# SO-SFP-L120DH-Dxxx

SFP, 0.1 - 1.25Gbps, DWDM, 100GHz, DDM, 41dB, 120km, D9190-D9600 (42ch)

## OVERVIEW

The SO-SFP-L120DH-Dxxx is a high power DWDM transceiver for services from 100 Mbps (Fast Ethernet) up to 1.25 Gbps (Gigabit Ethernet).

The optical performance provides a bridgeable distance of up to 120km and with a high-power budget of up to 41dB. The transceiver is provided in 42 channel versions at the 100GHz DWDM grid as specified in the ITU-T 694.1 standard.

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

The transceiver module is compliant to RoHS-6/6

## TECHNICAL DATA

| Parameter | Value |
|---|---|
| Technology | DWDM SFP 100GHz |
| Transmission media | SM (2x LC) |
| Typical reach | 120km |
| Nominal wavelength | 191.90 - 196.0THz (42ch) |
| Bit rate support | 0.1Gbps to 1.25Gbps |
| Protocol support | FE, GbE |
| | STM4/OC12, STM1/OC3 |
| | 1G FC |
| | CPRI Opt, 1, 2 |
| | OBSAI 1x |
| Power budget | 17 – 41dB |
| Dispersion tolerance | Typical 2800ps/nm |
| Power consumption | < 1.5W |
| Operating temperature | 0°C to +70°C |
| Storage temperature | -40°C to +85°C |

| Parameter | Value |
|---|---|
| **Transmitter data:** | |
| Output power | Min: +4.0dBm [1] |
| | Max: +7.0dBm [1] |
| Transmit wavelength | 191.90 - 196.00THz, 100GHz (G.694.1) |
| **Receiver data:** | |
| Minimum input power | -37.0dBm [1] [2] |
| Overload (max power) | -10.0dBm [1] [2] |
| Wavelength range | 1528nm – 1566nm |
| LOS Assert | Min -45dBm |
| LOS De-assert | Max -36dBm |
| LOS Hysteresis | Min 0.5dB |
| | |
| DDM | Yes |
| MSA compliance | SFF-8431, -8432, -8472 |

[1] Average power.

[2] @ 1.25Gbps, BER 1x10$^{-12}$, PRBS 2$^{7}$-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 | λ nm |
|---|---|---|
| SO-SFP-L120DH-D919 | 191.90 | 1562.23 |
| SO-SFP-L120DH-D920 | 192.00 | 1561.42 |
| SO-SFP-L120DH-D921 | 192.10 | 1560.61 |
| SO-SFP-L120DH-D922 | 192.20 | 1559.79 |
| SO-SFP-L120DH-D923 | 192.30 | 1558.98 |
| SO-SFP-L120DH-D924 | 192.40 | 1558.17 |
| SO-SFP-L120DH-D925 | 192.50 | 1557.36 |
| SO-SFP-L120DH-D926 | 192.60 | 1556.55 |
| SO-SFP-L120DH-D927 | 192.70 | 1555.75 |
| SO-SFP-L120DH-D928 | 192.80 | 1554.94 |
| SO-SFP-L120DH-D929 | 192.90 | 1554.13 |
| SO-SFP-L120DH-D930 | 193.00 | 1553.33 |
| SO-SFP-L120DH-D931 | 193.10 | 1552.52 |
| SO-SFP-L120DH-D932 | 193.20 | 1551.72 |
| SO-SFP-L120DH-D933 | 193.30 | 1550.92 |
| SO-SFP-L120DH-D934 | 193.40 | 1550.12 |
| SO-SFP-L120DH-D935 | 193.50 | 1549.32 |
| SO-SFP-L120DH-D936 | 193.60 | 1548.51 |
| SO-SFP-L120DH-D937 | 193.70 | 1547.72 |
| SO-SFP-L120DH-D938 | 193.80 | 1546.92 |
| SO-SFP-L120DH-D939 | 193.90 | 1546.12 |

| Part number E-temp | Freq. THz | λ nm |
|---|---|---|
| SO-SFP-L120DH-D940 | 194.00 | 1545.32 |
| SO-SFP-L120DH-D941 | 194.10 | 1544.53 |
| SO-SFP-L120DH-D942 | 194.20 | 1543.73 |
| SO-SFP-L120DH-D943 | 194.30 | 1542.94 |
| SO-SFP-L120DH-D944 | 194.40 | 1542.14 |
| SO-SFP-L120DH-D945 | 194.50 | 1541.35 |
| SO-SFP-L120DH-D946 | 194.60 | 1540.56 |
| SO-SFP-L120DH-D947 | 194.70 | 1539.77 |
| SO-SFP-L120DH-D948 | 194.80 | 1538.98 |
| SO-SFP-L120DH-D949 | 194.90 | 1538.19 |
| SO-SFP-L120DH-D950 | 195.00 | 1537.40 |
| SO-SFP-L120DH-D951 | 195.10 | 1536.61 |
| SO-SFP-L120DH-D952 | 195.20 | 1535.82 |
| SO-SFP-L120DH-D953 | 195.30 | 1535.04 |
| SO-SFP-L120DH-D954 | 195.40 | 1534.25 |
| SO-SFP-L120DH-D955 | 195.50 | 1533.47 |
| SO-SFP-L120DH-D956 | 195.60 | 1532.68 |
| SO-SFP-L120DH-D957 | 195.70 | 1531.90 |
| SO-SFP-L120DH-D958 | 195.80 | 1531.12 |
| SO-SFP-L120DH-D959 | 195.90 | 1530.33 |
| SO-SFP-L120DH-D960 | 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.<br>BiDi; Transceiver pair using two different wavelength channels operating on a single-fiber.<br>DAC: Direct Attach Cable. Electrical cable with attached connectors.<br>AOC: Active Optical Cable. 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 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 100G4WDM-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 $1E^{-12}$. Note that some protocols require FEC to achieve sufficient BER. |
| Receiver max input power | Maximum average input power giving a BER, normally $1E^{-12}$. |
| DDM | Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA. |