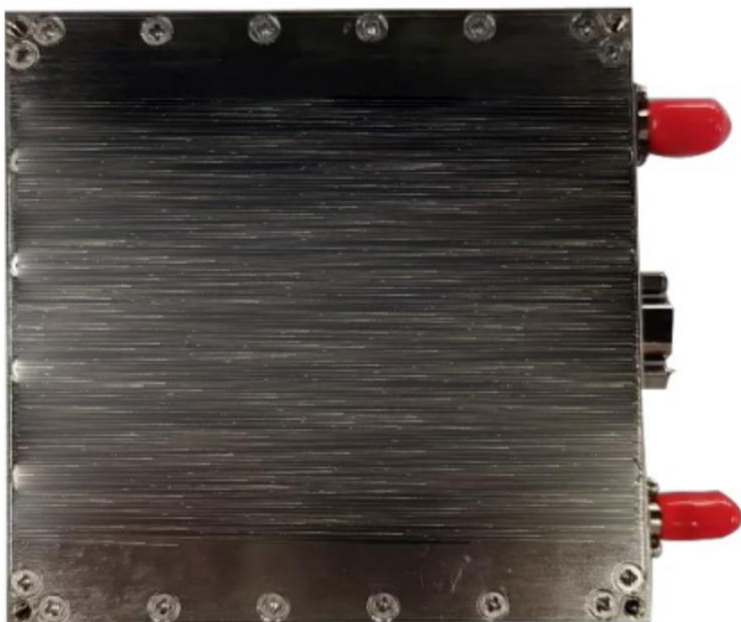


ULTRA-LOW PHASE NOISE FREQUENCY SYNTHESIZER



200 MHz to 15 GHz

Ultra-low phase noise
SPI control
0.1 Hz frequency step
Switching time: $\leq 500 \mu\text{s}$
85 × 85 × 18 mm package
Weight: $\leq 0.7 \text{ kg}$

The OTFS30-15 is a ultra-low phase noise frequency synthesizer with an output frequency range of 200 MHz to 15 GHz. Control interface: SPI. Reference frequency: 10 MHz. The frequency step is 0.1 Hz. Frequency switching time: $\leq 500 \mu\text{s}$. Output power: $0 \pm 4 \text{ dBm}$. Dimensions: 85 × 85 × 18 mm. Weight: $\leq 0.7 \text{ kg}$. Operating temperature: -40 to +70 °C.

TECHNICAL SPECIFICATIONS

OTFS30-15

Property	Value
Output frequency range	200 MHz-15 GHz
Frequency step	0.1 Hz
Frequency switching time	≤500 μs
Output power	0 ±4 dBm
Spurious level	≤-75 dBc typical; ≤-70 dBc maximum
Harmonic level	≤-5 dBc
Internal reference	Built-in low-phase-noise, high-stability crystal oscillator
Reference frequency	10 MHz
Reference input power	7 ±3 dBm
Reference phase noise	-140 dBc/Hz at 100 Hz offset; -155 dBc/Hz at 1 kHz offset; -160 dBc/Hz at 10 kHz offset; -160 dBc/Hz at 100 kHz offset; -160 dBc/Hz at 1 MHz offset
Supply voltage	+12 V ±0.5 V; maximum +15 V
Supply current	≤2.2 A startup; 1.95 A steady state
Control interface	SPI
Operating temperature	-40 to +70 °C
Storage temperature	-55 to +85 °C
Dimensions	85 × 85 × 18 mm
Weight	≤0.7 kg
RF/reference connectors	Removable SMA-K
Power/control connector	J30J-9-ZKP
Frequency stability	Tracks the external reference

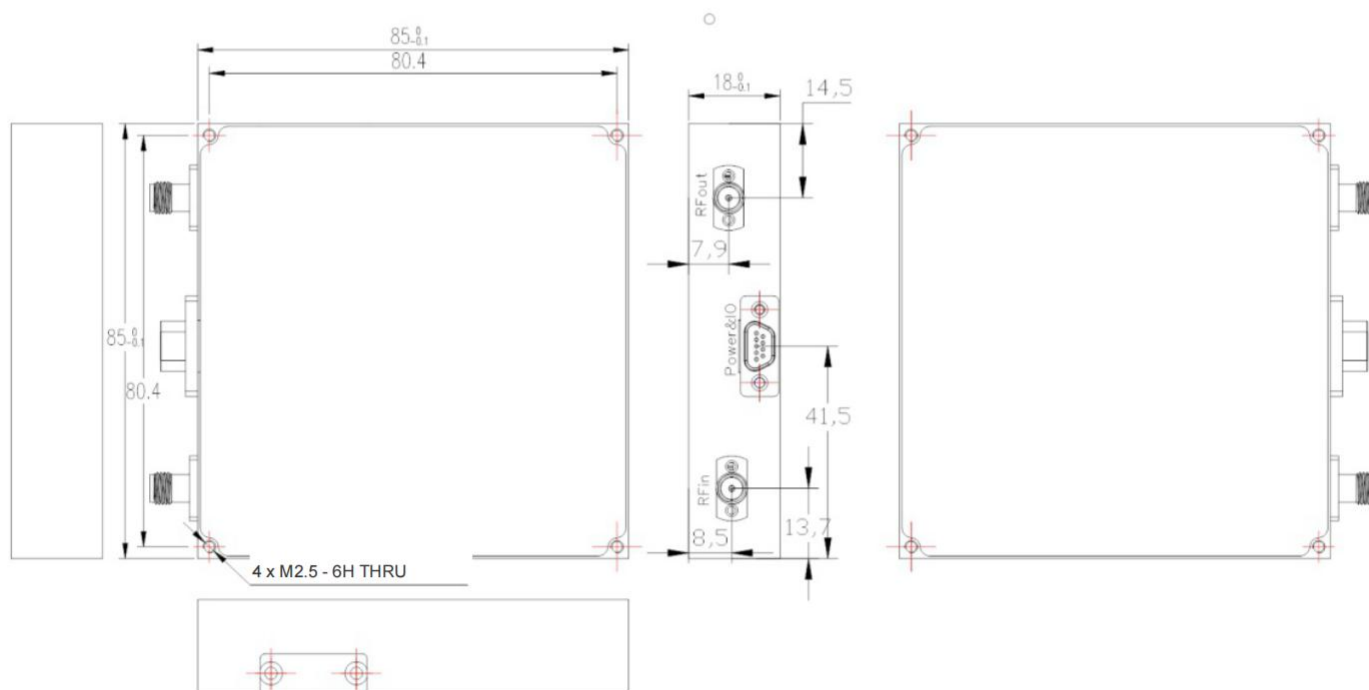
TECHNICAL INFORMATION

OTFS30-15 | Phase Noise (dBc/Hz)

Output Frequency	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz
0.5 GHz	≤ -116	≤ -138	≤ -146	≤ -146	≤ -146
1 GHz	≤ -112	≤ -134	≤ -143	≤ -143	≤ -143
5 GHz	≤ -97	≤ -122	≤ -132	≤ -132	≤ -132
10 GHz	≤ -92	≤ -118	≤ -126	≤ -126	≤ -126
15 GHz	≤ -89	≤ -113	≤ -122	≤ -122	≤ -122

Column headings specify frequency offset from the carrier. Output frequency is listed in the first column. Values and limit signs follow the source tables.

Mounting Dimensions

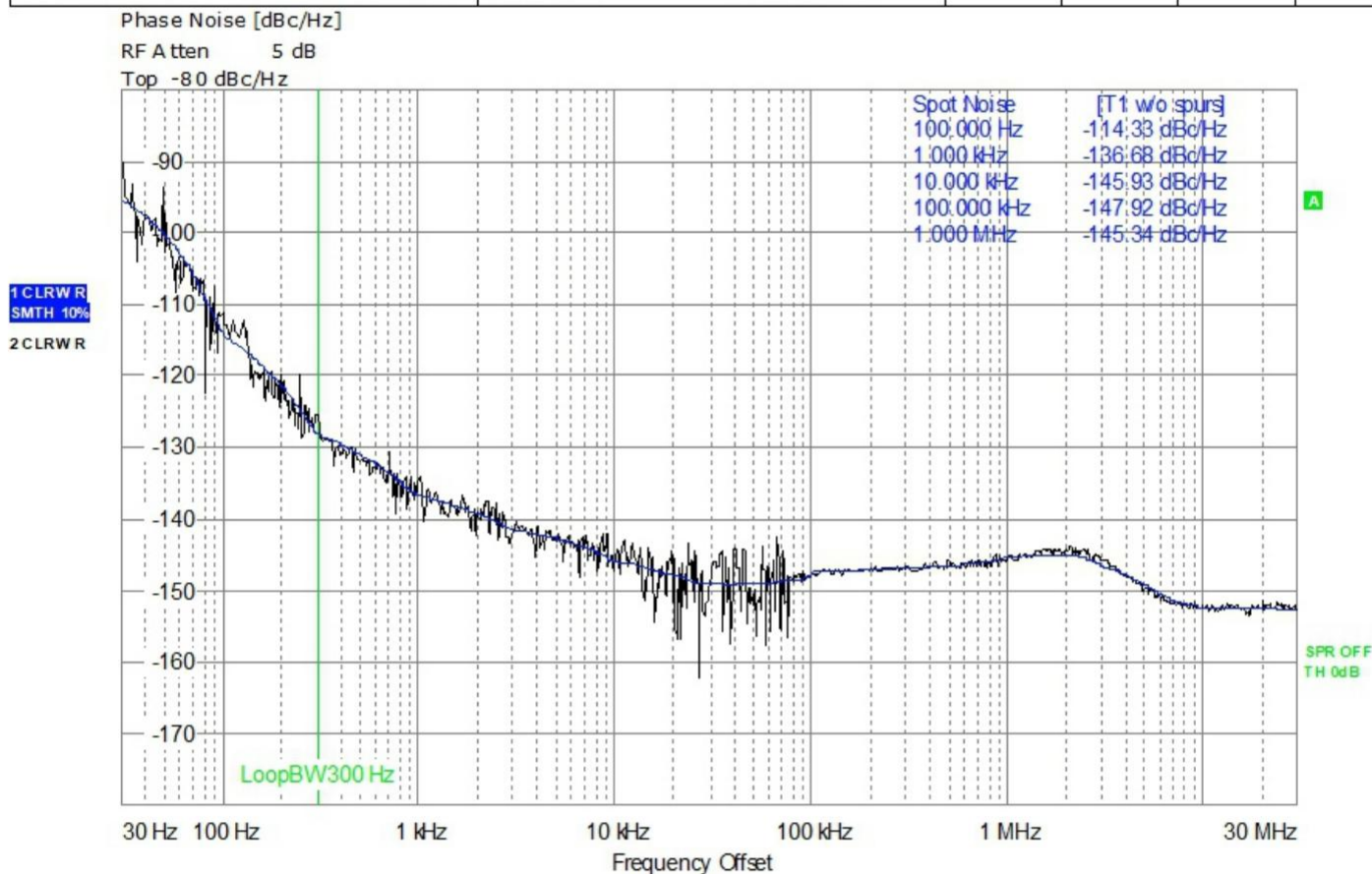


Dimensions in mm.

MEASUREMENT CURVES

1 GHz Phase Noise Measurement

RS	R&S FSUP 50 Signal Source Analyzer				LOCKED			
	Settings		Residual Noise [T1 w/o spurs]		Phase Detector +40 dB			
Signal Frequency:	999.999999 MHz		IntPHN (30.0 .. 30.0 M) -74.9 dBc					
Signal Level:	-0.68 dBm		Residual PM 14.555 m?					
Cross Corr Mode	Harmonic 1		Residual FM 3.257 kHz					
Internal Ref Tuned	Internal Phase Det		RMS Jitter 0.0404 ps					



Measurement Aborted

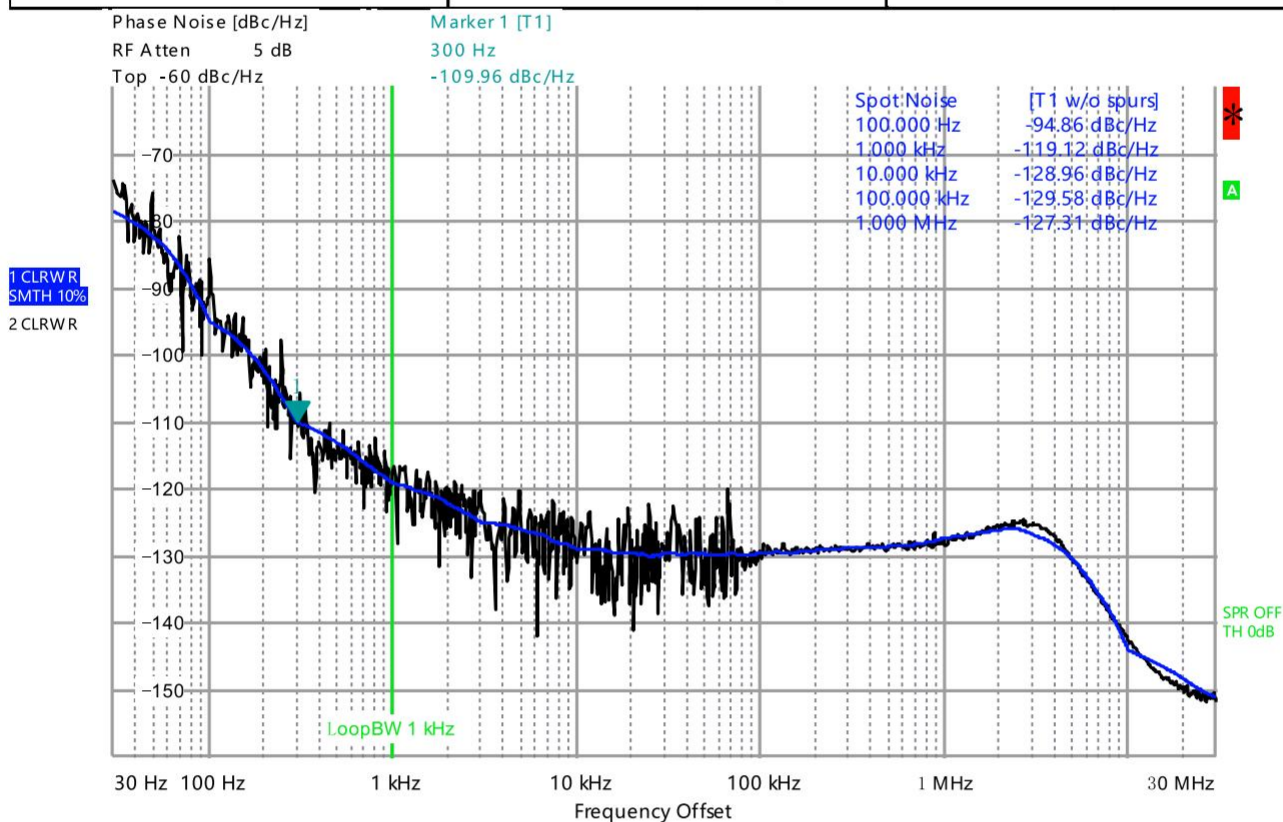
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Source measurement example. Curves represent the illustrated test conditions.

MEASUREMENT CURVES

10 GHz Phase Noise Measurement

R&S FSUP 50 Signal Source Analyzer				LOCKED	
Settings		Residual Noise [T1 w/o spurs]		Spur List	
Signal Frequency:	10.000000 GHz	Int PHN (30.0 .. 30.0 M)	-58.6 dBc	36.861 Hz	-68.60 dBc
Signal Level:	-2.66 dBm	Residual PM	94.890 m°	49.956 Hz	-56.79 dBc
Cross Corr Mode	Harmonic 1	Residual FM	6.869 kHz	68.842 Hz	-72.54 dBc
Internal Ref Tuned	Internal Phase Det	RMS Jitter	0.0264 ps	73.684 Hz	-75.07 dBc



Measurement Aborted

Date: 10. APR. 2021 18:31:03

Source measurement example. Curves represent the illustrated test conditions.

INTERFACES & PIN ASSIGNMENTS

Connector Definitions

Connector	Definition
RF/reference connectors	Removable SMA-K; pin diameter 0.38 mm
Power/control	J30J-9-ZKP

J30J-9-ZKP Pin Assignments

Pin	Definition
1	+12 V supply
2	+12 V supply
3	GND
4	GND
5	LD: lock indication, high when locked
6	MOSI: SPI interface
7	MISO: SPI interface
8	SCK: SPI interface
9	LE: SPI interface