


|   |               |   |              |                     |  |
|---|---------------|---|--------------|---------------------|--|
|  | <b>Title:</b> | <b>Performance Report SiT1602B, 33.3MHz</b> |              |                     |  |
|   | <b>Type:</b>  | <b>Performance report</b>                   | <b>Rev:</b>  | <b>1.0</b>          |  |
|   | <b>Orig:</b>  |   | <b>Date:</b> | <b>Mar 31, 2014</b> |  |

**This report contains sample performance data for SiT1602B-33.3MHz.**

**Conditions:**

- Frequency 33.3 MHz
- Vdd 1.8V, 2.5V, 2.8V, 3.0V, 3.3V
- Temperature 25 °C
- Termination:
  - o No load for IDD
  - o 50Ω to GND for phase noise
  - o 15pF for other tests

**Equipment:**

- Agilent DSA90604 oscilloscope (6GHz, 20Gpsps)
  - o Period jitter, waveform, rise/fall time, duty cycle, amplitude
- Agilent E5052B Signal Source Analyzer
  - o Phase noise, integrated phase jitter
- Power supply current
  - o Agilent 34401A DMM


**Data:**

- Random Phase jitter, Period Jitter, Duty cycle, Rise/Fall time, Amplitude, Idd
- Output waveforms
- Frequency stability versus temperature

Table 1. Performance data

| Parameter                                      | Units     | Voltage |       |       |       |       |
|--|-----------|---------|-------|-------|-------|-------|
|  |           | 1.8 V   | 2.5 V | 2.8 V | 3.0 V | 3.3 V |
| Random Phase jitter (900kHz - 5MHz)            | ps, rms   | 0.52    | 0.53  | 0.53  | 0.53  | 0.53  |
| Random Phase jitter (12kHz - 5MHz)             | ps, rms   | 1.36    | 1.34  | 1.33  | 1.33  | 1.33  |
| Random Phase jitter (900kHz - 20MHz)*          | ps, rms   | 0.78    | 0.81  | 0.81  | 0.81  | 0.81  |
| Random Phase jitter (12kHz - 20MHz)*           | ps, rms   | 1.48    | 1.48  | 1.46  | 1.47  | 1.46  |
| Period jitter                                  | ps, rms   | 1.84    | 1.71  | 1.70  | 1.68  | 1.65  |
| Period jitter (10,000 cycles)                  | ps, pk-pk | 13.5    | 12.2  | 12.1  | 12.2  | 11.8  |
| Duty cycle                                     | %         | 49.9    | 49.8  | 50.1  | 50.3  | 50.5  |
| Rise time (20% - 80%)                          | ns        | 1.25    | 1.03  | 0.95  | 0.99  | 0.93  |
| Fall time (80% - 20%)                          | ns        | 1.24    | 0.98  | 0.91  | 0.96  | 0.92  |
| Amplitude                                      | V         | 1.77    | 2.46  | 2.76  | 2.98  | 3.29  |
| Current consumption (no load, output enabled)  | mA        | 3.76    | 3.93  | 4.00  | 4.04  | 4.13  |
| Current consumption (no load, output disabled) | mA        | 3.46    | 3.53  | 3.58  | 3.62  | 3.70  |

\*Calculated by extending the noise floor of the phase noise from 5 MHz to 20 MHz

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|   | <b>Orig:</b>  |                                      | <b>Date:</b> | Mar 31, 2014 |

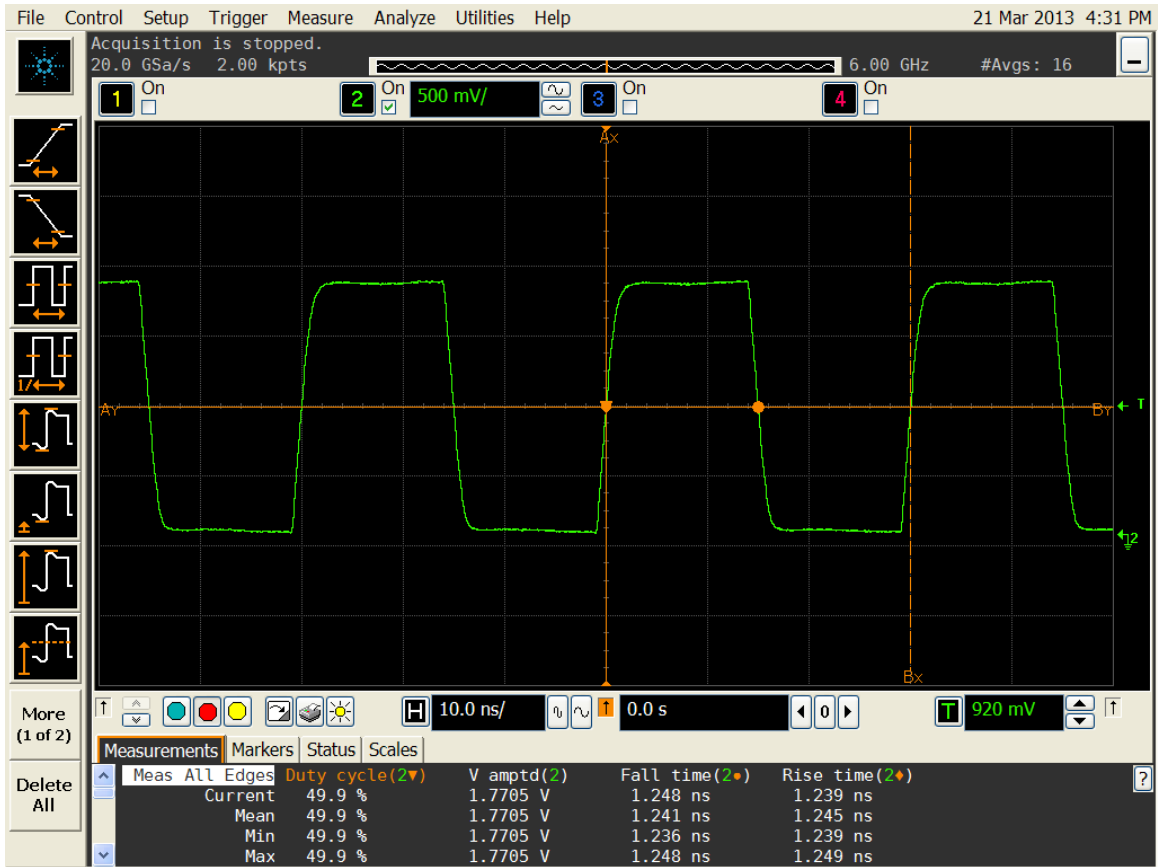


Figure 1. Duty cycle, Rise/Fall time and Amplitude 1.8V

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Figure 2. Duty cycle, Rise/Fall time and Amplitude 2.5V

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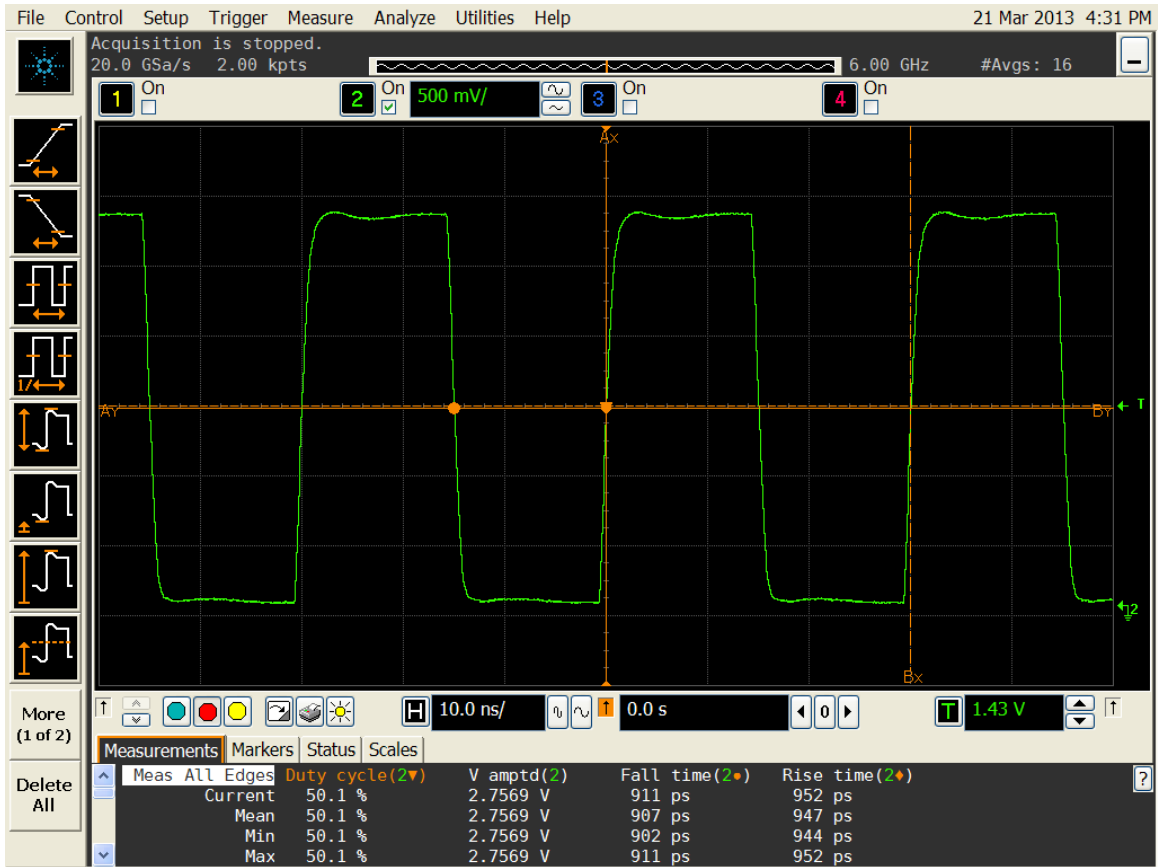



Figure 3. Duty cycle, Rise/Fall time and Amplitude 2.8V

|   |               |                                      |              |              |
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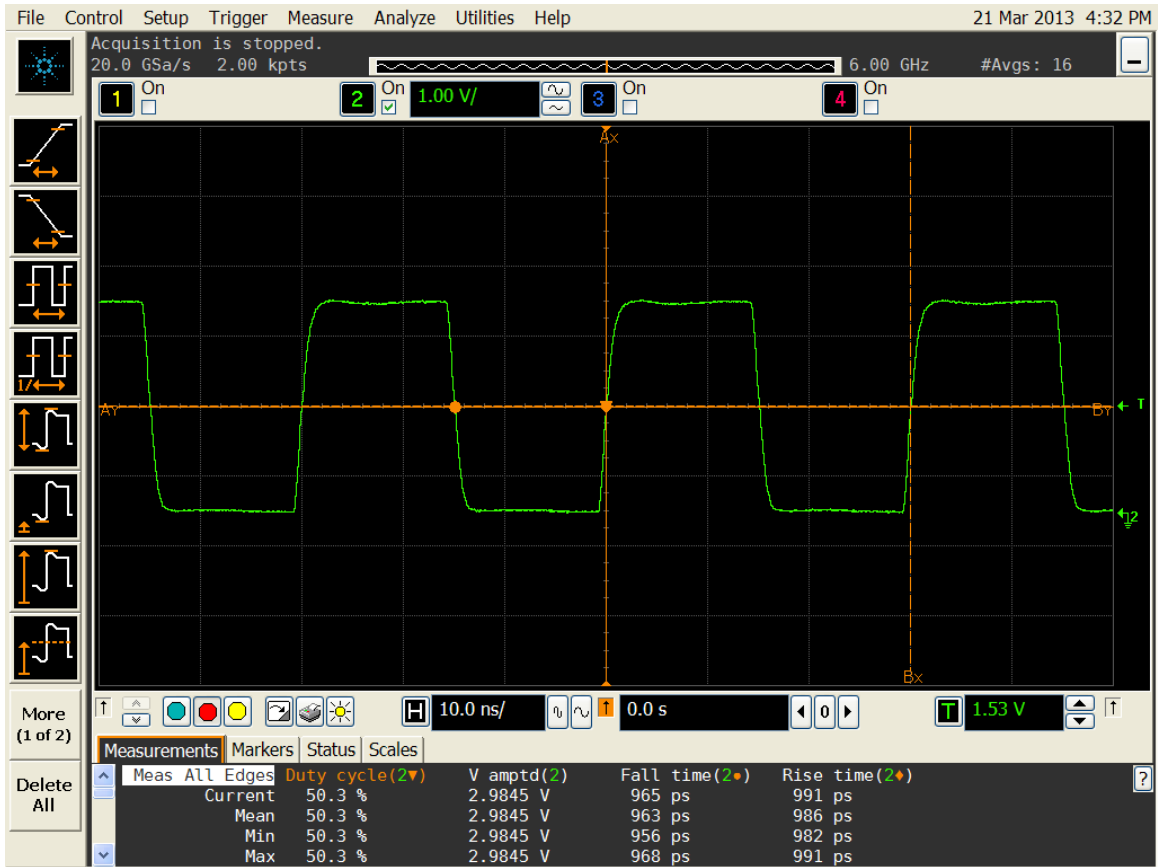



Figure 4. Duty cycle, Rise/Fall time and Amplitude 3.0V

|   |               |                                      |              |              |
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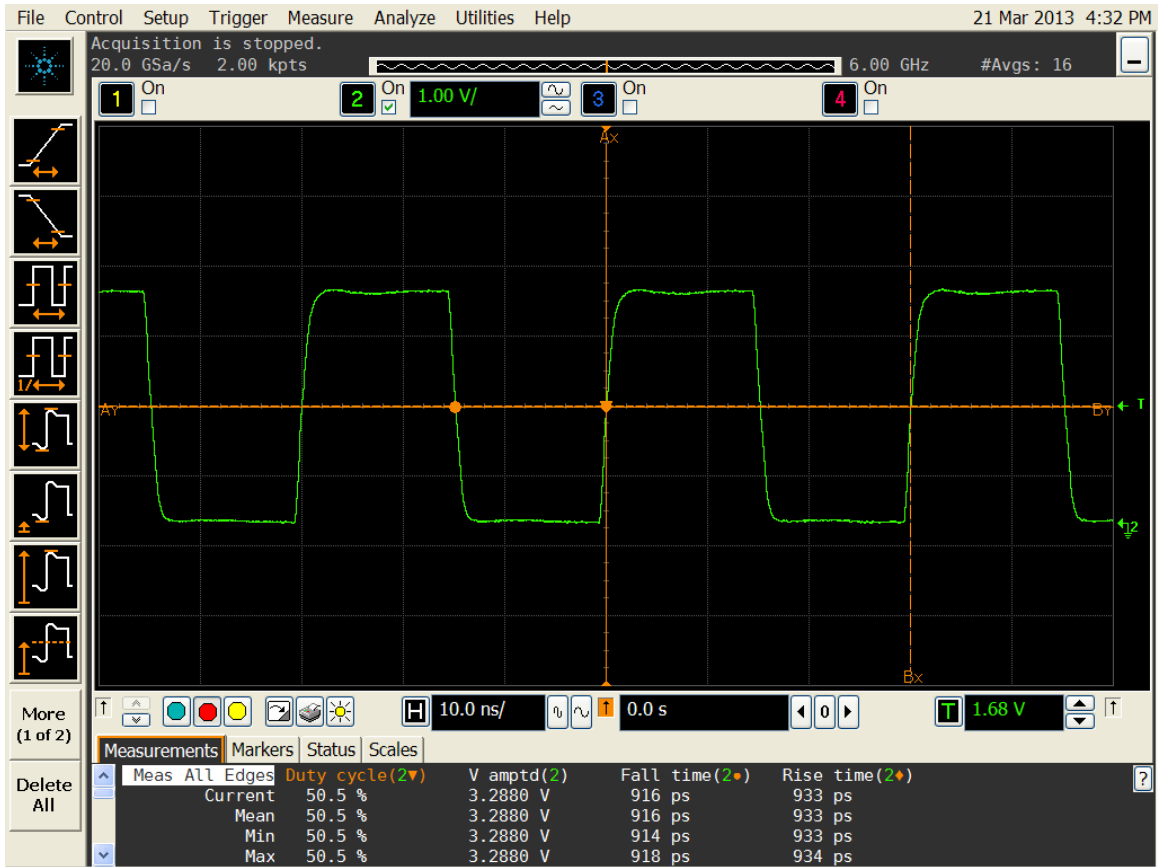



Figure 5. Duty cycle, Rise/Fall time and Amplitude 3.3V

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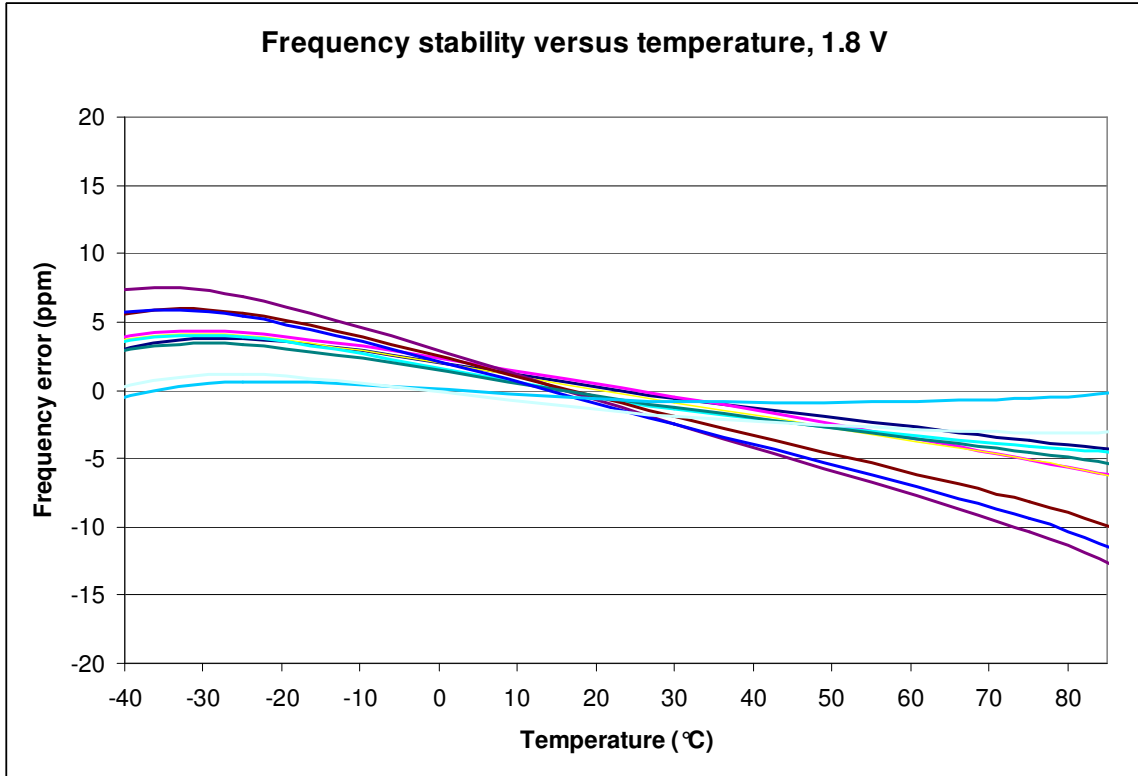



Figure 6. Frequency stability\* versus temperature, 1.8 V

\*Please note that frequency stability in SiTime devices is not depended on output frequency.

|   |               |                                      |                           |
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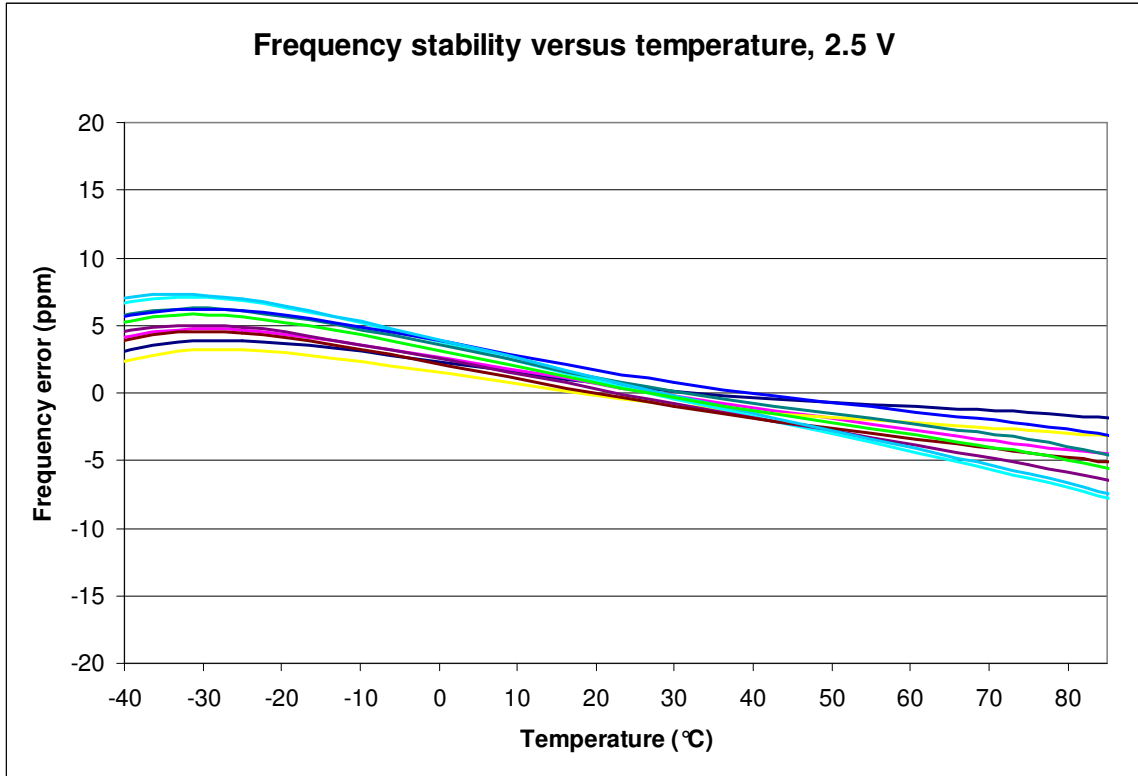


Figure 7. Frequency stability versus temperature, 2.5 V

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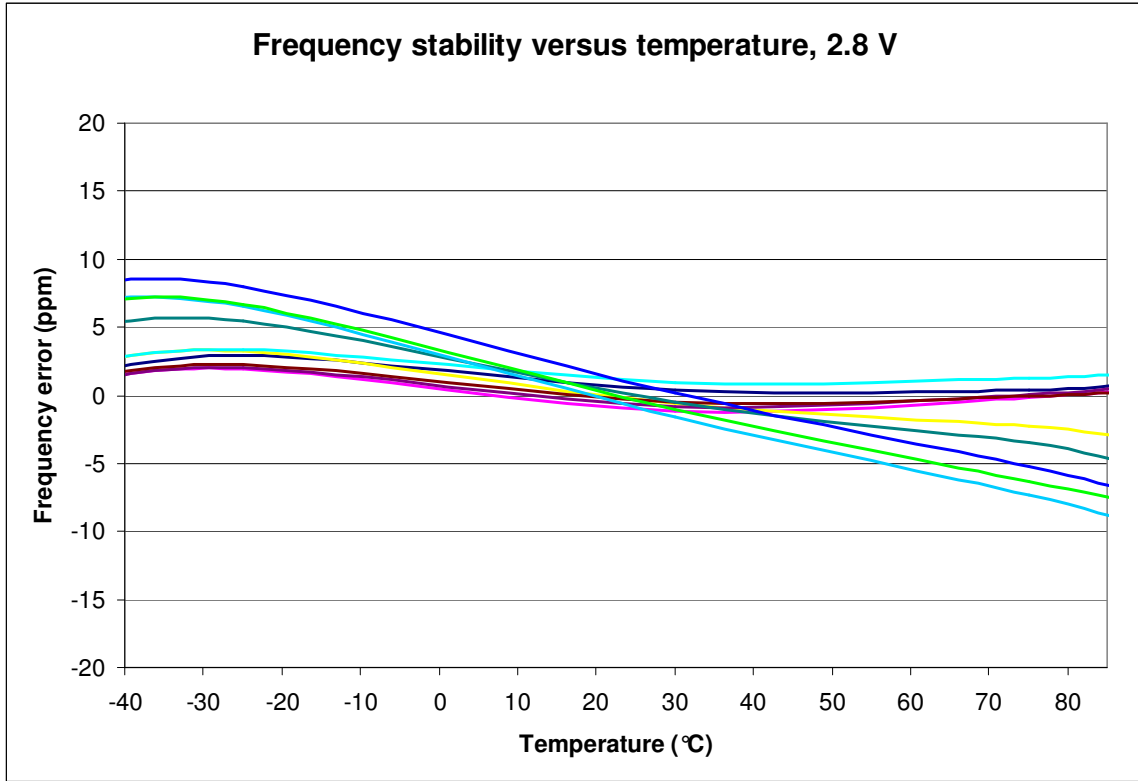


Figure 8. Frequency stability versus temperature, 2.8 V

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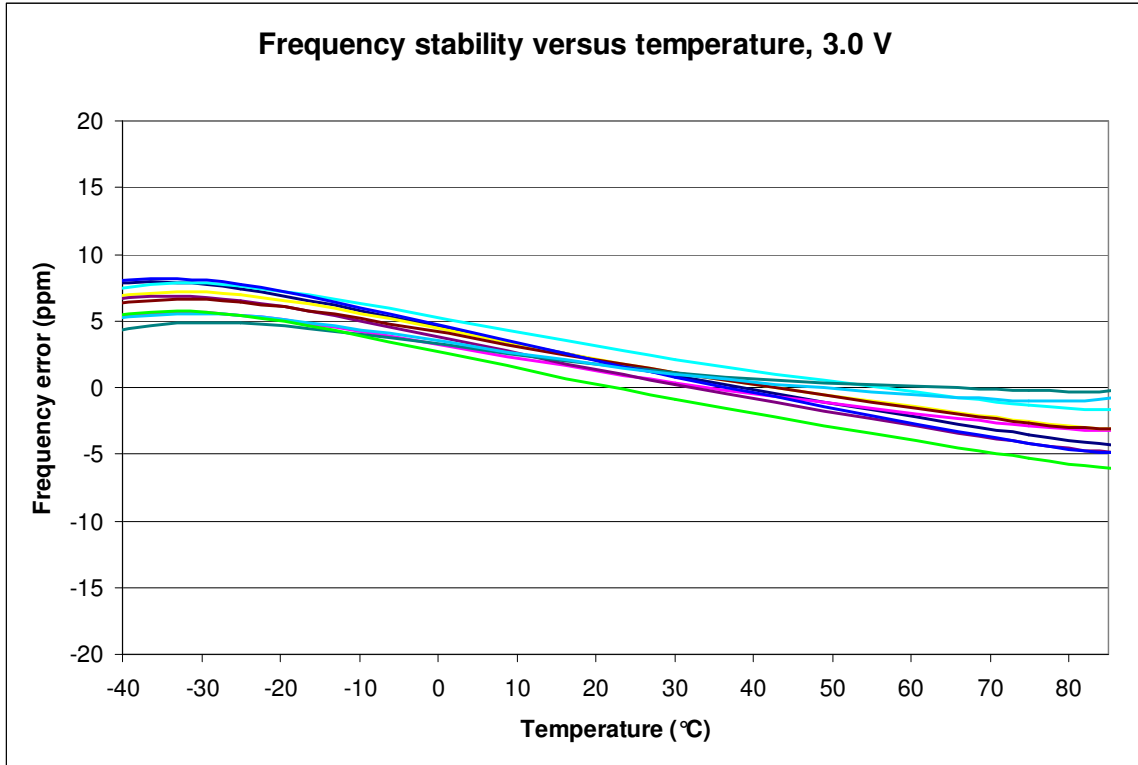


Figure 9. Frequency stability versus temperature, 3.0 V

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|                | <b>Orig:</b>  |   | <b>Date: Mar 31, 2014</b> |

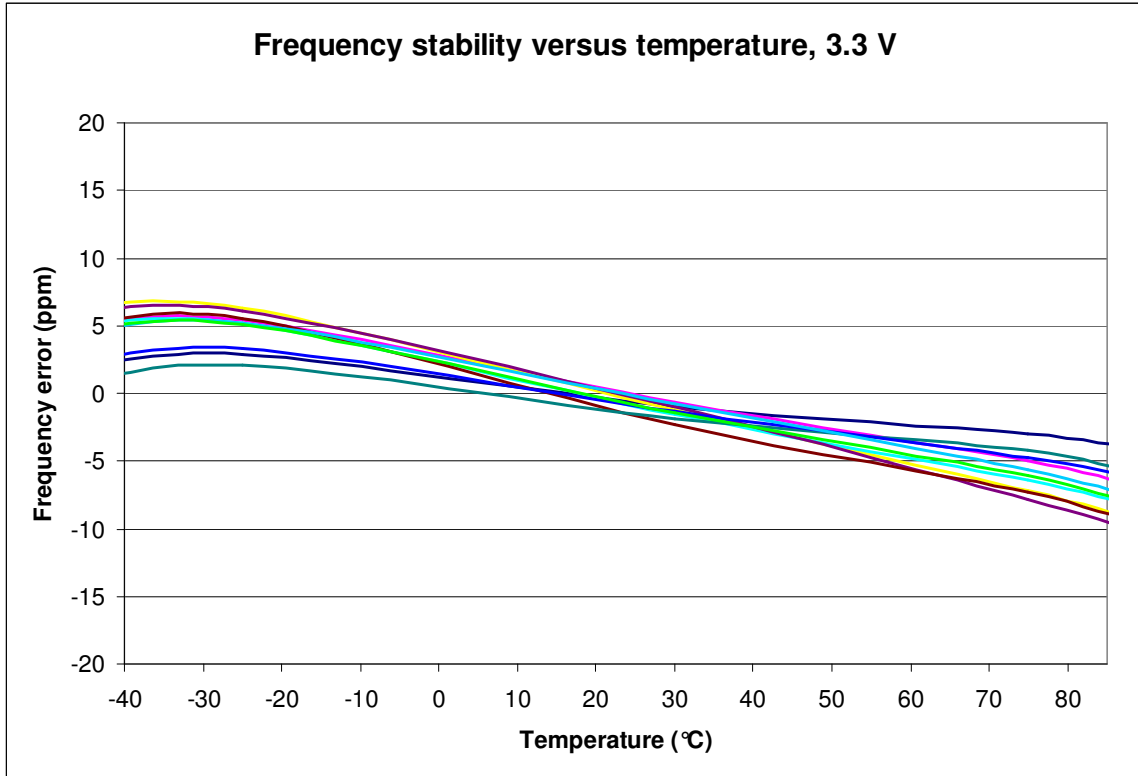


Figure 10. Frequency stability versus temperature, 3.3 V

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