	<b>Title:</b>	Performance report for SiT3373, 491.52 MHz, LVPECL		
	<b>Type:</b>	Performance report	<b>Rev:</b>	1.2
	<b>Orig:</b>		<b>Date:</b>	September 07, 2018

## Performance report for SiT3373 - 491.52 MHz, LVPECL

### 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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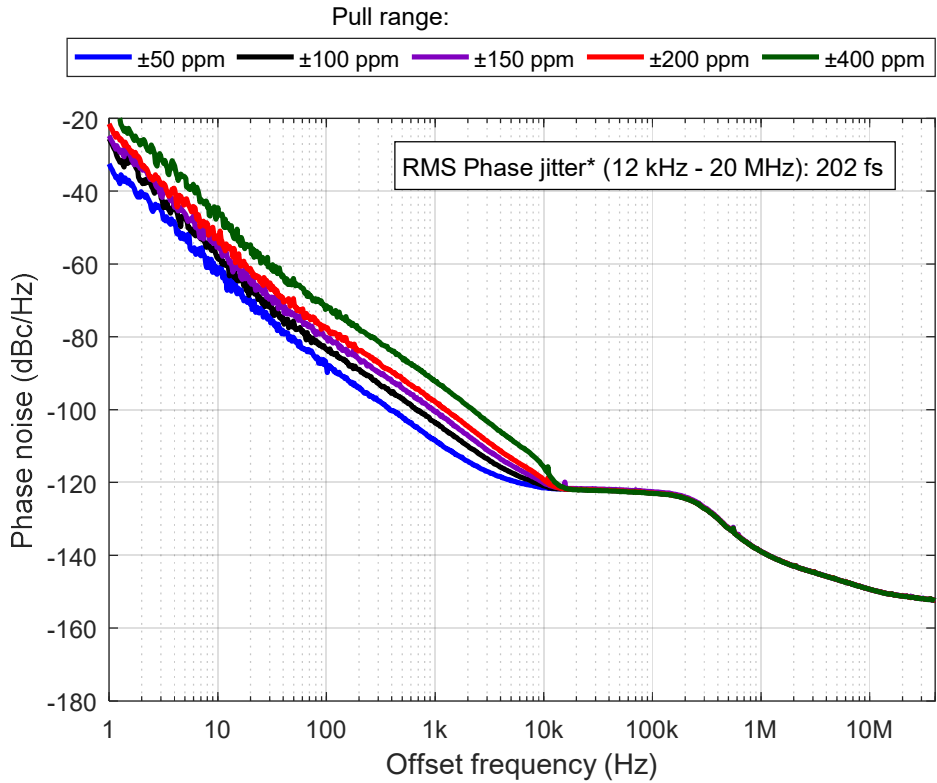


Figure 1: Phase noise, 3.3 V

*\*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	-32.5	-25.5	-24.8	-21.5	-13.1
10	-61.4	-58.5	-55.2	-52.2	-44.6
100	-88.0	-83.5	-80.4	-77.8	-71.5
1 K	-108.4	-103.7	-100.4	-97.9	-92.2
10 K	-121.5	-120.9	-120.2	-119.3	-115.8
100 K	-122.9	-122.9	-122.5	-122.9	-123.0
1 M	-139.0	-139.0	-138.9	-139.0	-139.0
10 M	-149.3	-149.4	-149.3	-149.3	-149.4
40 M	-152.4	-152.4	-152.4	-152.4	-152.4


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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	75
Integrated Phase jitter (12 kHz - 20 MHz)	fs, rms	202

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Figure 2: Output waveform, 2.5 V



Figure 3: Output waveform, 3.3 V

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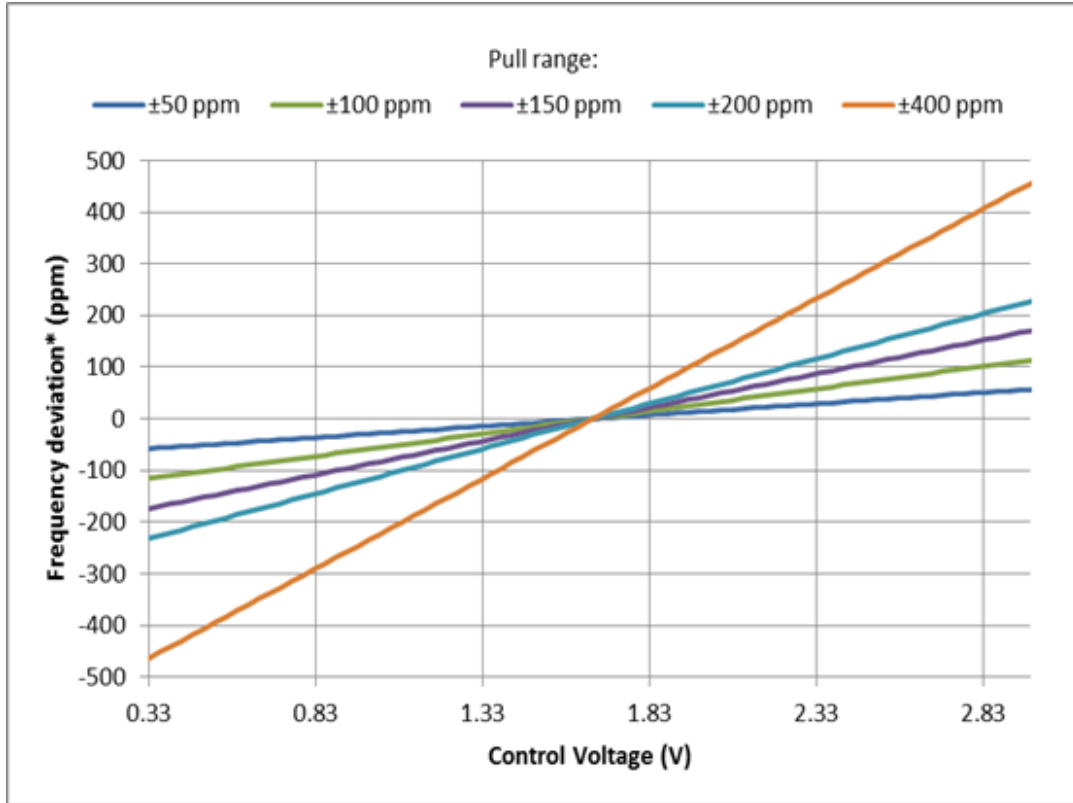


Figure 4: Frequency pull characteristic

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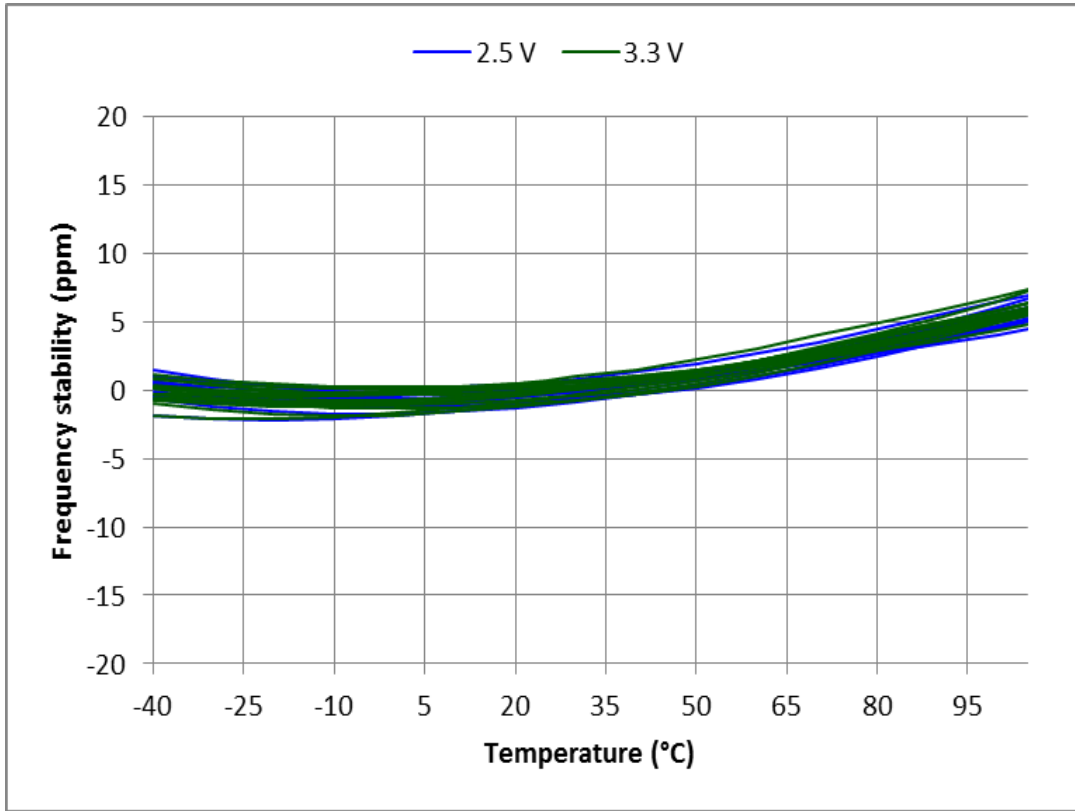


Figure 5: Frequency stability\* over temperature, 2.5 V – 3.3 V, 30 devices

*\*SiT3373 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	7.52	7.53
Duty cycle	%	51.8	51.9
Rise time (20% - 80%)	ps	214	203
Fall time (80% - 20%)	ps	216	206
Differential voltage swing	V	1.48	1.46
Current consumption (no load, output enabled)	mA	81.4	81.8
Current consumption (no load, output disabled)	mA	57.5	57.5

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## Test description


### Conditions:

- Frequency: 491.52 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 Gbps)	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 50  $\Omega$  to VDD - 2 V. 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.

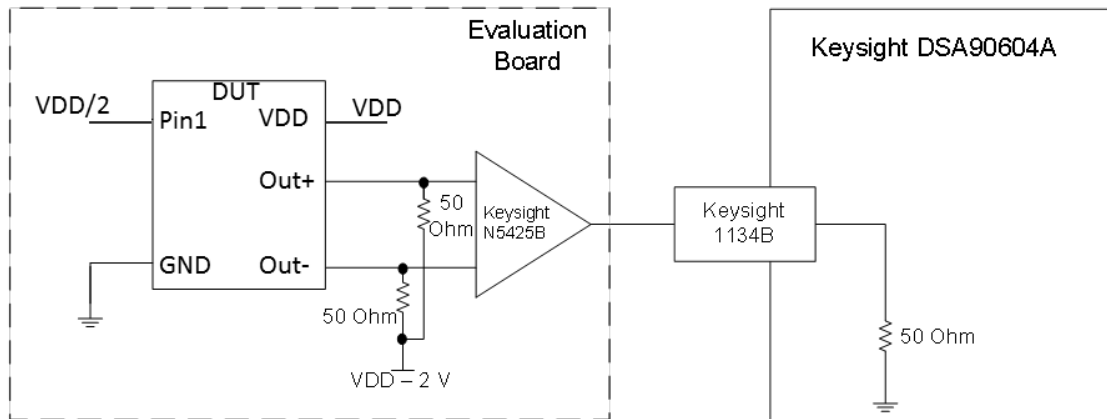


Figure 6. Test setup for measuring waveform parameters (rise/fall time, differential swing, duty cycle)

### Period Jitter

For period jitter measurement output is terminated with 50  $\Omega$  to VDD - 2 V 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.

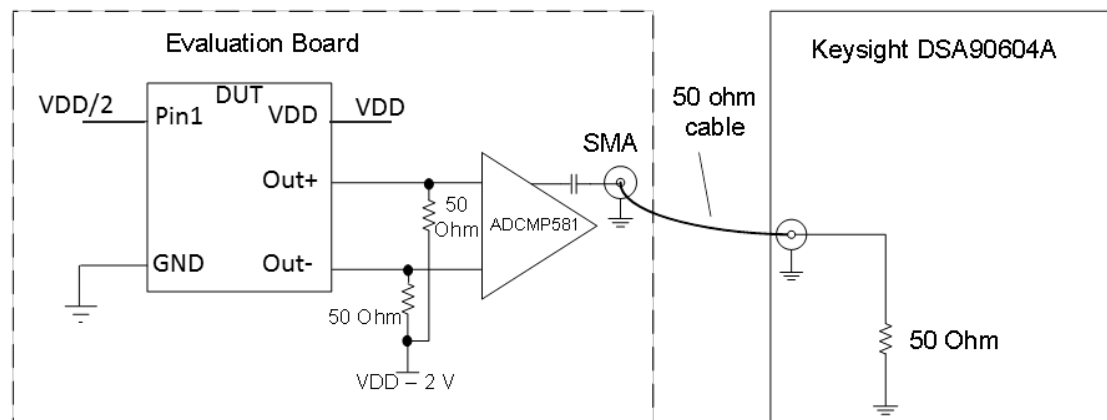


Figure 7. Test setup for measuring period jitter

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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. Figure 8 shows test setup diagram for phase noise measurement.

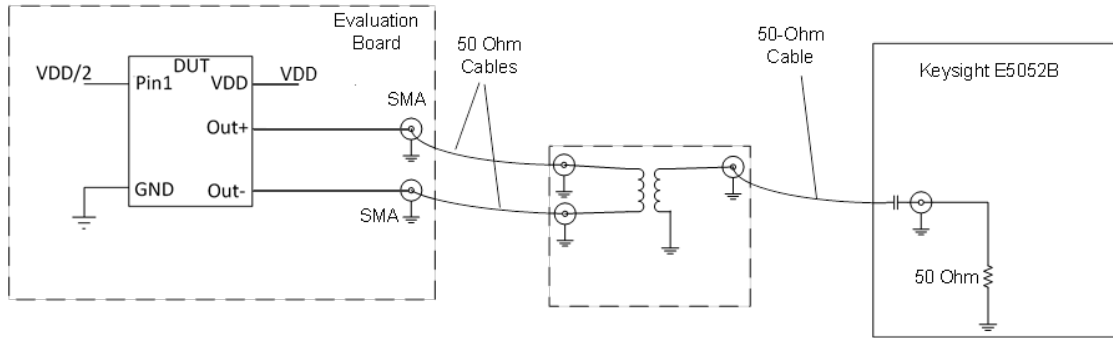


Figure 8. Test setup for measuring phase noise.

**Current consumption**

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