

100 GbE QSFP28 PSM4 Optical Transceiver

MMS1C10-CM



NVIDIA® Mellanox® MMS1C10-CM transceiver is a parallel single mode, 4-channel (PSM4), pluggable, QSFP28, optical transceiver designed for use in 100 GbE Ethernet applications.

This module incorporates a state-of-the-art uncooled DFB laser and integrated circuit technology, in order to provide high performance operation. The transceiver operates over 2x4-lane parallel single mode fiber (SMF), using a nominal wavelength of 1310 nm in compliance with the 100G PSM4 MSA.

The transceiver is SFF-8665 compliant, i.e. it has a standard QSFP28 connector on the electrical side towards the host system, single 3.3 V supply, hot pluggable, and two-wire serial management interface.

The transceiver has Digital Diagnostic Monitoring (DDM) functions for supply voltage, temperature, laser bias current, optical transmit and receive levels with associated warning and alarm thresholds.

Adjustment of the Tx input equalizer, Rx output amplitude/emphasis, and (de)selection of retiming is controlled via registers defined in the SFF-8636 standard.

The optical interface is composed of four optical channels/fibers in each direction, intended for a parallel single-mode optical cable via a standard MPO/APC connector.

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

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Conditions	Minimum	Maximum	Units
Storage Temperature	Ts	---	-40	+85	°C
Relative Humidity	RH	Non condensing	0	85	%
Supply Voltage	Vcc	---	0	3.6	V

Table 2 - Operational Information

Parameter	Symbol	Minimum	Typical	Maximum	Units
Operating Case Temperature	Tc	-5	---	70	°C
Supply Voltage	Vcc	3.13	3.3	3.47	V
Supply Current	Icc	---	---	1000	mA
Data Rate, each lane	DR	-100 ppm	25.78	+100 ppm	Gb/s
Link Distance	Lmax	2	---	500	m

HIGHLIGHTS

- Up to 100 Gb/s data rate
- Up to 500 m reach over single mode fiber at 100 Gb/s
- Selectable retiming enabling 40G operation
- SFF-8665 compliant
- 3.3 V power supply
- QSFP28 Power Class 4 (<3.5 W)
- Class 1 laser safety
- Hot pluggable
- RoHS, UL & TÜV compliant
- 100G-PSM4 compliant
- SFF-8636 compliant two wire interface with Digital Diagnostic Monitoring
- Applications
 - IEEE 802.3bm CAUI-4 100G Ethernet
 - 100G and 40G Ethernet on PSM4 (Parallel Single Mode 2x4-Fiber) links
 - Qualified for use in Mellanox Ethernet end-to-end systems

Table 3 - Transmitter Electrical Specifications (each lane)

Parameter	Symbol	Notes	Minimum	Typical	Maximum	Units
Differential Data Input Amplitude	V _{CML, DI}	peak-peak	200	---	1000	mVpp
Differential Input Impedance	R _{DI}	---	---	100	---	Ohm
LPMode, ResetL and ModSelL	V _{IL}	LVTTTL	-0.3	---	0.8	V
	V _{IH}		2	---	V _{cc} +0.3	V

Table 4 - Receiver Electrical Specifications (each lane)

Parameter	Symbol	Notes	Minimum	Typical	Maximum	Units
Differential Data Output Amplitude	V _{CML, DO}	peak-peak	300	---	800	mVpp
Differential Output Impedance		---	---	100	---	Ohm
ModPrsL and IntL	V _{OL}	---	0	---	0.4	V
	V _{OH}	---	V _{cc} -0.5	---	V _{cc} +0.3	V

Mechanical Schematics

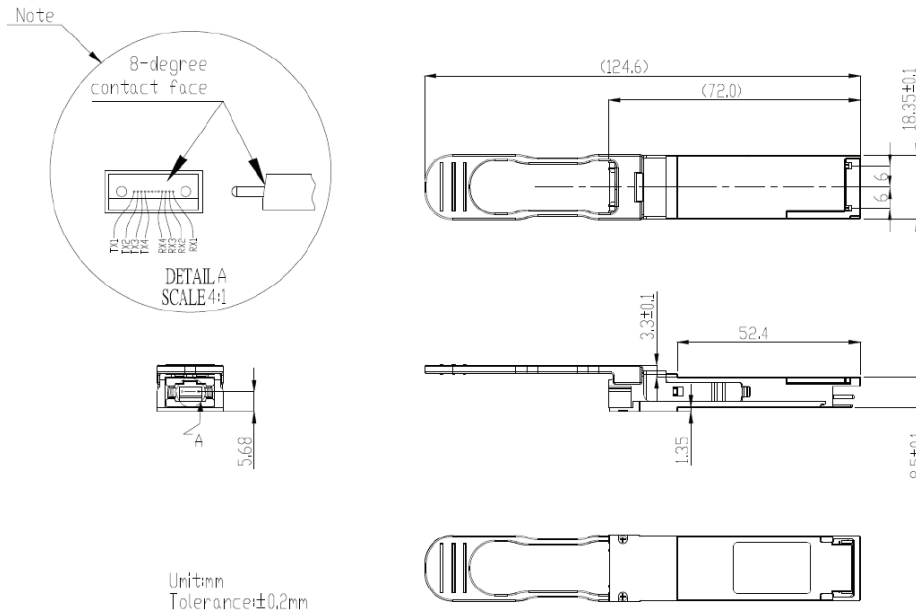


Table 5 - Part Number and Description

OPN	Description
MMS1C10-CM	Mellanox® active optical module, 100Gb/s, QSFP, MPO, 1310nm, PSM4

Warranty Information

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