



# 100Gb/s QSFP28 MMF Active Optical Cables

## MFA1A00-Exxx

Mellanox® MFA1A00-Exxx are QSFP28 VCSEL-based (Vertical Cavity Surface-Emitting Laser) active optical cables designed for use in InfiniBand 100Gb/s EDR systems. 100G EDR AOCs are the most popular interconnect used in very high-speed InfiniBand High Performance Computing (HPC) environments as they offer predictable latency, very low power (2.2W) and enable increased air flow, tighter bend radii and significantly longer reach compared to DAC cables. Since the AOC is hot pluggable, it is easy to install and replace.

MFA1A00-Exxx has a standard SFF-8665 compliant QSFP28 port on the electrical side towards the host system. It contains four multi-mode fibers (MMF) optic transceivers per end, each operating at data rates of up to 26Gb/s.

MFA1A00-Exxx offers selectable retiming per lane for both its optical transmitters and receivers for the 25-26Gbp/s rates, but the AOC also supports lower bit rates without retiming. The transmitters have programmable input equalizers and input squelch function, while the receivers have programmable output amplitude and pre-emphasis.

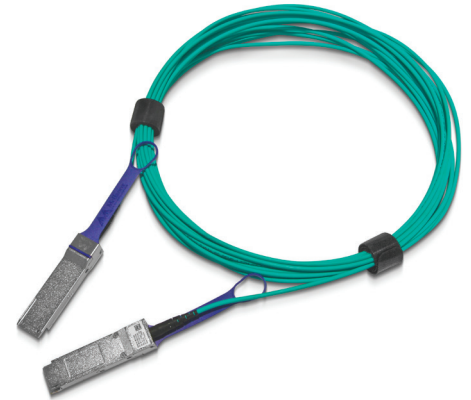
Mellanox's unique, quality, active, fiber, cable solutions provide power-efficient connectivity for data center interconnects. They enable higher port bandwidth, density and configurability at a low cost and reduced power requirement in the data centers. Rigorous production testing ensures the best out-of-the-box 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	3.465	V
Control input voltage	-0.3	4.0	V
Damage threshold	3.4	---	dBm

Table 2 - Operational Specifications

Parameter	Minimum	Typical	Maximum	Units
Supply voltage (Vcc)	3.135	3.3	3.465	V
Power dissipation (each end, no retiming)	---	1.5	1.8	W
Power dissipation (each end, retiming on all lanes)	---	2.2	2.5	W
Supply noise tolerance (10Hz-10MHz)	66	---	---	mVpp
Operating case temperature	0	---	70	°C
Operating relative humidity	5	---	85	%



## HIGHLIGHTS

- Up to 100Gb/s data rate
- 4x 25G NRZ
- 2.2W power dissipation (typ, each end, with retiming)
- Programmable Rx output amplitude and pre-emphasis
- Programmable Tx input equalizer
- Selectable retiming
- SFF-8665 compliant QSFP28 port
- Single 3.3V power supply
- BER better than 1E-15
- Up to 100m length
- Hot pluggable
- RoHS compliant
- SFF-8636 compliant I<sup>2</sup>C management interface

# Mechanical Schematics

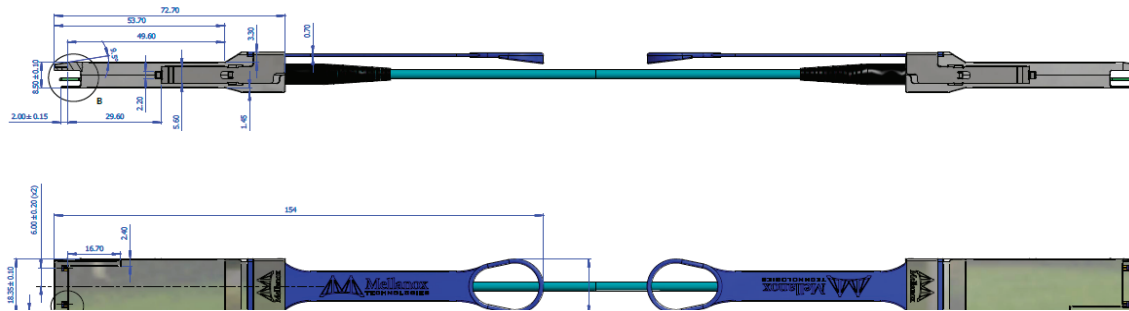


Figure 1. Cable Length

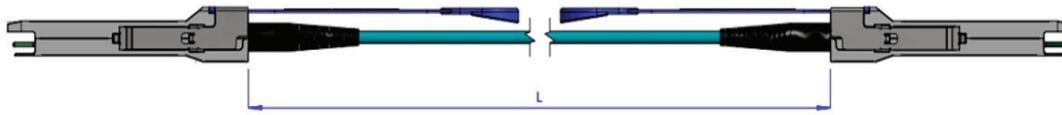


Table 3 - Part Numbers and Descriptions

OPN	Description
MFA1A00-E001	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m
MFA1A00-E01A	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m
MFA1A00-E002	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m
MFA1A00-E003	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m
MFA1A00-E004	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 4m
MFA1A00-E005	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 5m
MFA1A00-E010	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m
MFA1A00-E015	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 15m
MFA1A00-E020	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 20m
MFA1A00-E030	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 30m
MFA1A00-E050	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 50m
MFA1A00-E100	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 100m

Note 1. See Figure 1 for the cable length definition. Note 2. LSZH is an abbreviation for Low Smoke, Zero Halogen jacket.

## Warranty Information

Mellanox LinkX AOC cables include a 1 year limited hardware warranty, which covers parts repair or replacement.



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