Crystal Clock Oscillator

NDK
Crystal Bridge to the Future

NZ2016S Series   For OA, AV, and short-range wireless

■ Model name

NZ2016SA Overall frequency tolerance of ±100 x 10^{-6}.

■ Application

● For mobile camera module, DVC, DSC, notebook PC, and PDA

Pb Free

RoHS Compliant
Directive 2011/65/EU

Absolute maximum rating
Supply voltage (V_{DD}) –0.5 to +4.0 V
Storage temperature range –55 to +125 °C

■ Features

● Ultra-compact and light. Dimensions : 2.0 x 1.6 x 0.7 mm, weight : 0.01 g.
● Supply voltage of +1.8 to +3.3 V ideal for low-power and power-saving type products.
● Seam sealing gives high reliability.
● Wide frequency range: 1.5 to 80 MHz.
● Automatic mounting by taping and IR reflow (lead-free) are possible.

■ Specifications

Item			Model	NZ2016SA							
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	60 ≤ F < 70	70 ≤ F ≤ 80
Operating temperature range *2			(°C)	–20 to +70							
Overall frequency tolerance			(×10^{-6})	±100							
Current consumption max	During operation	+1.8 V, 25 °C	(mA)	2.5	3.5	4.0	4.5	5.0	5.5	6.0	6.5
		+2.5 V, 25 °C		3.0	4.0	4.5	5.0	5.5	6.0	6.5	7.0
		+3.0 V, 25 °C		3.5	4.5	5.0	5.5	6.0	6.5	7.5	8.5
		+3.3 V, 25 °C		3.5	4.5	5.0	5.5	6.0	7.0	8.0	9.0
	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)	5/5							
Symmetry min. to max.			(%)	45 to 55							
Load (C_L) max			(pF)	15							
Start-up time max			(ms)	4							
Standby function				Available (tristate)							

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

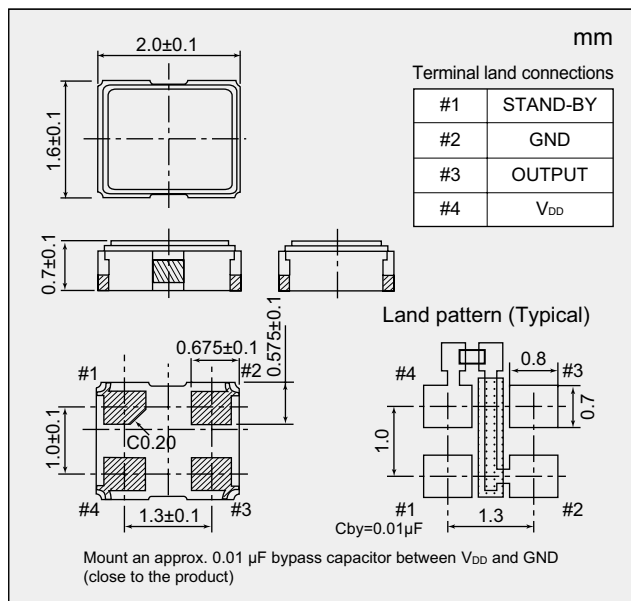*2: If you require a product with an operating temperature range not given above, please contact us.

■ 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.)		NSA3439A	NSA3440A	NSA3441A	NSA3442A
Supply voltage (V_{DD})	(V)	+1.8±0.18	+2.5±0.25	+3.0±0.3	+3.3±0.33

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NZ2016S Series

For OA, AV, and short-range wireless

■ Dimensions

mm

Terminal land connections

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

2.0±0.1
1.6±0.1
0.7±0.1

Land pattern (Typical)

0.675±0.1
0.575±0.1
#1 #2
1.0±0.1
C0.20
#4 #3
1.3±0.1

#4   0.8   #3
1.0   0.7
#1   1.3   #2
Cby=0.01μF

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 [%]
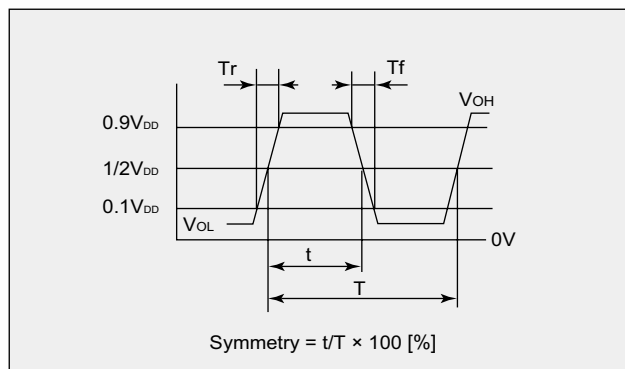
■ Standby Function

#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: NZ2016SA, frequency: 20 MHz, and supply voltage: 2.5 V
Ordering Code: NZ2016SA – 20.000000M – NSA3440A
Example 2: When ordering a product with model name: NZ2016SA, frequency: 20 MHz, and supply voltage: 3.0 V
Ordering Code: NZ2016SA – 20.000000M – NSA3441A

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/).