Crystal Oscillator

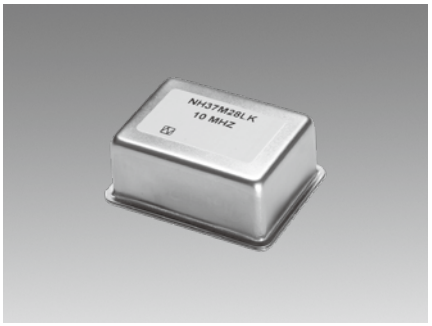
NDK Crystal Bridge to the Future

NH37M28LK

High Precision Oscillator (Twin-OCXO) for Fixed Communication Equipment

■ Main Application

- Base stations for system mobile communications
- High-end router
- Synthesizer
- Measuring instrument
- Exchanger



■ Features

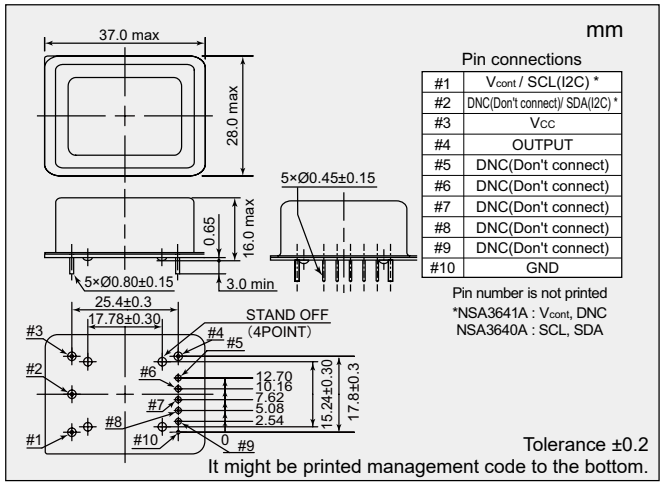
- Excellent temperature characteristics.
- Supports wide temperature range.
- Excellent Holdover stability.
- Frequency adjustment by digital control method (I^2C control). (Voltage contorol method (V_{cont}) is also possible.)

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

■ Specifications

Item \ Model		NH37M28LK	
Nominal Frequency f_{nom} (MHz)		10	
Supply Voltage Vcc (V)		+5	
Load Impedance C_L (pF)		15	
Operating Temperature Range T_{opr} (°C)		–40 to + 85	
Storage Temperature Range T_{str} (°C)		–40 to + 85	
Power Consumption P_{CC} (W)	at start	Max. 3.5 (Typ. 3.0)	
	when stable, at +25 °C	Max. 1.2	
Frequency Tolerance $\Delta f/f_{nom}$	at +25°C, V_{cont} = Center, before shipment	Max. 25×10^{-9}	
Frequency/Temperature Characteristics $\Delta f/f$	at Operating Temperature Range	Max. $\pm0.2\times10^{-9}$	
Frequency/Voltage Coefficient $\Delta f/f$	V_{CC} ± 5%	Max. $\pm0.2\times10^{-9}$	
Long-term Frequency Stability $\Delta f/f$	Based on frequency after 7 days operation	Max. $\pm0.2\times10^{-9}$ / day	
		Max. $\pm50\times10^{-9}$ / year	
Stabilization Time (min.)	Time within specified frequency tolerance after power on at +25°C, based on frequency after 60minutes operation.	Max. 5 / within ± 10×10^{-9}	
Hold Over	Refer *1	Typ. ±1.0μs / 8h	
Frequency Control Method		Analog Control	Digital Control (I^2C)
Frequency Control Range $\Delta f/f$		V_{cont} = +2.5V±2.5V	0x800000 to 0x7FFFFF Center : 0x000000
		±0.3 to $\pm0.5\times10^{-6}$	±0.3 to $\pm0.5\times10^{-6}$
Frequency Change Polarity		Positive	
Linearity (%)		Max. ±5	
Output Voltage		LVCMOS V_{OL} : Max. +0.4 V V_{OH} : Min. +2.4 V	
Symmetry (%)	at (V_{OH} + V_{OL}) / 2	45 to 55	
Specification Number		NSA3641A	NSA3640A

■ Dimensions



Pin connections

#1	V_{cont} / SCL(I2C) *
#2	DNC(Don't connect)/ SDA(I2C) *
#3	V_{CC}
#4	OUTPUT
#5	DNC(Don't connect)
#6	DNC(Don't connect)
#7	DNC(Don't connect)
#8	DNC(Don't connect)
#9	DNC(Don't connect)
#10	GND

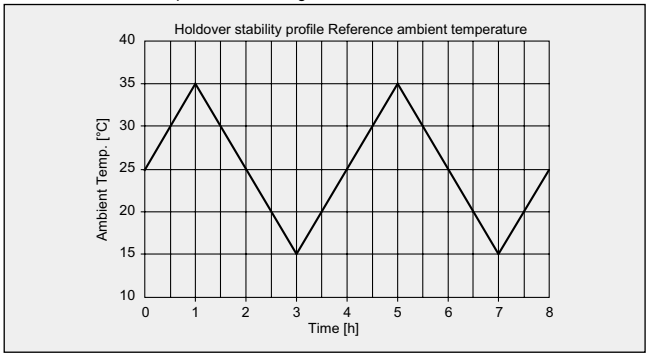
Pin number is not printed
*NSA3641A : V_{cont}, DNC
NSA3640A : SCL, SDA

■ Reference Value

Phase Noise (at 10MHz)	Offset Frequency	dBc/Hz	Offset Frequency	dBc/Hz
	1 Hz	Typ. –83	1k Hz	Typ. –152
	10 Hz	Typ. –110	10k Hz	Typ. –157
	100 Hz	Typ. –135	100k Hz	Typ. –160

■ *1 Holdover condition

- After 7days operation.
- Ramp rate: 10 °C/1h.
- Temp. condition Range: 20 °C window.



We offer dedicated tool (charge) for evaluation of this product
Please specify the model name, frequency, and specification number when you order products.
For further questions regarding specifications, please feel free to contact us.