Crystal Oscillator

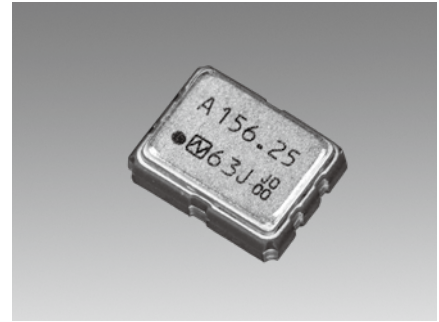**NDK** — Crystal Bridge to the Future

NP3225SA — Simple Packaged Crystal Oscillator (SPXO)

■ Main Application

For Base station, Optical network terminal, SONET/SDH equipment, Low-end router and Ethernet equipment

■ Features

- Differential Output SPXO
- Compact dimension : 3.2 × 2.5 × 0.9 mm
- Supply Voltage : +2.5V or +3.3V
- Output Specification : LVPECL
- Excellent low phase jitter (Typ. 90fs @156.25MHz)
- Conforms to AEC-Q200

Pb Free

RoHS Compliant
Directive 2011/65/EU
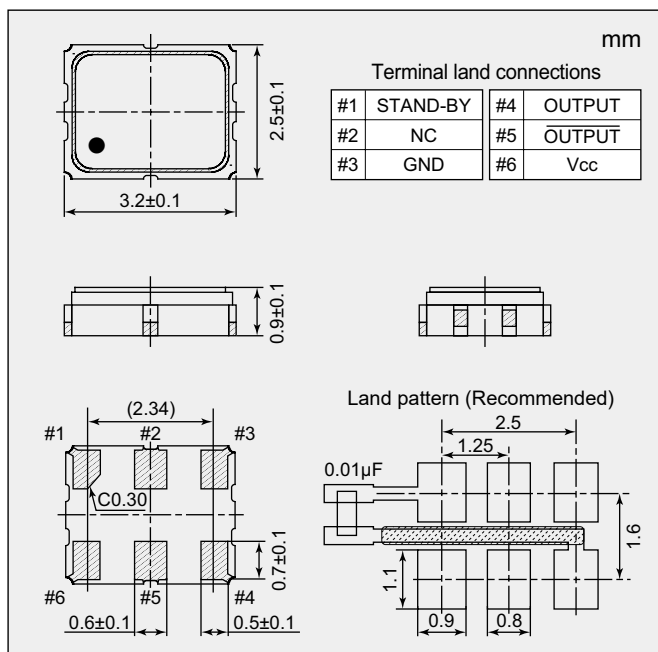Directive (EU) 2015/863

Absolute maximum rating
Supply Voltage (V_{CC}) –0.3 to +4.0 V
Storage Temperature Range –55 to +125 °C
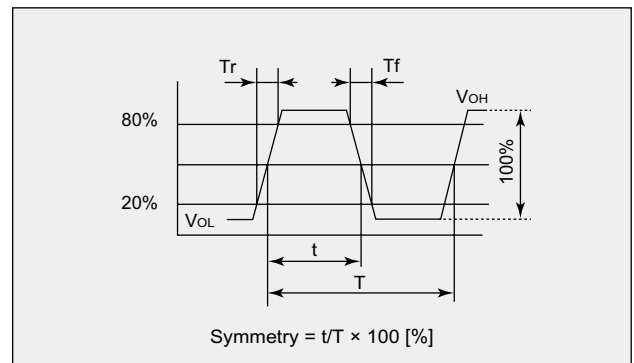
■ Specifications

Item \\ Model	NP3225SA							
Output Specification	LVPECL							
Nominal Frequency Range (MHz)	100 to 175				175 to 220			
Overall Frequency Tolerance [*1]	Max. ±50 ×10⁻⁶							
Operating Temperature Range (°C)	−40 to +85		−40 to +105		−40 to +85		−40 to +105	
Supply Voltage [V_{CC}] (V)	+2.5 ± 5 %	+3.3 ± 10 %	+2.5 ± 5 %	+3.3 ± 10 %	+2.5 ± 5 %	+3.3 ± 10 %	+2.5 ± 5 %	+3.3 ± 10 %
Current Consumption — Enable (mA)	Max. 60 (STAND-BY=V_{CC} or OPEN, R_L=50Ω)				Max. 70 (STAND-BY=V_{CC} or OPEN, R_L=50Ω)			
Current Consumption — Stand-by (μA)	Max. 15 (STAND-BY=GND)				Max. 30 (STAND-BY=GND)			
Output Voltage (V)	V_{OL} : V_{CC} −1.81 to V_{CC} −1.62 (DC characteristics)							
	V_{OH} : V_{CC} −1.025 to V_{CC} −0.88 (DC characteristics)	V_{OH} : V_{CC} −1.04 to V_{CC} −0.88 (DC characteristics)		V_{OH} : V_{CC} −1.025 to V_{CC} −0.88 (DC characteristics)		V_{OH} : V_{CC} −1.04 to V_{CC} −0.88 (DC characteristics)		
Rise Time / Fall Time (ns)	Max. 1 (20 to 80% Waveform)							
Symmetry (%)	45 to 55 (at 50% Waveform)							
Output Load (Ω)	50 (Terminated to V_{CC}−2.0V)							
Start-up Time (ms)	Max. 10							
Phase Jitter (ps)	Max. 1 (Offset Frequency : 12kHz to 20MHz)							
Specification Number	NSC5080A	NSC5341B	NSC5189A	NSC5342B	NSC5235A	NSC5235B	NSC5237A	NSC5237B

*1 : The frequency stability includes initial frequency tolerance, temperature variation, and supply variation.

■ Dimensions

mm

2.5±0.1
3.2±0.1
0.9±0.1

Terminal land connections

#1	STAND-BY	#4	OUTPUT
#2	NC	#5	$\overline{OUTPUT}$
#3	GND	#6	Vcc

(2.34)
#1 #2 #3
C0.30
0.7±0.1
#6 #5 #4
0.6±0.1 0.5±0.1

Land pattern (Recommended)
2.5
1.25
0.01μF
1.6
1.1
0.9 0.8

■ Output waveform

Tr   Tf
80%
20%
V_{OH}
V_{OL}
100%
t
T

Symmetry = t/T × 100 [%]

■ Standby Function Table (Three-state)

#1 Input	#4 and #5 output
Level H (V_{IH} ≥ 0.7 V_{CC}) or OPEN	Oscillation output ON
Level L (V_{IL} ≤ 0.3 V_{CC})	High impedance

Please specify the model name, frequency, and specification number when you order products.
For further questions regarding specifications, please feel free to contact us.
Please note that the "specification number" posted is subject to change.