Low-noise frequency synthesizer SNM-PLL-H201

Datasheet

Programmable low noise frequency multiplier is suitable for high performance timing applications as it produces low jitter output frequency in the interval of 100 MHz to 350 MHz. Anticipated input frequency is 5 MHz or 10 MHz common for highly stable clock such as various atomic clocks, hydrogen maser or disciplined oscillators. The device provides two complementary outputs suitable for driving 50 Ω load. Input and output frequency of the multiplier, and output gain may be set via USB CDC virtual serial port emulation (see Programmer's Manual).

The device may be locked to internal TXCO or external sine or square wave reference.

SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Unit
RF INPUT (sine or square wave)[1]				
frequency		5 or 10		MHz
level				
sine	1[2]		3	Vpp
square	300		1500	mVpp
RF OUTPUT[3] (single-ended, into 50 Ω)				
frequency[4]	100		350	MHz
amplitude				
gain==0 @ 350 MHz		250		mVpp
gain==4 @ 350 MHz		1250		mVpp
rise time[5] (20%-80%)				
gain==0		150		ps
gain==4		172		ps
fall time (20%-80%)				
gain==0		140		ps
gain==4		190		ps

PHASE NOISE[6]				
@ 100 Hz		-98		dBc
@ 1 kHz		-106		dBc
@ 10 kHz		-114		dBc
@ 50 kHz		-124		dBc
TEMP. DEPENDENCE OF PHASE[7]			3	ps/K

1 Reference input is internally terminated with 50 Ω.
2 The output phase noise increases with decreasing amplitude of input sine wave due to low slew rate.
3 AC coupled square waveform.
4 Output frequency may be set from 100 MHz to 350 MHz in 5MHz steps, other frequencies are not guaranteed.
5 Measured at 200 MHz.
6 Measured at 100MHz carrier.
7 Over ambient temperature range of 10°C to 50°C.

ADDITIONAL INFORMATION

POWER SUPPLY				
supply voltage[8]	5.5	6	6.5	V
supply current[9]	410		440	mA
DIMENSIONS (W x L x H)[10]	71.5 x 84 x 24			mm
WEIGHT	150			g

The device is equipped with one SMA connector for input RF, two SMA connectors with complementary RF outputs, power and reference selection signaling LEDs, and standard Mini-B USB connector for the device programming. Power input is formed by 2.1 mm power jack. See Fig. 1. Dimensions are in mm.

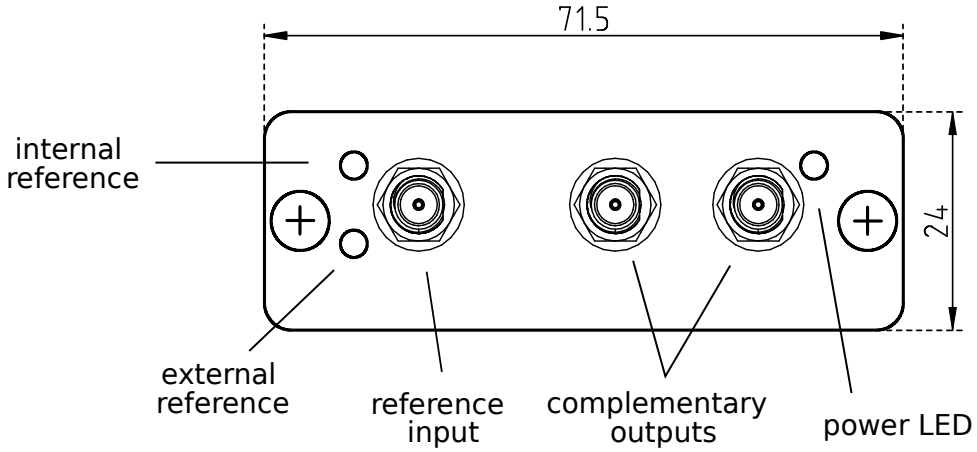
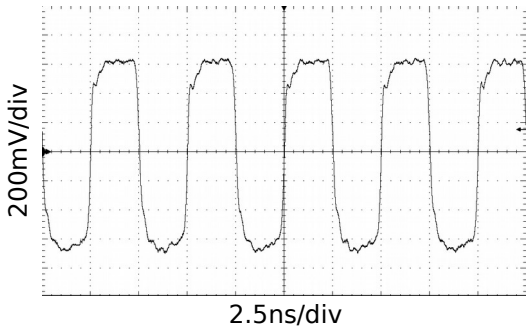


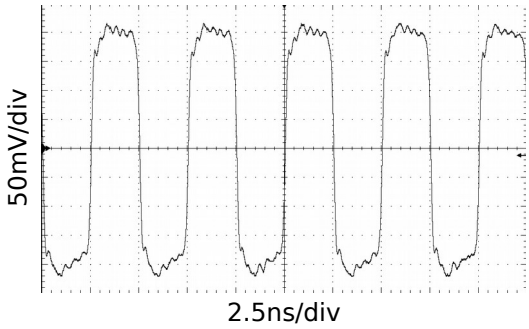
Figure 1 - FRONT VIEW

8 Voltage above 6.5V may result in permanent damage of the device!
9 Depending on output frequency, reference input, and gain settings
10 The length is approximately 96mm including SMA and power jack connectors protrusion

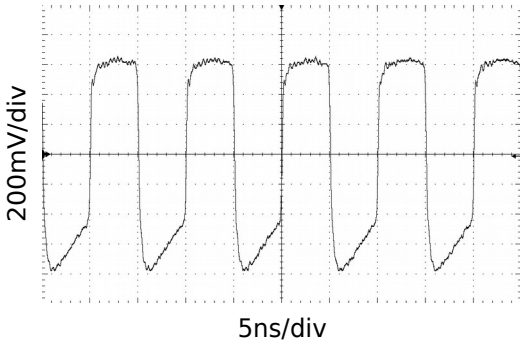
Oscilloscope screenshots of the output for selected setups:



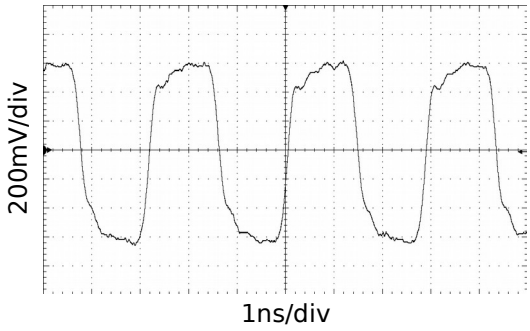
Output at 200 MHz, gain=4 into 50 Ω



Output at 200 MHz, gain=1 into 50 Ω



Output at 100 MHz, gain=4 into 50 Ω



Output at 350 MHz, gain=4 into 50 Ω