



SFP-25GBASE-ESR-SKY

MSA Compliant 25GBase-SR SFP28 Transceiver (MMF, 850nm, 400m, LC, DOM)

Product Description

This MSA compliant SFP28 transceiver provides 25GBase-SR throughput up to 400m over multi-mode fiber (MMF) using a wavelength of 850nm 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. 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-8402 and SFF-8472 Compliance
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Multi-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications:

- 25GBase Ethernet
- 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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	V _{cc}	-0.5		4.0	V
Storage Temperature	T _S	-40		85	°C
Operating Case Temperature	T _c	0	25	70	°C
Relative Humidity	RH	5		85	%
Data Rate		10.3	25.78		Gb/s

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage		V _{cc}	3.135	3.3	3.465	V	
Module Supply Current		I _{cc}			290	mA	
Power Dissipation		P _D			1000	mW	
Transmitter							
Input Differential Impedance		Z _{IN}		100		Ω	
Differential Data Input Swing		V _{in,p-p}	180		700	mVp-p	
TX Fault	Transmitter Fault	V _{OH}	2.0		V _{cc}	V	TX_FAULT
	Normal Operation	V _{OL}	0		0.8	V	
TX Disable	Transmitter Disable	V _{IH}	2.0		V _{cc}	V	TX_DISABLE
	Transmitter Enable	V _{IL}	0		0.8	V	
Receiver							
Output Differential Impedance		Z _o		100		Ω	
Differential Data Output Swing		V _{out,p-p}	300		850	mVp-p	1
Data Output Rise Time, Fall Time		t _r , t _f		30		ps	2
RX_LOS	Loss of Signal (LOS)	V _{OH}	2.0		V _{cc}	V	RX_LOS
	Normal Operation	V _{OL}	0		0.8	V	

Notes:

1. Internally AC coupled, but requires an external 100Ω differential load termination.

2. 20-80%
3. LOS is an open collector output. Should be pulled up with 4.7K Ω on the host board.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	Po	-4.0		+2.4	dBm	1
Tx Power (OMA)	Poma	-4			dBm	1
Extinction Ratio	ER	2			dB	
Center Wavelength Range	λ_c	840	850	860	nm	
Transmitter Dispersion Penalty @25.78Gb/s	TWDP			4.3	dB	
Spectral Width (RMS) @25.78Gb/s	$\Delta\lambda$			0.6	nm	
Optical Return Loss Tolerance	ORLT			12	dB	
Pout @TX-Disable Asserted	Poff			-30	dBm	1
Receiver						
Center Wavelength	λ_c	840		860	nm	
Receiver Sensitivity (Pavg)	S			-10.3	dBm	2
Receiver Sensitivity (Pavg)	S			-11.0	dBm	3
Receiver Overload (Pavg)	POL	2.5			dBm	
Optical Return Loss	ORL	12			dB	
LOS De-Assert	LOSD			-11	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5			dB	

Notes:

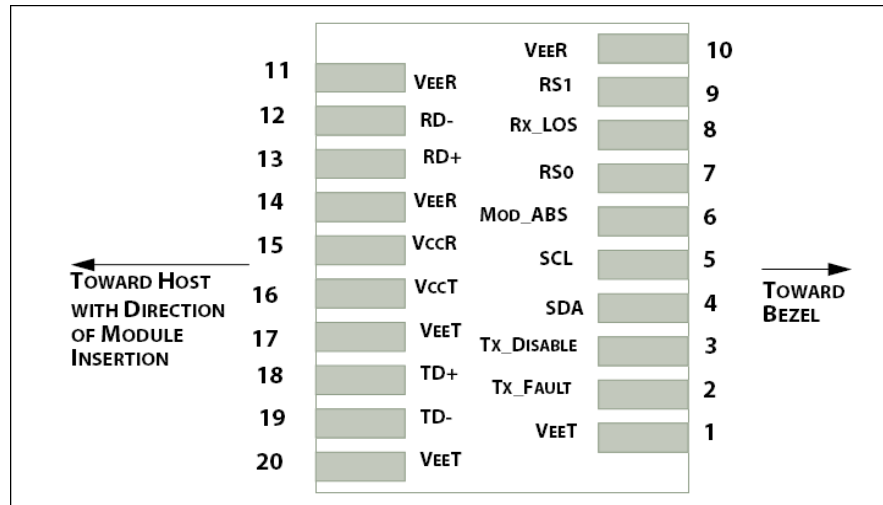
1. 50/125 μ m fiber with NA = 0.2.
2. Measured with PRBS 2³¹-1 at 5e-5 BER @25.78Gb/s.
3. Measured with PRBS 2³¹-1 at 5e-5 BER @10.3Gb/s.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground.	1
2	TX_Fault	Transmitter Fault (LVTTTL-O) – High indicated a fault condition.	2
3	TX_Disable	Transmitter Disable (LVTTTL-I) – High or open disables the transmitter.	3
4	SDA	Two wire serial interface Data Line (LVCMOS-I/O)(MOD-DEF2)	4
5	SCL	Two wire serial interface Clock Line (LVCMOS-I/O)(MOD-DEF1)	4
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module.	5
7	RS0	Rate Select 0 - Not used, Presents high input impedance.	6
8	RX_LOS	Receiver Loss of Signal (LVTTTL-O)	2
9	RS1	Rate Select 1 - Not used, Presents high input impedance.	6
10	VeeR	Receiver Ground.	1
11	VeeR	Receiver Ground.	1
12	RD-	Inverse Received Data out (CML-O). AC Coupled.	
13	RD+	Received Data out (CML-O). AC Coupled.	
14	VeeR	Receiver Ground.	
15	VccR	Receiver Power +3.3V	
16	VccT	Transmitter Power +3.3V	
17	VeeT	Transmitter Ground.	1
18	TD+	Transmitter Data In (CML-I). AC Coupled	
19	TD-	Inverse Transmitter Data In (CML-I). AC Coupled.	
20	VeeT	Transmitter Ground.	1

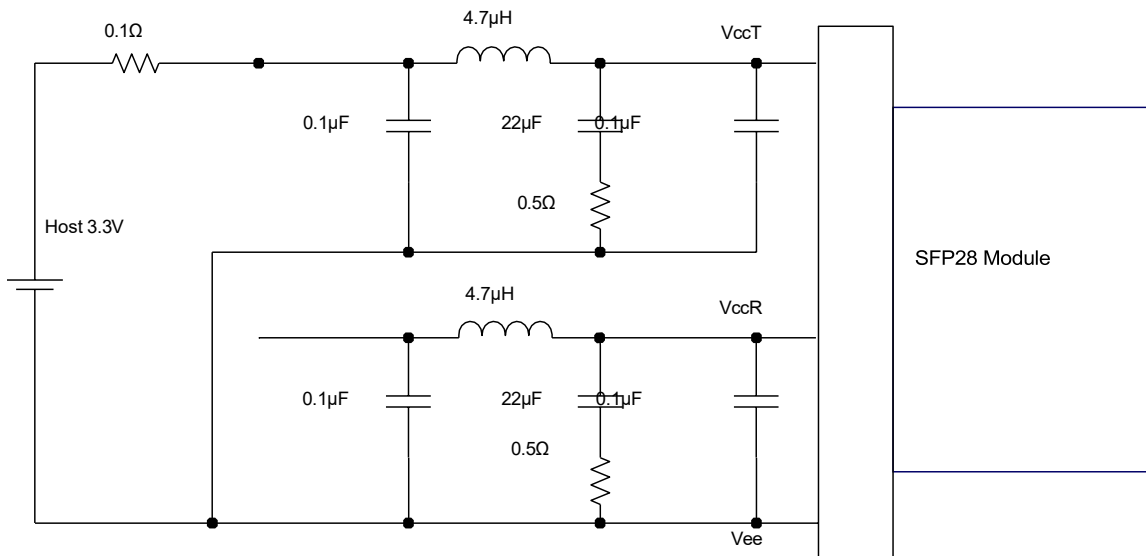
Notes:

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 4.7K Ω to 10K Ω pull-up resistor to VccHost.
3. This input is internally biased high with a 4.7K Ω to 10K Ω pull-up resistor to VccT.
4. Two-Wire Serial interface clock and data lines require an external pull-up resistor dependent on the capacitance load.
5. This is a ground return that on the host board requires a 4.7K Ω to 10K Ω pull-up resistor to VccHost.
6. Rate select can also be set through the 2-wire bus in accordance with SFF-8472 v. 10.2, Rx Rate Select is set at Bit 3, Byte 110, Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h.
Note: writing a “1” selects maximum bandwidth operation. Rate select is the logic OR of the input state of Rate Select Pin and 2-wire bus.



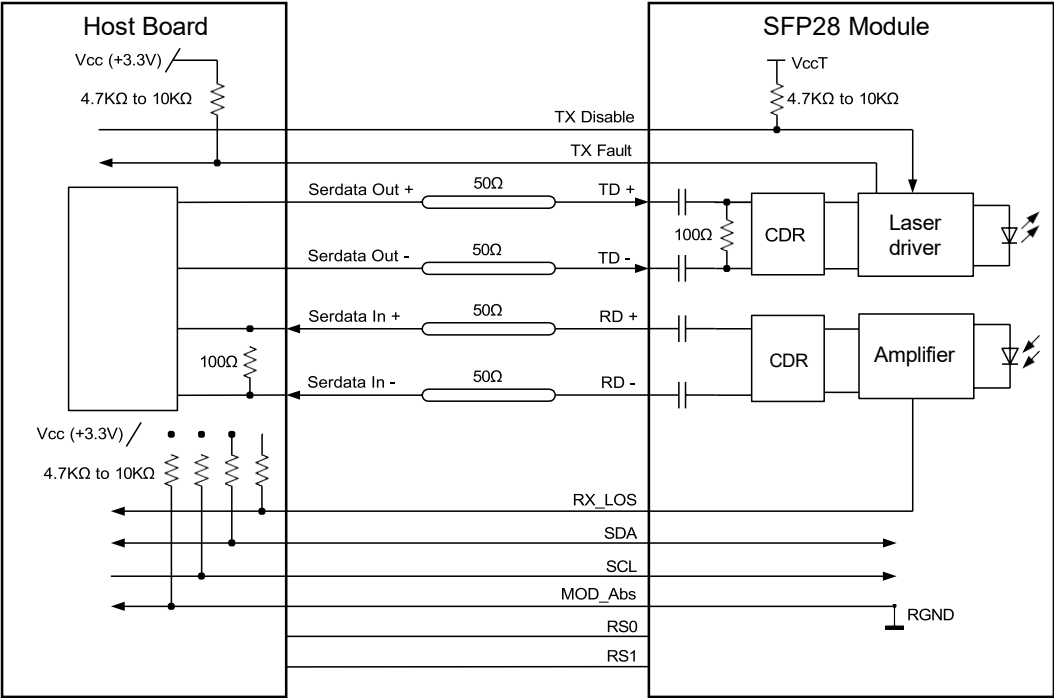
Host PCB SFP+ pad assignment

Recommended Host Board

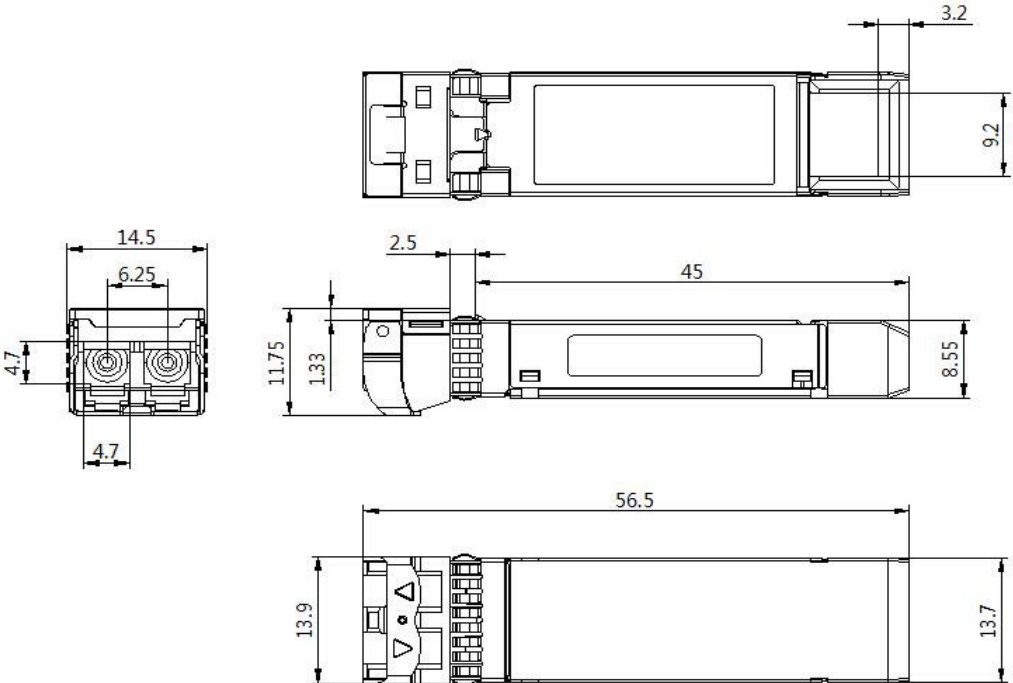


Recommended Host Board Power Supply Filter Network

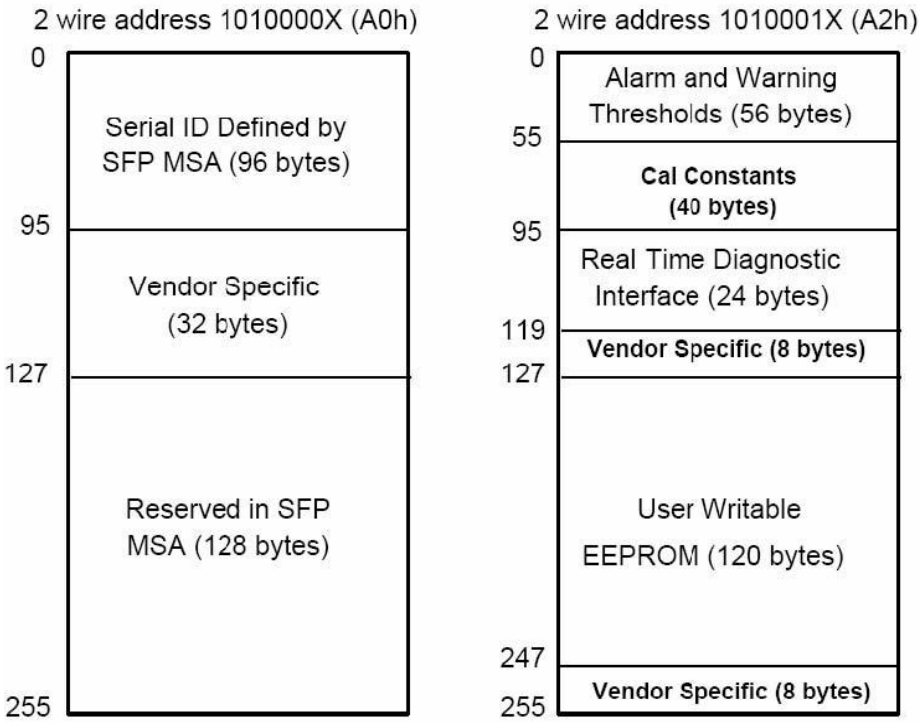
Recommended Application Interface Block Diagram



Mechanical Specifications



EEPROM Information



Digital Diagnostic Memory Map Specific Data Field Descriptions

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.

