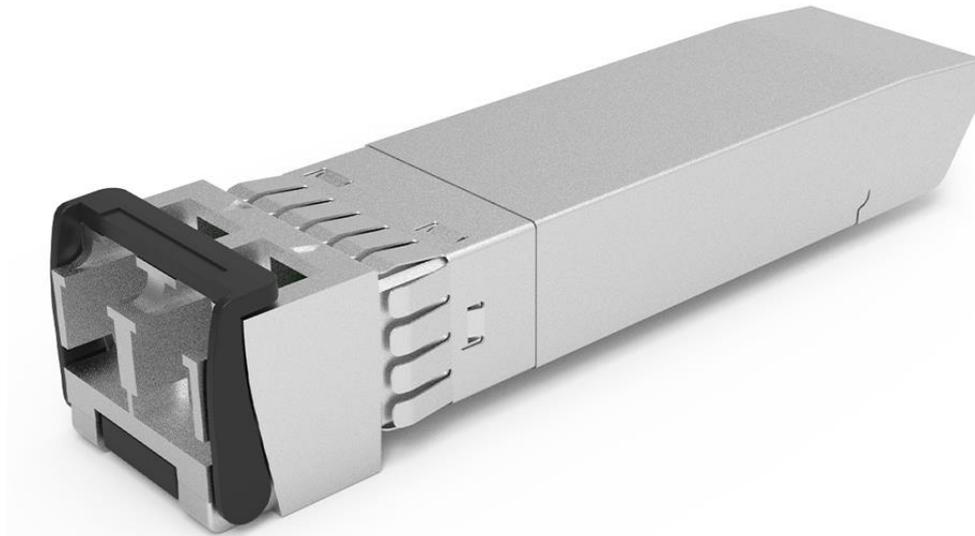


Product Datasheet

10G SFP+ SR Dual LC Transceiver



Application

- Data center & Networking Equipment
- Servers/Storage Devices
- High Performance Computing (HPC)
- Switches/Routers
- Telecom Central Offices (CO)
- Test and Measurement Equipment

Standards Compliance

- IEEE 802.3ae
- SFF8472
- SFP+ MSA
- SFF-8431 and SFF-8432

Features

- Up to 11.1Gbps Data Links
- 850nm VCSEL laser and PIN receiver
- Operating case temperature: (0°C ~70°C)
- Maximum link length of 300m via OM3 multimode Fiber (MMF)
- Operating temperature range:
 - Commercial: 0°C to +70°C
 - Industrial: -40°C to +85°C

1.0 Product Specification

1.1 Absolute Maximum Ratings (TC=25°C, unless otherwise noted)

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings will cause permanent damage and/or adversely affect device reliability.

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Storage Temperature	TS	-40	-	+85	°C	
Operating Relative Humidity	RH	0	-	+85	%	No condensation

1.2 General Specifications (Ta, unless otherwise noted)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0	-	70	°C	
Power Supply Voltage	Vcc	3.15	3.3	3.45	V	
Lane Baud Rate	BR _{LANE}		10.3125		Gbps	

1.3 Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Power Consumption				1	W	
Supply Current	Icc			300	mA	

1.4 Transmitter Characteristics (Ta, unless otherwise noted)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Center wavelength	λ	840		860	nm	
RMS spectral width	Pm			0.6	nm	
Average optical power	Pavg	-8.2		-1	dBm	
Optical modulation amplitude	OMA	-6.4		3	dBm	
Average launch power of OFF transmitter	Poff			-30	dBm	
Extinction ratio	ER	4			dB	
Optical return loss tolerance				12	dB	

1.5 Receiver Characteristics (Ta, unless otherwise noted)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Center wavelength	λ	840	850	860	nm	

Damage threshold		3.4			dBm	
Receive power overload		-1			dBm	
Receiver reflectance				-12	dB	
Receiver sensitivity	SENS			-9.9	dBm	Note1
LOS Assert	LOSA	-25			dBm	
LOS De-Assert	LOSD			-11.5	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Note 1: Measured with a 10.3125G, PRBS-31 NRZ, ER>3dB, BER<10E-12.

1.6 PIN Descriptions

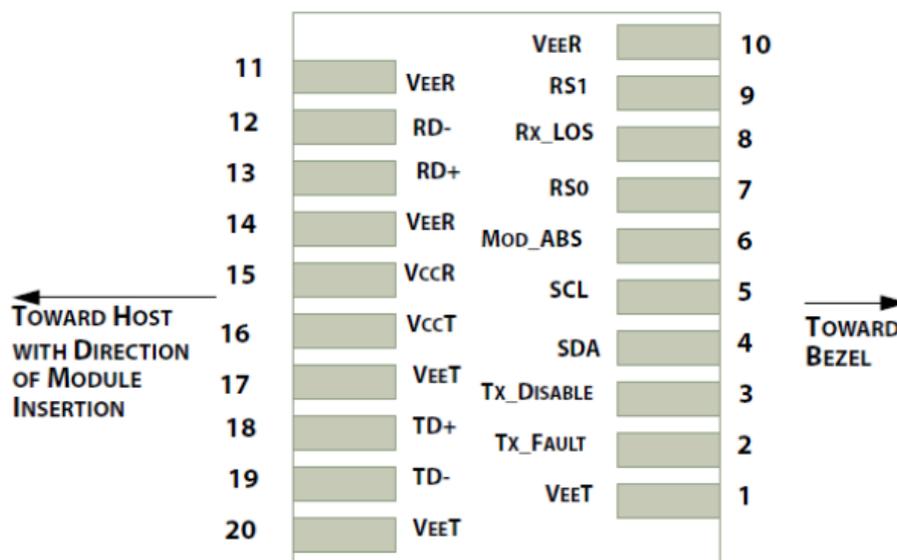


Figure 1 – Pin Definitions

PIN	Logic	Symbol	Name / Description	Notes
1		VeeT	Module Transmitter Ground	
2	LVTTL-O	TX_Fault	Module Transmitter Fault	
3	LVTTLI	TX_Dis	Transmitter Disable, Turns off transmitter laser output	
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	
6		MOD_DEFO	Module Definition, Grounded in the module	
7	LVTTL-I	RS0	Receiver Rate Select	
8	LVTTL-O	RX Los	Receiver Loss of Signal Indication Active LOW	
9	LVTTL-I	RS1	Transmitter Rate Select (not used)	
10		VeeR	Module Receiver Ground	
11		VeeR	Module Receiver Ground	

PIN	Logic	Symbol	Name / Description	Notes
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Data Output	
14		VeeR	Module Receiver Ground	
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Receiver 3.3 V Supply	
17		VeeT	Module Transmitter Ground	
18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	

1.7 Digital Diagnostic Specification

Parameter	Symbol	Accuracy	Units	Notes
Transceiver Case Temperature	DMI_TEMP	±3	deg.C	
Supply voltage monitor absolute error	DMI_VCC	±3	%	
Channel Bias current monitor	DMI_IBIAS	±10	%	
Channel RX power monitor absolute error	DMI_RX	±3	dB	
Channel TX power monitor absolute error	DMI_TX	±3	dB	

1.8 Recommended Interface Circuit

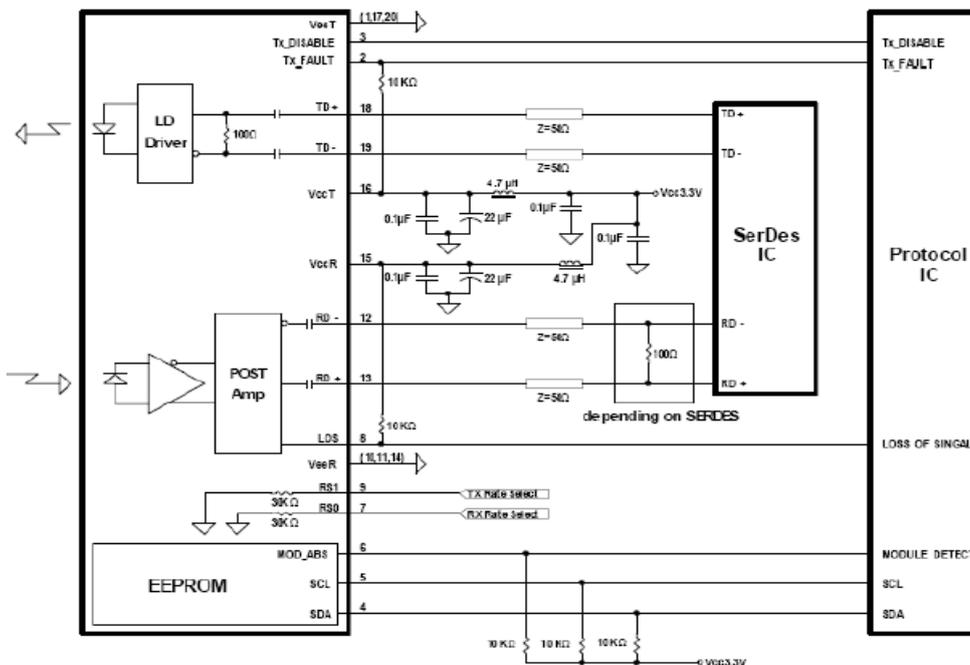


Figure 2 – Typical application circuit

1.9 Mechanical Specifications

Unit: mm

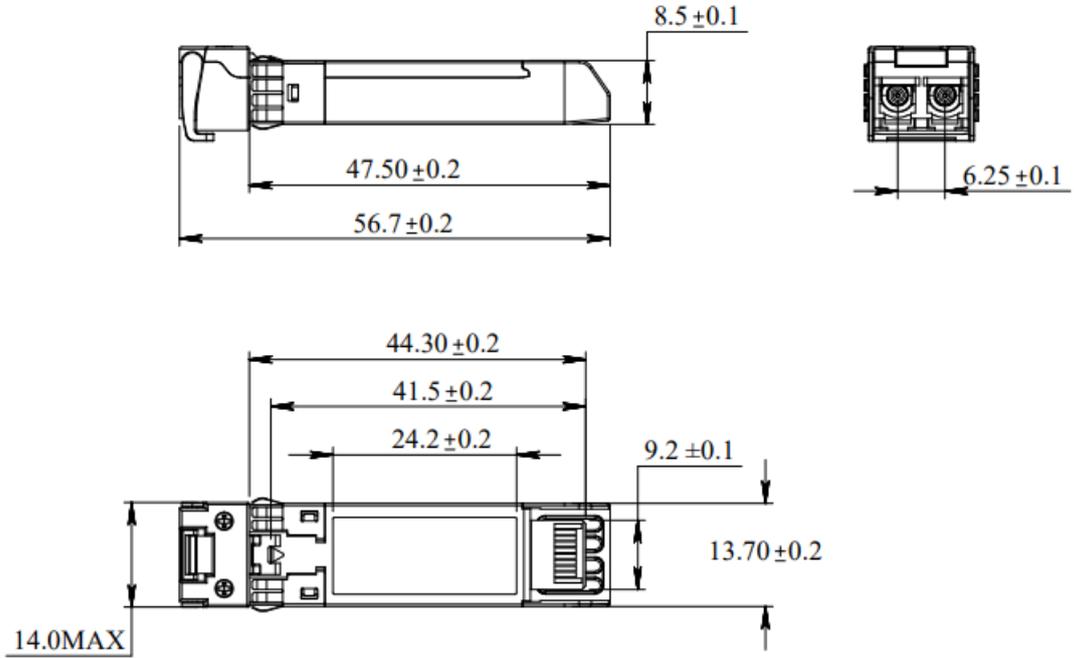


Figure 3 - Mechanical Specifications

2.0 Product Information

Data Rate	Factor		Optical	Wavelength	Reach
10G	SFP+	SR	Dual LC	850nm	300m

ESD Safety Cautions

This transceiver is specified as ESD threshold 1KV for high speed data pins and 2KV for all others electrical input pins, tested per MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

Important Notice

The performance figures, data, and any illustrative material presented in this datasheet are typical and must be explicitly confirmed in writing by ZHAOLONG before they are deemed applicable to any specific order or contract.

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3.0 Revision Record

Rev.	Comments	Author	Date
A01	Initial Release	Koko Sun	10/01/2023