

# SO-SFP-1G-10G-SR

SFP+, 1000Base-SX / 10GBase-SR, 850nm, MM, DDM, 300m

## OVERVIEW

The SO-SFP-1G-10G-SR is a versatile 850nm SFP+ transceiver for MultiMode (MM) fiber with a rate select between GbE and 10GbE-LAN/-WAN services. The optical performance is in accordance with the IEEE 802.3ae standard, providing a bridgeable distance of up to 300m for 10GbE-LAN (10GBASE-SR), 10GbE-WAN (10GBASE-SW) and 1000BASE-SX (GbE) services.

The transceiver has no minimum distance (i.e. no minimum attenuation) which is ideal for intra-office connections since extra attenuators need not be considered.

This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

## TECHNICAL DATA

Parameter	Value
Technology	Grey SFP+
Transmission media	MM (2x LC)
Typical reach	300m @ 50 / 125um
Nominal wavelength	850nm
Bit rate support	1.25Gbps / 9.953Gbps to 10.312Gbps
Interface standards	1000BASE-SX, 10GBASE-SR/-SW
Protocol support	GbE, 10GbE-LAN, 10GbE-WAN STM-64/OC192
Power budget	0 – 7.5dB at 1.25Gbps (GbE) 0 – 5.1dB at 10.3Gbps (10GbE-LAN)
Dispersion penalty	Max 3.9dB
Power consumption	< 1.0W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

### Safety/regulatory compliance:

TUV/UL/FDA (contact Smartoptics for latest certification information)

RoHS compliance

Parameter	Value	
<b>Transmitter data:</b>		
Output power	1.25Gbps	Min: -9.5dBm <sup>3)</sup> Max: -1.0dBm <sup>3)</sup>
	10.3Gbps	Min: -6.0dBm <sup>3)</sup> Max: -1.0dBm <sup>3)</sup>
Transmit wavelength	840 – 860nm	
<b>Receiver data:</b>		
Minimum input power	1.25Gbps	-17.0dBm <sup>1) 3)</sup>
	10.3Gbps	-11.1dBm <sup>2) 3)</sup>
Overload (max power)	+0.5dBm <sup>3)</sup>	
Wavelength range	840 – 860nm	
LOS assert	1.25Gbps / 10.3Gbps	Min -30dBm / Min -25dBm
LOS de-assert	1.25Gbps / 10.3Gbps	Max -18dBm / Max -12.5dBm
DDM	Yes	
MSA compliance	SFF-8431, -8432, -8472	

<sup>1)</sup> At 1.25Gbps (GbE), PRBS 2<sup>7</sup>-1, BER ≤ 1x10<sup>-12</sup>.

<sup>2)</sup> At 10.3Gbps (10GbE-LAN), PRBS 2<sup>31</sup>-1, BER ≤ 1x10<sup>-12</sup>.

<sup>3)</sup> Average power.

## ORDERING INFORMATION

Ordering code	Description
SO-SFP-1G-10G-SR	SFP+, 1/10GBase-SR, 850nm, MM, DDM, 7.5dB@1.25Gbps, 5.1dB@10.3Gbps, 300m

## GENERAL DEFINITIONS

Parameter	Description
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. Electrical cable with attached connectors. AOC: Active Optical Cable. 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 typical fiber dispersion, fiber loss and power budget properties, i.e. w/o dispersion compensation and optical amplification. Actual distance is dependent on actual optical path loss and dispersion properties.
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(s) from transmitter.
Interface standards	Referenced interface standards or MSA's, e.g. IEEE 802.3 standard for 10GbE services or 100G4WDM-10 etc.
Power budget	Min and max power budget between Transmitter and Receiver w/o optical path penalties.
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. Standard 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 $1E^{-12}$ . Note that some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally $1E^{-12}$ .
DDM	Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.

Smartoptics makes no warranties or representations, expressed or implied, of any kind relative to the information or any portion thereof contained in this document or its adaptation or use, and assumes no responsibility or liability of any kind, including, but not limited to, indirect, special, consequential or incidental damages, for any errors or inaccuracies contained in the information or arising from the adaptation or use of the information or any portion thereof. The information in this document is subject to change without notice.