

# OSFP

## Development Platform Preliminary Specs

The **MultiLane OSFP Development Kit** provides the necessary development tools and reference modules required for the development of OSFP based products. This kit is essential for development, testing and characterization of OSFP based products. It can also be used for testing 400G CDRs, 400G Gearbox devices, 400G OSFP ports on routers and line-cards, electro-optical modules, and OSFP active optical cables.

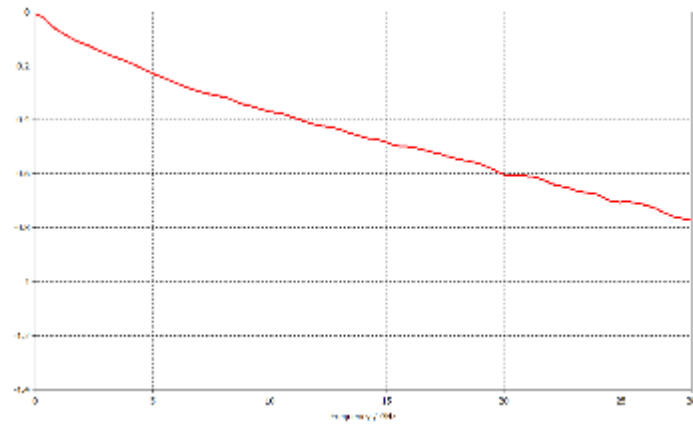
- **ML4064-MCB** 8x50G OSFP Module Compliance Board
- **ML4064-HCB** 8x50G OSFP Host Compliance Board
- **ML4064** 8x50G OSFP Passive Loopback Module

### Upcoming Products:

- **ML4064-ANA** OSFP Loopback and state machine analyzer
- **ML4064-EO** 8x50G OSFP Eye Opener Zero Loss Active Loopback
- **ML4066-OSFP** OSFP to OSFP Adapter
- **ML4054-OSFP** CFP8 to OSFP Adapter

## ML4064-MCB OSFP Module Compliance Board

- Supports 8x50G interfaces
- I2C master driven from either on-board microcontroller or external pin headers
- 40 GHz 2.92mm or 2.4mm K Connectors
- Current Sense
- Matched differential trace length across all channels
- High performance signal integrity traces from K connectors to OSFP host connector.
- On-board LEDs display MSA output alarm states
- Built with RO3003 PCB Material
- On-board buttons/jumpers for MSA input control signals
- User friendly GUI for I2C R/W commands and loading custom MSA memory maps
- Four corner testing capability
- USB interface

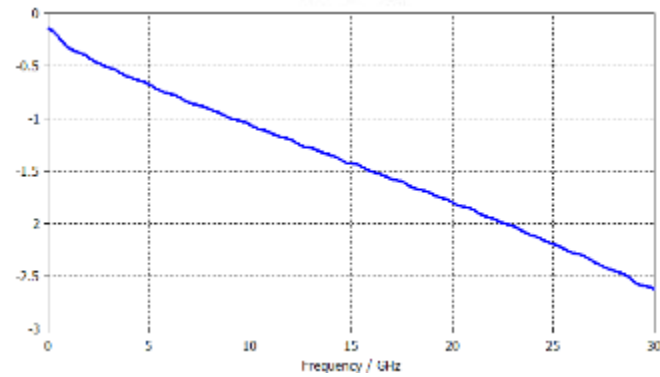
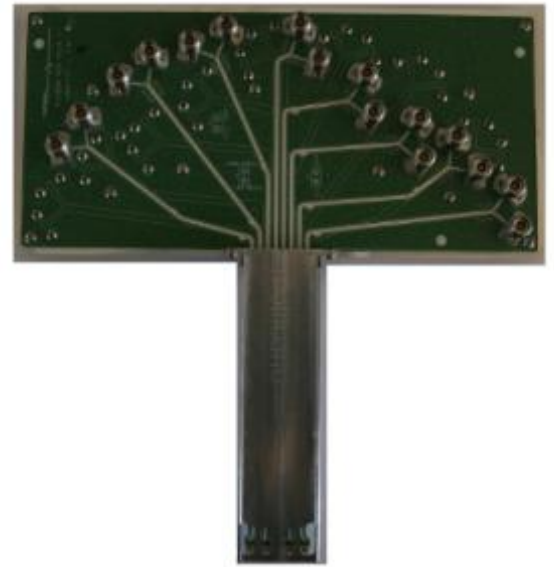


ML4064-MCB Insertion Loss



### ML4064-HCB OSFP Host Compliance Board

- High Performance signal integrity traces
- OSFP MSA Form Factor
- Same low Insertion Loss for all traces
- Built with high performance PCB material
- Supports 8x50G
- Built with RO3003 PCB Material
- High speed signals accessible through K-Connectors
- 8 channels: 8 TX and the corresponding 8 RX
- Matched trace length 5972.48 mils

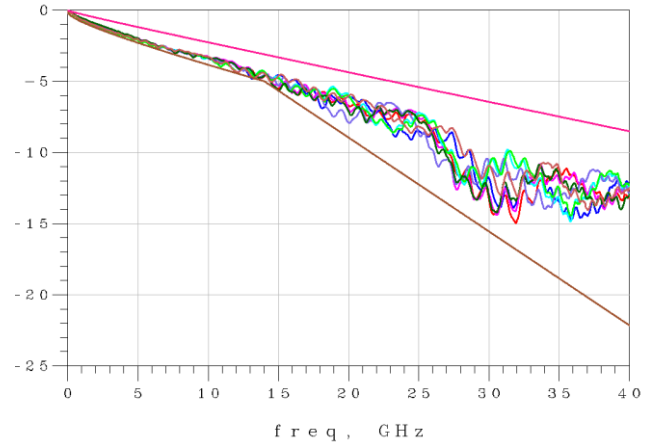
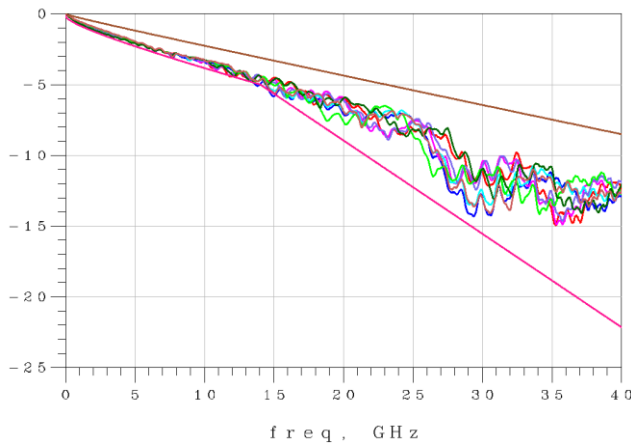


ML4064-HCB Insertion Loss

### Mated Pair Insertion Loss Measurements

TX

RX



## ML4064 OSFP Passive Loopback

- Loops back TX & RX with good performance SI Traces
- Built with advanced PCB Material (Rogers/ Megtron)
- MSA Compliant Shell with latching mechanism
- Four thermal spots
- Can emulate all 4 OSFP power classes
- Can dissipate up to 16W via the thermal loads
- Temp sense
- I2C Terminated by microcontroller, I2C slave compliant with MSA
- Implements MSA Memory Map with programmable new pages
- Ability to control/ monitor all low speed signals
- Insertion Counter
- Front LED Indicator
- Hot Pluggable
- Cut-off temperature preventing module overheating
- AC-coupled High Speed Interface



## Upcoming Products

### ML4064-ANA OSFP Loopback and State Machine Analyzer

- Front USB Interface
- Windows based GUI and API Library
- Detection and measurement of host pull up + pull down resistors on low speed signals
- Host VCC rails sampling measurement
- VCC spectral noise analysis
- Thermal loads, ability to monitor Host VCC vs load power
- I2C Analyzer:
  - Bus Speed
  - ACK/NACK Detection
  - Clock stretching analysis
  - Time event logging
- Functional tests
  - Control signals
  - Configuration registers
  - Ability to emulate optical module by loading identification registers with custom data
  - Loops back TX & RX with good performance SI Traces
  - Built with advanced PCB Material (Rogers/ Megtron)
  - MSA Compliant Shell with latching mechanism
  - Four thermal spots
  - Can emulate all 4 OSFP power classes
  - Can dissipate up to 16W via the thermal loads
  - Temperature sense
  - I2C Terminated by microcontroller, I2C slave compliant with MSA
  - Implements MSA Memory map and programmable new pages
  - Ability to control/monitor all low speed signals
  - Insertion counter
  - Front LED indicator
  - Hot pluggable
  - AC coupled high speed interface
  - Cut-off temperature to prevent module overheating



### ML4064-EO OSFP Eye Opener (Zero Loss Active Loopback)

- Loops back TX & RX via high-performance SI traces
- Built with advanced PCB material (Rogers/Megtron)
- MSA compliant shell with latching mechanism
- Can emulate all 4 OSFP power classes
- I2C terminated by microcontroller, I2C slave compliant with MSA
- Implements MSA memory map, and programmable new pages
- Uses DS280MB810 linear equalizer from TI on high speed paths
- Supports up to 28 Gigabaud rates
- Ability to control/monitor all low speed signals
- Insertion counter
- Front LED indicator
- Hot pluggable
- AC coupled high speed interface
- Signal equalization, two stage CTLE
- Eye opener
- Ultra-low additive RJ
- Programmable DC attenuation or gain

## ML4066-OSFP: OSFP to OSFP Adapter

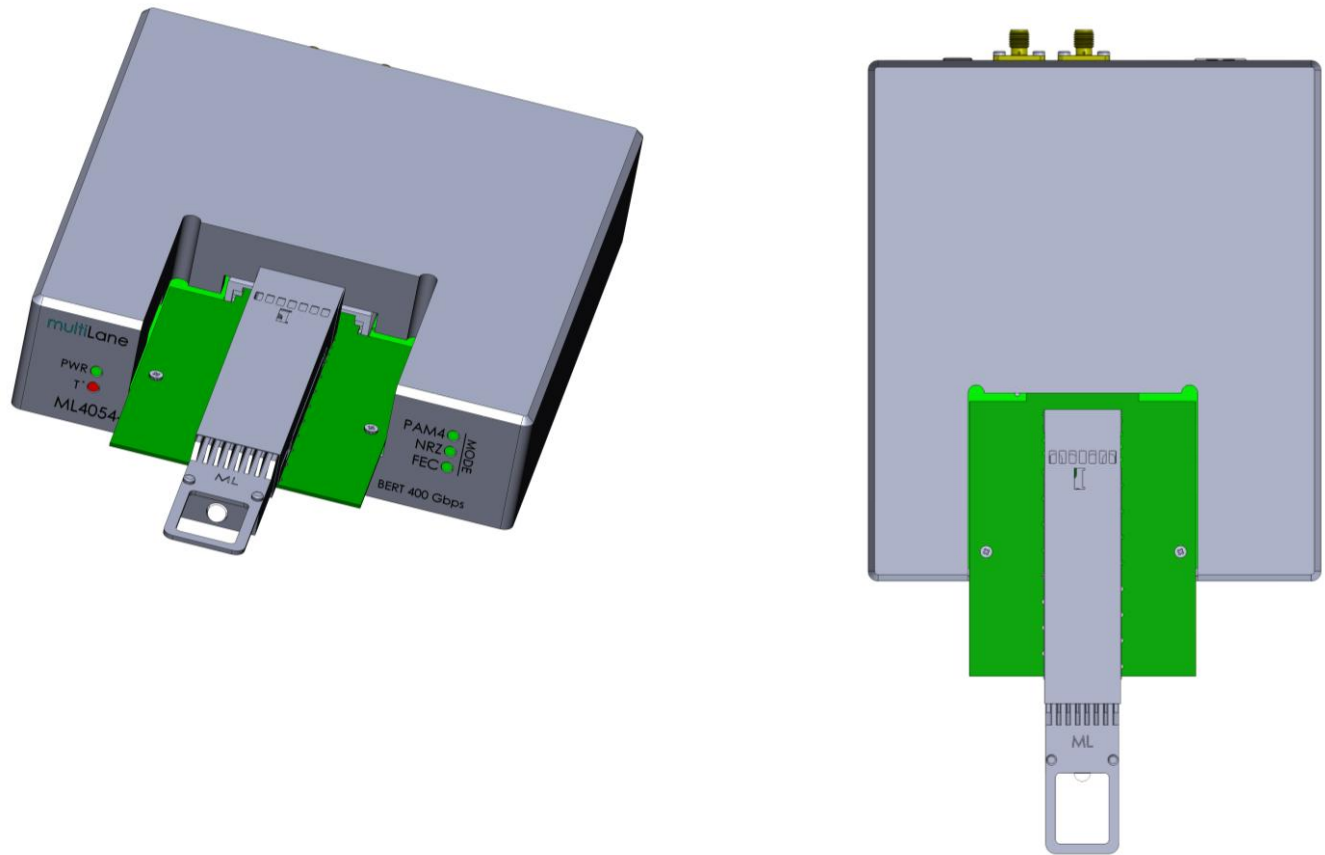
### Key Features

- All high speed signals are connected from the OSFP Plug to the front OSFP host connector with superior SI traces
- Low insertion loss PCB traces
- Power pins are accessible via pin headers and can be jumped to connect them to the plugged OSFP transceiver
- All low speed management signals are accessible via pin headers, and can be jumped to connect them to the plugged OSFP transceiver
- I2C SCL and SDA signals accessible via pin headers or can be jumped to connect them to the plugged OSFP transceiver
- Ability to drive I2C from external pin headers, or connect I2C packet analyzer
- Ability to drive 3.3V from external source for power supply margining
- Ability to break 3.3V power from Host to module allowing voltage and current measurement
- Push button for Reset Signal
- Interface to connect SFF Analyzer board



## ML4054-OSFP CFP8 to OSFP Adapter

High speed signals are connected from the CFP8 Plug to the front OSFP host connector with superior SI traces.



For additional details please refer to the following datasheet:

<https://multilaneinc.com/wp-content/uploads/2016/09/ML4054-CFP8-v1-9-Datasheet.pdf>



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