

# SV-X2-ER4C##

10.3Gbps CWDM 1470nm to 1610nm SM (SC), distance up to 40km



## Features

- XAUI Electrical Interface: 4 Lanes @ 3.125Gbit/s
- Cooled CWDM EML 1470 nm to 1610 nm
- 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 Release 1.0B

## Ordering Information

| Part number         | Description   | TX Power (dBm) | RX Sens. (dBm) | Fiber Budget (dB) | Distance (km) | DDM |
|---------------------|---|----------------|----------------|-------------------|---------------|-----|
| <b>SV-X2-ER4C##</b> | Starview X2 module, 10G LAN supporting data rate 10.3Gbps CWDM SM (SC), distance up to 40km.where ## denotes 47=1470nm, 49=1490nm, 51=1510nm, 53=1530nm, 55=1550nm, 57=1570nm, 59=1590nm, 61=1610nm | -1 to 4        | -16.5 to 0.5   | 15.5              | 40            | NO  |

## Optical Characteristics

| Parameter                              | Symbol    | Min.  | Typ.    | Max.  | Unit   | Notes |
|--|-----------|-------|---------|-------|--------|-------|
| Optical Wavelength                     | $\lambda$ | X-6.5 | X       | X+6.5 | nm     | 1     |
| 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     |       |

Note(1): " $\lambda$ " is:1470,1490,1510,1530,1550,1570,1590,1610.

## 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   |      |

## XAUI 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).