



S2B17040252FGMI

Alcatel-Lucent Nokia® 3HE15378AB-40 Compatible 25GBase-BX SFP28 Transceiver (SMF, 1310nmTx/1270nmRx, 40km, LC, DOM, -40 to 85C)

Product Description

This Alcatel-Lucent Nokia® 3HE15378AB-40 Compatible SFP28 transceiver provides 25GBase-BX throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1270nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complimenting wavelengths. It is also capable of withstanding rugged environments and can operate at temperatures between -40 to 85C. It is guaranteed to be 100% compatible with the equivalent Alcatel-Lucent Nokia® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. We stand behind the quality of our products and proudly offer a

Skylane's transceivers are RoHS compliant and lead-free.

Features:

- SFF-8402 and SFF-8472 Compliance
- Simplex LC Connector
- Industrial Temperature -40 to 85 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications:

- 25GBase Ethernet
- Access and Enterprise

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

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	Notes
Maximum Supply Voltage	Vcc	-0.3		4.0	V	
Storage Temperature	TS	-40		85	°C	
Operating Case Temperature	Tc	-40	25	85	°C	
Relative Humidity	RH	5		95	%	
Data Rate	BR		24.33 25.78		Gb/s	
Bit Error Rate	BER			5×10^{-5}		1
Supported Link Length on 9/125umSMF, 25.78Gb/s	L		40		km	2

Notes:

1. Tested with a PRBS $2^{31}-1$ test pattern for 25.78Gb/s operation.
2. Distances are based on FC-P1-6 Rev. 3.1 and IEEE 802.3 standards, with FEC.

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		VCC	3.135	3.3	3.465	V	
Module Supply Current		I _{cc}			450	mA	
Power Dissipation		PD			1500	mW	
Transmitter							
Input Differential Impedance		Z _{IN}		100		Ω	
Differential Data Input Swing		V _{IN} , P-P	180		700	mVP-P	
TX_FAULT	Transmitter Fault	VOH	2.0		VCCHOST	V	
	Normal Operation	VOL	0		0.8	V	
TX_DISABLE	Transmitter Disable	VIH	2.0		VCCHOST	V	
	Transmitter Enable	VIL	0		0.8	V	
Receiver							
Output Differential Impedance		Z _O		100		Ω	
Differential Data Output Swing		V _{OUT} , P-P	300		850	mVP-P	1
Data Output Rise Time, Fall Time		t _r , t _f			15	ps	2
RX_LOS	Loss of signal (LOS)	VOH	2.0		VCCHOST	V	3
	Normal Operation	VOL	0		0.8	V	3

Notes:

1. Internally AC coupled, but requires an external 100Ω differential load termination.
2. 20–80%.
3. LOS is an open collector output. Should be pulled up with 4.7kΩ on the host board.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	Po	0		+5	dBm	1
Center Wavelength Range	λ_c	1260	1270	1280	nm	
Extinction Ratio	EX	3.5			dB	2
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Optical Rise/Fall Time @25.78Gb/s	tr/tf	15			ps	3
Optical Return Loss Tolerance	ORLT			12	dB	
Pout @TX-Disable Asserted	Poff			-30	dBm	1
Receiver						
Center Wavelength	λ_c	1300	1310	1320	nm	
Receiver OMA Sensitivity	RxSENS			-18	dBm	4
Receiver Overload (Pavg)	POL	-5			dBm	
Optical Return Loss	ORL	26			dB	
LOS De-Assert	LOSD			-19	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. 20dB spectral width.
3. Unfiltered, 20-80%
4. Measured with PRBS $2^{31}-1$ at 5×10^{-5} BER.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Notes
1	VeeT	Transmitter Ground	1
2	TX_Fault	Transmitter Fault (LVTTL-O) - High indicates a fault condition	2
3	TX_Disable	Transmitter Disable (LVTTL-I) – High or open disables the transmitter	3
4	SDA	Two wire serial interface Data Line (LVCMOS-I/O) (MOD-DEF2)	4
5	SCL	Two wire serial interface Clock Line (LVCMOS-I/O) (MOD-DEF1)	4
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module	5
7	RS0	NA	6
8	RX_LOS	Receiver Loss of Signal (LVTTL-O)	2
9	RS1	NA	6
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Inverse Received Data out (CML-O)	
13	RD+	Received Data out (CML-O)	
14	VeeR	Receiver Ground	1
15	VccR	Receiver Power - +3.3V	
16	VccT	Transmitter Power - +3.3 V	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Data In (CML-I)	
19	TD-	Inverse Transmitter Data In (CML-I)	
20	VeeT	Transmitter Ground	1

Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.
3. This input is internally biased high with a 4.7KΩ to 10KΩ pull-up resistor to VccT.
4. Two-Wire Serial interface clock and data lines require an external pull-up resistor dependent on the capacitance load.
5. This is a ground return that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.
6. Rate select can also be set through the 2-wire bus in accordance with SFF-8472 v. 12.1, Rx Rate Select is set at Bit 3, Byte 110, Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h.
Note: writing a “1” selects maximum bandwidth operation. Rate select is the logic OR of the input state of Rate Select Pin and 2-wire bus.



Pin-out of connector Block on Host board

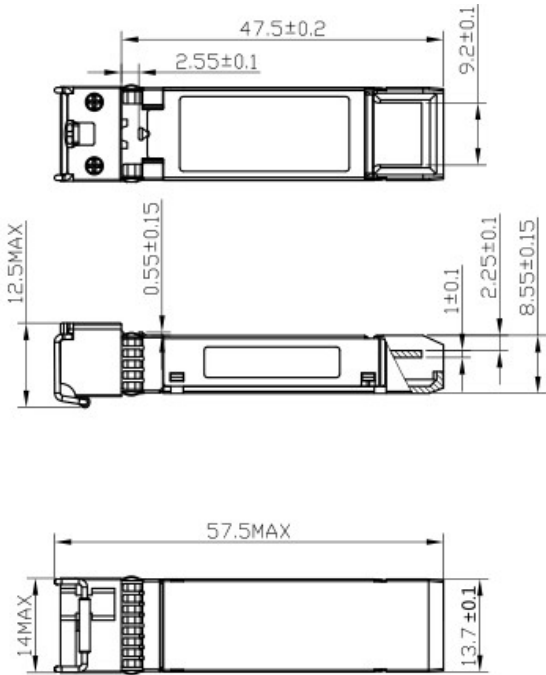
Recommended Application Interface Block Diagram



Mechanical Specifications



Unit:mm



About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

