

ZLE40203_XO Evaluation Board – using TXC oscillator BAA5670001

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.

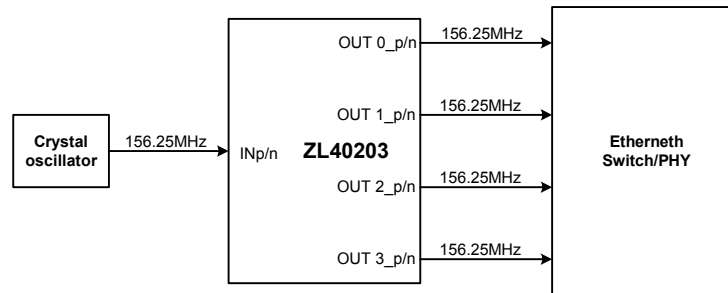


Figure 2: Typical application example of an ultra low additive jitter fanout buffer

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 a TXC oscillator part number BAA5670001. The clock frequency is 156.25MHz. The output RMS jitter is 89fs (12kHz – 20MHz), only 45fs higher than the input jitter.

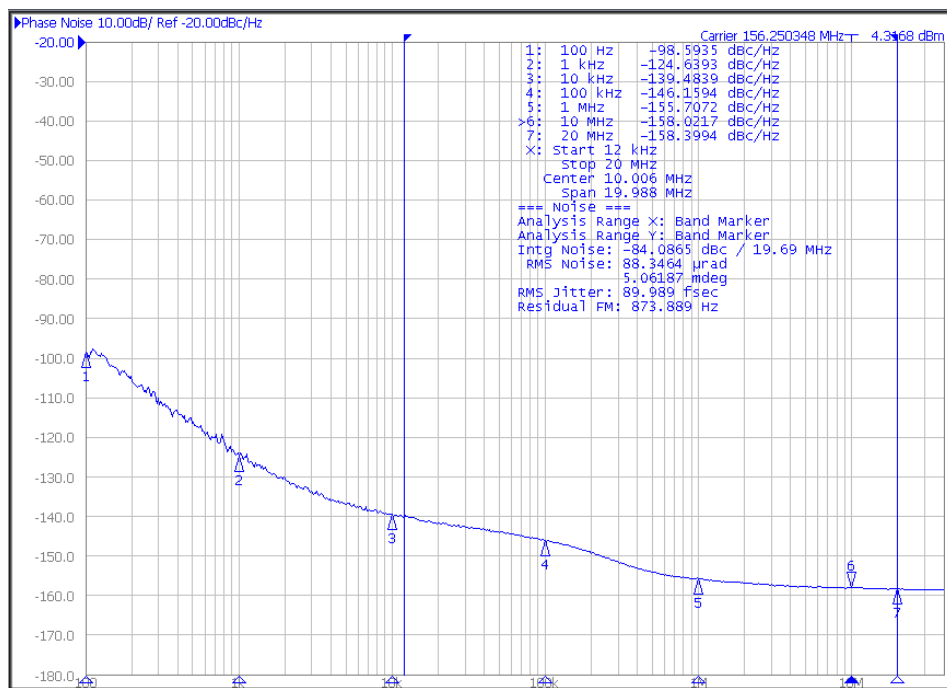


Figure 3: Typical phase-noise plot captured at the fanout buffer output (Evaluation Board measurement)

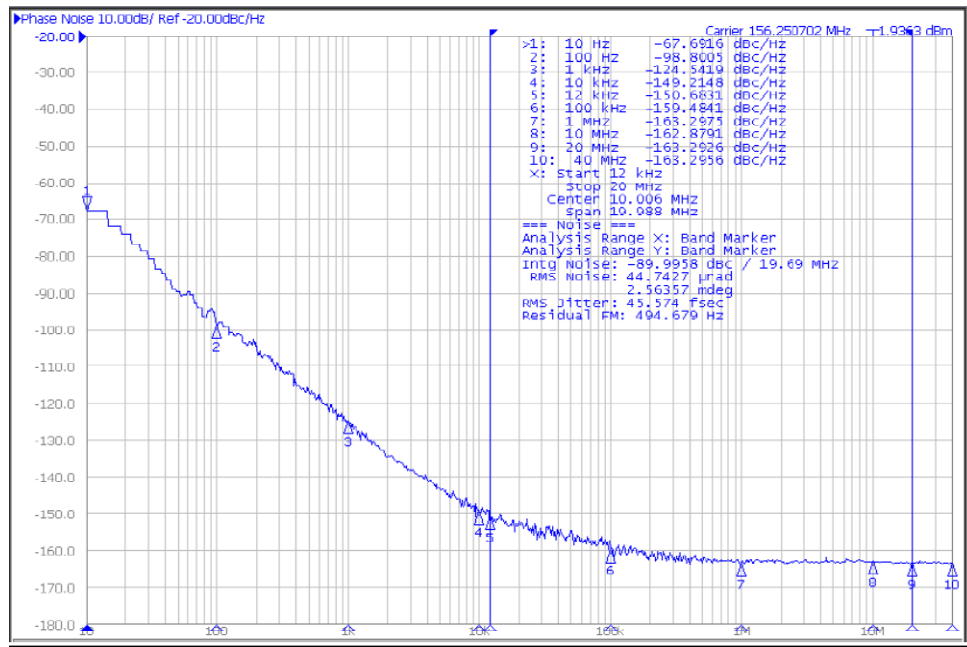
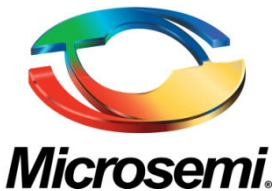


Figure 4: Typical phase-noise plot at the output of a BAA5670001 oscillator (TXC testing report)



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