

1000BASE-LX GBIC Module SM SC 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.



**tde<sup>®</sup>** trans data elektronik GmbH

**Headquarter address:**

Lingener Str. 2  
D-49626 Bippen/Ohrte  
Tel.: +49 5435 9511 0  
Fax.: +49 5435 9511 32

**Sales office address:**

Prinz-Friedrich-Karl-Str. 46  
D-44135 Dortmund  
Tel.: +49 231 914 36 99  
Fax.: +49 231 914 31 29

info@tde.de | www.tde.de

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### Technical Data

#### Features

- Operating data rate up to 1.25Gbps
- 1310nm LD Transmitter
- Distance up to 10km
- 3.3/5V Power supply and TTL Logic Interface
- Duplex SC Connector Interface
- Hot Pluggable
- Operating Case Temperature Industrial: -40°C~+85°C
- Compliant with GBIC Specification Rev. 5.5

#### Applications

- WDM GBE Links
- SONET/SDH Equipment Interconnect
- Fiber Channel Links

#### 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	6	V

#### Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature	TA	-40		+85	°C
Power Supply Voltage	Vcc	4.75 3.15	5 3.3	5.25 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
<b>Transmitter</b>						
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		Vcc+0.3	V	
Tx_DISABLE Input Voltage - Low		0		0.8	V	
Tx_FAULT Output Voltage - High		Vcc-0.5		Vcc+0.3	V	Io = 400µA; Host Vcc
Tx_FAULT Output Voltage - Low		0		0.5	V	Io = -4.0mA
<b>Receiver:</b>						
LVPECL Outputs (Differential)	Vout	400	800	1200	mVpp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage - High		Vcc-0.5		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 15454-GBIC-LX-AS	L		10		km
Data Rate			1.25		Gbps
<b>Transmitter</b>					
Centre Wavelength	λc	1270	1310	1350	nm
Spectral Width (RMS)	σ			3	nm
Average Output Power 15454-GBIC-LX-AS	P Out	-9		-3	dBm
Extinction Ratio	EX	9			dB
Rise/Fall Time (20% – 80%)	tr/tf			260	ns
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		2.0		VCC+0.3	V
- Enable		0		0.8	V
TX_Fault - Fault		2.0		VCC+0.3	V
- Normal		0		0.8	V

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TX_Disable Assert Time	t <sub>off</sub>			10	us
<b>Receiver</b>					
Centre Wavelength	λ <sub>c</sub>	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			-25	dBm
LOS Assert	LOSA	-40			dBm
LOS - High		2.0		VCC+0.3	V
- Low		0		0.8	V

## Product variants & accessories

Art.-No.	Description
TDE-15454-GBIC-LX	1000BASE-LX GBIC Module SM SC 10km data range (1310nm) Cisco compatible