	<b>Title:</b>	Performance report for SiT3372, 204.8 MHz, LVDS		
	<b>Type:</b>	Performance report	<b>Rev:</b>	1.2
	<b>Orig:</b>		<b>Date:</b>	September 12, 2018

## Performance report for SiT3372 - 204.8 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



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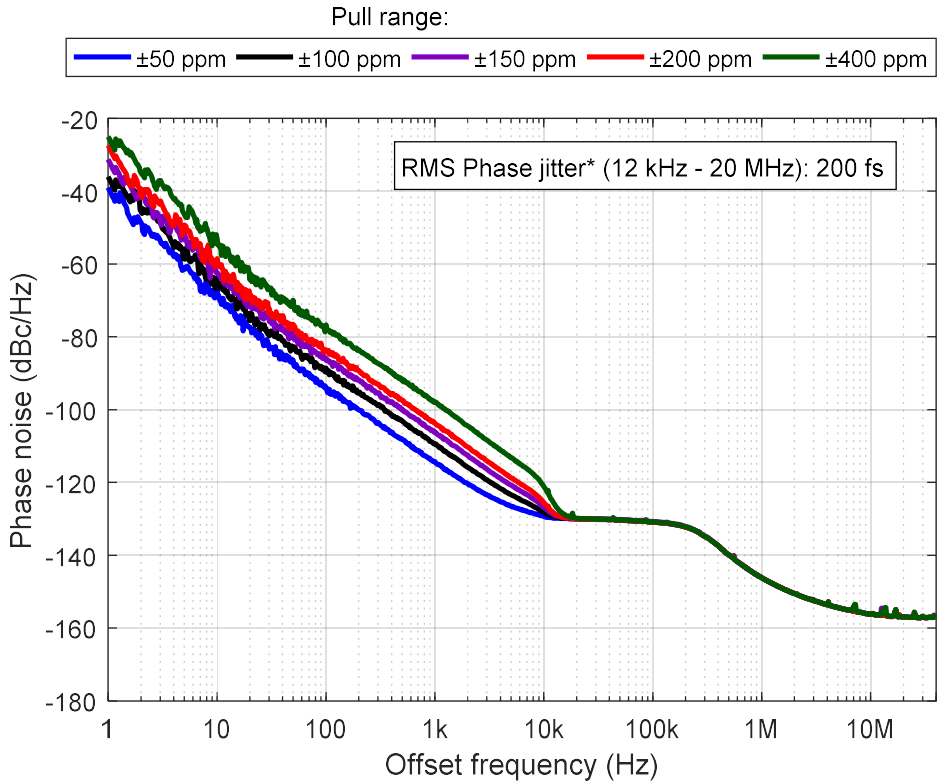


Figure 1: Phase noise, 3.3 V

*\*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	-39.0	-36.0	-31.3	-27.4	-25.0
10	-66.4	-65.1	-62.4	-58.5	-53.2
100	-93.9	-88.6	-86.5	-83.6	-76.7
1 K	-114.3	-109.4	-106.3	-103.7	-97.9
10 K	-129.3	-128.1	-126.9	-125.5	-121.1
100 K	-130.9	-130.9	-130.7	-130.9	-130.9
1 M	-146.2	-146.2	-146.2	-146.1	-146.2
10 M	-156.2	-156.2	-156.2	-156.2	-156.2
40 M	-157.0	-157.0	-157.1	-157.0	-157.0



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Table 2: Integrated Phase jitter

Parameter	Units	Pull range (ppm)
		±50 to ±400
Integrated Phase jitter (1.875 MHz - 20 MHz)	fs, rms	81
Integrated Phase jitter (12 kHz - 20 MHz)	fs, rms	200

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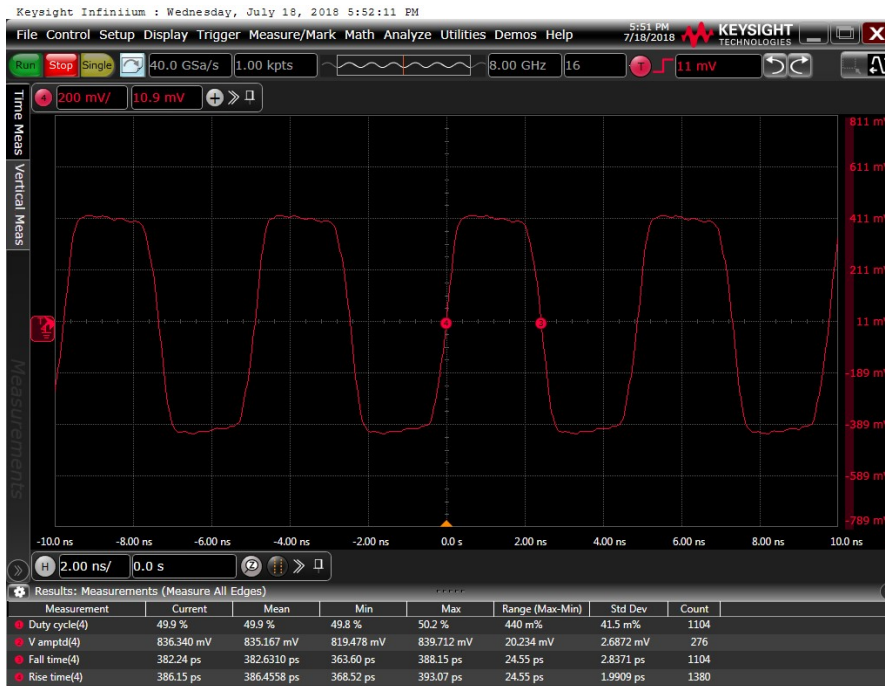


Figure 2: Output waveform, 2.5 V

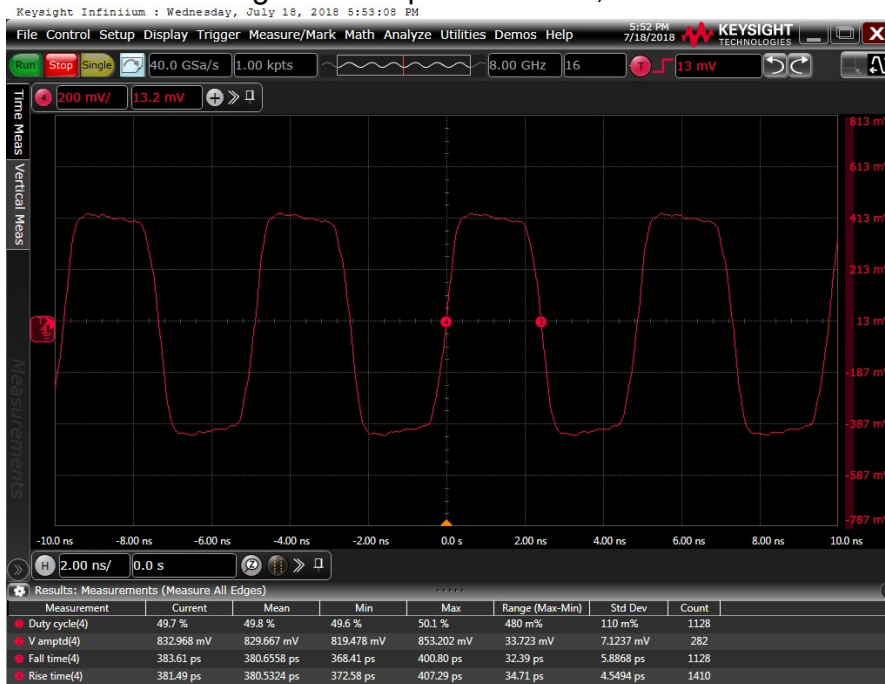


Figure 3: Output waveform, 3.3 V

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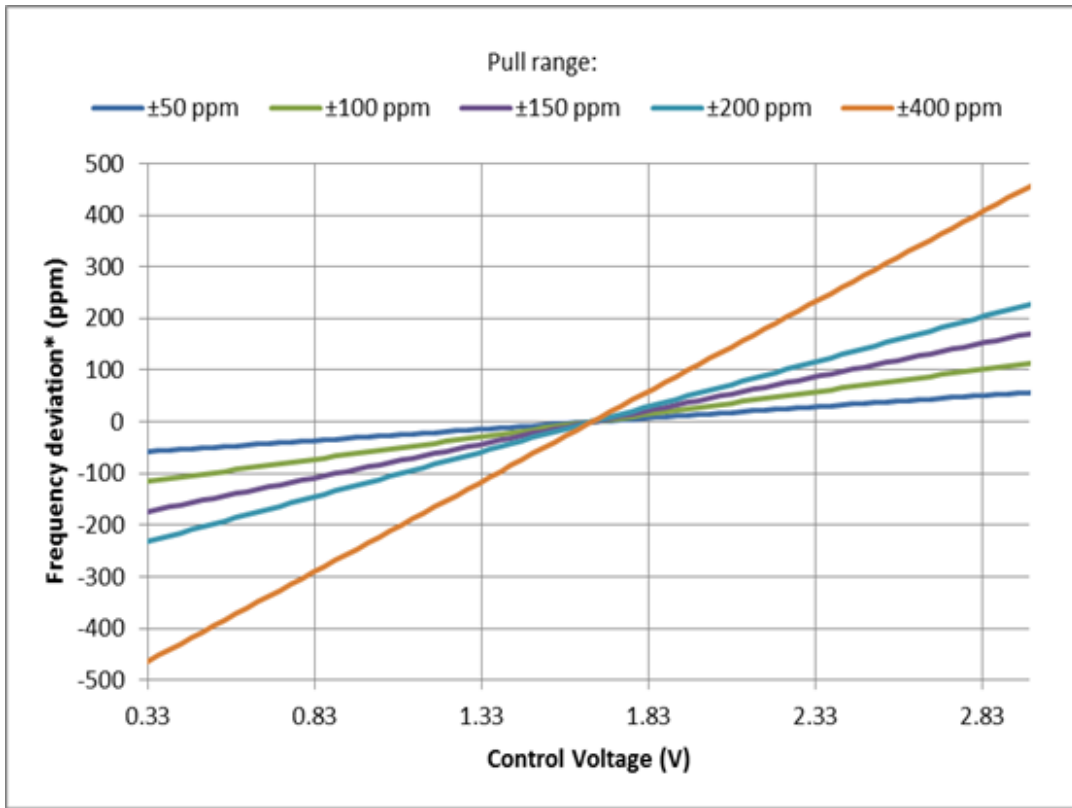


Figure 4: Frequency pull characteristic

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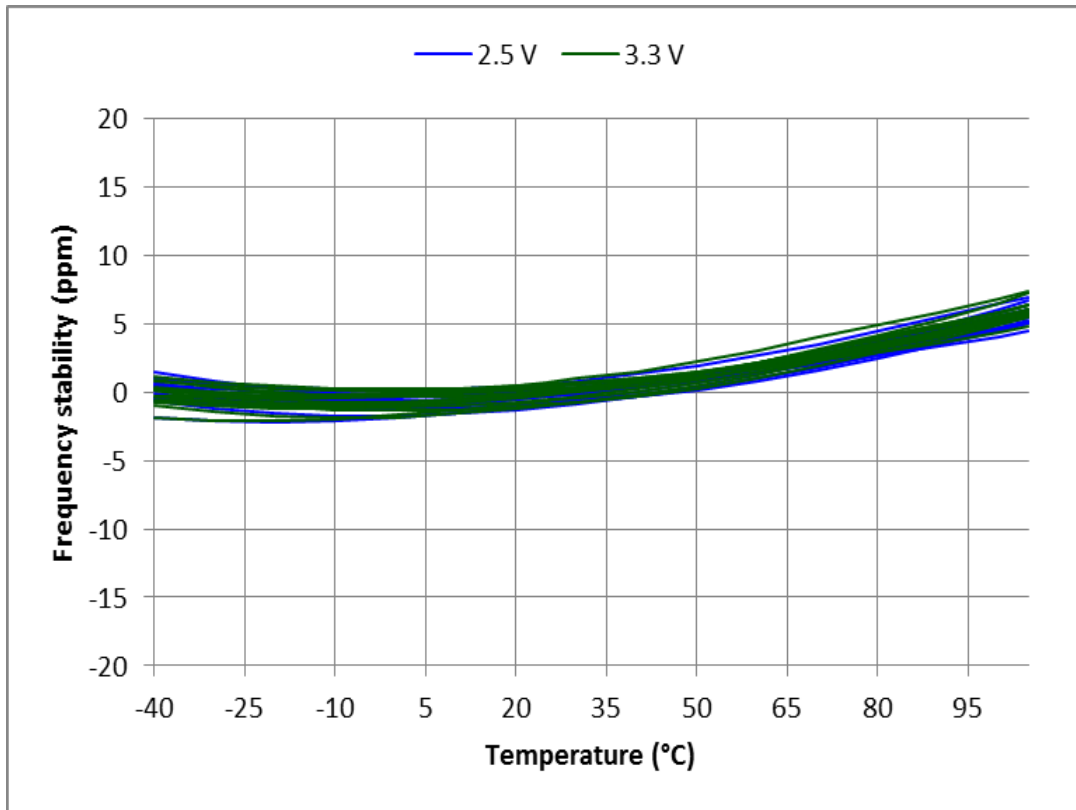


Figure 5: Frequency stability\* over temperature, 2.5 V – 3.3 V, 30 devices

\*SiT3372 frequency stability is independent of output frequency.

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Table 3: Summary performance data

Parameter	Units	Voltage	
		2.5 V	3.3 V
Period jitter	ps, rms	0.77	0.78
Period jitter (sample size 10,000 cycles)	ps, pk-pk	5.83	5.97
Duty cycle	%	49.9	49.8
Rise time (20% - 80%)	ps	386	381
Fall time (80% - 20%)	ps	383	381
Differential voltage swing	V	0.84	0.83
Current consumption (no load, output enabled)	mA	74.9	74.9
Current consumption (no load, output disabled)	mA	56.8	56.8

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## Test description


### Conditions:

- Frequency: 204.8 MHz
- VDD: 2.5 V, 3.3 V
- Pull range:  $\pm 50$  ppm,  $\pm 100$  ppm,  $\pm 150$  ppm,  $\pm 200$  ppm,  $\pm 400$  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



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## Setup

### Waveform

For waveform parameters measurement (rise/fall time, differential swing, duty cycle), both DUT outputs are terminated with 100  $\Omega$  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.

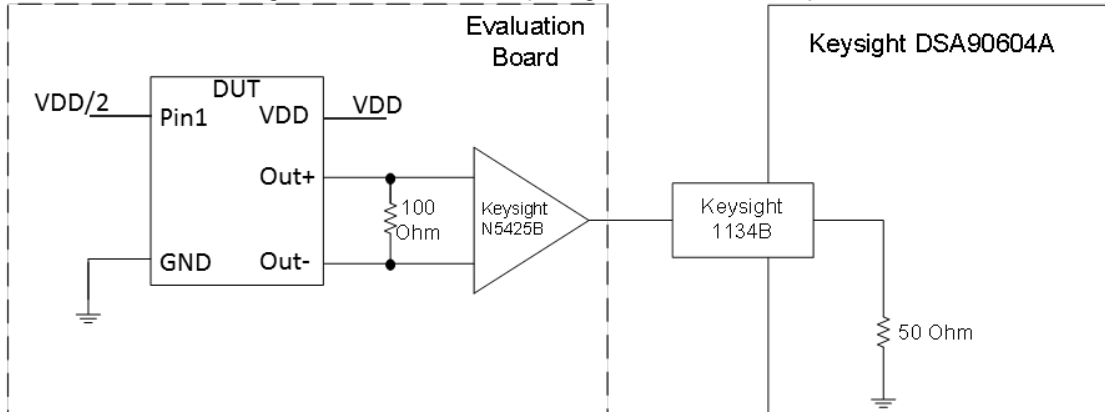


Figure 6. Test setup for measuring waveform parameters (rise/fall time, differential swing, duty cycle)

### 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.

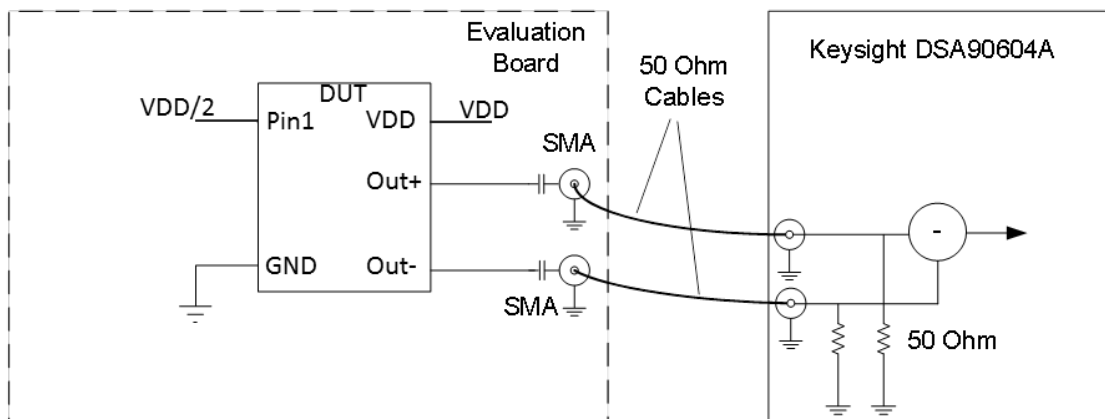



Figure 7. Test setup for measuring period jitter

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**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.

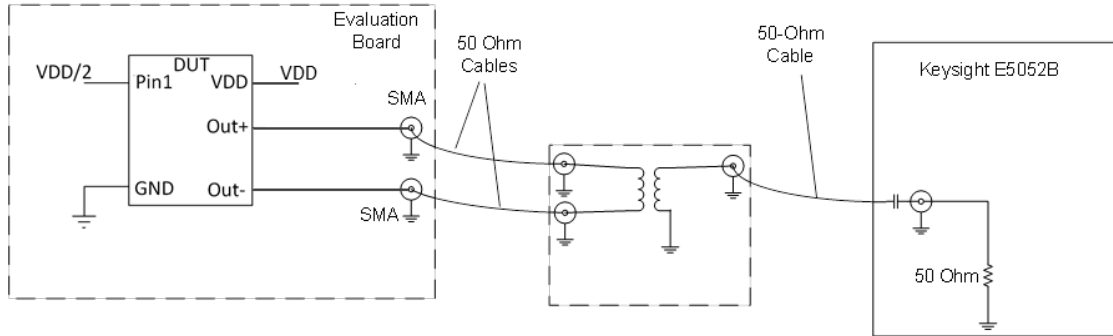


Figure 8. Test setup for measuring phase noise.

**Current consumption**

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