

# SV-SFP-LXD2x

1.25Gb/s, 1310nm TX/ 1490nm  
RX(1490nm TX/ 1310nm RX), SM,20km



## Features

- Up to 1.25Gb/s data links
- FP laser transmitter for SV-SFP-LXD23
- DFB laser transmitter for SV-SFP-LXD24
- PIN photo-detector
- Up to 10KM on 9/125µm SMF
- Hot-pluggable SFP footprint
- BIDI LC/UPC type pluggable optical interface
- Low power dissipation
- Metal enclosure, for lower EMI
- RoHS compliant and lead-free
- Single +3.3V power supply
- Support Digital Diagnostic Monitoring interface
- Compliant with SFF-8472
- Case operating temperature  
Commercial: 0°C to +70°C  
Industrial: -40°C to +85°C

## Applications

- Switch to Switch Interface
- Gigabit Ethernet
- Switched Backplane Applications
- Router/Server Interface
- Other Optical Links

## Ordering Information

| Part number  | Description  | TX Power (dBm) | RX Sens. (dBm) | Fiber Budget (dB) | Distance (km) | DDM |
|--------------|--|----------------|----------------|-------------------|---------------|-----|
| SV-SFP-LXD23 | Starview Single Fiber Bi-Directional SFP module with Digital Diagnostic Monitoring (DDM), 1000Base-LX 1310nm TX/ 1490nm RX single fiber SM (LC), distance up to 20km | -9 to -3       | -20 to -3      | 11                | 20            | YES |
| SV-SFP-LXD24 | Starview Single Fiber Bi-Directional SFP module with Digital Diagnostic Monitoring (DDM), 1000Base-LX 1490nm TX/ 1310nm RX single fiber SM (LC), distance up to 20km | -9 to -3       | -20 to -3      | 11                | 20            | YES |

|                      |   |          |           |    |    |     |
|----------------------|---|----------|-----------|----|----|-----|
| <b>SV-SFP-LXD23H</b> | Starview Single Fiber Bi-Directional SFP module with Digital Diagnostic Monitoring (DDM), 1000Base-LX 1310nm TX/ 1490nm RX single fiber SM (LC), Industrial temperature range,distance up to 20km | -9 to -3 | -20 to -3 | 11 | 20 | YES |
| <b>SV-SFP-LXD24H</b> | Starview Single Fiber Bi-Directional SFP module with Digital Diagnostic Monitoring (DDM), 1000Base-LX 1490nm TX/ 1310nm RX single fiber SM (LC), Industrial temperature range,distance up to 20km | -9 to -3 | -20 to -3 | 11 | 20 | YES |

## Absolute Maximum Ratings

| Parameter                 | Symbol | Min. | Typ. | Max.    | Unit |
|---------------------------|--------|------|------|---------|------|
| Storage Temperature       | Ts     | -40  |      | 85      | °C   |
| Storage Ambient Humidity  | HA     | 5    |      | 95      | %    |
| Power Supply Voltage      | VCC    | -0.5 |      | 4       | V    |
| Signal Input Voltage      |        | -0.3 |      | Vcc+0.3 | V    |
| Receiver Damage Threshold |        | 5    |      |         | dBm  |

## Recommended Operating Conditions

| Parameter                    | Symbol | Min. | Typ.              | Max. | Unit  | Note            |
|------------------------------|--------|------|-------------------|------|-------|-----------------|
| Case Operating Temperature   | Tcase  | 0    |                   | 70   | °C    | SV-SFP-LXD2x    |
|                              |        | -10  |                   | 80   |       |                 |
|                              |        | -40  |                   | 85   |       | SV-SFP-LXD2xH   |
| Ambient Humidity             | HA     | 5    |                   | 70   | %     | Non-condensing  |
| Power Supply Voltage         | VCC    | 3.13 | 3.3               | 3.47 | V     |                 |
| Power Supply Current         | ICC    |      |                   | 280  | mA    |                 |
| Power Supply Noise Rejection |        |      |                   | 100  | mVp-p | 100Hz to 1MHz   |
| Data Rate                    |        |      | 1.25/1.25         |      | Gbps  | TX Rate/RX Rate |
| Transmission Distance        |        |      |                   | 20   | KM    |                 |
| Coupled Fiber                |        |      | Single mode fiber |      |       | 9/125um SMF     |

## Specification of Transmitter

| Parameter                         | Symbol  | Min. | Typ. | Max. | Unit | Note                 |
|-----------------------------------|---|------|------|------|------|----------------------|
| Average Output Power              | POUT  | -9   |      | -3   | dBm  |                      |
| Extinction Ratio                  | ER  | 9    |      |      | dB   |                      |
| Center Wavelength                 | $\lambda_C$                                       | 1290 | 1310 | 1330 | nm   | SV-SFP-LXD23         |
|                                   |   | 1470 | 1490 | 1510 |      | SV-SFP-LXD24         |
| Spectrum Width (RMS)              | $\sigma$  |      |      | 3.5  | nm   | FP Laser (TX:1310nm) |
| Side Mode Suppression Ratio       | SMSR  | 30   |      |      | dB   | DFB Laser            |
| Spectrum Bandwidth(-20dB)         | $\sigma$  |      |      | 1    | nm   | (TX:1490nm)          |
| Transmitter OFF Output Power      | POff  |      |      | -45  | dBm  |                      |
| Differential Line Input Impedance | RIN   | 90   | 100  | 110  | Ohm  |                      |
| Jitter P-P                        | t <sub>J</sub>                                    |      |      | 0.1  | UI   | Note (1)             |
| Output Eye Mask                   | Compliant with IEEE802.3 z (class 1 laser safety) |      |      |      |      |                      |

Note 1: Measure at 2<sup>23</sup>-1 NRZ PRBS pattern

## Specification of Receiver

| Parameter                         | Symbol         | Min. | Typ. | Max. | Unit | Note         |
|-----------------------------------|----------------|------|------|------|------|--------------|
| Input Optical Wavelength          | $\lambda_{IN}$ | 1470 | 1490 | 1510 | nm   | SV-SFP-LXD23 |
|                                   |                | 1290 | 1310 | 1330 |      | SV-SFP-LXD24 |
| Receiver Sensitivity              | PIN            |      |      | -20  | dBm  | Note (1)     |
| Input Saturation Power (Overload) | PSAT           | -3   |      |      | dBm  |              |
| Los Of Signal Assert              | PA             | -35  |      |      | dBm  |              |
| Los Of Signal De-assert           | PD             |      |      | -21  | dBm  | Note (2)     |
| LOS Hysteresis                    | PA-PD          | 0.5  | 2    | 6    | dB   |              |

Note (1): Measured with Light source 1490nm(1310nm), ER=9dB; BER =<10<sup>-12</sup> @PRBS=2<sup>23</sup>-1 NRZ.

Note (2): When LOS de-asserted, the RX data+/- output is signal output.

## Electrical Interface Characteristics

| Parameter                      | Symbol | Min. | Typ. | Max.                 | Unit | Note   |
|--------------------------------|--------|------|------|----------------------|------|--------|
| Transmitter                    |        |      |      |                      |      |        |
| Total Supply Current           | ICC    |      |      | A                    | mA   | Note 1 |
| Transmitter Disable Input-High | VDISH  | 2    |      | V <sub>CC</sub> +0.3 | V    |        |
| Transmitter Disable Input-Low  | VDISL  | 0    |      | 0.8                  | V    |        |
| Transmitter Fault Input-High   | VTxFH  | 2    |      | V <sub>CC</sub> +0.3 | V    |        |
| Transmitter Fault Input-Low    | VTxFL  | 0    |      | 0.8                  | V    |        |
| Receiver                       |        |      |      |                      |      |        |
| Total Supply Current           | ICC    |      |      | B                    | mA   | Note 1 |
| LOSS Output Voltage-High       | VLOSH  | 2    |      | V <sub>CC</sub> +0.3 | V    |        |
| LOSS Output Voltage-Low        | VLOSL  | 0    |      | 0.8                  | V    | LVTTL  |

Note 1: A (TX) + B (RX) = 280mA (Not include termination circuit)