

# VSC8222 VSC8223

**VITESSE**

## Multi-rate SONET/SDH, Fibre Channel, and Gigabit Ethernet CDR



### APPLICATIONS:

- ▶ SONET/SDH Systems
- ▶ DWDM Systems
- ▶ Optical Transponders/Transceivers
- ▶ Fibre Channel Networks
- ▶ Gigabit and Fast Ethernet Systems
- ▶ Performance Monitoring Systems
- ▶ Optical Test Equipment

### BENEFITS:

- ▶ Allows OEM Designers to Standardize Their Front End Design and Tune Their System to Meet the Demands of SONET/SDH, FEC, Fibre Channel and Gigabit Ethernet Applications without having to Re-design or use an Entirely New Physical Layer Every Time.
- ▶ Enables Building High Density Line Cards due to Minimal Power Dissipation
- ▶ Provides implementation flexibility through comprehensive feature set.
- ▶ Offers seamless Incorporation into a Complete System Design using other Vitesse Products such as PMD, Framers, Pointer Processors, Switch Fabrics, etc.

### FEATURES:

- ▶ Multi Rate Operation:
  - OC-48/12/3 and (STM-16/4/1) and FEC
  - 1.0625 Gbps and 2.125 Gbps Fibre Channel
  - 1.25 Gbps and 2.5 Gbps Gigabit Ethernet
- ▶ Adjustable Loop Bandwidth
- ▶ Loss of Signal (LOS) and Loss of Lock (LOL) Status Indication
- ▶ Automatic and Manual Lock to Reference Clock:
  - Internal PLL Maintains Clock Output in the Absence of Data
- ▶ Selectable CRU Bypass Mode
- ▶ On-chip Input and Output Termination
- ▶ Selectable LVPECL Reference Frequencies:
  - 19.44 MHz, 77.76 MHz, or 155.52 MHz (or FEC)
  - Equivalent Fibre Channel/Gigabit Ethernet
  - Other Allowable Frequencies
- ▶ 0.18  $\mu$ m CMOS Technology
- ▶ 100 mV Differential Input Sensitivity
- ▶ 500 mV Typical Differential Data Output Swing

### SPECIFICATIONS:

- ▶ **VSC8222**
  - Rates: OC-48/12/3, (STM-16/4/3), FEC, GbE, Fibre Channel and Others
  - Power Dissipation: 400 mW
  - Supply Voltage: 2.5 V
  - 7x7mm, 48-pin Thermally Enhanced PQFP
  - Operating Temperature from -40°C to 85°C
- ▶ **VSC8223**
  - Rates: OC-12/3, (STM-4/1)
  - Power Dissipation: 400 mW
  - Supply Voltage: 2.5 V
  - 7x7mm, 48-pin Thermally Enhanced PQFP
  - Operating Temperature from -40°C to 85°C

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### GENERAL DESCRIPTION:

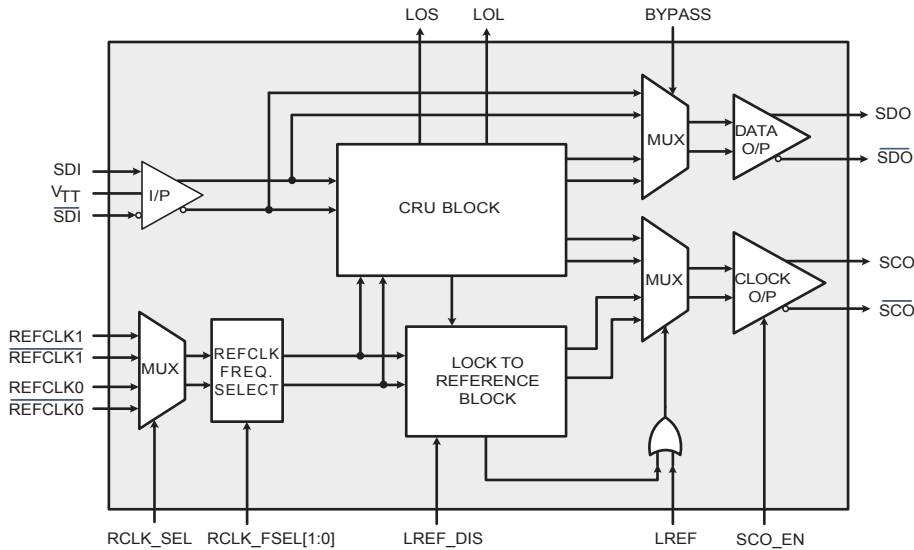


The VSC8222 and VSC8223 are high performance, multi-rate clock and data recovery ICs that support SONET/SDH systems operating at OC-48 (STM-16), OC-12 (STM-4), OC-3 (STM-1), Fibre Channel (1.0625 Gbps and 2.125 Gbps), Gigabit Ethernet (1.25 Gbps and 2.5 Gbps), and FEC data rates. High speed input and output signals are terminated on-chip to maintain the highest degree of signal integrity possible. The devices output a differential bit clock and differential retimed data.

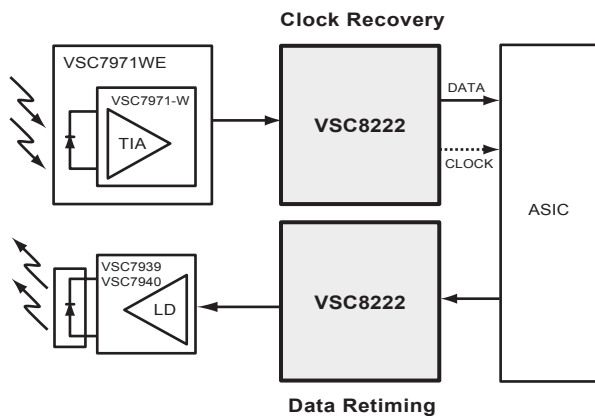
Two selectable, externally supplied reference clock inputs support the Phase Lock Loop (PLL) operation and are used to maintain a lock condition when the high-speed data is missing at the input. The PLL has four different Loop bandwidth settings, allowing the designer to adjust the jitter transfer and tolerance attributes of the device. The PLL can be bypassed to accommodate rates not supported by the PLL.

The VSC8222 and VSC8223 require a 2.5 V supply and are available in a 7x7x1.4mm 48-pin, thermally enhanced PQFP package.

### BLOCK DIAGRAM:



### APPLICATION DIAGRAM:



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)

**VITESSE**

741 Calle Plano  
Camarillo, CA 93012, USA  
Tel: +1 805.388.3700  
Fax: +1 805.987.5896  
[www.vitesse.com](http://www.vitesse.com)