

SFP25G-LR-S-I-DW4294-OPC

Cisco® SFP25G-LR-S-I-DW4294 Compatible TAA 25GBase-DWDM 100GHz SFP28 Transceiver (SMF, 1542.94nm, 10km, LC, DOM, -40 to 85C)

Features

- SFF-8432 and SFF-8472 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Industrial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 25GBase-LR Ethernet
- Access, Metro and Enterprise

Product Description

This Cisco® SFP25G-LR-S-I-DW4294 compatible SFP28 transceiver provides 25GBase-DWDM throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1542.94nm via an LC connector. It can operate at temperatures between -40 and 85C. It is guaranteed to be 100% compatible with the equivalent Cisco® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. 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.

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

Wavelength Guide (100GHz ITU Channels)

| Channel | Wavelength(nm) | Frequency(THZ) | Channel | Wavelength(nm) | Frequency(THZ) |
|---------|----------------|----------------|---------|----------------|----------------|
| D21 | 1560.61 | 192.1 | D41 | 1544.53 | 194.1 |
| D22 | 1559.79 | 192.2 | D42 | 1543.73 | 194.2 |
| D23 | 1558.98 | 192.3 | D43 | 1542.94 | 194.3 |
| D24 | 1558.17 | 192.4 | D44 | 1542.14 | 194.4 |
| D25 | 1557.36 | 192.5 | D45 | 1541.35 | 194.5 |
| D26 | 1556.55 | 192.6 | D46 | 1540.56 | 194.6 |
| D27 | 1555.75 | 192.7 | D47 | 1539.77 | 194.7 |
| D28 | 1554.94 | 192.8 | D48 | 1538.98 | 194.8 |
| D29 | 1554.13 | 192.9 | D49 | 1538.19 | 194.9 |
| D30 | 1553.33 | 193.0 | D50 | 1537.4 | 195.0 |
| D31 | 1552.52 | 193.1 | D51 | 1536.61 | 195.1 |
| D32 | 1551.72 | 193.2 | D52 | 1535.82 | 195.2 |
| D33 | 1550.92 | 193.3 | D53 | 1535.04 | 195.3 |
| D34 | 1550.12 | 193.4 | D54 | 1534.25 | 195.4 |
| D35 | 1549.32 | 193.5 | D55 | 1533.47 | 195.5 |
| D36 | 1548.51 | 193.6 | D56 | 1532.68 | 195.6 |
| D37 | 1547.72 | 193.7 | D57 | 1531.9 | 195.7 |
| D38 | 1546.92 | 193.8 | D58 | 1531.12 | 195.8 |
| D39 | 1546.12 | 193.9 | D59 | 1530.33 | 195.9 |
| D40 | 1545.32 | 194.0 | D60 | 1529.55 | 196.0 |

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|----------------------------|--------|-------|------|-------|------|-------|
| Maximum Supply Voltage | Vcc | -0.3 | | 4.0 | V | |
| Storage Temperature | TS | -40 | | 85 | °C | |
| Operating Case Temperature | Tc | -40 | | 85 | °C | |
| Relative Humidity | RH | 0 | | 85 | % | |
| Data Rate | BR | 24.33 | | 25.78 | Gbps | |

Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|------------------------------------|---------------------------|------|------|----------------------|-------|-------|
| Supply Voltage | V _{CC} | 3.13 | | 3.47 | | |
| Power Dissipation | PD | | | 2.0 | W | |
| Transmitter | | | | | | |
| Data Input Swing Differential | V _{IN} | 190 | | 1000 | mV | |
| Differential line input Impedance | R _{IN} | 80 | 100 | 120 | Ohm | |
| Transmitter Fault Output-High | V _{FaultH} | 2 | | V _{CC} +0.3 | V | |
| Transmitter Fault Output-Low | V _{FaultL} | VEE | | VEE +0.8 | V | |
| Transmitter Disable Voltage-High | V _{DisH} | 2 | | V _{CC} +0.3 | V | |
| Transmitter Disable Voltage- low | V _{DisL} | VEE | | VEE +0.8 | V | |
| Receiver | | | | | | |
| Differential line Output Impedance | R _{OUT} | 80 | 100 | 120 | Ohm | |
| Differential Data Output Voltage | V _{DR} | 350 | | 850 | mVp-p | |
| LOS Output Voltage-High | V _{LOSH} | 2 | | V _{CC} +0.3 | V | |
| LOS Output Voltage-Low | V _{LOSL} | VEE | | VEE +0.8 | V | |
| Others | | | | | | |
| Cold-Start time | T _{start-cooled} | | | 35 | s | |

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--|-----------------------|---------|------|---------|-------|-------|
| Transmitter | | | | | | |
| Wavelength | λ | 1529.55 | | 1560.61 | nm | |
| Center Wavelength Spacing | | 100 | | | GHz | |
| Average Launched Power | P _O | -1 | | 5 | dBm | |
| Extinction Ratio | ER | 6 | | | dB | |
| Average Launched Power (Laser Off) | P _{off} | | | -30 | dBm | |
| Side-Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Relative Intensity Noise | RIN _{20 OMA} | | | -130 | dB/Hz | |
| Receiver | | | | | | |
| Center Wavelength | λ_{IN} | 1260 | | 1620 | nm | |
| Receiver Overload | P _{overload} | 2 | | | dBm | |
| Receiver Sensitivity @5E-5 BOL | P _{sen BOL} | | | -15 | dBm | |
| Receiver Sensitivity @5E-5 EOL | P _{sen EOL} | | | -14.5 | dBm | 1 |
| Receiver Sensitivity @5E-5 EOL after 10km fiber transmission | P _{sen1 EOL} | | | -9.0 | dBm | 1 |
| Los Of Signal Assert | PA | -30 | | | dBm | |
| Los Of Signal De-assert | PD | | | -16 | dBm | |
| LOS -Hysteresis | P _{Hys} | 0.5 | | 6 | dB | |

Notes:

1. Measured at 5E-5, ER>4dB, PRBS 2³¹ -1

Pin Descriptions

| Pin | Symbol | Name/Descriptions | Ref. |
|-----|---------|--|------|
| 1 | VEET | Transmitter Ground | 1 |
| 2 | TFAULT | Transmitter Fault | 2 |
| 3 | TDIS | Transmitter Disable. Laser output disabled on high or open. | 3 |
| 4 | SDA | 2-wire Serial Interface Data Line | 2 |
| 5 | SCL | 2-wire Serial Interface Clock Line | 2 |
| 6 | MOD_ABS | Module Absent. Grounded within the module | 2 |
| 7 | NA | Not Used | |
| 8 | RX_LOS | Loss of Signal indication. Logic 0 indicates normal operation. | 4 |
| 9 | NA | No Used | |
| 10 | VEER | Receiver Ground | 1 |
| 11 | VEER | Receiver Ground | 1 |
| 12 | RD- | Receiver Inverted DATA out. AC Coupled. | |
| 13 | RD+ | Receiver Non-inverted DATA out. AC Coupled. | |
| 14 | VEER | Receiver Ground | 1 |
| 15 | VCCR | Receiver Power Supply | 5 |
| 16 | VCCT | Transmitter Power Supply | 5 |
| 17 | VEET | Transmitter Ground | 1 |
| 18 | TD+ | Transmitter Non-Inverted DATA in. AC Coupled. | |
| 19 | TD- | Transmitter Inverted DATA in. AC Coupled. | |
| 20 | VEET | Transmitter Ground | 1 |

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. T_{FAULT} is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to V_{cc} + 0.3V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
3. Laser output disabled on T_{DIS} >2.0V or open, enabled on T_{DIS} <0.8V.
4. LOS is open collector output. Should be pulled up with 4.7k – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
5. Internally connected



Pin-out of connector Block on Host board

Block Diagram of Transceiver



Recommended Interface Circuit



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.

www.optioconnect.com | info@optioconnect.com

