

SV-X2-10GER4D##

10G, DWDM, SM (SC), distance up to 40km



Features

- XAUI Electrical Interface: 4 Lanes @ 3.125Gbit/s
- DWDM EML laser
- Hot Z-Pluggable
- SC-Duplex Optical Receptacle
- MDIO, DOM Support
- Pin Photo-detector
- Compliant to X2 MSA
- Compliant to IEEE 802.3ae
- 10GBASE-ER Application
- Case operating temperature: 0 to 70 °C

Applications

- IEEE 802.3ae as 10GBASE-ER, X2 MSA Release1.0B

Ordering Information

| Part number | Description | TX Power (dBm) | RX Sens. (dBm) | Fiber Budget (dB) | Distance (km) | DDM |
|------------------------|---|----------------|----------------|-------------------|---------------|-----|
| SV-X2-10GER4D## | Starview X2 module OC-192/STM-64/ 10G LAN DWDM wavelength SM (LC) with 100GHz spacing, distance up to 40km.####nm SM (SC), distance up to 40km, where ## denotes *[see DWDM Wavelength Guide] | -1 to 4 | -16.5 to 0.5 | 15.5 | 40 | NO |

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--|-------------|-------------------|-------------|-------------------|--------|-------|
| Center Wavelength (BOL) | λ_c | $\lambda_c - 25$ | λ_c | $\lambda_c + 25$ | pm | |
| Center Wavelength (EOL) | λ_c | $\lambda_c - 100$ | λ_c | $\lambda_c + 100$ | pm | |
| Signaling speed | | - | 10.3125 | - | Gbit/s | |
| Signaling speed variation from nominal | | -100 | - | +100 | ppm | |
| Optical modulation amplitude | OMA | -2.1 | - | - | dBm | |
| Optical Output Power | Pf | -1 | - | +4 | dBm | |
| Side Mode Suppression Ratio | SMSR | 30 | - | - | dB | |
| Extinction Ratio | ER | 8.2 | - | - | dB | |
| Off Transmit Power | Poff | - | - | -30 | dBm | |
| Receiver Sensitivity | Rsense | - | - | -16.5 | dBm | |
| Receiver Overload | Rro | +0.5 | - | - | dBm | |
| Receiver Return Loss | RL | 12 | - | - | dB | |

Power Supply Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|--------------------------------------|--------|-------|-------|-------|------|------|
| Supply Voltage | VCC1 | 3.135 | 3.300 | 3.465 | V | |
| Supply Voltage | VCC2 | 1.152 | 1.200 | 1.248 | V | |
| Supply Current | ICC1 | - | - | 1.2 | A | |
| Supply Current | ICC2 | - | - | 1.7 | A | |
| Power Consumption | PDS | - | - | 4.0 | W | |
| Power supply stabilization time | TDF | - | - | 500 | ms | |
| Initialization Time | TINIT | - | - | 5 | s | |
| RESET Assert Time | TRESET | 1 | - | - | ms | |
| Hold Time after rising edge of RESET | THOLD | 500 | - | - | ms | |

XAU1 Driver Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|------------------------|--------|------|-------|------|--------|--------------------|
| Baud Rate | | - | 3.125 | - | Gbit/s | |
| Baud Rate Tolerance | | -100 | - | +100 | ppm | |
| Differential Amplitude | | 800 | - | 1600 | mVPP | AC, near-end value |

1.2V CMOS Interface Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|-------------------------|--------|------|------|------|-------|-------------------------|
| Input High Voltage | VIH | 0.84 | - | 1.5 | V | |
| Input Low Voltage | VIL | -0.3 | - | 0.36 | V | |
| Input Pull-down Current | IIn | 20 | 40 | 120 | µA | Vih=1.2V |
| Output High Voltage | VOH | 1.0 | - | - | V | Pull-up=10k ohm to 1.2V |
| Output Low Voltage | VOL | - | - | 0.2 | V | |
| Pull up Resistance | RLAS1 | 10 | - | 22 | k ohm | |
| Capacitance | CLAS1 | - | - | 10 | pF | |
| Load Capacitance | CLoad | - | - | 320 | pF | |

MDIO Bidirectional Interface Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|--|---------|------|------|------|------|------|
| Input High Voltage | VIHM | 0.84 | - | 1.5 | V | |
| Input Low Voltage | VILM | -0.3 | - | 0.36 | V | |
| Output High Voltage | VOHM | 1.0 | - | 1.5 | V | |
| Output Low Voltage | VOLM | -0.3 | - | 0.2 | V | |
| Pull up Resistance | RMDIO | 200 | - | - | Ohm | 1 |
| MDC min high/low time | THM,TLM | 160 | - | - | ns | |
| MDC Frequency | 1/TCK | TBD | - | 2.5 | MHz | |
| Setup time | TDIS | 10 | - | - | ns | |
| Hold time | TDIH | 10 | - | - | ns | |
| MDIO output delay after rising edge of MDC | TPD | 0 | - | 300 | ns | |
| Input Capacitance | Ci | - | - | 10 | pF | |
| Bus Loading | CL | - | - | 470 | pF | |

Note(1): The maximum value of RMDIO depends on bus loading (CL), input capacitance (Ci), and MDC frequency (1/TCK).

DWDM Wavelength Guide

| ITU Product Channel Code | Frequency(THZ) | Center Wavelength(nm) | ITU Product Channel Code | Frequency(THZ) | Center Wavelength(nm) |
|--------------------------|----------------|-----------------------|--------------------------|----------------|-----------------------|
| 17 | 191.7 | 1563.86 | 40 | 194.0 | 1545.32 |
| 18 | 191.8 | 1563.05 | 41 | 194.1 | 1544.53 |
| 19 | 191.9 | 1562.23 | 42 | 194.2 | 1543.73 |
| 20 | 192.0 | 1561.42 | 43 | 194.3 | 1542.94 |
| 21 | 192.1 | 1560.61 | 44 | 194.4 | 1542.14 |
| 22 | 192.2 | 1559.79 | 45 | 194.5 | 1541.35 |
| 23 | 192.3 | 1558.98 | 46 | 194.6 | 1540.56 |
| 24 | 192.4 | 1558.17 | 47 | 194.7 | 1539.77 |
| 25 | 192.5 | 1557.36 | 48 | 194.8 | 1538.98 |
| 26 | 192.6 | 1556.55 | 49 | 194.9 | 1538.19 |
| 27 | 192.7 | 1555.75 | 50 | 195.0 | 1537.40 |
| 28 | 192.8 | 1554.94 | 51 | 195.1 | 1536.61 |
| 29 | 192.9 | 1554.13 | 52 | 195.2 | 1535.82 |
| 30 | 193.0 | 1553.33 | 53 | 195.3 | 1535.04 |
| 31 | 193.1 | 1552.52 | 54 | 195.4 | 1534.25 |
| 32 | 193.2 | 1551.72 | 55 | 195.5 | 1533.47 |
| 33 | 193.3 | 1550.92 | 56 | 195.6 | 1532.68 |
| 34 | 193.4 | 1550.12 | 57 | 195.7 | 1531.90 |
| 35 | 193.5 | 1549.32 | 58 | 195.8 | 1531.12 |
| 36 | 193.6 | 1548.51 | 59 | 195.9 | 1530.33 |
| 37 | 193.7 | 1547.72 | 60 | 196.0 | 1529.55 |
| 38 | 193.8 | 1546.92 | 61 | 196.1 | 1528.77 |
| 39 | 193.9 | 1546.12 | | | |