



PRODUCT SPECIFICATION SHEET



Customer	—		
Customer P/N	-		
Product Type	Temperature Compensated Crystal Oscillator		
Part Number	9T26000002-Q	Version	S5
Part Description	SMD TCXO 2.0 x 1.6		
Nominal Frequency	26.000000MHz		

Prepared	Li Xiang
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Approved	Xing Yue
Date	2022-11-25

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	
S4	Change electrical specifications	2022-11-24	Li Xiang	
S5	Change storage temperature	2022-11-25	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})	1.68	-	3.63	V	-
3	Current consumption	-	-	1.5	mA	-
4	Operating temperature range	-40	-	+85	°C	-
5	Storage temperature range	-40	-	+105	°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	-	-	-8	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 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 $\pm$ 2°C, before reflow, refer to nominal frequency
3	Frequency tolerance after reflow	-2.0	-	+2.0	ppm	At 25 $\pm$ 2°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 $\pm$ °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.

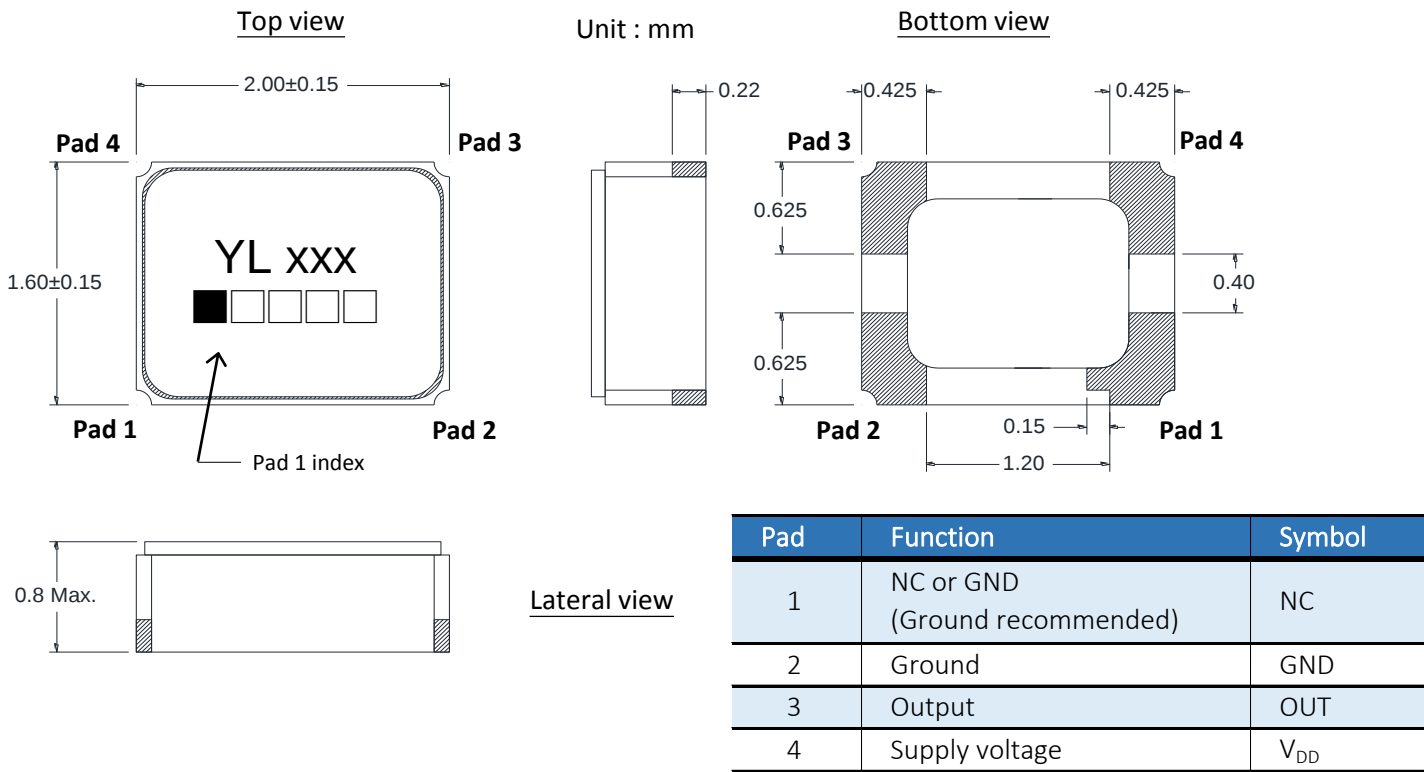
2. Electrical Specifications (Cont.)

2.4 Phase noise characteristics

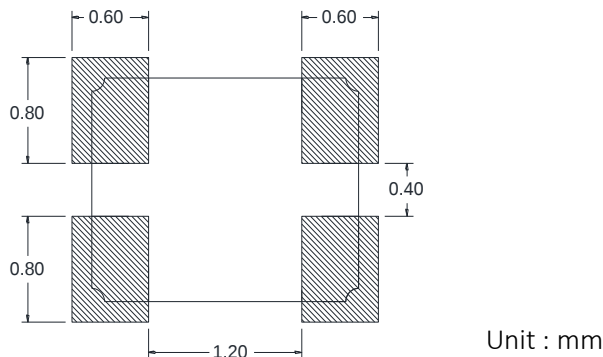
#	Parameters	Min.	Typ.	Max.	Unit	Remark
1	Phase noise at 10Hz offset	-	-	-83	dBc/Hz	-
2	Phase noise at 100Hz offset	-	-	-108	dBc/Hz	-
3	Phase noise at 1kHz offset	-	-	-135	dBc/Hz	-
4	Phase noise at 10kHz offset	-	-	-148	dBc/Hz	-
5	Phase noise at 100kHz offset	-	-	-148	dBc/Hz	-
6	Phase noise at 1MHz offset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

3. Product Design

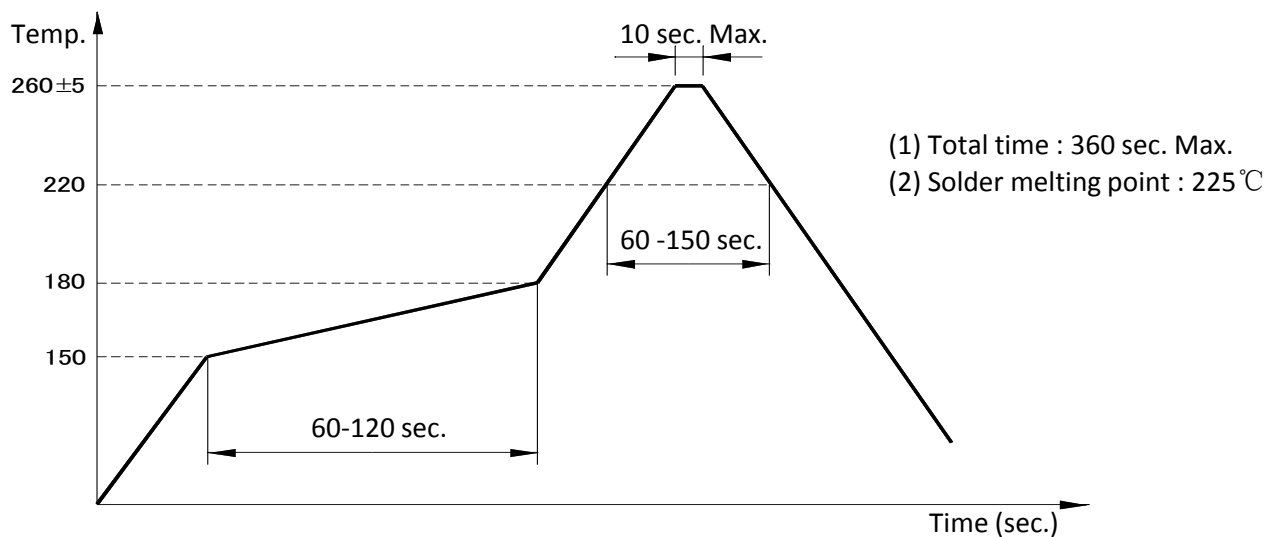
3.1 Package dimensions and pad functions



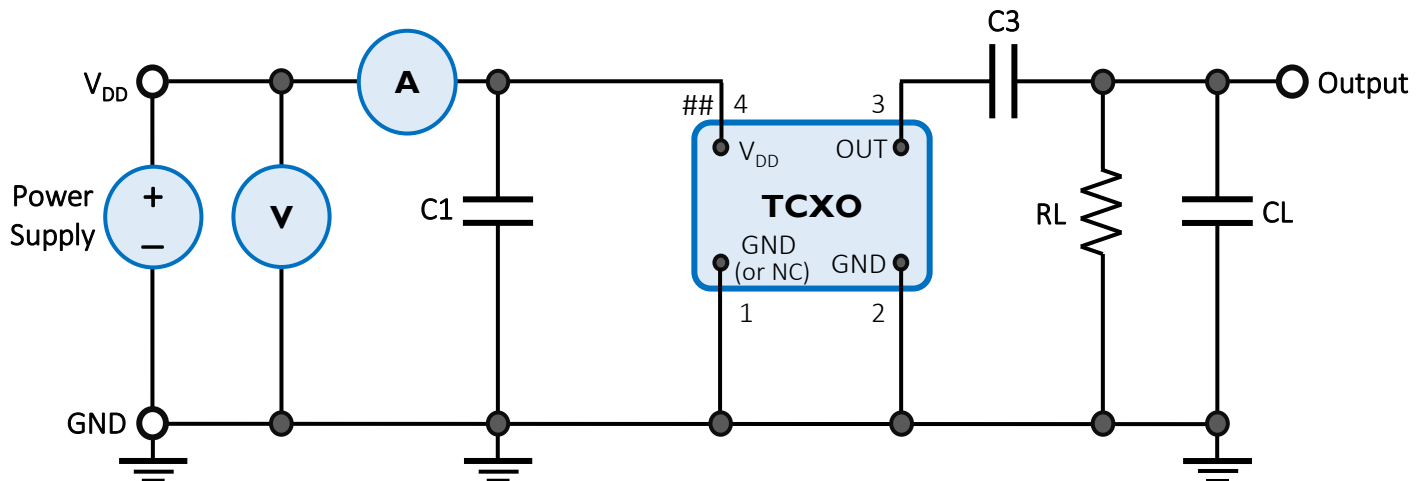
3.2 Recommended land pattern



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	10KΩ
CL	Load capacitance	10pF