

## PROLABS – XDACBL1M-C

### *SFP+ Direct Attach Copper Cable Assembly*

#### **XDACBL1M-C Overview**

PROLABS's XDACBL1M-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.

#### **Product 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°C to 70°C.

#### **Applications**

- 10GBASE Ethernet
- 10GFC
- Serial Data Transmission

#### **Ordering Information**

<b>Part Number</b>	<b>Description</b>
XDACBL1M-C	SFP+ Direct Attach Copper Cable Assembly, 1 m
XDACBL3M-C	SFP+ Direct Attach Copper Cable Assembly, 3 m
XDACBL5M-C	SFP+ Direct Attach Copper Cable Assembly, 5 m

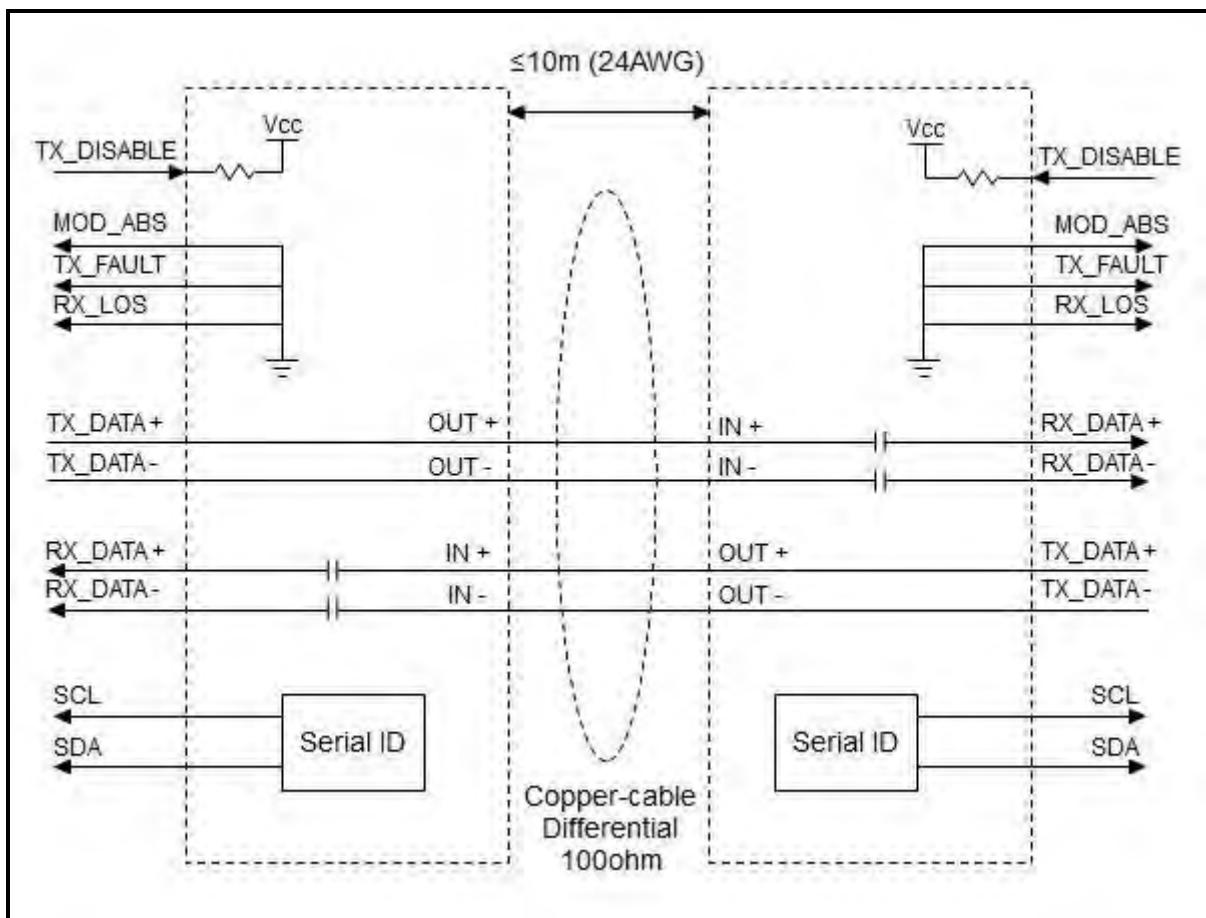
#### **General Specifications**

<b>Parameter</b>	<b>Symbol</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>	<b>Remarks</b>
Data Rate	<i>DR</i>		10.3125		GBd	IEEE 802.3ae
Bit Error Rate	<i>BER</i>			$10^{-12}$		
Operating Temperature	<i>T<sub>OP</sub></i>	0		70	°C	Case temperature
Storage Temperature	<i>T<sub>STO</sub></i>	- 40		85	°C	Ambient temperature
Supply Current	<i>I<sub>S</sub></i>			4	mA	For electrical power interface
Input Voltage	<i>V<sub>CC</sub></i>	3	3.3	3.6	V	
Maximum Voltage	<i>V<sub>MAX</sub></i>	- 0.5		4	V	For electrical power interface

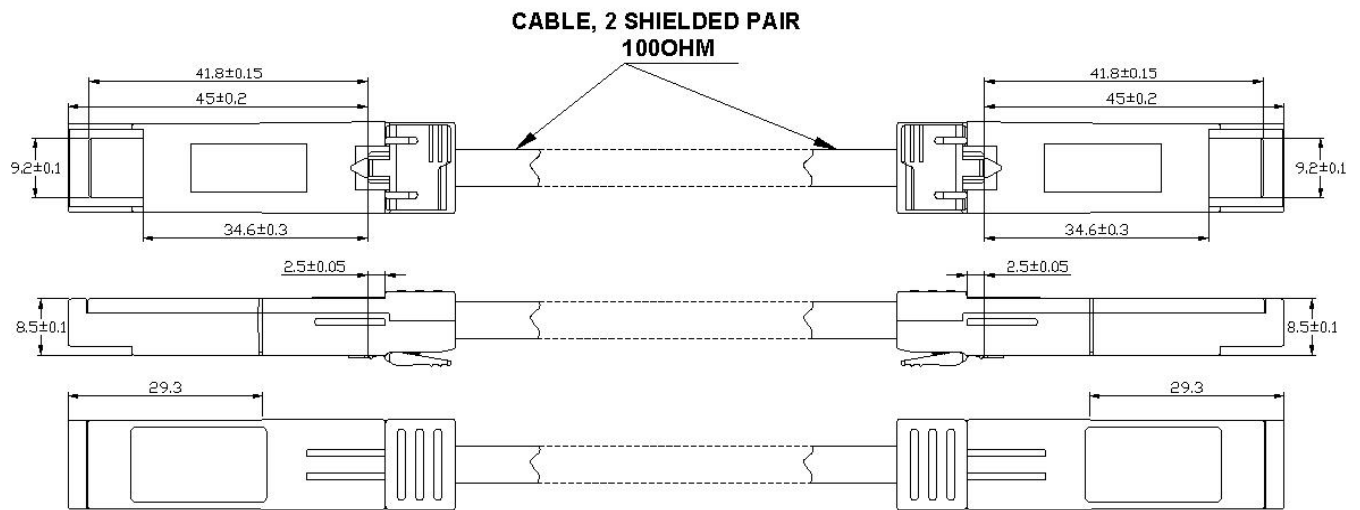
## Cable Mechanical Specifications

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	$T_d$		4.3		ns/m	
Cable Insertion Loss	$L_o$		10		dB/10m	
Cable Impedance	$Z_c$	95	100	105	Ohm	

## Block Diagram of Transceiver

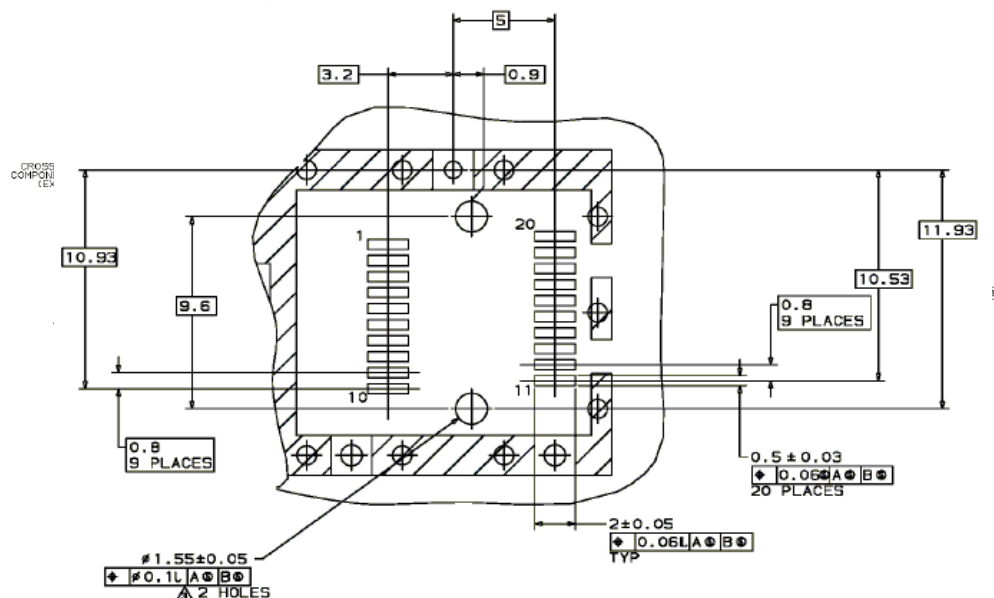


## Dimensions




**ALL DIMENSIONS ARE  $\pm 0.2\text{mm}$  UNLESS OTHERWISE SPECIFIED  
UNIT: mm**

## PCB Layout Recommendation

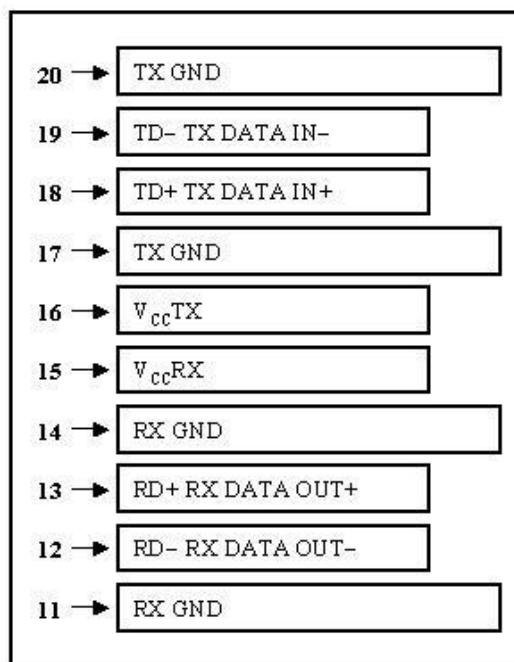
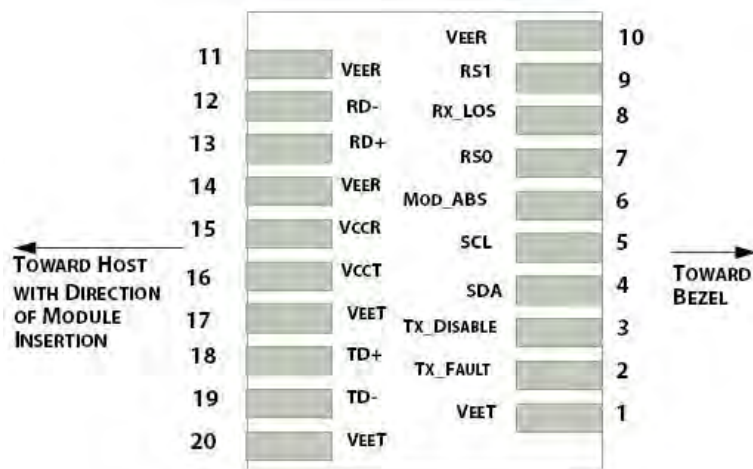


 Datum and Basic Dimension Established by Customer

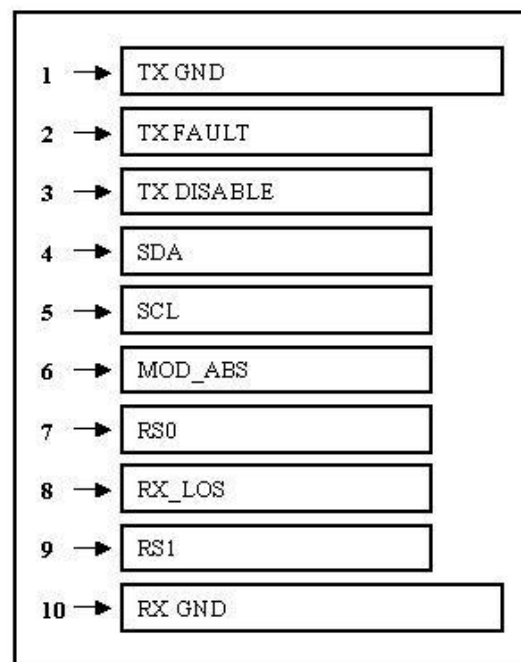
 Pads and Vias are Chassis Ground, 11 Places

 Through Holes are Unplated

## Electrical Pad Layout



**Top of Board**



**Bottom of Board**

## Pin Assignment

<b>PIN #</b>	<b>Symbol</b>	<b>Description</b>	<b>Remarks</b>
1	V <sub>EET</sub>	Transmitter ground (common with receiver ground)	
2	T <sub>FAULT</sub>	Transmitter Fault.	
3	T <sub>DIS</sub>	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 <sub>FEER</sub>	Receiver ground (common with transmitter ground)	
11	V <sub>FEER</sub>	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 <sub>EER</sub>	Receiver ground (common with transmitter ground)	
15	V <sub>CCR</sub>	Receiver power supply	
16	V <sub>CCT</sub>	Transmitter power supply	
17	V <sub>EET</sub>	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 <sub>EET</sub>	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