

# SV-SFP-4GZXD4Cxx

Multi-rate 1.062Gbps to 4.25Gbps 40km with DDM



## Features

- Up to 4.25Gb/s data links
- DFB laser transmitter and PIN receiver
- Up to 40km on 9/125μm SMF
- Hot-pluggable SFP footprint
- Duplex 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:0°C to +70°C

## Applications

- 1000 Base-LX Ethernet
- 4xFC at 4.25Gbps
- 2xFC at 2.125 Gbps
- 1xFC at 1.0625Gbps

## Ordering Information

| Part number      | Description   | TX Power (dBm) | RX Sens. (dBm) | Fiber Budget (dB) | Distance (km) | DDM |
|------------------|---|----------------|----------------|-------------------|---------------|-----|
| SV-SFP-4GZXD4Cxx | Starview SFP module Multi-rate 1.062Gbps to 4.25Gbps Fiber Optic CWDM SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 40km | -1 to 4        | -18 to 0.5     | 17                | 40            | YES |

XX refers to CWDM Wavelength range 1270nm to 1610nm, xx = 27, 29... 61

## Absolute Maximum Ratings

| Parameter                 | Symbol | Min. | Typ. | Max.    | Unit | Note |
|---------------------------|--------|------|------|---------|------|------|
| 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    |                 |
| Ambient Humidity             | HA     | 5    |                   | 70   | %     | Non-condensing  |
| Power Supply Voltage         | VCC    | 3.13 | 3.3               | 3.47 | V     |                 |
| Power Supply Current         | ICC    |      |                   | 300  | mA    |                 |
| Power Supply Noise Rejection |        |      |                   | 100  | mVp-p | 100Hz to 1MHz   |
| Data Rate                    |        |      | 4.25/4.25         |      | Gbps  | TX Rate/RX Rate |
| Transmission Distance        |        |      |                   | 40   | KM    |                 |
| Coupled Fiber                |        |      | Single mode fiber |      |       | 9/125um SMF     |

## Specification of Transmitter

| Parameter                         | Symbol             | Min.       | Typ. | Max.       | Unit | Note                  |
|-----------------------------------|--------------------|------------|------|------------|------|-----------------------|
| Average Output Power              | POUT               | -1         |      | 4          | dBm  | Note (1)              |
| Extinction Ratio                  | ER                 | 6          |      |            | dB   |                       |
| Center Wavelength                 | $\lambda_C$        | (1XX0)-7.5 | 1XX0 | (1XX0)+7.5 | nm   | DFB Laser<br>Note (2) |
| Side Mode Suppression Ratio       | SMSR               | 30         |      |            | dB   |                       |
| Spectrum Bandwidth(-20dB)         | $\Sigma$           |            |      | 1          | nm   |                       |
| Transmitter OFF Output Power      | POff               |            |      | -45        | dBm  |                       |
| Differential Line Input Impedance | RIN                | 90         | 100  | 110        | Ohm  |                       |
| Output Eye Mask                   | FC-PI requirements |            |      |            |      | Note (3)              |

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

Note (2): "XX" is: 27,29,31,33, 35,37,39,41,43,45,47,49,51,53,55,57,59 and 61

Note (3): Transmitter eye mask definition

## Specification of Receiver

| Parameter                         | Symbol         | Min. | Typ. | Max. | Unit | Note     |
|-----------------------------------|----------------|------|------|------|------|----------|
| Input Optical Wavelength          | $\lambda_{IN}$ | 1270 |      | 1610 | nm   |          |
| Receiver Sensitivity              | PIN            |      |      | -18  | dBm  | Note (1) |
| Input Saturation Power (Overload) | PSAT           | 0.5  |      |      | dBm  |          |
| Los Of Signal Assert              | PA             |      |      | -19  | dBm  |          |
| Los Of Signal De-assert           | PD             | -35  |      |      | dBm  | Note (2) |
| LOS Hysteresis                    | PA-PD          | 0.5  | 2    | 6    | dB   |          |

Note (1): Measured with Light source 1XX0 nm, ER=4dB; BER =  $<10^{-12}$  @PRBS=2<sup>23</sup>-1 NRZ , "XX" is: 27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59 and 61

Note (2): When LOS de-asserted, the RX data+/- output is High-level (fixed)

## 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    | LVTTTL   |
| LOSS Output Voltage-Low        | VLOSL  | 0    |      | 0.8                  | V    |          |

Note 1: A (TX) + B (RX) = 300mA (Not include termination circuit)

## $\lambda C$ Wavelength Guide

| Wavelength | Code | Wavelength | Code |
|------------|------|------------|------|
| 1270 nm    | 27   | 1450 nm    | 45   |
| 1290 nm    | 29   | 1470 nm    | 47   |
| 1310 nm    | 31   | 1490 nm    | 49   |
| 1330 nm    | 33   | 1510 nm    | 51   |
| 1350 nm    | 35   | 1530 nm    | 53   |
| 1370 nm    | 37   | 1550 nm    | 55   |
| 1390 nm    | 39   | 1570 nm    | 57   |
| 1410 nm    | 41   | 1590 nm    | 59   |
| 1430 nm    | 43   | 1610 nm    | 61   |