# 100Gb/s QSFP28 Direct Attach Copper Cable

## MCP1600-Exxx

LinkX™ CABLES TRANSCEIVERS COMPONENTS †

Mellanox® direct attach copper (DAC) passive cable assemblies are high speed, cost-effective alternatives to fiber optics in InfiniBand EDR 100Gb/s applications.

Based on the QSFP28 electrical connector, 100G EDR DAC cables are configured as 4 channels of 25G NRZ. Each QSFP28 connector includes an EEPROM providing product information which can be read by the host system.

Mellanox's unique quality, passive, copper cable solutions provide power-efficient connectivity for short distance interconnects. They enable higher port bandwidth, density and configurability at a low cost and reduced power requirement in the data centers.

Rigorous cable production testing ensures best out-of-the-box installation experience, performance and durability.

### HIGHLIGHTS

– Up to 100Gb/s data rate

– Ultra-low crosstalk for improved performance; BER better than 1E-15

– Serial number printed on each back-shell label

– Tested in an end-to-end system

– SFF-8665 compliant QSFP28

– Hot pluggable

– RoHS compliant

– LSZH (Low Smoke, Zero Halogen) jacket compliant

– SFF-8636 compliant I²C management interface

### Table 1 - Absolute Maximum Ratings

| Parameter | Min | Max | Units |
|---|---|---|---|
| Supply voltage | -0.3 | 3.6 | V |
| Data input voltage | -0.3 | 3.6 | V |
| Control input voltage | -0.3 | 3.6 | V |

### Table 2 - Operational Specifications

| Parameter | Min | Typical | Max | Units |
|---|---|---|---|---|
| Supply voltage (Vcc) | 3.135 | 3.3 | 3.465 | V |
| Power consumption | -- | -- | 0.1 | W |
| Operating case temperature | 0 | -- | 70 | °C |
| Operating relative humidity | 5 | -- | 85 | % |

### Table 3 - Electrical Specifications

| Parameter | Min | Typical | Max | Units |
|---|---|---|---|---|
| Characteristic Impedance | 90 | 100 | 110 | Ω |
| Time delay (informative) | -- | -- | 4.5 | ns/m |

†For illustration only. Actual products may vary.

## Table 4 - Cable Mechanical Specifications

| AWG | Length (m) | Cable Diameter | Minimum Bend Radius[1] | Length Tolerance |
|---|---|---|---|---|
| 30 | 0.5 | 7.2 ±0.3mm (LSZH) | Single bend: 36mm Repetitive and assembly bend: 72mm | ±25mm |
| 30 | 1 | 7.2 ±0.3mm (LSZH) | Single bend: 36mm Repetitive and assembly bend: 72mm | ±25mm |
| 30 | 1.5 | 7.2 ±0.3mm (LSZH) | Single bend: 36mm Repetitive and assembly bend: 72mm | ±25mm |
| 28 | 2 | 7.8±0.3mm (LSZH) | Single bend: 39mm Repetitive and assembly bend: 78mm | ±50mm |
| 26 | 2.5 | 8.8±0.3mm (LSZH) | Single bend: 44mm Repetitive and assembly bend: 88mm | ±50mm |
| 26 | 3 | 8.8±0.3mm (LSZH) | Single bend: 44mm Repetitive and assembly bend: 88mm | ±50mm |
| 26 | 4 | 8.8±0.3mm | Single bend: 44mm Repetitive and assembly bend: 88mm | ±50mm |
| 26 | 5 | 8.8±0.3mm | Single bend: 44mm Repetitive and assembly bend: 88mm | ±50mm |

Note 1. The MCP1600 cables allow a tighter single time bend than the bend radius specification; therefore, the cables can be used in setups with smaller space requirements.

## Table 5 - Part Numbers and Descriptions

| Part Number | Description |
|---|---|
| MCP1600-E00A | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 0.5m 30AWG |
| MCP1600-E001 | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG |
| MCP1600-E01A | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG |
| MCP1600-E002 | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG |
| MCP1600-E02A | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG |
| MCP1600-E003 | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG |
| MCP1600-E004E26 | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 4m, Black, 26AWG |
| MCP1600-E005E26 | Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 5m, Black, 26AWG |

Note 1. See Figure 1 for the cable length definition.

*Figure 1.* Cable Length Definition
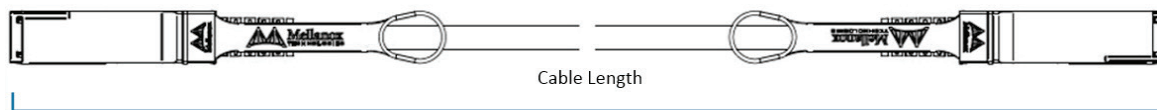
# Mechanical Schematics
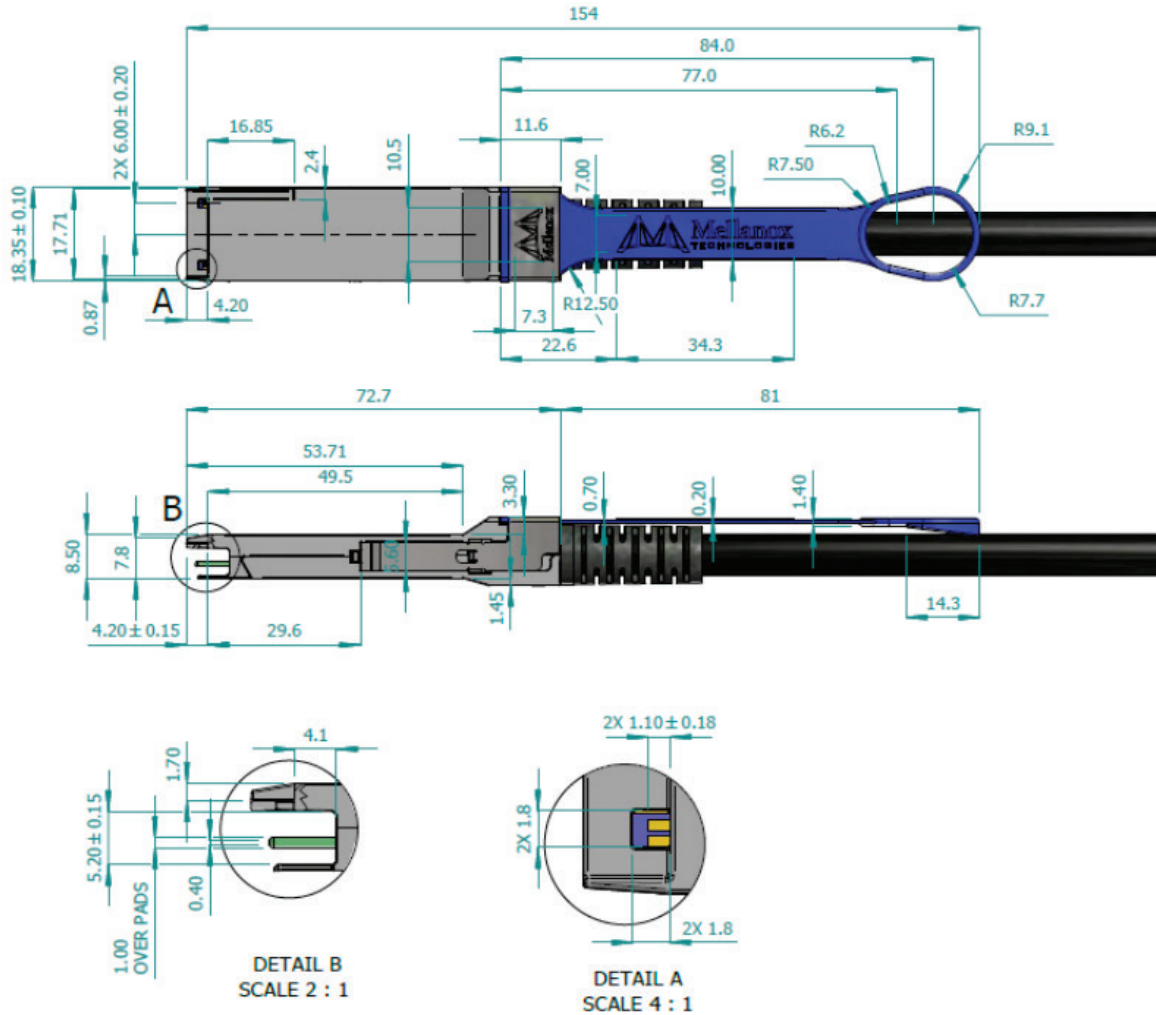


## Warranty Information

Mellanox LinkX direct attach copper cables include a 1-year limited hardware warranty, which covers parts repair or replacement.

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