PRELIMINARY

LightLogic TRN4035BE – 10.3 Gb/s Optical Transponder with 16-Channel 645 Mb/s XSBI Electrical Interface

Features

- 10 Gb/s optical transmitter and receiver pair with 16-channel 645 Mb/s XSBI Electrical Interface – meets draft IEEE 802.3ae 10GBASE-LR and –ER standards for 10 Gigabit Ethernet applications
- Available in short reach (10 km) and intermediate reach (40 km) versions
- Multi-source agreement compatible form factor and pin configuration
- LVDS data interface via 300 pin Berg connector
- Integral heat sinking designed for 200 linear feet per minute, 55°C ambient air flow; Optional heat sinks for higher temperature and/or lower air flow conditions
- Laser bias, laser temperature, laser power and receiver power monitors
- Rx and Tx loss of lock, Rx loss of signal, laser bias and laser temperature alarms
- Integrated power supply sequencing

Applications

10 GbE line cards in high-speed optical networking equipment, including:

- Optical Switches and Routers
- Cross-Connects
- Add/Drop Multiplexers
- Dense Wavelength Division Multiplex Terminals
- Other WDM and non-WDM Metro System Equipment
- Optical Test Equipment

Product Overview

The LightLogic TRN4035BE line of 10 Gb/s transponders is designed to provide a draft IEEE802.3ae-compliant 10.3 Gb/s interface between the photonic physical layer and the electrical section layer. The module comprises an optical transmitter and receiver pair integrated with electrical multiplex and demultiplex functions. The transmitter section multiplexes 16 channels at 645 Mb/s from a differential LVDS parallel data bus into a 10.3125 Gb/s optical signal launched into a single-mode optical fiber pigtail. The receiver section demultiplexes a single 10.3125 Gb/s optical signal back to 16 channel parallel 645 Mb/s differential LVDS electrical signals. The receiver includes a photodiode, transimpedance amplifier, clock recovery, decision circuit and demultiplexer. The receiver operates over both the 1.3 µm and 1.5 µm bands and is compliant with draft IEEE standards. A block diagram of the module is shown in figure 1 below.

The transponder is assembled in a multi-source agreement (MSA) compatible 4.0" L x 3.5" W x 0.53" H package. The heat sinking was designed for 55°C ambient temperature/200 linear feet per minute airflow. Alternative heat sinking options are also available. The LVDS interface connection is made using an MSA compliant 300-pin Berg MEG-Array connector with standard pinout. Optical connections are made with standard SC-UPC, FC-UPC or LC-UPC optical connectors.

The short reach version is intended for link spans up to 10 km, and uses a 1.3 µm distributed feedback (DFB) laser source and a PIN photodetector. The intermediate reach version is intended for link spans up to 40 km and uses a 1.5 µm externally modulated laser (EML) as the transmitter and a PIN photodetector as the receiver. Prior to standardization of jitter requirements, LightLogic has designed the TRN-4035BE transponders to be compliant with Telcordia GR-253 jitter requirements for OC-192 SONET interfaces.

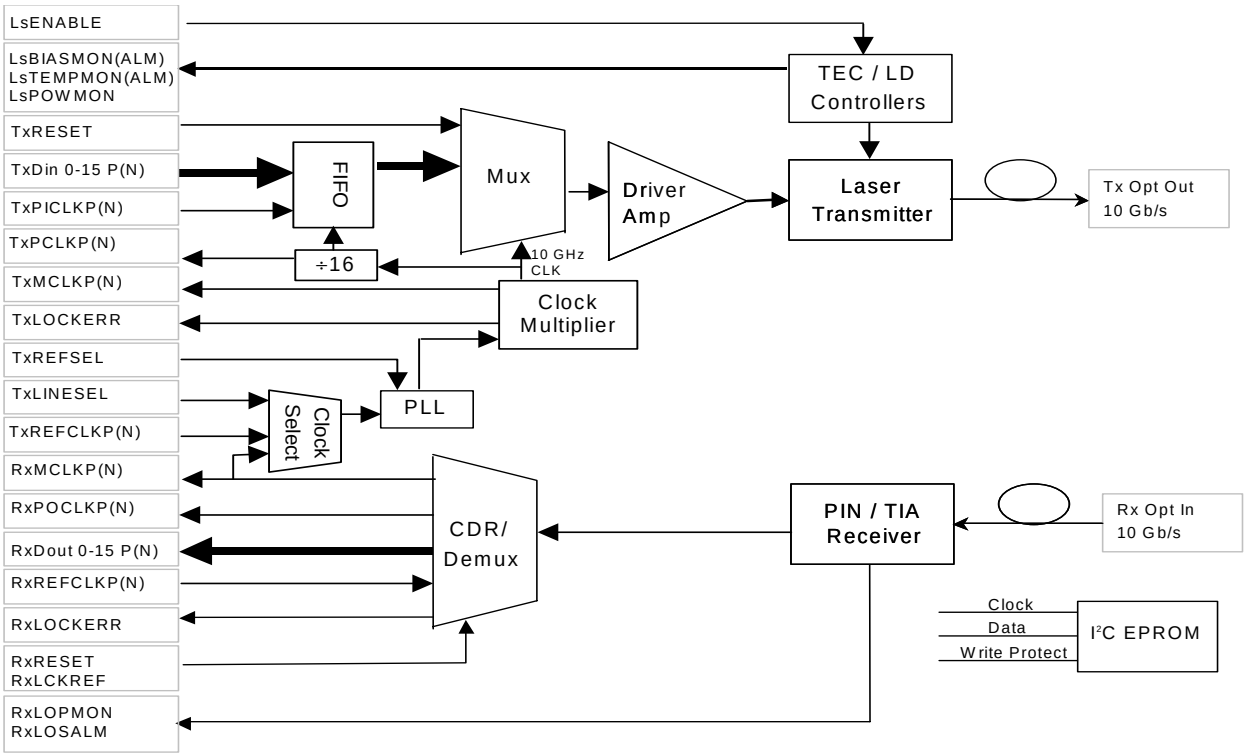

Figure 1 – TRN4035BE Transponder Block Diagram

Ordering Information

LightLogic transponders are available with several optical connector options. Specify the complete part number by choosing the transponder and connector number from the available options:

Transponder		
	Base Number	**Description**
Available Options	TRN4035BE-010-1310A	10 Gb/s transponder, 10 km reach, 1310 nm, 0.53" tall heat sink
	TRN4035BE-010-1310C	[same as above] 0.70" tall heat sink
	TRN4035BE-010-1310D	[same as above] 0.53" tall with flat top, no integral heat sink
	TRN4035BE-040-1550A	10 Gb/s transponder, 40 km reach, 1550 nm, 0.53" tall heat sink
	TRN4035BE-040-1550C	[same as above] 0.70" tall heat sink
	TRN4035BE-040-1310D	[same as above] 0.53" tall with flat top, no integral heat sink

Connector	
Connector Number	**Description**
-001	Receive: SC-UPC yellow Transmit: SC-UPC blue
-002	Receive: FC-UPC yellow Transmit: FC-UPC blue
-003	Receive: LC-UPC yellow Transmit: LC-UPC blue

Example Part Number: TRN4035BE-040-1550A-001 Description: 10 Gb/s transponder, 40 km reach, 1550 nm, 0.53" tall heat sink with SC-UPC connectors (receive yellow, transmit blue).