



MTTV28nn and MTRV28nn VCSEL Driver/Optical Receiver IC Chip Set

MTRV28xx-FxC

Mellanox® offers state-of-the-art interconnect solutions which deliver industry leading power and bandwidth performance. Our products have been developed in collaboration with industry leaders in computer communications and represent state-of-the-art TIAs and VCSEL drivers. These solutions enable manufacturers serving the HPC, server, storage, data center, and consumer markets to meet the requirements for drastic power reduction, price reduction and increased bandwidth.

OVERVIEW

MTxV28nn is the common notation for the VCSEL Driver/Optical Receiver IC Chip Set MTTV28nn (earlier IPRVD28GnC) and MTRV28nn (earlier IPRTA28GnC) for parallel optical interconnects operating from 300Mb/s to 28.1Gb/s. Each device contains: $n=4, 8$ or 12 identical and independently configurable lanes (channels) with optional retiming, and a common control system and interface. Additionally a wide range of monitor and diagnostics features are available to users as well as features for transceiver testing, laser safety and more.

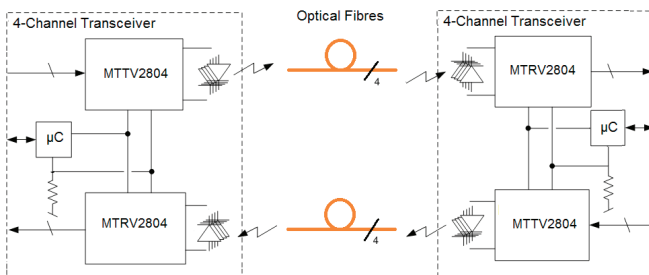


Figure 1. Application Example Diagram

Each of the two devices is available as a 4-lane device, MTTV2804-FxC and MTRV2804-FxC. The -FxC suffix in the part number denotes that the devices have solder bumps for flip-chip assembly. Devices with pads for wire-bonding are not planned. Additionally, the devices are available as arrays composed of multiple 4-lane blocks on the same silicon. In these configurations, each 4-lane block has its own unique I²C address. Hence, $N \times 4$ lane VCSEL drivers and receivers can be made without I²C address conflicts. Initial availability is planned for 4-lane and 12-lane devices. MTTV28nn is referred to as the *Driver IC* and the MTRV28nn is referred to as the *Receiver IC*.

KEY FEATURES

- 4 x 28 Gbd VCSEL driver
- 4 x 28 Gbd TIA/LIA
- Low power dissipation enabling QSFP+ Power Level 1
- Independently configurable lanes
- Electrical I/O equalizers
- Optional 25-28Gbd retiming CDR with fast acquisition mode
- Integrated power management
- Broad range of monitors and alarms
- Also available as 8- and 12-lane arrays
- Designed for flip-chip assembly
- Embedded low-speed end-to-end communication
- Integrated power management



HIGHLIGHTS

- **Multi-channel devices:**
Can support 4ch (EDR 100Gb/s InfiniBand, 100GbE-SR4), 8ch, 12ch. Mid Board Optical Modules (MBOMs) as well as 16ch implementations (CDFP, 400GbE).
- **Low power.**
Significant savings in cost and real estate
- **Signal integrity:**
Programmable deemphasis of the receiver and input equalizer of the transceiver allows for longer board traces and flexibility in system design. Optional Retiming on both Tx and Rx.
- **Versatility: 25Gb/s to 28Gb/s operation with retiming** and an even wider operating range such as 10G, 14G, 16G and 20G, etc. without retiming for a wide range of applications.

APPLICATIONS

- Parallel optical interconnect
- InfiniBand QDR, FDR, and EDR AOC
- Ethernet transceivers for
 - 100GBASE-SR4/UR4
 - 40GBASE-SR4
 - 100GBASE-SR10
- OIF CEI-28G-VSR
- CDFP 400GE

Block Diagrams

An overview of the VCSEL Driver IC is shown.

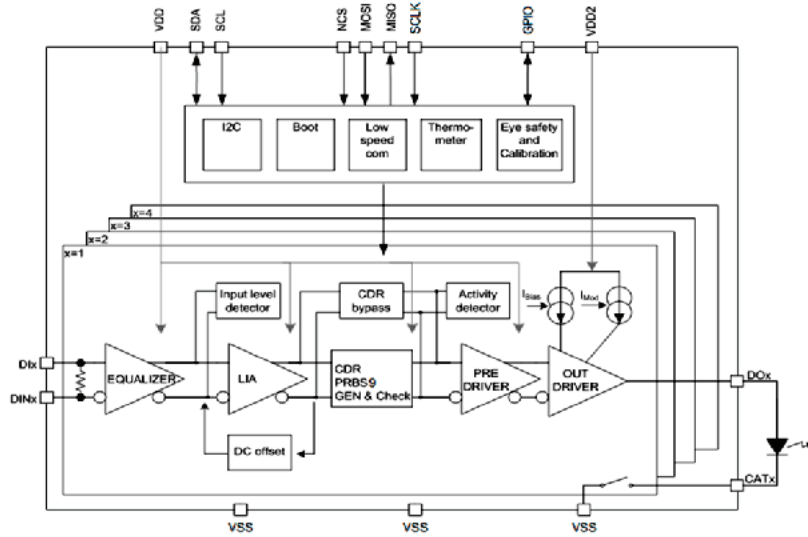


Figure 2. MTTV2804 Simplified Block Diagram

An overview of the Receiver IC is shown.

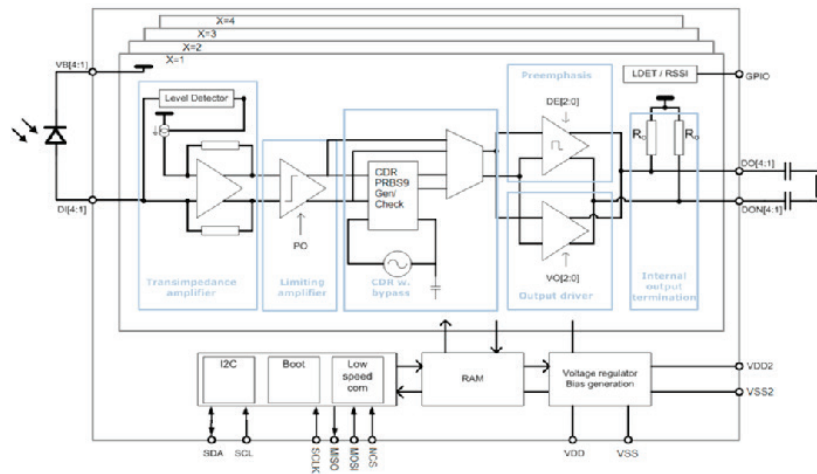


Figure 3. MTRV2804 Simplified Block Diagram

Table 1 - Part Numbers and Descriptions

OPN	Description	Assembly Method
MTRV2804-FxC	4 lane receiver IC	Solder bump
MTRV2812-FxC	12 lane receiver IC	
MTTV2804-FxC	4 lane transmitter IC	
MTTV2812-FxC	12 lane transmitter IC	

Mellanox offers a wide range of evaluation board and application notes enabling fast evaluation and shortened design cycles.

Warranty Information

Mellanox LinkX port cages include a 1 year limited hardware warranty, which covers parts repair or replacement.