



S2D25010250FFZS

Fortinet® Compatible 25GBase-DWDM SFP28 Transceiver C-Band 100GHz (SMF, 1557.36nm, 10km, LC, DOM)

Product Description

This Fortinet® Compatible SFP28 transceiver provides 25GBase-DWDM throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1557.36nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Fortinet® 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. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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

Features:

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



Applications:

- 25x Gigabit Ethernet over DWDM
- Access and Enterprise

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

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)
21	1560.61	192.1	41	1544.53	194.1
22	1559.79	192.2	42	1543.73	194.2
23	1558.98	192.3	43	1542.94	194.3
24	1558.17	192.4	44	1542.14	194.4
25	1557.36	192.5	45	1541.35	194.5
26	1556.55	192.6	46	1540.56	194.6
27	1555.75	192.7	47	1539.77	194.7
28	1554.94	192.8	48	1538.98	194.8
29	1554.13	192.9	49	1538.19	194.9
30	1553.33	193.0	50	1537.4	195.0
31	1552.52	193.1	51	1536.61	195.1
32	1551.72	193.2	52	1535.82	195.2
33	1550.92	193.3	53	1535.04	195.3
34	1550.12	193.4	54	1534.25	195.4
35	1549.32	193.5	55	1533.47	195.5
36	1548.51	193.6	56	1532.68	195.6
37	1547.72	193.7	57	1531.9	195.7
38	1546.92	193.8	58	1531.12	195.8
39	1546.12	193.9	59	1530.33	195.9
40	1545.32	194.0	60	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	0		70	°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}	V _{EE}		V _{EE} +0.8	V	
Transmitter Disable Voltage-High	V _{DisH}	2		V _{CC} +0.3	V	
Transmitter Disable Voltage- low	V _{DisL}	V _{EE}		V _{EE} +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}	V _{EE}		V _{EE} +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



About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

