

**SFP-10GB-CW-51-100-OPC**

MSA and TAA Compliant 10GBase-CWDM SFP+ Transceiver (SMF, 1510nm, 100km, LC, DOM)

**Features**

- SFF-8432 and SFF-8472 Compliance
- Duplex LC Connector
- Temperature-stabilized EML transmitter and PIN receiver
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

**Applications:**

- 10x Gigabit Ethernet over CWDM
- 8x/10x Fibre Channel
- Access, Metro and Enterprise
- Mobile Fronthaul CPRI/OBSAI

**Product Description**

This MSA compliant SFP+ transceiver provides 10GBase-CWDM throughput up to 100km over single-mode fiber (SMF) using a wavelength of 1510nm via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

OptioConnect's transceivers are RoHS compliant and lead-free.

### CWDM Available Wavelengths

| Wavelengths | Min. | Typ. | Max. |
|-------------|------|------|------|
| 47          | 1465 | 1471 | 1477 |
| 49          | 1485 | 1491 | 1497 |
| 51          | 1505 | 1511 | 1517 |
| 53          | 1525 | 1531 | 1537 |
| 55          | 1545 | 1551 | 1557 |

### Absolute Maximum Ratings

| Parameter                  | Symbol | Min. | Typ.    | Max.              | Unit |
|----------------------------|--------|------|---------|-------------------|------|
| Maximum Supply Voltage     | Vcc    | -0.5 |         | 4.0               | V    |
| Storage Temperature        | Tstg   | -40  |         | 85                | °C   |
| Operating Case Temperature | Tc     | 0    | 25      | 70                | °C   |
| Bit Error Rate             | BER    |      |         | 10 <sup>-12</sup> |      |
| Data Rate                  | DR     | 1.2  | 10.3125 | 11.3              | Gbps |

### Electrical Characteristics

| Parameter                           | Symbol  | Min. | Typ. | Max.     | Unit | Notes |
|-------------------------------------|---------|------|------|----------|------|-------|
| Power Supply Voltage                | Vcc     | 3.14 | 3.30 | 3.46     | V    |       |
| Power Supply Current                | Icc     |      |      | 550      | mA   | 1     |
| Power Consumption                   | PC      |      |      | 1.5      | W    |       |
| Transmitter                         |         |      |      |          |      |       |
| Input Differential Impedance        | RIN     |      | 100  |          | Ω    |       |
| Differential Data Input Swing       | VIN,pp  | 120  |      | 1200     | mV   |       |
| Transmit Disable Voltage            | VD      | 2    |      | Vcc      | V    |       |
| Transmit Enable Voltage             | VEN     | Vee  |      | Vee+0.8  | V    |       |
| Receiver                            |         |      |      |          |      |       |
| Differential Data Output Swing      | VOUT,pp | 640  |      | 1000     | mV   |       |
| Data Output Rise/Fall Time (20-80%) | Tr/Tf   | 28   |      |          | ps   |       |
| LOS Fault                           | VLOSA   | 2    |      | Host_Vcc | V    |       |
| LOS Normal                          | VLOSD   | Vee  |      | Vee+0.5  | V    |       |

### Notes:

1. For the electrical power interface.

## Optical Characteristics

| Parameter                       | Symbol             | Min. | Typ. | Max. | Unit  | Notes |
|---------------------------------|--------------------|------|------|------|-------|-------|
| Transmitter                     |                    |      |      |      |       |       |
| Output Optical Power            | P <sub>TX</sub>    | 1.5  |      | 4    | dBm   | 1     |
| Optical Center Wavelength       | $\lambda_C$        | 1505 | 1511 | 1517 | nm    |       |
| Extinction Ratio                | ER                 | 9    |      |      | dB    |       |
| Spectral Width (-20dB)          | $\Delta\lambda$    |      |      | 0.6  | nm    |       |
| Side-Mode Suppression Ratio     | SMSR               | 30   |      |      | dB    |       |
| Relative Intensity Noise        | RIN                |      |      | -128 | dB/Hz |       |
| Transmitter Dispersion Penalty  | TDP                |      |      | 4    | dB    |       |
| Transmitter Jitter              |                    |      |      |      |       | 2     |
| Launch Power of Off Transmitter | P <sub>off</sub>   |      |      | -30  | dBm   | 1     |
| Receiver                        |                    |      |      |      |       |       |
| Optical Center Wavelength       | $\lambda_C$        | 1260 |      | 1620 | nm    |       |
| Average Receive Power           | P <sub>RX</sub>    | -25  |      | -7   | dBm   |       |
| Receiver Sensitivity @10.3Gbps  | R <sub>X_SEN</sub> |      |      | -25  | dBm   | 1     |
| Receiver Reflectance            | T <sub>R_RX</sub>  |      |      | -27  | dB    |       |
| LOS Assert                      | LOSA               | -35  |      |      | dBm   |       |
| LOS De-Assert                   | LOSD               |      |      | -27  | dBm   |       |
| LOS Hysteresis                  | LOSH               | 0.5  |      |      | dB    |       |

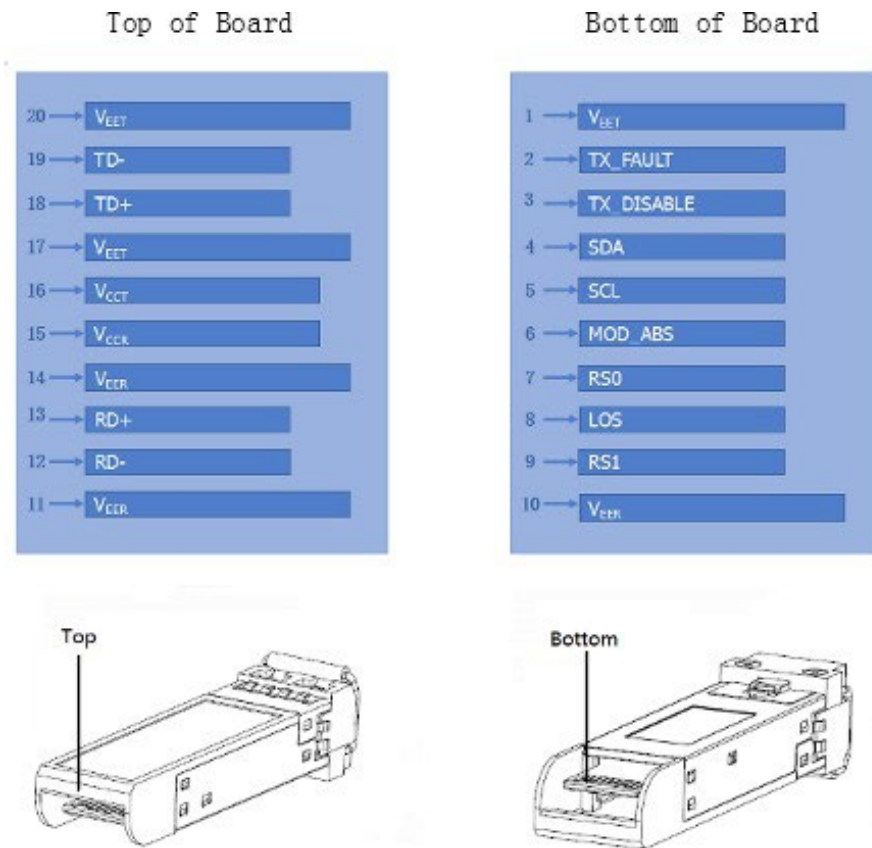
## Pin Descriptions

| Pin | Symbol     | Name/Description                                                 | Notes |
|-----|------------|------------------------------------------------------------------|-------|
| 1   | VeeT       | Transmitter Ground (Common with Receiver Ground).                | 1     |
| 2   | Tx_Fault   | Transmitter Fault.                                               |       |
| 3   | Tx_Disable | Transmitter Disable. Laser output disabled on “high” or “open.”  | 2     |
| 4   | SDA        | 2-Wire Serial Interface Data.                                    | 3     |
| 5   | SCL        | 2-Wire Serial Interface Clock.                                   | 3     |
| 6   | MOD_ABS    | Module Absent. Grounded within the module.                       | 3     |
| 7   | RS0        | No Connection Required.                                          |       |
| 8   | LOS        | Loss of Signal Indication. “Logic 0” indicates normal operation. | 4     |
| 9   | RS1        | No Connection Required.                                          | 1     |
| 10  | VeeR       | Receiver Ground (Common with Transmitter Ground).                | 1     |
| 11  | VeeR       | Receiver Ground (Common with Transmitter Ground).                | 1     |
| 12  | RD-        | Receiver Inverted Data Out. AC Coupled.                          |       |
| 13  | RD+        | Receiver Non-Inverted Data Out. AC Coupled.                      |       |
| 14  | VeeR       | Receiver Ground (Common with Transmitter Ground).                | 1     |
| 15  | VccR       | Receiver Power Supply.                                           |       |
| 16  | VccT       | Transmitter Power Supply.                                        |       |
| 17  | VeeT       | Transmitter Ground (Common with Receiver Ground).                | 1     |
| 18  | TD+        | Transmitter Non-Inverted Data In. AC Coupled.                    |       |
| 19  | TD-        | Transmitter Inverted Data In. AC Coupled.                        |       |
| 20  | VeeT       | Transmitter Ground (Common with Receiver Ground).                | 1     |

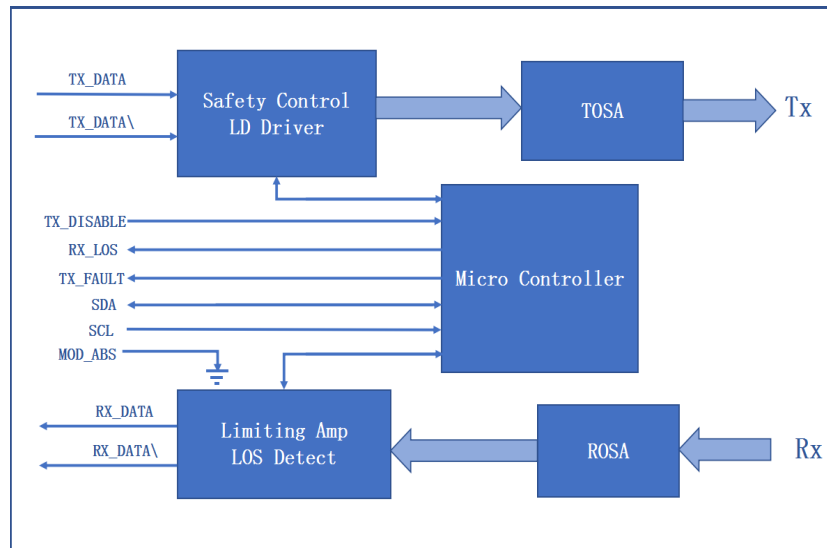
### Notes:

1. The circuit ground is isolated from the chassis ground.
2. Disabled: TDIS>2V or open, enabled: TDIS<0.8V.
3. Should be pulled up with 4.7k $\Omega$  to 10k $\Omega$  on the host board to a voltage between 2V and 3.6V.
4. LOS is an open collector output.

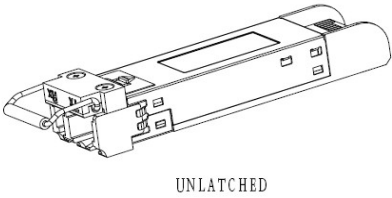
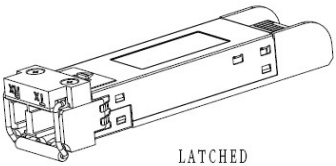
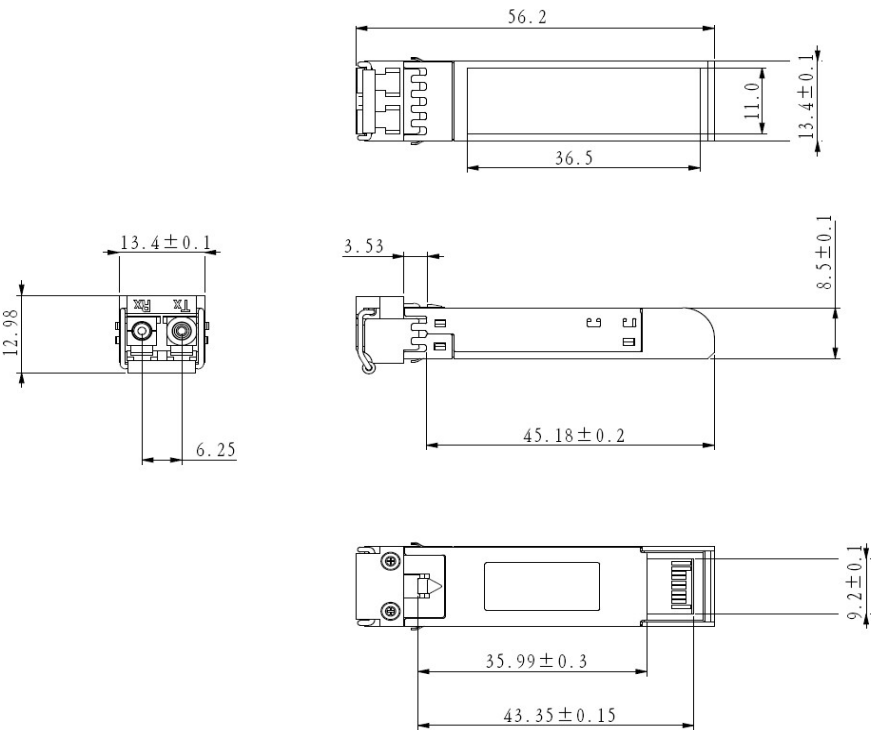
## Electrical Pad Layout



## Block Diagram of Transceiver



Mechanical Specifications



## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

#### **Who We Are**

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

#### **What We Do**

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

#### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

#### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

#### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

#### **Let's Connect**

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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