Crystal Oscillator

NDK Crystal Bridge to the Future

NV7050S[ ]

Multi Mode Voltage Controlled Crystal Oscillator (VCXO)

■ Main Application

Base-stations, GbEthernet, Optical transmission device, and Server

Pb Free

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

■ Features

- Supports a wide frequency range. (15 to 2100MHz (Frequency tuning resolution : 2×10^{-9}))
- Frequency selection function (Dual, Quad, Any Rate)
- Low jitter : Typ. 130fs rms (@622.08MHz)
- Five types of output : CMOS, LVPECL, LVDS, CML, HCSL
- Supports low power supply voltage : +1.8V, +2.5V, +3.3V
- Selection of frequency control range : 9 ranges (Min. $\pm50\times10^{-6}$ to $\pm250\times10^{-6}$)

■ Specifications

Item \ Model	NV7050S[ ]				
Frequency Selection Function	Single (No selection function) Dual (Select from 2 frequencies) Quad (Select from 4 frequencies) Any Rate (Setable desired frequency by I2C)				
Nominal Frequency Range (MHz)	15 ≤ f ≤ 2100				
	15 ≤ f ≤ 2100	15 ≤ f ≤ 2100	15 ≤ f ≤ 2100	15 ≤ f ≤ 700	15 ≤ f ≤ 200
Output Specification	LVPECL	LVDS	CML	HCSL	CMOS
Current Consumption (mA)	Max. 95	Max. 85	Max. 80	Max. 100	Max. 85
Output load Condition	50Ω(V_{CC}-2.0V)	100Ω	50Ω(V_{CC})	50Ω	15pF
Supply Voltage [Vcc] (V)	+1.8V±5% +2.5V±5% +3.3V±10%				
Enable/Disable function	Enable Low Enable High None				
Frequency Control Range	Select frequency control range (Min. $\pm50\times10^{-6}$ to Min. $\pm250\times10^{-6}$)				
Operating Temperature Range (°C)	–40 to +85				
Storage Temperature Range (°C)	–55 to +125				
Frequency Change Polarity	Positive or Negative				
Overall Frequency Tolerance (*)	Narrow stability		Standard stability		
	Max. $\pm10\times10^{-6}$ Max. $\pm20\times10^{-6}$		Max. $\pm50\times10^{-6}$		
Phase Jitter (fs) (12kHz to 20MHz)	Narrow stability		Standard stability		
(V_{CC}=+3.3V, LVPECL) 156.25MHz, VC=100×10^{-6}	Typ. 190		Typ. 151		
(V_{CC}=+3.3V, LVPECL) 156.25MHz, VC=150×10^{-6}	Typ. 197		Typ. 156		
(V_{CC}=+3.3V, LVPECL) 622.08MHz, VC=100×10^{-6}	Typ. 161		Typ. 130		
(V_{CC}=+3.3V, LVPECL) 2096MHz, VC=100×10^{-6}	Typ. 183		Typ. 156		

(*1) Overall frequency tolerance includes "Frequency/temperature characteristics","Initial frequency tolerance","Frequency/voltage coefficient", and "Long-term frequency stability(10 year)".

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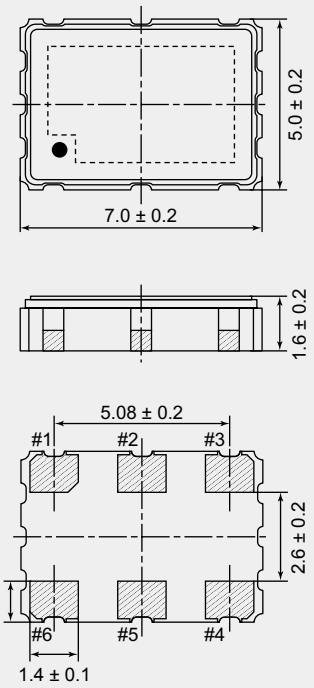
■ Dimensions

*Single / Dual

mm



Single
Terminal land connection

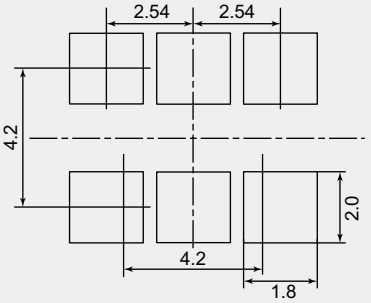
#1	V_{cont}
#2	NC or E/D
#3	GND
#4	OUTPUT
#5	$\overline{OUTPUT}$
#6	V_{cc}

Dual
Terminal land connection

#1	V_{cont}
#2	SEL
#3	GND
#4	OUTPUT
#5	$\overline{OUTPUT}$
#6	V_{cc}

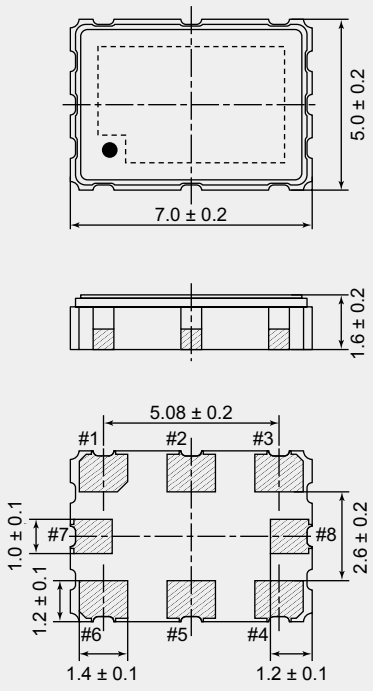
*#5 : NC (CMOS output)

Land pattern (Typical)



*Quad / Any Rate

mm



Quad
Terminal land connection

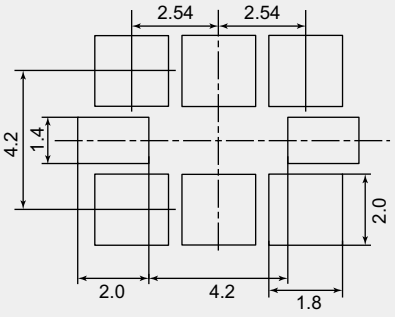
#1	V_{cont}
#2	NC or E/D
#3	GND
#4	OUTPUT
#5	$\overline{OUTPUT}$
#6	V_{cc}
#7	FSEL1
#8	FSEL0

Any Rate
Terminal land connection

#1	V_{cont}
#2	NC or E/D
#3	GND
#4	OUTPUT
#5	$\overline{OUTPUT}$
#6	V_{cc}
#7	SDA
#8	SCL

*#5 : NC (CMOS output)

Land pattern (Typical)



■ Necessary information for inquiry

For question or order of this product, please specify following specifications. If you require a product with specifications not given following , please contact NDK sales.

①	—	②	③	④	⑤	⑥	⑦	⑧

(e.g.) NV7050SK - 622.08 A P H D C A
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Model

NV7050SK	Single
NV7050SL	Dual
NV7050SM	Quad
NV7050SN	Any Rate

② Frequency

In case of Dual or Quad, please specify one frequency and request other frequency separately.
In case of Any Rate, please specify one frequency of initial setting.
Frequency is specified in MHz and four decimal places (Max.).

(e.g.) 644.53125MHz : 644.5313

③ Supply Voltage

A	+3.3V
B	+2.5V
C	+1.8V

④ Output Specification

C	CMOS
P	LVPECL
L	LVDS
M	CML
H	HCSL

⑤ Enable/Disable function

H	Enable High
L	Enable Low
N	None

⑥ Overall Frequency Tolerance

B	$\pm 10\times10^{-6}$
C	$\pm 20\times10^{-6}$
D	$\pm 50\times10^{-6}$

⑦ Frequency Control Range

A	$\pm 50\times10^{-6}$
B	$\pm 75\times10^{-6}$
C	$\pm 100\times10^{-6}$
D	$\pm 125\times10^{-6}$
E	$\pm 150\times10^{-6}$
F	$\pm 175\times10^{-6}$
G	$\pm 200\times10^{-6}$
H	$\pm 225\times10^{-6}$
J	$\pm 250\times10^{-6}$

⑧ Operating Temperature Range

A	–40 to +85°C