

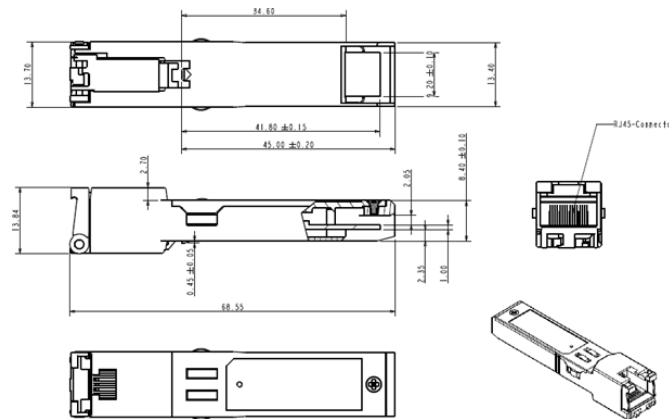


- Hot-pluggable SFP Form Factor
- Up to 1.25Gbps Bi-directional Data Link
- Supports 1000 BASE-T Operations with SERDES Interface
- Low Power Dissipation (1.05W typical)
- Compact RJ-45 Data Interface Connector
- Access to Physical Layer via 2-Wire Serial Data Bus
- Full Metal Case for Low EMI
- IP40 Aluminium Enclosure
- 0°C ~ +70°C Case Operating Temperature
- -40°C ~ +85°C Storage Temperature

Overview:

The PDT-SFP-01-1G-0010 is a high performance Small Form Pluggable (SFP) transceiver which is compliant with Gigabit Ethernet and 1000 BASE-T standards to allow data transfer using CAT 5 UTP cable over a distance of up to 100m. The module supports 1000 Mbps full duplex data links with 5 level Pulse Amplitude Modulation (PAM signals). All four pairs in the cable are used at 250Mbps for each pair. The modules provides standard serial ID information which can be accessed at address A0h via the 2 wire serial CMOS EEPROM protocol. The physical IC can also be accessed via 2 wire serial bus at address ACh. The device is ideal for creating trunking links with typical CAT 5 cable where it is not possible or practical to install fibre optic cables

Mechanical Data



Ordering Information

Model	Description	Part No
PDT-SFP-7000-I	RJ-45 SFP Module - 1000 BASE-T – 1.25Gbps – 100m	0020-00001

Specifications And Availability Are Subject To Change Without Notice. Trademarks Are The Property Of Their Respective Owners.
Copyright © 2022 Parallax Digital Technologies Ltd. All Rights Reserved.



Parallax Digital Technologies Ltd
Unit 19 Endeavour Park, Baker Road
Nelson Park West, Cramlington
Northumberland, NE23 1XA

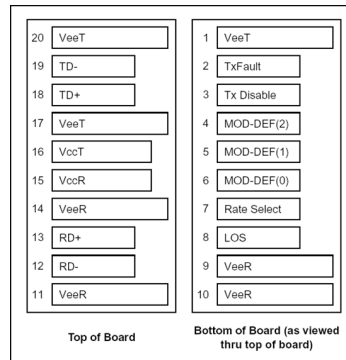


+44 (0)1670 202001



sales@parallaxdigital.co.uk

www.parallaxdigital.co.uk



Pin Definitions

Pin	Signal Name	Description	Plug Seq.	Notes
1	V _{EET}	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note1
3	TXDISABLE	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	Note 4
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 is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7 Ω 10 K resistor.

States are as follows:

Low (0 to 0.8V): Transmitter on
 (>0.8, < 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 to 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)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 AC-coupled, differential lines with 100 differential termination inside the module.

6)TD-/+ : These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 differential termination inside the module.

Specifications And Availability Are Subject To Change Without Notice.Trademarks Are The Property Of Their Respective Owners.
 Copyright © 2022 Parallax Digital Technologies Ltd. All Rights Reserved.



Parallax Digital Technologies Ltd
 Unit 19 Endeavour Park, Baker Road
 Nelson Park West, Cramlington
 Northumberland, NE23 1XA



+44 (0)1670 202001



sales@parallaxdigital.co.uk

www.parallaxdigital.co.uk

+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.
Input Voltage	Vcc	3.13	3.3	3.47	V	Referenced to GND
Maximum Voltage	Vmax			4	V	

+3.3V Electrical Interface

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	

Low-Speed Signals - Electronic Characteristics

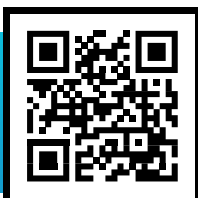
High-Speed Electrical Interface Transmission Line-SFP						
Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Line Frequency	fL		125		MHz	5-level encoding, per IEEE 802.3u
Tx Output Impedance	Zout,TX		100		Ohm	Differential, for all Frequencies between 1MHz and 125MHz
Rx Input Impedance	Zin,RX		100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

High-Speed Electrical Interface - Transmission Line-SFP

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

High-Speed Electrical Interface - Host-SFP

Specifications And Availability Are Subject To Change Without Notice. Trademarks Are The Property Of Their Respective Owners.
Copyright © 2022 Parallax Digital Technologies Ltd. All Rights Reserved.



Parallax Digital Technologies Ltd
Unit 19 Endeavour Park, Baker Road
Nelson Park West, Cramlington
Northumberland, NE23 1XA



+44 (0)1670 202001



sales@parallaxdigital.co.uk

www.parallaxdigital.co.uk