

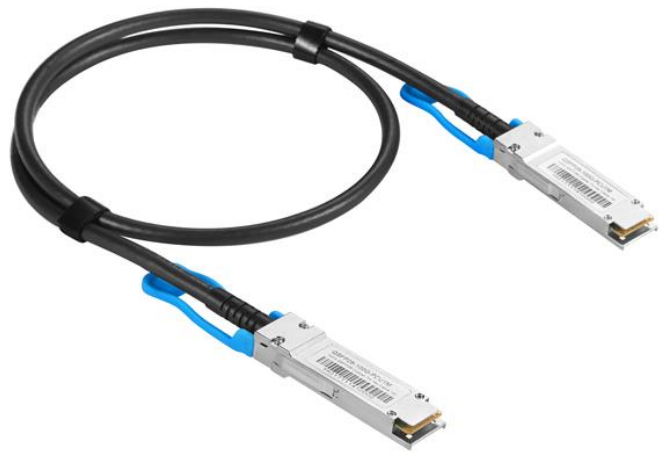
100G QSFP28 Direct Attach Cable TSQS-PC1HG-xxM

General Description

QSFP28 Direct Attach Cables are compliant with the SFF-8665 specifications. Various choices of wire gauge are available from 30 to 26 AWG with various choices of cable length (up to 5m).

Features

- Up to 25.78Gbps data rate per channel
- Up to 5m transmission
- Hot-pluggable QSFP+ 38 PIN footprint
- Compatible to SFF-8665
- Compliant with IEEE 802.3bj
- Single 3.3V power supply
- Temperature Range: 0 °C to 70 °C
- RoHS compliant



Applications

- Low EMI radiation switches, servers and routers
- Data center networks
- Storage area networks
- High performance computing
- Telecommunication and wireless infrastructure
- Medical diagnostics and networking
- Test and measurement equipment

Recommended Operation Condition

| Parameter | Symbol | Min | Max | Unit |
|--------------------------------------|---------|-------|-----------|------|
| Operating Case Temperature | Topc | 0 | 70 | degC |
| Storage Temperature | Tst | -40 | 85 | degC |
| Relative Humidity (non-condensation) | RS | 35 | 60 | % |
| Supply Voltage | VCC3 | 3.135 | 3.465 | V |
| Voltage on LVTTTL Input | Vilvttl | -0.3 | VCC3 +0.2 | V |
| Power Supply Current | ICC3 | - | 15 | mA |

Information and specifications are subject to change without notice.
Please visit www.china-tscom.com for more information

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| | | | | |
|-------------------------|----|---|------|---|
| Total Power Consumption | Pd | - | 0.05 | W |
|-------------------------|----|---|------|---|

Notes:

Stress or conditions exceed the above range may cause permanent damage to the device.

This is a stress rating only and functional operation of the device at these or any other conditions above those listed in the operational sections of this specification is not applied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Frequency Domain

| Item | Test Parameter | IEEE802.3bj Specification |
|------|---|---|
| 1 | Differential Insertion Loss (SDD12) | Maximum insertion loss at 12.8906Ghz @22.48dB Minimum insertion loss at 12.8906Ghz@8dB |
| 2 | Differential Insertion Loss (SDD21) | Maximum insertion loss at 12.8906Ghz@22.48dB Minimum insertion loss at 12.8906Ghz@8dB |
| 3 | Differential Return Loss (SDD22) | -16.5+2xSQRT(f) @ 0.01 to 4.1GHz -10.66+14xlog ₁₀ f /5.5 @4.1 to 19GHz |
| 4 | Differential Return Loss (SDD11) | -16.5+2xSQRT(f) @ 0.01 to 4.1GHz -10.66+14xlog ₁₀ f /5.5 @4.1 to 19GHz |
| 5 | Common Mode Reflection (SCC22) | -2dB @ 0.01 to 19GHz |
| 6 | Common Mode Reflection (SCC11) | -2dB @ 0.01 to 19GHz |
| 7 | Common Mode Conversion (SCD22) | -22+(20/25.78)*(f) @ 0.01 to 12.89GHz -15+(6/25.78)*(f) @ 12.9 to 19GHz |
| 8 | Common Mode Conversion (SCD11) | -22+(20/25.78)*(f) @ 0.01 to 12.89GHz -15+(6/25.78)*(f) @ 12.9 to 19GHz |
| 9 | Differential to Common Mode Conversion Loss (SCD12) | -10dB @ 0.01 to 12.89GHz -27+(29/22)*(f) @ 12.9 to 15.7GHz -6.3dB @ 15.71 to 19GHz |
| 10 | Differential to Common Mode Conversion Loss (SCD21) | -10dB @ 0.01 to 12.89GHz -27+(29/22)*(f) @ 12.9 to 15.7GHz -6.3dB @ 15.71 to 19GHz |

Pin Definition

| Pin | Symbol | Name/Description |
|-----|--------|-------------------------------------|
| 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 |

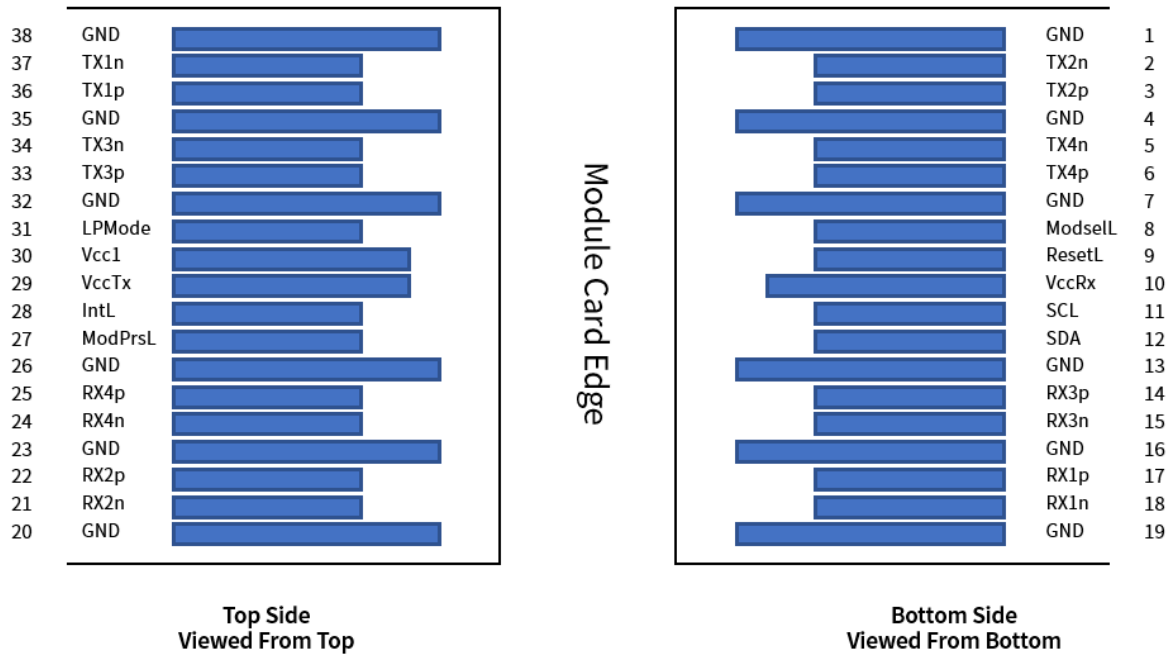
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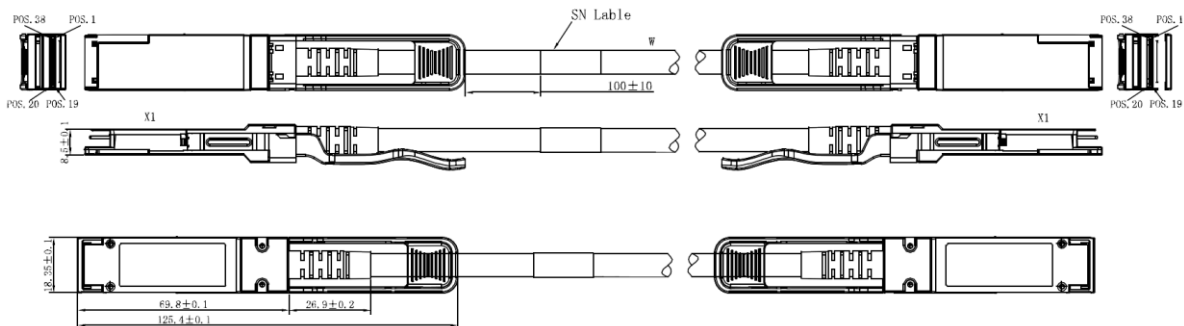
| | | |
|----|---------|-------------------------------------|
| 8 | ModSelL | Module Select |
| 9 | ResetL | Module Reset |
| 10 | Vcc Rx | +3.3 V Power supply receiver |
| 11 | SCL | 2-wire serial interface clock |
| 12 | SDA | 2-wire serial interface data |
| 13 | GND | Ground |
| 14 | Rx3p | Receiver 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 | Vcc Tx | +3.3 V Power supply transmitter |
| 30 | Vcc1 | +3.3 V 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 Descriptions



Mechanical Dimensions

The connector is compatible with the SFF-8665 specification.



Mechanical Specifications

| Parameter | Minimum | Typical | Maximum | Unit |
|-------------------------|---------|---------|---------|--------|
| Cable Diameter (26AWG) | - | 0.220 | - | Inches |
| Bend Radius (26AWG) | 1.102 | - | - | Inches |
| Cable Diameter (28AWG) | - | 0.185 | - | Inches |
| Bend Radius (28AWG) | 0.925 | - | - | Inches |
| Cable Diameter (30 AWG) | - | 0.181 | - | Inches |
| Bend Radius (30 AWG) | 0.906 | - | - | Inches |

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| | | | | |
|-----------------------|-----------|-------|-----|--------|
| Within Pair Skew | - | - | 100 | ps/10m |
| Cable Insertion Loss | - | 15.43 | - | dB/5m |
| Bulk Cable Time Delay | - | - | 5.2 | ns/m |
| Bulk Cable Impedance | 95 | 100 | 105 | Ohms |
| Insertion Force | - | - | 40 | N |
| Withdrawal Force | - | - | 30 | N |
| Retention Force | 90 | - | - | N |
| Durability | 50 Cycles | - | - | - |

Ordering Information

| P/N | Length | Data Rate | AWG | Length Tolerance |
|----------------|--------|-----------|---------|------------------|
| TSQS-PC1HG-01M | 1M | 100G | 28 / 30 | +3.5/-3.5cm |
| TSQS-PC1HG-02M | 2M | 100G | 28 / 30 | +3.5/-3.5cm |
| TSQS-PC1HG-03M | 3M | 100G | 28 / 30 | +4/-4cm |
| TSQS-PC1HG-05M | 5M | 100G | 26 | +6/-6cm |