

# SO-SFP-L160D-Cxx & -Cxx-E

SFP, 1.0625/1.25Gbps, CWDM, DDM, 38dB, 160km, 1270 – 1610nm (18ch)

## OVERVIEW

The SO-SFP-L160D-Cxx is a CWDM transceiver for Gigabit Ethernet (GbE) and 1G Fiber channel (1G FC). The optical performance provides a bridgeable distance of up to 160km.

The transceiver is available in 18 CWDM wavelengths, spanning from 1270nm to 1610nm in accordance with the G.694.2 standard. This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

The transceiver is available in two temperature range options, one being an extended range: -20°C to 85°C (-4°F to 185°F).

## TECHNICAL DATA

Parameter	Value
Technology	CWDM SFP
Transmission media	SM (2x LC)
Typical reach	160km
Nominal wavelength	1270 – 1610nm (18ch)
Bit rate support	1.0625/1.25Gbps
Protocol support	GbE 1G FC
Power budget	17 – 38dB
Dispersion penalty	Max 1dB
Power consumption	< 1W
Operating temperature	-0°C to +70°C -20°C to +85°C (-E)
Storage temperature	-40°C to +85°C

Parameter	Value
<b>Transmitter data:</b>	
Output power	Min: +2.0dBm <sup>1)</sup> Max: +7.0dBm <sup>1)</sup>
Transmit wavelength	1271 to 1611nm (G.694.2)
<b>Receiver data:</b>	
Minimum input power	-36.0dBm <sup>1) 2)</sup>
Overload (max power)	-10.0dBm <sup>1) 2)</sup>
Wavelength range	1260nm – 1620nm
LOS Assert	Min -45dBm
LOS De-assert	Max -37dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	SFF-8431, -8432, -8472

<sup>1)</sup> Average power

<sup>2)</sup> @ 1.25Gbps, BER 1x10<sup>-12</sup>, PRBS 2<sup>7</sup>-1, back-to-back.

### Safety/regulatory compliance:

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

RoHS compliance

## ORDERING INFORMATION

Ordering code	Description	Ordering code	Description
SO-SFP-L160D-C27	SFP 1GE FC CWDM 160km 1270nm	SO-SFP-L160D-C27-E	SFP 1GE FC CWDM 160km 1270nm E-tmp
SO-SFP-L160D-C29	SFP 1GE FC CWDM 160km 1290nm	SO-SFP-L160D-C29-E	SFP 1GE FC CWDM 160km 1290nm E-tmp
SO-SFP-L160D-C31	SFP 1GE FC CWDM 160km 1310nm	SO-SFP-L160D-C31-E	SFP 1GE FC CWDM 160km 1310nm E-tmp
SO-SFP-L160D-C33	SFP 1GE FC CWDM 160km 1330nm	SO-SFP-L160D-C33-E	SFP 1GE FC CWDM 160km 1330nm E-tmp
SO-SFP-L160D-C35	SFP 1GE FC CWDM 160km 1350nm	SO-SFP-L160D-C35-E	SFP 1GE FC CWDM 160km 1350nm E-tmp
SO-SFP-L160D-C37	SFP 1GE FC CWDM 160km 1370nm	SO-SFP-L160D-C37-E	SFP 1GE FC CWDM 160km 1370nm E-tmp
SO-SFP-L160D-C39	SFP 1GE FC CWDM 160km 1390nm	SO-SFP-L160D-C39-E	SFP 1GE FC CWDM 160km 1390nm E-tmp
SO-SFP-L160D-C41	SFP 1GE FC CWDM 160km 1410nm	SO-SFP-L160D-C41-E	SFP 1GE FC CWDM 160km 1410nm E-tmp
SO-SFP-L160D-C43	SFP 1GE FC CWDM 160km 1430nm	SO-SFP-L160D-C43-E	SFP 1GE FC CWDM 160km 1430nm E-tmp
SO-SFP-L160D-C45	SFP 1GE FC CWDM 160km 1450nm	SO-SFP-L160D-C45-E	SFP 1GE FC CWDM 160km 1450nm E-tmp
SO-SFP-L160D-C47	SFP 1GE FC CWDM 160km 1470nm	SO-SFP-L160D-C47-E	SFP 1GE FC CWDM 160km 1470nm E-tmp
SO-SFP-L160D-C49	SFP 1GE FC CWDM 160km 1490nm	SO-SFP-L160D-C49-E	SFP 1GE FC CWDM 160km 1490nm E-tmp
SO-SFP-L160D-C51	SFP 1GE FC CWDM 160km 1510nm	SO-SFP-L160D-C51-E	SFP 1GE FC CWDM 160km 1510nm E-tmp
SO-SFP-L160D-C53	SFP 1GE FC CWDM 160km 1530nm	SO-SFP-L160D-C53-E	SFP 1GE FC CWDM 160km 1530nm E-tmp
SO-SFP-L160D-C55	SFP 1GE FC CWDM 160km 1550nm	SO-SFP-L160D-C55-E	SFP 1GE FC CWDM 160km 1550nm E-tmp
SO-SFP-L160D-C57	SFP 1GE FC CWDM 160km 1570nm	SO-SFP-L160D-C57-E	SFP 1GE FC CWDM 160km 1570nm E-tmp
SO-SFP-L160D-C59	SFP 1GE FC CWDM 160km 1590nm	SO-SFP-L160D-C59-E	SFP 1GE FC CWDM 160km 1590nm E-tmp
SO-SFP-L160D-C61	SFP 1GE FC CWDM 160km 1610nm	SO-SFP-L160D-C61-E	SFP 1GE FC CWDM 160km 1610nm E-tmp

## 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 100G 4WDM-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 <sup>-12</sup> . Note that some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally 1E <sup>-12</sup> .
DDM	Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.

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