SO-XFP-ER-CXX
XFP, 10G Multirate, CWDM, DDM, 14dB, 40km, 1470nm-1610nm (8ch)

OVERVIEW

The SO-XFP-ER-Cxx is a versatile CWDM transceiver supporting a wide range of traffic formats. The range performance is in accordance with the IEEE 802.3ae ER/EW-standard, providing a bridgeable distance of up to 40km for 10GbE-LAN (10GBASE-ER) and 10GbE-WAN (10GBASE-EW) services.

The transceiver is available in 8 CWDM wavelengths, spanning from 1470nm 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

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<th>Technology</th>
<th>CWDM XFP</th>
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<td>Transmission media</td>
<td>SM (2x LC)</td>
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<td>Typical reach</td>
<td>40 km</td>
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<td>Nominal wavelength</td>
<td>1470 nm - 1610 nm (8ch)</td>
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<td>Interface standards</td>
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<td>Bit rate range</td>
<td>9.95 - 11.1 Gbps</td>
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<td>Protocols Eth</td>
<td>10GbE-LAN, 10GbE-WAN</td>
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<tr>
<td>OTN</td>
<td>OTU2, OTU2</td>
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<td>SDH/SONET</td>
<td>STM-64/OC-192</td>
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<td>FC</td>
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<td>CPRI</td>
<td>Opt 8 (10.1376 Gbps)</td>
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<td>Power budget</td>
<td>0 - 14.1 dB</td>
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<td>Dispersion tolerance</td>
<td>800 ps/nm 1)</td>
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<td>Dispersion penalty</td>
<td>2.5 dB 1)</td>
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<td>Temperature range</td>
<td>0°C to +70°C (Cxx)</td>
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<tr>
<td>Power consumption</td>
<td>&lt; 3.5W</td>
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</table>

Transmitter data
- Output power:
  - Min: -0.9 dBm
  - Max: +4.0 dBm
- Tx wavelength: 1470 - 1610 nm in 20nm steps (G.694.2)

Receiver data
- Minimum input power: -15.0 dBm 1)
- Overload (max power): +0.5 dBm
- Wavelength range: 1260 - 1620 nm

DDM
- Yes

MSA compliance
- SFF-8431
- SFF-8432
- SFF-8472

Protocols
- Eth: 10GbE-LAN, 10GbE-WAN
- OTN: OTU2, OTU2
- SDH/SONET: STM-64/OC-192
- FC: 10G FC
- CPRI: Opt 8 (10.1376 Gbps)

Power budget
- 0 - 14.1 dB
- 800 ps/nm 1)
- 2.5 dB 1)

Temperature range
- 0°C to +70°C (Cxx)

Power consumption
- < 3.5W

Note: IEEE 802.3ae 10GBASE-ER/EW is defined only at 1550 nm. The standard is referred to from bridgeable distance perspective for the other wavelengths within the CWDM band.

Regulatory compliance
- EMC CE
  - EN 55022:2010
  - EN 55024:2010
- UL/Safety
  - UL 60950-1
  - 47 CFR PART 15 OCT, 2013
- RoHS
  - RoHS 6
- 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

Note! See “Definitions” below.
## ORDERING INFORMATION

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<th>Part number</th>
<th>Description</th>
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<td>SO-XFP-ER-C49</td>
<td>XFP, 10G Multirate, CWDM 1490nm, SM, DDM, 14dB, 40km</td>
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<td>SO-XFP-ER-C51</td>
<td>XFP, 10G Multirate, CWDM 1510nm, SM, DDM, 14dB, 40km</td>
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<td>SO-XFP-ER-C53</td>
<td>XFP, 10G Multirate, CWDM 1530nm, SM, DDM, 14dB, 40km</td>
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<td>SO-XFP-ER-C57</td>
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<tr>
<td>SO-XFP-ER-C59</td>
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</tr>
<tr>
<td>SO-XFP-ER-C61</td>
<td>XFP, 10G Multirate, CWDM 1610nm, SM, DDM, 14dB, 40km</td>
</tr>
</tbody>
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## 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 $10^{-12}$. 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 $10^{-12}$.

**Receiver max input power:**
- Maximum average input power at specified BER, normally $10^{-12}$.

**DDM:**
- Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.