

# Crystal Clock Oscillator

## NZ2520SHA

Automotive safety

### Application

For Automotive safety (e.g., Millimeter wave radar or Image processing for self-driving)

### Features

- High quality and high reliability design for Automotive safety
- Supports a wide frequency range. (1.5 to 125MHz)
- Supports a wide temperature range from -40 to +125°C.
- Compact and light. Dimensions : 2.5 x 2.0 x 0.9 mm, weight : 0.02 g.
- Low phase jitter (Typ. 54fs (Frequency Offset : 12kHz to 20MHz)@125MHz, 3.3V)
- Output Specification : CMOS
- Taped units enable automatic mounting IR Reflow (lead free) is possible.
- Lead-free.
- Conforms to AEC-Q100/200.



Pb Free

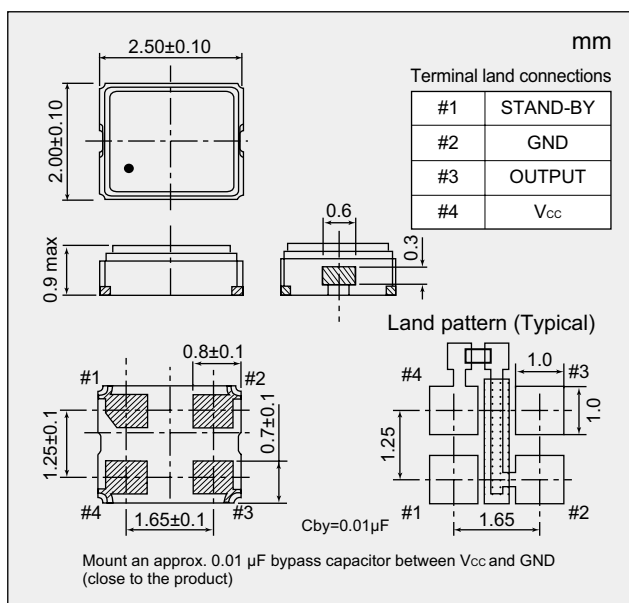
RoHS Compliant  
Directive 2011/65/EU  
Directive (EU) 2015/863

Absolute maximum rating  
Supply Voltage (V<sub>CC</sub>) -0.3 to +4.0 V  
Storage Temperature Range -55 to +125 °C

### Specifications

Item		Model	NZ2520SHA	
Output Specification			CMOS	
Nominal Frequency Range		(MHz)	1.5 ≤ F ≤ 80	80 < F ≤ 125
Overall Frequency Tolerance / Operating Temperature Range			±100×10 <sup>-6</sup> / -40 to +125 °C	
			±50×10 <sup>-6</sup> / -40 to +105 °C	
			±50×10 <sup>-6</sup> / -40 to +85 °C	
Supply Voltage		(V)	+1.8 to +3.3	
Current Consumption Max.	During Operation	+25 °C (mA)	2.5 to 9.0	9.5 to 20
	During Standby	+25 °C (μA)	20	
V <sub>OL</sub> Max. / V <sub>OH</sub> Min.		(V)	0.1 V <sub>CC</sub> / 0.9 V <sub>CC</sub>	0.2 V <sub>CC</sub> / 0.8 V <sub>CC</sub>
Tr Max. / Tf Max.	+1.8 V	(ns)	6 / 6 ( at 0.1 V <sub>CC</sub> to 0.9 V <sub>CC</sub> )	3 / 3 ( at 0.2 V <sub>CC</sub> to 0.8 V <sub>CC</sub> )
	+2.5 to +3.3V		5 / 5 ( at 0.1 V <sub>CC</sub> to 0.9 V <sub>CC</sub> )	3 / 3 ( at 0.2 V <sub>CC</sub> to 0.8 V <sub>CC</sub> )
Symmetry Min. to Max.		(%)	45 to 55	
Load (C <sub>L</sub> ) Max.		(pF)	15	
Start-up Time Max.		(ms)	4	
Standby function			Available (Three-state)	

### Dimensions

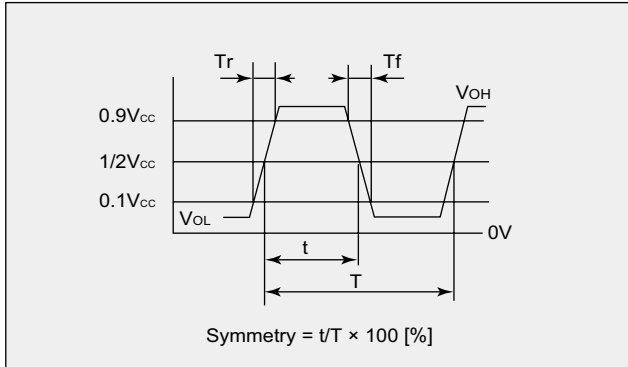


### Standby Function

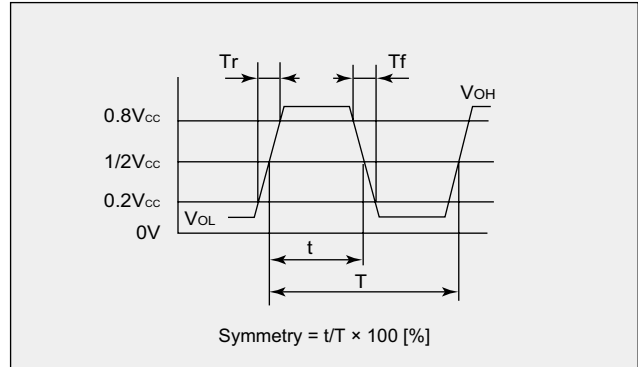
#1 Input	#3 Output
Level H (0.7 V <sub>CC</sub> ≤ V <sub>IH</sub> ≤ V <sub>CC</sub> ) or OPEN is selected.	Oscillation output ON
Level L (V <sub>IL</sub> ≤ 0.3 V <sub>CC</sub> ) is selected.	High impedance

#### ■ Output Waveform <CMOS>

Nominal Frequency Range :  $1.5 \leq F \leq 80\text{MHz}$



Nominal Frequency Range :  $80 < F \leq 125\text{MHz}$



#### ■ Specification Number

Nominal Frequency Range :  $1.5 \leq F \leq 80\text{MHz}$

Overall Frequency Tolerance	Operating Temperature Range (°C)	Supply Voltage (V)			
		+1.8±0.18	+2.5±0.25	+3.0±0.3	+3.3±0.33
±100×10 <sup>-6</sup>	-40 to +125	NSC5072A	NSC5072B	NSC5072C	NSC5072D
±50×10 <sup>-6</sup>	-40 to +105	NSC5218A	NSC5218B	NSC5218C	NSC5218D
±50×10 <sup>-6</sup>	-40 to +85	NSC5219A	NSC5219B	NSC5219C	NSC5219D

Nominal Frequency Range :  $80 < F \leq 125\text{MHz}$

Overall Frequency Tolerance	Operating Temperature Range (°C)	Supply Voltage (V)			
		+1.8±0.10	+2.5±0.25	+3.0±0.3	+3.3±0.33
±100×10 <sup>-6</sup>	-40 to +125	NSC5166A	NSC5166B	NSC5166C	NSC5166D
±50×10 <sup>-6</sup>	-40 to +105	NSC5220A	NSC5220B	NSC5220C	NSC5220D
±50×10 <sup>-6</sup>	-40 to +85	NSC5221A	NSC5221B	NSC5221C	NSC5221D

Please specify the model name, frequency, and specification number when you order products.

For further questions regarding specifications, please feel free to contact us.