Performance report for SiT3372 - 160 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

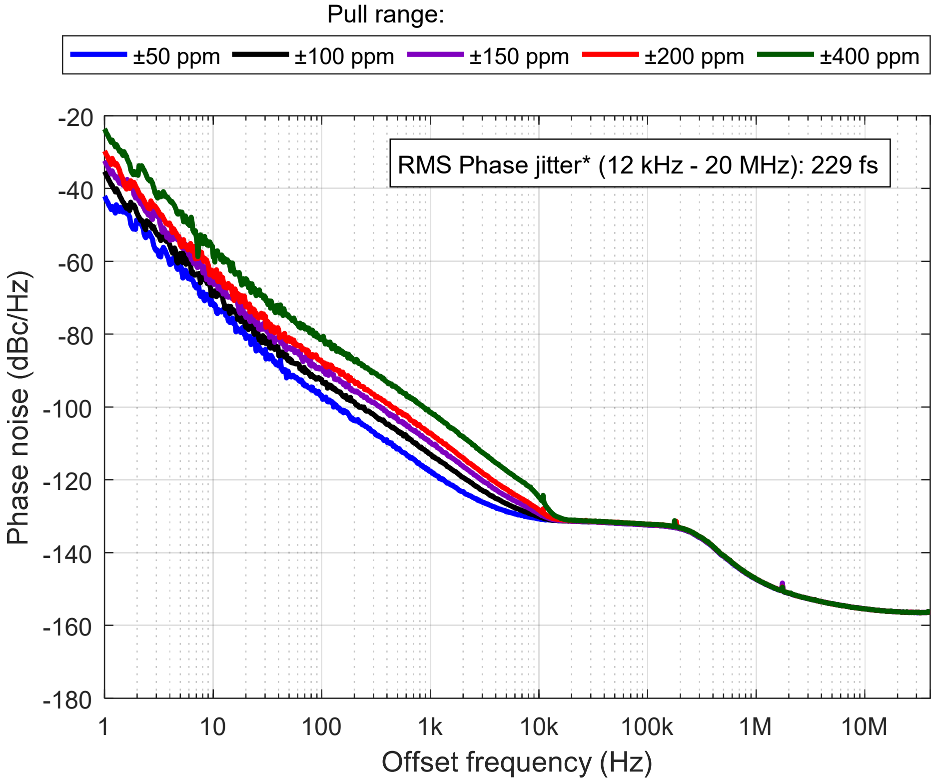

Figure 1: Phase noise, 3.3 V

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	-42.1	-35.3	-32.3	-29.6	-23.6
10	-71.6	-69.5	-65.2	-63.9	-58.9
100	-96.9	-92.4	-89.4	-87.6	-81.4
1 K	-117.6	-113.0	-109.7	-107.2	-101.4
10 K	-130.7	-130.2	-129.4	-128.3	-124.8
100 K	-132.4	-132.4	-132.4	-132.2	-132.2
1 M	-147.4	-147.3	-147.3	-147.2	-147.2
10 M	-155.5	-155.5	-155.5	-155.5	-155.5
40 M	-156.4	-156.4	-156.4	-156.4	-156.3

Table 2: Integrated Phase jitter

Parameter	Units	Pull range (ppm)
		±50 to ±400
Integrated Phase jitter (1.875 MHz - 20 MHz)	fs, rms	106
Integrated Phase jitter (12 kHz - 20 MHz)	fs, rms	229

Figure 2: Output waveform, 2.5 V

Figure 3: Output waveform, 3.3 V

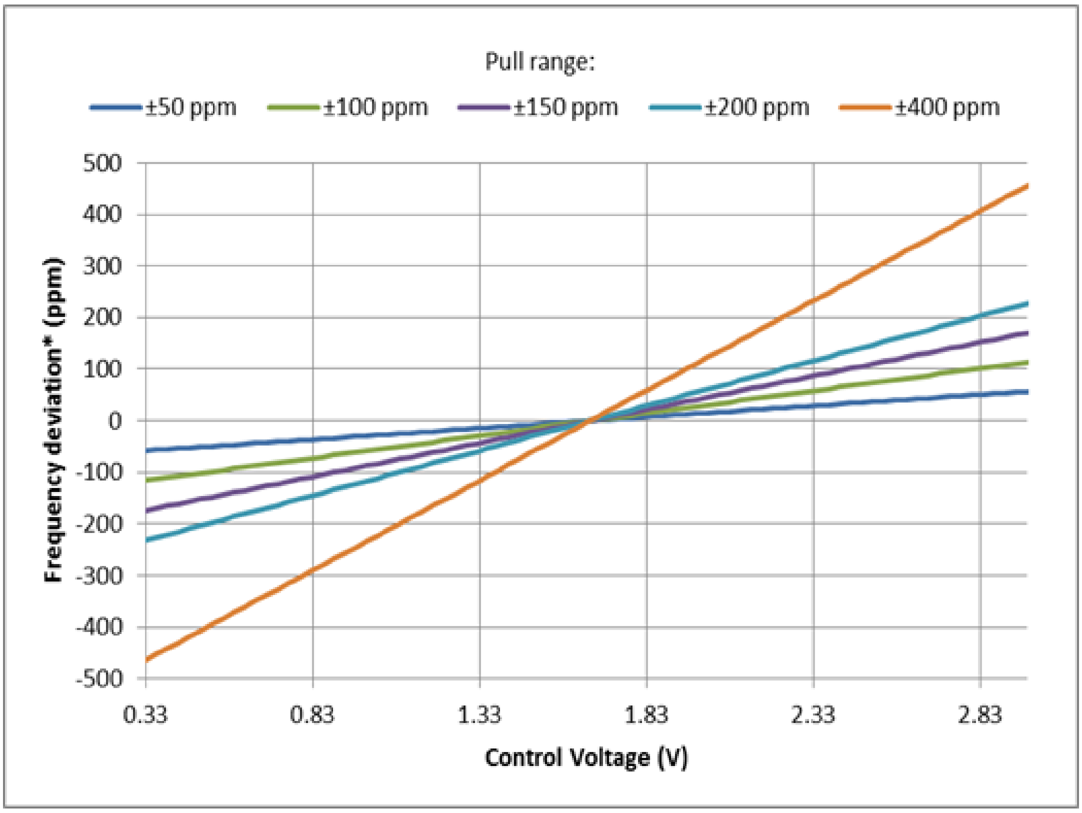

Figure 4: Frequency pull characteristic

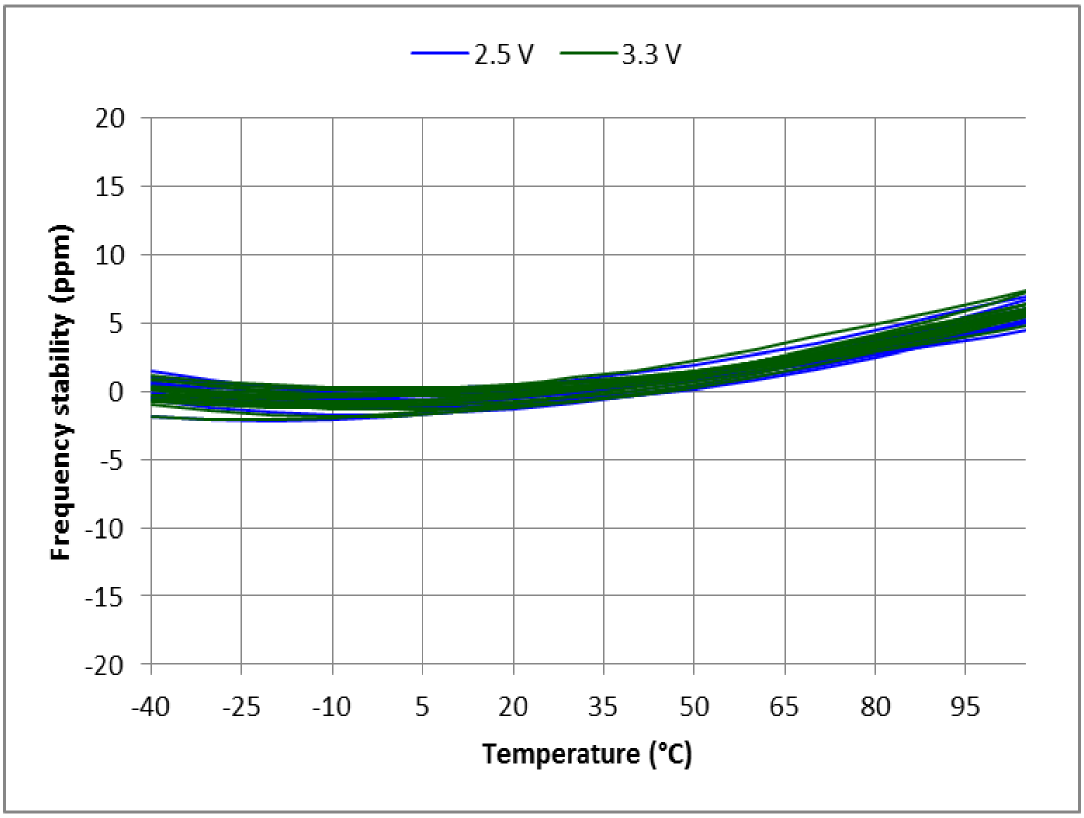

Figure 5: Frequency stability* over temperature, 2.5 V – 3.3 V, 30 devices

**SiT3372 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	1.02	0.96
Period jitter (sample size 10,000 cycles)	ps, pk-pk	7.52	7.57
Duty cycle	%	50.1	50.1
Rise time (20% - 80%)	ps	214	204
Fall time (80% - 20%)	ps	212	201
Differential voltage swing	V	1.63	1.62
Current consumption (no load, output enabled)	mA	82.8	83.2
Current consumption (no load, output disabled)	mA	56.6	56.7

Test description

Conditions:

- Frequency: 160 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 50 Ω 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.

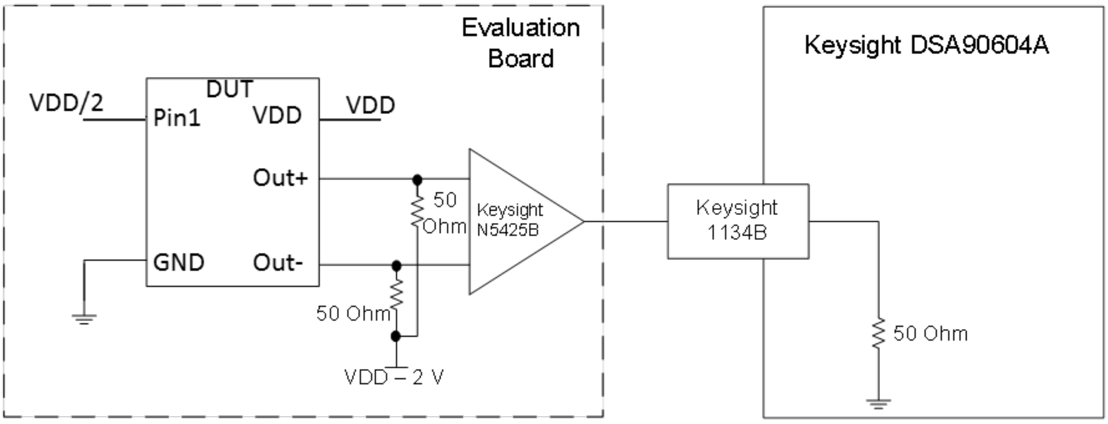

Figure 6. Test setup for measuring waveform parameters (rise/fall time, differential swing, duty cycle)

Period Jitter
For period jitter measurement output is terminated with 50 Ω 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.

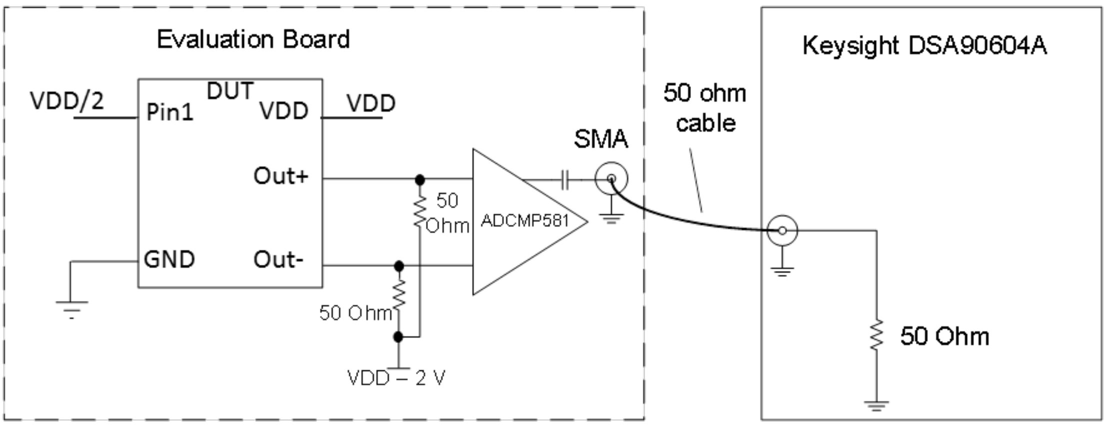

Figure 7. Test setup for measuring period jitter

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.

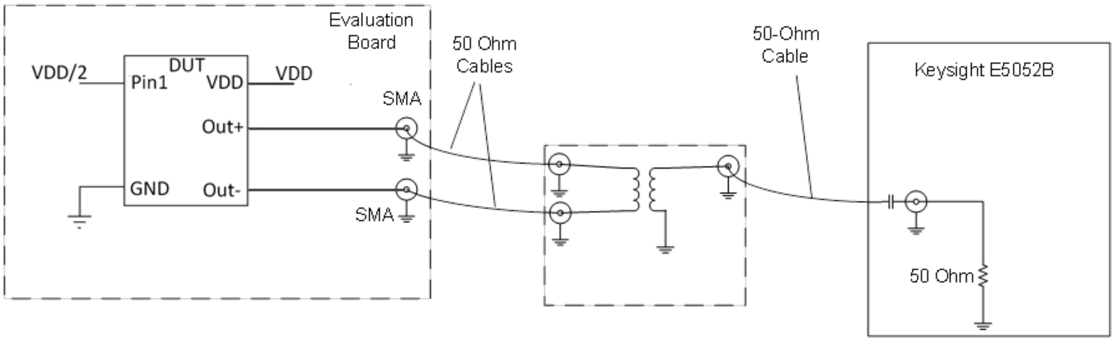

Figure 8. Test setup for measuring phase noise.

Current consumption

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