

ZLE40203_XO Evaluation Board – using EPSON oscillator SG7050EBN 156.25MHz

This document provides a brief description of the ZLE40203_XO Evaluation Board. The board allows a quick and easy evaluation of the Microsemi ZL40203 buffer in a crystal oscillator fanout buffering application. ZL40203 is a precision 1:4 LVPECL fanout buffer with internal input terminations.

This circuit is part of a larger family of fanout buffers offered by Microsemi. This family of buffers supports clock rates of up to 750 MHz. It has a flexible I/O structure, the inputs are compatible with LVPECL, LVDS, CML, HCSL and LVCMOS and the outputs support LVPECL and LVDS signals. It offers six fanout combinations including 1:2, 1:4, 1:6, 1:8, 2:6 and 2:8 with internal and external terminations.



Figure 1: Top view of ZLE40203_XO Evaluation Board

The main features of the evaluation board are:

- One ZL40203 1:4 precision LVPECL fanout buffer.
- SMA connectors providing, AC coupled, access to all 4 differential outputs.
- Dual crystal oscillator footprint to accommodate a 6 pin 5x7mm or a 6 pin 9x9.5mm LVPECL oscillator.
- Two power supply options: regulated 3.3V DC from an external power supply or 5 to 12V DC from an AC/DC adapter using the onboard 3.3V linear voltage regulator.

- Option to provide a single ended output on J10 SMA connector by redirecting OUT3 signals through a balun transformer. In this case OUT3 signals are no longer available on J8/J7 SMA connectors.

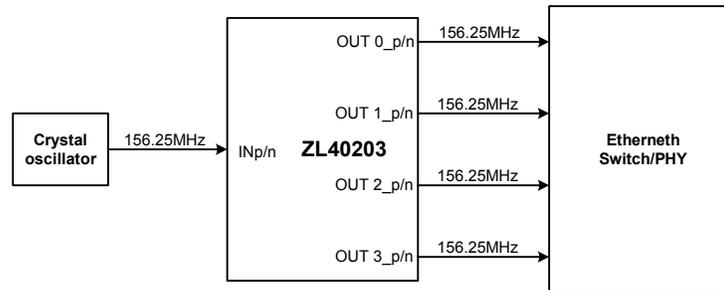


Figure 2: Typical application example of an ultra low additive jitter fanout buffer

Below are two phase-noise plots showing a typical phase-noise plot at the output of the oscillator, and the phase noise plot captured at the fanout buffer when using an Epson oscillator part number SG7050EBM. The clock frequency is 156.25MHz. The output RMS jitter is 85fs (12kHz – 20MHz), only 37fs higher than the input jitter.

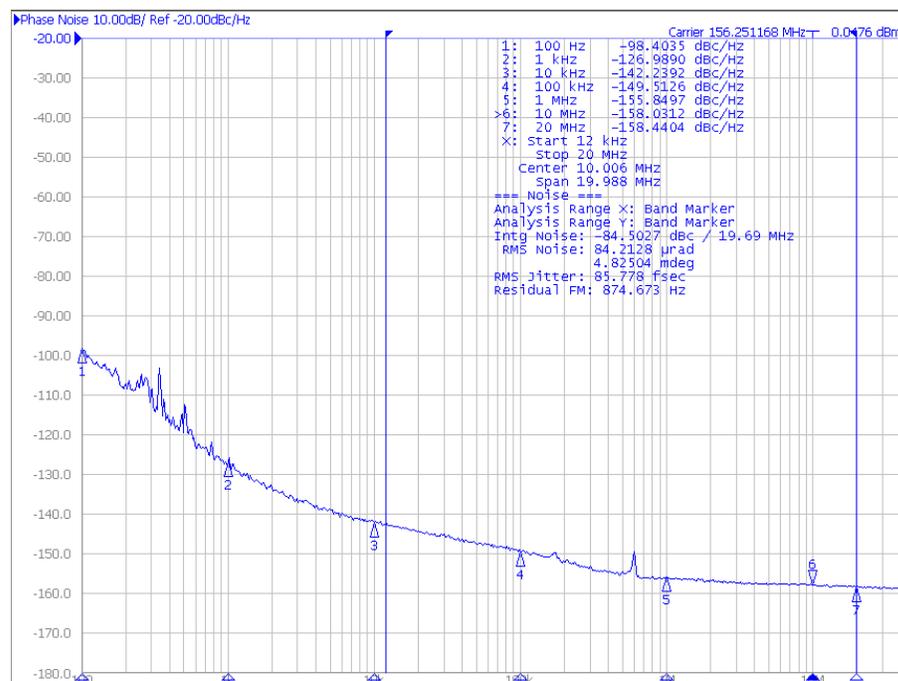


Figure 3: Typical phase-noise plot captured at the fanout buffer output

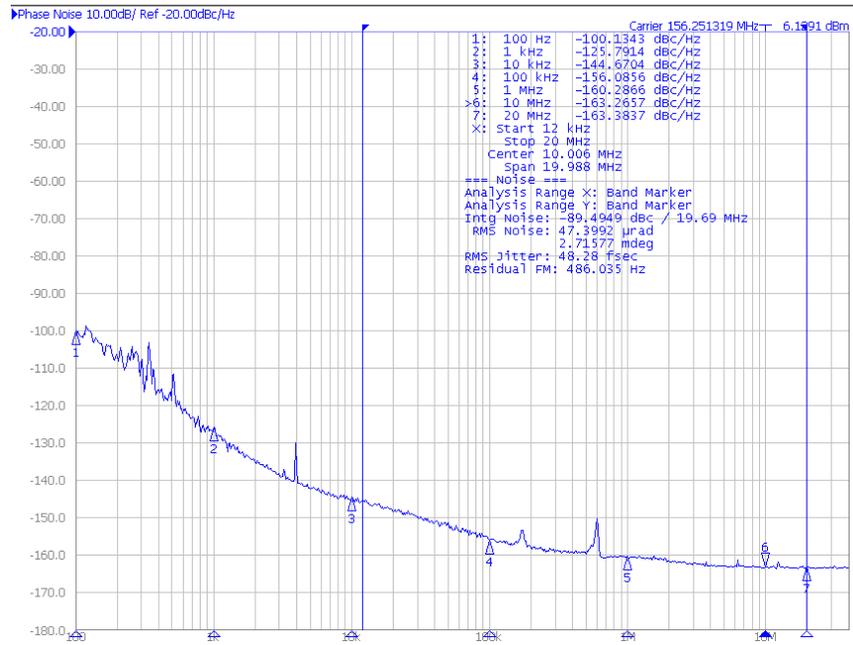


Figure 4: Typical phase-noise plot captured at the output of the SG7050EBN oscillator



Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo CA 92656 USA
Within the USA: +1(949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
E-mail: sales.support@microsemi.com

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