Crystal Clock Oscillator

NDK
Crystal Bridge to the Future

NZ2520S Series

Low Phase Noise Type

■ Model name

NZ2520SD Overall frequency tolerance of ±30 x 10^{-6}.

■ Application

● For wireless LAN

Pb Free

RoHS Compliant
Directive 2002/95/EC

■ Features

● Low phase noise, low voltage, low consumption current, and high stability, make this product ideal for wireless LAN.
● Compact and light. Dimensions : 2.5 x 2.0 x 0.9 mm, weight : 0.02 g.
● Automatic mounting by taping and IR reflow (lead-free) are possible.
● Lead-free.

Absolute maximum rating
Supply voltage (V_{DD}) –0.6 to +6.0 V
Storage temperature range –55 to +125 °C

■ Specifications

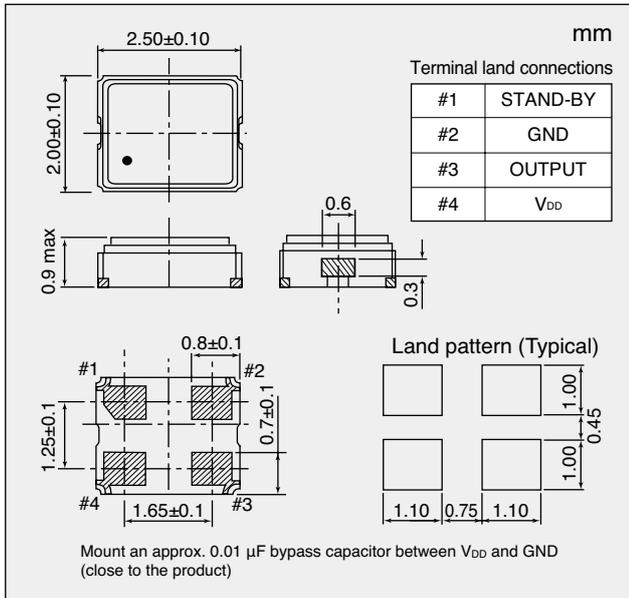| Item			Model		NZ2520SD					
Output level					CMOS					
Nominal frequency range *1			(MHz)		1.5 ≤ F < 10	10 ≤ F < 20	20 ≤ F < 30	30 ≤ F ≤ 40	40 < F < 50	50 ≤ F ≤ 60
Operating temperature range *2			(°C)		–10 to +70					
Overall frequency tolerance			(×10^{-6})		±30					
Current consumption max	During operation	+1.8 V, 25 °C	(mA)		1.8	2.1	2.5	3.5	4.0	4.5
		+2.5 V, 25 °C			2.5	3.0	3.5	4.5	5.0	5.5
		+2.8 V, 25 °C			3.0	3.5	4.0	5.0	5.5	6.5
		+3.3 V, 25 °C			3.5	4.0	4.5	5.5	6.0	6.5
	During standby	+1.8 V to +3.3 V, 25 °C	(μA)		10					
V_{OL} max/V_{OH} min			(V)		0.1 V_{DD}/0.9 V_{DD}					
Tr max/Tf max			(ns)		6/6					
Symmetry min. to max.			(%)		45 to 55					
Load (C_L) max			(pF)		15					
Start-up time max			(ms)		4					
Standby function					Available (tristate)					
Phase noise		+1.8 V, 25 °C	(dBc/Hz)		Fout±1 kHz : –143 (Typ) Fout±100 kHz : –156 (Typ)					
		+2.5 to +3.3 V, 25 °C			Fout±1 kHz : –145 (Typ) Fout±100 kHz : –158 (Typ)					

*1: If you require a product with a frequency not given above, please contact us.

*2: If you require a product with an operating temperature range not given above, please contact us.
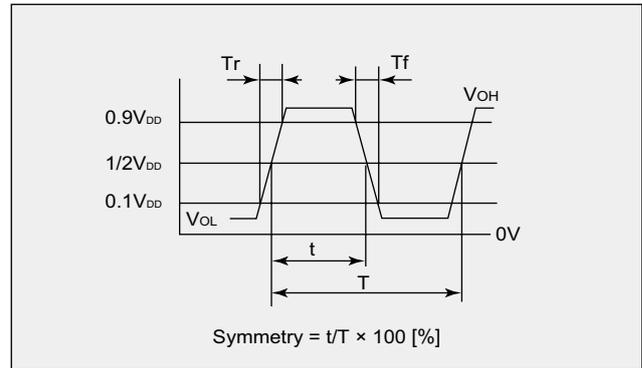
■ List of Codes for Placing an Order

List of Codes for Placing an Order (The purchase order number differs according to the difference in supply voltage.)		NSA3446C	NSA3447C	NSA3448C	NSA3449C
Supply voltage	(V)	+1.8±0.18	+2.5±0.25	+2.8±0.28	+3.3±0.33

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NZ2520S Series — Low Phase Noise Type

■ Dimensions

mm

Terminal land connections

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

2.50±0.10
2.00±0.10
0.9 max
0.6
0.3

0.8±0.1
1.25±0.1
0.7±0.1
#1 #2
#4 #3
1.65±0.1

Land pattern (Typical)

1.00
0.45
1.00
1.10 0.75 1.10

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

■ Output Waveform <CMOS>

Tr   Tf
V_{OH}
$0.9V_{DD}$
$1/2V_{DD}$
$0.1V_{DD}$
V_{OL}
0V
t
T

Symmetry = t/T × 100 [%]

■ Standby Function

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

■ How to Specify an Order

When ordering our products, specify them with an "Ordering Code" that consists of the following:

| Model name | – | Frequency (up to 9 digits) | M – | Number for specifying an order |

Example 1: When ordering a product with model name: NZ2520SD, frequency: 20 MHz, overall frequency tolerance: ±30 x 10⁻⁶,
and supply voltage: 1.8 V
Ordering Code: NZ2520SD – 20.000000M – NSA3446C

Example 2: When ordering a product with model name: NZ2520SD, frequency: 20 MHz, overall frequency tolerance: ±30 x 10⁻⁶,
and supply voltage: 3.3 V
Ordering Code: NZ2520SD – 20.000000M – NSA3449C

If you have any queries concerning our standard frequencies and numbers for specifying orders, please contact our sales representatives
or visit our homepage (http://www.ndk.com/).