

10G BASE-LR SFP+ Module for SMF LC duplex 10km data range, Cisco compatible

GBIC-, SFP-, XFP-, XENPAK-Transceiver

The tde Small Form Pluggable Optical Transceiver are easy installed for enterprise and telecom applications. The tde SFP modular line provides a fully compatible, highly reliable and volume accessible supply of quality transceiver products with excellent performance for design-in manufacturing and end-user enterprise applications.

Agilestar's SFP-10G-LR-AS Transceiver is designed for 10GBASE-LR/LW, and 8.5G/10G Fiber- Channel applications. The transceiver consists of two sections: The transmitter section incorporates an uncooled DFB laser. And the receiver section consists of a PIN photodiode integrated with a TIA. All modules satisfy Class I Laser safety requirements. Agilestar SFP-10G-LR-AS Digital Diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage.



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Technical Data

Features

- Compliant with SFF-8413 and IEE802.3ae
- Data rate selectable ≤ 9.95 Gbps to 10.52 Gbps bit rates
- Uncooled DFP-1310 Transmitter and PIN Receiver
- Link length up to 10 km
- Low Power Dissipation 1.0W Maximum
- -5°C to 70°C Operating Case Temperature
- Single 3.3V power supply
- Diagnostic Performance Monitoring of module temperature, supply Voltages, laser bias current, transmit optical power, receive optical power
- RoHS compliant and lead free

Applications:

- 10G BASE-LR/LW
- 10G Fiber Channel
- Other High Speed Data Connections

Absolute Maximum Ratings

Parameter	Symbol	Min	Max
Supply Voltage	Vcc	-0.5 V	3.8 V
Storage Temperature	Tst	-40°C	85°C
Relative Humidity	Rh	0 %	85 %

Operating Conditions

Parameter	Symbol	Min	Typical	Max
Supply Voltage	Vcc	3.13 V	3.3 V	3.47 V
Supply current	Icc		360 mA	450 mA
Operating Case Temperature	Tca	-5°C		70°C
Module Power Dissipation	Pm		1.0 W	

Transmitter Specifications - Optical

Parameter	Symbol	Min	Typical	Max
Center Wavelength	λ_c	1260 pm		1355 pm
Optical Average Power	Po	-8.2 dBm		0.5 dBm
Optical OMA Power	Pom	-5.2 dBm		

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Side Mode Suppression Ratio	SMSR	30 dB		
Optical Transmit Power (disabled)	PTX_DISABLE			-30 dBm
Extinction Ratio	ER		3.5 dB	
RIN ₂₁ OMA ¹⁾				-128 dB/Hz
Optical Return Loss Tolerance				12 dB

¹⁾RIN measurement is made with a return loss at 12 dB.

Transmitter Specifications - Electrical

Parameter	Symbol	Min	Typical	Max
Data Rate	Mra		10.3 Gbps	11.3 Gbps
Input differential impedance	Rim		100 Ω	
Differential data Input	VtxDIFF	120 mV		850 mV
Transmit Disable Voltage	VD	2.0 V		Vcc3+0.3 V
Transmit Enable Voltage	Ven	0 V		+0.8 V
Transmit Disable Assert Time	Vn			100 us

Receiver Specifications - Optical

Parameter	Symbol	Min	Typical	Max
Input Operating Wavelength	λ	1260 nm		1355 nm
Average receive power				-1.0 dBm
Receiver sensitivity in OMA				-12.06 dBm
Stressed receiver sensitivity in OMA ¹⁾				-10.3 dBm
Maximum Input Power	RX-overload			-1.0 dBm
Reflectance	Rrx			-12 dB
Loss of Signal Asserted		-25 dBm		
LOS De-Asserted				
LOS Hysteresis		0.5 dB		

¹⁾Measured with conformance test signal for BER = 10⁻¹². The stressed sensitivity values in the table are for system level BER measurements which include the effects of CDR circuits. It is recommended that at least 0.4 dB additional margin be allocated if component level measurements are made without the effects of CDR circuits.

Receiver Specifications - Electrical

Parameter	Symbol	Min	Typical	Max
Data Rate	Mra		10.3 Gbps	11.3 Gbps
Differential Output Swing	Vout P-P	350 mV		850 mV

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Rise/Fall Time	Tr/Tf	24 ps	
Loss of Signal - Asserted	VOH	2.0 V	Vcc3+0.3 V
Loss of Signal - Negated	VOL	0 V	+0.4 V

Product variants & accessories

Art.-No.	Description
TDE-SFP-10G-LR	10G BASE-LR SFP+ Module for SMF LC duplex 10km data range, Cisco compatible