

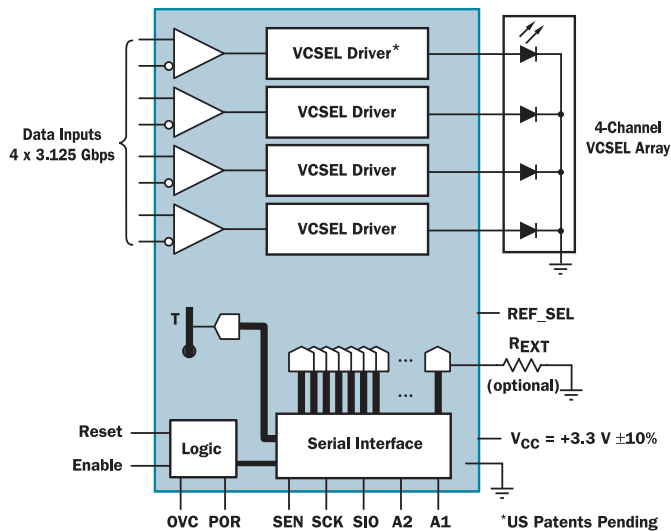
VSC7640

4x 3.125 Gbps VCSEL Transmitter Array

Features:

- ▶ Low Power: 130 mA at +3.3 V Supply
- ▶ Individual Per Channel Control
- ▶ VCSEL Modulation and Bias Currents
- ▶ Negative Peaking
- ▶ Overcurrent Threshold
- ▶ Digital Serial Control Interface
- ▶ Temperature and Overcurrent Monitors
- ▶ AC- or DC-coupled Inputs
- ▶ Automatic Shutdown for Data Eye Protection
- ▶ 250 μm Channel Spacing
- ▶ IBIAS < 6.4 mA, 27 μA Resolution
- ▶ IMOD < 16 mA, 50 μA Resolution
- ▶ Rise and Fall Times of >50 ps and <110 ps
- ▶ Available as Bare Die

The VSC7640 is a high-performance, four-channel VCSEL driver array designed to operate up to 3.125 Gbps for use in 10 Gbps Very Short Reach (VSR) parallel module applications. This device provides four individual VCSEL driver channels, a serial programmable interface temperature sensor for each channel, a temperature sensor, an overcurrent sensor and control for each channel, and monitoring logic for eye safety shutdown and power-on reset. The VSC7640 is designed to interface to a four-channel VCSEL array and to work in conjunction with a microcontroller. Unlike other competitive solutions the VSC7640 features a programmable negative peaking control to compensate for VCSEL slow tail currents. The VSC7640 is a die-level product that is fully tested at the maximum operating speed to guarantee performance and module manufacturing yields.



VSC7650 and VSC7651

4x 3.125 Gbps Receiver Arrays with Integrated Limiting Amplifiers

Features:

- ▶ Common Cathode Detector Array; CML or PECL Outputs (VSC7650)
- ▶ Separate Cathode Detector Array; LVDS Outputs (VSC7651)
- ▶ 250 μm Channel Spacing
- ▶ Sensitivity: -21 dBm Typical (at 850 nm)
- ▶ High Transimpedance Gain: 70 $\text{k}\Omega$
- ▶ Low Power: 180 mA at +3.3 V Supply
- ▶ Individual Per Channel Control
- ▶ LOS Detect
- ▶ Photocurrent Monitor for Optical Alignment
- ▶ Photodiode Bias Filter
- ▶ Available as Bare Die

The VSC7650 and VSC7651 are high-performance, four-channel receiver arrays designed to operate up to 3.125 Gbps for use in 10 Gbps Very Short Reach (VSR) parallel module or 10GBASE-LX4 Coarse Wavelength Division Multiplexing (CWDM) applications. Each channel includes a bias filter, a transimpedance amplifier, a limiting amplifier, an output driver, and Loss of Signal (LOS) detect circuitry. Signal monitors for each channel facilitate optical alignment. The VSC7650 and VSC7651 are die-level products that are fully tested at the maximum operating speed to guarantee performance and improve module manufacturing yields. The VSC7650 and VSC7651 are pin and functional compatible; the designer has the flexibility to choose the output level version as required by system architecture and performance.

