

# SO-SFP-L80D-Dxxx & Dxxx-E

SFP, 0.1 - 1.25Gbps, DWDM, 100GHz, DDM, 28dB, 80km, D9190-D9600 (42ch)

## OVERVIEW

The SO-SFP-L80D-Dxxx is a DWDM transceiver for services from 100 Mbps (Fast Ethernet) up to 1.25 Gbps (Gigabit Ethernet).

The optical performance enables a bridgeable distance of up to 80km. The transceiver is provided in 42 channel versions at the 100GHz DWDM grid as specified in the ITU-T 694.1 standard.

This transceiver supports digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification. The transceiver is available in two temperature range options, one being an extended temperature range: -20°C to +75°C (-4°F to +167°F).

The transceiver module is compliant to RoHS-6/6

## TECHNICAL DATA

| Parameter             | Value   |
|-----------------------|---|
| Technology            | DWDM SFP 100GHz   |
| Transmission media    | SM (2x LC)  |
| Typical reach         | 80km  |
| Nominal wavelength    | 191.90 - 196.0THz (42ch)  |
| Bit rate support      | 0.1Gbps to 1.25Gbps   |
| Protocol support      | FE, GbE<br>STM4/OC12, STM1/OC3<br>1G FC<br>CPRI Opt, 1, 2<br>OBSAI 1x |
| Power budget          | 8 – 28dB  |
| Dispersion tolerance  | Typical 2080ps/nm   |
| Power consumption     | < 1.5W  |
| Operating temperature | 0°C to +70°C 1<br>-20°C to +75°C (-E)                                 |
| Storage temperature   | -40°C to +85°C  |

| Parameter                | Value   |
|--------------------------|---|
| <b>Transmitter data:</b> |   |
| Output power             | Min: 0.0dBm <sup>1)</sup><br>Max: +5.0dBm <sup>1)</sup> |
| Transmit wavelength      | 191.90 - 196.00THz, 100GHz (G.694.1)                    |
| <b>Receiver data:</b>    |   |
| Minimum input power      | -28.0dBm <sup>1) 2)</sup>                               |
| Overload (max power)     | -3.0dBm <sup>1) 2)</sup>                                |
| Wavelength range         | 1520nm – 1566nm   |
| LOS Assert               | Min -42dBm  |
| LOS De-assert            | Max -29dBm  |
| LOS Hysteresis           | Min 0.5dB   |
| DDM                      | Yes   |
| MSA compliance           | SFF-8431, -8432, -8472                                  |

<sup>1)</sup> Average power.

<sup>2)</sup> @ 1.25Gbps, BER 1x10<sup>-12</sup>, PRBS 2<sup>7</sup>-1, back-to-back.

### Safety/regulatory compliance:

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

RoHS compliance

## ORDERING INFORMATION

| Part number C-temp | Freq. THz | $\lambda$ nm | Part number E-temp | Freq. THz | $\lambda$ nm |
|--------------------|-----------|--------------|--------------------|-----------|--------------|
| SO-SFP-L80D-D919   | 191.90    | 1562.23      | SO-SFP-L80D-D919-E | 191.90    | 1562.23      |
| SO-SFP-L80D-D920   | 192.00    | 1561.42      | SO-SFP-L80D-D920-E | 192.00    | 1561.42      |
| SO-SFP-L80D-D921   | 192.10    | 1560.61      | SO-SFP-L80D-D921-E | 192.10    | 1560.61      |
| SO-SFP-L80D-D922   | 192.20    | 1559.79      | SO-SFP-L80D-D922-E | 192.20    | 1559.79      |
| SO-SFP-L80D-D923   | 192.30    | 1558.98      | SO-SFP-L80D-D923-E | 192.30    | 1558.98      |
| SO-SFP-L80D-D924   | 192.40    | 1558.17      | SO-SFP-L80D-D924-E | 192.40    | 1558.17      |
| SO-SFP-L80D-D925   | 192.50    | 1557.36      | SO-SFP-L80D-D925-E | 192.50    | 1557.36      |
| SO-SFP-L80D-D926   | 192.60    | 1556.55      | SO-SFP-L80D-D926-E | 192.60    | 1556.55      |
| SO-SFP-L80D-D927   | 192.70    | 1555.75      | SO-SFP-L80D-D927-E | 192.70    | 1555.75      |
| SO-SFP-L80D-D928   | 192.80    | 1554.94      | SO-SFP-L80D-D928-E | 192.80    | 1554.94      |
| SO-SFP-L80D-D929   | 192.90    | 1554.13      | SO-SFP-L80D-D929-E | 192.90    | 1554.13      |
| SO-SFP-L80D-D930   | 193.00    | 1553.33      | SO-SFP-L80D-D930-E | 193.00    | 1553.33      |
| SO-SFP-L80D-D931   | 193.10    | 1552.52      | SO-SFP-L80D-D931-E | 193.10    | 1552.52      |
| SO-SFP-L80D-D932   | 193.20    | 1551.72      | SO-SFP-L80D-D932-E | 193.20    | 1551.72      |
| SO-SFP-L80D-D933   | 193.30    | 1550.92      | SO-SFP-L80D-D933-E | 193.30    | 1550.92      |
| SO-SFP-L80D-D934   | 193.40    | 1550.12      | SO-SFP-L80D-D934-E | 193.40    | 1550.12      |
| SO-SFP-L80D-D935   | 193.50    | 1549.32      | SO-SFP-L80D-D935-E | 193.50    | 1549.32      |
| SO-SFP-L80D-D936   | 193.60    | 1548.51      | SO-SFP-L80D-D936-E | 193.60    | 1548.51      |
| SO-SFP-L80D-D937   | 193.70    | 1547.72      | SO-SFP-L80D-D937-E | 193.70    | 1547.72      |
| SO-SFP-L80D-D938   | 193.80    | 1546.92      | SO-SFP-L80D-D938-E | 193.80    | 1546.92      |
| SO-SFP-L80D-D939   | 193.90    | 1546.12      | SO-SFP-L80D-D939-E | 193.90    | 1546.12      |
| SO-SFP-L80D-D940   | 194.00    | 1545.32      | SO-SFP-L80D-D940-E | 194.00    | 1545.32      |
| SO-SFP-L80D-D941   | 194.10    | 1544.53      | SO-SFP-L80D-D941-E | 194.10    | 1544.53      |
| SO-SFP-L80D-D942   | 194.20    | 1543.73      | SO-SFP-L80D-D942-E | 194.20    | 1543.73      |
| SO-SFP-L80D-D943   | 194.30    | 1542.94      | SO-SFP-L80D-D943-E | 194.30    | 1542.94      |
| SO-SFP-L80D-D944   | 194.40    | 1542.14      | SO-SFP-L80D-D944-E | 194.40    | 1542.14      |
| SO-SFP-L80D-D945   | 194.50    | 1541.35      | SO-SFP-L80D-D945-E | 194.50    | 1541.35      |
| SO-SFP-L80D-D946   | 194.60    | 1540.56      | SO-SFP-L80D-D946-E | 194.60    | 1540.56      |
| SO-SFP-L80D-D947   | 194.70    | 1539.77      | SO-SFP-L80D-D947-E | 194.70    | 1539.77      |
| SO-SFP-L80D-D948   | 194.80    | 1538.98      | SO-SFP-L80D-D948-E | 194.80    | 1538.98      |
| SO-SFP-L80D-D949   | 194.90    | 1538.19      | SO-SFP-L80D-D949-E | 194.90    | 1538.19      |
| SO-SFP-L80D-D950   | 195.00    | 1537.40      | SO-SFP-L80D-D950-E | 195.00    | 1537.40      |
| SO-SFP-L80D-D951   | 195.10    | 1536.61      | SO-SFP-L80D-D951-E | 195.10    | 1536.61      |
| SO-SFP-L80D-D952   | 195.20    | 1535.82      | SO-SFP-L80D-D952-E | 195.20    | 1535.82      |
| SO-SFP-L80D-D953   | 195.30    | 1535.04      | SO-SFP-L80D-D953-E | 195.30    | 1535.04      |
| SO-SFP-L80D-D954   | 195.40    | 1534.25      | SO-SFP-L80D-D954-E | 195.40    | 1534.25      |
| SO-SFP-L80D-D955   | 195.50    | 1533.47      | SO-SFP-L80D-D955-E | 195.50    | 1533.47      |
| SO-SFP-L80D-D956   | 195.60    | 1532.68      | SO-SFP-L80D-D956-E | 195.60    | 1532.68      |
| SO-SFP-L80D-D957   | 195.70    | 1531.90      | SO-SFP-L80D-D957-E | 195.70    | 1531.90      |
| SO-SFP-L80D-D958   | 195.80    | 1531.12      | SO-SFP-L80D-D958-E | 195.80    | 1531.12      |
| SO-SFP-L80D-D959   | 195.90    | 1530.33      | SO-SFP-L80D-D959-E | 195.90    | 1530.33      |
| SO-SFP-L80D-D960   | 196.00    | 1529.55      | SO-SFP-L80D-D960-E | 196.00    | 1529.55      |

## GENERAL DEFINITIONS

| Parameter                    | Description  |
|------------------------------|--|
| Technology                   | Grey; Transceiver type for non-WDM applications. Electrical or optical.<br>CWDM; Transceiver type for CWDM applications using G.694.2 channel grid.<br>DWDM; Transceiver type for DWDM applications using G.694.1 channel grid.  |
| 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.   |
| Temperature range            | Max operating case temperature range.<br>Standard temperature range (C-temp): 0°C to +70°C (32°F to +158°F)<br>Extended temperature range (E-temp): typically -20°C to +75°C (-4°F to +167°F)<br>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 <sup>-12</sup> . Note that some protocols require FEC to achieve sufficient BER.   |
| Receiver max input power     | Maximum average input power giving a BER, normally 1E <sup>-12</sup> .   |
| DDM                          | Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.   |

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