



100 GbE QSFP28 CWDM4 Optical Transceiver

MMA1L30-CM

NVIDIA® Mellanox® MMA1L30-CM transceiver is a single mode, 4-channel (CWDM4), QSFP28, optical transceiver designed for use in 100 Gigabit Ethernet (GbE) links on up to 2 km of single mode fiber. It is also qualified for use in Mellanox InfiniBand EDR end-to-end systems.

Two options of the transceiver are available with identical functionality but with minor mechanical differences. The module (in both options) converts 4 input channels of 25 Gb/s electrical data to 4 channels of CWDM optical signals and then multiplexes them into a single fiber, using a nominal wavelength of 1310 nm, for 100 Gb/s optical transmission. Reversely on the receiver side, the 100 Gb/s optical input is demultiplexed into 4 channels of CWDM optical signals and then converted to 4 output channels of electrical data.

MMA1L30-CM has selectable retiming as specified in the SFF-8636 MSA. This enables the transceiver to be used in both 40 GbE and 100 GbE applications.

Digital diagnostic monitoring functions for temperature, supply voltage, and optical power are available via the two-wire (I²C) management interface, as specified by the QSFP28 MSA.

The optical connector is a duplex LC/UPC (un-angled) connector intended for a pair of single mode fibers. Rigorous production testing ensures the best out-of-the-box installation experience, performance, and durability.

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Storage Temperature	T _S	-40	85	°C
Operating Case Temperature	T _{OP}	0	70	°C
Supply Voltage	V _{CC}	-0.5	3.6	V
Relative Humidity (non-condensing): Option 1 Option 2	RH	5 15	95 85	%
Control Input Voltage	V _I	-0.3	V _{CC} +0.5	V
Control Output Voltage	I _O	-20	20	mA

Table 2 - Recommended Operating Conditions and Power Supply Requirements

Parameter	Symbol	Min	Typical	Max	Units
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V
Data Rate, each lane	--	-100 ppm	25.78	+100 ppm	Gb/s
Control Input Voltage High	V _{IH}	V _{CC} *0.7	--	V _{CC} +0.3	V
Control Input Voltage Low	V _{IL}	-0.3	--	V _{CC} *0.3	V
Power Supply Noise Tolerance (10 Hz - 10 MHz)	--	--	--	66	mVpp
Rx Differential Data Output Load	--	--	100	--	Ω
Link Distance with G.652 rated fiber	L _{max}	2	--	2000	m



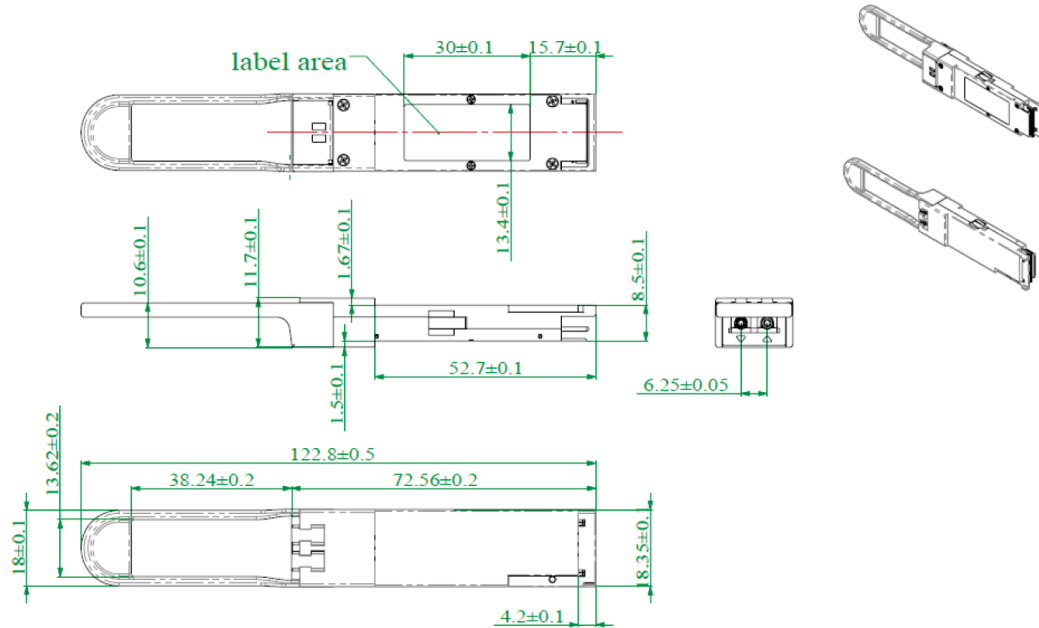
HIGHLIGHTS

- Up to 100 Gb/s data rate
- SFF-8665 compliant QSFP28
- CWDM4 MSA Revision 1.1 compliant
- Single 3.3 V supply, hot pluggable
- QSFP28 power class 4 (3.5 W max)
- Operating case temperature: 0 °C to 70 °C
- Duplex LC connector
- Up to 2 km reach on single mode fiber at 100 Gb/s
- 40 Gb/s operation for backward compatibility
- Two Wire Serial Interface with Digital Diagnostic Monitoring
- RoHS compliant
- Applications
 - IEEE 802.3bm CAUI-4 100G Ethernet
 - Qualified for use in Mellanox Ethernet and InfiniBand end-to-end systems

Mechanical Schematics

Note: Multiple options are specified to ensure supply chain robustness. The provided option depends on availability and may change from shipment to shipment.

Option 1:



Option 2:

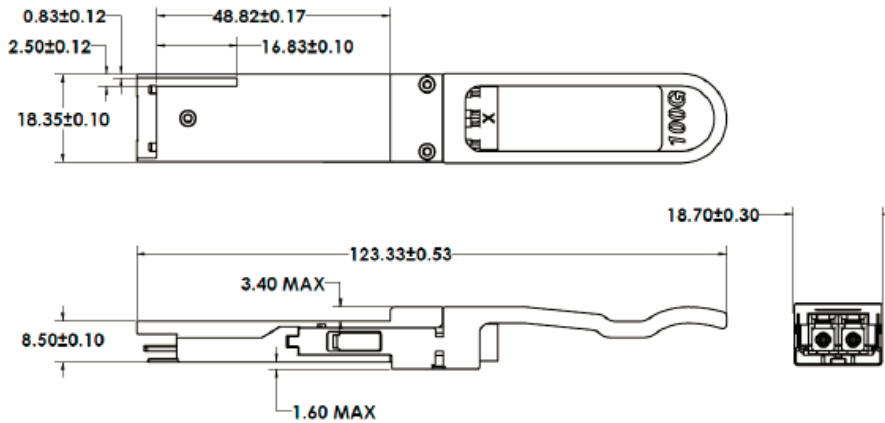


Table 3 - Part Number and Description

OPN	Description
MMA1L30-CM	Mellanox® optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km. Note: Option 1 and Option 2 transceivers have the same ordering part number, and are differentiated by Country of Origin and by means of the product's alphanumeric revision.

Warranty Information

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



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