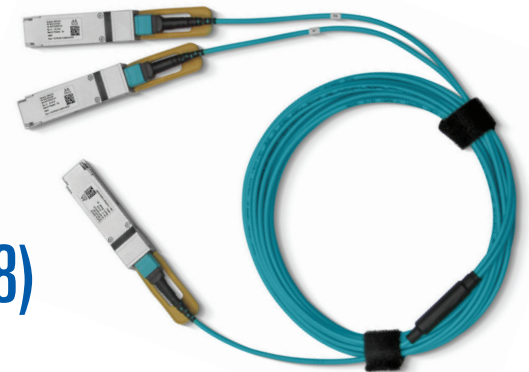


# 100GbE to 2x50GbE (QSFP28 to 2xQSFP28) MMF Active Optical Splitter Cable

MFA7A20-Cxxx



**LinkX**™  
CABLES  
TRANSCEIVERS  
COMPONENTS

Mellanox® MFA7A20 is a VCSEL-based (Vertical Cavity Surface-Emitting Laser), cost-effective, 100GbE to 2x50GbE, active optical splitter cable (AOC) designed for use in 100GbE Ethernet systems.

The MFA7A20 cable is compliant with SFF-8665 for the QSFP28 pluggable solution. It provides connectivity between system units with a 100GbE connector on one side and two separate 50GbE connectors on the other side, such as a switch and two servers. The cable connects data signals from each of the 4 MMF (Multi Mode Fiber) pairs on the single QSFP28 end to the dual pair of each of the QSFP28 multiport ends. Each QSFP28 end of the cable comprises an EEPROM providing product and status monitoring information, which can be read by the host system.

Mellanox's unique, quality, active, fiber, cable solutions provide power-efficient connectivity for data center interconnects. It enables 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    | 3.465   | V     |
| Data input voltage    | -0.3    | 3.465   | V     |
| Control input voltage | -0.3    | 4.0     | V     |
| Storage temperature   | -40     | 85      | °C    |

Table 2 - Operational Specifications

| Parameter  | Minimum | Typical | Maximum | Units |
|--|---------|---------|---------|-------|
| Supply voltage (Vcc)                             | 3.145   | 3.3     | 3.465   | V     |
| Power dissipation (100GbE end no retiming)       | ---     | 1.8     | 2.0     | W     |
| Power dissipation (100GbE retiming on all lanes) | ---     | 2.3     | 2.5     | W     |
| Power dissipation (50GbE end no retiming)        | ---     | 1.2     | 1.3     | W     |
| Power dissipation (50GbE retiming on all lanes)  | ---     | 1.5     | 1.7     | W     |
| Supply noise tolerance (10Hz - 10MHz)            | 66      | ---     | ---     | mVpp  |
| Operating case temperature                       | 0       | ---     | 70      | °C    |
| Operating relative humidity                      | 5       | ---     | 85      | %     |

## HIGHLIGHTS

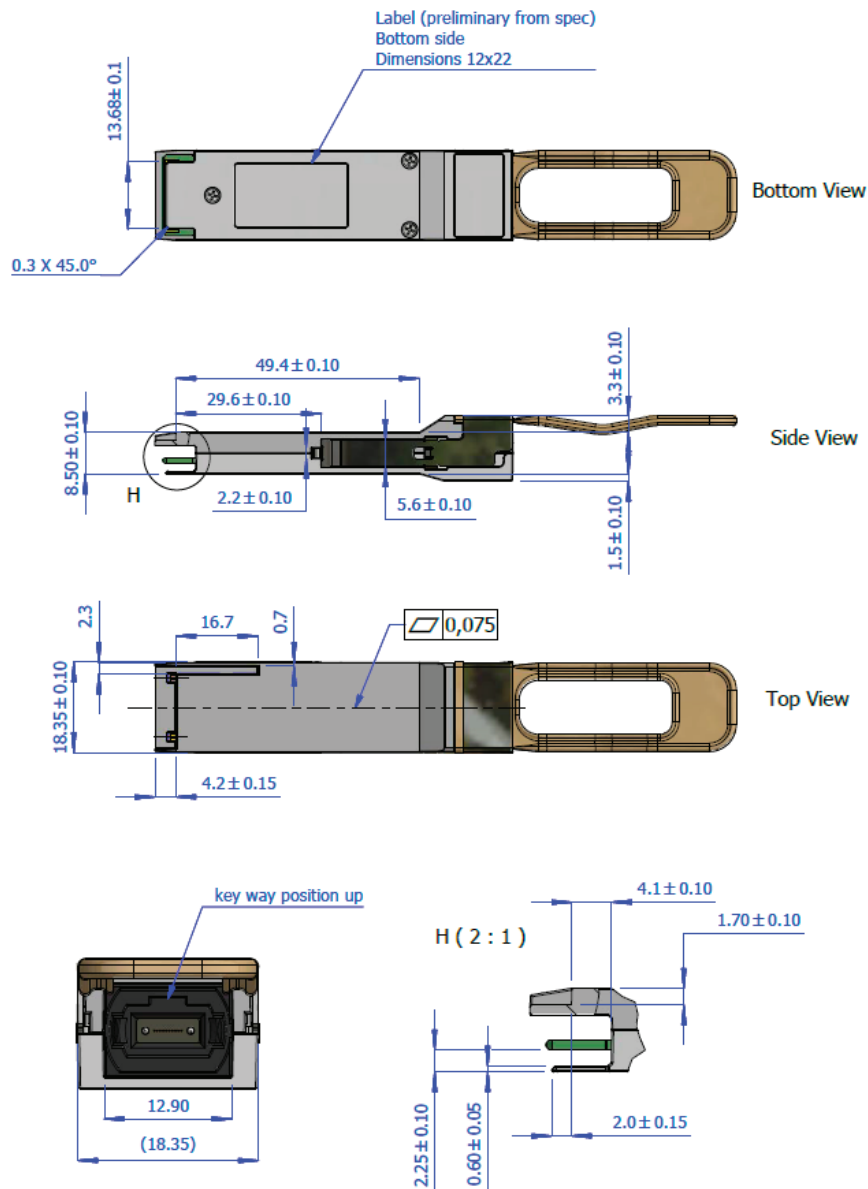
- 100GbE to 2x50GbE data rate
- Programmable Rx output amplitude and pre-emphasis
- Programmable Rx output emphasis
- Programmable Tx input equalizer
- Selectable retiming
- SFF-8665 compliant
- 3.3 V power supply
- 2.3/1.5 W power dissipation (typical, with retiming) 100GbE/50GbE
- QSFP28 power class 3/2 100GbE/50GbE
- BER better than 1E-15
- Class 1 laser safety
- Up to 20 meters length
- Hot pluggable
- RoHS compliant
- IEEE 802.3 100GBASE-SR4 compliant
- IEEE 802.3 40GBASE-SR4 compliant
- I<sup>2</sup>C management interface
- Digital Diagnostic Monitoring (DDM)

Table 3 - Electrical Specifications

| Parameter                             | Minimum                                | Typical  | Maximum            | Units |
|---------------------------------------|--|----------|--------------------|-------|
| Signaling rate                        | -100 ppm                               | 25.78125 | +100 ppm           | GBd   |
| <b>Transmitter</b>                    |  |          |                    |       |
| Differential data input swing at TP1a | ---                                    | ---      | 900 <sup>(1)</sup> | mVpp  |
| Differential data output swing at TP4 | ---                                    | ---      | 480                | mVpp  |
| Differential input return loss        | Meets equation (83E-5) in IEEE 802.3bm |          |                    | dB    |
| Differential output return loss       | Meets equation (83E-5) in IEEE 802.3bm |          |                    | dB    |
| <b>Receiver</b>                       |  |          |                    |       |
| Common Mode output return loss        | ---                                    | ---      | -6                 | dB    |
| Output eye width (EW15)               | 0.57                                   | ---      | ---                | UI    |
| Output eye height (EH15)              | 228                                    | ---      | ---                | mV    |

Note 1. According to IEEE 802.3bm 83E.3.1.2; requires optimization of the input equalizer.

## Mechanical Schematics



## Mechanical Schematics (cont.)

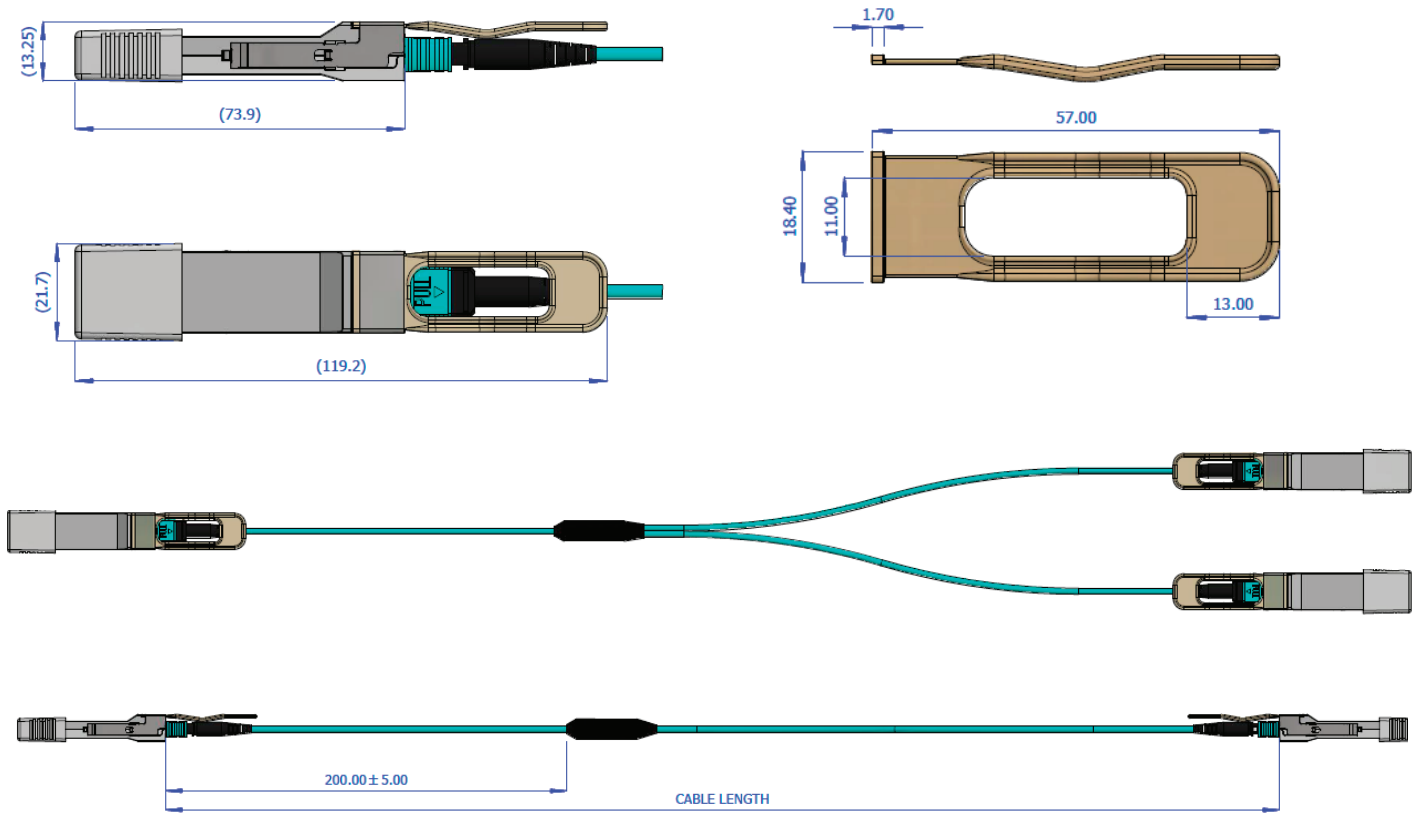


Table 4 - Part Number and Description

| OPN          | Description  |
|--------------|--|
| MFA7A20-C003 | Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3m  |
| MFA7A20-C005 | Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 5m  |
| MFA7A20-C010 | Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 10m |
| MFA7A20-C020 | Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 20m |

### Warranty Information

Mellanox active optical cables include a 1-year limited hardware warranty, which covers parts repair or replacement.