Crystal Clock Oscillator

Crystal Bridge to the Future

NZ2520SH

Standard Type

■ Application

For Automotive navigation system, Automotive audio equipment and Camera
For Smartphone, Tablet computers, Notebook PC, PC card, etc.
For Audioequipment and Wireless module
For Communication equipment for SDH/SONET, WiMAX, LTE, etc. and Base station



Pb Free

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

Absolute maximum rating
Supply Voltage (V_{CC}) –0.3 to +4.0 V
Storage Temperature Range –55 to +125 °C

■ Features

- 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.
- This crystal clock oscillator can support low frequencies (from 1.5MHz) not easily achieved with crystal units of the same size.
- Supports a wide frequency range (80 to 170MHz).
- Low phase jitter (Typ. 90fs (Frequency Offset : 12kHz to 20MHz)@125MHz, 3.3V)
- Taped units enable automatic mounting IR Reflow (lead free) is possible.
- Lead-free.
- Conforms to AEC-Q100/200.

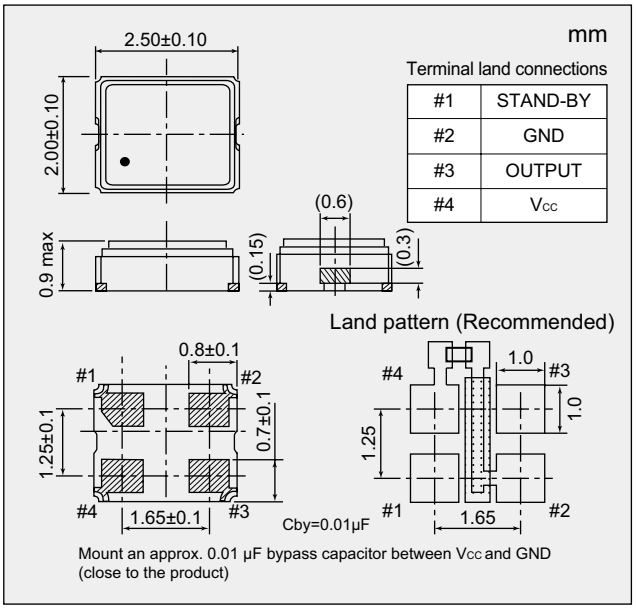
■ Specifications

Item			Model	NZ2520SH	
Output Specification				CMOS	
Nominal Frequency Range			(MHz)	1.5 ≤ F ≤ 80	80 < F ≤ 170 (*1)
Overall Frequency Tolerance			($\times 10^{-6}$)	±100 to ±20 (*2)	
Operating Temperature Range			(°C)	[–40 to +125] to [–10 to +60] (*2)	
Supply Voltage			(V)	+1.8 to +3.3 (*1)	
Current Consumption Max.	During Operation	+25 °C	(mA)	2.5 to 9.0	9.5 to 38.0
	During Standby	+25 °C	(μA)	20	
V_{OL} Max. / V_{OH} Min.			(V)	0.1 V_{CC} / 0.9 V_{CC}	0.2 V_{CC} / 0.8 V_{CC}
Tr Max. / Tf Max.		+1.8 V	(ns)	6 / 6 (at 0.1 V_{CC} to 0.9 V_{CC})	3 / 3 (at 0.2 V_{CC} to 0.8 V_{CC})
		+2.5 to +3.3V		5 / 5 (at 0.1 V_{CC} to 0.9 V_{CC})	
Symmetry Min. to Max.			(%)	45 to 55	
Load (C_L) Max.			(pF)	15	
Start-up Time Max.			(ms)	4	
Standby function				Available (Three-state)	

*1. Supply Voltage : +2.5 to +3.3V (131 to 170MHz)

*2. Please refer to the Specification Number.

■ Dimensions



■ Standby Function

#1 Input	#3 Output
Level H (0.7 V_{CC} ≤ V_{IH} ≤ V_{CC}) or OPEN is selected.	Oscillation output ON
Level L (V_{IL} ≤ 0.3 V_{CC}) is selected.	High impedance

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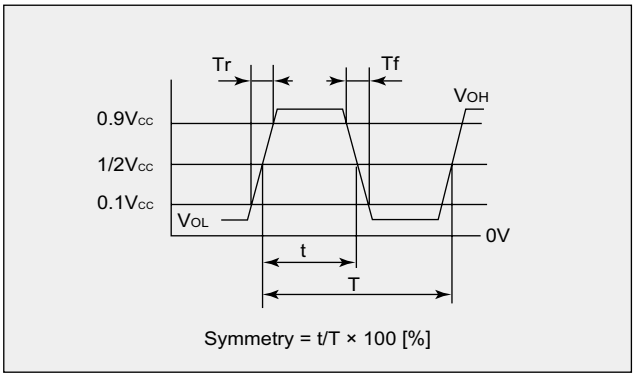
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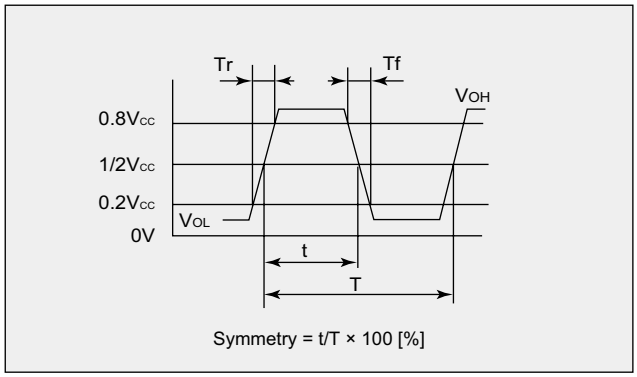
■ Output Waveform <CMOS>

Frequency Range : 1.5 ≤ F ≤ 80MHz



Symmetry = t/T × 100 [%]

Frequency Range : 80 < F ≤ 170MHz



Symmetry = t/T × 100 [%]

■ Specification Number

The Specification Number is determined by the Nominal Frequency, Overall Frequency Tolerance, Operating Temperature Range, and Power Supply Voltage.

Please specify the model name, frequency, and specification number when you order products.
For further questions regarding specifications, please feel free to contact us.

Frequency Range : 1.5 ≤ F ≤ 80MHz

(*2) Overall Frequency Tolerance	(*2) 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^{-6}	–40 to +125	NSA3579A	NSA3579B	NSA3579C	NSA3579D
±50×10^{-6}	–40 to +105	NSC5004A	NSC5004B	NSC5004C	NSC5004D
±50×10^{-6}	–40 to +85	NSC5005A	NSC5005B	NSC5005C	NSC5005D
±30×10^{-6}	–10 to +70	NSC5007A	NSC5007B	NSC5007C	NSC5007D
±20×10^{-6}	–10 to +60	NSC5008A	NSC5008B	NSC5008C	NSC5008D

Frequency Range : 80 < F ≤ 170MHz

(*2) Overall Frequency Tolerance	(*2) 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^{-6}	–40 to +125	NSC5171A	NSC5171B	NSC5171C	NSC5171D
±50×10^{-6}	–40 to +105	NSC5172A	NSC5172B	NSC5172C	NSC5172D
±50×10^{-6}	–40 to +85	NSC5009A	NSC5009B	NSC5009C	NSC5009D
±30×10^{-6}	–10 to +70	NSC5011A	NSC5011B	NSC5011C	NSC5011D
±20×10^{-6}	–10 to +60	NSC5012A	NSC5012B	NSC5012C	NSC5012D