1000BASE-LX/LH SFP Module SM LC 10km data range (1310nm) 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.

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Technical Data

Features

- Operating data rate up to1.25Gbps
- 1310nm FP LD Transmitter
- Distance up to 10km
- Single 3.3V Power supply and TTL Logic Interface
- Duplex LC Connector Interface
- Hot Pluggable
- Operating Case Temperature Industrial: -40°C~+85°C
- Compliant with MSA SFP Specification
- Digital diagnostic monitor interface Compatible with SFF-8472

Applications

- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- XDSL Applications
- Metro Edge Switching

Regulatory Compliance

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1(>500 V) Isolation with the case
Electromagnetic Interference (EMI)	FCC Part 15 Class B	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2	Compatible with Class I laser product. Compatible with T üV standards
Component Recognition	UL and CUL	UL file E317337
Green Products	RoHS	RoHS6

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TS	-40	+85	°C
Supply Voltage	Vcc	-0.5	3.6	V

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature	TA	-40		+85	°C
Power Supply Voltage	Vcc	3.15	3.3	3.45	V
Power Supply Current	Icc			300	mA
Surge Current	ISurge			+30	mA
Baud Rate			1.25		GBaud

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Performance Specifications - Electrical

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
LVPECL Inputs (Differential)	Vin	400		2500	mVp	AC coupled inputs
Input Impedance (Differential)	Zin	85	100	115	ohms	Rin > 100 kohms @ DC
Tx_DISABLE Input Voltage - High		2		3.45	V	
Tx_DISABLE Input Voltage - Low		0		0.8	V	
Tx_FAULT Output Voltage - High		2		Vcc+0.3	V	Io = 400µA; Host Vcc
Tx_FAULT Output Voltage - Low		0		0.5	V	Io = -4.0mA
Receiver						
LVPECL Outputs (Differential)	Vout	400	800	1200	mVpp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage - High		2		Vcc+0.3	V	Io = 400µA; Host Vcc
Rx_LOS Output Voltage - Low		0		0.8	V	Io = -4.0mA
MOD_DEF (0:2)	VoH VoL	2.5 0		 0.5	V V	With Serial ID

Optical and Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
9µm Core Diameter SMF				10	km
Data Rate			1.25		Gbps
Transmitter					
Centre Wavelength	λc	1260	1310	1360	nm
Spectral Width (RMS)	σ			3	nm
Average Output Power 15454-GBIC-LX-AS	P Out	-10		-3	dBm
Extinction Ratio	EX	9			dB
Rise/Fall Time (20% – 80%)	tr/tf			1.2	ns
Total Jitter	TJ			56.5	ps
Output Optical Eye	ITU-T G.957 Compliant				
Data Input Swing Differential	V IN	500		2000	mV
Input Differential Impedance	ZIN	90	100	110	Ω
TX Disable - Disable - Enable		2.0 0		VCC+0.3 0.8	V V

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TX_Fault - Fault - Normal		2.0 0		VCC+0.3 0.8	V V
TX_Disable Assert Time	t_off			10	us
Receiver					
Centre Wavelength	λc	1100		1600	nm
Receiver Sensitivity	PIN			-20	dBm
Output Differential Impedance	P IN	90	100	110	Ω
Data Output Swing Differential	VOUT	370		2000	mV
Rise/Fall Time	Tr/tf			2.2	ns
LOS De-Assert	LOSD			-24	dBm
LOS Assert	LOSA	-40			dBm
LOS - High - Low		2.0 0		VCC+0.3 0.8	V V

Product variants & accessories

Art.-No.	Description
TDE-SFP-FCGE-L	1000BASE-LX/LH SFP Module SM LC 10km data range (1310nm) Cisco compatible

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