	Title:	Performance report for SiT3372, 125 MHz, HCSSL		
	Type:	Performance report	Rev:	1.2
	Orig:		Date:	September 07, 2018

Performance report for SiT3372 - 125 MHz, HCSSL

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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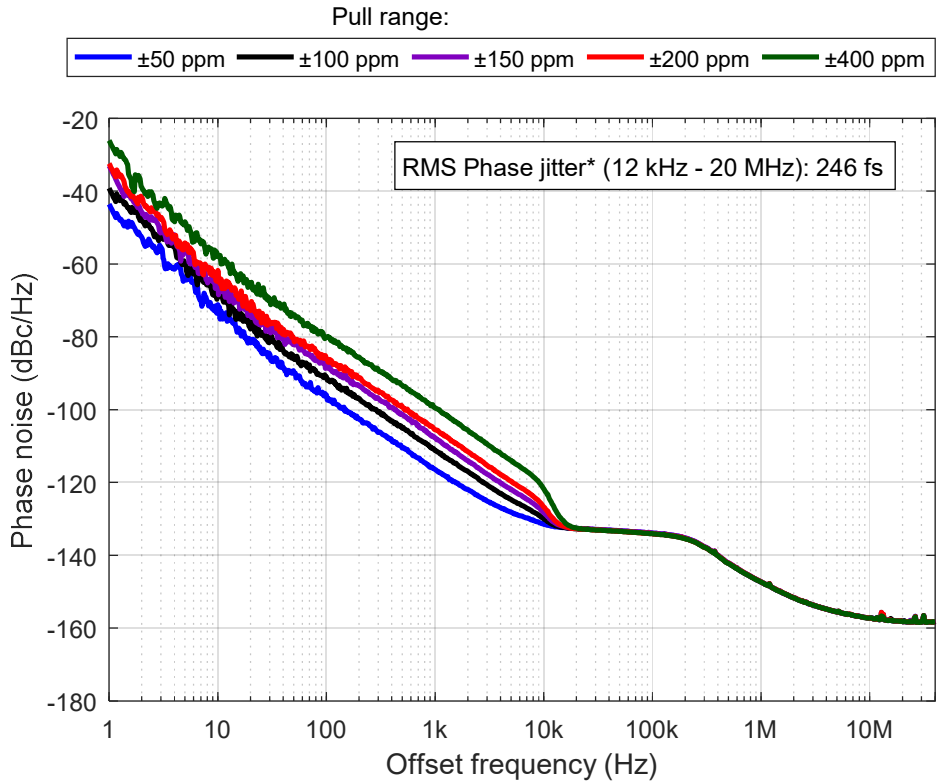


Figure 1: Phase noise, 3.3 V

**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	-43.5	-39.2	-33.0	-32.4	-26.1
10	-71.2	-68.7	-65.2	-61.8	-57.8
100	-96.0	-91.0	-87.7	-85.9	-80.2
1 K	-116.4	-111.3	-107.7	-105.6	-99.5
10 K	-131.3	-130.0	-128.3	-126.7	-121.8
100 K	-133.9	-134.1	-133.9	-134.1	-134.0
1 M	-147.4	-147.4	-147.3	-147.3	-147.4
10 M	-157.3	-157.3	-157.3	-157.3	-157.3
40 M	-158.3	-158.3	-158.3	-158.3	-158.3


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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	115
Integrated Phase jitter (12 kHz - 20 MHz)	fs, rms	246


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Figure 2: Output waveform, 2.5 V



Figure 3: Output waveform, 3.3 V

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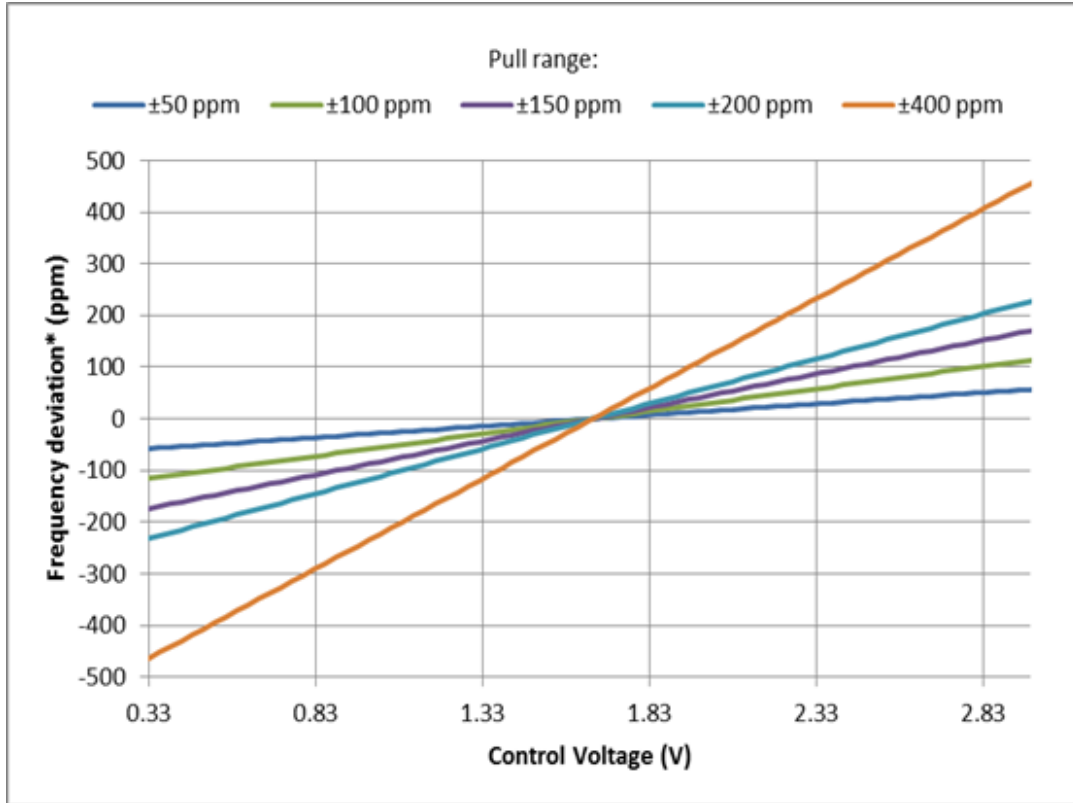


Figure 4: Frequency pull characteristic

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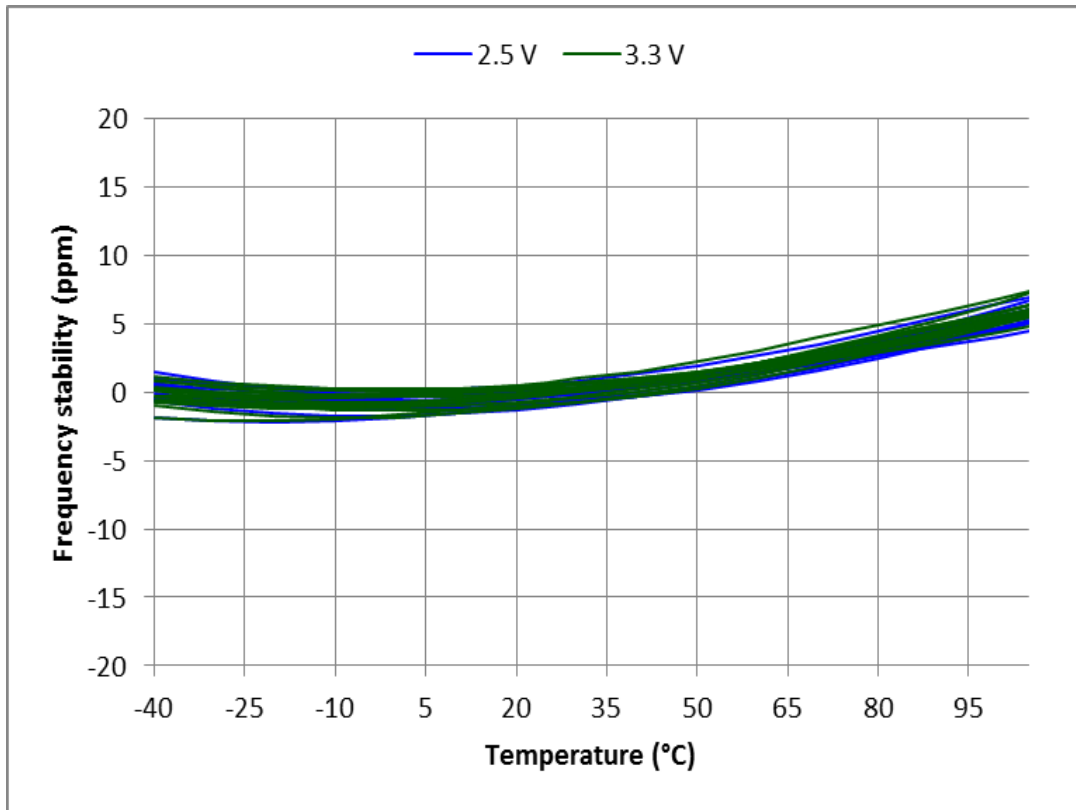


Figure 5: Frequency stability* over temperature, 2.5 V – 3.3 V, 30 devices

*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	0.97	0.98
Period jitter (sample size 10,000 cycles)	ps, pk-pk	7.70	7.56
Duty cycle	%	50.0	50.1
Rise time (20% - 80%)	ps	374	369
Fall time (80% - 20%)	ps	373	370
Differential voltage swing	V	1.43	1.49
Current consumption (no load, output enabled)	mA	83.0	83.5
Current consumption (no load, output disabled)	mA	57.0	57.1

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Test description

Conditions:

- Frequency: 125 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

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Setup

Waveform

For waveform parameters measurement (rise/fall time, differential swing, duty cycle), both DUT outputs are terminated with 30 Ω series and 50 Ω 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.

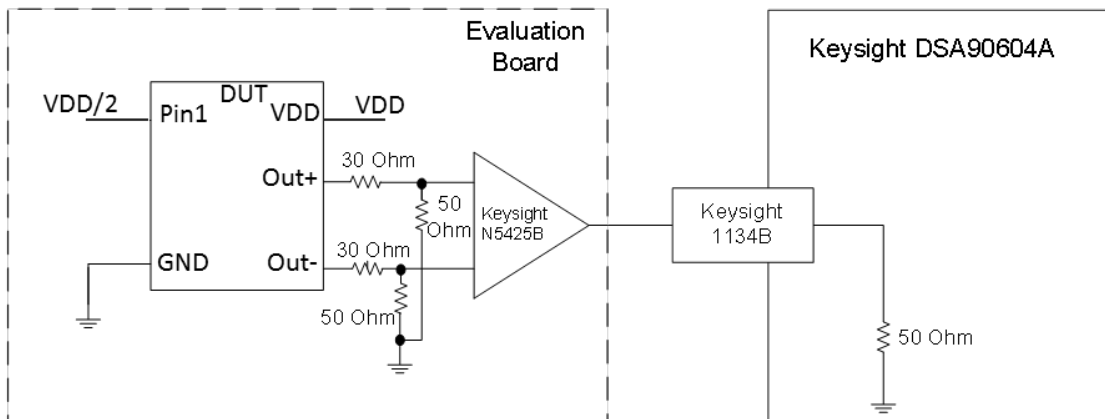


Figure 6. Test setup for measuring waveform parameters (rise/fall time, differential swing, duty cycle)

Period Jitter

For period jitter measurement output is terminated with 30 Ω series and 50 Ω 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.

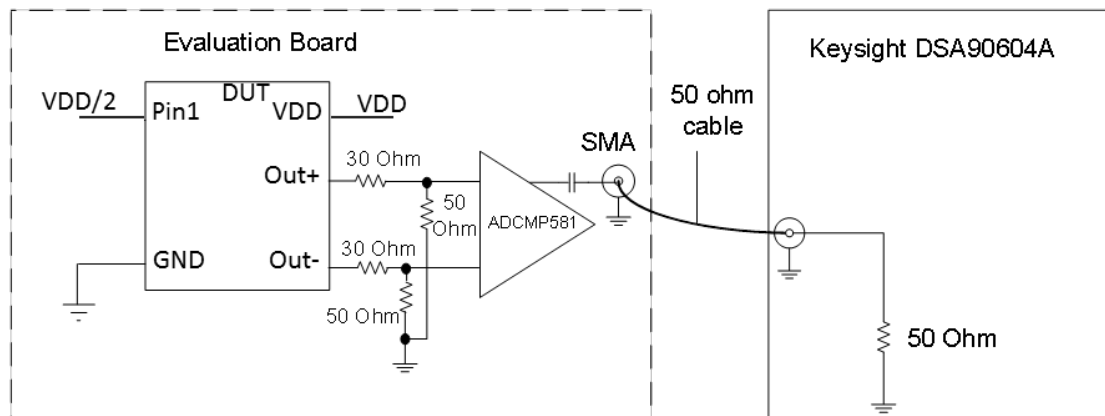



Figure 7. Test setup for measuring period jitter

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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.

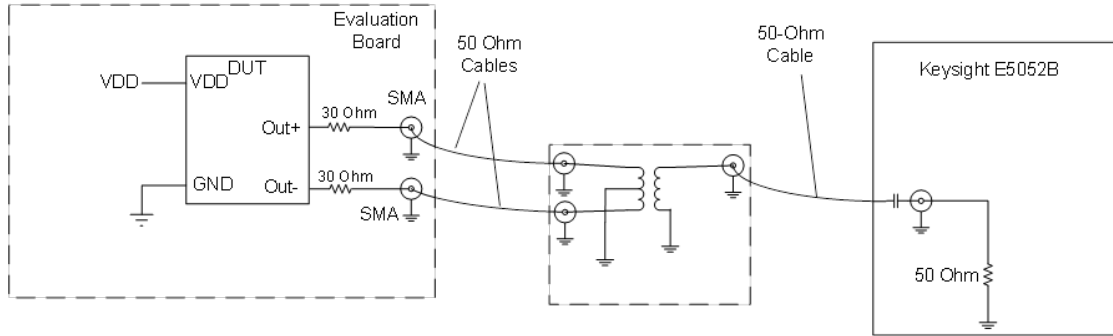


Figure 8. Test setup for measuring phase noise.

Current consumption

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