NWO0204-10

2 – 4GHz
Wideband Synthesizer Drop-in
v 2.1

General Description

The NWO0204-10 is a fully integrated wideband S-band synthesizer module based on hybrid architecture that combines high speed Digital Direct Synthesis with indirect synthesis techniques into one compact hermetic package. The unit requires an external 100MHz reference and delivers an average output power of +10 dBm. The phase noise is exceptionally low with -124 dBc/Hz @ 100 kHz offset measured at 4 GHz output frequency and spurious lower than -55 dBc.

Figure 1: S-Band Synthesizer Drop-In Module

The NANOWAVE in-house HMIC process is used within the design to meet a high level of reliability whilst ensuring a small form factor and small size. This makes the NW WBS an ideal choice for airborne radar systems.

Features

- Exceptionally low phase noise
- Fast frequency switching
- MIL-PRF-38534 construction
- Low G sensitivity

Applications

- Radar
- Electronic Warfare
- High vibration environments

Typical Performance (T=25°C)

Parameter	Unit	Min	Typ	Max	Remarks
Operating Frequency Range	GHz	2.0		4.0	
Step Size	Hz	1.0			
Output Power Level	dBm		+10.0		
Phase Noise @ 4 GHz at offset:					1)
@ 10 Hz	dBc/Hz	-83	-80	-77	
@ 100 Hz	dBc/Hz	-100	-97	-94	
@ 1kHz	dBc/Hz	-114	-111	-108	
@ 10 kHz	dBc/Hz	-122	-119	-116	
@ 100 kHz	dBc/Hz	-124	-121	-118	
@ 1MHz	dBc/Hz	-122	-119	-116	
@ 10 MHz	dBc/Hz	-139	-136	-133	
@ 100 MHz	dBc/Hz	-159	-156	-153	
Spurious Level	dBc	-55.0	-60.0		2)
Harmonics Level	dBc	-40.0			3)
Frequency Settling Time	µs			100.0	4)
Output Return Loss	dB		15.0		

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Parameter	Unit	Min	Typ	Max	Remarks
Reference Input Frequency	MHz		100.0		
Reference Power Level	dBm	-5.0		+5.0	
Reference Waveform Type				Sine	

Notes:
1) Performance at offset frequencies below 10 kHz is subject to change with different 100 MHz reference.
2) Worst case Spurious at 5 MHz frequency steps. Spurious can be optimized for specific narrow band and step size.
3) Low pass filtering can be added on request for better harmonics performance.
4) Frequency settling time measured for 1GHz step.

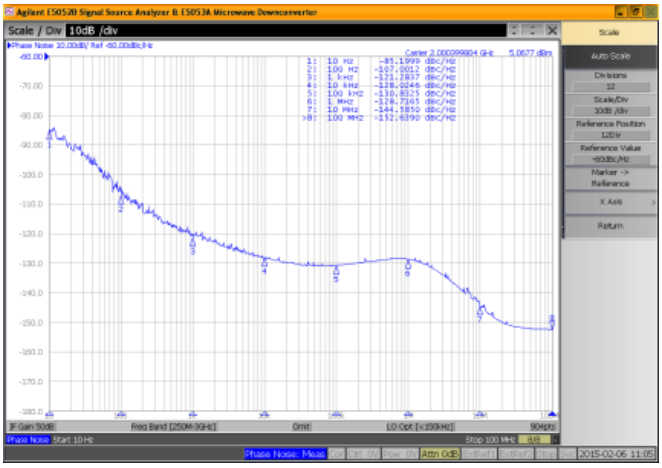
Mechanical and Environmental Parameters

Parameter	Unit	Min	Typ	Max	Remarks
Operating Temperature Range	°C	-40.0		+85.0	
Storage Temperature Range	°C	-55.0		+100.0	
Output Connector			GPO		
Size (length, width, height)	cm		12.45		
	cm		9.91		
	cm		1.52		

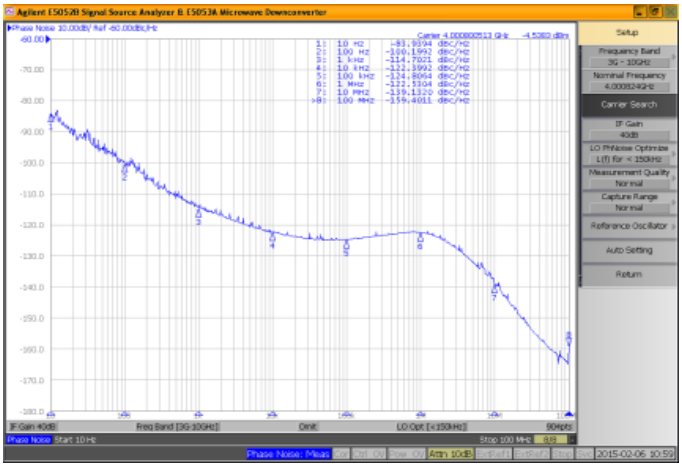
Notes: Specifications subject to change without notice.

Measured Data

Phase Noise at 2GHz



Phase Noise at 4GHz



Additional features:

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

For further information please contact NANOWAVE Technologies Inc. at sales@nanowavetech.com, or call at (+1) 416-252-5602.

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