NS-SFP-CxxL80D

1.25Gbps CWDM SFP Optical Transceiver

Особенности

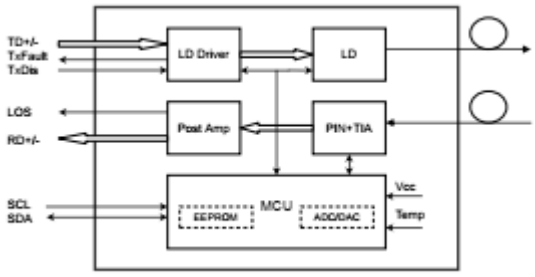
Скорость передачи данных 1.25Gbps
Для 80km передачи. Согласован с SFP MSA и SFF-8472 с duplex LC коннектором
DDM
Согласован с SONET OC-24-LR-1
Согласован с RoHS
Источник питания +3.3V
Рабочие температуры
Стандартная : 0 to +70°C

Применение

Gigabit Ethernet
Fiber Channel
Switch to Switch interface
Switched backplane applications
Router/Server interface

Описание

SFP высокоэффективные трансиверы, поддерживающие скорость передачи данных 1.25Gbps и 80km дальность передачи с SMF.
Трансивер состоит из 3х частей: Неохлаждаемые CWDM DFB лазерный передатчик , PIN фотодиод интегрированный с (TIA) и MCU управляющая панель.
Все модули удовлетворять требованиям безопасности лазера I класса.



Абсолютные максимальные показатели

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	4.5	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	85	%

Рекомендуемые условия эксплуатации

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard	Tc	0	+70	°C
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Power Supply Current	Icc	300	mA		
Data Rate	1.25	Gbps			

λc Wavelength Guide

λc Wavelength Guide											
Code	**λc**	**Unit**	**Code**	**λc**	**Unit**	**Code**	**λc**	**Unit**	**Code**	**λc**	**Unit**
27	1270	nm	37	1370	nm	47	1470	nm	57	1570	nm
29	1290	nm	39	1390	nm	49	1490	nm	59	1590	nm
31	1310	nm	41	1410	nm	51	1510	nm	61	1610	nm
33	1330	nm	43	1430	nm	53	1530	nm			
35	1350	nm	45	1450	nm	55	1550	nm			

Оптические и электрические характеристики

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λc	λc-6.5	λc	λc+6.5	nm	
Spectral Width (-20dB)	Δλ		1	nm		
Side Mode Suppression Ratio	SMSR	30		dB		
Average Output Power	Pout	0	+3	dBm	1	
Extinction Ratio	ER	9		dB		
Optical Rise/Fall Time (20%~80%)	tr/tf		0.26	ns		
Data Input Swing Differential	V_{IN}	400	1800	mV	2	
Input Differential Impedance	Z_{IN}	90	100	110	Ω	
TX Disable	Disable	2.0	Vcc	V		
Enable	0		0.8	V		
TX Fault	Fault	2.0	Vcc	V		
Normal	0		0.8	V		
Receiver						
Receiver Sensitivity			-25		dBm	3
Receiver Overload			-3		dBm	3
LOS De-Assert	LOS_D		-26		dBm	
LOS Assert	LOS_A		-35		dBm	
LOS Hysteresis			4		dB	

Notes:

1. The optical power is launched into SMF.
2. PECL input, internally AC-coupled and terminated.
3. Measured with a PRBS 2^7-1 test pattern @1250Mbps, BER ≤1×10^{-12}.
4. Internally AC-coupled.

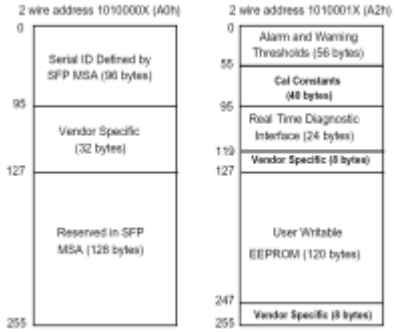
Временные и электрические параметры

Parameter	Symbol	Min	Typical	Max	Unit
Tx Disable Negate Time	t_on	1	ms		
Tx Disable Assert Time	t_off	10	µs		
Time To Initialize, including Reset of Tx Fault	t_init	300	ms		
Tx Fault Assert Time	t_fault	100	µs		
Tx Disable To Reset	t_reset	10	µs		
LOS Assert Time	t_loss_on	100	µs		
LOS De-assert Time	t_loss_off	100	µs		
Serial ID Clock Rate	f_serial_clock	400	KHz		
MOD_DEF (0:2)-High	V_H	2	Vcc	V	
MOD_DEF (0:2)-Low	V_L	0.8	V		

Диагностика

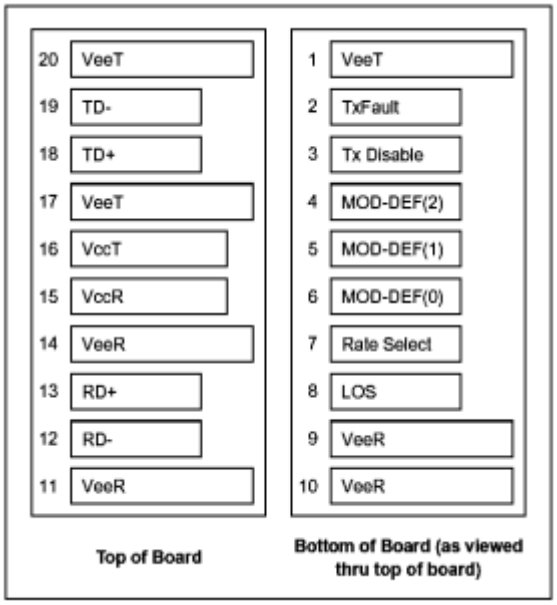
Parameter	Range	Unit	Accuracy	Calibration
Temperature	0 to +70	°C	±3°C	Internal / External
Voltage	3.0 to 3.6	V	±3%	Internal / External
Bias Current	0 to 100	mA	±10%	Internal / External
TX Power	0 to~ -5	dBm	±3dB	Internal / External
RX Power	-23 to -3	dBm	±3dB	Internal / External

DDM



Определение выводов

Pin Diagram



Pin Описание

Pin	Signal Name	Description	Plug Seq.	Notes
1	VEET	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note 1
3	TX DISABLE	Transmitter Disable	3	Note 2
4	MOD_DEF(2)	SDA Serial Data Signal	3	Note 3
5	MOD_DEF(1)	SCL Serial Clock Signal	3	Note 3
6	MOD_DEF(0)	TTL Low	3	Note 3
7	Rate Select	Not Connected	3	
8	LOS	Loss of Signal	3	Note 4
9	VEER	Receiver ground	1	
10	VEER	Receiver ground	1	
11	VEER	Receiver ground	1	
12	RD-	Inv. Received Data Out	3	Note 5
13	RD+	Received Data Out	3	Note 5
14	VEER	Receiver ground	1	
15	VCCR	Receiver Power Supply	2	
16	VCCT	Transmitter Power Supply	2	
17	VEET	Transmitter Ground	1	
18	TD+	Transmit Data In	3	Note 6
19	TD-	Inv. Transmit Data In	3	Note 6
20	VEET	Transmitter Ground	1	

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

1) TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.

2) TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7k~10kΩ resistor. Its states are:

Low (0 to 0.8V): Transmitter on

(>0.8V, < 2.0V): Undefined

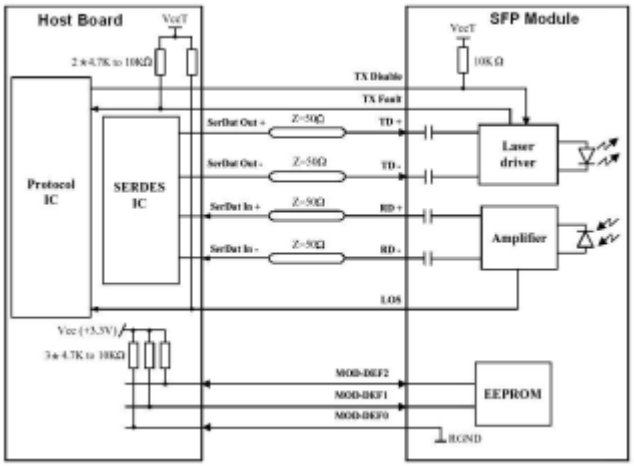
High (2.0 to 3.465V): Transmitter Disabled

Open: Transmitter Disabled

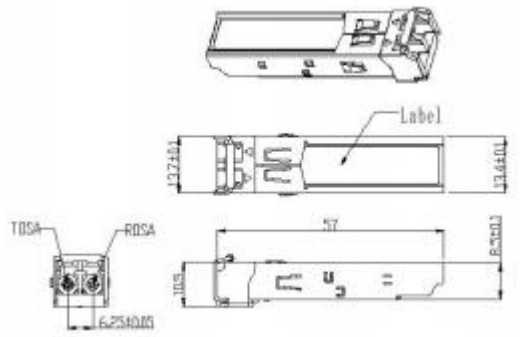
3) Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7k~10kΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.

Mod-Def 0 is grounded by the module to indicate that the module is present
Mod-Def 1 is the clock line of two wire serial interface for serial ID
Mod-Def 2 is the data line of two wire serial interface for serial ID
4) LOS is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor. Pull up voltage between 2.0V and Vcc+0.3V. Logic 1 indicates loss of signal; Logic 0 indicates normal operation. In the low state, the output will be pulled to less than 0.8V.
5) RD-/+: These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.
6) TD-/+: These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Рекомендуемая схема интерфейса



Механические параметры



Информация для заказа

Part Number	Product Description
NS-SFP-C31L80D	CWDM 1310nm,1.25Gbps,

	80km, 0ºC ~ +70ºC, With Digital Diagnostic Monitoring
NS-SFP-C37L80D	CWDM 1370nm,1.25Gbps, 80km, 0ºC ~ +70ºC, With Digital Diagnostic Monitoring
NS-SFP-C39L80D	CWDM 1390nm,1.25Gbps, 80km, 0ºC ~ +70ºC, With Digital Diagnostic Monitoring