

SFP-10G-LR

10GBASE, SFP+, LR, SMF TRANSCEIVER
1310 nm, 10 km REACH, DUPLEX LC CONNECTOR

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10GBase SFP+ LR 1310nm SMF 10km Transceiver

Product Features

- Up to 11.3Gbps Data Links
- Up to 10km transmission on SMF
- Single +3.3V Power Supply
- Power dissipation < 1.2W
- Metal enclosure for lower EMI
- RoHS compliant
- Compliant to: SFF-8431 / SFF-8472
- Available operating temperature ranges:
 - Commercial: 0°C to 70°C
 - Industrial: -40°C to 85°C



Product Applications

- 10GBASE-LR/LW & 10G Ethernet
- OTN / FC / CPRI

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	TS	-40		+85	°C
Power Supply Voltage	Vcc	-0.3		4	V
Relative Humidity	RH	5		95	%

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	0		+70	°C	Commercial
		-40		+85	°C	Industrial
Supply Voltage	VCC	3.14	3.3	3.47	V	
Supply Current	Icc			450	mA	
Data Rate	BR		10.3125		Gbps	
Transmission Distance	TD			10	km	
Coupled fiber		Single mode fiber				9/125um SMF

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III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Average Launched Power	P _{out}	-6		-0.5	dBm	1
Extinction Ratio	ER	3.5			dB	
Optical Wavelength	λ	1260	1310	1355	nm	
Spectrum Band Width (-20dB)	σ			1.0	dB/Hz	
Output Eye Mask	Compliant with IEEE 802.3ae					
Receiver						
Optical Input Wavelength	λ_c	1270		1610	nm	
RX Sensitivity	P _{sen}			-14.4	dBm	2
Receiver Overload	P _{sat}	0.5			dBm	
RX_LOS Assert	LOS A	-30			dBm	
RX_LOS De-assert	LOS D			-17	dBm	
RX_LOS Hysteresis	LOS H	0.5	1.0		dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulations.
2. Measured with a PRBS 231-1 test pattern, @10.3125Gb/s, BER<10⁻¹².

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IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	3.14	3.3	3.46	V	
Supply Current	Icc			360	mA	
Transmitter						
Input differential impedance	RIN		100		Ω	1
Single ended data input swing	Vin PP	180		700	mVpp	
Transmit Disable Voltage	VD	Vcc-1.3		Vcc	V	2
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Transmit Disable Assert Time	Tdessert			10	us	
Receiver						
Differential data output swing	Vout,pp	300		850	mV	3
Data Output Rise time	tr	28				4
Data Output Fall time	tf	28				4
LOS Fault	Vlosfault	Vcc-1.3		VCC_host	V	5
LOS Normal	Vlosnorm	Vee		Vee+0.8	V	5
Power Supply Rejection	PSR	100			mVpp	6

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or Open Circuit.
3. Into 100 ohm differential termination.
4. 20-80%
5. Loss of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. Receiver sensitivity is compliant with power supply sinusoidal modulation of 20 Hz to 1.5 MHz up to specified value applied through the recommended power supply filtering network.

Warranty

All transceivers feature a limited lifetime warranty.

Disclaimer

External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.