

## Article Overview

RoHS-compliant DML optical transceiver modules are available in 50G and 100G QSFP28 configurations, supporting single-mode fiber transmission up to 10-20 km.

## Overview

RoHS-compliant optical transceivers are designed to meet the Restriction of Hazardous Substances (RoHS) directive, which limits the use of hazardous materials in electronic components, ensuring environmental safety and regulatory adherence in global markets . DML (Directly Modulated Laser) technology is commonly used in these modules for efficient optical signal generation, particularly in LAN-WDM and PON applications .

## Key Features

- o Data Rates: Modules are available in 50G and 100G configurations, such as QSFP28 LR4 for 100Gb/s applications .
- o Transmission Distance: Typical single-mode fiber reach ranges from 10 km to 20 km, depending on the module and application .
- o Wavelengths: DML transmitters operate in the 1295-1310 nm range, with receivers often using APD or PIN photodetectors for high sensitivity .
- o Compliance: Modules adhere to RoHS 2 and RoHS 3 directives, ensuring restricted substances like lead, mercury, and cadmium are below maximum allowable concentrations .
- o Standards: Many modules comply with IEEE 802.3ba 100GBASE-LR4, ITU-T G.9804.x for PON, and QSFP28 MSA specifications .
- o Interface: Hot-pluggable electrical interfaces with 2-wire serial management for monitoring and control .

## Applications

- o Data Centers: High-speed interconnects for servers and switches.
- o Telecommunications: Long-reach optical links in metro and enterprise networks.
- o PON Networks: 50G PON ONU links for fiber-to-the-home deployments .

## Example Products

- o INTCERA 100G QSFP28 LR4 DML 10 km: Converts 4x25Gb/s electrical channels to 4 LAN-WDM optical channels, compliant with IEEE 802.3ba 100GBASE-LR4 .
- o Accelink RTX300-2xx 50G PON QSFP28: RoHS-compliant module with 1300+-10 nm DML transmitter and 1342+-2 nm APD receiver, supporting up to 20 km single-mode fiber .

o QSFP28 LR4 10 km Optical Fiber Transceiver: Features four EML/DML lasers with multiplexed single-mode fiber output, hot-pluggable interface, and low power consumption . These modules provide a combination of environmental compliance, high-speed performance, and reliable optical transmission, making them suitable for modern network deployments requiring both regulatory adherence and technical efficiency.

Figure 2 Moduletek 10G ZR Optical Transceiver Datasheet (EML Marked) Optical transceivers primarily adopt two mainstream

The optical connector interface is dual LC. The module is compliant with SFP+ Multi-Source Agreement (MSA). The transceiver

RTXM300-0xx 25G PON ONU SFP28 transceiver modules are designed for use in 25G PON ONU links on up to 20km of single

At its core, an optical module performs (opto-electronic conversion), transforming electrical signals into optical signals

GIGALIGHT 100G QSFP28 ZR4 optical transceiver module is used for long-distance transmission in the field of data communication

Transceiver optical is a transceiver module designed for 40km optical communication applications. Compliant with 40G Ethernet

3. What are the Application Fields and Markets of the Silicon Photonics Optical Transceiver? Among the silicon

They are compliant with FC-P1-5 Rev. 6.101 and SFF-8472 Rev 11.03, and compatible with SFF-84322 and applicable portions of

20KM SFP Optical Transceiver series single-mode transceivers is SFP+ module for bi-directional serial optical data communications

Coherent 400G Finisar Fiber Optic Transceiver Modules are designed for use in Gigabit Ethernet links on various

The transceiver consists of 6.1G/DML, 8.5G/EML, and 10G DML/ EML optical transmitter and PIN/APD receiver, which allow 20km ~

Finally, we summarize and discuss the technological and component options for different transmission distances. We

FIBERSTAMP 200G QSFP-DD PSM8 optical transceiver modules are used for medium to long distance interconnections in data

Alcatel-Lucent 3HE00028CA SFP-GIGE-LX-LC ROHS 6/6 DDM Optical Transceiver This Alcatel-Lucent 3HE00028CA SFP

Description: A high-performance, cost-effective transceiver for 200 Gigabit Ethernet and InfiniBand HDR interconnections within data

GIGALIGHT 40G QSFP+ LR4 optical transceiver module is designed for medium to long-distance interconnects in data centers,

Web: <https://www.in-au.co.za>

