Performance report for SiT3373 - 644.53125 MHz, LVDS

This performance report contains the following data:

- Phase noise
- Random phase jitter
- Output waveforms
- Pull range linearity
- Frequency stability over temperature
- Period jitter
- Duty cycle
- Rise/Fall time
- Amplitude
- Current consumption

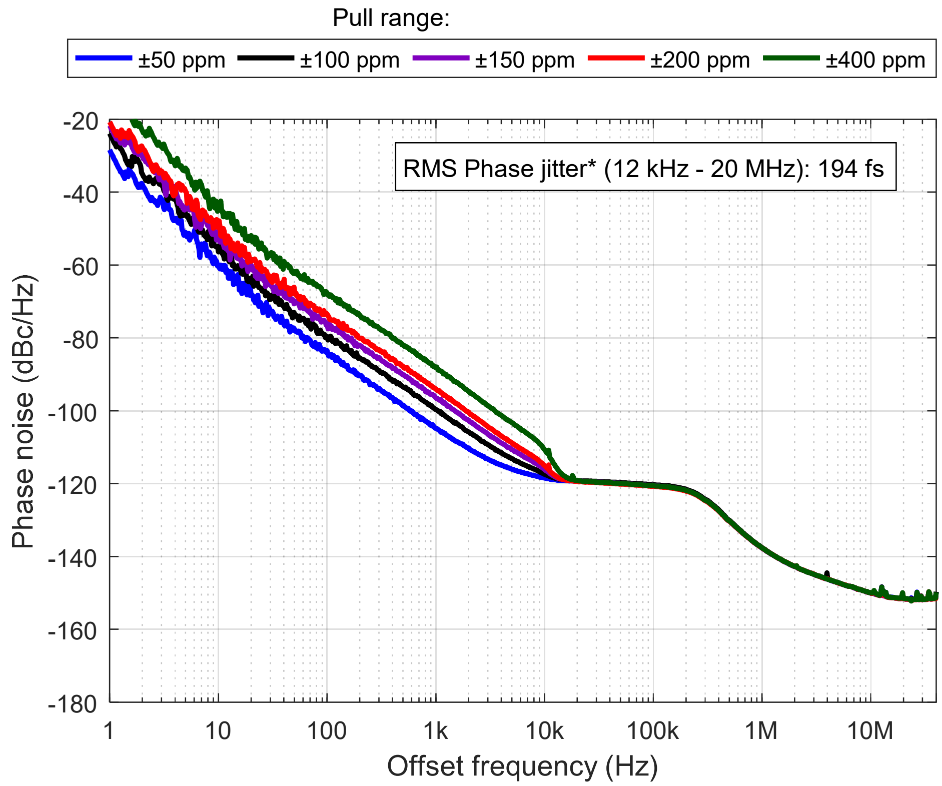


Figure 1: Phase noise, 3.3 V

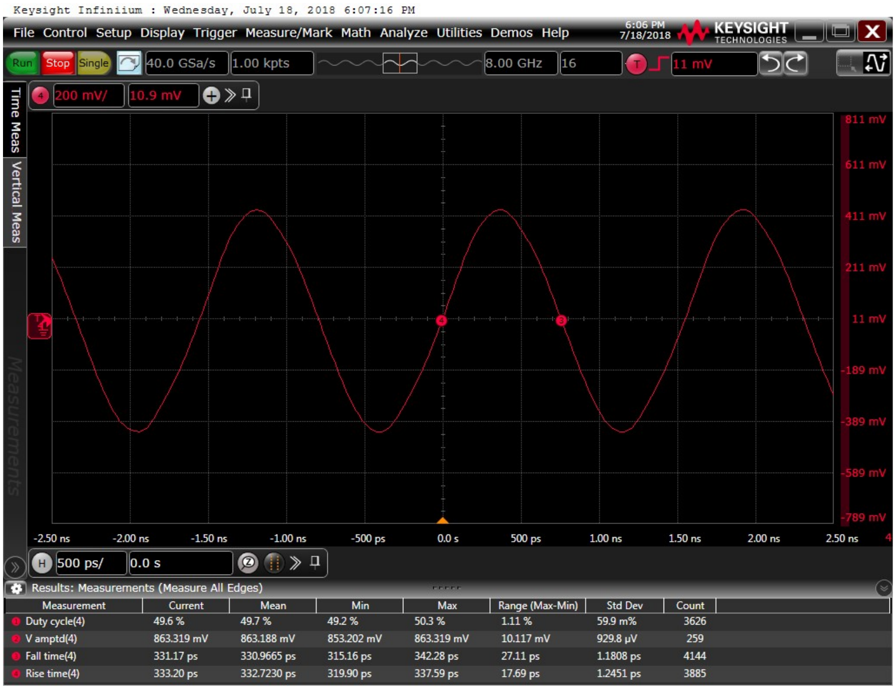
**Integrated phase jitter value applies for ±50 ppm to ±400 ppm pull ranges*

Table 1: Phase noise

Phase noise dBc/Hz					
Frequency offset (Hz)	Pull range (ppm)				
	±50	±100	±150	±200	±400
1	-28.4	-23.9	-21.7	-20.7	-12.3
10	-60.1	-56.4	-51.4	-48.6	-44.7
100	-83.5	-79.6	-76.0	-73.5	-67.7
1 K	-104.8	-99.7	-96.5	-94.1	-88.1
10 K	-118.4	-117.4	-116.1	-115.0	-110.7
100 K	-120.5	-120.2	-120.5	-120.7	-120.5
1 M	-137.7	-137.6	-137.7	-137.7	-137.6
10 M	-150.0	-150.0	-150.1	-150.0	-150.0
40 M	-149.7	-149.7	-151.3	-151.3	-149.8

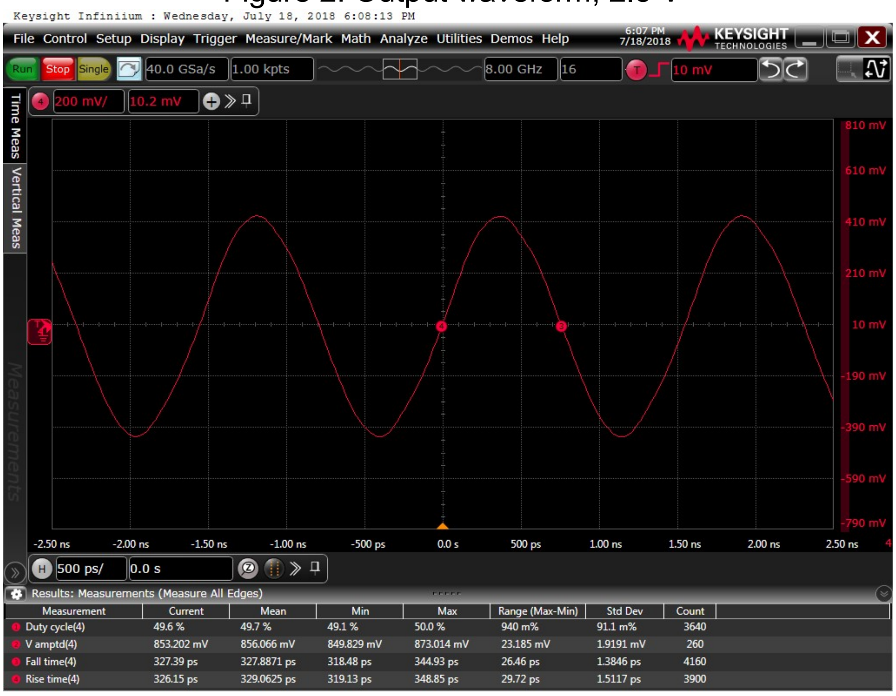
Table 2: Integrated Phase jitter

Parameter	Units	Pull range (ppm)
		±50 to ±400
Integrated Phase jitter (1.875 MHz - 20 MHz)	fs, rms	54
Integrated Phase jitter (12 kHz - 20 MHz)	fs, rms	194



Measurement	Current	Mean	Min	Max	Range (Max-Min)	Std Dev	Count
Duty cycle(4)	49.6 %	49.7 %	49.2 %	50.3 %	1.11 %	59.9 m%	3626
V amptd(4)	863.319 mV	863.188 mV	853.202 mV	863.319 mV	10.117 mV	929.8 µV	259
Fall time(4)	331.17 ps	330.9665 ps	315.16 ps	342.28 ps	27.11 ps	1.1808 ps	4144
Rise time(4)	333.20 ps	332.7230 ps	319.90 ps	337.59 ps	17.69 ps	1.2451 ps	3885

Figure 2: Output waveform, 2.5 V



Measurement	Current	Mean	Min	Max	Range (Max-Min)	Std Dev	Count
Duty cycle(4)	49.6 %	49.7 %	49.1 %	50.0 %	940 m%	91.1 m%	3640
V amptd(4)	853.202 mV	856.066 mV	849.829 mV	873.014 mV	23.185 mV	1.9191 mV	260
Fall time(4)	327.39 ps	327.8871 ps	318.48 ps	344.93 ps	26.46 ps	1.3846 ps	4160
Rise time(4)	326.15 ps	329.0625 ps	319.13 ps	348.85 ps	29.72 ps	1.5117 ps	3900

Figure 3: Output waveform, 3.3 V

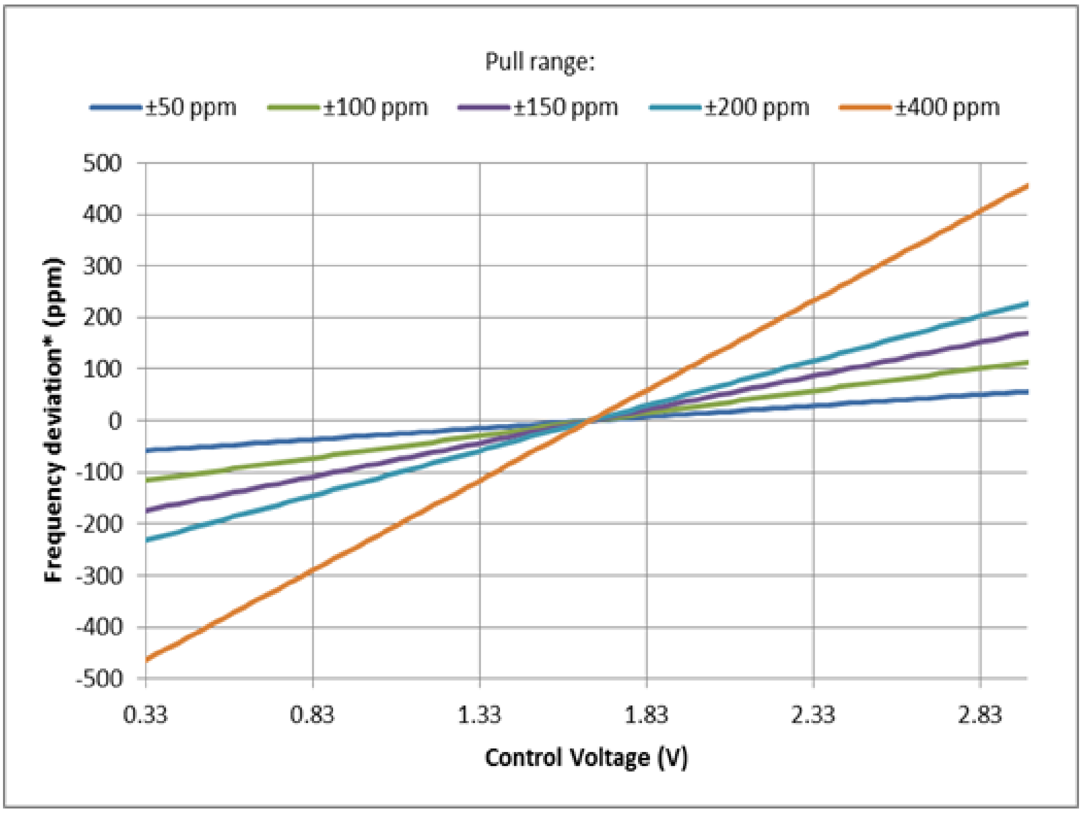


Figure 4: Frequency pull characteristic

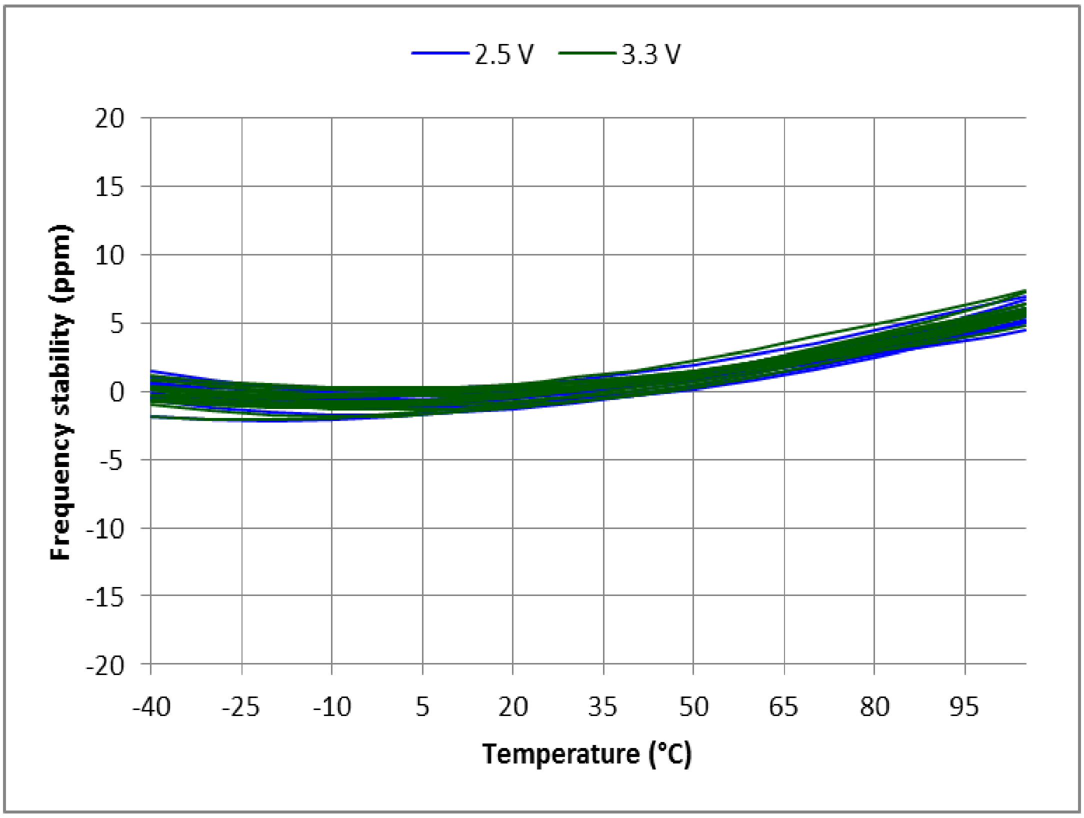


Figure 5: Frequency stability* over temperature, 2.5 V – 3.3 V, 30 devices

**SiT3373 frequency stability is independent of output frequency.*

Table 3: Summary performance data

Parameter	Units	Voltage	
		2.5 V	3.3 V
Period jitter	ps, rms	0.75	0.74
Period jitter (sample size 10,000 cycles)	ps, pk-pk	5.92	5.75
Duty cycle	%	49.7	49.7
Rise time (20% - 80%)	ps	333	329
Fall time (80% - 20%)	ps	331	328
Differential voltage swing	V	0.86	0.86
Current consumption (no load, output enabled)	mA	76.1	76.3
Current consumption (no load, output disabled)	mA	55.2	55.3

Test description

Conditions:

- Frequency: 644.53125 MHz
- VDD: 2.5 V, 3.3 V
- Pull range: ±50 ppm, ±100 ppm, ±150 ppm, ±200 ppm, ±400 ppm
- Temperature: 25 °C

Equipment:

Model	Measurement / Purpose
Keysight DSA90604A (6 GHz, 20 Gsps)	Period jitter, output amplitude, rise/fall time, duty cycle
Keysight 5052B Signal Source Analyzer	Phase noise, integrated phase jitter
Keysight 34980A	Power supply current
Keysight E3631A	Power supply
Keysight 53230A	Frequency

Setup

Waveform

For waveform parameters measurement (rise/fall time, differential swing, duty cycle), both DUT outputs are terminated with 100 Ω differential. Output signals are measured using Keysight 1134B active probe with Keysight N5425B probe head. All measurements are applied to the differential waveform. Figure 6 shows test setup diagram for waveform parameters measurement.

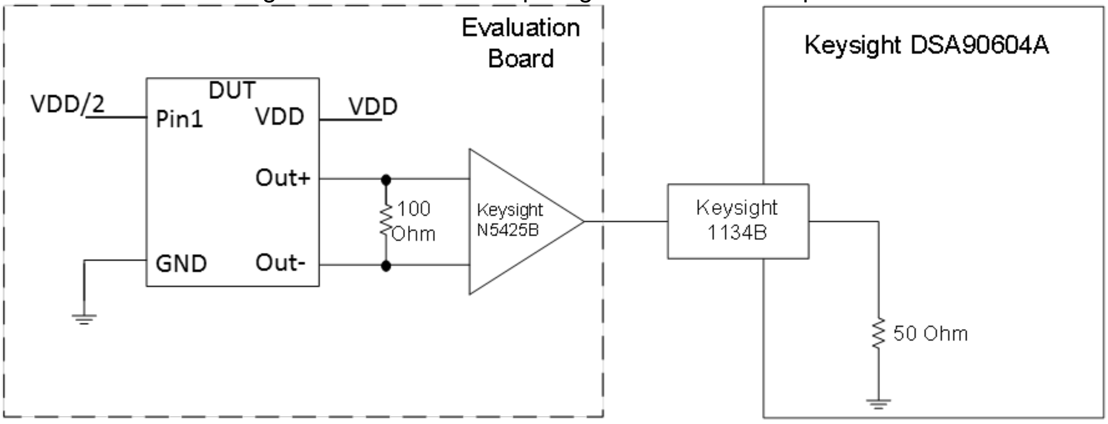


Figure 6. Test setup for measuring waveform parameters (rise/fall time, differential swing, duty cycle)

Period Jitter

For period jitter measurement outputs are connected through AC-coupling capacitors to the oscilloscope channels. Signals are subtracted inside the oscilloscope. All measurements applied to differential waveform. Figure 7 shows test setup diagram for period jitter measurement.

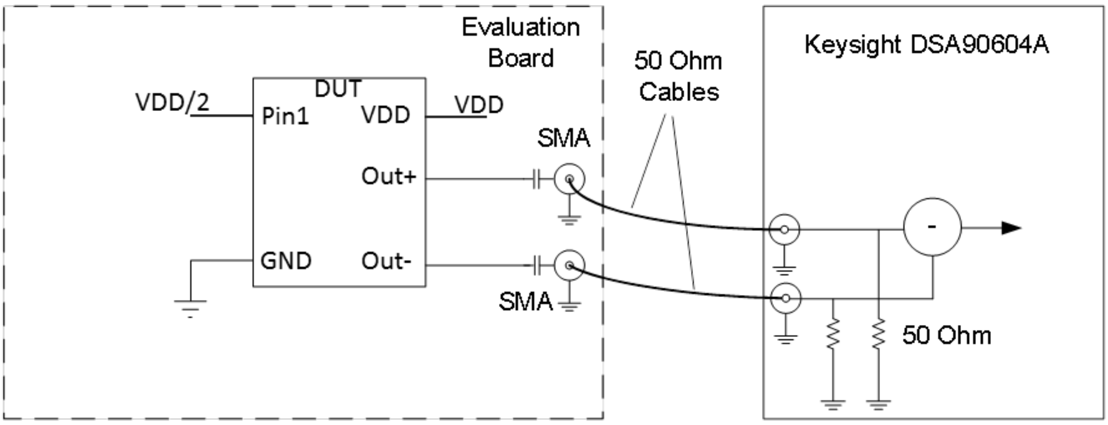


Figure 7. Test setup for measuring period jitter

Phase noise

For phase noise measurements, differential signal is converted to single-ended using impedance matching transformer. Transformer's output is connected to measurement instrument. Figure 8 shows test setup diagram for phase noise measurement.

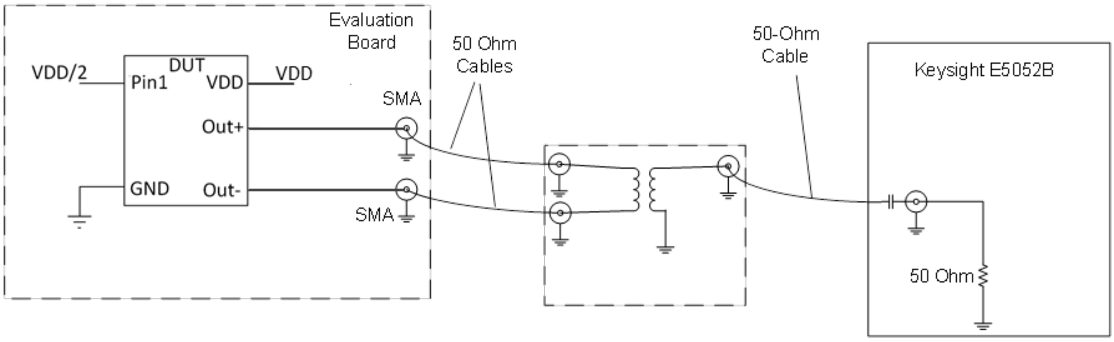


Figure 8. Test setup for measuring phase noise.

Current consumption

For Current consumption measurement device output is floating. For frequency measurement differential-to-single-ended converter is used.