SFP-1G-T-AXMR

10/100/1000Base-T SFP
Copper (SERDES)
100m Reach

+45 (0)32 72 66 76
info@nexgen.eu
www.nexgen.eu

Features

- Supports 10Mb, 100Mb & 1000Mb Data rate
- Up to 100m on Cat 5 copper cable
- Compact RJ-45 connector assembly
- Fully metal enclosure, for lower EMI
- RoHS compliant and lead-free
- No DDM functions
- Single +3.3V power supply
- Power consumption less than 1.05 W
- Operating case temperature: 0°C to +70°C

Applications

- 10/100/1000Base-T
- Gigabit Ethernet over Cat 5 Cable

Part number	Product description
SFP-1G-T-AXMR	10/100/1000Mbps SerDes SFP Copper 100m 0°C to 70°C RJ45 Auto-negX Rx_LOS No DDM
SFP-1G-T-AXMR-I	10/100/1000Mbps SerDes SFP Copper 100m -40°C to 85°C RJ45 Auto-negX Rx_LOS No DDM

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.

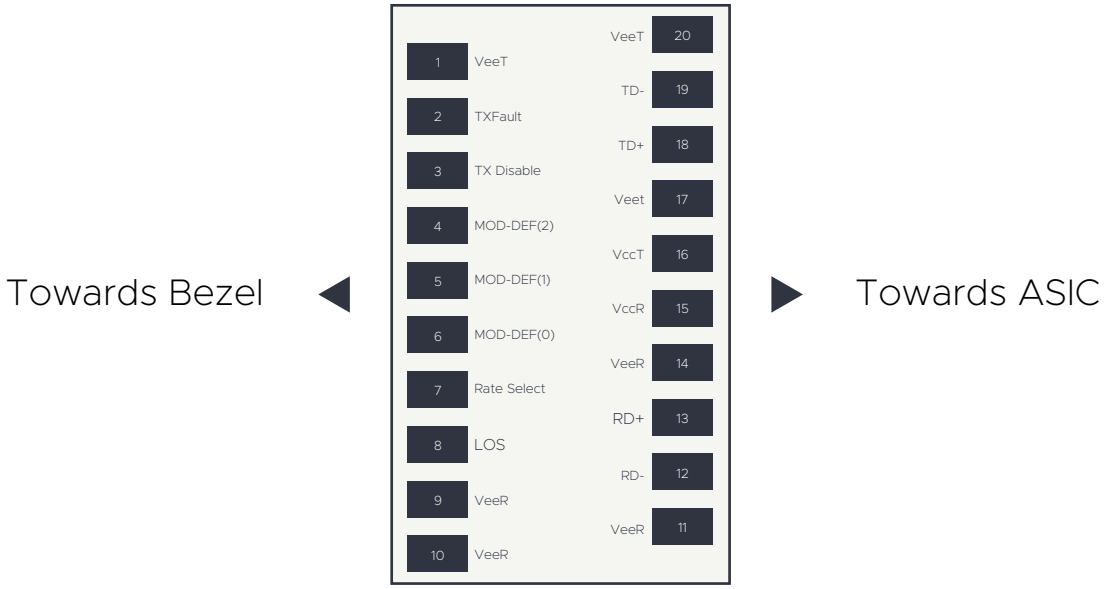


Figure 1. Diagram of host board connector block pin numbers and names

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage	Vcc	3.15	3.30	3.47	V	
Storage Temperature	Ts	-40	-	+85	°C	
Operating Temperature (Commercial)	Tc	0	-	+70	°C	
Operating Temperature (Industrial)	Ti	-40	-	+85	°C	
Relative Humidity	RH	5	-	85	%	1

Notes:
1. Non-condensing.

Transmission Rate

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Data Rate	-	10	-	1000	Mbps	1
Transmission Distance	Td	-	-	100	m	2

Notes:
1. 10/100/1000 BASE-T operation based on SERDES interfaces (preferred master mode)
2. On Category 5 UTP cable, BER≤10^-12

High-speed Electrical Interface (Host SFP)

Parameter	Symbol	Min	Typ	Max	Unit	Notes
TD+, TD- Input voltage Swing	Vinsing	250	-	1200	mV	1
RD+, RD- Output voltage Swing	Voutsing	350	-	800	mV	1
Rise/Fall Time	Tr,Tf	-	175	-	ps	2
Tx Input Impedance	Zin	-	50	-	Ω	1
Rx Output Impedance	Zout	-5	50	-	Ω	1

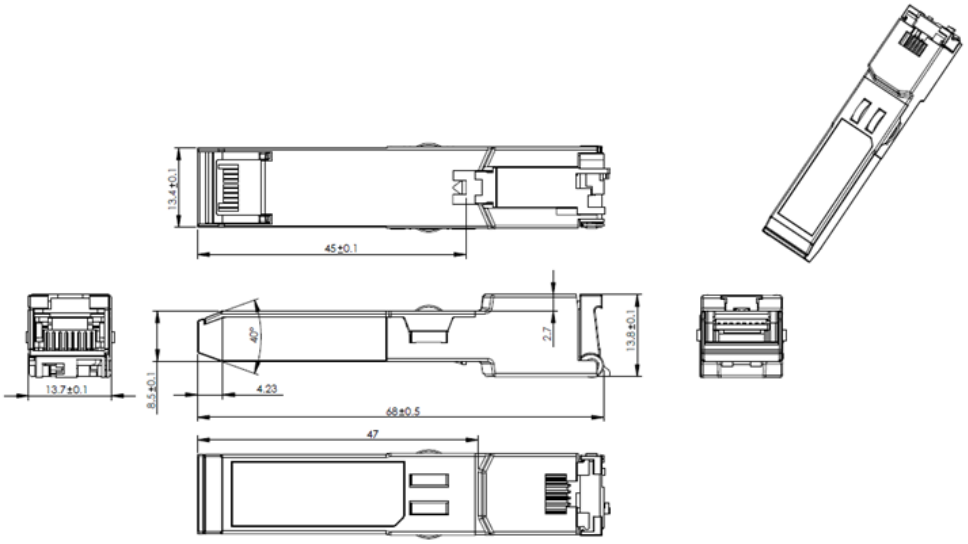
Notes:
1. Single ended
2. 20% to 80% value

High-speed Electrical Interface (Cable to SFP)

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmission Frequency	fL	-	125	-	MHz	1
Tx Input Impedance	Zin	-	100	-	Ω	2
Rx Output Impedance	Zout	-	100	-	Ω	2

Notes:
1. 4D-PAM-5 encoding per IEEE802.3: 2002
2. Differential for frequencies ranging from 1 MHz to 125 MHz

Mechanical Dimensions



Revision history

Revision	Date	Author	Description
V1.2	05-03-2020	JGN	Initial Document

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