	<b>Title:</b>	Performance report for SiT3372, 74.25 MHz, HCSL		
	<b>Type:</b>	Performance report	<b>Rev:</b>	1.2
	<b>Orig:</b>		<b>Date:</b>	September 07, 2018

## Performance report for SiT3372 - 74.25 MHz, HCSL

### 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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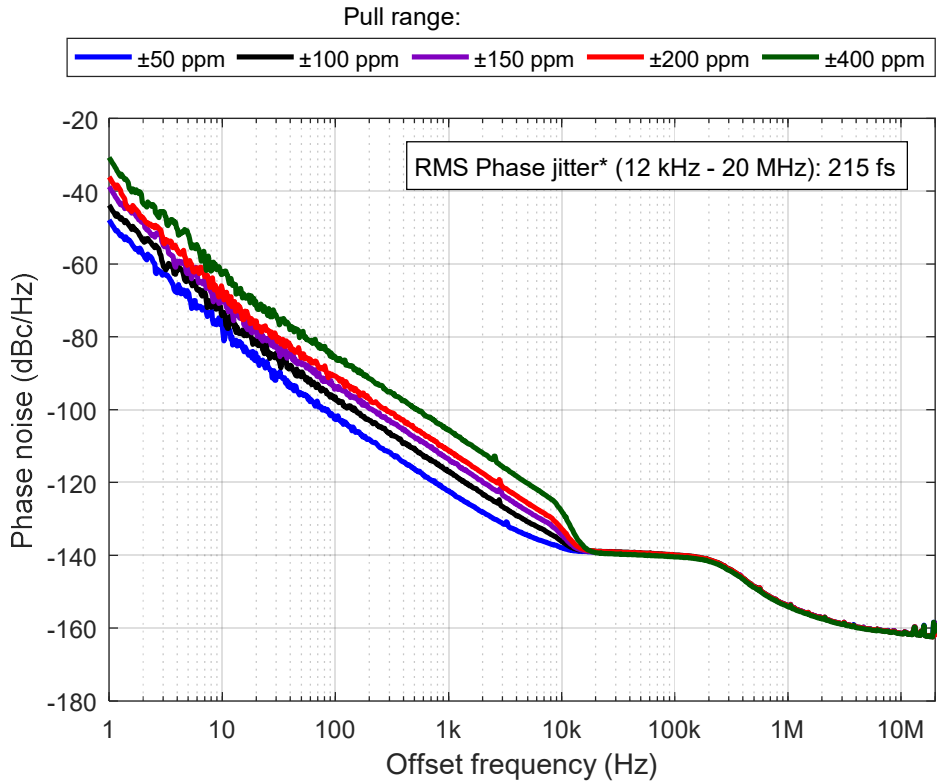


Figure 1: Phase noise, 3.3 V

*\*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	-47.9	-43.8	-38.7	-36.1	-30.7
10	-77.3	-74.3	-70.4	-67.1	-62.8
100	-101.8	-96.5	-93.8	-90.8	-85.5
1 K	-122.2	-117.0	-113.5	-111.4	-105.7
10 K	-137.9	-136.2	-134.4	-132.7	-127.9
100 K	-140.1	-139.9	-140.1	-139.9	-140.4
1 M	-153.9	-153.9	-153.9	-153.9	-154.1
10 M	-161.4	-161.4	-161.4	-161.5	-161.6
20 M	-158.6	-158.0	-158.0	-158.6	-158.6


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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	118
Integrated Phase jitter (12 kHz - 20 MHz)	fs, rms	215

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Figure 2: Output waveform, 2.5 V



Figure 3: Output waveform, 3.3 V

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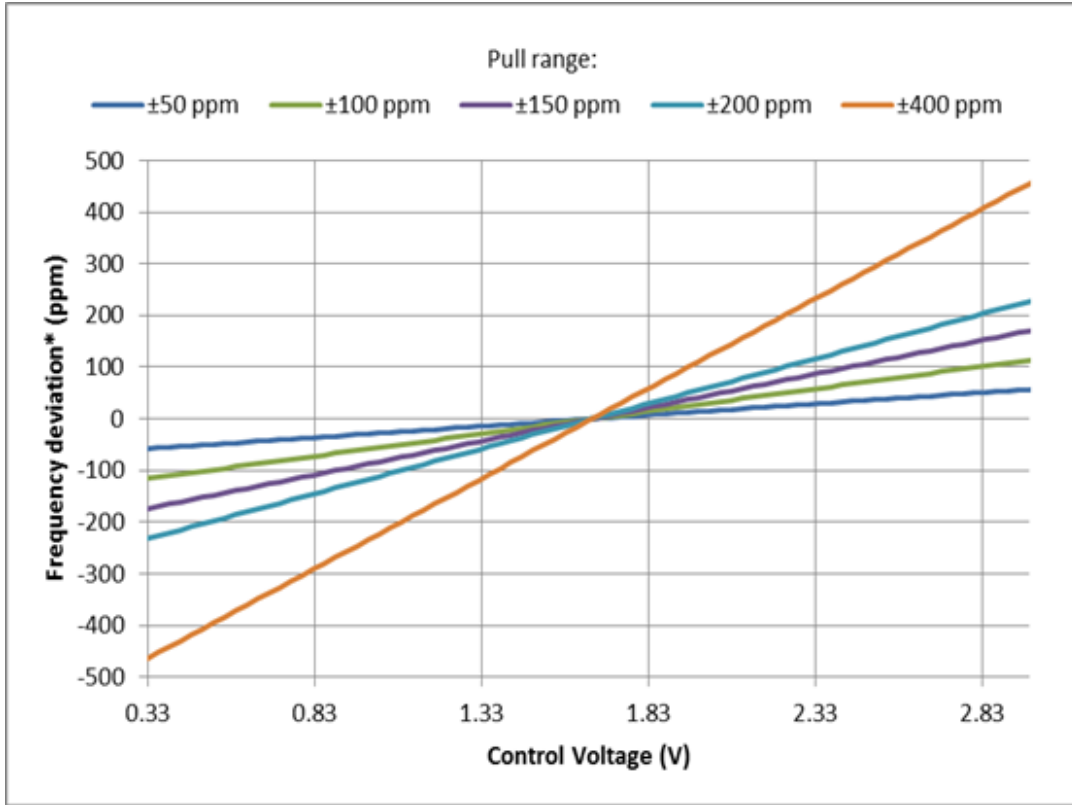


Figure 4: Frequency pull characteristic

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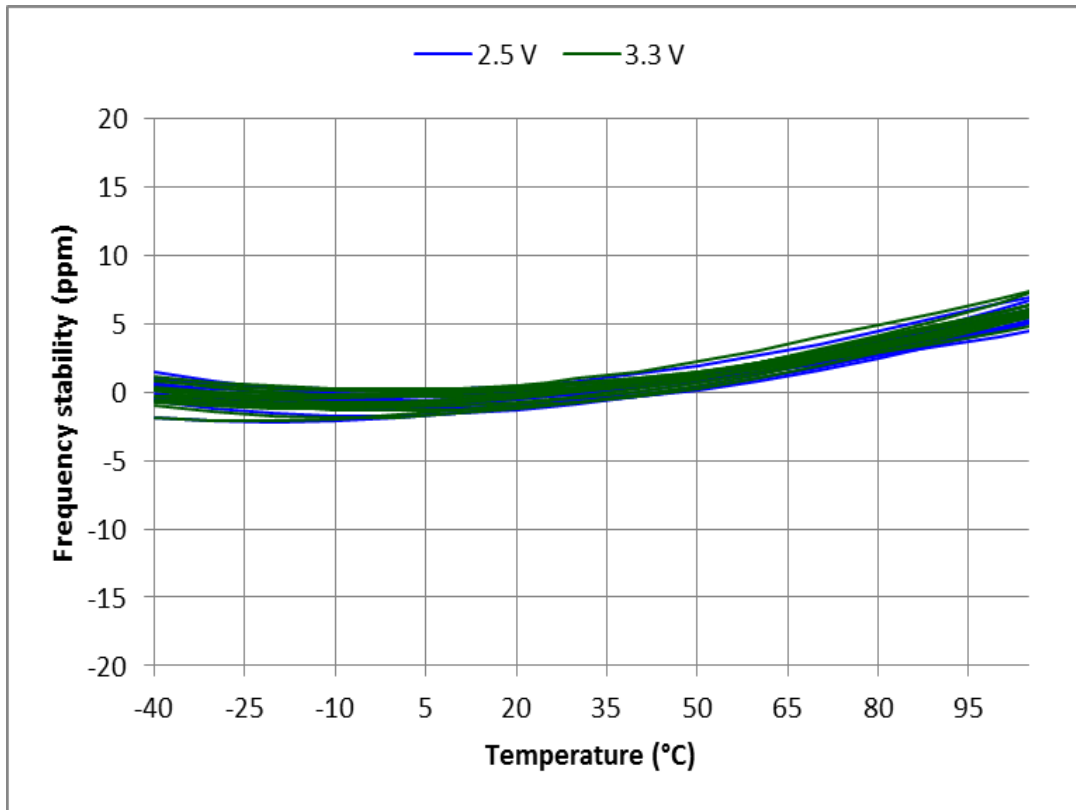


Figure 5: Frequency stability\* over temperature, 2.5 V – 3.3 V, 30 devices

\*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	1.10	1.09
Period jitter (sample size 10,000 cycles)	ps, pk-pk	8.24	8.34
Duty cycle	%	50.0	50.0
Rise time (20% - 80%)	ps	370	366
Fall time (80% - 20%)	ps	368	365
Differential voltage swing	V	1.38	1.44
Current consumption (no load, output enabled)	mA	82.3	82.7
Current consumption (no load, output disabled)	mA	57.5	57.6

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## Test description


### Conditions:

- Frequency: 74.25 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 30  $\Omega$  series and 50  $\Omega$  to GND. 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.

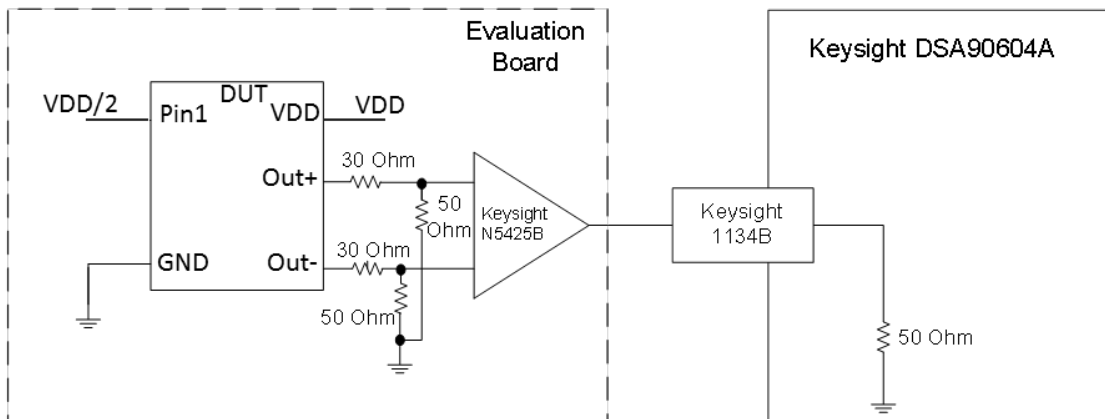


Figure 6. Test setup for measuring waveform parameters (rise/fall time, differential swing, duty cycle)

### Period Jitter

For period jitter measurement output is terminated with 30  $\Omega$  series and 50  $\Omega$  to GND at the input of hi-speed comparator (ADCMP581). AC coupled comparator's output is connected to oscilloscope channel. Figure 7 shows test setup diagram for period jitter measurement.

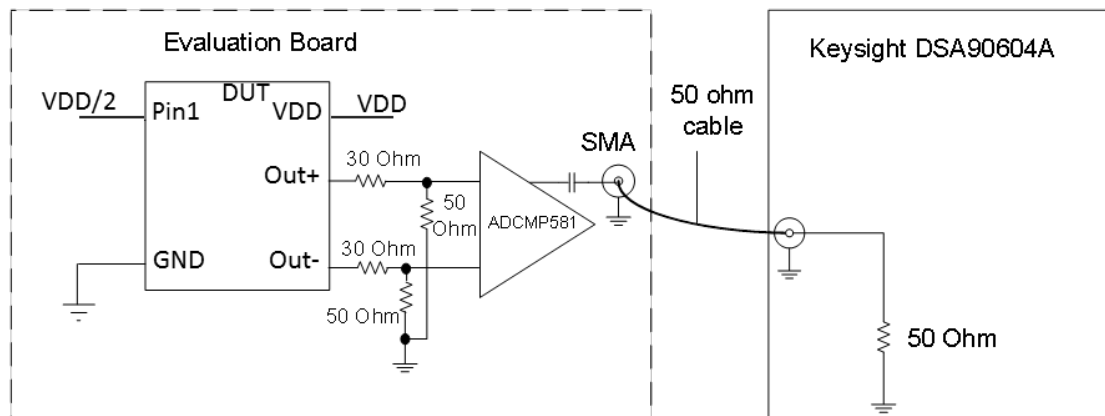



Figure 7. Test setup for measuring period jitter

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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. Output is also terminated with 30 Ω series at the source side. Figure 8 shows test setup diagram for phase noise measurement.

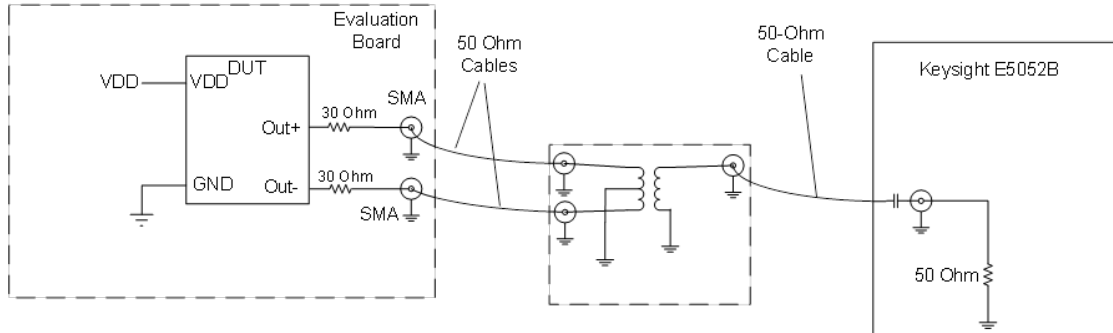


Figure 8. Test setup for measuring phase noise.

**Current consumption**

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

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