

SFP-10G-TM

Multi-Rate 10GBase-T SFP+
Copper
30m Reach

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Features

- Supports 1000base-T / 2.5Gbase-T / 5Gbase-T / 10Gbase-T
- Supports 10Gbase-R on host port
- Hot-pluggable SFP footprint
- Compact RJ-45 connector assembly
- Single +3.3V power supply
- 10 Gigabit Ethernet over Cat 6a cable
- Operating temperature: 0°C to +70°C
- RoHS compliant and lead-free



Applications

- 10Gbase-T / 5Gbase-T / 2.5Gbase-T / 1000base-T

Part number	Product description
SFP-10G-TM	1G / 2.5G / 5G / 10GBase Copper SFP+ 30m 0°C to 70°C RJ45

PIN Description

PIN	Symbol	Name - Description	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	
2	TFAULT	Transmitter Fault. Not supported.	1
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	1
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	1
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	1
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	3
9	VEER	Receiver Ground (Common with Transmitter Ground)	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
12	RD-	Receiver Inverted DATA out. AC Coupled	4
13	RD+	Receiver Non-inverted DATA out. AC Coupled	4
14	VEER	Receiver Ground (Common with Transmitter Ground)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	5
19	TD-	Transmitter Inverted DATA in. AC Coupled.	5
20	VEET	Transmitter Ground (Common with Receiver Ground)	

Notes:

1. Open collector/drain output, which should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board if intended for use. Pull up voltage should be between 2.0V to 3.6V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
2. Laser output disabled on Tx_Disable >2.0V or open, enabled on Tx_Disable <0.8V.
3. LOS is open collector output. Should be pulled up with 4.7kΩ to 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
4. RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.
5. TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

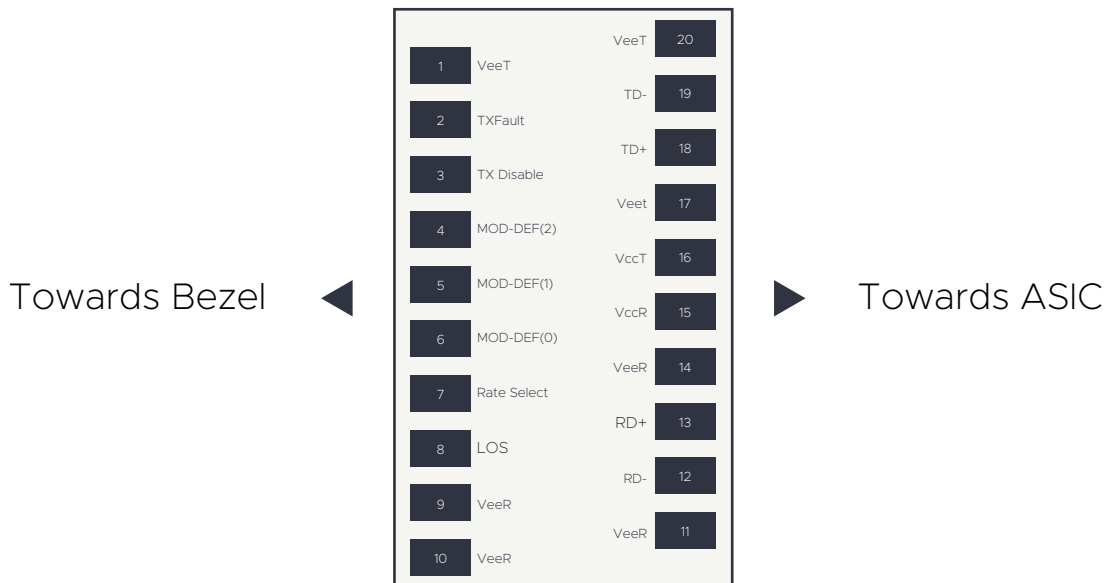


Figure 1. Diagram of host board connector block pin numbers and names

Reach

Line Port	Cable	Reach	Host Port
10Gbase-T	CAT6A	30m	10GBase-R
5Gbase-T	CAT5E	50m	10GBase-R
2.5Gbase-T	CAT5E	50m	10GBase-R
1000base-T	CAT5E	100m	10GBase-R
100base-Tx	CAT5E	100m	10GBase-R
10Base-Tx	CAT5E	100m	10GBase-R

+3.3V Volt Electrical Power Interface

Parameter	Symbol	Min	Typ	Max	unit	Notes
Supply Current	Is		700	900	mA	1
Input Voltage	Vcc	3.13	3.3	3.47	V	2
Maximum Voltage	Vmax			4	V	
Surge Current	Isurge		TBD		mA	3

Notes:

- 3.0W max power over full range of voltage and temperature. Power consumption and surge current are higher than the specified values in the SFP MSA
- Referenced to GND
- Hot plug above steady state current. Power consumption and surge current are higher than the specified values in the SFP MSA

Low-Speed Signals

Parameter	Symbol	Min	Max	unit	Notes
SFP Output LOW	VOL	0	0.5	V	1
SFP Output HIGH	VOH	host_Vcc - 0.5	host_Vcc + 0.3	V	1
SFP Input LOW	VIL	0	0.8	V	2
SFP Input HIGH	VIH	2	Vcc + 0.3	V	2

Notes:

- 4.7k to 10k pull-up to host_Vcc, measured at host side of connector
- 4.7k to 10k pull-up to Vcc, measured at SFP side of connector

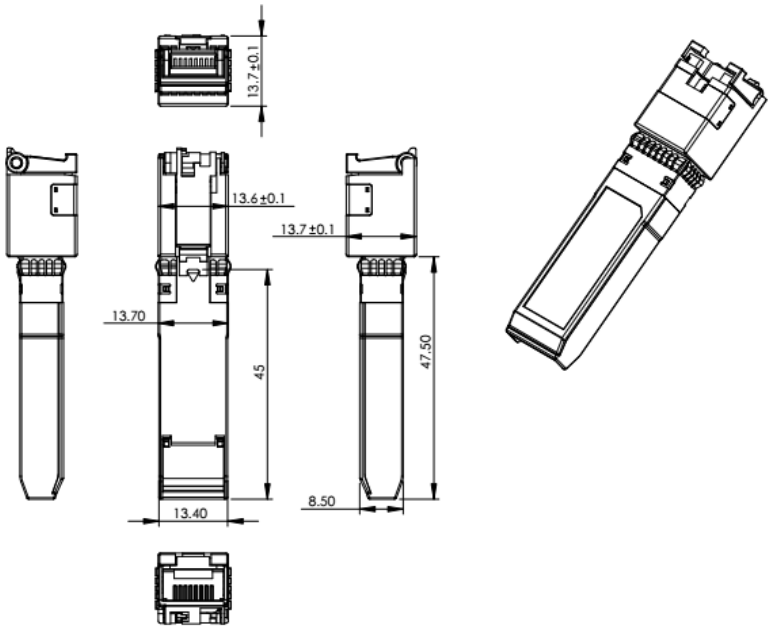
High-Speed Electrical Interface

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmission Line SFP						
Line Frequency	fL		125		MHz	1
Tx Output Impedance	Zout,TX		100		Ohm	2
Rx Input Impedance	Zin,Rx		175		Ohm	2
Host SFP						
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

Notes:

- 5-level encoding, per IEEE 802.3
- Differential, for all frequencies between 1MHz and 125MHz

Mechanical Dimensions



Units : mm

Revision history

Revision	Date	Author	Description
V1.1	05-03-2020	JGN	Initial Document

Note : Nexgen A/S reserves the right to change this document without notice.