

SO-SFP28-32GFC-LR10-CXX

SFP28, 32Gbps FC/25GbE/10GbE, CWDM, DDM, 9.4dB, 10km, 1270nm-1330nm (4ch)

OVERVIEW

The SO-SFP28-32GFC-LR10-Cxx is a CWDM SFP28 transceiver for 32G Fiber Channel (FC) services, also supporting 25Gbps and 10Gbps Ethernet. The transceiver can also be used for transport of single lane 25G Ethernet and 10GbE services. The optical performance provides a bridgeable distance of up to 10 km for 32G FC.

The transceiver has a Rate_Select function compliant with SFF-8472 Rev12.2 where a switch between 32G FC, 25GbE and 10GbE is done. The transceiver is available in 4 CWDM wavelength versions, spanning from 1270nm to 1330nm in accordance with the G.694.2 standard.

As stipulated by the 32G FC and 25G Ethernet standards, Forward Error Correction (FEC) is required to be implemented by the host in order to ensure reliable system operation. The optical parameters below will provide a bit error ratio (BER) of 1×10^{-6} for 32G FC. FEC will provide the required quality for secure service.

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

TECHNICAL DATA

Technology	CWDM SFP28
Transmission media	SM (2x LC)
Typical reach	10 km
Nominal wavelength	1270 nm - 1330 nm (4ch)
Bit rate range (Gbps)	28.05 (32G FC) 25.78 (25GbE) 10.31 (10GbE-WAN) 9.95 (10GbE-LAN)
Protocols	FC: 32G FC Eth: 25GbE 10GbE-LAN 10GbE-WAN
Power budget	0 – 9.4 dB ¹⁾
Dispersion penalty	4.5dB ¹⁾
Temperature range	0°C to +70°C
Power consumption	< 1.2W

Transmitter data	Output power:	Min: -3.0 dBm Max: +2.0 dBm
	Tx wavelength:	1270 - 1330 nm in 20nm steps ²⁾
Receiver data	Minimum input power:	-12.4 dBm ¹⁾
	Overload (max power):	+2.0 dBm
	Wavelength range:	1260 - 1350 nm
DDM		Yes
MSA compliance		SFF-8402 SFF-8472

¹⁾ @ 32G FC & BER < E-6 using FEC

²⁾ as specified in G.694.2

Note! See "Definitions" below.

Regulatory compliance

EMC CE	EN 55022:2010 EN 55024:2010
UL/Safety	UL 60950-1
FCC	47 CFR PART 15 OCT, 2013
RoHS	RoHS 6, 2011/65/EU
TUV	EN 60950-1:2006+A11+A1+A12+A2 EN 60825-1:2014 EN 60825-2:2004+A1+A2

Storage temp.	-40°C to +85°C
----------------------	----------------

RATE_SELECT OPERATION

The SO-SFP28-32GFC-LR10-Cxx supports high data rates 25.78Gbps/28.05Gbps (25GbE /32GFC) and Low data rates 9.95Gbps/10.31Gbps(10GbE-LW/LR). Rate_Select is compliant with SFF-8472 Rev12.2.

Logic OR of RS0 pin and bit 110.3 of A2H	Logic OR of RS1 pin and bit 118.3 of A2H	RX Data Rate	TX Data Rate	Status of RX CDR	Status of TX CDR
High	High	25.78 / 28.05 G	25.78 / 28.05 G	CDR engaged	CDR engaged
High	Low	25.78 / 28.05 G	9.95 / 10.31 G	CDR engaged	CDR bypassed
Low	High	9.95 / 10.31 G	25.78 / 28.05 G	CDR bypassed	CDR engaged
Low	Low	9.95 / 10.31 G	9.95 / 10.31 G	CDR bypassed	CDR bypassed

ORDERING INFORMATION

Part number	Description
SO-SFP28-32GFC-LR10-C27	SFP28, 32Gbps FC/25GbE/10GbE, 1270nm CWDM, DDM, 9.4dB, 10km
SO-SFP28-32GFC-LR10-C29	SFP28, 32Gbps FC/25GbE/10GbE, 1290nm CWDM, DDM, 9.4dB, 10km
SO-SFP28-32GFC-LR10-C31	SFP28, 32Gbps FC/25GbE/10GbE, 1310nm CWDM, DDM, 9.4dB, 10km
SO-SFP28-32GFC-LR10-C33	SFP28, 32Gbps FC/25GbE/10GbE, 1330nm CWDM, DDM, 9.4dB, 10km

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. 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. Excluding any dispersion penalty.
Dispersion tolerance/penalty:	Maximum amount of tolerated dispersion and required reduction of power budget to maintain BER better than $1E^{-12}$. Defined at a specific bit rate.
Temperature range:	Max operating case temperature range. Standard temperature range: Typically 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.
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 at specified BER, normally $1E^{-12}$.
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.