

# SO-SFP-1000BASE-BX-MMD-35 & -53, -I

## SFP BiDi, 1.25 Gbps GbE, 1310/1550nm, MM, DDM, 11dB, 1000m

### OVERVIEW

The SO-SFP-1000BASE-BX-MMD is a bi-directional transceiver solution operating directly on a single-fiber without the need for a separate optical filter. This is achieved by having two transceivers that inject different wavelengths into the same single-fiber. The solution thus consists of two transceivers; SO-SFP-1000BASE-BX-MMD-35 and SO-SFP-1000BASE-BX-MMD-53, operating at 1310nm and 1550nm respectively on a MultiMode (MM) fiber. Using a single-fiber solution provides a cost-efficient solution for interconnect and it simplifies the patching since no separate transmit/receive direction has to be taken into account.

The transceiver pair supports 1Gbps Fiberchannel (1G FC), 1Gbps Ethernet (GbE) and the mobile fronthaul CPRI option 1 services. The optical performance of the transceiver pair provides a bridgeable distance of up to 1000m.

The transceiver solution is available in two temperature range options, one being the Industrial temperature range (I-temp) of -40°C to +85°C (-40°F to +185°F). The transceivers provide digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

### TECHNICAL DATA

Parameter	Value
Technology	BiDi SFP
Transmission media	MM (1x LC)
Typical reach	500m@62.5/125um (500MHz*km) 1000m@50/125um (800MHz*km)
Nominal wavelengths	1310 nm <sup>1)</sup> / 1550 nm <sup>2)</sup>
Bit rate range	1.0625 – 1.25 Gbps
Protocol support	GbE 1G FC CPRI Opt 2 (1.2288 Gbps)
Power budget	0 – 11.5 dB <sup>4)</sup> / 0 – 12.5 dB <sup>5)</sup>
Power consumption	< 1 W
Operating temperature	0°C to +70°C -40°C to +85°C (-I)
Storage temperature	-40°C to +85°C

Parameter	Value
<b>Transmitter data:</b>	
Output power	Min: -9.5 dBm <sup>3)</sup> Max: -3.0 dBm <sup>3)</sup>
Transmit wavelength	1260 - 1360 nm <sup>1)</sup> 1500 - 1580 nm <sup>2)</sup>
<b>Receiver data:</b>	
Minimum input power	-21 dBm <sup>3) 4)</sup> -22 dBm <sup>3) 5)</sup>
Overload (max power)	-3 dBm <sup>3)</sup>
Wavelength range	1500 – 1580 nm <sup>1)</sup> 1260 - 1360 nm <sup>2)</sup>
DDM	Yes
MSA compliance	SFP MSA, SFF 8472

<sup>1)</sup> SO-SFP-1000BASE-BX-MMD-35 and -I

<sup>2)</sup> SO-SFP-1000BASE-BX-MMD-53 and -I

<sup>3)</sup> Average power

<sup>4)</sup> @ GbE, PRBS 2<sup>7</sup>-1, BER <1E-12

<sup>5)</sup> @ FE, PRBS 2<sup>7</sup>-1, BER <1E-12

## ORDERING INFORMATION

Ordering number	Description
SO-SFP-1000Base-BX-MMD-35	SFP BiDi, 1.25Gbps GbE, TX/RX=1310/1550nm, MM, DDM, 11dB, 1000m
SO-SFP-1000Base-BX-MMD-53	SFP BiDi, 1.25Gbps GbE, TX/RX=1550/1310nm, MM, DDM, 11dB, 1000m
SO-SFP-1000Base-BX-MMD-35-I	SFP BiDi, 1.25Gbps GbE, TX/RX=1310/1550nm, MM, DDM, 11dB, 1000m, I-temp
SO-SFP-1000Base-BX-MMD-53-I	SFP BiDi, 1.25Gbps GbE, TX/RX=1550/1310nm, MM, DDM, 11dB, 1000m, I-temp

## GENERAL DEFINITIONS

Technology:	Grey; Transceiver type for non-WDM applications. Electrical or optical. CWDM; Transceiver type for CWDM applications using G.694.2 channel grid. DWDM; Transceiver type for DWDM applications using G.694.1 channel grid. BiDi; Transceiver pair using two different wavelength channels operating on a single-fiber. DAC: Direct Attach Cable (DAC). Electrical or optical cable with attached connectors.
Transmission Media:	Type of fiber, e.g. Multimode (MM) or Singlemode (SM). Number of and connector type within brackets (e.g. 2x LC, 1x MPO).
Typical reach:	Nominal distance performance based on dispersion and power budget properties, i.e. w/o dispersion compensation and optical amplification.
Bit rate range:	Supported bit rate range in Gigabit or Megabit per second (Gbps or Mbps).
Protocols:	Protocols within supported bit rate range.
Nominal wavelength:	Typical wavelength from transmitter.
Interface standards:	Referenced interface standards e.g. IEEE 802.3 standard for 10GbE services.
Power budget:	Min and max power budget between Transmitter and Receiver.
Dispersion tolerance/penalty:	Maximum amount of tolerated dispersion and required reduction of power budget to maintain stipulated Bit Error Rate (BER) and at a given bit rate.
Temperature range:	Max operating case temperature range. Commercial temperature range (C-temp): 0°C to +70°C (32°F to +158°F) Extended temperature range (E-temp): typically -20°C to +75°C (-4°F to +167°F) Industrial temperature range (I-temp): -40°C to +85°C (-40°F to +185°F)
Power consumption:	Worst case power consumption. Will vary over temperature.
Transmitter Output power:	Average output power. Provided in min and max values.
Receiver minimum input power:	Minimum average input power at specified BER, normally $1E^{-12}$ .
Receiver max input power:	Maximum average input power giving a BER, normally $1E^{-12}$ .
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.

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