VSC1235, VSC1236

VITESSE

9.9 to 12.5 Gbps 16:1 Multiplexer with Clock Multiplier Unit and Demultiplexer with Clock Recovery Chip Set

APPLICATIONS:

- SONET OC-192, SDH STM-64 Systems
- 10GbE, G.975, G.709 and Proprietary FEC Systems
- Long Haul / Ultra Long Haul Transmission Systems
- Line Cards
- Transponders

FEATURES:

VSC1235

- 16:1 Data Multiplexer
- PLL Based Clock Multiplier
- Full-rate Clock Outputs
- PLL Based Parallel Data Clocking
- Precision Integrated Phase Detectors
- Selectable Low Phase Noise VCOs
- Surpasses SONET/SDH Jitter Generation/Transfer Requirements

VSC1236

- 1:16 Data Demultiplexer
- PLL Based Clock Recovery
- Highly Sensitive Front-end: 10mVpp Single-ended
- Powerful Adaptive Threshold Control Features
- Support of Multiple Rates with a Single Reference
- Surpasses SONET/SDH Jitter Tolerance Requirements
- True Loss of Signal Function
- Direct Recovery of NRZ and RZ Signals

Common Features

- Low Power SiGe Technology
- No External Heatsink Required
- 10x10mm BGA Package
- Single 3.3V Power Supply

BENEFITS:

VSC1235

- Full-rate Clock output for use with Clocked Laser Drivers or in RZ Signal Generation
- Extremely Low Clock-data Skew
- Clock Outputs can be Disabled to Save Power
- Integrated PLLs for Superior Jitter Generation and Transfer Performance
- Flexible Parallel Data Clocking Using Internal PLL

VSC1236

- High Sensitivity Eliminates Need for AGC/Post-amplifier
- Adaptive Threshold Control Features to Optimize BER
- Proven Performance with Degraded/Difficult Signals Such as:
  - Poor OSNR
  - Chromatic Dispersion
  - Differential Group Delay
  - RZ Signaling

SPECIFICATIONS:

VSC1235

- 1.2W Typical Power Dissipation
- 330mVpp Typical Data Output Amplitude
- 22ps Typical Rise/Fall Time
- 275mVpp Typical Clock Amplitude
- <-10dB Output Return Loss
- <0.1UIpp Jitter Generation
- 5ps Typical Clock-data Skew Variation

VSC1236

- 1.2W Typical Power Dissipation
- 10mVpp Single-ended Sensitivity
- 3mV Maximum Uncorrected Input Referred Offset
- Multi-frequency Capable with Selectable CDR VCOs
- Auto-sensing /16 or /512 Reference Frequency

Common Specifications

- -5 to +90°C Case Temperature Range

VSC1235, VSC1236

9.9 to 12.5 Gbps 16:1 Multiplexer with Clock Multiplier Unit and Demultiplexer with Clock Recovery Chip Set
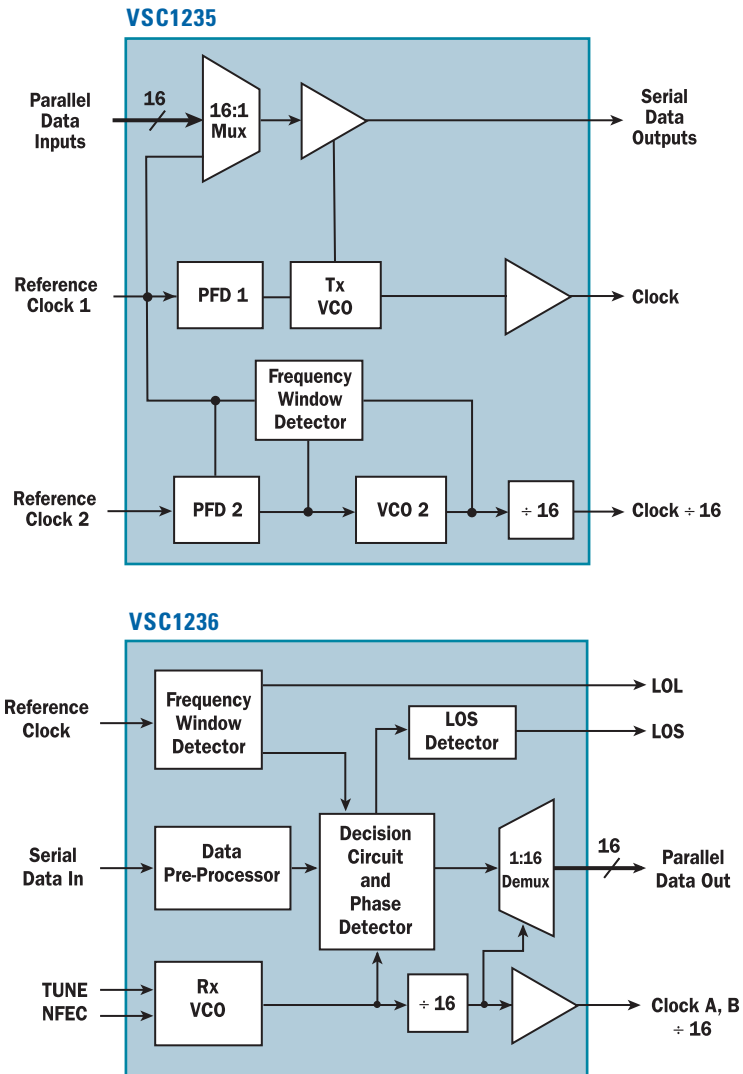
GENERAL DESCRIPTION:

The VSC1235 and VSC1236 is a complete high-performance multiplexer/demultiplexer chip set designed for 9.9-12.5 Gbps applications, including SONET OC-192, SDH STM-64, 10GbE, G.975, G.709 and offering enhanced capabilities specifically designed to address the needs of Ultra Long Haul (ULH) and Long Haul (LH) fiber optic transmission systems.

The **VSC1235** is a 16:1 Multiplexer with an integrated Clock Multiplier Unit. This device easily surpasses the jitter requirements for SONET/SDH transmission systems. Integrated phase locked loop circuits, including VCOs, are used for high-speed clock generation as well as robust low-speed data transfer. This device offers enhanced features, such as a full-rate clock output, which is specifically designed to be used in long haul and ultra long haul systems that utilize clocked laser drivers or RZ signaling. The clock output features extremely low clock-data skew variation, and can be disabled to save power.

The **VSC1236** is a 1:16 Demultiplexer (DMUX) with Clock and Data Recovery (CDR) unit. This device is capable of direct recovery of signals which are subject to various impairments/formats inherent in ULH/LH systems, including poor Optical Signal to Noise Ratio (OSNR) arising from optical amplification, distortion from Chromatic Dispersion, Polarization Mode Dispersion / Differential Group Delay (PMD/DGD), and RZ signaling. The highly sensitive front-end, precise phase detector / decision circuit, and adaptive threshold features eliminate the need for AGC amplifiers, post-amplifiers, filters, etc. which are traditionally needed to recover these signals.

BLOCK DIAGRAMS:

VSC1235

VSC1236