SO-CFP-C-DWDM

CFP-DCO, 100G Eth, DWDM 50GHz Coh, 191.25-196.10THz, 2000km, 22dB, LC

OVERVIEW

The SO-CFP-C-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-C-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 2000km (without in-line dispersion compensation) for 100GbE services. The unit can be tuned to the 50GHz ITU-T channels between 191.25 - 196.10THz.

SO-CFP-C-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

Technology		DWDM 50GHz CFP
Transmission media		SM (2x LC)
Typical reach		2000 km
Bit rate range		103.125Gbps
Protocols	Eth:	100GbE
Power budget		1 – 22 dB
Dispersion tolerance		40,000 ps/nm [5]
Temperature range		-5°C to +70°C
Power consumption		< 32W

Transmitter data	Output power:	Min: -15.0 dBm [1]
		Max: +1.0 dBm
	Tx wavelength:	191.25 - 196.10 THz in 50GHz steps (G.694.1)
	OSNR at Tx output:	39 dB/0.1nm
	Tuning speed	< 60s from any to any [2]
Receiver data	Sensitivity:	0 to -13 dBm [3]
		Min: -21.0 dBm [4]
	OSNR sensitivity:	14 dB /0.1nm
	Max input power:	0 dBm
	Wavelength range:	191.25 - 196.10 THz
DDM		Yes
MSA compliance		CFP-MSA

Regulatory compliance	
Safety	Class 1 laser, IEC/EN 60825-1/A2: 20016
ESD	ESD susceptibility up to 500V according to GR-7
Emission	Class B, GR-1089-CORE
Immunity	EMI 8.5V/m per GR.1089-C

Storage temp.	-40°C to +85°C

[1] Transmitter output is settable in steps of 0.1 dB at any power level within the specified frequency range.
[2] Maximum switching time from one wavelength to any other wavelength, including modulator bias optimization time.
[3] Optimum Input power range. Signal power of the selected channel. The input power range gets optimum OSNR performance.
[4] Minimum input power needed to achieve post FEC BER < 10-15 when OSNR > 35dB and SDFEC is enabled.
[5] CD tolerance with less than 0.3dB OSNR penalty at SD-FEC.

For further technical details, please contact Smartoptics.

ORDERING INFORMATION

Part number	Description
SO-CFP-C-DWDM	CFP-DCO, 100G Eth, DWDM 50GHz Coh, 191.25-196.10THz, 2000km, 22dB, LC

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.