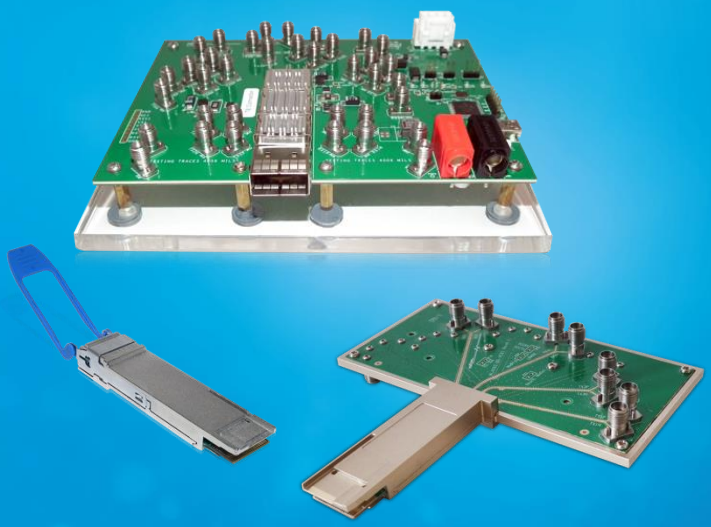
multiLane

DEVELOPMENT KIT

Innovation for the next generation



QSFP-DD800

Module Compliance Boards | Host Compliance Boards | Loopbacks | 8x112G

ML4062-MCB-112 | ML4062-HCB1-112 | ML4062-HCB2-112 | ML4062-LB-112 | ML4062-LB2a-112 | ML4062-LB2b-112

Summary

As 400G claims more and more of the data center market share, the industry is already planning for still greater speeds in 800G. Increased speeds bring with them new form factors, of which QSFP-DD800 has emerged as a leading standard to drive the development of 800G interconnectivity. To guarantee that our customers can navigate this new frontier with ease, MultiLane provides a QSFP-DD800 development kit that includes a module compliance board, a host compliance board and a variety of loopback modules.

The QSFP-DD800 development kit is an essential tool to ensure the validity of your QSFP-DD800 products. The module compliance board (MCB) is used to test transceivers, AOCs, and DACs, while the host compliance board (HCB) enables the testing of system host ports. The loopback modules (LB) provide an economical way to test thermal capacity and signal integrity of system host ports at every stage of the process: R&D validation, production testing, and field testing.

QSFP-DD800

QSFP-DD800 MCB

ML4062-MCB-112

Key Features

- Supports 8x112G interfaces
- Compliant with CEI-112G-VSR-PAM4 and CEI-56G-VSR-NRZ
- I2C master driven from both on board microcontroller or external pin headers
- Current Sense
- All 8 channels come with matching trace length
- High performance signal integrity traces from 2.4 or 1.85 mm connectors to QSFP-DD host connector.
- On-board LEDs display MSA output alarm states
- Built with high performance 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

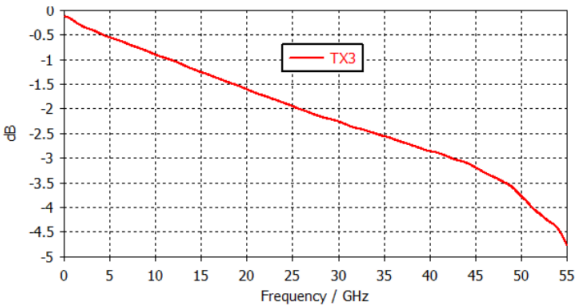


Figure 1: ML4062-MCB-112 Insertion Loss

Figure 2: ML4062-MCB-112

QSFP-DD800 HCB

ML4062-HCB1-112

Key Features

- High performance signal integrity traces
- Compliant with CEI-112G-VSR-PAM4 and CEI-56G-VSR-NRZ
- QSFP-DD MSA Form Factor
- Same low Insertion Loss for all traces
- Supports 4x112G
- Built with high performance PCB Material
- High speed signals accessible through 2.4 or 1.85 mm connectors
- 4 channels: 4 TX and the corresponding 4 RX
- Matched trace lengths of 5972.48 mils

CH1		CH2		CH3		CH4	
TX1	RX1	TX2	RX2	TX3	RX3	TX4	RX4

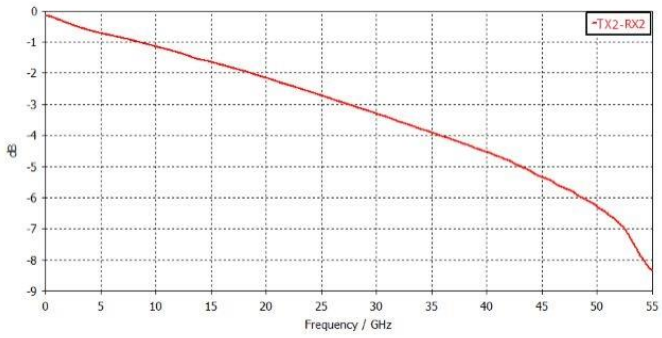


Figure 3: ML4062-HCB1-112 Insertion Loss

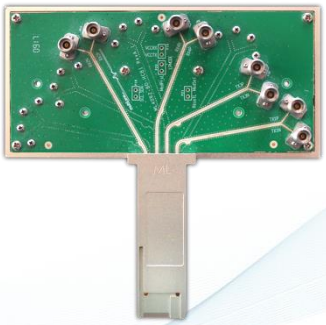


Figure 4: ML4062-HCB1-112

QSFP-DD800 HCB

ML4062-HCB2-112

Key Features

- High performance signal integrity traces
- Compliant with CEI-112G-VSR-PAM4 and CEI-56G-VSR-NRZ
- QSFP-DD MSA Form Factor
- Same low Insertion Loss for all traces
- Supports 4x112G
- Built with high performance PCB Material
- High speed signals accessible through 2.4 or 1.85 mm connectors
- 4 channels: 4 TX and the corresponding 4 RX
- Matched trace lengths of 5972.48 mils

CH5		CH6		CH7		CH8	
TX5	RX5	TX6	RX6	TX7	RX7	TX8	RX8

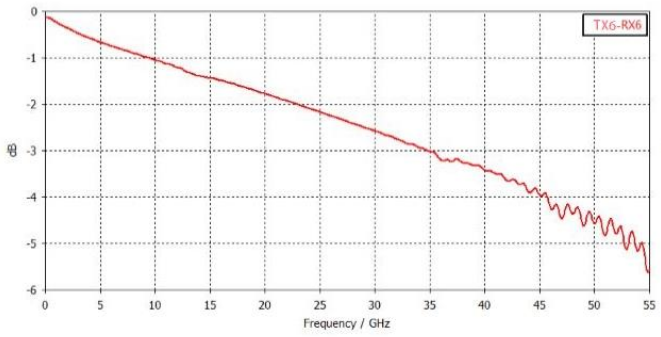


Figure 5: ML4062-HCB2-112 Insertion Loss

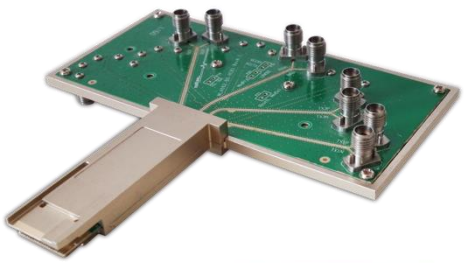


Figure 6: ML4062-HCB2-112

QSFP-DD800 Loopbacks

ML4062-LB-112

Key Features

- Loops back TX & RX with good performance SI Traces
- Built with advanced PCB Material
- MSA Compliant Shell with latching mechanism
- Four thermal spots
- Can emulate all QSFP-DD power classes
- Programmable up to 16 W 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

Figure 7: ML4062-LB-112

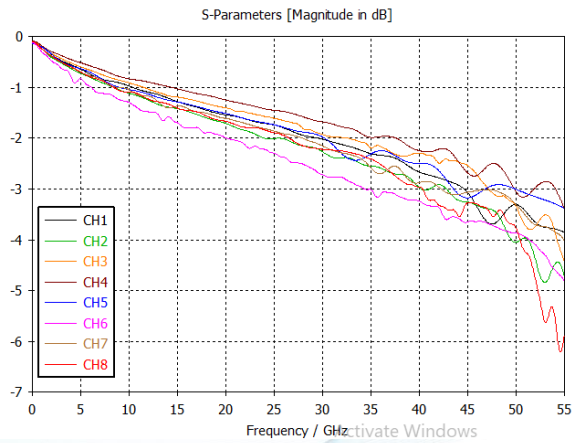


Figure 8: ML4062-LB-112

QSFP-DD800 Loopbacks

ML4062-LB2a-112

Summary

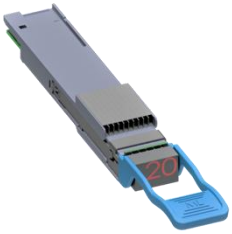
The **ML4062-LB2a-112** is used for testing QSFP-DD transceiver ports under board level tests, by substituting a full-featured QSFP-DD800 transceiver with the **ML4062-LB2a-112**. The **ML4062-LB2a-112** covers all QSFP-DD800 power classes.

The **ML4062-LB2a-112** is packaged in standard MSA housing compatible with all QSFP-DD ports. It provides an economical way to exercise QSFP-DD ports during R&D validation, production testing, and field testing.
Note that the **ML4062-LB2a-112** follows the **CMIS Rev 4.0** standard.

Key Features

- Loops back TX & RX with good performance SI Traces
- Built with advanced PCB Material
- MSA Compliant Shell with latching mechanism
- MSA Compatible Configuration and EEPROM
- Can emulate all QSFP-DD power classes
- Programmable up to 30 W via the thermal loads
- Temp sense
- I2C Terminated by microcontroller, I2C slave compliant with MSA
- Implements MSA Memory Map with programmable pages
- Ability to control/monitor all low speed signals
- Insertion Counter
- LCD display/LED indicator/Pin Header
- Hot Pluggable
- Cut-off temperature preventing module overheating
- AC-coupled High-Speed Interface

Ordering Options		
Option	**Part Number**	**Description**
#1 - LCD Display	ML4062-LB2a-112-LCD	Temperature and other Monitoring values
#2 - LED Indicator	ML4062-LB2a-112-LED	Power Mode and Alarms Monitoring
#3 - Pin Header	ML4062-LB2a-112-CON	Board to Board Connection



#1 LCD Display

#2 LED Indicator

#3 Pin Header

QSFP-DD800 Loopbacks

ML4062-LB2b-112

Summary

The **ML4062-LB2b-112** is used for testing QSFP-DD transceiver ports under board level tests, by substituting a full-featured QSFP-DD800 transceiver with the **ML4062-LB2b-112**. The **ML4062-LB2b-112** covers all QSFP-DD800 power classes.

The **ML4062-LB2b-112** is packaged in standard MSA housing compatible with all QSFP-DD ports. It provides an economical way to exercise QSFP-DD ports during R&D validation, production testing, and field testing.
Note that the **ML4062-LB2b-112** follows the **CMIS Rev 4.0** standard.

Key Features

- Loops back TX & RX with good performance SI Traces
- Built with advanced PCB Material
- MSA Compliant Shell with latching mechanism
- MSA Compatible Configuration and EEPROM
- Can emulate all QSFP-DD power classes
- Programmable up to 30 W via the thermal loads
- Temp sense
- I2C Terminated by microcontroller, I2C slave compliant with MSA
- Implements MSA Memory Map with programmable pages
- Ability to control/monitor all low speed signals
- Insertion Counter
- LCD display/LED indicator/Pin Header
- Hot Pluggable
- Cut-off temperature preventing module overheating
- AC-coupled High-Speed Interface

Ordering Options		
Option	**Part Number**	**Description**
#1 - LCD Display	ML4062-LB2b-112-LCD	Temperature and other Monitoring values
#2 - LED Indicator	ML4062-LB2b-112-LED	Power Mode and Alarms Monitoring
#3 - Pin Header	ML4062-LB2b-112-CON	Board to Board Connection

#1 LCD Display

#2 LED Indicator

#3 Pin Header

Ordering Information

Interconnects	Description
ML4062-MCB-112-24	QSFP-DD800 MCB 2.4 mm connector
ML4062-MCB-112-18	QSFP-DD800 MCB 1.85 mm connector
ML4062-HCB-112-24	QSFP-DD800 HCB 2.4 mm connector, set of HCB1 and HCB2
ML4062-HCB-112-18	QSFP-DD800 HCB 1.85 mm connector, set of HCB1 and HCB2
ML4062-LB-112	QSFP-DD800 Loopback
ML4062-LB2a-112-LCD	QSFP-DD800 Loopback with LCD display
ML4062-LB2a-112-LED	QSFP-DD800 Loopback with LED indicator
ML4062-LB2a-112-CON	QSFP-DD800 Loopback with Pin header
ML4062-LB2b-112-LCD	QSFP-DD800 Loopback with LCD display
ML4062-LB2b-112-LED	QSFP-DD800 Loopback with LED indicator
ML4062-LB2b-112-CON	QSFP-DD800 Loopback with Pin header

Recommended Accessories

Interconnects	Recommended *Phase matched cable pairs*	Alternative *Phase matched cable sets*	Comments
ML4062-MCB-112-24	16x MLCBPM-2.4-30/60	2x MLCBPM-2.4-30/60-16	2.4 mm connector 2x16 channel 30 or 60 cm
ML4062-MCB-112-18	16x MLCBPM-1.85-30/60	2x MLCBPM-1.85-30/60-16	1.85 mm connector 2x16 channel 30 or 60 cm
ML4062-HCB-112-24	16x MLCBPM-2.4-30/60	2x MLCBPM-2.4-30/60-16	2.4 mm connector 2x16 channel 30 or 60 cm
ML4062-HCB-112-18	16x MLCBPM-1.85-30/60	2x MLCBPM-1.85-30/60-16	1.85 mm connector 2x16 channel 30 or 60 cm

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