

SO-CFP-LPC-DWDM

CFP-DCO Low Tx Power, 100G Eth, DWDM 6,25/50GHz Coh, 191.25-196.10THz, 2400km, 25dB, LC

OVERVIEW

The SO-CFP-LPC-DWDM is a high performance DWDM transceiver that utilizes DP-QPSK coherent modulation and an advanced dispersion compensation technique that provides equal or better chromatic and polarization mode (CM/PMD) tolerance as a 10Gbps channel. The 100Gbps wavelength can thus be injected into an existing 10Gbps DWDM link without any changes to the optical network. The SO-CFP-LPC-DWDM is used on the line side of the Smartoptics DCP-101 Transponder module. See separate datasheet for further information.

The module includes a high-performance DSP (Digital Signal Processor) to code and decode the coherent signal and an OTU4 framer/deframer into which the 100G Ethernet signal is mapped to provide the necessary long-haul transmission performance via FEC (Forward Error Correction).

The optical performance provides a bridgeable distance of up to 2400km (without in-line dispersion compensation) for 100GbE. The unit is tunable and supports 50GHz or 6.25GHz ITU-T grid between 191.25 - 196.10THz and later also in flex-grid channel configurations in the DCP-Series.

SO-CFP-LPC-DWDM includes mechanical characteristics are compliant with the CFP MSA specifications.

- Compliant with CAUI-10 100G Ethernet signaling
- Low latency Soft-Decision Forward Error Correction (SD-FEC) without post-FEC error floor
- Compliant to CFP MSA Hardware Specification 1.0 with modifications
- Compliant to CFP MSA Management Interface Specification 2.4 with modifications

TECHNICAL DATA

Parameter	Value
Technology	DWDM 12.5/50GHz CFP
Transmission media	SM (2x LC)
Typical reach	2400km
Nominal wavelength	191.25 - 196.10THz
Bit rate support	103.125Gbps
Protocol support	100GbE
Power budget	0 – 25dB
Dispersion tolerance	40 000ps/nm ⁴⁾
Power consumption	< 20W
Operating temperature	-5°C to +70°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power	Min: -5.0dBm Max: -1.0dBm
Transmit wavelength	191.25 - 196.10THz @ 12.5/50GHz steps
OSNR @ Tx	40dB/0.1nm
Tuning speed	< 60s from any to any ¹⁾
Receiver data:	
Minimum input power	0 to -18dBm ²⁾ Min -30dBm ³⁾
OSNR sensitivity	14dB/0.1nm
Overload (max power)	0dBm
Wavelength range	191.25 - 196.10THz
DDM	Yes
MSA compliance	CFP MSA's

¹⁾ Maximum switching time from one wavelength to any other wavelength, including modulator bias optimization time

²⁾ Optimum Input power range. Signal power of the selected channel. The input power range gets optimum OSNR performance.

³⁾ Minimum input power needed to achieve post FEC BER < 10⁻¹⁵ when OSNR > 35dB and SDFEC is enabled.

⁴⁾ CD tolerance with less than 0.3dB OSNR penalty at SD-FEC

Safety/regulatory compliance:

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

RoHS compliance

For further technical details, please contact Smartoptics

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ORDERING INFORMATION

Ordering number	Description
SO-CFP-LPC-DWDM	CFP-DCO Low Tx Power, 100G Eth, DWDM 6,25/50GHz Coh, 191.25-196.10THz, 2400km, 25dB, LC

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. Max operating case temperature range.
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.

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