

General Description

The HXT42400 is a quad channel, low power, Direct Modulated Laser (DML) driver array for LR4 optical applications that supports data rates up to 28Gbps and optical reach up to 10km. In conjunction with a DFB laser diode array or individual DFB laser diodes, the device handles the complete digital-to-optical conversion, including CML input with equalization, laser driver, drive control, and supervision.

Designed for direct DC-coupled die in TOSA applications with a small number of additional components for cost-effective and compact assemblies. Available in die form.

Applications

- Up to 10km LR4 100G-BASE Ethernet modules for datacenters
- Up to 2km CLR4 100G-BASE Ethernet modules for datacenters
- 128G Fiber Channel modules to 10km
- 32G Fiber Channel modules to 10km
- InfiniBand EDR optical modules
- Proprietary multi-channel optical modules

Ordering Information

Part	Temp Range	Pin-Package
HXT42400-DNU ¹ HXT42400-TNU ²	-5°C to +95°C	Bare Die Design Size: 1300µm x 3320µm Nominal Die Cut Size: 1350 µm x 3370 µm
HXT42400EVB	Room Temp	Evaluation Board

Notes:

¹ – Waffle Pack

² – Blue Tape

Features

- 200mW device power dissipation when configured for:
 - $I_{MOD} = 50mA_{PP}$
 - $I_{BIAS} = 50mA$
- Supports up to: $I_{MOD} = 50mA_{PP}$ & $I_{BIAS} = 50mA$ with $V_{CC} = 2.5V$
- Programmable Input Equalization
- Programmable Input Signal Detect (SD) with Squelch
- Programmable Input Polarity Inversion
- Programmable Pulse Width Adjustment
- Programmable Laser Modulation Current Amplitude, Peaking, and Peaking Duration
- Integrated Temperature Sensor
- Interrupts with user selectable mask control
- Laser Disable for I_{MOD} and I_{BIAS}
- 2-wire interface control and symmetric pad design maximize module design flexibility
- QSFP MSA compliant

For price, delivery schedules, and to place orders, please contact IDT: www.IDT.com/go/sales

The diagram illustrates the internal architecture of the MPD module. It features a central processing core with four main functional blocks: Signal detect, Logic Control, DML Bias Control, and DML Supervision. These blocks are interconnected with a series of control and monitoring blocks: EQ, PWA PE, Pre-Driver, Driver, FAULT, Pre-emphasis, and MPD. The MPD block is connected to a TX Power Monitor. The module is powered by VCC and VEE pins, with a VCC_3.3 pin for a specific supply. It also includes pins for VCCR_OUT, BURNIN, and RESET. The module's output is connected to the LAO pin, which is tied to GND. The module is also connected to the IMON, VTERM, NOTINT, LDIS, CONF1, CONF2, SDA, SCL, and MPD_OUT pins. The module is shown in a perspective view, with the top and bottom layers of the package visible.

Figure 1: Functional block diagram

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