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NS-SFP-G-T100 10/100/1000BASE-T Copper SFP Transceiver, 100m

Особенности

1.25Gb/s двунаправленные линии передачи

Возможность “горячей” замены

TX Disable и RX Los/without Los function

Расширеный температурный диапазон (0°C до +70°C)

Полностью металлический корпус

Низкая потребляемая мощность (1.05 W typical)

Компактный коннектор RJ-45

1000 BASE-T работа в host системах с SERDES

10/100/1000Mbps согласовано в host системы с SGMII

Применение

1.25 Gigabit Ethernet через Cat 5 кабель

Description

Высоко эффективные трансиверы предназначенные для Гигабитного Ethernet и 1000BASE-T стандартов указанных в IEEE 802. 3-2002 и IEEE 802.3ab, которые поддерживают 1000Mbps передачу данных до 100 метров для подключения неэкранированной витой пары категории Cat 5e. Модуль поддерживает 1000 Mbps full duplex линии передачи с 5-level Pulse Amplitude Modulation (PAM) сигналами. Все 4 пары используются со скоростью 250Mbps Модуль имеет стандартный серийный ID информационно согласованный с SFP MSA.

Информация для заказа

Part number	Speed mode	MAC interface	function	RX_LOS Pin	Temp
NS-SFP-G-T100	10/100/1000Mbps	SGMII	Yes	Yes	0~70℃
NS-SFP-GT1000	1000Mbps	SERDES	Yes	Yes	0~70℃

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Электрический интерфейс

NS-SFP-G-T100 имеет возможность питания от источника +3,3V +/- 5%. Параметры питания 3.3V для стабильной работы

Таблица 1.

+3.3V volt Electrical Power Interface						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Units**	**Notes/Conditions**
Supply Current	Is	-	320	375	mA	1.2W max power over full range of voltage and temperature. See caution note below
Input Voltage	Vcc	3.13	3.3	3.47	V	Referenced to GND
Maximum Voltage	Vmax			4	V	
Surge Current	Isurge			30	mA	Hot plug above steady state current.See caution note below.

Caution: Power consumption and surge current are higher than the specified values in the SFP MSA

Низко скоростные сигналы

MOD_DEF (1) (SCL) and MOD_DEF (2) (SDA) are open drain CMOS signals (see section VII, “Serial Communication Protocol”). Both MOD_DEF(1) and MOD_DEF(2) must be pulled up to host_Vcc.

Table 2.

Low-Speed Signals, Electronic Characteristics					
Parameter	**Symbol**	**Min**	**Max**	**Units**	**Notes/Conditions**
SFP Output LOW	VOL	0	0.5	V	4.7k to 10k pull-up to host_Vcc, measured at host side of connector
SFP Output HIGH	VOH	host_Vcc - 0.5	host_Vcc + 0.3	V	4.7k to 10k pull-up to host_Vcc, measured at host side of connector
SFP Input LOW	VIL	0	0.8	V	4.7k to 10k pull-up to Vcc, measured at SFP side of connector
SFP Input HIGH	VIH	2	Vcc + 0.3	V	4.7k to 10k pull-up to Vcc, measured at SFP side of connector

Высокоскоростной электрический интерфейс

All high-speed signals are AC-coupled internally.**Table 3.**

High-Speed Electrical Interface Transmission Line-SFP						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Units**	**Notes/Conditions**
Line Frequency	fL		125		MHz	5-level encoding, per IEEE 802.3
Tx Output Impedance	Zout,TX		100		Ohm	Differential, for all Frequencies between 1MHz and 125MHz
Rx Input Impedance	Zin,RX		100		Ohm	Differential, for all Frequencies between 1MHz and 125MHz

Высокоскоростной электрический интерфейс, host-SFP

Table 4.

High-Speed Electrical Interface, Host-SFP						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Units**	**Notes/Conditions**
Single ended data input swing	Vinsing	250		1200	mV	Single ended
Single ended data output swing	Voutsing	350		800	mV	Single ended

Rise/Fall Time	Tr,Tf		175		psec	20%-80%
Tx Input Impedance	Zin		50		Ohm	Single ended
Rx Output Impedance	Zout		50		Ohm	Single ended

Основные характеристики

Table 5.

Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Data Rate	BR	10	-	1,000	Mb/sec	IEEE 802.3 compatible. See Notes 2 through 4 below
Cable Length	L	-	-	100	m	Category 5 UTP. BER <10-12

Notes:

1. Clock tolerance is +/- 50 ppm
2. By default, the PE-GB-PxRC-x is a full duplex device in preferred master mode
3. Automatic crossover detection is enabled. External crossover cable is not required

Экологические характеристики

Table 6. Environmental specifications

Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Operating Temperature	Top	0	-	70	°C	Refer to Ordering information
		-40	-	85		
Storage Temperature	Tsto	-40		85	°C	Ambient temperature

Рекомендации

1. Gigabit Interface Converter (SFP) Transceiver Multi-Source Agreement (MSA),
2. IEEE Std 802.3, 2002 Edition. IEEE Standards Department, 2002.
3. “AT24C01A/02/04/08/16 2-Wire Serial CMOS E2PROM”, Atmel Corporation.
4. “Alaska Ultra 88E1111 Integrated 10/100/1000 Gigabit Ethernet Transceiver”, Marvell Corporation.

Pin Definitions

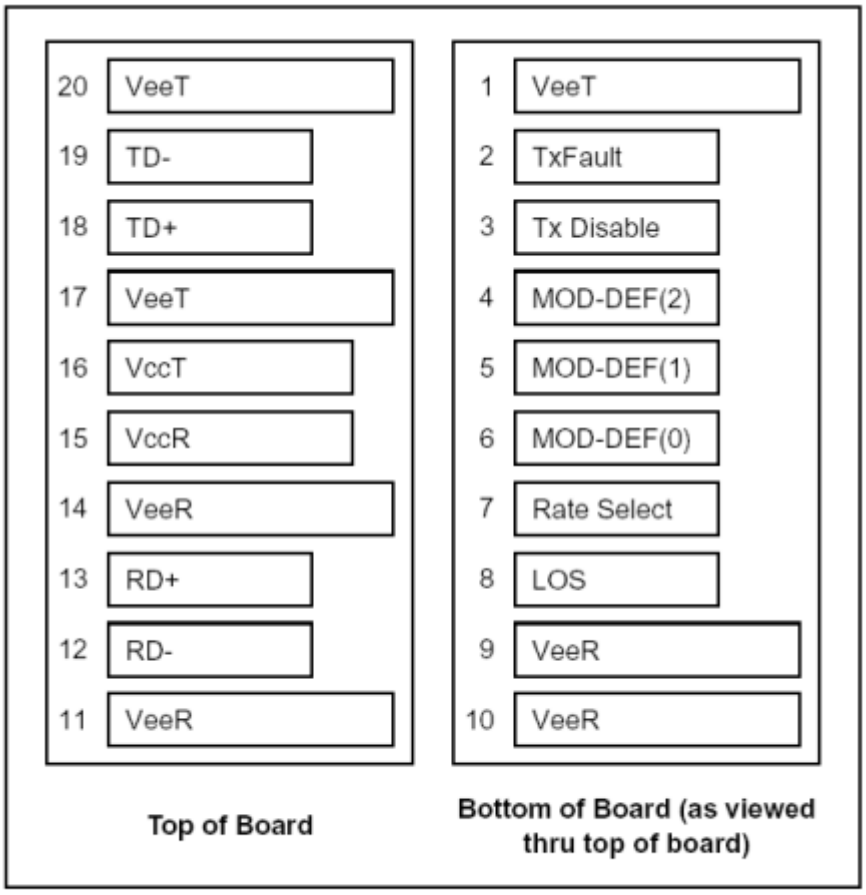

Figure 1. Pin Definitions

Pin описание

Pin	Signal Name	Description	Plug Seq.	Notes
1	V_{EET}	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note1
3	TX DISABLE	Transmitter Disable	3	Note2
4	MOD_DEF(2)	SDA Serial Data Signal	3	Note3
5	MOD_DEF(1)	SCL Serial Clock Signal	3	Note3
6	MOD_DEF(0)	TTL Low	3	Note3
7	Rate Select	Not Connected	3	
8	LOS	Loss of Signal	3	Note4
9	V_{EER}	Receiver ground	1	
10	V_{EER}	Receiver ground	1	
11	V_{EER}	Receiver ground	1	
12	RX-	Inv. Received Data Out	3	Note 5
13	RX+	Received Data Out	3	Note 5
14	V_{EER}	Receiver ground	1	
15	V_{CCR}	Receiver Power Supply	2	
16	V_{CCT}	Transmitter Power Supply	2	
17	V_{EET}	Transmitter Ground	1	
18	TX+	Transmit Data In	3	Note 6
19	TX-	Inv. Transmit Data In	3	Note 6
20	V_{EET}	Transmitter Ground	1	

Notes:
Plug Seq.: Pin engagement sequence during hot plugging.
1) TX Fault is not supported and is always connected to ground.
2) TX disable, an input used to reset the transceiver module, This pin is pulled up within the module with a 4.7 KΩ resistor.
Low (0 – 0.8 V): Transceiver on
Between (0.8 V and 2.0 V): Undefined
High (2.0 – 3.465 V): Transceiver in reset state
Open: Transceiver in reset state
3) Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7K~10K 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) RX_LOS (Loss of Signal): LVTTL compatible with a maximum voltage of 2.5V. RX_LOS can enabled or disabled (Refer to Ordering information),RX_LOS is not used and is always tied to ground via 100-ohm resistor.
5) RD-/+: These are the differential receiver outputs. They are AC coupled 100 differential lines which should be terminated with 100 (differential) at the user SERDES.
6) TD-/+: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 differential termination inside the module.

Механические характеристики

The host-side of the NS-SFP-Gx conforms to the mechanical specifications outlined in the SFP MSA1. The front portion of the SFP (part extending beyond the face plate of the host) is larger to accommodate the RJ-45 connector.

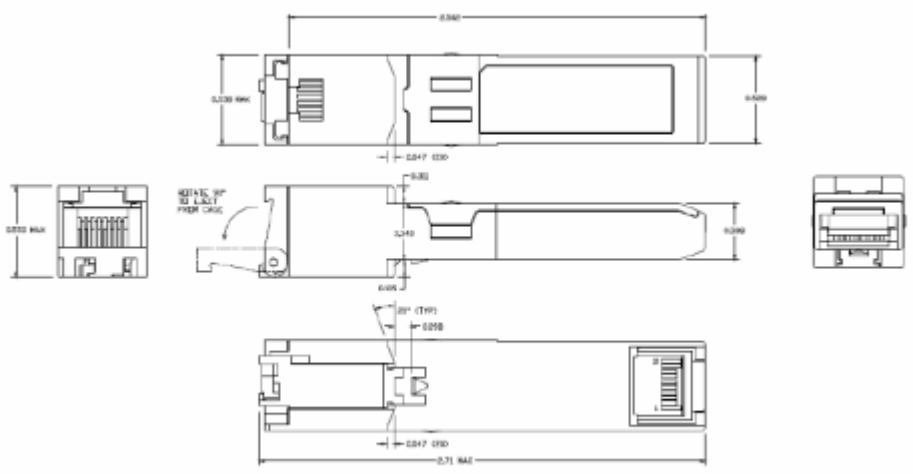

Figure 2. Mechanical dimensions