



# 56Gb/s and 40GbE QSFP+ Direct Attach Copper Cables

MC22061xx-00x | MC22071xx-0xx | MC22101xx-00x |  
MCP170L-F0xx | MCP1700-B0xxx



Mellanox® QSFP+ direct attach copper (DAC) cables provide robust connections for leading edge 56Gb/s InfiniBand or 40GbE Ethernet systems. The cables consist of four lanes each operating at data rates of up to 14.0625Gb/s.

Passive copper cables require no additional power to ensure quality connectivity. The cables are compliant with SFF-8685 specifications and provide connectivity between devices using QSFP+ ports. Each QSFP+ port comprises an EEPROM providing product information, which can be read by the host system.

This integrated cable solution provides reliable transport for aggregate data rates of up to 56Gb/s Virtual Protocol Interconnect (VPI). Optimizing systems to operate with Mellanox's 56Gb/s passive copper cables significantly reduces power consumption and EMI emission, eliminating the use of enterprise data center (EDC) hosts.

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.

Table 1 - Absolute Maximum Ratings

Parameter	Minimum	Maximum	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	Minimum	Typical	Maximum	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	Minimum	Typical	Maximum	Units
Characteristic impedance	90	100	110	Ω
Time propagation delay (informative)	---	---	4.5	ns/m

## HIGHLIGHTS

- Up to 56Gb/s data rate for MC22071xx, MCP170L
- Up to 40Gb/s data rate for MC22061xx, MC22101xx, MCP1700
- SFF-8685 compliant QSFP+
- Operating case temperature of 0-70°C
- 3.3V power supply
- BER better than 1E-15
- Hot pluggable
- RoHS compliant
- SFF-8636 compliant I<sup>2</sup>C management interface

Table 4 - Cable Mechanical Specifications

Ordering Part Number	Length (m)	Gauge	Max Cable Diameter (mm)	Min. Single Bending Radius (mm)	Min. Assembly/ Repeated Bending Radius (mm)	Min. Bending Space (mm)
MC2206130-00A	0.5 ± 0.025	30	6.3	31	63	119
MC2206130-001	1.0 ± 0.035	30	6.3	31	63	119
MC2206130-002	2.0 ± 0.060	30	6.3	31	63	119
MC2206130-003	3.0 ± 0.100	30	6.3	31	63	119
MC2206128-004	4.0 ± 0.100	28	7.4	37	74	131
MC2206128-005	5.0 ± 0.100	28	7.4	37	74	131
MC2206126-006	6.0 ± 0.700	26	9.6	48	96	151
MC2206125-007	7.0 ± 0.800	26	9.6	48	96	151
MC2207130-00A	0.5 ± 0.025	30	6.3	31	63	119
MC2207130-001	1.0 ± 0.035	30	6.3	31	63	119
MC2207130-0A1	1.5 ± 0.06	30	6.3	31	63	118
MC2207130-002	2.0 ± 0.060	30	6.3	31	63	119
MC2207128-0A2	2.5 ± 0.100	28	7.5	37	75	130
MC2207128-003	3.0 ± 0.100	28	7.4	37	74	131
MC2207126-004	4.0 ± 0.100	26	9.6	49	96	154
MCP170L-F00A	0.5 ± 0.025	30	6.9	34	69	124
MCP170L-F001	1.0 ± 0.035	30	6.9	34	69	124
MCP170L-F01A	1.5 ± 0.060	30	6.9	34	69	124
MCP170L-F002	2.0 ± 0.060	30	6.9	34	69	124
MCP170L-F003	3.0 ± 0.100	28	7.9	39	79	134
MCP1700-B001E*	1.0 ± 0.035	30	6.3	31	63	118
MCP1700-B01AE*	1.5 ± 0.06	30	6.3	31	63	118
MCP1700-B002E*	2.0 ± 0.06	30	6.3	31	63	118
MCP1700-B02AE*	2.5 ± 0.1	28	7.5	37	75	130
MCP1700-B003E*	3.0 ± 0.1	28	7.5	37	75	130
MC2210130-001	1.0 ± 0.035	30	6.3	31	63	118
MC2210130-002	2.0 ± 0.060	30	6.3	31	63	118
MC2210128-003	3.0 ± 0.100	28	7.4	37	74	129
MC2210126-004	4.0 ± 0.100	25	9.6	48	96	151
MC2210126-005	5.0 ± 0.100	25	9.6	48	96	151

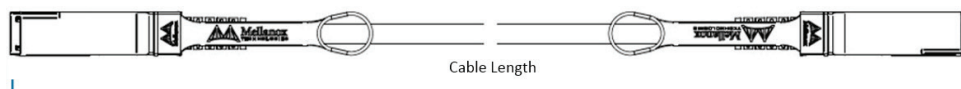
Note 1: See Figure 1 for the cable length definition.

Note 2: \*The pulltab color is black, instead of the standard blue pulltab.

Note 3: The minimum bending space is the distance from the system panel to the edge of the cable bend with the minimum assembly bending radius. This corresponds to the distance from the switch panel to the rack door.

Note 4: The minimum assembly bending radius (close to the connector) is 10x the cable's outer diameter. The repeated bend (far from the connector) is also 10x the cable's outer diameter. The single bend (far from the connector) is 5x the cable's outer diameter.

Figure 1. Cable Length Definition



# Mechanical Schematics

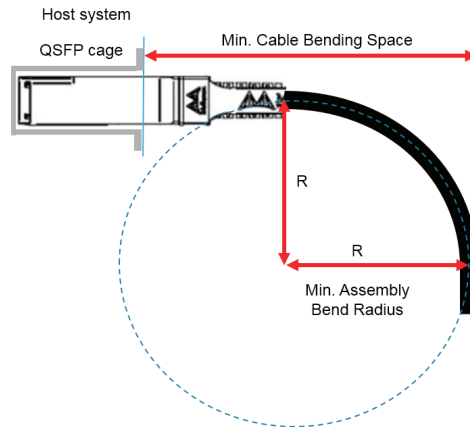
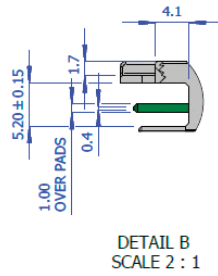
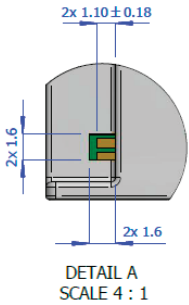
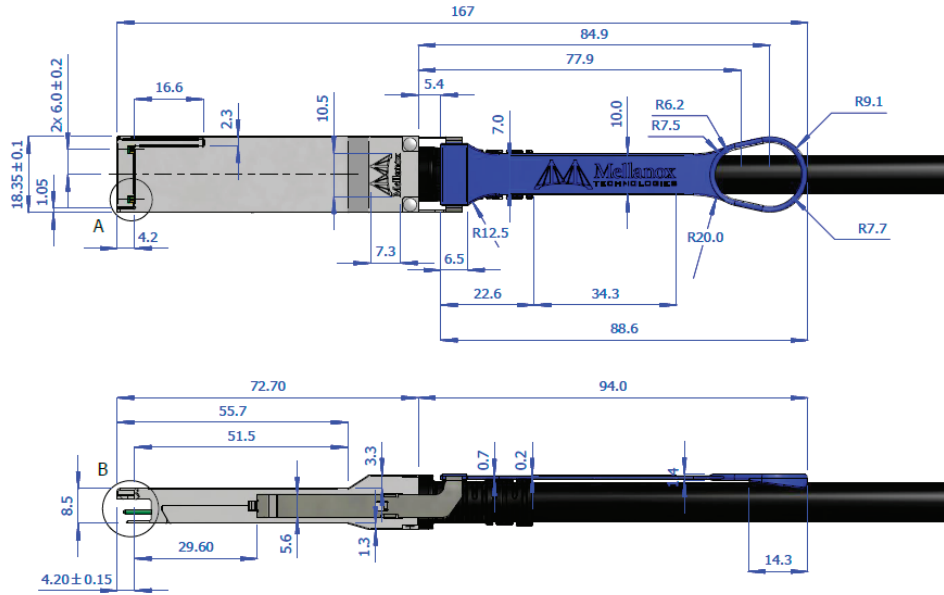


Table 5 - Part Numbers and Descriptions

OPN	Description
MC2206130-00A	Mellanox® passive copper cable, VPI, up to 40 Gb/s, QSFP, 0.5m
MC2206130-001	Mellanox® passive copper cable, VPI, up to 40 Gb/s, QSFP, 1m
MC2206130-002	Mellanox® passive copper cable, VPI, up to 40 Gb/s, QSFP, 2m
MC2206130-003	Mellanox® passive copper cable, VPI, up to 40 Gb/s, QSFP, 3m
MC2206128-004	Mellanox® passive copper cable, VPI, up to 40 Gb/s, QSFP, 4m
MC2206128-005	Mellanox® passive copper cable, VPI, up to 40 Gb/s, QSFP, 5m
MC2206126-006	Mellanox® passive copper cable, IB QDR, 40 Gb/s, QSFP, 6m
MC2206125-007	Mellanox® passive copper cable, IB QDR, 40 Gb/s, QSFP, 7m
MC2207130-00A	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, 0.5m
MC2207130-001	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, 1m
MC2207130-0A1	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, 1.5m
MC2207130-002	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, 2m
MC2207128-0A2	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, 2.5m
MC2207128-003	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, 3m
MC2207126-004	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, 4m
MCP170L-F00A	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, LSZH, 0.5m
MCP170L-F001	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, LSZH, 1m
MCP170L-F01A	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, LSZH, 1.5m
MCP170L-F002	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, LSZH, 2m
MCP170L-F003	Mellanox® passive copper cable, VPI, up to 56 Gb/s, QSFP, LSZH, 3m
MCP1700-B001E	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m, Black Pulltab
MCP1700-B01AE	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1.5m, Black Pulltab
MCP1700-B002E	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m, Black Pulltab
MCP1700-B02AE	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2.5m, Black Pulltab
MCP1700-B003E	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m, Black Pulltab
MC2210130-001	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m
MC2210130-002	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m
MC2210128-003	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m
MC2210126-004	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 4m
MC2210126-005	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 5m

Note: The standard pulltab color is blue; cables with a black pulltab are indicated accordingly.

## 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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