

# Crystal Oscillator

## 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<sup>2</sup>C control).  
(Voltage control method (V<sub>cont</sub>) is also possible.)

Pb Free

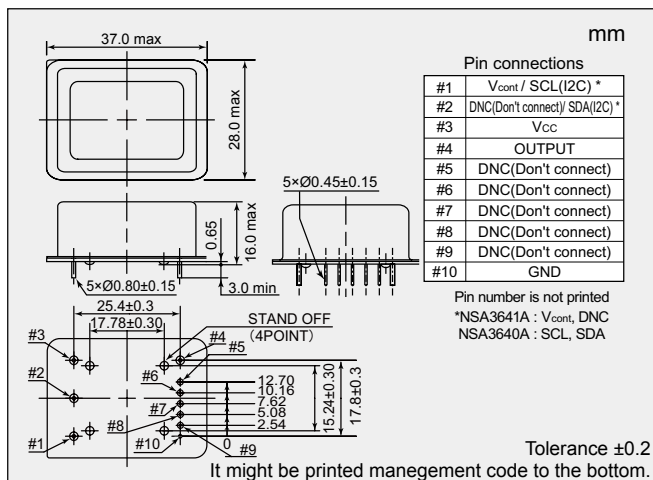
RoHS Compliant  
Directive 2011/65/EU



### Specifications

Item	Model	NH37M28LK	
Nominal Frequency f <sub>nom</sub> (MHz)		10	
Supply Voltage V <sub>cc</sub> (V)		+5	
Load Impedance C <sub>L</sub> (pF)		15	
Operating Temperature Range T <sub>opr</sub> (°C)		-40 to +85	
Storage Temperature Range T <sub>str</sub> (°C)		-40 to +85	
Power Consumption P <sub>cc</sub> (W)	at start	Max. 3.5 (Typ. 3.0)	
	when stable, at +25°C	Max. 1.2	
Frequency Tolerance Δf/f <sub>nom</sub>	at +25°C, V <sub>cont</sub> = Center, before shipment	Max. 25×10 <sup>-9</sup>	
Frequency/Temperature Characteristics Δf/f	at Operating Temperature Range	Max. ±0.2×10 <sup>-9</sup>	
Frequency/Voltage Coefficient Δf/f	V <sub>cc</sub> ± 5%	Max. ±0.2×10 <sup>-9</sup>	
Long-term Frequency Stability Δf/f	Based on frequency after 7 days operation	Max. ±0.2×10 <sup>-9</sup> / day	
		Max. ±50×10 <sup>-9</sup> / 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 <sup>-9</sup>	
Hold Over	Refer *1	Typ. ±1.0μs / 8h	
Frequency Control Method		Analog Control	Digital Control (I <sup>2</sup> C)
Frequency Control Range Δf/f		V <sub>cont</sub> = +2.5V±2.5V	0x800000 to 0x7FFFFFFF Center : 0x000000
		±0.3 to ±0.5×10 <sup>-6</sup>	±0.3 to ±0.5×10 <sup>-6</sup>
Frequency Change Polarity		Positive	
Linearity (%)		Max. ±5	
Output Voltage		LVC MOS	V <sub>OL</sub> : Max. +0.4 V    V <sub>OH</sub> : Min. +2.4 V
Symmetry (%)	at (V <sub>OH</sub> + V <sub>OL</sub> ) / 2	45 to 55	
Specification Number		NSA3641A	NSA3640A

### Dimensions



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.

### 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.

