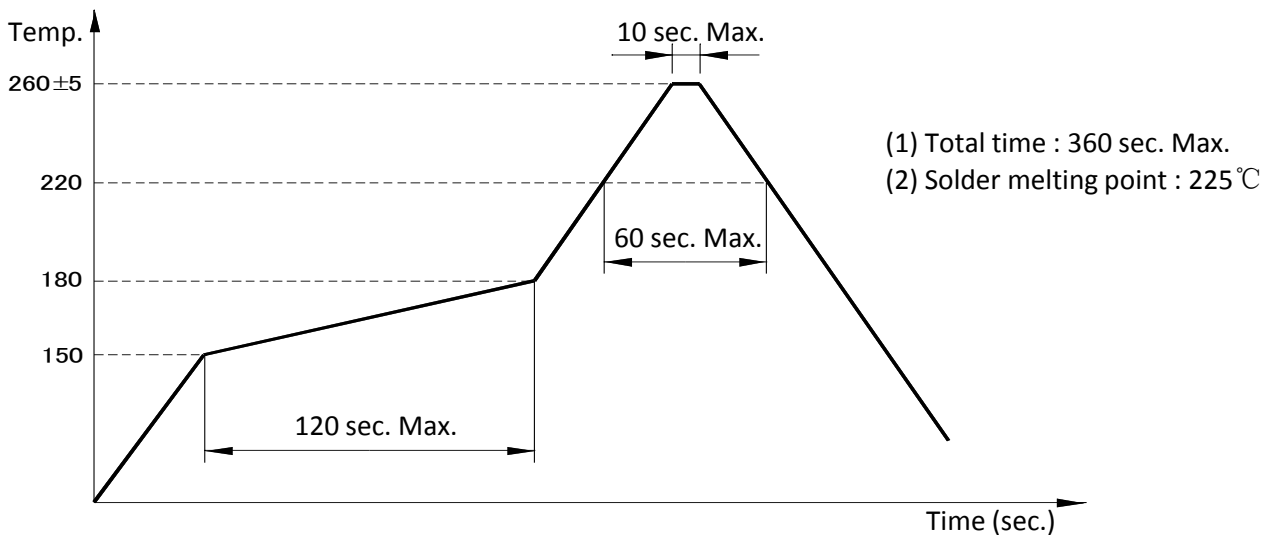


Pad	Function	Symbol
1	NC or GND (Ground recommended)	NC
2	Ground	GND
3	Output	OUT
4	Supply voltage	V _{DD}

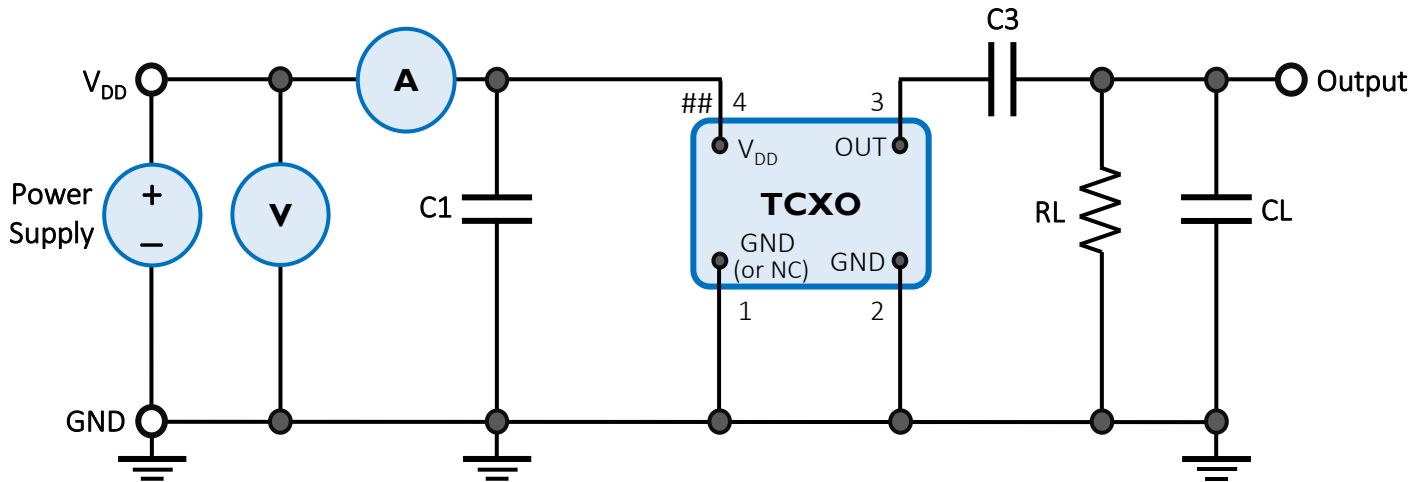
3.2 Recommended land pattern



3.3 Recommended reflow profile



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	10K Ω
CL	Load capacitance	10pF