PROLABS – X4DACBLx-C

QSFP+ to 4 SFP+ Passive Copper Cable Assembly

X4DACBLx-C Overview

PROLABS's X4DACBLx-C QSFP+ (Quad Small Form-factor Pluggable Plus) to 4 SFP+ Copper direct-attach cables are suitable for very short distances and offer a highly cost-effective way to connect QSFP+ and SFP+ equipment. The direct-attach assemblies support 4 lanes of 10Gbps (40Gbps composite). This interconnect system is fully compliant with QSFP+ MSA and SFP+ MSA.

Product Features

- QSFP+ End: Compliant with QSFP+ MSA specifications
- SFP+ End: Compliant with SFP+ MSA specifications
- 4 independent duplex channels operating at 10Gbps,also support for 2.5Gbps,5Gbps data rates
- AC coupled inputs and outputs
- 100 Ohm differential impedance
- All-metal housing for superior EMI performance
- Single power supply 3.3V, low power consumption
- RoHS Compliance
- Operating temperature range: 0℃ to 70℃.

Applications

- 10Gigabit Ethernet
- Serial Data Transmission
- Networking
- Storage
- Fiber Channel

Ordering Information

Part Number	*Description*
X4DACBL1-C	QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 1 Meter
X4DACBL3-C	QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 3 Meter
X4DACBL5-C	QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 5 Meter

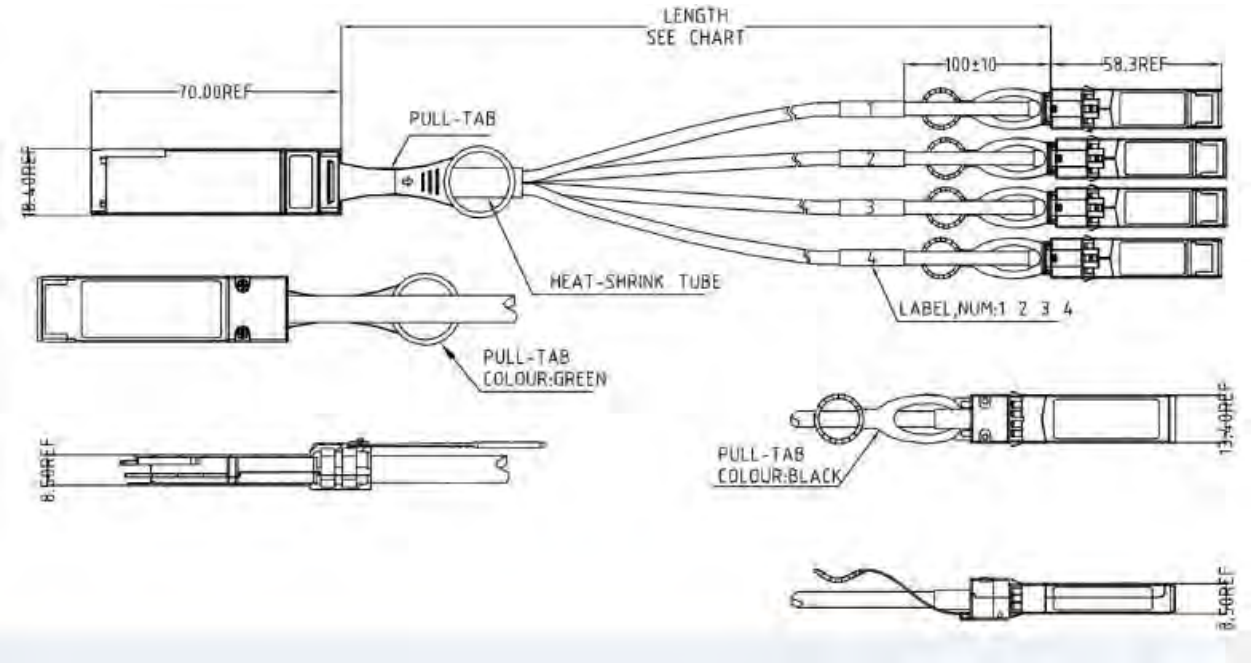
General Specifications

Parameter	*Symbol*	*Min*	*Typ*	*Max*	*Unit*	*Remarks*
Bit Error Rate	*BER*			10^{-12}		
Operating Temperature	T_{OP}	0		70	℃	Case temperature
Storage Temperature	T_{STO}	– 40		85	℃	Ambient temperature
Input Voltage	V_{CC}	3	3.3	3.6	V	
Maximum Voltage	V_{MAX}	– 0.5		4	V	For electrical power interface

Cable Mechanical Specifications

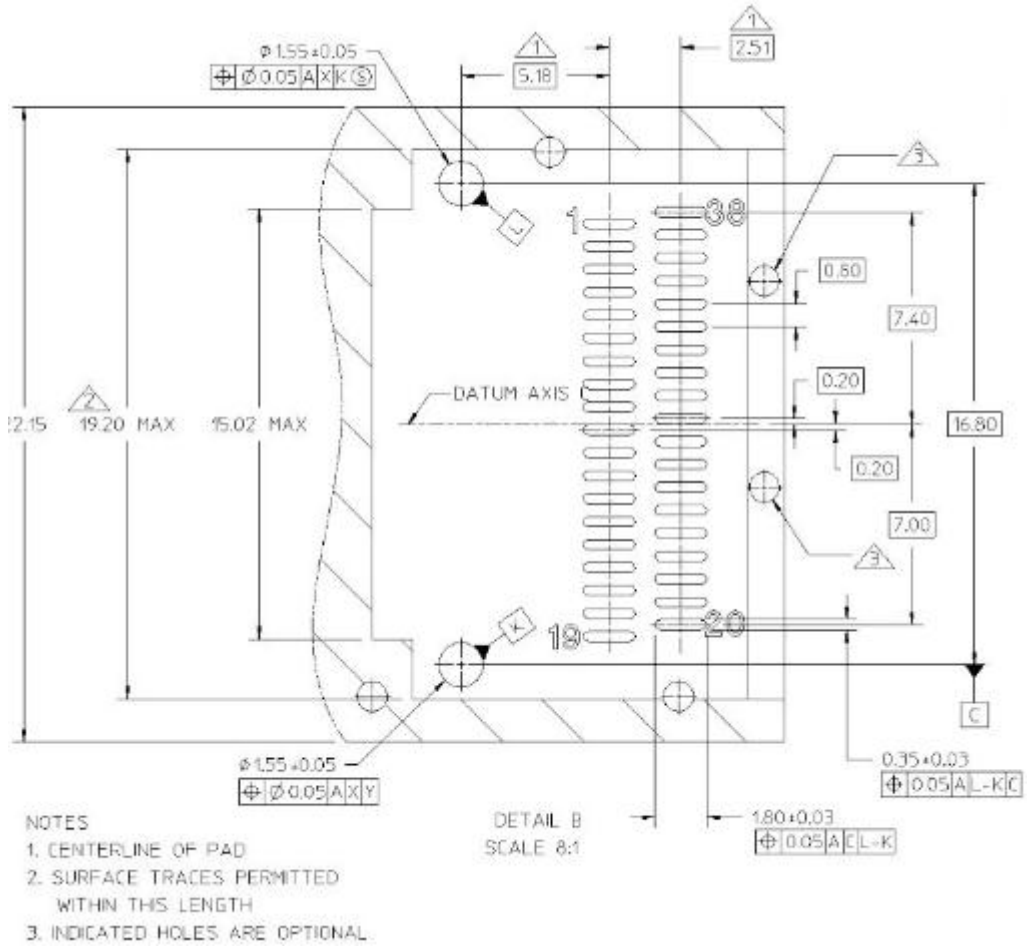
Parameter	*Symbol*	*Min*	*Typ*	*Max*	*Unit*	*Remarks*
Wire Gauge			30AWG			
Cable Impedance	*Z*	95	100	105	Ohm	

Outline Dimensions

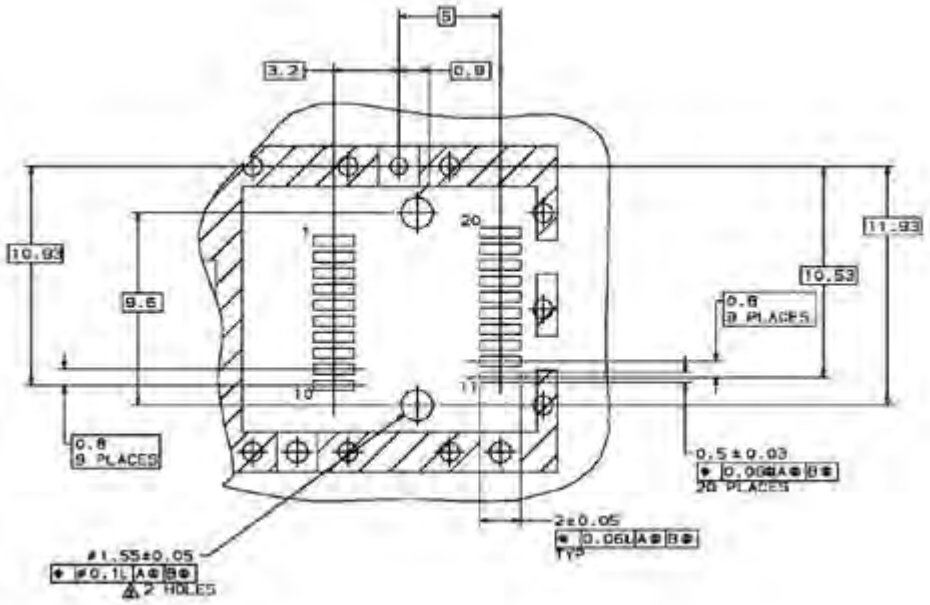


ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

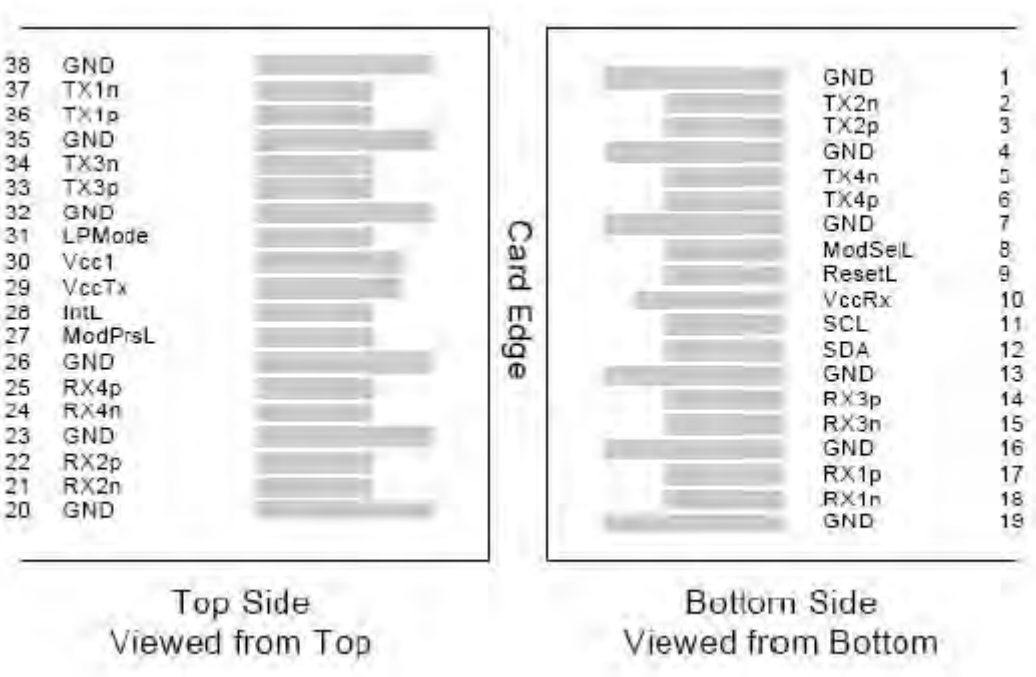
PCB Layout Recommendation (QSFP+ END)



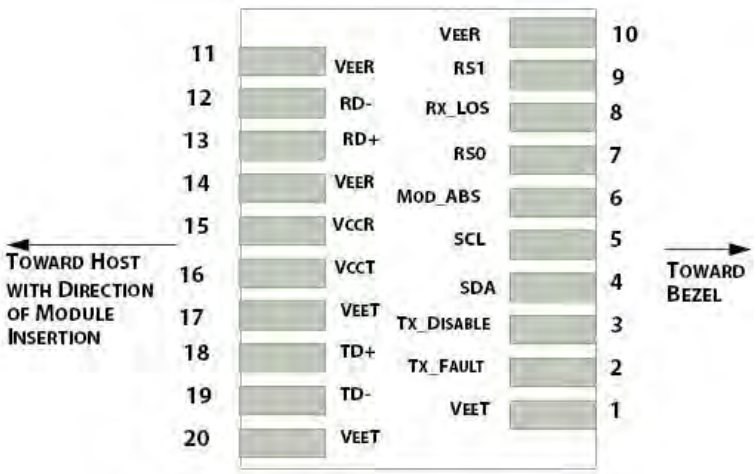
PCB Layout Recommendation (SFP+ END)



Electrical Pad Layout (QSFP+ END)



Electrical Pad Layout (SFP+ END)



Pin Assignment (QSFP+ END)

PIN #	*Symbol*	*Description*	*Remarks*
1	GND	Ground	
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	V_{cc} RX	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	V_{cc} TX	+3.3V Power Supply transmitter	
30	V_{cc1}	+3.3V Power Supply	
31	LPMode	Low Power Mode	

32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmiiter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmiiter Inverted Data Input
38	GND	Ground

Pin Assignment (SFP+ END)

PIN #	***Symbol***	***Description***	***Remarks***
1	V_{EET}	Transmitter ground (common with receiver ground)	
2	T_{FAULT}	Transmitter Fault.	
3	T_{DIS}	Transmitter Disable. Laser output disable on high or open	
4	SDA	Data line for serial ID	
5	SCL	Clock line for serial ID	
6	MOD_ABS	Module Absent. Grounded within the module	
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	
9	RS1	No connection required	
10	V_{EER}	Receiver ground (common with transmitter ground)	
11	V_{EER}	Receiver ground (common with transmitter ground)	
12	RD–	Receiver Inverted DATA out. AC coupled	
13	RD+	Receiver Non-inverted DATA out. AC coupled	
14	V_{EER}	Receiver ground (common with transmitter ground)	
15	V_{CCR}	Receiver power supply	
16	V_{CCT}	Transmitter power supply	
17	V_{EET}	Transmitter ground (common with receiver ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	
19	TD–	Transmitter Inverted DATA in. AC coupled	
20	V_{EET}	Transmitter ground (common with receiver ground)	

References

1. Enhanced 8.5 and 10 Gigabit Small Form Factor Pluggable Module "SFP+" – SFF-8431
2. IEEE standard 802.3ae. IEEE Standard Department, 2008.
3. QSFP+ 10 Gbs 4X PLUGGABLE TRANSCEIVER –SFF-8436