SFP-10GCWLR-31-OPC

Huawei® SFP-10GCWLR-31 Compatible TAA 10GBase-CWDM SFP+ Transceiver (SMF, 1310nm, 10km, LC, DOM)

Features

- Single 3.3V Power Supply Voltage
- CWDM DFB Laser Transmitter
- Compliant with IEEE 802.3ae 10GBASE-LR/LW
- Up to 10.7Gbps Bi-Directional Data Links
- Single-Mode Fiber
- Hot-Pluggable
- Duplex LC Connector
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free
- 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 Huawei® SFP-10GCWLR-31 compatible SFP+ transceiver provides 10GBase-CWDM throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It can operate at temperatures between 0 and 70C. The listed reach has been determined using a link budget calculation and tested in a standard environment. Actual link distances achieved will be dependent upon the deployed environment. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Huawei®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. 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.
27	1264.5	1271	1277.5
29	1284.5	1291	1297.5
31	1304.5	1311	1317.5
33	1324.5	1331	1337.5
35	1344.5	1351	1357.5
37	1364.5	1371	1377.5
39	1384.5	1391	1397.5
41	1404.5	1411	1417.5
43	1424.5	1431	1437.5
45	1444.5	1451	1457.5
47	1464.5	1471	1477.5
49	1484.5	1491	1497.5
51	1504.5	1511	1517.5
53	1524.5	1531	1537.5
55	1544.5	1551	1557.5
57	1564.5	1571	1577.5
59	1584.5	1591	1597.5
61	1604.5	1611	1617.5

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		4.0	V	1
Storage Temperature	Tstg	-40		90	°C	2
Operating Case Temperature	Tc	0		70	°C	3
Maximum Bitrate	BER			10^{-12}		
Data Rate	DR		10.3125		Gbps	4

Notes:
1. For the electrical power interface.
2. Ambient temperature.
3. Case temperature.
4. IEEE 802.3ae.

Electrical Characteristics (Vcc=3.14V to 3.46V, Tc)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.14	3.30	3.46	V	
Power Supply Current	Icc		200	310	mA	1
Power Consumption	PC		0.65	1.0	W	
Transmitter						
Differential Data Input Swing	VIN,pp	180		700	mV	
Input Differential Impedance	RIN		100		Ω	
Transmit Disable Voltage	VD	2		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Receiver						
Differential Data Output Swing	VOUT,pp	300		850	mV	
Output Differential Impedance	Tr/Tf	28			ps	
LOS Assert	VLOSA	2		Host_Vcc	V	
LOS De-Assert	VLOSD	Vee		Vee+0.5	V	

Notes:
1. For the electrical power interface.

Optical Characteristics (Vcc=3.14V to 3.46V, Tc)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (Average)	P_{TX}	2		7	dBm	1
Transmitter Dispersion Penalty (1270-1330)	TDP_1			1	dB	
Transmitter Dispersion Penalty (1350-1370)	TDP_2			2	dB	
Transmitter Dispersion Penalty (1390-1490)	TDP_3			3	dB	
Transmitter Dispersion Penalty (1510-1570)	TDP_4			4	dB	
Transmitter Dispersion Penalty (1590-1610)	TDP_5			5	dB	
Optical Extinction Ratio	ER	3.5			dB	
Optical Wavelength	λC	λ-6.5	λ	λ+6.5	nm	2
Side-Mode Suppression Ratio	SMSR	30			dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Launch Power of Off Transmitter	Poff			-30	dBm	1
Receiver						
Receiver Sensitivity @10.3Gbps	R_{X_SEN}			-14.4	dBm	3
Receiver Overload	P_{OL}	2			dBm	
Receiver Wavelength	λC	1260		1620	nm	
Receiver Reflectance	TR_{RX}			-12	dB	
LOS Assert	LOSA	-30			dBm	
LOS De-Assert	LOSD			-17	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:
1. Average.
2. λ = 1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591, and 1611.
3. Average. Measured with worst ER, BER<10^{-12}, and 2^{31}-1 PRBS.

Pin Descriptions

| Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on "high" or "open."	3
4	SDA	2-Wire Serial Interface Data.	4
5	SCL	2-Wire Serial Interface Clock.	4
6	MOD_ABS	Module Absent. Grounded within the module.	4
7	RS0	No Connection Required.	
8	Rx_LOS	Loss of Signal Indication. "Logic 0" indicates normal operation.	5
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. Tx_Fault is the open collector output and should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and Vcc+0.3V.
3. Disabled: T_{DIS}>2V or open, enabled: T_{DIS}<0.8V.
4. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and Vcc+0.3V.
5. LOS is an open collector output and should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and Vcc+ 0.3V. The "logic 0" indicates normal operation. "Logic 1" indicates that the receiver signal is lost.
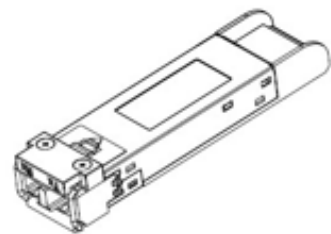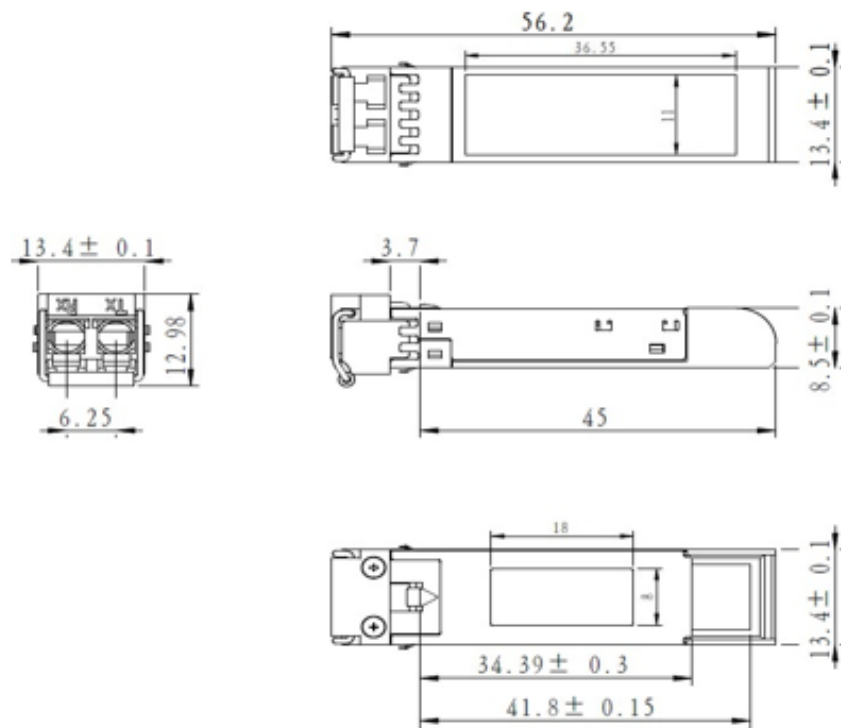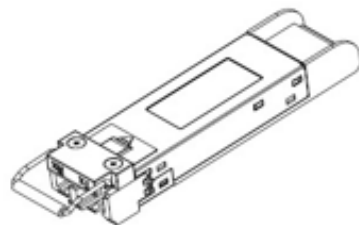
Block Diagram of Transceiver
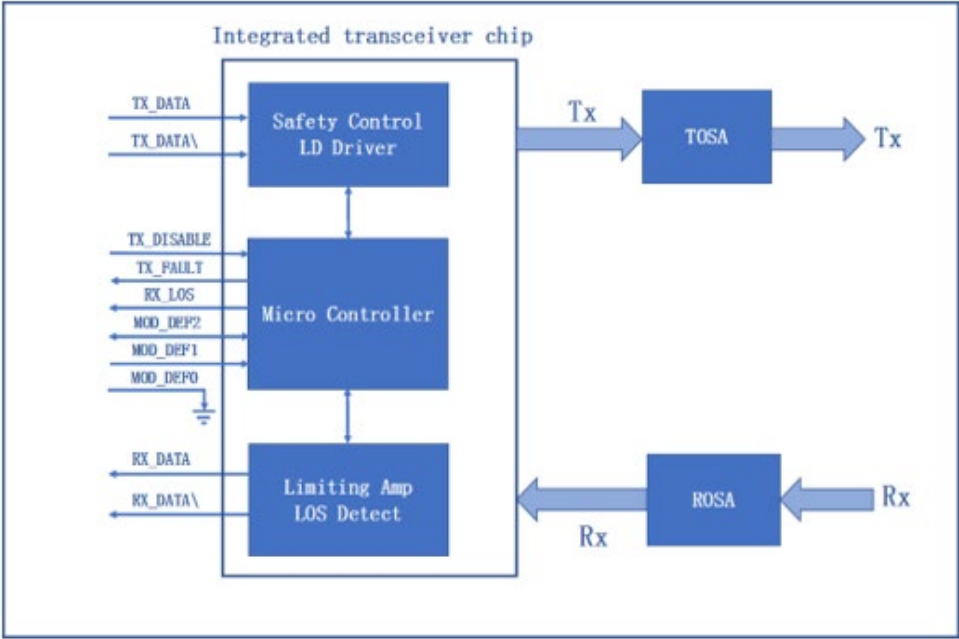
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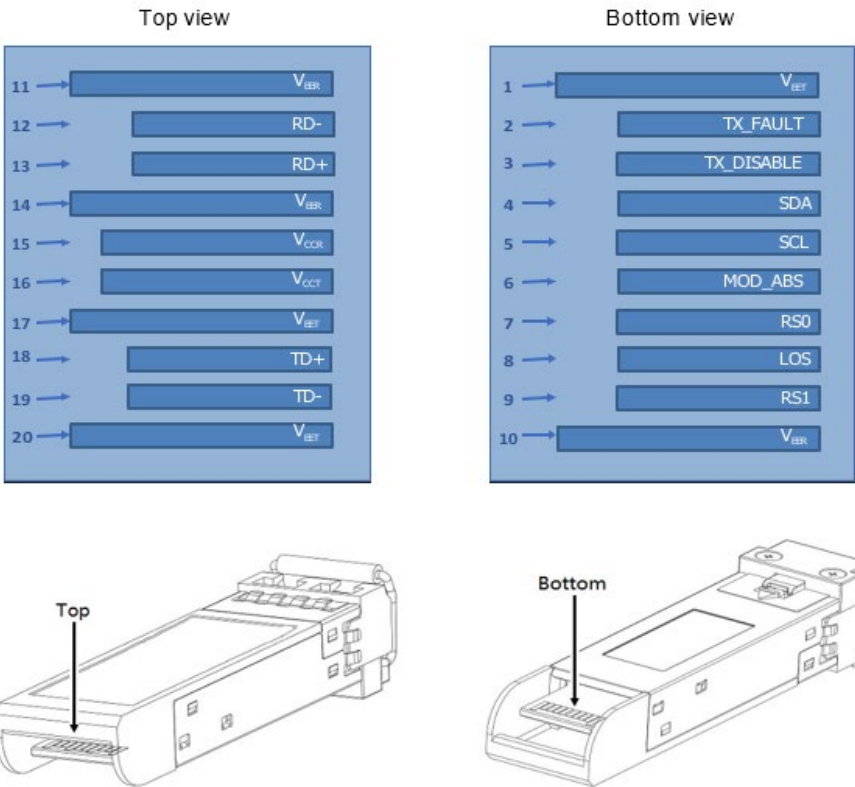
Mechanical Specifications

LATCHED

UNLATCHED

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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