10GBASE-LR SFP+ HP Compatible Transceiver Module - Single-Mode Duplex LC 1310nm to 10km

PART NUMBER: SFP-10G-LR-ALG-HP
BAR CODE: 9350784007988

1 Overview

This SFP+ transceiver module is designed for use with HP network equipment and is equivalent to HP part number SFP-10G-LR. This transceiver is built to meet or exceed the specifications of the OEM and to comply with Multi-Source Agreement (MSA) standards. This product is 100% functionally tested, and compatibility is guaranteed. The transceiver is a hot-swappable input/output device which allows a Gigabit Ethernet port to link with a fiber optic network. OEM specific configuration data is loaded on to the EEPROM of the transceiver at the factory, allowing this transceiver to initialize and perform identically to an OEM transceiver. This transceiver may be mixed and deployed with other OEM or third party transceivers and will deliver seamless network performance.

2 Features

* Compliant with SFF8431 SFP+ MSA
* Up to 10.7Gbps bi-directional data links
* Compliant with IEEE 802.3ae 10GBASE-LR/LW
* Compliant with 10GFC
* 1310nm DFB laser transmitter
* Duplex LC connector
* Built-in digital diagnostic functions
* Up to 10km on SMF
* Hot-pluggable SFP+ footprint
* RoHS compliance
* Waranty: 1 Year

3 Application

* 10GBASE-LR/LW Ethernet
* 10G FC

4 Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	T_s	-40	85	°C
Supply Voltage	Vcc	0	3.6	V
Maximum Voltage	V_{IN}	-0.5	4	V

5 Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Units
Case Operating Temperature	T_c	0	70	°C
Supply Voltage	Vcc	3	3.6	V
Supply Current	I_{cc}	---	260	mA

6 Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	-10 to 85	± 3	°C	Internal
Voltage	2.9 to 3.7	± 0.1	V	
Bias Current	1 to 60	±10	mA	
TX Power	-8 to 0	± 3 dB	dBm	
RX Power	-16 to 0	± 3 dB	dBm	

7 Transmitter Electro-optical Characteristics

Vcc = 3 V to 3.6 V, T_c = 0°C to 70°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Data Rate	DR	---	10.3125	---	Gbps	
Bit Error Rate	BER			10^{-12}		
Output Optical Power	P_{TX}	-8.2	---	0.5	dBm	
Center Wavelength	λC	1260	---	1355	nm	
Optical Modulation Amplitude	OMA	-5.2				IEEE 802.3ae
Spectral Width (RMS)	Δλ	---	---	0.6	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Relative Intensity Noise	RIN	---	---	-128	dB/Hz	
Launch Power of OFF Transmitter	P_{OFF_OFF}	---	---	-30	dBm	Average
Extinction Ratio	ER	3	5.5	---	dB	
Transmitter Dispersion Penalty	TDP	---	---	3.2	dB	
Transmitter Jitter			According to IEEE 802.3ae requirement			
Differential Input Voltage	R_{IN}		100		Ω	Non condensing
Single ended data input swing	V_{IN_PP}	250		800	mV	
Transmit disable voltage	V_D	2		Vcc	V	
Transmit enable voltage	V_{EN}	V_{EE}		V_{EE}+0.8	V	

8 Receiver Electro-optical Characteristics

Vcc = 3 V to 3.6 V, T_c = 0°C to 70°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Receiver Sensitivity (OMA) (@10.3Gbps)	P_{sens}	---	---	-10.3	dBm	IEEE 802.3ae
Receiver Sensitivity(OMA) (@10.3Gbps)	P_{X_SEN1}	---	---	-12.6	dBm	Measured with worst ER: BER < 10^{-12} 2^{31}-1PRBS
Operating Center Wavelength	λC	1260	---	1600	nm	
Optical Input power	P_{IN}	-14.4	---	0.5	dBm	Average, Informative
Receiver Reflectance	TR_{RX}	---	---	-12	dB	
Loss of Signal-Asserted	LOS_A	-25	---	---	dBm	
Loss of Signal-Deasserted	LOS_D	---	---	-16	dBm	
Loss of Signal-Hysteresis	P_H	0.5	---	---	dB	
Single ended data output swing	V_{OUT_PP}	150	300	425	mV	
Data output rise time (20%-80%)	T_R		30		ps	
Data output fall time (20%-80%)	T_F		30		ps	
LOS Fault	V_{LOS_FAULT}	2		V_{CC_HOST}	V	
LOS Normal	V_{LOS_NORMAL}	V_{EE}		V_{EE}+0.5	V	