

SFP10G-LR-I

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



Features:

- Up to 11.1Gbps Data Links
- Up to 10km transmission on SMF
- DBF Laser and PIN receiver
- Metal enclosure, for lower EMI
- 2-wire interface with integrated Digital Diagnostic monitoring
- Specifications compliant with SFF 8472
- Compliant with SFP+ MSA with LC connector
- Single 3.3V power supply
- Power dissipation < 1.2 W
- Industrial case operating temperature range: -40°C to +85°C

Applications

- 10GBASE-LR/LW & 10G Ethernet

Standard

- Compliant to SFF-8431
- Compliant to SFF 8472
- RoHS Compliant

1. Absolute Maximum Ratings

Any stress beyond the maximum ratings can result in permanent damage. The device specifications are guaranteed only under the recommended operating conditions.

Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	Ts	-40	-	85	°C
Relative Humidity	RH	5	-	95	%
Power Supply Voltage	VCC	-0.3	-	4	V

2. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Case Operating Temperature	Tcase	-40	-	85	°C	Industrial
Power Supply Voltage	VCC	3.14	3.3	3.47	V	
Power Supply Current	ICC	-		450	mA	

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Data Rate	BR		10.3125		Gbps	
Transmission Distance	TD		-	10	km	
Coupled fiber	Single mode fiber				9/125um SMF	

3. Optical Characteristics

Transmitter						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Average Launched Power	Pout	-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	nm	
Output Eye Mask	Compliant with IEEE 802.3ae					
Receiver						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Input Optical Wavelength	λ_c	1270		1610	nm	
Receiver Sensitivity	Psen			-14.4	dBm	2
Input Saturation Power (Overload)	Psat	0.5			dBm	
LOS Assert	LOSA	-30			dBm	
LOS De-assert	LOSD			-17	dBm	
LOS Detect Hysteresis	PHYS	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.

4. 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	mV	
Transmit Disable Voltage	VD	Vcc-1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	2
Transmit Disable Assert Time				10	us	

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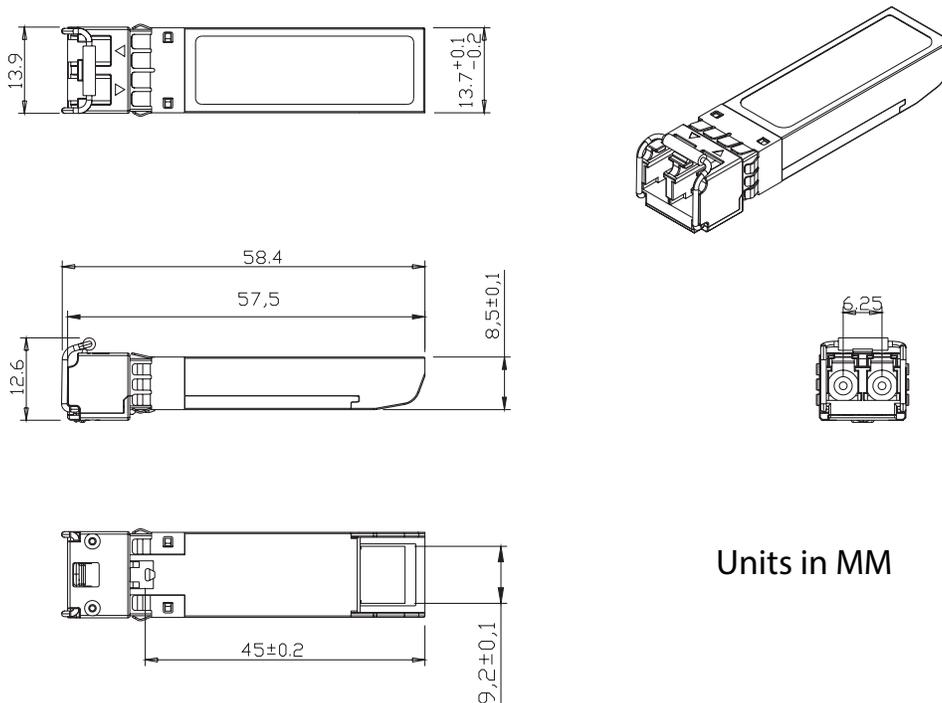
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Receiver						
Differential data output swing	Vout,pp	300		850	mV	3
Data output rise time	tr	28			ps	4
Data output fall time	tf	28			ps	4
LOS Fault	VLOS fault	Vcc-1.3		VccHOST	V	5
LOS Normal	VLOS norm	Vee		Vee+0.8	V	5
Power Supply Rejection	PSR	100			mVpp	6

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Into 100 ohms 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.

5. Mechanical Diagram



Units in MM

Note: 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.

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6. Ordering Information

OEM	Part Number	OEM	Part Number
A10 Networks	AXSK-SFP+LR-L	Cisco	SFP-10G-LR-X-L
Accedian	7SN-500-L	Cisco	ONS-SC+-10G-LR-L
Adtran	1442410G1-L	Dell	407-BBOP-L
Adva	1061701850-02-L	Edgecore	ET5402-LR-L
Alcatel	3HE04823AA-L	Ericsson	RDH10265/3-L
Alcatel	3FE62600DA-L	Extreme	10302-L
Alcatel	1AB410060001-L	Finisar	FTLX1472M3BCL-L
Alcatel	3HE09327AA-L	Finisar	FTLX1475D3BTL-L
Alcatel	ISFP-10G-LR-L	Fortinet	FN-TRAN-SFP+LR-L
Alcatel	SFP-10G-LR-AL-L	Fujitsu	HCD10D10I0000-0-L
Allied Telesis	AT-SP10LR/I-L	HP	J9151A-L
Arista	SFP-10G-LR-AN-L	Infinera	TOM-10G-SFPP-SR1-L
Arista	SFP-10G-LRL-AN-L	Intel	E10GSFPLR-L
Avago	AFCT-739DMZ-L	Juniper	SFPP-10GE-LR-IT-L
Avaya	AA1403011-E6-L	Juniper	EX-SFP-10GE-LR-L
Brocade	10G-SFPP-LR-L	Meraki	MA-SFP-10GB-LR-L
Calix	100-01512-L	MicroTik	S+31DLC10D-L
Check Point	CPAC-TR-10LR-L	MSA	L-SFP10G-LR-I
Ciena	160-9102-900-L	Nokia	472949A-L
Ciena	XCVR-S10V31-L	Nokia	472749A-L
Cisco	SFP-10G-LR-S-L	Nokia	473472A-L
Cisco	SFP-10G-LR-L	Palo Alto	PAN-SFP-PLUS-LR-L