CSFP-1G-BX20-35

1000Base Compact SFP
Tx 1310nm / Rx 1550nm
20km Reach

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Features

- Support 1.25Gbps data links
- Hot-Pluggable LC connector
- Up to 20km on 9/125µm SMF
- 1310nm DFB laser transmitter
- 2x Bi-directional transceivers in 1x SFP metallic casing
- Single 3.3V power supply
- Monitoring Interface Compliant with SFF-8472
- Commercial Operating temperature : 0°C to 70°C
- Industrial Operating temperature : -40°C to 85°C
- Built-in digital diagnostic functions
- RoHS-6 compliant (lead-free)

Applications

- Gigabit Ethernet (1000BASE-BX)
- Fibre Channel
- Point to Point FTTH Application
- Other optical transmission systems

Part number	Product description
CSFP-1G-BX-BX20-35	1000Base SMF CSFP TX1310/RX1550 20km 0°C to 70°C LC Simplex DDM Option2
CSFP-1G-BX-BX20-35-I	1000Base SMF CSFP TX1310/RX1550 20km -40°C to 85°C LC Simplex DDM Option2

PIN Description

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

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. T_{FAULT} is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to Vcc + 0.3V. 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.
3. Laser output disabled on T_{DIS} >2.0V or open, enabled on T_{DIS} <0.8V.
4. LOS is open collector output. Should be pulled up with 4.7k – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
5. Internally connected

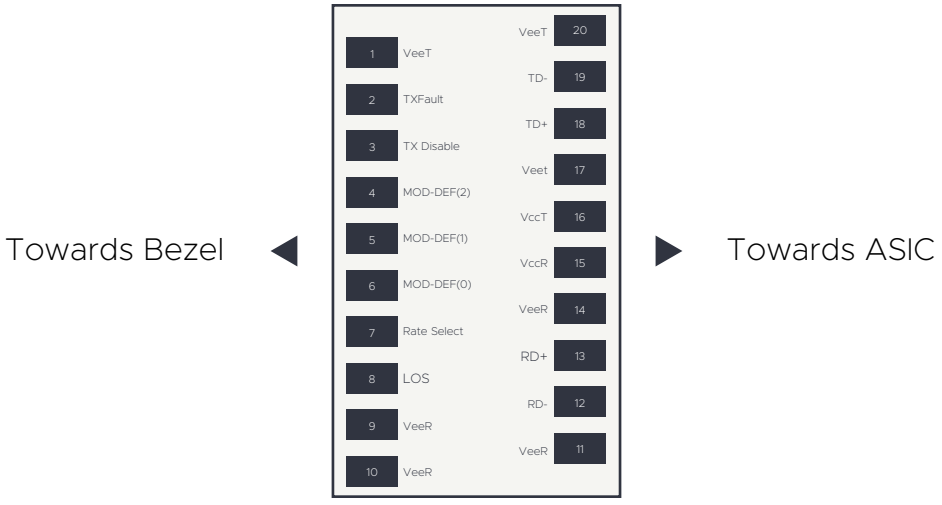


Figure 1. Diagram of host board connector block pin numbers and names

Absolute Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	T_S	-40		85	℃	
Relative Humidity	RH	0		85	%	1

Notes:
1. Non-condensing

Recommended Operating Environment

Parameter	Symbol	Min	Typical	Max	Unit
Case operating Com. Temp.	Tc	0	-	+70	℃
Case operating Ind. Temp.	Ti	-40	-	+85	℃
Supply Voltage	Vcc	3.135	3.30	3.465	V
Supply Current	Icc	-	-	360	mA
Maximum Power	Pmax	-	-	1.2	W

Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Transmitter						
Input differential impedance	Rin	90	100	110	-	-
Single ended data input swing	Vin PP	200	-	1200	mV p-p	-
Transmit Disable Voltage	VD	Vcc-1.3	-	Vcc	V	1
Transmit Enable Voltage	VEN	Vee	-	Vee+ 0.8	V	-
Transmit Disable Assert Time	Tdessert	-	-	10	μs	-
Receiver						
Single ended data output swing	Vout,pp	300	-	1000	mV p-p	2
LOS Fault	Vlosfault	Vcc-0.5	-	VCC_host	V	4
LOS Normal	Vlos norm	Vee	-	Vee+0.5	V	4
Power Supply Rejection	PSR	100	-	-	V	5

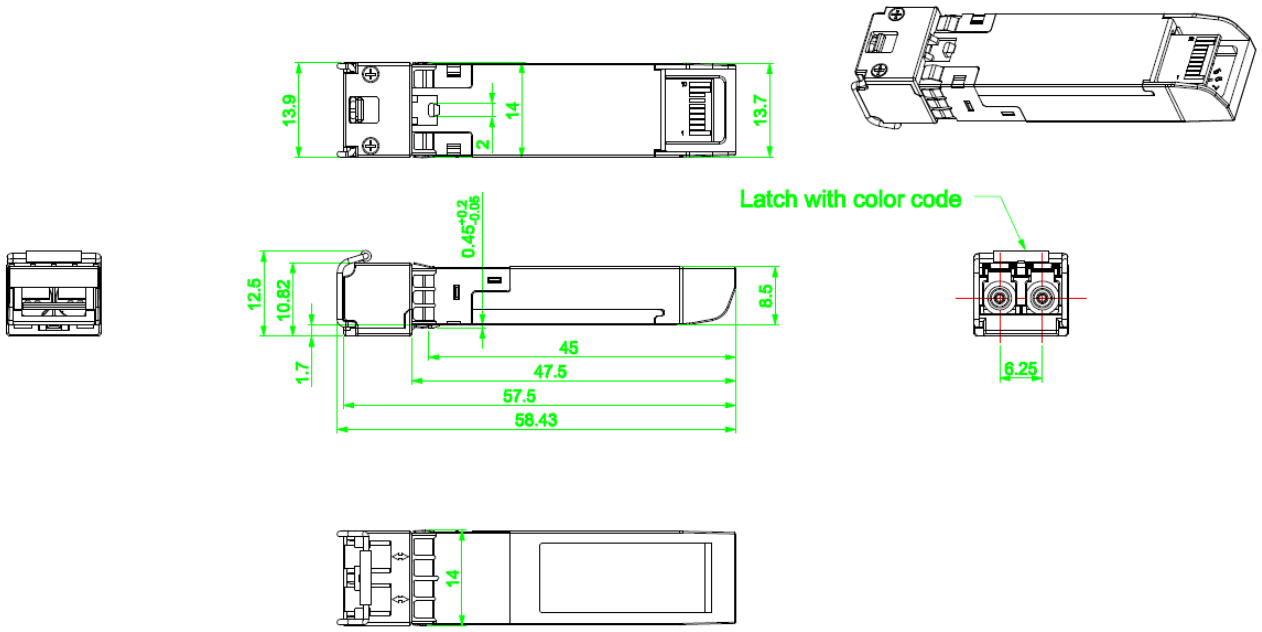
Note:
1. Open circuit
2. Into 100 ohm differential termination
3. LOS is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected
4. All transceiver specifications are compliant with a power supply sinusoidal modulation of 20 Hz to 1.5 MHz up to specified value applied through the power supply filtering network of the Small Form-factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA)

Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Transmitter						
Data Rate	B	155	-	1250	Mb/s	-
Center Wavelength	λ_C	1290	1310	1330	nm	-
Side Mode Suppression Ratio	SMSR	30	-	-	dB	-
Optical Output Power	Pout	-9	-	-3	dBm	1
Extinction Ratio	ER	8.2	-	-	dB	-
Optical Rise/Fall Time	Tr/Tf	-	-	260	ps	2
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	-
Receiver						
Optical Input Wavelength	λ_C	1530	1550	1570	nm	-
Receiver Overload	Pmax	0	-	-	dBm	-
Receiver Sensitivity	Sen	-	-	-23	dBm	3
RX_LOS Assert	LOS_A	-35	-		dBm	-
RX_LOS De-assert	LOS_D	-	-	-24	dBm	-
RX_LOS Hysteresis	LOS_H	0.5	-	-	dB	-

Note:
1. Measured with 9/125μm single-mode fiber
2. Filtered, measured with a PRBS 2^7-1 test pattern @1.25Gbps
3. Measured with ER =9 dB, 2^7-1 PRBS data pattern, BER <1E-12.

Mechanical Specifications



Revision history

Revision	Date	Author	Description
V1.0	25-11-2022	JGN	Initial Document

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