Crystal Clock Oscillator

NDK 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

■ 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. 54fs (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.

Pb Free

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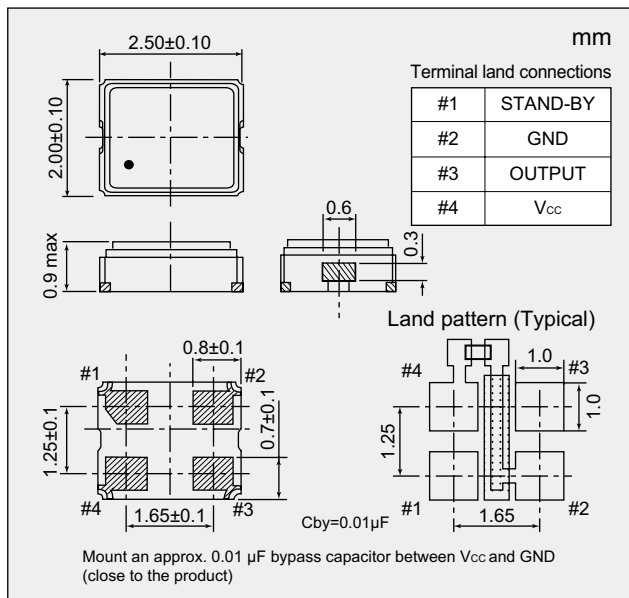Directive 2011/65/EU
Directive (EU) 2015/863

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

■ Specifications

Item \ Model			NZ2520SH	
Output Specification			CMOS	
Nominal Frequency Range		(MHz)	1.5 ≤ F ≤ 80	80 < F ≤ 170 (*1)
Overall Frequency Tolerance		(×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)

■ Dimensions

mm

2.50±0.10
2.00±0.10
0.9 max
0.6
0.3

Terminal land connections

#1	STAND-BY
#2	GND
#3	OUTPUT
#4	V_{CC}

Land pattern (Typical)

0.8±0.1
0.7±0.1
1.25±0.1
#1 #2
#4 #3
1.65±0.1
Cby=0.01µF

#4 1.0 #3
1.0
1.25
#1 1.65 #2

Mount an approx. 0.01 µF bypass capacitor between V_{CC} and GND (close to the product)

■ Standby Function

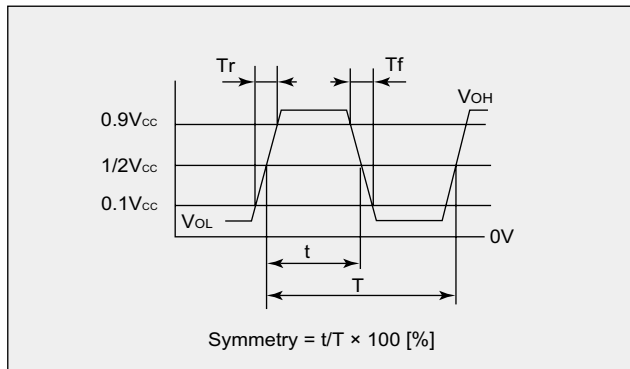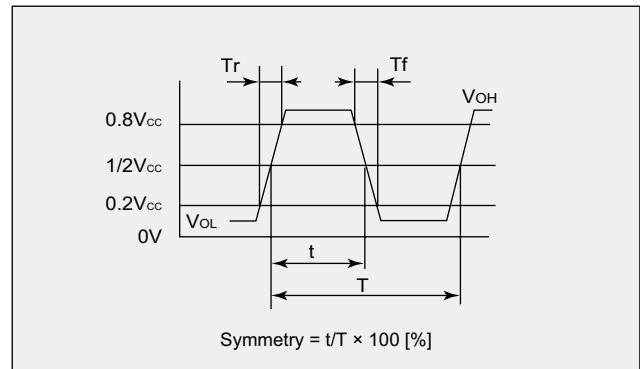| #1 Input	#3 Output
Level H (0.7 V_{CC} ≤ V_{IH} ≤ V_{CC}) or OPEN is selected.	Oscillation output ON
Level L (V_{IL} ≤ 0.3 V_{CC}) is selected.	High impedance

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■ Output Waveform <CMOS>

Frequency Range : 1.5 ≤ F ≤ 80MHz

Symmetry = t/T × 100 [%]

Frequency Range : 80 < F ≤ 170MHz

Symmetry = t/T × 100 [%]

■ Specification Number

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
$\pm100\times10^{-6}$	−40 to +125	NSA3579A	NSA3579B	NSA3579C	NSA3579D
$\pm50\times10^{-6}$	−40 to +105	NSC5004A	NSC5004B	NSC5004C	NSC5004D
$\pm50\times10^{-6}$	−40 to +85	NSC5005A	NSC5005B	NSC5005C	NSC5005D
$\pm30\times10^{-6}$	−10 to +70	NSC5007A	NSC5007B	NSC5007C	NSC5007D
$\pm20\times10^{-6}$	−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±0.18	+2.5±0.25	+3.0±0.3	+3.3±0.33
$\pm100\times10^{-6}$	−40 to +125	NSC5171A	NSC5171B	NSC5171C	NSC5171D
$\pm50\times10^{-6}$	−40 to +105	NSC5172A	NSC5172B	NSC5172C	NSC5172D
$\pm50\times10^{-6}$	−40 to +85	NSC5009A	NSC5009B	NSC5009C	NSC5009D
$\pm30\times10^{-6}$	−10 to +70	NSC5011A	NSC5011B	NSC5011C	NSC5011D
$\pm20\times10^{-6}$	−10 to +60	NSC5012A	NSC5012B	NSC5012C	NSC5012D

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