PROLABS – XDACBL5M-C

SFP+ Direct Attach Copper Cable Assembly

XDACBL5M-C Overview

PROLABS's XDACBL5M-C SFP+ Direct Attach Copper Cable Assembly are based on 10G Ethernet IEEE 802.3ae standard, Fiber Channel and SFF 8431 standard, and the passive SFP+ Cable is a low cost alternative for short reach applications. The passive design has no signal amplification in the cable assembly. Electronic Dispersion Compensation (EDC) is typically used on the host board designs when passive copper cable assemblies are utilized.

Features

- Up to 11 GBd bi-directional data links
- Compliant with 10GFC
- Compliant with SFF8431
- Hot-pluggable SFP+ footprint
- AC coupled inputs and outputs
- 100 Ohm differential impedance
- Enhanced EMI design
- Single power supply 3.3V
- RoHS Compliance
- Operating temperature range: 0℃to 70℃

Applications

- 10GBASE Ethernet
- 10GFC
- Serial Data Transmission

Ordering Information

Part Number	***Description***
XDACBL5M-C	SFP+ Direct Attach Copper Cable Assembly, 5 m

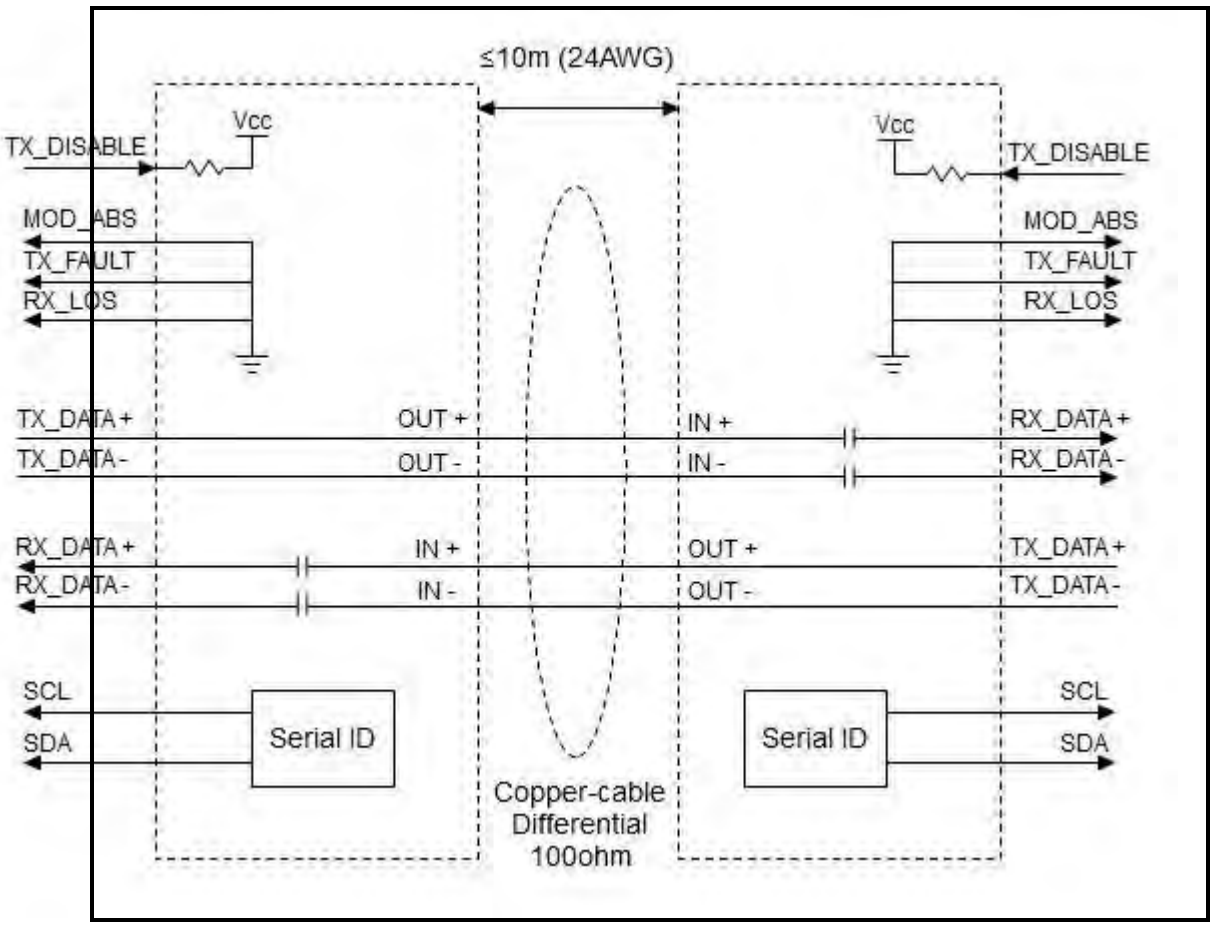
General Specifications

Parameter	***Symbol***	***Min***	***Typ***	***Max***	***Unit***	***Remarks***
Data Rate	*DR*		10.3125		GBd	IEEE 802.3ae
Bit Error Rate	*BER*			10^{-12}		
Operating Temperature	T_{OP}	0		70	℃	Case temperature
Storage Temperature	T_{STO}	– 40		85	℃	Ambient temperature
Supply Current	I_S			4	mA	For electrical power interface
Input Voltage	V_{CC}	3	3.3	3.6	V	
Maximum Voltage	V_{MAX}	– 0.5		4	V	For electrical power interface

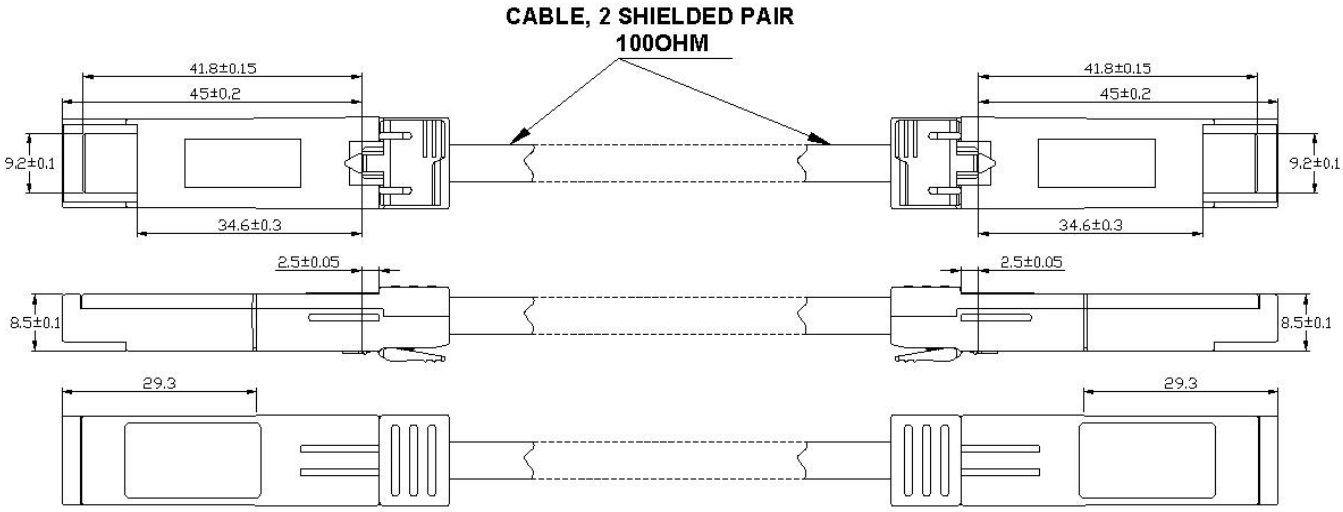
Cable Mechanical Specifications

Parameter	*Symbol*	*Min*	*Typ*	*Max*	*Unit*	*Remarks*
Cable Diameter(24AWG)	D_{IA}		0.255		Inches	
Time Delay Skew(Within Pair)	T_{DS}			100	Ps/10m	
Cable Time Delay	*Td*		4.3		ns/m	
Cable Insertion Loss	*Lo*		10		dB/10m	
Cable Impedance	*Zc*	95	100	105	Ohm	

Block Diagram of Transceiver

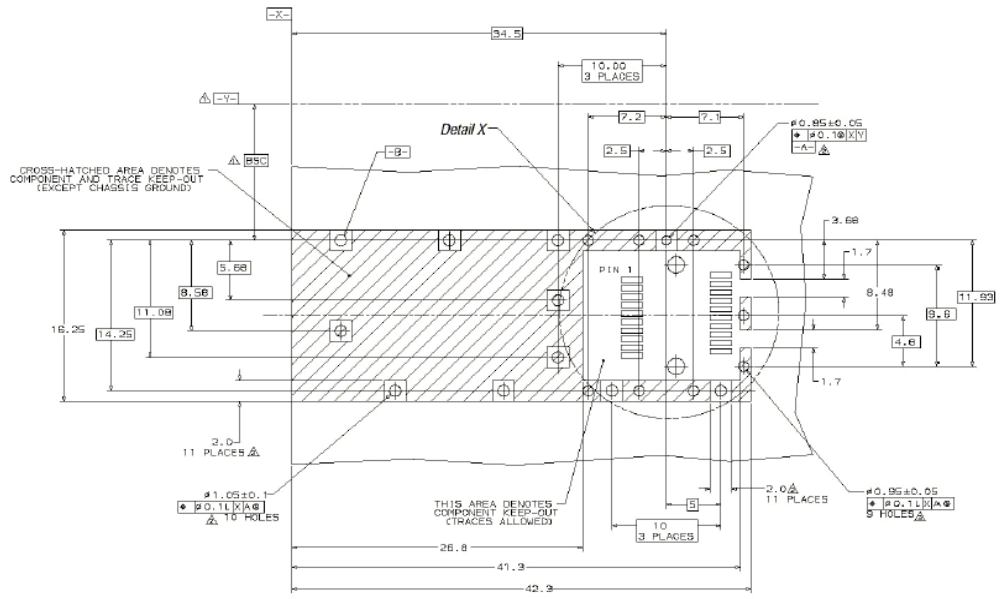


Dimensions



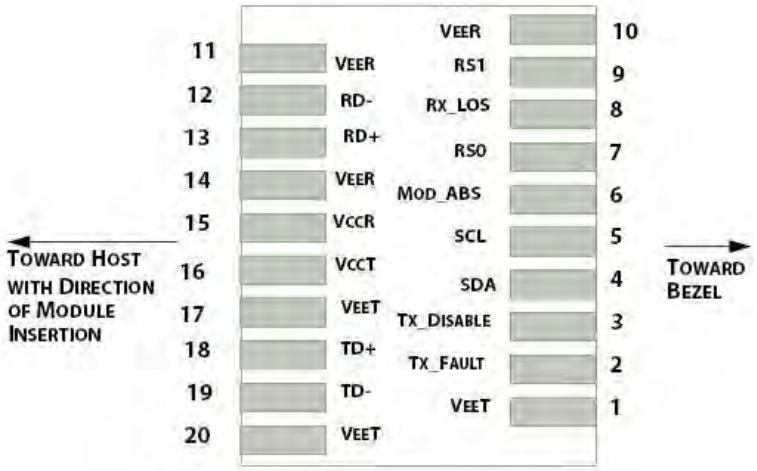
ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

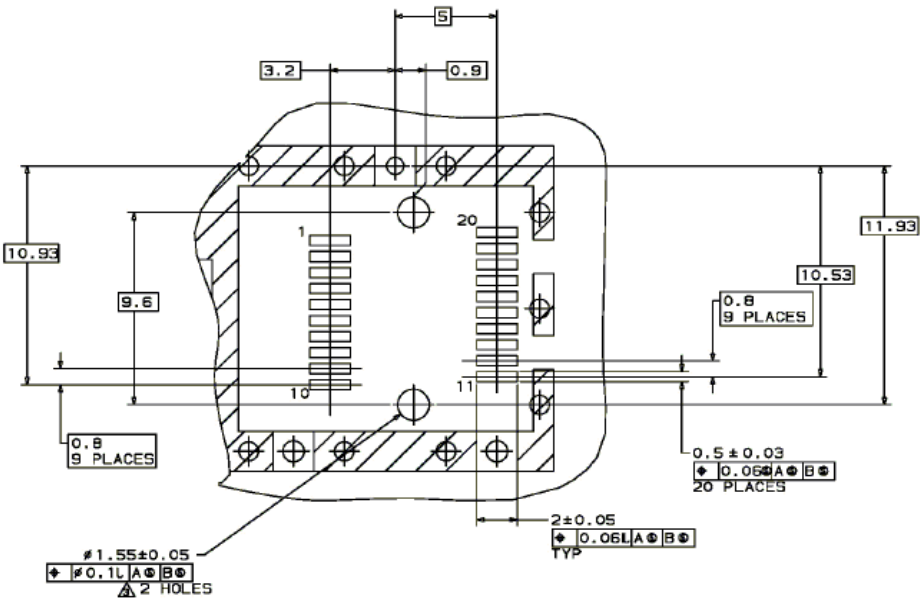
PCB Layout Recommendation

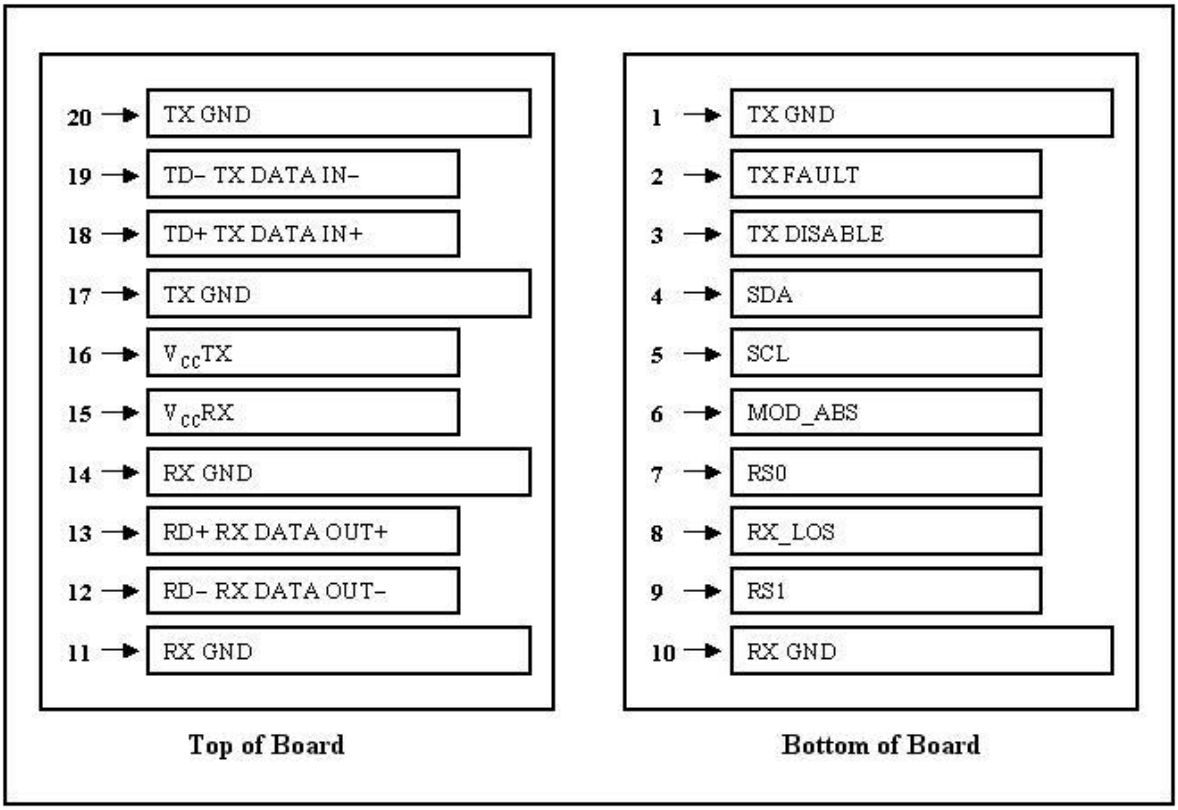


Datum and Basic Dimension Established by Customer
Pads and Vias are Chassis Ground, 11 Places
Through Holes are Unplated

Electrical Pad Layout






20 TX GND
19 TD- TX DATA IN-
18 TD+ TX DATA IN+
17 TX GND
16 V_{CC}TX
15 V_{CC}RX
14 RX GND
13 RD+ RX DATA OUT+
12 RD- RX DATA OUT-
11 RX GND
Top of Board
1 TX GND
2 TX FAULT
3 TX DISABLE
4 SDA
5 SCL
6 MOD_ABS
7 RS0
8 RX_LOS
9 RS1
10 RX GND
Bottom of Board

Pin Assignment

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. IEEE standard 802.3ae. IEEE Standard Department, 2005.
2. Enhanced 8.5 and 10 Gigabit Small Form Factor Pluggable Module “SFP+” – SFF-8431