

## GENERAL DESCRIPTION

The NANOWAVE NWO126047-10 is a fixed frequency 126MHz VHF clock source. The oscillator offers exceptionally low phase and amplitude noise and frequency stability making it suitable as a clock reference for high performance RADAR systems.

The NWO126047-10 clock source is one of a family of clock source products and can be customized for frequencies from 115MHz to 135MHz



Fig 1: VHF DDS clock source

## FEATURES

- Low phase noise  $< -160\text{dBc/Hz}$  at 10kHz,  $< -170\text{dBc/Hz}$  at 1MHz
- Low AM noise  $< -145\text{dBc/Hz}$  at 10kHz,  $< -165\text{dBc/Hz}$  at 1MHz
- Low jitter  $< 2\text{ps rms}$  integrated over from 10Hz to 1MHz
- Low spurious  $< -80\text{dBc}$  in band spurious
- Industrial operational temperature range ( $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ )

## APPLICATIONS

- Communication system clock source.
- RADAR reference clock source.
- Test and measurement adjustable reference.

## ELECTRICAL PARAMETERS

Parameter	Unit	Min	Typ	Max	Remarks
<b>Frequency range</b>	MHz	115		135	Fixed frequencies available across band
<b>Frequency accuracy</b>	ppm	-5		+5	
<b>Output power</b>	dBm	-10		10	Power controlled to within +/-0.5dB.
<b>In band spurious</b>	dBc			-80	
<b>Phase noise</b>	Offset	Phase Noise /[dBc/Hz]			Phase noise under static vibration
	10Hz			-90	
	100Hz			-110	
	1KHz			-145	
	10KHz			-160	
	100KHz			-160	
	1MHz			-170	
<b>RMS jitter</b>	ps			2	Integration bandwidth 10Hz to 1MHz
<b>AM Noise</b>		AM Noise /[dBc/Hz]			
	10Hz			-100	
	100Hz			-110	
	1KHz			-130	
	10KHz			-140	
	100KHz			-150	
	1MHz			-150	
<b>2<sup>nd</sup> Harmonic</b>	dBc			-35	
<b>3<sup>rd</sup> Harmonic</b>	dBc			-60	
<b>Output power fault</b>	mV	-320	-300	-280	Output power inside 10dBm+/-0.5dB
	mV	-150			Output power outside 10dBm+/-0.5dB
<b>DC power consumption</b>	V / mA		15 / 500		Maximum steady state power rail requirement
	V / mA		-18 / 400		Maximum steady state power rail requirement

## COMMUNICATION AND CONTROL INTERFACE

The synthesizer power level control loop configured using an RS232 interface accessed through the unit DB9 connector as part of factory calibration.

## MECHANICAL AND ENVIRONMENTAL PARAMETERS

Parameter	Unit	Min	Typ.	Max	Remarks
Operating Temperature Range	°C	-40	25	+85	
Non-operating Temperature Range	°C	-40		+85	
Size (length, width, height)	Inches	4.25" x 2.1" x 1.16"			See outline drawing
RF Output Connector	D-type, 5X1 4+1 COAX, MALE				
PIN 1	+15V				
PIN 2	FAULT				
PIN 3	-18V				
PIN 4	GND				
Coax connection	RF Output				
Control interface	Female Micro DB-9				
PIN 1	RXD				
PIN 2	NC				
PIN 3	TXD				
PIN 4	GND				
PIN 5	NC				
PIN 6	NC				
PIN 7	NC				
PIN 8	NC				
PIN 9	NC				
Marking	Manufacturer name, model, serial number, date code				

Notes: Specifications subject to change without notice.

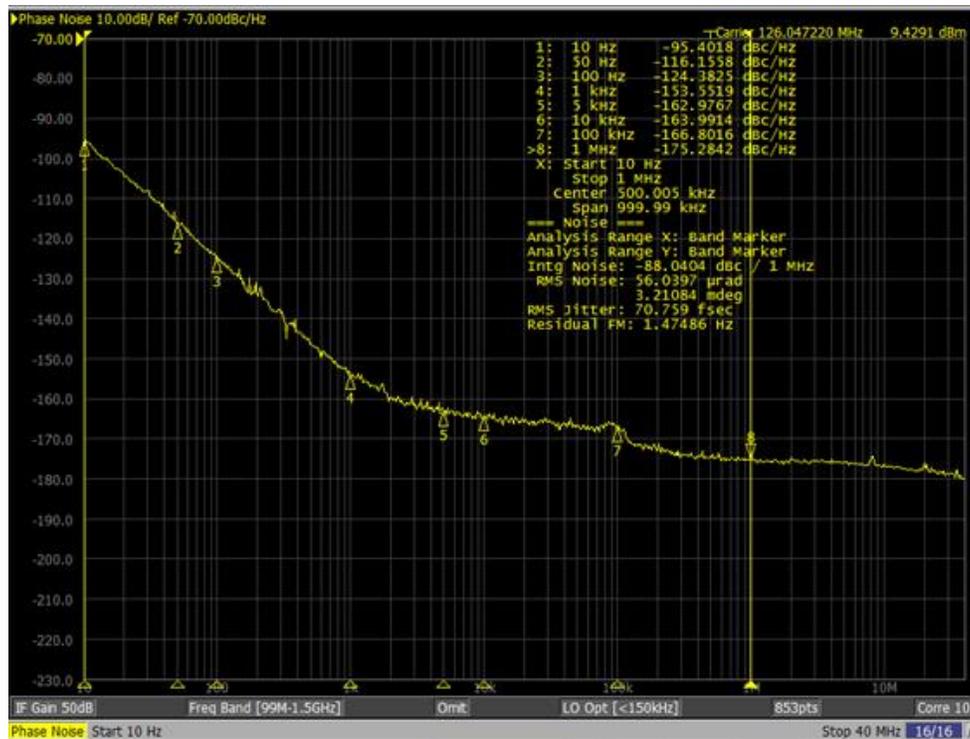


Fig 2: Measured Phase noise and jitter performance at 25°C

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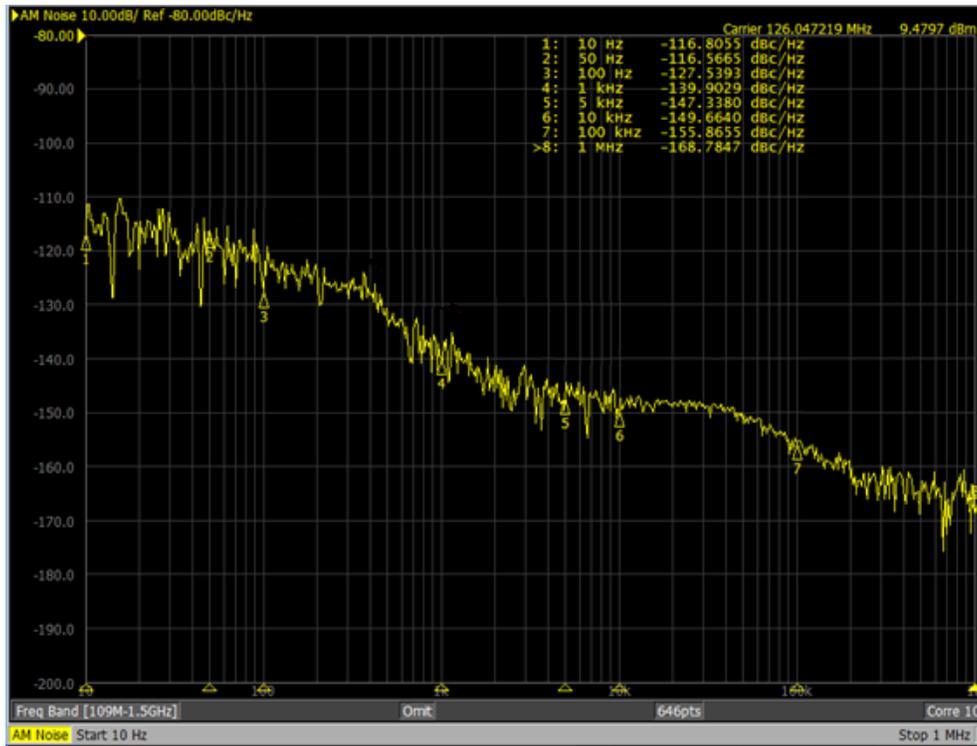


Fig 3: Measured AM noise and jitter performance at 25°C

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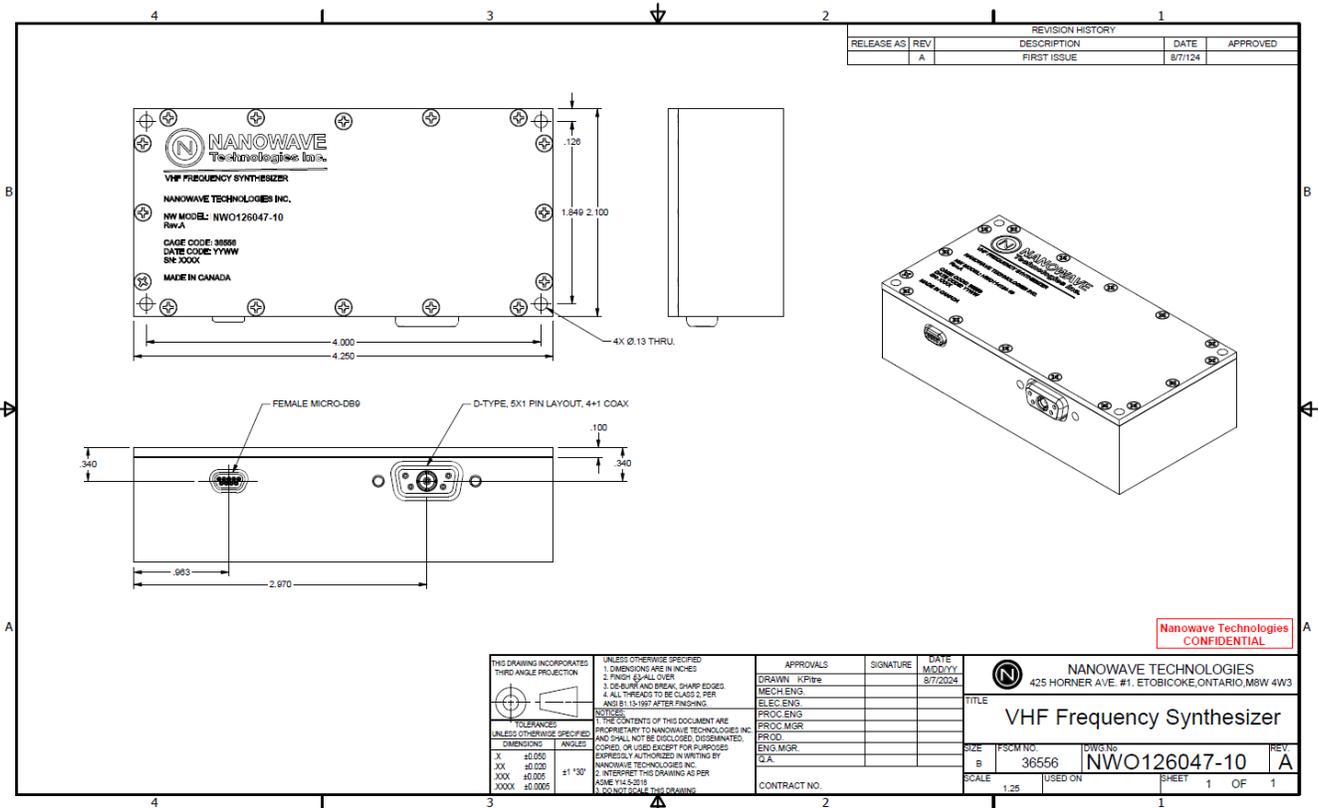


Fig 4: Outline Drawing VHF Frequency Synthesizer NWO126047-10

**Notes:**

The outline of this source unit is customizable. Arbitrary shapes are possible to accommodate form-fit functionality.

**Additional features:**

- Marking: The unit is marked with manufacturer part no., date code, and Serial Number.
- All plating and painting is RoHS compliant

This product is made to order. For customization options, lead times or further information please contact NANOWAVE Technologies Inc. at [sales@nanowavetech.com](mailto:sales@nanowavetech.com), or call at (+1) 416-252-5602