SO-SFP-10GE-LR10-Cxx

SFP+, 10G Multirate, CWDM, DDM, 10dB, 10km, 1270nm-1610nm (18ch)

OVERVIEW

The SO-SFP-10GE-LR10-Cxx is a versatile CWDM transceiver supporting a wide range of traffic formats. The distance performance is in accordance with the IEEE 802.3ae LR/LW-standard, providing a bridgeable distance of up to 10km for 10GbE-LAN (10GBASE-LR) and 10GbE-WAN (10GBASE-LW) services.

The transceiver is available in 18 CWDM wavelength versions, 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.

TECHNICAL DATA

Parameter	Value
Technology	CWDM SFP+
Transmission media	SM (2x LC)
Typical reach	10km
Nominal wavelength	1270 – 1610nm
Bit rate support	0.6Gbps to 11.3Gbps
Interface standards	10GBASE-LR, 10GBASE-LW
Protocol support	GbE, 10GbE-LAN, 10GbE-WAN
	OTU1, OTU2, OTU2e
	STM-64/OC192
	STM-16/OC48, STM-4/OC12
	1G, 2G, 4G, 8G, 10G FC
	CPRI Opt, 1, 2, 3, 4, 5, 6, 7, 7A, 8
	OBSAI 1x, 2x, 4x, 8x
Power budget	0 – 10dB
Dispersion penalty	Max 2dB
Power consumption	< 1.2W
Operating temperature	-5°C to +70°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power	Min: -5.0dBm [1]
	Max: 0.0dBm [1]
Transmit wavelength	1271 to 1551nm (G.694.2)
Receiver data:	
Minimum input power	-15.0dBm [1] [2]
Overload (max power)	+0.5dBm [1] [2]
Wavelength range	1260nm – 1620nm
LOS assert	Min -28dBm
LOS de-assert	Max -16dBm
DDM	Yes
MSA compliance	SFF-8431, -8432, -8472

[1] Average power.

[2] @ 10.3Gbps, BER $1x10^{-12}$, PRBS 2^{31}-1, back-to-back.

Safety/regulatory compliance:
TUV/UL/FDA (contact Smartoptics for latest certification information)
RoHS compliance

Note: IEEE 802.3ae 10GBASE-LR/LW is defined only at 1310 nm. The standard is referred to from bridgeable distance perspective for the other wavelengths within the CWDM band.

ORDERING INFORMATION

Ordering code	Description
SO-SFP-10GE-LR10-C27	SFP+, 10G Multirate, CWDM 1270nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C29	SFP+, 10G Multirate, CWDM 1290nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C31	SFP+, 10G Multirate, CWDM 1310nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C33	SFP+, 10G Multirate, CWDM 1330nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C35	SFP+, 10G Multirate, CWDM 1350nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C37	SFP+, 10G Multirate, CWDM 1370nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C39	SFP+, 10G Multirate, CWDM 1390nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C41	SFP+, 10G Multirate, CWDM 1410nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C43	SFP+, 10G Multirate, CWDM 1430nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C45	SFP+, 10G Multirate, CWDM 1450nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C47	SFP+, 10G Multirate, CWDM 1470nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C49	SFP+, 10G Multirate, CWDM 1490nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C51	SFP+, 10G Multirate, CWDM 1510nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C53	SFP+, 10G Multirate, CWDM 1530nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C55	SFP+, 10G Multirate, CWDM 1550nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C57	SFP+, 10G Multirate, CWDM 1570nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C59	SFP+, 10G Multirate, CWDM 1590nm, DDM, 10dB, 10km
SO-SFP-10GE-LR10-C61	SFP+, 10G Multirate, CWDM 1610nm, DDM, 10dB, 10km

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.