

PROLABS – QFX-QSFP-DACBO-10M-C

QSFP+ to 4 SFP+ Passive Copper Cable Assembly

QFX-QSFP-DACBO-7M-C Overview

PROLABS's 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°C to 70°C.

Applications

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

Ordering Information

| <i>Part Number</i> | <i>Description</i> |
|----------------------|---|
| QFX-QSFP-DACBO-1M-C | QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 1 Meter |
| QFX-QSFP-DACBO-2M-C | QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 2 Meter |
| QFX-QSFP-DACBO-3M-C | QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 3 Meter |
| QFX-QSFP-DACBO-5M-C | QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 5 Meter |
| QFX-QSFP-DACBO-7M-C | QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 7 Meter |
| QFX-QSFP-DACBO-10M-C | QSFP+ to 4 SFP+ Direct Attach Copper Cable Assembly, 10 Meter |

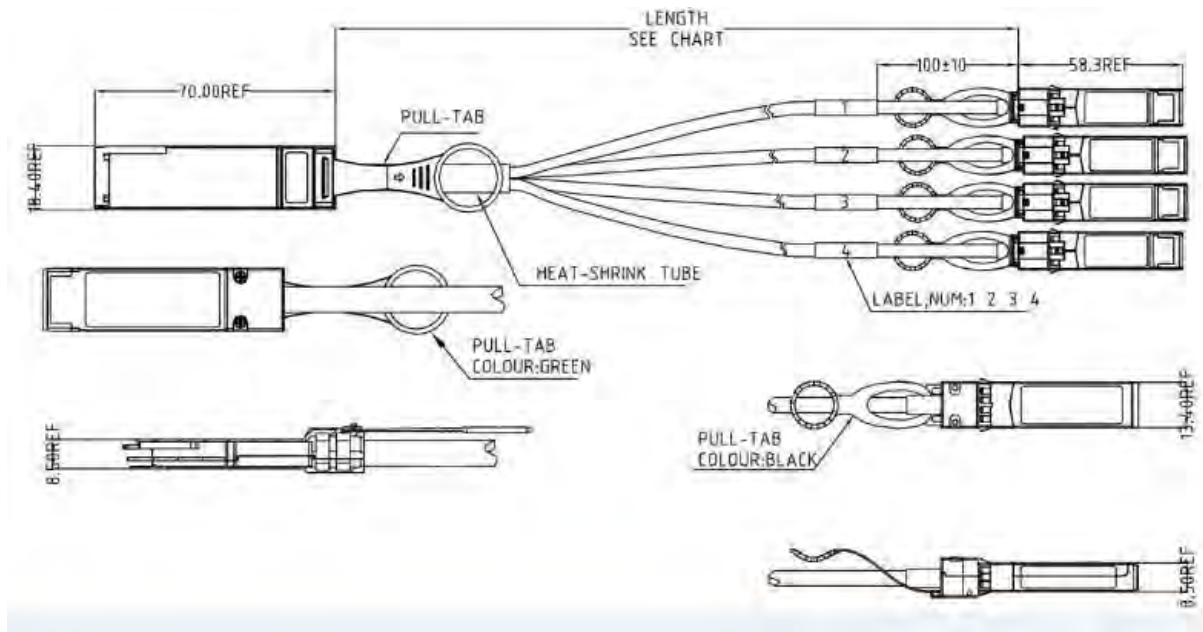
General Specifications

| <i>Parameter</i> | <i>Symbol</i> | <i>Min</i> | <i>Typ</i> | <i>Max</i> | <i>Unit</i> | <i>Remarks</i> |
|-----------------------|------------------|------------|------------|------------|-------------|--------------------------------|
| Bit Error Rate | BER | | | 10^{-12} | | |
| Operating Temperature | T _{OP} | 0 | | 70 | °C | Case temperature |
| Storage Temperature | T _{STO} | -40 | | 85 | °C | 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

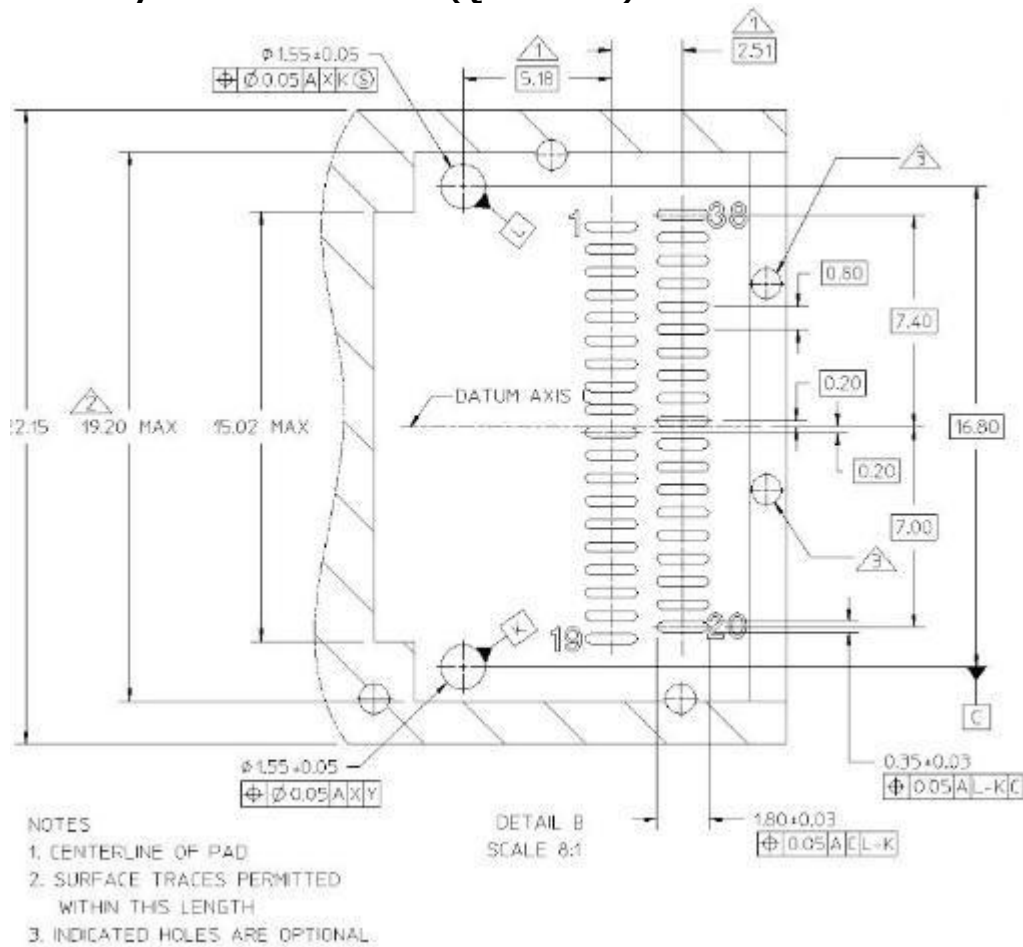
| <i>Parameter</i> | <i>Symbol</i> | <i>Min</i> | <i>Typ</i> | <i>Max</i> | <i>Unit</i> | <i>Remarks</i> |
|------------------|---------------|------------|------------|------------|-------------|----------------|
| Wire Gauge | | | 30AWG | | | |
| Cable Impedance | Z | 95 | 100 | 105 | Ohm | |

Outline Dimensions

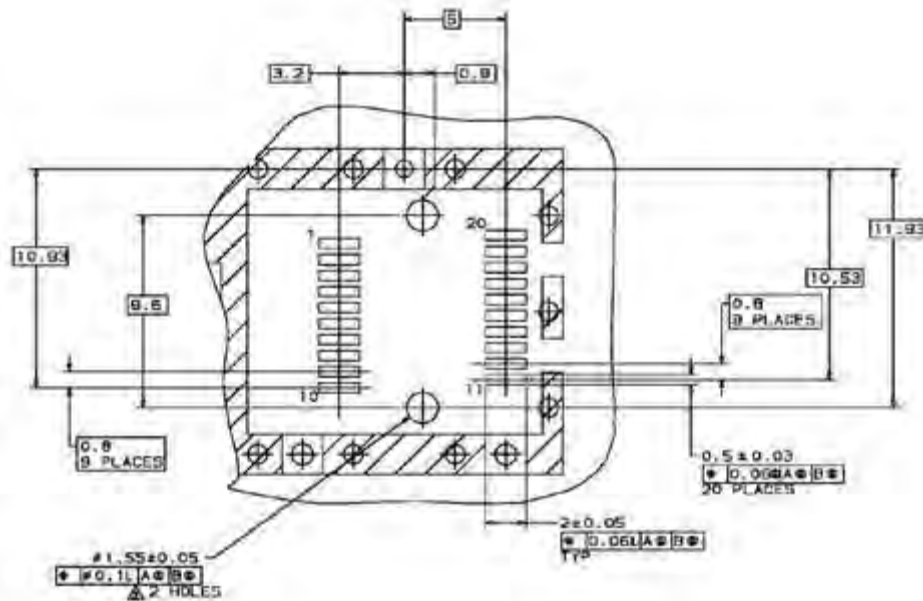


ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

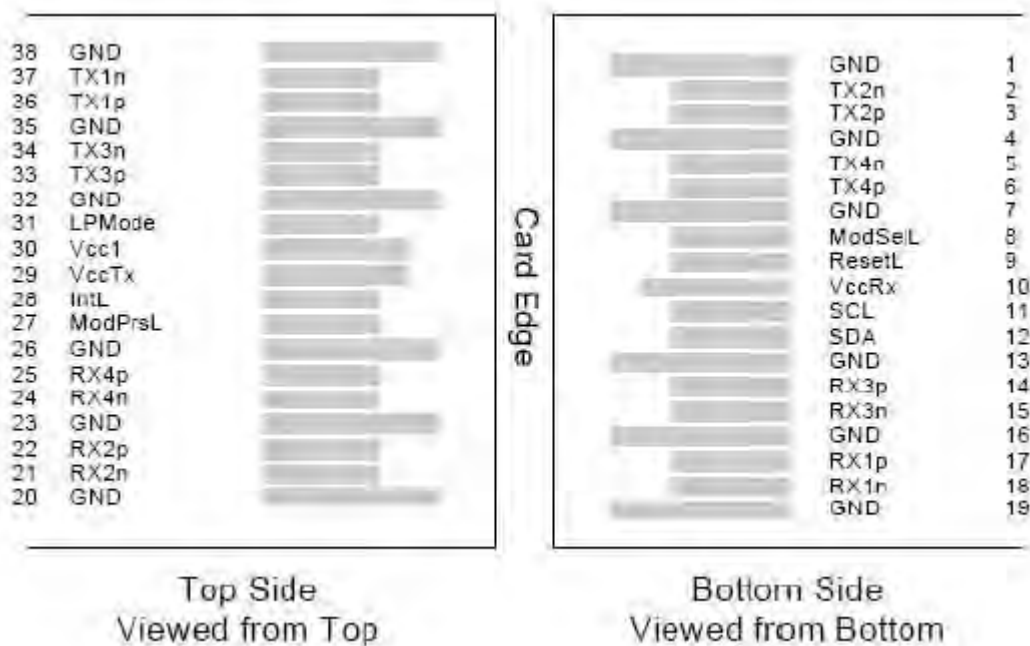
PCB Layout Recommendation (QSFP+ END)



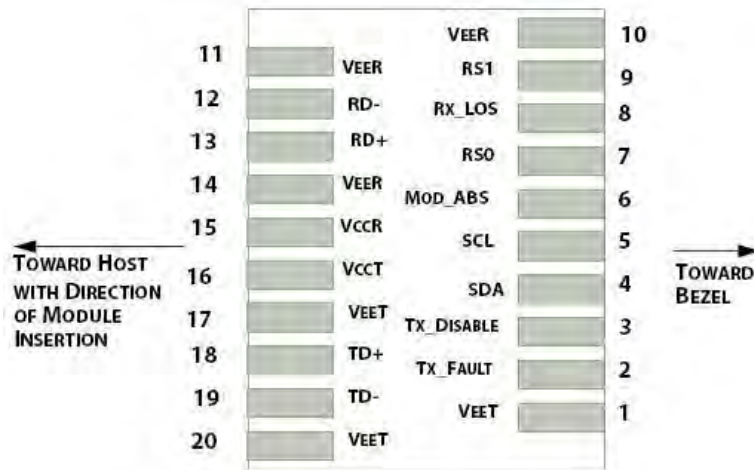
PCB Layout Recommendation (SFP+ END)



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 | Transmitter Inverted Data Input |
| 35 | GND | Ground |
| 36 | Tx1p | Transmitter Non-Inverted Data Input |
| 37 | Tx1n | Transmitter 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

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

