SFP-100-BX20LT-OPC

Alcatel-Lucent Nokia® SFP-100-BX20LT Compatible TAA 100Base-BX SFP Transceiver (SMF, 1310nmTx/1550nmRx, 20km, LC, DOM)

Features

- INF-8074 and SFF-8472 Compliance
- Simplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

Applications:

- 100Base Ethernet
- Access and Enterprise

Product Description

This Alcatel-Lucent Nokia® SFP-100-BX20LT compatible SFP transceiver provides 100Base-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1550nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Alcatel-Lucent Nokia®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Regulatory Compliance
- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		3.6	V
Storage Temperature	TS	-40		+85	°C
Operating Case Temperature	Tc	0		+70	°C
Operating Humidity	RH	5		85	%
Receiver Power	R_{MAX}			-8	dBm
Data Rate			155		Mbps

Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.45	V	
Power Supply Current	Icc			300	mA	
Transmitter						
LVPECL Inputs (Differential)	Vin	400		2000	mVpp	1
Input differential impedance	Zin	85	100	115	Ω	2
Receiver						
LVPECL Outputs (Differential)	Vout	400		2000	mVpp	1
Output differential impedance	Zout	85	100	115	Ω	

Notes:
1. LVPECL logic, internally AC coupled
2. Rin > 100 kohms @ DC

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (average)	P_{AVE}	-15		-8	dBm	1
Optical Extinction Ratio	ER	8.2			dB	2
Optical Wavelength	Tλ	1260	1310	1360	nm	
Spectral Width (RMS)	Δλ			4	nm	
Rise/Fall Time (20% ~ 80%)	tr/tf			2	ns	
Total Jitter	TJ			1.5	ns	
Pout@TX Disable Asserted	Pout			-45	dBm	
Output Optical Eye	IUT-T G.957 Compliant					
Receiver						
Receiver Sensitivity (average)	R_{AVE}			-28	dBm	3
Receiver overload	P_{max}	-8			dBm	4
Receiver wavelength	Rλ	1530	1550	1570	nm	

Notes:

1. Output power is measured by coupling into a 9/125 mm single-mode fiber.
2. Filtered, measured with a PRBS 2^{23}-1 test pattern @155Mbps.
3. Minimum average optical power is measured at BER less than1E-12 and PRBS 2^{23}-1 test pattern.
4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

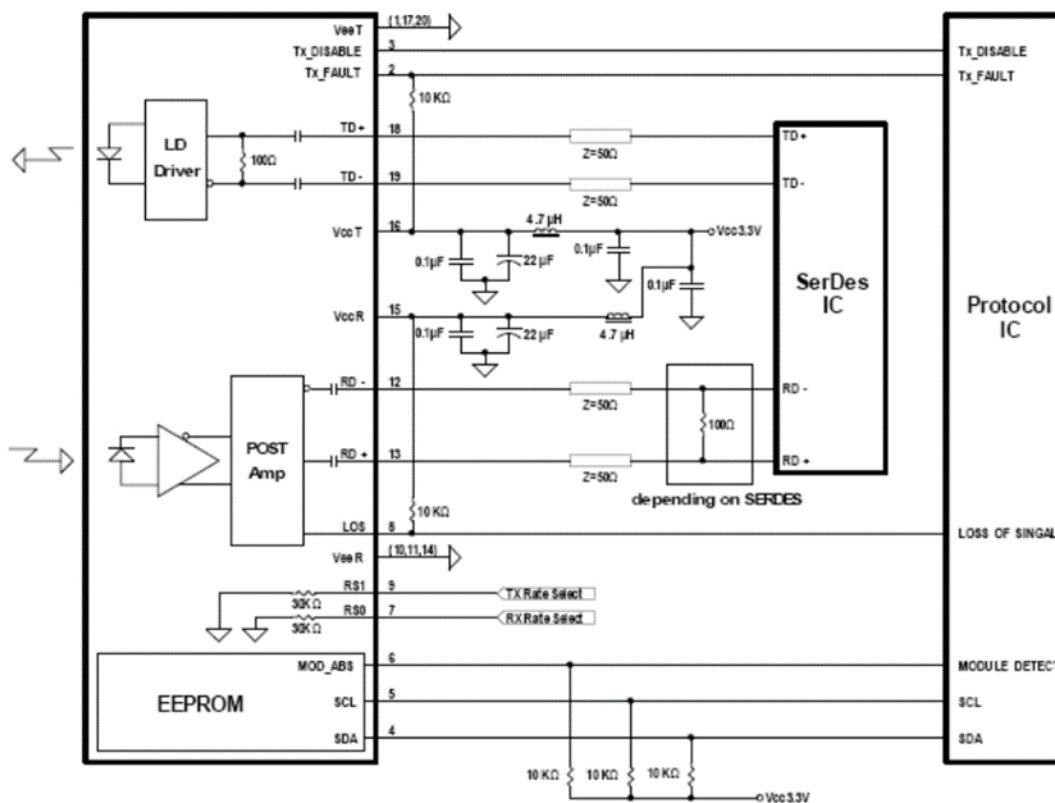| Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in Module.	4
7	RS0	Rate Select 0. Not used	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not used	5
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. CML-O.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431

11	VEER	VEER	10
12	RD-	RS1	9
13	RD+	Rx_LOS	8
14	VEER	RS0	7
15	VCCR	MOD_ABS	6
16	VCCT	SCL	5
17	VEET	SDA	4
18	TD+	Tx_DISABLE	3
19	TD-	Tx_FAULT	2
20	VEET	VEET	1

TOWARD HOST WITH DIRECTION OF MODULE INSERTION

TOWARD BEZEL

Pin-out of connector Block on Host board

Recommended Circuit Schematic

VeeT (1,17,20)
Tx_DISABLE 3
Tx_FAULT 2
10 KΩ

LD Driver
TD+ 18 Z=50Ω TD+
TD- 19 Z=50Ω TD-
100Ω

VccT 16 4.7 µH Vcc3.3V
0.1µF 22 µF 0.1µF 0.1µF

VccR 15 4.7 µH
0.1µF 22 µF

POST Amp
RD- 12 Z=50Ω RD-
RD+ 13 Z=50Ω RD+
100Ω
depending on SERDES

LOS 8 10 KΩ LOSS OF SINGAL
VeeR (10,11,14)

RS1 9 30 KΩ TX Rate Select
RS0 7 30 KΩ RX Rate Select

EEPROM
MOD_ABS 6 MODULE DETECT
SCL 5 SCL
SDA 4 SDA

10 KΩ 10 KΩ 10 KΩ Vcc 3.3V

SerDes IC

Protocol IC
Tx_DISABLE
Tx_FAULT

Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).
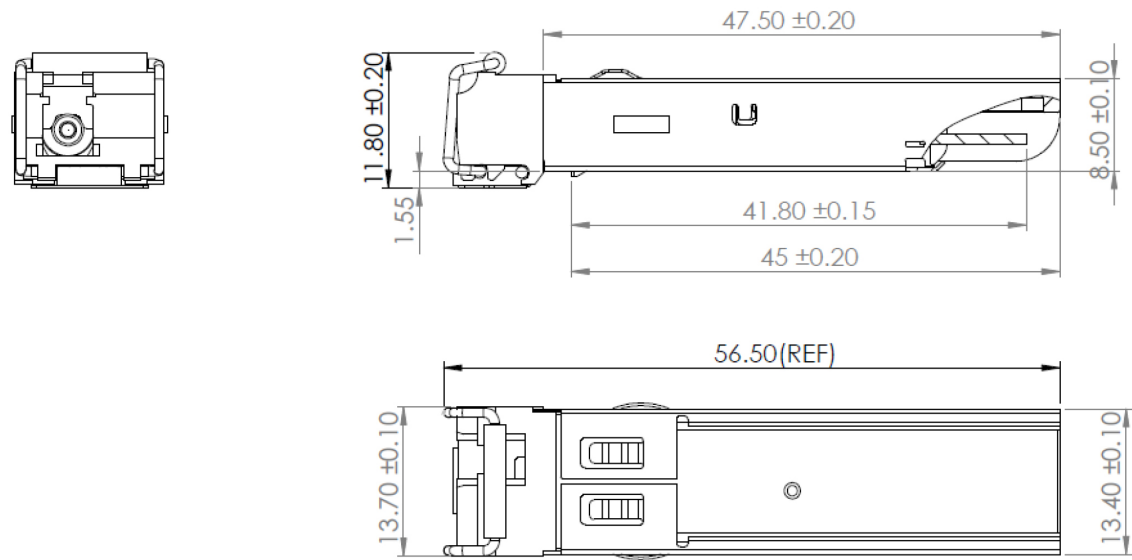
EEPROM Information

EEPROM memory map specific data field description is as below: