CONTINUOUS TIME LINEAR EQUALIZER

Overview

This CTLE compensates communication channel losses by frequency equalization. With Nyquist frequency up to 12.5GHz CTLE works with up to 25Gsps signal rates at linear differential input and output. Input common mode voltage is accepted from driving output, output common mode voltage is controlled by internal DAC, independently from input common mode voltage. Low input capacitance. Output is buffered to drive increased capacitive load.

Block Diagram
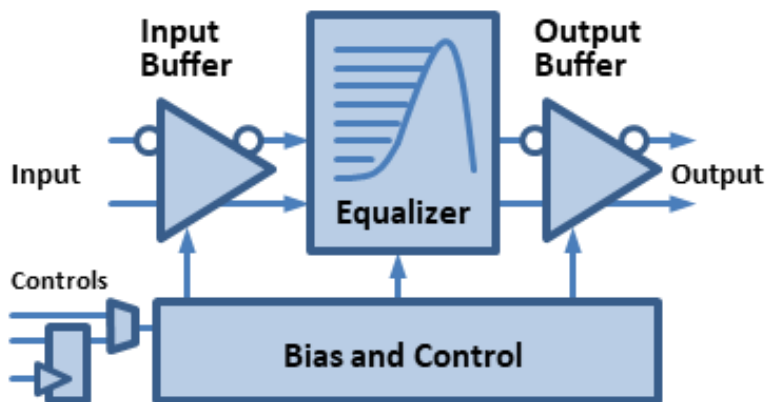
Highlights

- Nyquist (peaking) frequency up to 12.5GHz, signal rate up to 25Gsps
- Independent common mode voltage at input and output
- Output swing up to 400mVppd (Vout_cm=midrail, non-linearity <1dB)
- Input single-ended capacitance: <40fF
- Load single-ended capacitance up to 140fF
- Synchronous serial, asynchronous parallel control interface
- Supply voltage: 900mV core, 1.8V or 2.5V at in/out optional
- Typical consumption: 18-20mA at 25Gsps and maximum capacitive load
- Power down and mute mode
- Temperature range: -40C to +110C
- Footprint: 100 x 160 um
- Process: TSMC 28nm HPM, HPC/HPC+, can be ported to more advanced nodes

All information is preliminary