

# Crystal Clock Oscillator NEW

## NZ2016S Series

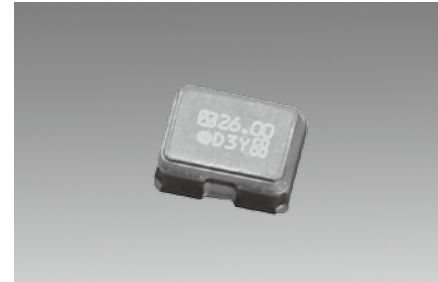
Low Phase Noise Type

### Model name

NZ2016SD

### Application

- For wireless LAN and audio system.
- For mobile camera module, DVC, DSC, notebook PC, and PDA.



Pb  
Free

RoHS Compliant  
Directive 2011/65/EU

### Features

- Low phase noise make this product ideal for wireless LAN and audio system.
- Phase noise  $F_{out} \pm 1\text{kHz}$  : -146dBc/Hz(typ.) @3.3V, 25°C,  $F_{out} = 26\text{MHz}$   
 $F_{out} \pm 100\text{kHz}$  : -157dBc/Hz(typ.) @3.3V, 25°C,  $F_{out} = 26\text{MHz}$
- Ultra-compact and light. Dimensions : 2.0 x 1.6 x 0.7 mm, weight : 0.01 g.
- Seam sealing gives high reliability.
- Wide frequency range: 1.5 to 60 MHz.
- Automatic mounting by taping and IR reflow (lead-free) are possible.
- Lead-free.

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

### Specifications

Item		Model	NZ2016SD						
Output level			CMOS						
Nominal frequency range <sup>*1</sup>		(MHz)	1.5 ≤ F < 10	10 ≤ F < 20	20 ≤ F < 30	30 ≤ F < 40	40 ≤ F < 50	50 ≤ F ≤ 60	
Operating temperature range <sup>*2</sup>		(°C)	-40 to +85, -20 to +70, -10 to +70, -10 to +60						
Overall frequency tolerance		(×10 <sup>-6</sup> )	±50 (-40 to +85°C), ±100 (-20 to +70°C), ±30 (-10 to +70°C), ±50 (-10 to +70°C), ±20 (-10 to +60°C)						
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
+3.0 V, 25 °C		3.0		3.5	4.0	5.0	5.5	6.0	
	During standby	+1.8 V to +3.3 V, 25 °C	(μA)	10					
$V_{OL\ max}/V_{OH\ min}$		(V)	0.1 $V_{CC}$ /0.9 $V_{CC}$						
$T_r\ max/T_f\ max$		(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 (Three-state)						
Phase noise typ.			F=26MHz			F=60MHz			
	+1.8V, 25°C	$F_{out} \pm 1\text{kHz}$ (Typ.)	(dBc/Hz)	-143			-139		
		$F_{out} \pm 100\text{kHz}$ (Typ.)		-154			-150		
	+2.5V to +3.3V, 25°C	$F_{out} \pm 1\text{kHz}$ (Typ.)	(dBc/Hz)	-146			-143		
		$F_{out} \pm 100\text{kHz}$ (Typ.)		-157			-156		

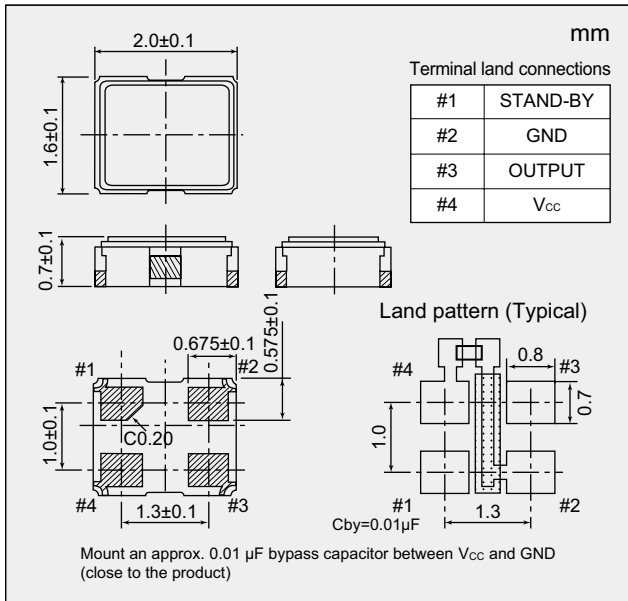
\*1: If you require a product with a frequency not given above, please contact us.

\*2: If you require a product with an operating temperature range not given above, please contact us.

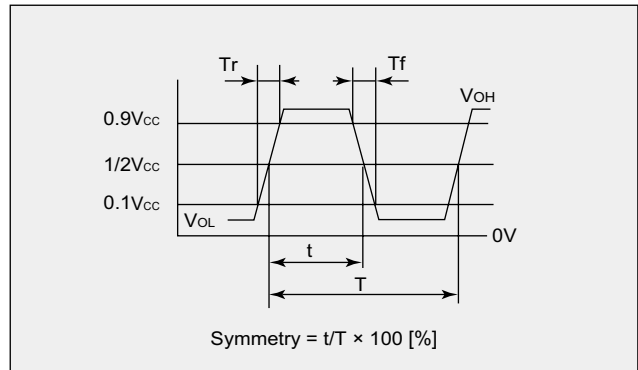
## NZ2016S Series

## Low Phase Noise Type

### ■ Dimensions



### ■ Output Waveform <CMOS>



### ■ Standby Function

#1 Input	#3 Output
Level H ( $0.7 V_{CC} \leq V_{IH} \leq V_{CC}$ ) or OPEN is selected.	Oscillation output ON
Level L ( $V_{IL} \leq 0.3 V_{CC}$ ) 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: NZ2016SD, frequency: 26 MHz, overall frequency tolerance :  $\pm 50 \times 10^{-6}$  / -40 to +85°C, and supply voltage: 2.5 V

Ordering Code: NZ2016SD – 26.000000M – NSA3581E

Example 2: When ordering a product with model name: NZ2016SD, frequency: 26 MHz, overall frequency tolerance :  $\pm 30 \times 10^{-6}$  / -10 to +70°C, and supply voltage: 3.0 V

Ordering Code: NZ2016SD – 26.000000M – NSA3582C

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/>).

### ■ List of Codes for Placing an Order

Overall frequency tolerance :  $\pm 50 \times 10^{-6}$  / -40 to +85°C

Supply voltage (V <sub>CC</sub> )	(V)	+1.8±0.18	+2.5±0.25	+3.0±0.3	+3.3±0.33
List of Codes for Placing an Order		NSA3580E	NSA3581E	NSA3582E	NSA3583E

Overall frequency tolerance :  $\pm 100 \times 10^{-6}$  / -20 to +70°C

Supply voltage (V <sub>CC</sub> )	(V)	+1.8±0.18	+2.5±0.25	+3.0±0.3	+3.3±0.33
List of Codes for Placing an Order		NSA3580A	NSA3581A	NSA3582A	NSA3583A

Overall frequency tolerance :  $\pm 30 \times 10^{-6}$  / -10 to +70°C

Supply voltage (V <sub>CC</sub> )	(V)	+1.8±0.18	+2.5±0.25	+3.0±0.3	+3.3±0.33
List of Codes for Placing an Order		NSA3580C	NSA3581C	NSA3582C	NSA3583C

Overall frequency tolerance :  $\pm 50 \times 10^{-6}$  / -10 to +70°C

Supply voltage (V <sub>CC</sub> )	(V)	+1.8±0.18	+2.5±0.25	+3.0±0.3	+3.3±0.33
List of Codes for Placing an Order		NSA3580B	NSA3581B	NSA3582B	NSA3583B

Overall frequency tolerance :  $\pm 20 \times 10^{-6}$  / -10 to +60°C

Supply voltage (V <sub>CC</sub> )	(V)	+1.8±0.1	+2.5±0.1	+3.0±0.1	+3.3±0.1
List of Codes for Placing an Order		NSA3580D	NSA3581D	NSA3582D	NSA3583D