OVERVIEW

The SO-QSFP-LX4 is a QSFP+ (Quad Small Form-factor Pluggable Plus) transceiver for 40 Gbps applications such as inter- and intra-connect within and between data centers between switches, routers, storage equipment etc.

The SO-QSFP-LX4 converts 4x 10 Gbps flows into four CWDM channels in the 1300nm band up to 2 km over a SingleMode (SM) fiber and up to 150m over an OM3 grade MultiMode (MM) fiber.

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

TECHNICAL DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Grey QSFP+</td>
</tr>
<tr>
<td>Transmission media</td>
<td>SM (2x LC)</td>
</tr>
<tr>
<td>Typical reach</td>
<td>2km (SM) / 150m (MM OM3)</td>
</tr>
<tr>
<td>Nominal wavelength</td>
<td>Lane 1: 1271nm, Lane 2: 1291nm, Lane 3: 1311nm, Lane 4: 1331nm</td>
</tr>
<tr>
<td>Interface standards</td>
<td>40GBASE-IR4</td>
</tr>
<tr>
<td>Bit rate support</td>
<td>41.25Gbps [1], 10.3125Gbps [2]</td>
</tr>
<tr>
<td>Protocol support</td>
<td>40Gx4E</td>
</tr>
<tr>
<td>Power budget</td>
<td>0 – 4.5dB, 0 – 5.5dB</td>
</tr>
<tr>
<td>Power consumption</td>
<td>&lt; 3.5W</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to +70°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

[1] Aggregated line rate  
[2] Per lane  
[3] Average power  
[4] Using SM fiber  
[5] Using MM fiber  
[4] At 10.3125Gbps, BER less than 10^-12, with a 231-1 PRBS

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

Parameter | Value
---|---
Transmitter data: |  
Output power, total | Max: +9.5dBm [2, 4]  
Output power, per lane | Min: -7.0dBm [2, 3, 4], Max: +2.3dBm [2, 3, 4]
Transmit wavelength | 1264.5 – 1277.5nm, 1284.5 – 1297.5nm, 1304.5 – 1317.5nm, 1324.5 – 1337.5nm
Receiver data: |  
Minimum input power | -11.5dBm [2, 3, 4], -10.5dBm [2, 3, 5]
Overload (max power) | +2.3dBm [2, 3, 2]
Wavelength range | 1264.5 – 1277.5nm, 1284.5 – 1297.5nm, 1304.5 – 1317.5nm, 1324.5 – 1337.5nm
LOS Assert | Min -30dBm
LOS De-Assert | Max -12dBm
LOS Hysteresis | Min 0.5dB
DDM | Yes
MSA compliance | QSFP+ MSA, SFF-8436

For more information visit smartoptics.com.
ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Ordering number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO-QSFP-LX4</td>
<td>QSFP+, 40G Ethernet IR4, 1271/1291/1311/1331nm, 2km@SM, 150m@OM3, 4.5dB, LC</td>
</tr>
</tbody>
</table>

GENERAL 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 (DAC). 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.

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.
- Commercial 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.

Receiver max input power:
- Maximum average input power giving a BER, normally 1E-12.

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

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