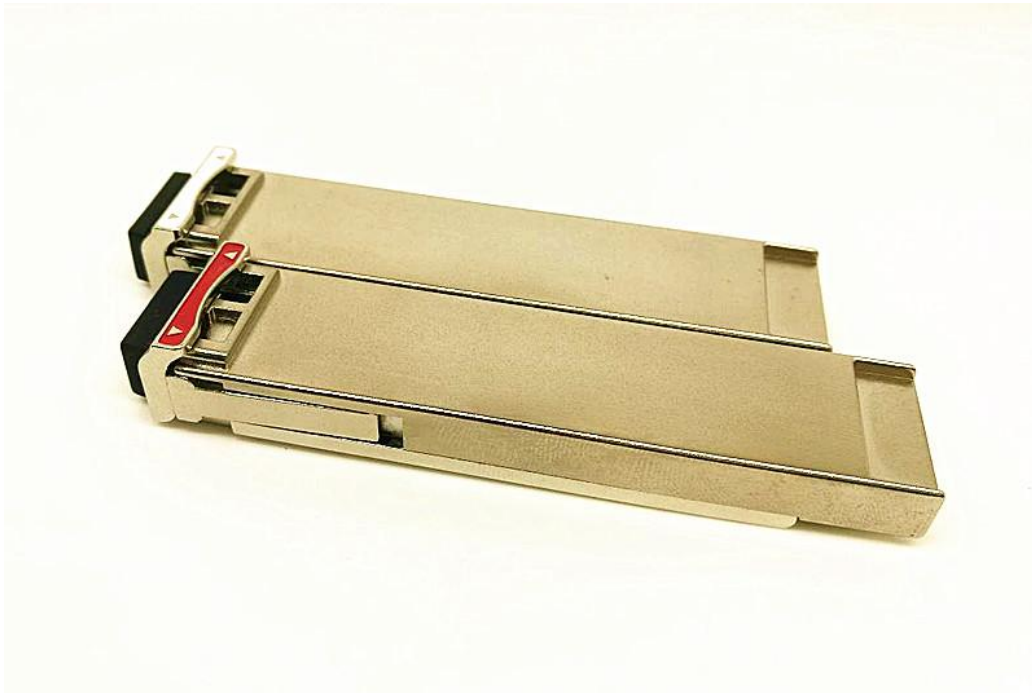


Product Specification Sheet

HLXBxx1XL-CD40

RoHS Compliant 10Gb/s XFP Bi-Directional Transceiver, 40km Reach

1270/1330nm TX / 1330/1270 nm RX



SHENZHEN HAILI LINK CO., LTD

www.hilinktech.com



Product Features

- Supports 9.95 to 11.3Gb/s bit rates
- Simplex LC Connector
- Hot-pluggable XFP footprint
- Uncooled 1270nm DFB transmitter, 1330nm PIN photo-detector
- Uncooled 1330nm DFB transmitter, 1270nm PIN photo-detector
- Applicable for 40km SMF connection
- Low power consumption, < 2.0 W
- Digital Diagnostic Monitor Interface
- XFP MSA package
- Operating case temperature:
 - Commerical: 0 to 70 °C
 - Industrial: -40 to 80 °C

Applications

- 10GBASE-ER at 10.3125Gbps
- 10GBASE-EW at 9.953Gbps
- Other optical link

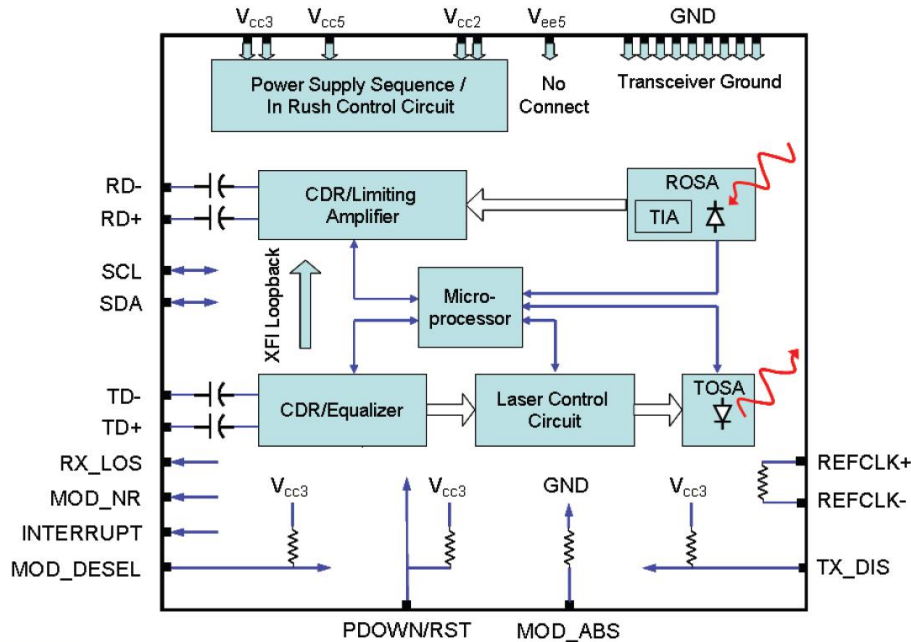
Product Descriptions

Hilink HLXBxx1XL-CD40 is compliant with the IEEE803.3ae 10Gbase-Bx. and transmission distance up to 40km on SMF. The transceiver module comprises a transmitter with a 1270 or 1330nm DFB laser transmitter, an integrated 1330 or 1270nm detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC. Transmitter and receiver are separate within a wide temperature range of 0°C to +70°C for commercial temperature, -40 to 80 °C for industrial temperature, and offers optimum heat dissipation and excellent electromagnetic shielding for 10 GbE systems application.

Functional Diagram



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Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature	Ts	-40	85	°C	
Relative Humidity	RH	0	85	%	

Note: Stress in excess of the maximum absolute ratings can cause permanent damage to the transceiver.

General Operating Characteristics

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Data Rate	DR	9.95	10.3125	11.3	Gb/s	
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc _s			550	mA	
Operating Case Temp.	Tc	0		70	°C	
	Tl	-40		80		

Electrical Characteristics (T_{OP(C)} = 0 to 70 °C, T_{OP(I)} = -40 to 80 °C, V_{CC} = 3.13 to 3.47 V)

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter						
Differential data input swing	V _{IN,PP}	120		820	mV _{pp}	
Transmit Disable Voltage	V _D	2.0		V _{CC}	V	1
Transmit Enable Voltage	V _{EN}	V _{EE}		V _{EE} +0.8		



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Input differential impedance	R _{in}		100		Ω	2
Transmit Disable Assert Time	T _{da}			10	us	
Receiver						
Differential data output swing	V _{out,pp}	340		850	mV _{pp}	3
Output rise time and fall time	T _r , T _f			38	Ps	4
LOS Fault	V _{LOS_F}	V _{CC} -0.5		V _{CC}	V	5
LOS Normal	V _{LOS_N}	V _{EE}		V _{EE} +0.5	V	5

Notes:

1. Or open circuit.
 2. After internal AC coupling.
 3. Into 100 ohms differential termination.
 4. 20 – 80 %.
 5. Loss Of Signal is open collector to be pulled up with a 4.7k~ 10k resistor to 3.15 – 3.6V.
- Logic 0, indicates normal operation; logic 1 indicates no signal detected.

Optical Characteristics (T_{OP(C)} = 0 to 70 °C, T_{OP(I)} = -40 to 80 °C, V_{CC} = 3.13 to 3.47 V)

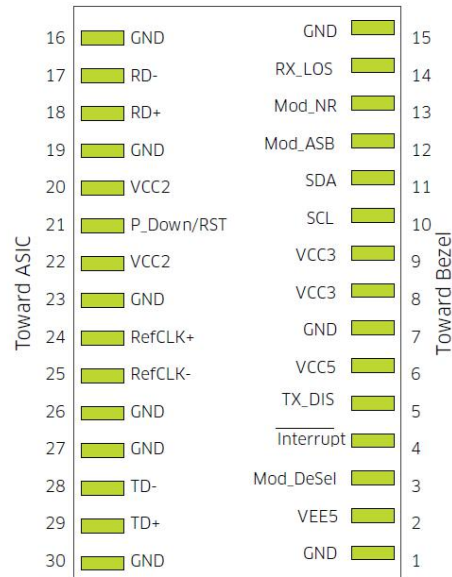
Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter						
Operating Wavelength	λ	1260	1270	1280	nm	
		1320	1330	1340		
Ave. output power (Enabled)	P _{AVE}	0		5	dBm	1
Side-Mode Suppression Ratio	SMSR	30			dB	
Optical Modulation Amplitude	P _{OMA}	-2.1		0	dB	OMA
Extinction Ratio	ER	4	5		dB	
RMS spectral width	Δλ			0.45	nm	
Rise/Fall time (20%~80%)	T _r /T _f			45	ps	
Dispersion penalty	T _{DP}			3.2	dB	
Relative Intensity Noise	R _{IN}			-130	dB/Hz	
Output Optical Eye	Compliant with IEEE 0802.3ae					
Receiver						
Operating Wavelength	λ	1320	1330	1340	nm	
		1260	1270	1280		
Receiver Sensitivity(ER=5)	P _{SEN1}			-15	dBm	2
Receiver Sensitivity(ER=6)	P _{SEN2}			-16	dBm	2
Average Receive Power	P _{AVE}			0.5	dBm	
Receiver Reflectance	R _{RX}			-12	dB	
LOS Assert	P _a	-30			dBm	
LOS De-assert	P _d			-17	dBm	
LOS Hysteresis	P _d -P _a	0.5			dB	



Notes:

1. Average power figures are informative only, per IEEE 802.3ae.
2. Measured with worst ER; BER10^{-12}; $2^{31}-1$ PRBS.

Pin Defintion And Functions



Pin	Symbol	Name/Description
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Transmitter Fault
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the module
7	RS0	Rate Select 0
8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1 [5]	Rate Select 1
10	VEER [1]	Receiver Ground
11	VEER [1]	Receiver Ground
12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver DATA out. AC Coupled
14	VEER [1]	Receiver Ground
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET [1]	Transmitter Ground
18	TD+	Transmitter DATA in. AC Coupled
19	TD-	Transmitter Inverted DATA in. AC Coupled
20	VEET [1]	Transmitter Ground

Notes:

Notes:

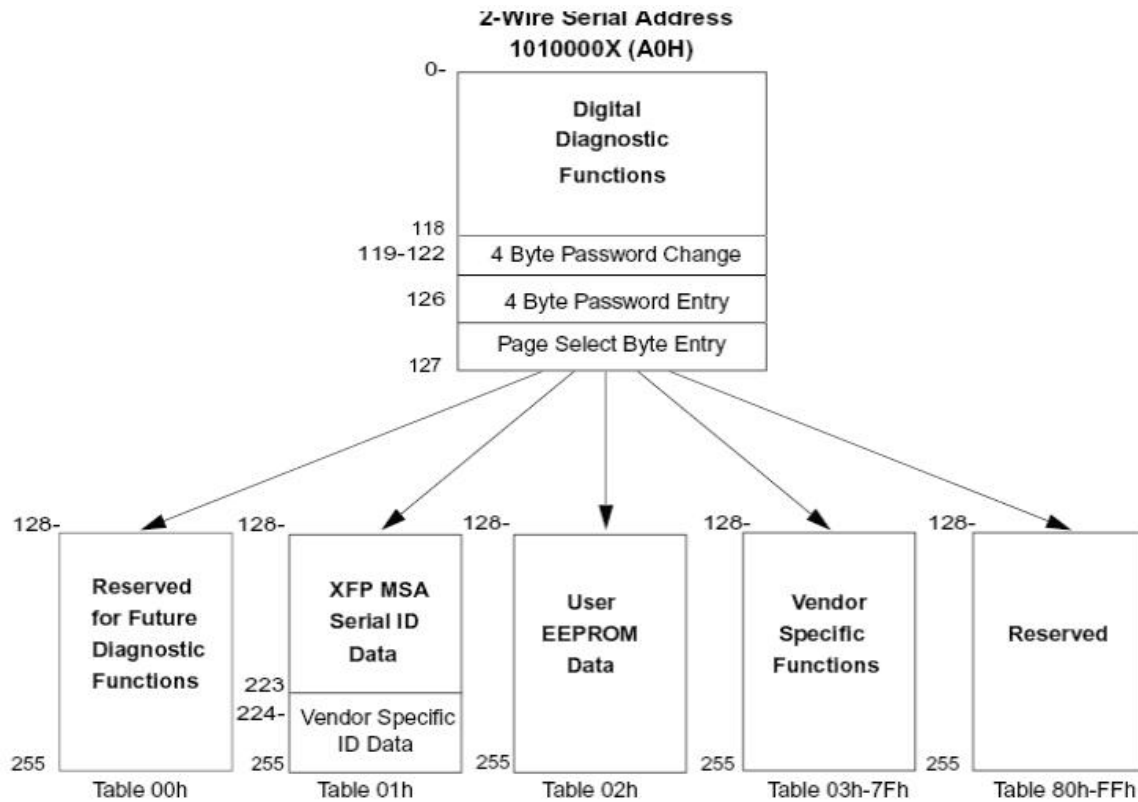
1. Module circuit ground is isolated from module chassis ground within the module.



2. Open collector; should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.
3. Reference Clock input is not required.

Management Interface

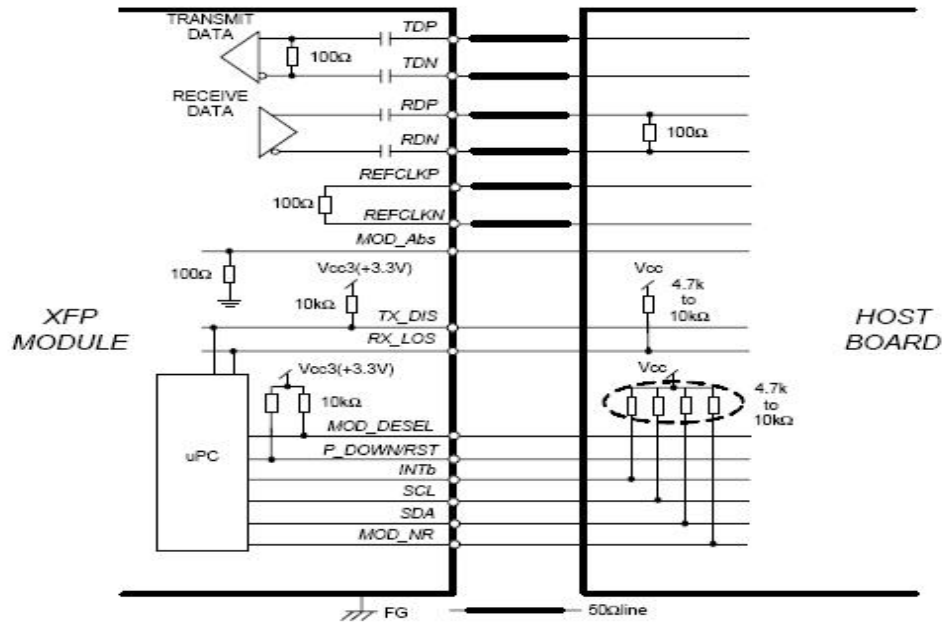
The HLXBxx1XL-C(I)D40 incorporates an XFP-compliant, two-wire management interface which is used for serial ID, digital diagnostics, and certain control functions. It is modeled on the SFF-8472 specification modified to accommodate a single two-wire interface address. In addition to the basic I²C read/write functionality, the modules support packet error checking that, when enabled, allows the host system to confirm the validity of any read data. Details of the protocol and interface are explicitly described in the MSA. Please refer to the MSA for design reference. The digital diagnostic memory map specific data field defines as following:



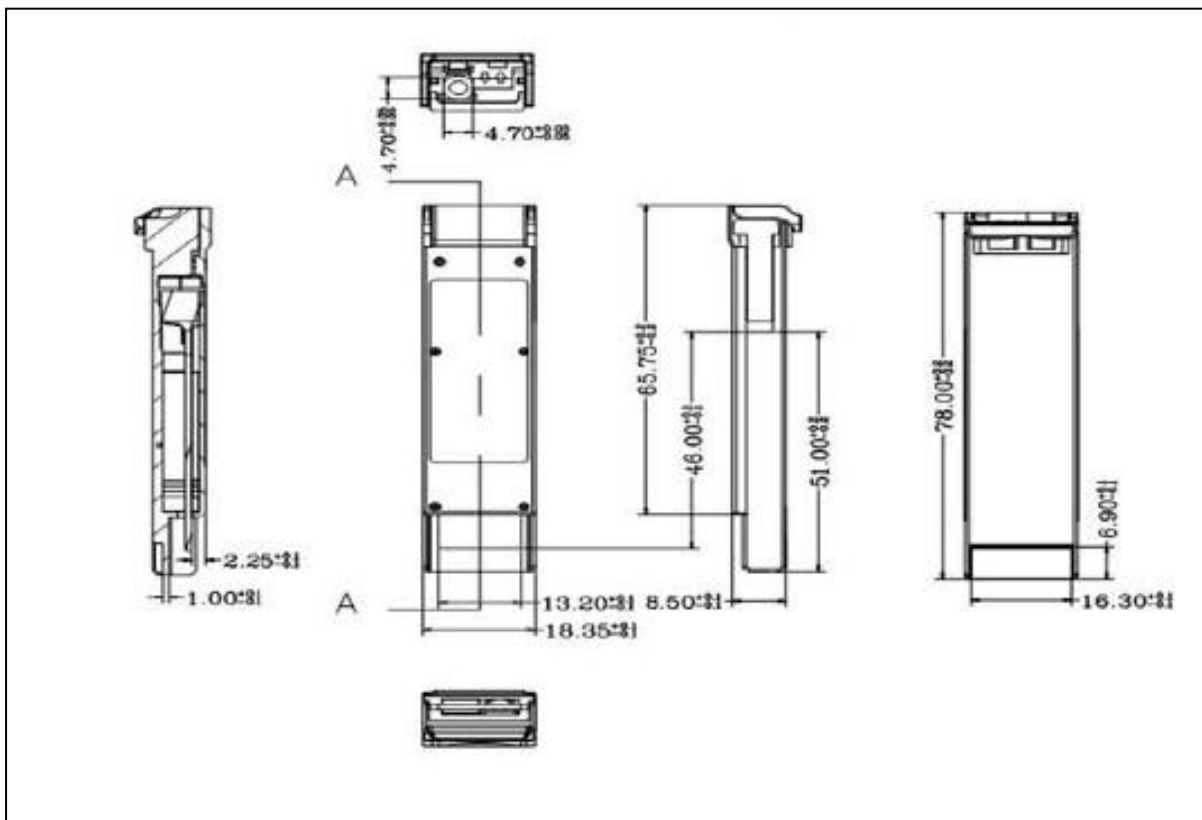
Typical Interface Circuit



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Package Dimensions





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Wavelength	Latch Color
TX 1270nm	Red
TX 1330nm	White

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