CommScope FLX™ Combo XGS-PON/GPON Optical Module, SFP+, Single fiber bi-directional data links with Tx1: 9.953 Gbps Rx1: 9.953 Gbps / 2.488 Gbps Tx2: 2.488 Gbps Rx2: 1.244 Gbps

FEATURES

- Combination of XGS-PON OLT and GPON OLT optical transceivers in an SFP+ package
- Complies with ITU-T G.9807.1 N2 class
- Complies with ITU-T G.984.2 C+ class
- Single fiber bi-directional data links with
  - Tx1: 9.953 Gbps
  - Rx1: 9.953 Gbps / 2.488 Gbps
  - Tx2: 2.488 Gbps
  - Rx2: 1.244 Gbps
- 1577 nm continuous-mode transmitter with EML laser
- 1490 nm continuous-mode transmitter with DFB laser
- 1270 nm burst-mode receiver with APD-TIA
- 1310 nm burst-mode receiver with APD-TIA
- 2-wire interface for integrated digital diagnostic monitoring
- +3.3V power supply, 3.5W power consumption
- RoHS With Exemptions 7C(I)
- 20km Reach
- Operating temp: -40 ~ 90°C
- Supports 20 Pin-out

Product Classification

**Product Type**
Optical transceiver

**Product Brand**
CommScope FLX™

**Product Series**
SFP

General Specifications

**Reflectance, maximum**
-12 dB @ 1260–1280 nm (XGS) | -20 dB @ 1290–1330 nm (GPON)

**Differential Power, maximum**
20 dB

**Transmission Distance, maximum**
20 km

Dimensions

**Height**
12.294 mm | 0.484 in

**Width**
13.894 mm | 0.547 in
Length | 64.287 mm | 2.531 in

**Dimension Drawing**

**Port Configuration**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Logic</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CMI-I</td>
<td>GPON_TD+</td>
<td>GPON transmit data input, AC coupling</td>
</tr>
<tr>
<td>2</td>
<td>CMI-I</td>
<td>GPON_TD-</td>
<td>Inverted GPON transmit data input, AC coupling</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td></td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>LV TTL</td>
<td>SDA</td>
<td>2-Wire serial interface SDA</td>
</tr>
<tr>
<td>5</td>
<td>LV TTL</td>
<td>SCL</td>
<td>2-Wire serial interface SCL</td>
</tr>
<tr>
<td>6</td>
<td>LVPECL-O</td>
<td>GPON_TD-</td>
<td>Inverted GPON received data output, DC coupling</td>
</tr>
<tr>
<td>7</td>
<td>LV TTL</td>
<td>XGSPON_Reset/Rate_select</td>
<td>High level (≥1.9V) for the RESET function; Low level (&lt;0.9V) for 10G Rate selection signal, Intermediate level (0.9V ±1.9V) for 2.5G Rate select signal</td>
</tr>
<tr>
<td>8</td>
<td>LV TTL-O</td>
<td>XGSPON_SD</td>
<td>XGS receiver signal detect, logic 1 indicates normal operation</td>
</tr>
<tr>
<td>9</td>
<td>LV TTL</td>
<td>Trig/Tx_disable</td>
<td>Signal pins are multiplexed through register, when use as Tx disable, active high</td>
</tr>
<tr>
<td>10</td>
<td>LVPECL-O</td>
<td>GPON_RX+</td>
<td>GPON received data output, DC coupling</td>
</tr>
<tr>
<td>11</td>
<td>GND</td>
<td></td>
<td>Ground</td>
</tr>
<tr>
<td>12</td>
<td>CMI-O</td>
<td>XGSPON_RX+</td>
<td>Inverted XGSPON received data output, DC coupling</td>
</tr>
<tr>
<td>13</td>
<td>CMI-O</td>
<td>XGSPON_RX-</td>
<td>XGSPON received data output, DC coupling</td>
</tr>
<tr>
<td>14</td>
<td>LV TTL-O</td>
<td>GPON SD</td>
<td>GPON Receiver signal detect, logic 1 indicates normal operation</td>
</tr>
<tr>
<td>15</td>
<td>VCC</td>
<td>Rx</td>
<td>+3.3V Power supply</td>
</tr>
<tr>
<td>16</td>
<td>VCC</td>
<td>Tx</td>
<td>+3.3V Power supply</td>
</tr>
<tr>
<td>17</td>
<td>LV TTL-I</td>
<td>GPON_Reset</td>
<td>Reset for GPON LA, active high</td>
</tr>
<tr>
<td>18</td>
<td>CMI-I</td>
<td>XGSPON_TD+</td>
<td>XGS transmit data input, AC coupling</td>
</tr>
<tr>
<td>19</td>
<td>CMI-I</td>
<td>XGSPON_TD-</td>
<td>Inverted XGS transmit data input, AC coupling</td>
</tr>
<tr>
<td>20</td>
<td>GND</td>
<td></td>
<td>Module Ground</td>
</tr>
</tbody>
</table>

**Electrical Specifications**

- **Input Current, maximum**: 1115 mA
- **Input Voltage**: +3.14 to +3.47 Vdc
### Input Voltage, maximum
3.6 V

### Power Consumption, maximum
3.5 W

### Receiver Data Output Differential Swing Range
- 300–800 mVpp @ 2.488 Gbps
- 300–800 mVpp @ 9.953 Gbps
- 600–1600 mVpp @ 1.244 Gbps

### Receiver Loss of Signal Assert Time, maximum
- 100 ns @ 9.953 Gbps
- 50 ns @ 1.244 Gbps
- 50 ns @ 2.488 Gbps

### Receiver Loss of Signal de-Assert Time, maximum
- 12.8 ns @ 1.244 Gbps
- 12.8 ns @ 2.488 Gbps
- 50 ns @ 9.953 Gbps

### Receiver Loss of Signal Detected Voltage High, minimum
2.4 V

### Receiver Loss of Signal Detected Voltage Low, maximum
0.4 V

### Transmitter Data Input Differential Swing Range
- 200–850 mVpp @ 2.488 Gbps
- 200–850 mVpp @ 9.953 Gbps

### Transmitter Differential Impedance, typical
100 ohm

### Transmitter Fault Indication Voltage High, minimum
2.4 V

### Transmitter Fault Indication Voltage Low, maximum
0.4 V

### Optical Specifications

#### Optical Isolation, minimum
-30 dB (from external below 1260–1280 nm)
-30 dB (from external below 1342–1650 nm)

#### Optical Port Interface
SC/UPC

#### Receiver Center Wavelength
- 1270 nm nominal (1260–1280 nm) @ 2.488 Gbps
- 1270 nm nominal (1260–1280 nm) @ 9.953 Gbps
- 1310 nm nominal (1290–1310 nm) @ 1.244 Gbps

#### Receiver Loss of Signal Assert Level, minimum
-30 dBm @ 9.953 Gbps
-31 dBm @ 2.488 Gbps
-33 dBm @ 1.244 Gbps

#### Receiver Loss of Signal de-Assert, maximum
-45 dBm @ 1.244 Gbps
-45 dBm @ 2.488 Gbps
-45 dBm @ 9.953 Gbps

#### Receiver Saturation, minimum
-12 dBm @ 1.244 Gbps
-7 dBm @ 9.953 Gbps
-9 dBm @ 2.488 Gbps

#### Receiver Sensitivity, maximum
-28 dBm @ 9.953 Gbps
-29.5 dBm @ 2.488 Gbps
-32 dBm @ 1.244 Gbps

#### Transmitter Center Wavelength
- 1490 nm nominal (1480–1500 nm) @ 2.488 Gbps
- 1577 nm nominal (1575–1580 nm) @ 9.953 Gbps

#### Transmitter Extinction Ratio, minimum
8.2 dB

#### Transmitter Reflected Power Tolerance, minimum
-15 dB

#### Transmitter Launch Power Range
+4 to +7 dBm

#### Transmitter Launch Power OFF Transmitter, maximum
-39 dBm @ 9.953 Gbps
-40 dBm @ 2.488 Gbps
Environmental Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-40 °C to +90 °C (-40 °F to +194 °F)</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>5%–85%</td>
</tr>
</tbody>
</table>