

SO-SFP-10GE-LRM

SFP+, 10G Multirate, 1310nm MM, DDM, 3.5dB, 220m

OVERVIEW

The SO-SFP-10GE-SR is a versatile 1310nm transceiver for MultiMode (MM) fiber supporting a wide range of traffic formats. The optical performance is in accordance with the IEEE 802.3ae LRM-standard, providing a bridgeable distance of up to 220m for 10GbE-LAN (10GBASE-LRM) services. The host system must have Electronic Dispersion Compensation (EDC) to fulfil the 10GBASE-LRM distance performance.

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)
Interface standard	10GBASE-LRM ¹⁾
Typical reach	220m ¹⁾
Nominal wavelengths	1310nm
Bit rate range	614Mbps – 11.3Gbps
Protocol support	10GbE-LAN, 10GbE-WAN, GbE STM-16/-4/-1, OC48/OC12/OC3 OTU2e, OTU2, OTU1 10G FC, 8G FC, 4G FC, 2G FC, 1G FC CPRI Opt 1 (0.6144Gbps) CPRI Opt 2 (1.2288Gbps) CPRI Opt 3 (2.4576Gbps) CPRI Opt 5 (4.9152Gbps) CPRI Opt 6 (6.1440Gbps) CPRI Opt 7 (9.8304Gbps) CPRI Opt 7A (8.11008Gbps) CPRI Opt 8 (10.1376Gbps) OBSAI 0.768Gbps OBSAI 1.536Gbps OBSAI 3.0720Gbps OBSAI 6.1440Gbps
Power budget	0 – 3.5 dB
Power consumption	< 1 W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power	Min: -6.5dBm ³⁾ Max: +0.5dBm ³⁾
Transmit wavelength	1260 to 1355nm
Receiver data:	
Minimum input power	-10dBm ^{2) 3)}
Overload (max power)	+1.5dBm ^{2) 3)}
Wavelength range	1260 – 1565nm
LOS Assert	Min -25dBm
LOS De-assert	Max -11dBm
DDM	Yes
MSA compliance	SFP 8431 SFF-8472

¹⁾ 10GBASE-LRM requires EDC to fulfil distance 220m

over 50/125 MMF with a modal bandwidth of 2000MHz*km

²⁾ Measured at 10.3Gbps using PRBS31 @ BER 1x10⁻¹²

³⁾ Average power

Safety/regulatory compliance:

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

RoHS compliance



ORDERING INFORMATION

Ordering number	Description
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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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