



SCD53040DR0D65X

Huawei® Compatible 1000Base-BX 2-Channel SFP Transceiver (SMF, 1550nmTx/1310nmRx, 40km, LC, DOM)

Product Description

This Huawei® compatible SFP transceiver provides 1000Base-BX 2-Channel throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1550nmTx/1310nmRx 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 Huawei®. 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.

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

Features:

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



Applications:

- 1000Base 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.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	V _{cc}	-0.5		3.6	V	
Storage Temperature	T _{stg}	-40		85	°C	
Operating Case Temperature	T _c	0		70	°C	
Operating Relative Humidity	RH			95	%	
Power Supply Current	I _{cc}			300	mA	
Power Supply Noise Rejection				100	mVp-p	
Data Rate		100		1250	Mbps	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	V _{cc}	3.1	3.3	3.45	V	
9µm Core Diameter SMF	L		40		km	
Transmitter						
LVPECL Differential Inputs	V _{IN}	400		2000	mVp-p	
Input Differential Impedance	Z _{IN}	85	100	115	Ω	
Tx_Disable	Disable	2		V _{cc} +0.3	V	
	Enable	0		0.8	V	
Tx_Fault	Fault	2		V _{cc} +0.3	V	
	Normal	0		0.5	V	
Receiver						
LVPECL Differential Outputs	V _{OUT}	400		2000	mVp-p	
Output Differential Impedance	Z _{OUT}	85	100	115	Ω	
Rx_LOS	LOS	2		V _{cc} +0.3	V	
	Normal	0		0.8	V	
MOD_DEF(0:2)	VOH	2.5			V	
	VOL	0		0.5	V	

Notes:

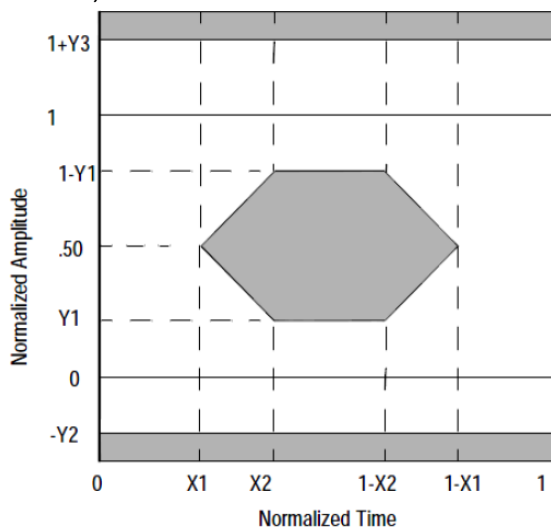
1. AC coupled inputs. LVPECL logic. Internally AC coupled.
2. R_{IN}>100kΩ @ DC.
3. AC coupled outputs. LVPECL logic. Internally AC coupled.
4. With serial ID.

Optical Characteristics

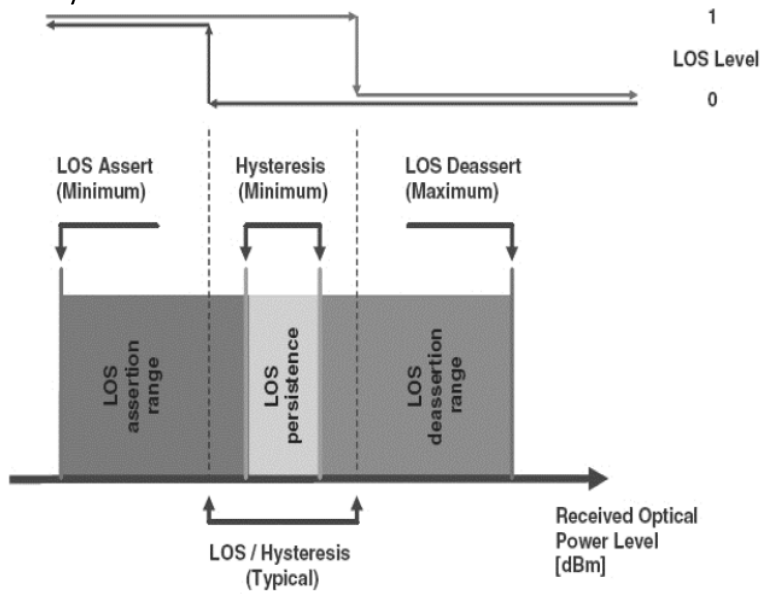
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_C	1540	1550	1560	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	POUT	-5		0	dBm	1
Extinction Ratio @1250Mbps	ER	6			dB	
Rise/Fall Time (20-80%)	Tr/Tf			0.26	ns	
Tx_Disable Assert Time	t_off			10	us	
POUT @ Tx_Disable Asserted	POUT			-45	dBm	
Output Optical Eye	Compliant with IEEE 802.3ah-2004					3
Receiver						
Wavelength Range		1260	1310	1360	nm	
Receiver Sensitivity	S			-23	dBm	2
Receiver Overload	Pol	-3			dBm	
Return Loss	ORL	12			dB	
Optical Path Penalty				1		
LOS De-Assert	LOSD			-24	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5			dB	4

Notes:

1. Output is coupled into a 9/125 μ m single-mode fiber.
2. Minimum average optical power measured at BER<1E⁻¹², with a 2⁷-1 PRBS and ER=9dB.
3. Filtered, measured with a PRBS 2⁷-1.



4. LOS Hysteresis:



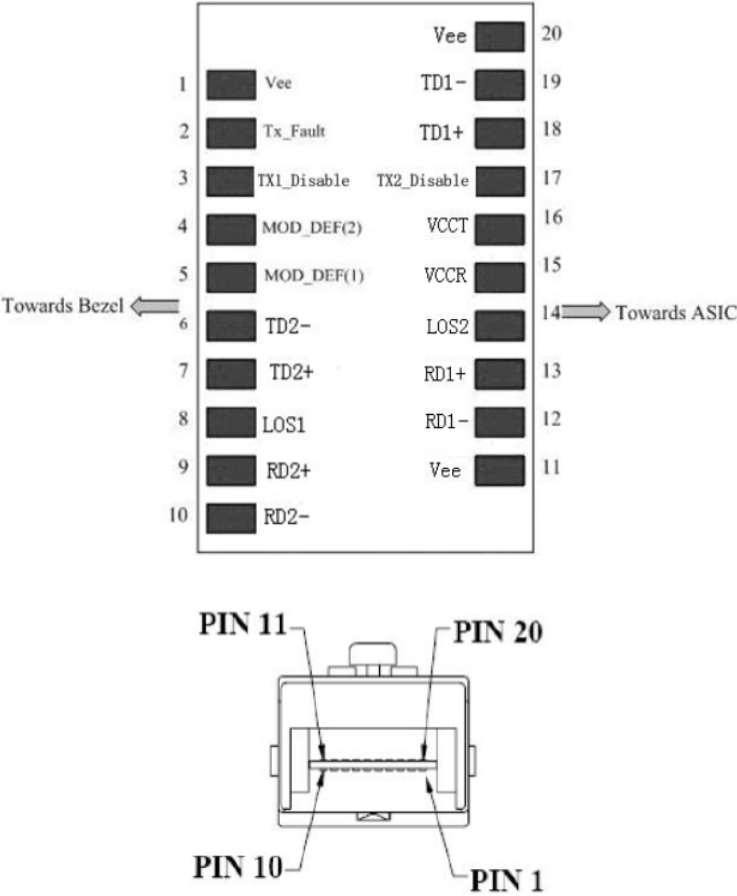
Pin Descriptions

Pin	Symbol	Channel No.	Name/Description	Notes
1	VeeT	Common	Transmitter Ground.	3
2	Tx_Fault	Common	Transmitter Fault Indication.	8
3	Tx_Disable	1	Transmitter Disable of CH 1. Module disables on “high” or “open.”	1
4	MOD_DEF2	Common	2-Wire Serial Interface Data (SDA).	2
5	MOD_DEF1	Common	2-Wire Serial Interface Clock (SCL).	2
6	TD2-	2	Inverted Transmit Data Input of CH 2.	6
7	TD2+	2	Transit Data Input of CH 2.	6
8	LOS1	1	Loss of Signal of CH 1.	7
9	RD2+	2	Receiver Data Output of CH 2.	4
10	RD2-	2	Inverted Received Data Output of CH 2.	4
11	VeeT	Common	Transceiver Ground.	3
12	RD1-	1	Inverted Receiver Data Output of CH 1.	4
13	RD1+	1	Receiver Data Output of CH 1.	4
14	LOS2	2	Loss of Signal of CH 2.	7
15	VccR	Common	3.3V ± 5 % Receiver Power Supply.	5
16	VccT	Common	3.3V ± 5 % Transmitter Power Supply.	5
17	Tx2_Disable	2	Transmitter Disable of CH2. Module disables on “high” or “open.”	1
18	TD1+	1	Transmit Data Input of CH 1.	6
19	TD1-	1	Inverted Transmit Data Input of CH 1.	6
20	VeeT	Common	Transmitter Ground.	6

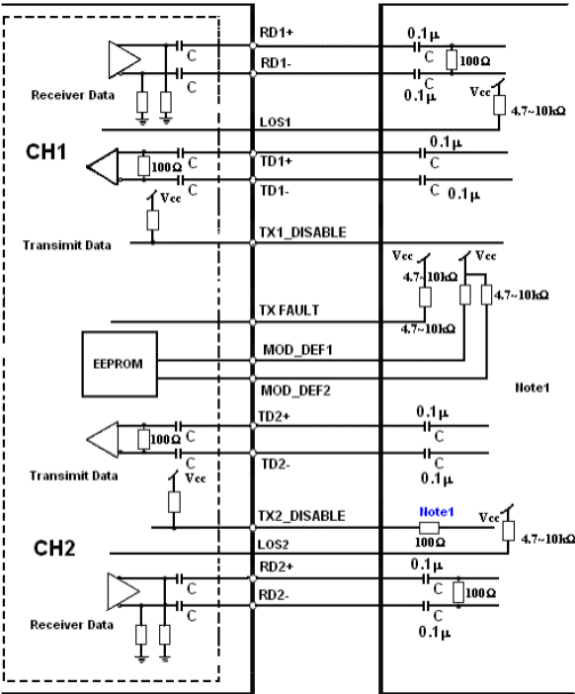
Notes:

1. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7kΩ to 10kΩ resistor. Its states are:
 - Low (0V – 0.8V): Transmitter On.
 - Between (0.8V and 2.0V): Undefined.
 - High (2.0V – 3.465V): Transmitter Disabled.
 - Open: Transmitter Disabled.
2. MOD_DEF1 & 2. These are the module definition pins. They should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.
 - MOD_DEF1 is the clock line of the 2-wire serial interface for serial ID.
 - MOD_DEF2 is the data line of the 2-wire serial interface for serial ID.
3. Vee may be internally connected within the SFP module.
4. RD1, 2 -/+. These are the differential receiver outputs. They are AC-coupled, 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.
5. VccT,R are the power supplies. They are defined as 3.3V ± 5% at the SFP connector pin. Maximum supply current is 600mA @ 3.3V. Vcc may be internally connected within the SFP.
6. TD1, 2 -/+. These are the differential inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board.
7. LOS1,2 (Loss of Signal) is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor. Pull-up voltage between 2.0V and VccT,R+0.3V. When “high,” this output indicated the received optical power is below the worst-case receiver sensitivity (as defined by the standard use). “Low” indicates normal operation. In the low state, the output will be pulled to <0.4V.
8. Tx_Fault report transceiver status as following. Tx Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. Pull-up voltage between 2.0V and VccT,R +0.3V. When “high,” output indicates a laser fault of some kind either in Channel 1 or Channel 2. The host shall read Channel 1/2:A2H/AAH: 110 for details. Tx_Fault from Channel 1 if bit 2 is set in [A2H:110]. Tx_Fault from Channel 2 if bit 2 is set in [B2H: 110]. “Low” indicates normal operation. In the low state, the output will be pulled to <0.8V.

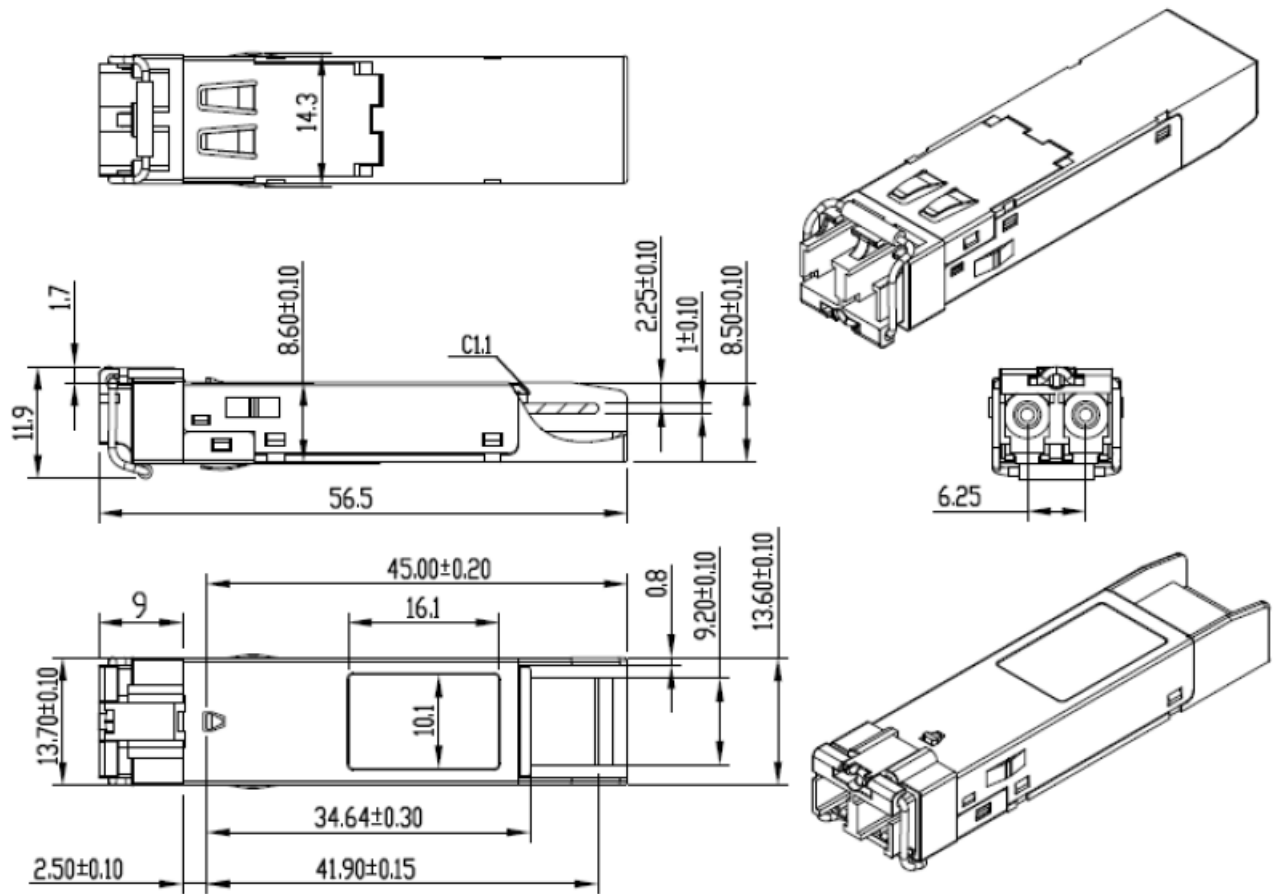
Pin Connectors



Recommended Circuit Schematic



Mechanical Specifications



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.

