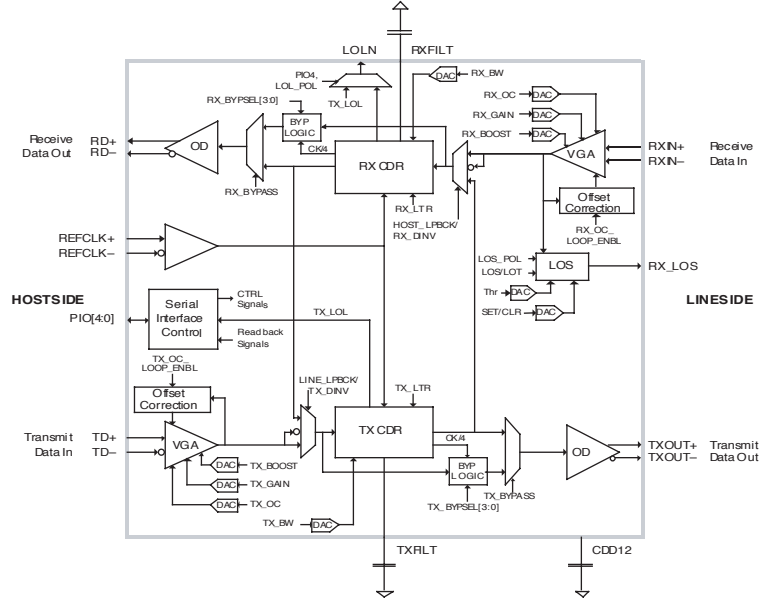


VSC8239

9.953 Gbps to 11.3 Gbps Dual XFP Signal Conditioner



BLOCK DIAGRAM:



FEATURES:

- ▶ Small size – 32-Pin, QFP (5 mm x 5 mm) package
- ▶ 9.953 Gbps to 11.3 Gbps operation
- ▶ Integrated loopback functions
- ▶ Programmable gain and equalization for Rx and Tx
- ▶ Two-wire Serial Interface/SPI Serial Control Interface
- ▶ 10 mV typical input sensitivity
- ▶ Built In Self Test (BIST) features including flexible error detection modes
- ▶ Full XFP compliant jitter specifications

BENEFITS:

- ▶ Reduces board space usage
- ▶ Continuous tuning of the operation frequency without needing to select between VCO
- ▶ Provides on-chip line and diagnostic functions
- ▶ Allows optical and XFI adaption of input signals for optimized sensitivity and jitter performance
- ▶ Allows serial access to internal control registers
- ▶ Provides long-haul receive optical sensitivity
- ▶ Allows for built in test signal generation of industry standard PRBS and user defined-patterns coupled with a full rate error detection capability
- ▶ Fully meets all XFP MSA SONET and datacom jitter specifications including jitter generation, tolerance, and transfer

SPECIFICATIONS:

- ▶ 9.953 Gbps to 11.3 Gbps operation
- ▶ 10 mV typical input sensitivity
- ▶ 5 mm x 5 mm package
- ▶ Full XFP compliant jitter specifications
- ▶ XFI compliant IO specifications
- ▶ 1.8 V single power supply
- ▶ 600 mW typical power dissipation

9.953 Gbps to 11.3 Gbps Dual XFP Signal Conditioner

GENERAL DESCRIPTION:



The VSC8239 device is a dual 10 Gbps Clock-and-Data-Recovery unit (CDR) designed for use as a signal conditioner IC for XFP modules. This 5 mm x 5 mm single chip solution has advantages of cost, size, and feature set over existing two chip solutions. A two-wire serial interface provides versatile control and alarm access.

Each CDR is dedicated to supporting the corresponding transmit and receive path as specified in the XFP MSA standard. The Receive (Rx) data path consists of a limiting amplifier with offset correction and programmable Equalization (EQ) function, followed by a Clock Recovery Unit (CRU), Phase-Locked Loop (PLL), and a XFI compliant data output driver. Rx Loss of Signal (LOS) and Rx Loss of Lock (LOL) alarm signals are also supported to provide full compliance to the XFP standard.

The Transmit (Tx) data path consists of a Variable Gain Amplifier (VGA) with a programmable EQ function. The VGA and EQ are digitally controlled through the Two-wire Serial Interface/SPI interface and allow for application specific jitter generation optimization. A PLL-based CRU drives the 50 ohms Tx data driver with levels compatible with available laser driver IC's. The Tx LOL alarm signal is supported.

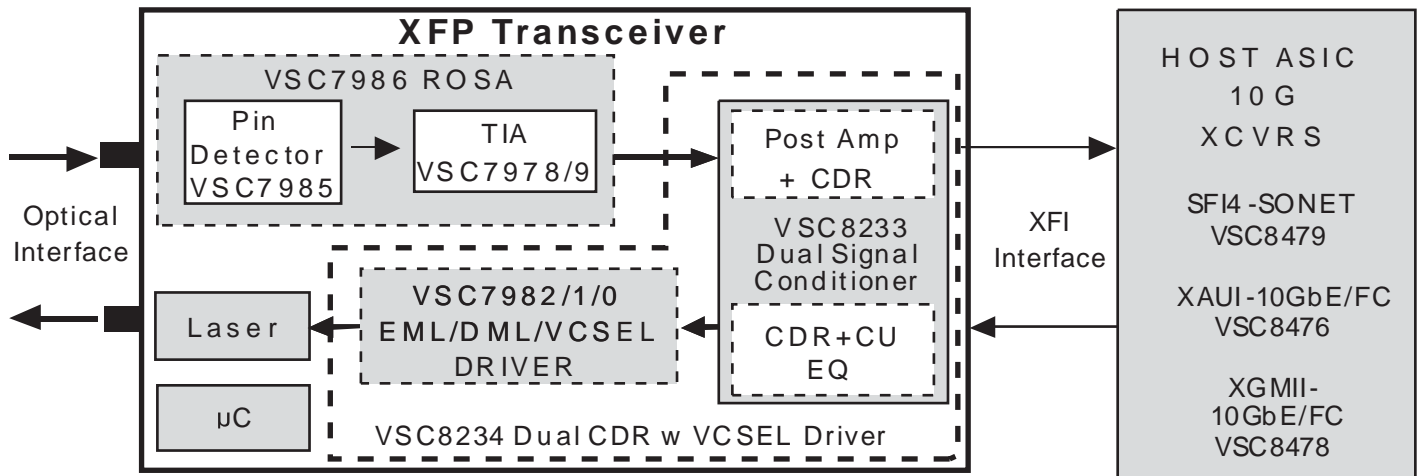
Leveraging off the integration of transmit and receive path, the VSC8239 device provides diagnostics and line loopback modes that enable advanced XFP module level features such as a Built In Self Test (BIST) feature with programmable error detection capability. This facilitates high volume module manufacturing and system level setup.

It has a continuously tunable operating range from 9.9 Gbps to 11.3 Gbps supporting OC-192 (9.953 Gbps), 10 GbE (10.3 Gbps), 10 Gbps Fibre Channel (10.5 Gbps), OC192FEC (10.709 Gbps), 10 GbE + FEC (11.05 Gbps), and 10 Gbps Fibre Channel + FEC (11.3 Gbps) data rates.

APPLICATIONS:

Fully compatible with the complete family of Vitesse XFP module application products including 10 Gbps SERDES, Host ASIC family: VSC8476, VSC8478, VSC8479, and 10 Gbps laser drivers and TIAs: VSC7980, VSC7981, VSC7982, VSC7985, VSC7978, and VSC7979.

APPLICATION DIAGRAM:



Trademarks™

Vitesse, ASIC-Friendly, FibreTimer, TimeStream, Snoop Loop, Super FEC, FOCUSConnect, Meigs-II, Meigs-III, Lansing, Campbell-I, Barrington, PaceMaker, HOVCAT48, HOVCAT48e, HOVCAT192, HOVCAT192e, Micro PHY, FOCUS32, FOCUS16, IQ2200, VersaCAT, GigaStream, HawX, SparX, StaX, VstaX, SimpliPHY, VeriPHY, ActiPHY, XFP PRO, SFP PRO, Smart-LINK, OctalMAC, EQ Technology are trademarks in the United States and/or other jurisdictions of Vitesse Semiconductor Corporation. All other trademarks or registered trademarks mentioned herein are the property of their respective holders.

Copyright © 2005

Vitesse Semiconductor Corporation ("Vitesse") retains the right to make changes to its products or specifications to improve performance, reliability or manufacturability. All information in this document, including descriptions of features, functions, performance, technical specifications and availability, is subject to change without notice at any time. While the information furnished herein is held to be accurate and reliable, no responsibility will be assumed by Vitesse for its use. Furthermore, the information contained herein does not convey to the purchaser of microelectronic devices any license under the patent right of any manufacturer.

741 Calle Plano
Camarillo, CA 93012, USA
Tel: +1 805.388.3700
Fax: +1 805.987.5896
www.vitesse.com
sales@vitesse.com