Crystal Clock Oscillator

NDK Crystal Bridge to the Future

NZ2016SH   Standard Type (32.768kHz)

■ Application

For Smartphone and Tablet computer etc

■ Features

● Supports a wide temperature range from -40 to +125°C.

● Ultra compact and light. Dimensions : 2.0 x 1.6 x 0.7 mm, weight : 0.01 g.

● Quick oscillation start up time(Typ. 1ms) is available compared to our Tuning Fork Crystal.
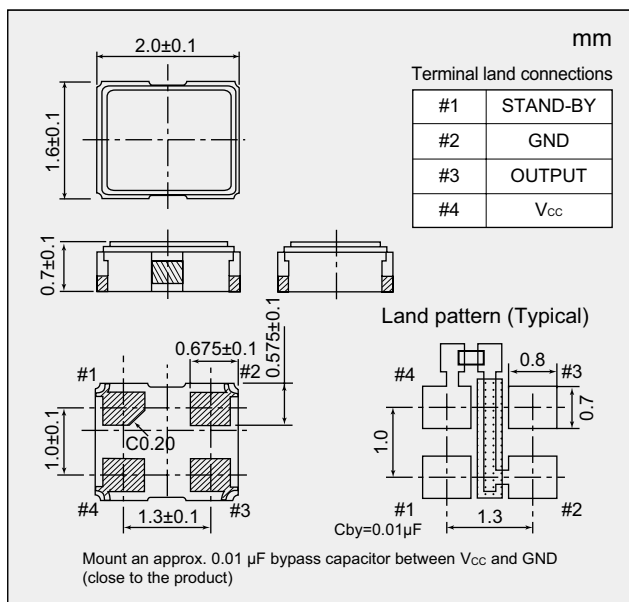
● Conforms to AEC-Q200.

Pb Free

RoHS Compliant
Directive 2011/65/EU

Absolute maximum rating
Supply Voltage (V_{CC}) –0.3 to +7.0 V
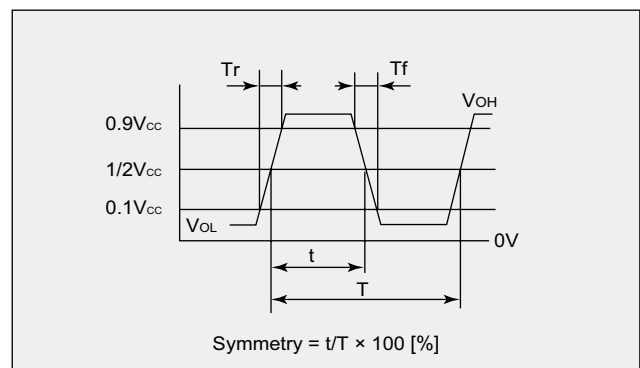Storage Temperature Range –55 to +125 °C

■ Specifications

Item		Model		NZ2016SH		
Output			CMOS			
Nominal Frequency		(kHz)	32.768			
Overall Frequency Tolerance		($\times 10^{-6}$)	±100	±50	±30	
Operating Temperature Range		(°C)	−40 to +125	−40 to +105	−40 to +85	
Supply Voltage (V_{CC})		(V)	+1.8 to +3.3			
Current Consumption Max.	During Operation +25 °C	(µA)	220 to 260			
	During Standby +25 °C	(µA)	20			
V_{OL} Max. / V_{OH} Min.		(V)	0.1 V_{CC} / 0.9 V_{CC}			
Tr Max. / Tf Max.		(ns)	200 / 200 (at 0.1V_{CC} to 0.9V_{CC})			
Symmetry Min. to Max.		(%)	45 to 55 (at 0.5V_{CC})			
Load (C_L) Max.		(pF)	15			
Start-up Time Max.		(ms)	4 (Typ. 1ms)			
Frequency Aging Max.		($\times 10^{-6}$)	±5 (+25°C, First year)			
Standby function			Available (Three-state)			

■ Dimensions

mm

2.0±0.1
1.6±0.1
0.7±0.1
0.675±0.1
0.575±0.1
1.0±0.1
C0.20
1.3±0.1
#1 #2 #3 #4

Terminal land connections

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

Land pattern (Typical)

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

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

■ Output Waveform <CMOS>

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

Symmetry = t/T × 100 [%]

■ 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

NIHON DEMPA KOGYO CO., LTD.

1608C_NZ2016SH_32.768k_e

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NZ2016SH   Standard Type (32.768kHz)

■ Specification Number

Overall Frequency Tolerance	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	NSC5026A	NSC5026B	NSC5026C	NSC5026D
±50 × 10⁻⁶	−40 to +105	NSC5028A	NSC5028B	NSC5028C	NSC5028D
±30 × 10⁻⁶	−40 to +85	NSC5031A	NSC5031B	NSC5031C	NSC5031D

Please specify the model name, frequency, and specification number when you order products.

For further questions regarding specifications, please feel free to contact us.