

SFP-4FC-SX-I

4GBase SFP
850nm
500m Reach

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Features

- Hot-pluggable SFP footprint
- 850nm VCSEL laser and PIN photodiode
- Up to 500m over 50/125um, 300m over 62.5/125um
- Compliant with SFP+ MSA and SFF-8472 with duplex RC
- Compatible with RoHS
- Single +3.3V power supply
- Power dissipation <1W
- Operating Case Temperature: -40°C to 85°C
- Real Time Digital Diagnostic Monitoring



Applications

- 1.0625/2.125/4.25 Fiber Channel
- Other optical links

Part number

Product description

SFP-4FC-SX-I

4GBase-SX Fiber Channel SMF SFP 850nm 500m -40°C to 85°C LC Duplex 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	RS0	Not Connected	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	3
9	RS1	Not Connected	
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

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Maximum Supply Voltage	V _{cc}	-0.3	-	3.6	V	
Storage Temperature	T _s	-40	-	+85	°C	
Relative Humidity	RH	5	-	85	%	1

Notes:

1. Non-condensing.

Recommend Operation Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Power Supply Voltage	V _{cc}	3.135	3.3	3.465	V	
Power Supply Current	I _{cc}	-	-	300	mA	
Power Dissipation	P _o	-	-	1.0	W	
Case Operating Temperature	T _{op}	-40	-	+85	°C	

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Input Differential Impedance	Z _{in}	90	100	110	Ω	
Differential Input Voltage	V _{in}	180	-	700	mV	
Receiver						
Output Differential Impedance	Z _{out}	90	100	110	Ω	
Differential Output Voltage	V _{out}	500	700	900	mV	

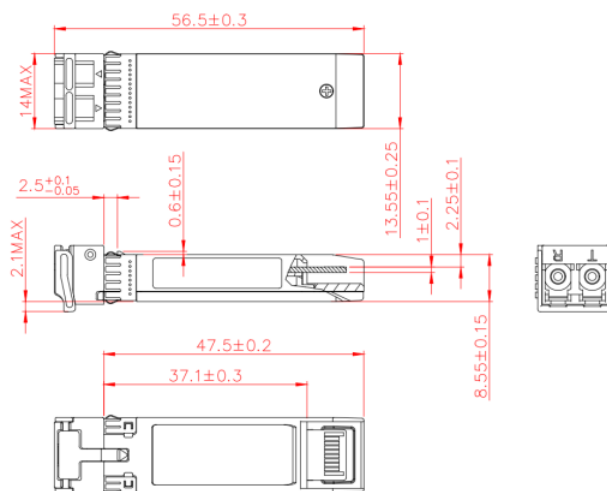
Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Optical Center Wavelength	λ_C	840	850	860	nm	
Average Output Power	P_o	-5.0	-	-1	dBm	1
Optical Extinction Ratio	ER	3.5	-	-	dB	
RMS Spectral Width (-20dB)	$\Delta\lambda$	-	-	0.65	nm	
Data Rate	-	-	-	4.25	Gb/s	
Receiver						
Optical Center Wavelength	λ_C	840	850	860	nm	
Receiver Sensitivity	P_{min}	-	-	-15	dBm	2
Receiver Overload	P_{max}	0.5	-	-	dBm	2
LOS De-Assert	LOSD	-	-	-21	dBm	
LOS Assert	LOSA	-30	-	-	dBm	
LOS Hysteresis	LOSH	0.5	-	5	dB	

Notes:

1. The optical power is launched into MMF.
2. Measured with a PRBS 2³¹-1 test pattern @4.25Gbps, BER $\leq 1 \times 10^{-12}$.

Mechanical Dimensions



Revision history

Revision	Date	Author	Description
V1.0	16-08-2022	AH	Initial Document
V1.1	17-08-2022	AH	Lowered P_o to -5

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