

## NH37M28LN

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

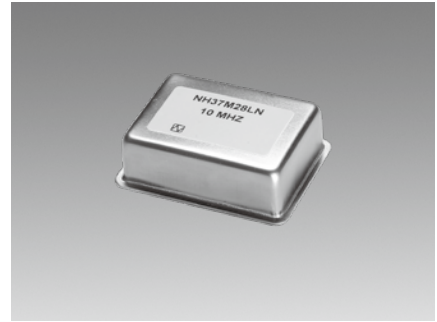
### Main Application

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

### Features

- Low height and 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.)

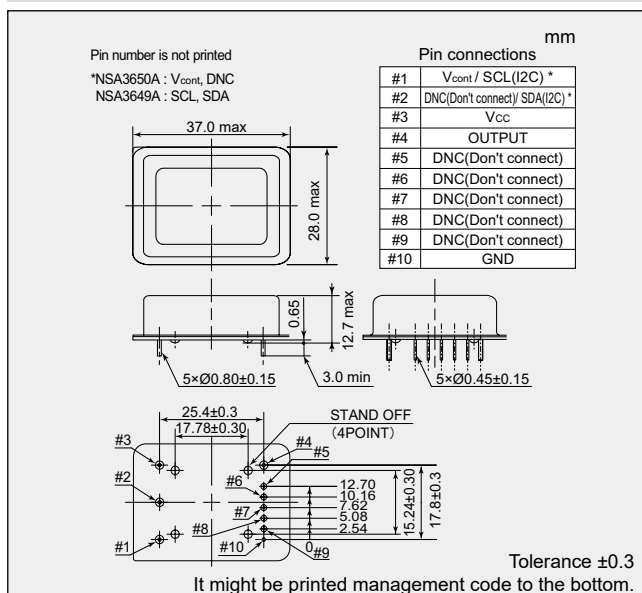
RoHS Compliant  
Directive 2011/65/EU  
Directive (EU) 2015/863



### Specifications

Item		Model	NH37M28LN	
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. 1.6	
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. ±0.5×10 <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 0x7FFFFF 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		NSA3650A	NSA3649A	

### Dimensions

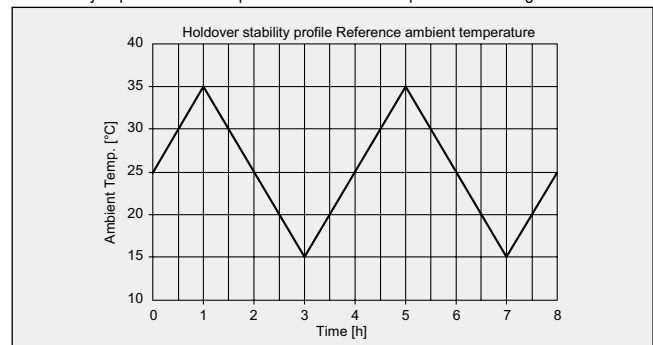


### Reference Value

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.