# Performance report for SiT3373 - 329.142857 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

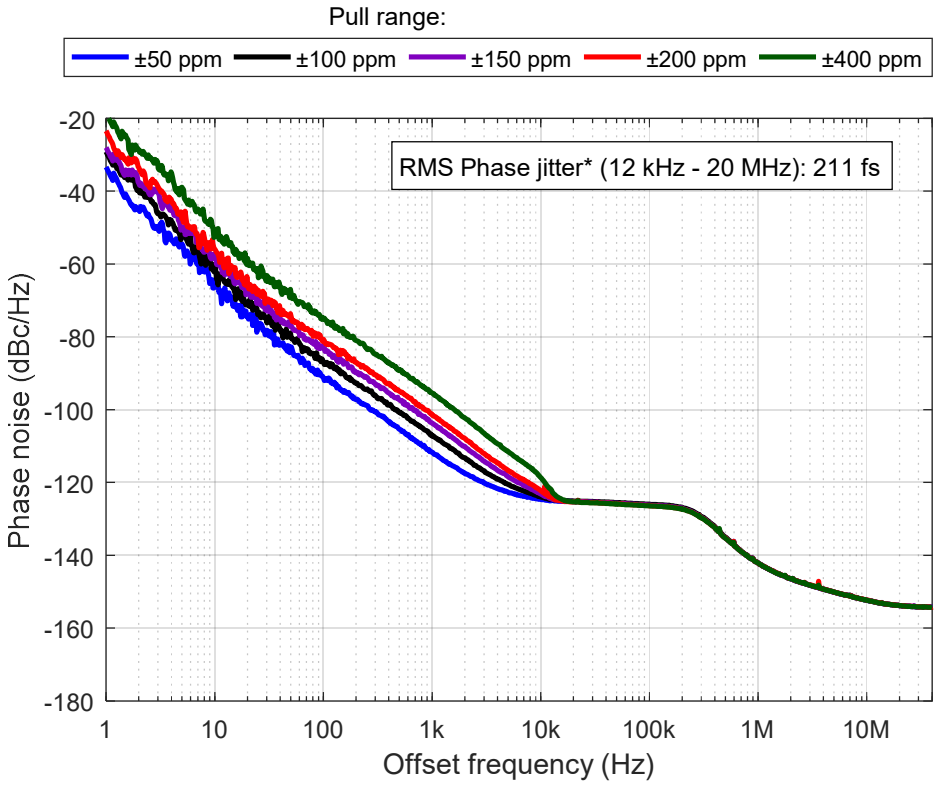


Figure 1: Phase noise, 3.3 V

**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 | -33.4 | -29.2 | -28.0 | -23.5 | -18.6 |
| 10 | -65.4 | -61.1 | -57.7 | -56.0 | -52.5 |
| 100 | -91.2 | -86.9 | -82.8 | -80.7 | -74.9 |
| 1 K | -111.7 | -107.3 | -103.7 | -101.5 | -95.4 |
| 10 K | -124.7 | -124.0 | -123.2 | -122.3 | -118.6 |
| 100 K | -126.2 | -126.0 | -126.2 | -126.4 | -126.4 |
| 1 M | -142.2 | -142.1 | -142.1 | -142.1 | -142.1 |
| 10 M | -152.3 | -152.3 | -152.3 | -152.3 | -152.3 |
| 40 M | -154.2 | -154.2 | -154.2 | -154.2 | -154.2 |

Table 2: Integrated Phase jitter

| Parameter | Units | Pull range (ppm) |
|---|---|---|
| | | ±50 to ±400 |
| Integrated Phase jitter (1.875 MHz - 20 MHz) | fs, rms | 77 |
| Integrated Phase jitter (12 kHz - 20 MHz) | fs, rms | 211 |


Figure 2: Output waveform, 2.5 V


Figure 3: Output waveform, 3.3 V

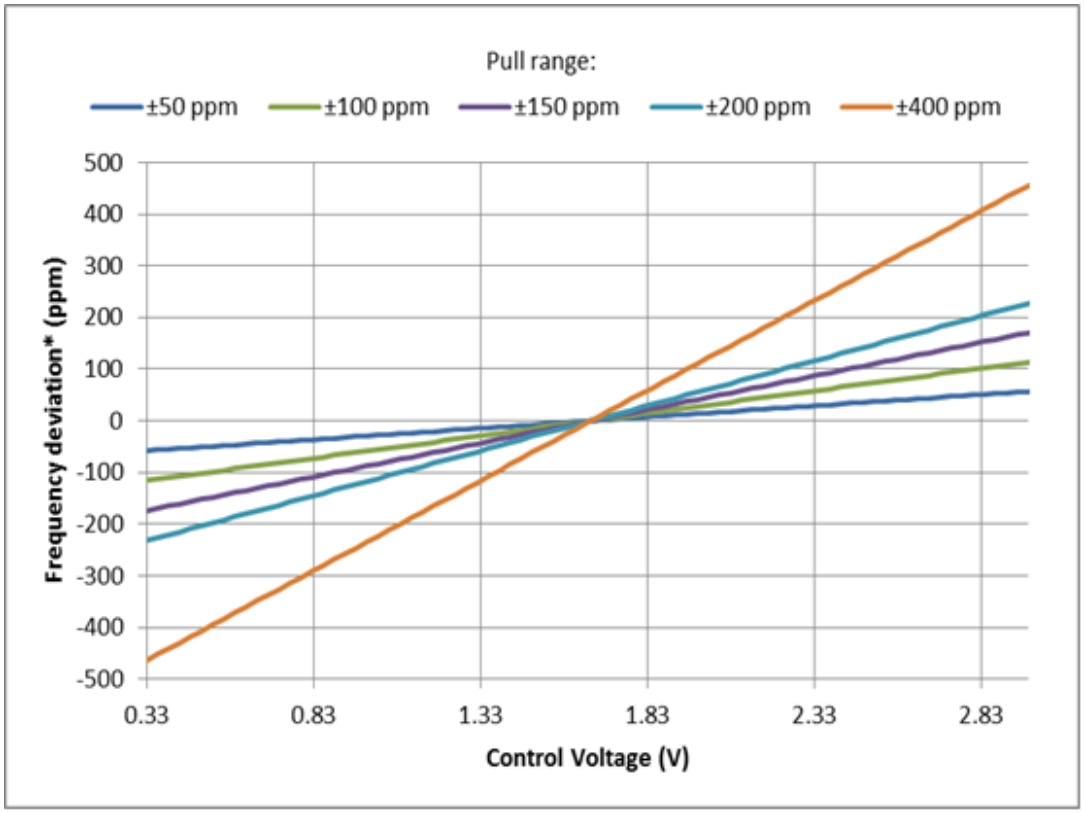


Figure 4: Frequency pull characteristic

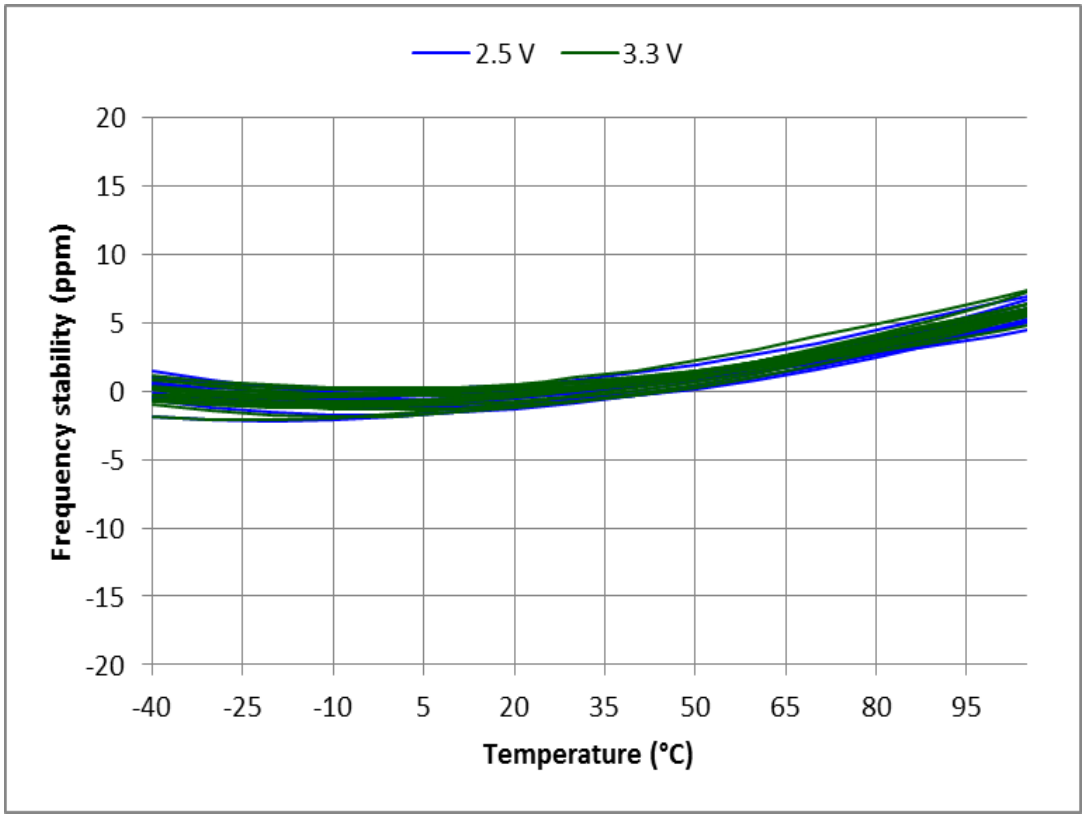


Figure 5: Frequency stability* over temperature, 2.5 V – 3.3 V, 30 devices

**SiT3373 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 | 1.02 |
| Period jitter (sample size 10,000 cycles) | ps, pk-pk | 7.80 | 7.72 |
| Duty cycle | % | 50.3 | 50.3 |
| Rise time (20% - 80%) | ps | 215 | 205 |
| Fall time (80% - 20%) | ps | 215 | 205 |
| Differential voltage swing | V | 1.46 | 1.44 |
| Current consumption (no load, output enabled) | mA | 79.5 | 79.8 |
| Current consumption (no load, output disabled) | mA | 55.6 | 55.6 |

## Test description

### Conditions:

- Frequency: 329.142857 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.

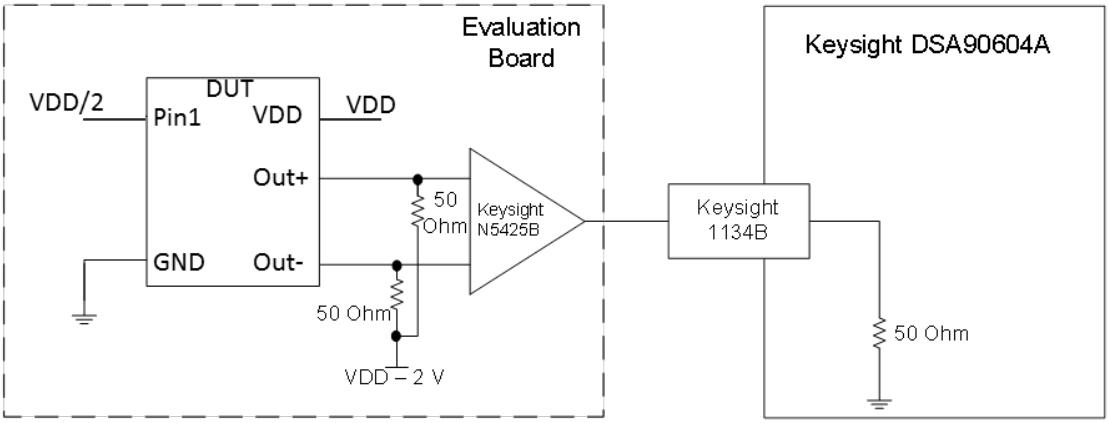


Figure 6. Test setup for measuring waveform parameters (rise/fall time, differential swing, duty cycle)

### 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.

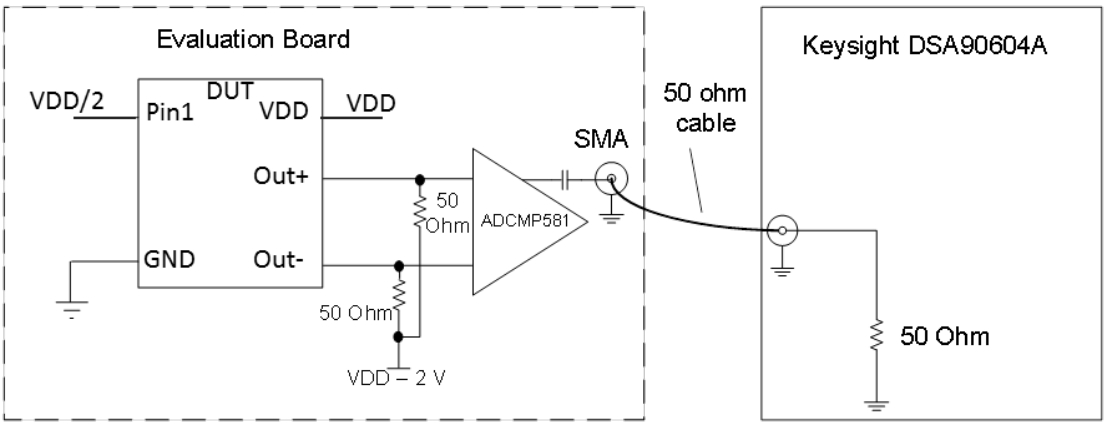


Figure 7. Test setup for measuring period jitter

**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.

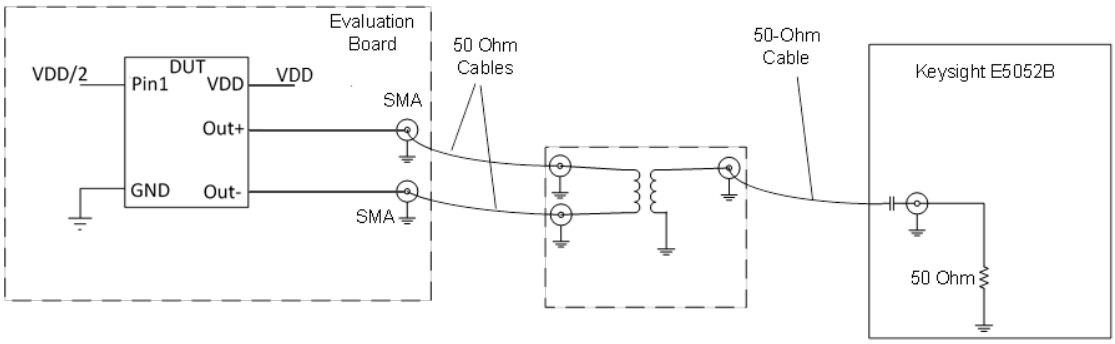


Figure 8. Test setup for measuring phase noise.

**Current consumption**

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