

# Crystal Clock Oscillator

## NZ2016SH

## 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  $+125^{\circ}\text{C}$ .
- Ultra compact and light. Dimensions :  $2.0 \times 1.6 \times 0.7$  mm, weight :  $0.01$  g.
- This crystal clock oscillator can support low frequencies (from  $1.5\text{MHz}$ ) not easily achieved with crystal units of the same size.
- Taped units enable automatic mounting IR Reflow (lead free) is possible.
- Lead-free.
- Conforms to AEC-Q200.



Pb Free

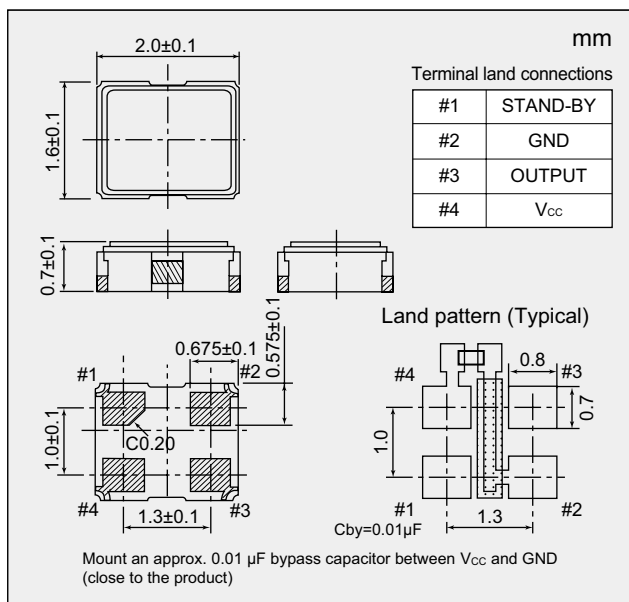
RoHS Compliant  
Directive 2011/65/EU

Absolute maximum rating  
 Supply Voltage ( $V_{CC}$ )  $-0.3$  to  $+4.0$  V  
 Storage Temperature Range  $-55$  to  $+125^{\circ}\text{C}$

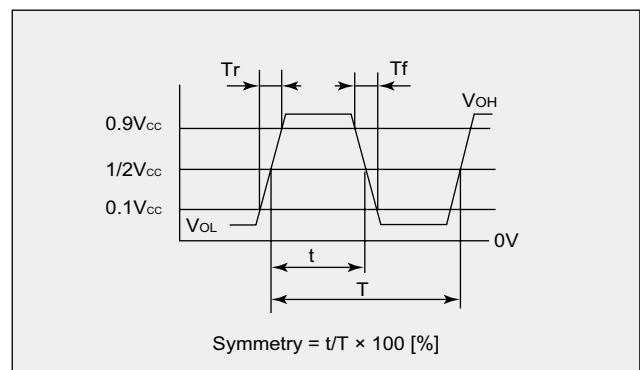
### Specifications

Item		Model	NZ2016SH				
Output Specification			CMOS				
Nominal Frequency Range		(MHz)	$1.5 \leq F \leq 80$				
Overall Frequency Tolerance		( $\times 10^{-6}$ )	$\pm 100$	$\pm 50$	$\pm 50$	$\pm 30$	$\pm 20$
Operating Temperature Range		( $^{\circ}\text{C}$ )	$-40$ to $+125$	$-40$ to $+105$	$-40$ to $+85$	$-10$ to $+70$	$-10$ to $+60$
Supply Voltage		(V)	$+1.8$ to $+3.3$				
Current Consumption Max.	During Operation	$+25^{\circ}\text{C}$	(mA)				
	During Standby	$+25^{\circ}\text{C}$	(μA)				
$V_{OL}$ Max. / $V_{OH}$ Min.		(V)	$0.1 V_{CC}$ / $0.9 V_{CC}$				
Tr Max. / Tf Max.	$+1.8$ V		(ns)				
	$+2.5$ to $+3.3$ V		$6 / 6$ ( at $0.1 V_{CC}$ to $0.9 V_{CC}$ ) $5 / 5$ ( 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)				

### 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

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### ■ 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 <sup>-6</sup>	-40 to +125	NSC5019A	NSC5019B	NSC5019C	NSC5019D
± 50 × 10 <sup>-6</sup>	-40 to +105	NSC5021A	NSC5021B	NSC5021C	NSC5021D
± 50 × 10 <sup>-6</sup>	-40 to +85	NSC5022A	NSC5022B	NSC5022C	NSC5022D
± 30 × 10 <sup>-6</sup>	-10 to +70	NSC5024A	NSC5024B	NSC5024C	NSC5024D
± 20 × 10 <sup>-6</sup>	-10 to +60	NSC5025A	NSC5025B	NSC5025C	NSC5025D

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