Product Data Sheet

BIDI-25G-SFP28-10B

Optical Transceiver

Key Features

- Media Type: **Single-Mode Fiber (SMF)**
- Fiber Count: **BiDi**
- Connector: **Single LC/UPC**
- Maximum Distance: **10 km**
- Guaranteed Link Budget: **7 dB**
- Tx Wavelenght: **1330 nm**
- Supported Data Rate: **8.5 Gbps - 25.78 Gbps**
- DDM/DOM: **Supported**

Product Description

Our EDGEOPTIC BIDI-25G-SFP28-10B is a multi-vendor compatible 25G BiDi SFP28 single-fiber optical module designed for 25 Gigabit Ethernet applications requiring fiber conservation. The BIDI-25G-SFP28-10B module transmits at 1330nm wavelength and receives at 1270nm wavelength, with data rates from 8.5 to 25.78 Gbps supporting multiple protocol standards and applications. Our 25G BiDi SFP28 transceiver utilizes DML (Directly Modulated Laser) technology for transmission and PIN photodiode for receiving, serving as the complementary unit for bidirectional communication when paired with the BIDI-25G-SFP28-10A module.

The transceiver ensures a 7 dB guaranteed optical link budget with host-based Forward Error Correction (FEC) support, which determines the maximum transmission distance capabilities. Over standard single-mode fiber (SMF), the module achieves reliable bidirectional transmission up to 10 kilometers, making it ideal for fiber-constrained environments, point-to-point links, and applications where fiber infrastructure optimization is critical. However, distance is just an indicative parameter calculated for convenience of identification – eventually we calculate distance taking into account minimal optical budget and average attenuation of optical cabling in industry standards. The BiDi architecture effectively doubles fiber capacity through wavelength division multiplexing, requiring proper pairing with the BIDI-25G-SFP28-10A module to establish bidirectional communication.

BIDI-25G-SFP28-10B compatible BiDi module is hot-pluggable SFP28 with single LC/UPC connector as an optical interface, significantly reducing fiber infrastructure requirements by 50% compared to traditional dual-fiber solutions. The electrical interface conforms to SFF-8431 and SFF-8432 MSA (Multi-Source Agreement) specifications, ensuring compatibility with standard SFP28 host systems supporting multiple vendor

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equipment platforms. Our 25G BiDi SFP28 transceiver can be encoded to be compatible and successfully operate in different 80+ brands of equipment. The module incorporates comprehensive DDM/DOM (Digital Diagnostic Monitoring) functionality providing real-time information including transmitted and received optical power levels, module temperature, bias current, and supply voltage. This diagnostic data is available via MSA-compatible EEPROM interface per SFF-8472 specifications, enabling continuous monitoring of both wavelength channels on a single fiber strand.

The module operates within a 0 to 70°C temperature range with maximum power consumption of 1.2W, optimized for deployment in controlled environment data centers and telecom facilities. Standards compliance includes IEEE 802.3cc specifications for 25 Gigabit Ethernet, supporting both 10G Ethernet (10.31 Gbps) and 25G Ethernet (25.78 Gbps) applications. The DML laser technology provides robust output power from -4 to 4 dBm at 1330nm with minimum extinction ratio of 3.5 dB, while the PIN photodiode receiver maintains sensitivity of -11 dBm at the 1270nm wavelength with receiver overload protection at 0.5 dBm. The 20nm receiver wavelength bandwidth ensures proper signal reception while maintaining channel isolation between transmit and receive paths. The transceiver achieves multi-vendor interoperability through adherence to SFP28 MSA standards, though equipment with vendor-specific module validation may require custom EEPROM programming for compatibility.

Our 25G BiDi SFP28 transceiver is CE/RoHS certified and compliant with Class 1 FDA and IEC60825-1 laser safety standards. Typical applications include fiber-scarce data center interconnects, enterprise campus deployments with limited fiber availability, service provider access networks, and infrastructure upgrades where existing single-fiber plants must be preserved. The BiDi technology proves particularly valuable in scenarios where fiber leasing costs are prohibitive or physical constraints prevent additional fiber installation. The multi-rate capability accommodates legacy 10 Gigabit Ethernet operation alongside native 25 Gigabit rates, providing operational flexibility for mixed-speed network deployments. Because our focus is providing top quality service, we perform rigorous quality checks before delivery including optical parameter measurements at both wavelengths, wavelength isolation testing, connector cleanliness tests, and SFP28 transceiver EEPROM memory data validation tests, ensuring reliable bidirectional operation in matched transceiver pairs.

Technical Specifications

Specification	Value
Form Factor	SFP28
Media Type	Single-Mode Fiber (SMF)
Fiber Count	BiDi
Connector	Single LC/UPC

Maximum Distance	10 km
Guaranteed Link Budget	7 dB
TX Wavelength	1330 nm
RX Wavelength	1270 nm
Supported Data Rate	8.5 Gbps - 25.78 Gbps
Supportet Ethernet Applications	10G Ethernet (10.31Gbps), 25G Ethernet (25.78Gbps)
DDM/DOM	Supported
Forward Error Correction (FEC)	Host FEC Supported
Transmitter Type	DML Laser
Average Launch Power (Min) Each Lane	-4 dBm
Average Launch Power (Max) Each Lane	4 dBm
Extinction Ratio (Min)	3.5 dB
Receiver Type	PIN photodiode
Rx Wavelength Bandwidth	20 nm
Average Receiver Sensitivity (Min) Each Lane	-11 dBm
Average Receiver Sensitivity (Max) Each Lane	2 dBm
Receiver Overload	0.5 dBm
Temperature Range	Standard 0°-70°C
Storage Temperature	-40° to 85°C
Relative Humidity	5 to 85%
Power Consumption (Max)	1.2 W

Power	+3.3V single power supply
Compliance	CE, Class 1 FDA and IEC60825-1 Laser Safety Compliant, RoHS, SFF-8431, SFF-8472, IEEE 802.3cc, SFF-8432, SFP28 MSA

Ordering Info

SKU	Description
BIDI-25G-SFP28-10B	Single Fiber 25G SFP28 Module (Tx/Rx 1330/1270nm, 8.5 - 25.78 Gbps, Max. 10km over SMF, 7 dB, Temp. 0-70C, LC/UPC)

Warranty

EDGE Optic's provides a limited warranty for **sixty (60) months** from Purchaser's receipt of the Equipment represented in this data sheet against defective design or workmanship.

Compatibility

EDGE Optical transceivers can be provided with custom-encoded firmware, in order to provide compatibility with more than 100 vendor brands in data and telecom communications industry:

MS - General MSA
MS - Allied Telesis
AR - Arista
AU - Aruba
AG - Avago
BR - Broadcom
QL - Cavium (Qlogic)
MS - Ceragon
CH - Checkpoint
MS - Chelsio
CI - Cisco
MS - D-link
MS - DCN
DL - Dell
MS - DZS(Dasan-Zhone)
MS - EdgeCore
MS - EdgeWare
MS - Eltex
MS - Emulex
ER - Ericsson
MS - EXFO
EX - Extreme Networks
F5 - F5 Networks
MS - Finisar
FO - Fortinet
MS - Fujitsu
HP - HP
HU - Huawei
IB - IBM
IF - Infinera
MS - Innolight
IN - Intel
MS - JDSU
JU - Juniper
MS - KyLand
LN - Lenovo
ML - Mellanox (NVIDIA)
ME - Meraki (Cisco)
MS - MikroTik
NC - NEC
MS - NetApp
MS - Netgear
MS - Netinsight
NK - Nokia (Alcatel)
NS - NSN
MS - OE Solutions
MS - Oracle
MS - Palo Alto Network
MS - Planet
QL - Qlogic (Oracle)
MS - QNAP
RD - RAD
MS - RadWare
MS - Raisecom
MS - Ruckus
MS - Ruijie Networks
MS - Sandvine
MS - Silicom
MS - SolarFlare
SW - Sonicwall
MS - Sophos
MS - Sumitomo
MS - Supermicro
MS - Synology
MS - Telco Systems
MS - TP-LINK
TM - Transmode
MS - Trendnet
MS - Ubiquiti Networks
MS - WatchGuard
MS - Zyxel
XX - Other

Version Control

Version: 3.0
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CERTIFIED
ISO 9001

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