



SFP-1GB-DW2028-120-J-SKY

Juniper Networks® Compatible 1000Base-DWDM SFP+ Transceiver 50GHz (SMF, 1561.41nm to 1554.94nm, 120km, LC, DOM)

Product Description

This Juniper Networks® compatible SFP transceiver provides 1000Base-DWDM throughput up to 120km over single-mode fiber (SMF) using a wavelength of 1561.41nm to 1554.94nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Juniper Networks®. 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. Additional product features include Digital Optical Monitoring (DOM) support which allows 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:

- EML Tunable Transmitter
- DWDM with 100GHz ITU Grid
- Hot Pluggable
- SFP MSA Compliant
- Duplex LC Connector
- Up to 1.25Gbps Bi-directional Data Links
- Class 1 Laser Safety Certified
- Up to 120km on 9/125um SMF
- RoHS Compliant and Lead-Free
- Operating Temperature: 0 to 70 Celsius



Applications:

- Gigabit Ethernet over DWDM
- Access, Metro 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.

Channel Wavelengths

Channel	Frequency (THz)	Wavelength (nm)
CH20-CH28	192.00-192.80	1561.42-1554.94
CH29-CH36	192.90-193.60	1554.13-1548.51
CH37-CH44	193.70-194.40	1547.72-1542.14
CH45-CH52	194.50-195.20	1541.35-1535.82
CH53-CH60	195.30-196.00	1535.04-1529.55

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	DR			1.25	Gbps	
Operating Temperature	Tc	0		70	°C	
Storage Temperature	Tstg	-40		85	°C	
Maximum Voltage	Vcc	-0.5		4	V	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Current	Icc			606	mA	
Input Voltage	Vcc	3.135	3.3	3.465	V	
Power Dissipation	PD			2.0	W	
Transmitter						
Input Differential Impedance	ZIN		100		Ω	
Differential Data Input Swing	VIN,pp	180		900	mVp-p	
Transmit Disable Voltage	VD	2.0		Vcc+0.3	V	
Transmit Enable Voltage	VE	0		0.8	V	
Receiver						
Differential Output Impedance	ZOUT		100		Ω	
Differential Data Output Swing	VOOUT,pp	450	600	900	mV	
LOS Assert Voltage	VLOSA	2.0		Vcc	V	
LOS De-Assert Voltage	VLOSD	0		0.8	V	

Notes:

1. For the electrical power interface.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	Po	-1.0		4.0	dBm	1
Center Wavelength	λ_C	1554.94		1561.42	nm	
Center Wavelength Spacing			100		GHz	
Center Wavelength Deviation	$\Delta\lambda_C$	-12.5		12.5	GHz	
Wavelength Tuning Time				2	seconds	
Extinction Ratio	ER	9			dB	2
Side-Mode Suppression Ratio	SMSR	30			dB	
POUT @Tx_Disable Asserted	Poff			-30	dBm	1
Receiver						
Optical Center Wavelength	λ_C	1260		1620	nm	
Receiver Sensitivity @120km	S			-30	dBm	3
Receiver Overload	POL	-7			dBm	
Optical Return Loss	ORL			-27	dB	
LOS Assert	LOSA	-45			dBm	
LOS De-Assert	LOSD			-31	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. The optical power is launched into 9/125 μ m SMF.
2. Measured with a PRBS7 test pattern @1.25Gbps.
3. Measured with a PRBS7 test pattern @1.25Gbps. BER=1E⁻¹².

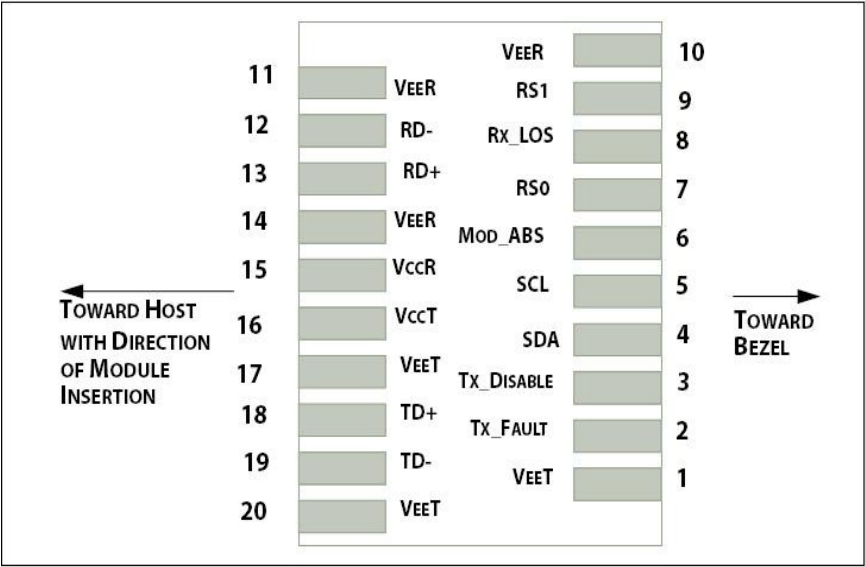
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Transmitter Fault (LVTTTL-O). “High” indicates a fault condition.	2
3	Tx_Disable	Transmitter Disable (LVTTTL-I). “High” or “open” disables the transmitter.	3
4	SDA	2-Wire Serial Interface Data (LVCMOS-I/O) (MOD-DEF2).	4
5	SCL	2-Wire Serial Interface Clock (LVCMOS-I/O) (MOD-DEF1).	4
6	MOD_ABS	Module Absent Output. Connected to the VeeT or VeeR in the module.	5
7	RS0	No Connection Required.	
8	Rx_LOS	Receiver Loss of Signal (LVTTTL-O).	2
9	RS1	No Connection Required.	
10	VeeR	Receiver Ground.	1
11	VeeR	Receiver Ground.	1
12	RD-	Receiver Inverted Data Out. CML-O.	
13	RD+	Receiver Data Out. CML-O.	
14	VeeR	Receiver Ground.	
15	VccR	+3.3V Receiver Power Supply.	
16	VccT	+3.3V Transmitter Power Supply.	
17	VeeT	Transmitter Ground.	1
18	TD+	Transmitter Data In. CML-I.	
19	TD-	Transmitter Inverted Data In. CML-I.	
20	VeeT	Transmitter Ground.	1

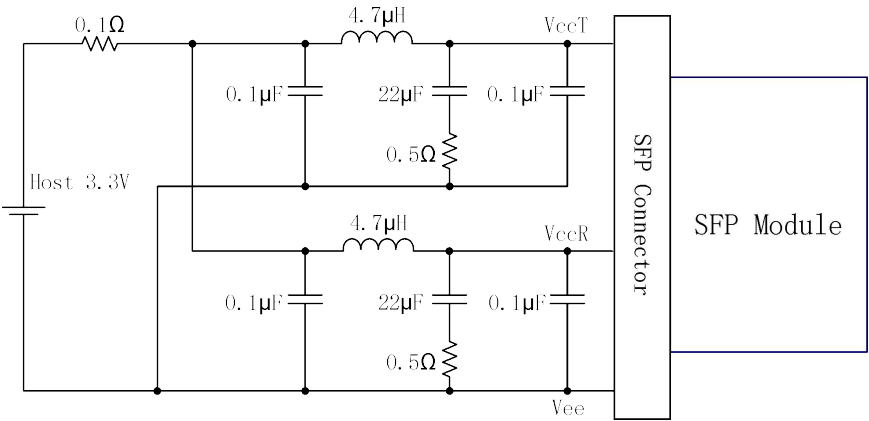
Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that, on the host board, requires a 4.7kΩ to 10kΩ pull-up resistor to the Host_Vcc.
3. This input is internally biased “high” with a 4.7kΩ to 10kΩ pull-up resistor to the VccT.
4. 2-wire serial interface clock and data line requires an external pull-up resistor.
5. This is a ground return that, on the host board, requires a 4.7kΩ to 10kΩ pull-up resistor to the Host_Vcc.

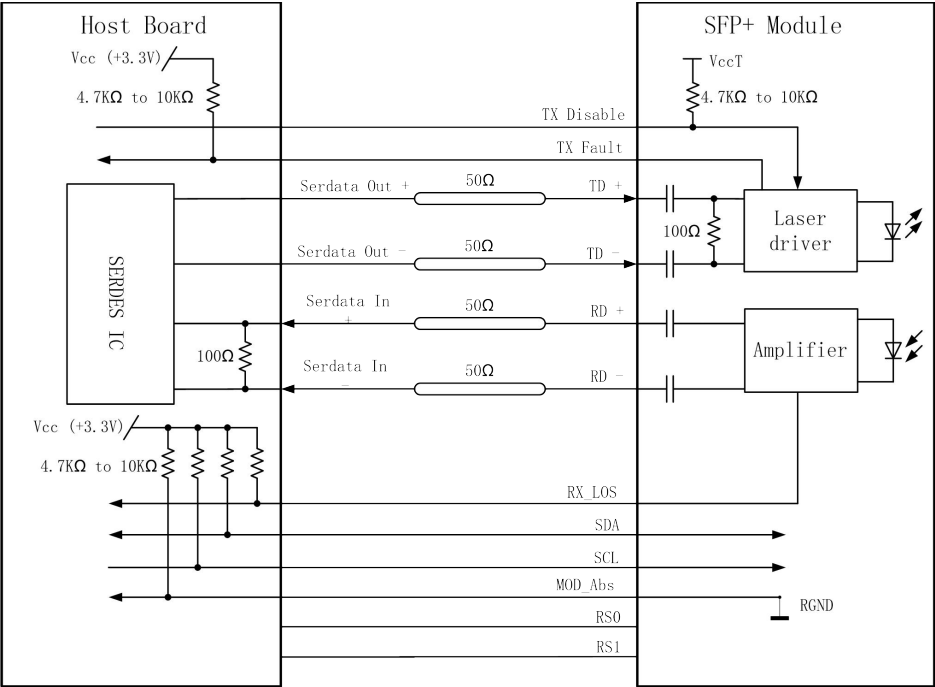
Electrical Pad Layout



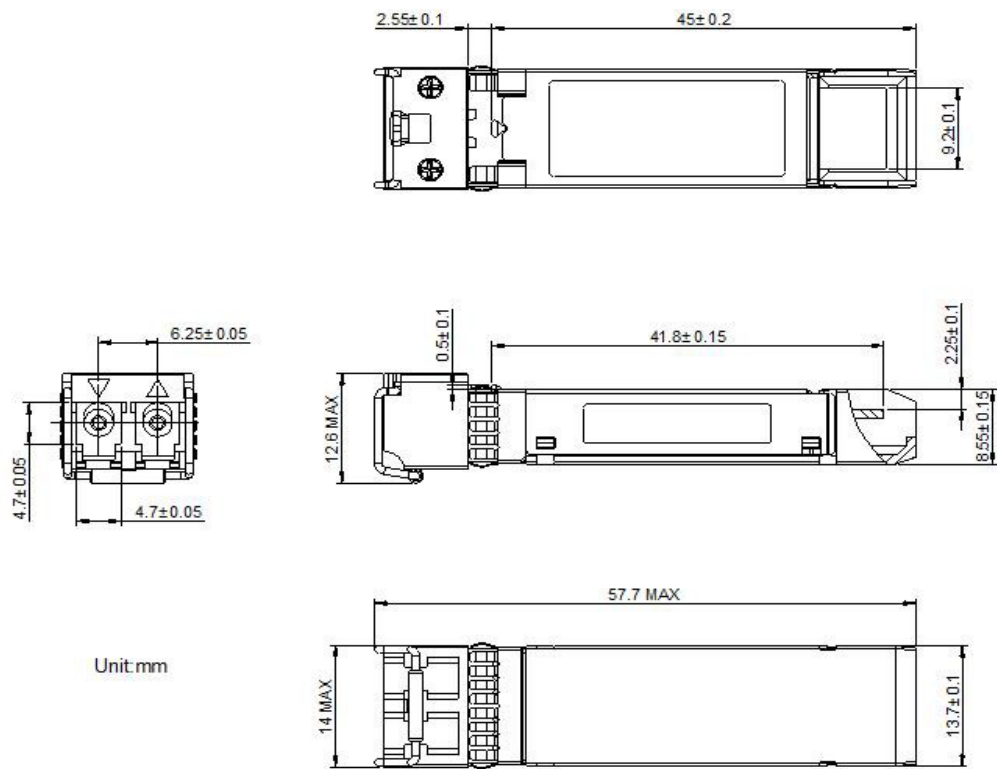
Recommended Host Board Supply Filter Network



Block Diagram of Transceiver



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.

