

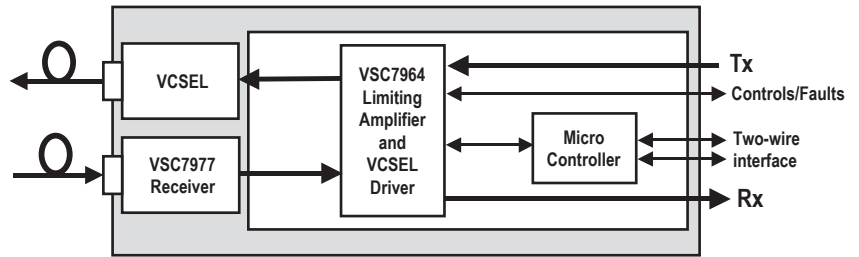
# VSC7964

VITESSE

## 1/2/4 Gbps Integrated VCSEL Driver and Limiting Amplifier



### APPLICATION DIAGRAM:



#### FEATURES:

- ▶ Rate Selection
- ▶ Optical Power Monitor
- ▶ Dynamic Negative Peaking Control
- ▶ Digital Programming Interface
- ▶ Integrated Digital to Analog Converters (DACs) and Temp Sensor
- ▶ Built-in Support for IEC-60825 Eye Safety
- ▶ Extended Operating Temperature

#### BENEFITS:

- ▶ Allows the User to Optimize the Bandwidth of the Limiting Amplifier and TIA for a Given Data Rate, Improving the Optical Input Sensitivity at Lower Data Rates, and Provides Superior Interoperability with Legacy Optical Devices
- ▶ Automatically Adjust Bias Current, Ensuring a Constant Average Optical Power on Temperature and Time
- ▶ Adjustable Negative Peaking Control to Improve VCSEL Edge Speed
- ▶ Enables the Micro-controller to Directly Read and Write the the VSC7964 Registers, Allowing for Expanded Device Control and Enhanced Fault Coverage
- ▶ Eliminates the Need for External Components Saving Board Space and Simplifying the Layout
- ▶ Enables the Customer to Meet the International Electrotechnical Commission (IEC) Safety of Optical Fibre Communication Systems Eye Safety Specifications.
- ▶ Support Industrial Temperature Applications

#### SPECIFICATIONS:

- ▶ Supported Data Rates: 1Gbps to 4.25Gbps
- ▶ Transmitter and Receiver Rise/Fall Time: 40ps
- ▶ Modulation Current: 2mA to 15mA
- ▶ Supply Voltage: 3.3V
- ▶ Operating Temperature Range from -40C to 100C (Case)
- ▶ SFP/SFF-8472 Compliant Disable and Faults

#### APPLICATIONS:

- ▶ Gigabit Ethernet Transceivers
- ▶ Fibre Channel Transceivers (1x, 2x and 4x)
- ▶ Infiniband Transceivers



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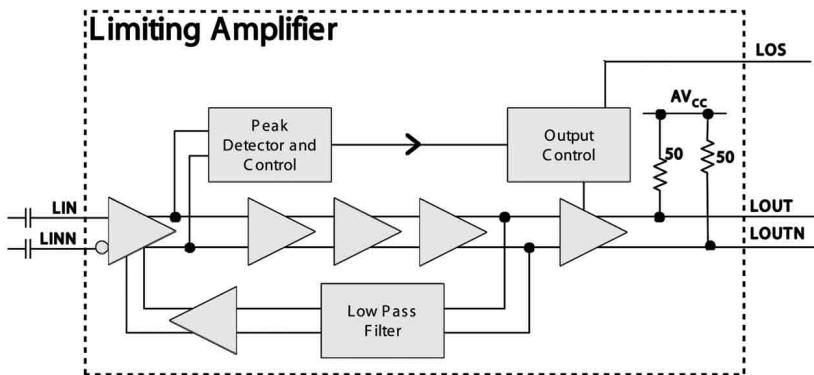
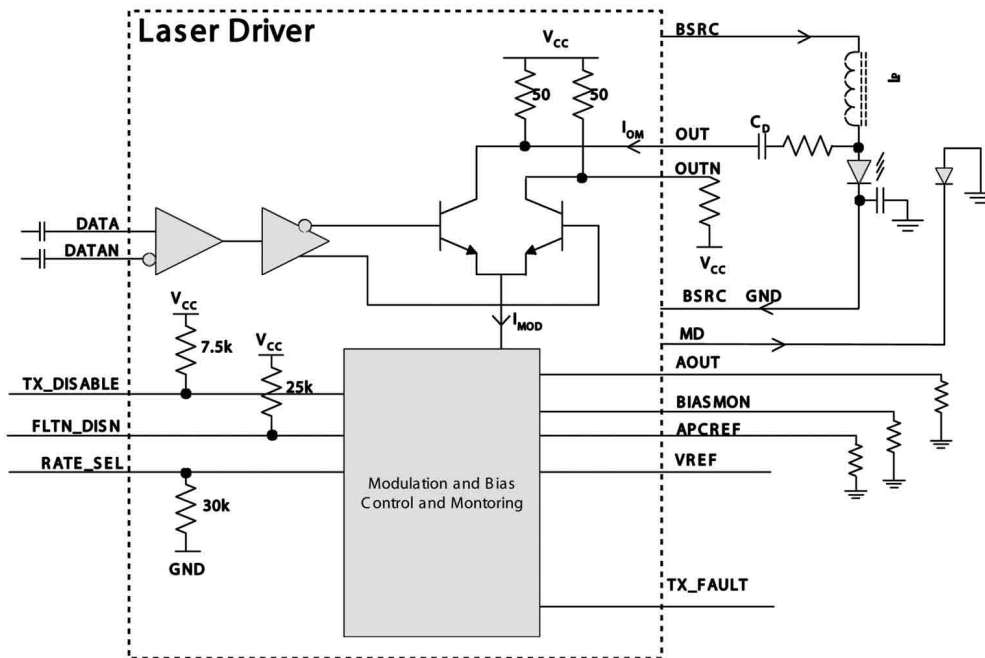
### GENERAL DESCRIPTION:



The VSC7964 is a multirate 4.25 Gbps integrated Vertical Cavity Surface Emitting Laser (VCSEL) driver and limiting amplifier for Gigabit Ethernet and Fibre Channel applications optimized to reduce SFP module cost. A standard SPI port is provided for programming integrated digital-to-analog converters for laser bias current, modulation current, power, modulation peaking current, and the limiting amplifier loss of signal threshold. The VSC7964 is equipped

with SFP-compliant fault indicators, redundant disable control, Automatic Power Control, temperature sensor, voltage reference, various signal monitors, and robust eye safety features. A single bidirectional pin between the VSC7964 and the VSC7977 transimpedance amplifier programs the receiver bandwidth and monitors the received optical power. This allows the VSC7964 to provide an accurate indicator of received power and to select the TIA bandwidth without increasing TO-CAN pin count. The VSC7964 is available in a 6mm x 6mm 40-pin QFP-N plastic package.

### BLOCK DIAGRAMS:



For more information on Vitesse Products visit the Vitesse web site at [www.vitesse.com](http://www.vitesse.com) or contact Vitesse Sales at (800) VITESSE or [sales@vitesse.com](mailto:sales@vitesse.com)

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