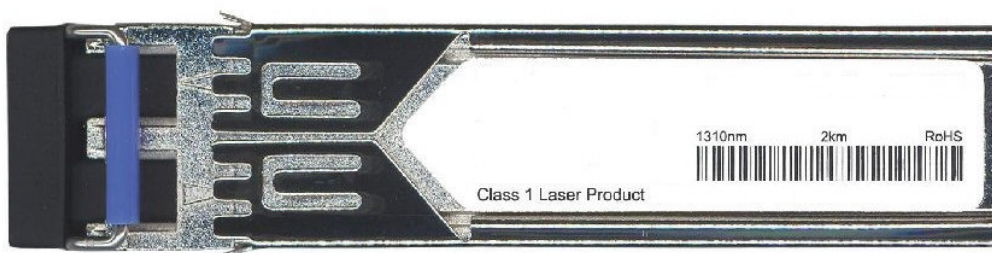


OC-48c/STM-16 SFP Module SM LC 2km data range (1310nm) Cisco compatible



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 to 2.488Gbps
- 1310nm FP Laser Transmitter
- Distance up to 2km
- Single 3.3V Power supply and TTL Logic Interface
- Duplex LC Connector Interface
- Hot Pluggable
- Operating Case Temperature
Standard: 0°C~+70°C
Industrial: -40°C~+85°C
- Compliant with MSA SFP Specification
- Digital diagnostic monitor interface Compatible with SFF-8472

Applications

- ATM Switches and Routers
- SONET/SDH 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 TUV standards
Component Recognition	UL and CUL	UL file E317337
Green Products	RoHS	RoHS6

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T _s	-40	+85	°C
Supply Voltage	V _{cc}	-0.5	3.6	V

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature	T _A	-40		+85	°C
Power Supply Voltage	V _{cc}	3.15	3.3	3.45	V
Power Supply Current	I _{cc}			300	mA

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Surge Current	I_{Surge}		+30	mA
Baud Rate		2.488		GBaud

Performance Specifications - Electrical

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
CML Inputs (Differential)	V_{in}	400		2500	mVp	AC coupled inputs
Input Impedance (Differential)	Z_{in}	85	100	115	ohms	$R_{\text{in}} > 100 \text{ kohms}$ at 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		$V_{\text{cc}}+0.3$	V	$I_{\text{o}} = 400\mu\text{A}$; Host V_{cc}
Tx_FAULT Output Voltage - Low		0		0.5	V	$I_{\text{o}} = -4.0\text{mA}$
Receiver						
CML Outputs (Differential)	V_{out}	400	800	1200	mVpp	AC coupled outputs
Output Impedance (Differential)	Z_{out}	85	100	115	ohms	
Rx_LOS Output Voltage - High		2		$V_{\text{cc}}+0.3$	V	$I_{\text{o}} = 400\mu\text{A}$; Host V_{cc}
Rx_LOS Output Voltage - Low		0		0.8	V	$I_{\text{o}} = -4.0\text{mA}$
MOD_DEF (0:2)	V_{oH} V_{oL}	2.5 0		0.5	V V	With Serial ID

Optical and Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
9µm Core Diameter SMF			2		km
Data Rate			2.488		Gbps
Transmitter					
Centre Wavelength	λ_{c}	1270	1310	1350	nm
Spectral Width (RMS)	σ			4	nm
Average Output Power	P_{out}	-10		-3	dBm
Extinction Ratio	EX	9			dB
Rise/Fall Time (20% – 80%)	$t_{\text{r/tf}}$			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

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Input Differential Impedance	Z_{IN}	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
TX_Disable Assert Time	t_{off}			10	us
Receiver					
Centre Wavelength	λ_c	1200		1600	nm
Receiver Sensitivity	PIN			-18	dBm
Output Differential Impedance	P_{IN}	90	100	110	Ω
Data Output Swing Differential	V_{OUT}	370		2000	mV
Rise/Fall Time	T_r/t_f			2.2	ns
LOS De-Assert	LOS_D			-20	dBm
LOS Assert	LOS_A	-40			dBm
LOS - High		2.0		Vcc+0.3	V
- Low		0		0.8	V

Product variants & accessories

Art.-No.	Description
TDE-SFP-OC48SR	OC-48c/STM-16 SFP Module SM LC 2km data range (1310nm) Cisco compatible