multiLane

DATASHEET

Innovation for the next generation

ML4002-28-C5

4x28 Gbps Passive Loopback

QSFP Loopback | Power consumption of up to 8W | Operation up to 28G per lane

Summary

The ML4002-28-C5 is a QSFP28 passive electrical loopback module which is a hot pluggable form factor designed for high speed testing application for QSFP host ports. The ML4002-28-C5 is designed for 100 Gigabit Ethernet applications and provides 4x28G RX and TX lanes, I2C module management interface and all the QSFP SFF hardware signals.

ML4002-28-C5

100G QSFP Passive Electrical Loopback

Introduction

The ML4002-28-C5 loops back 4-lane 28Gb/s transmit data from the Host back to 4-lane 28Gb/s receive data port to the Host.

The ML4002-28-C5 provides programmable power dissipation up to 5W allowing the module to emulate all the QSFP28 power classes. It also provides a voltage sense, an insertion counter, a power staging, a LED blinking rate, an upper temperature cut off and a temperature sensor.

Key Features

- Power consumption of 5W
- Option with 8W power consumption available
- Operation up to 28G per lane
- Dual LED indicator
- Custom Memory Maps
- 100% at rate AC testing, on each unit
- Temperature range from 0° to 80° C
- MSA Compliant Memory Map
- High performance signal integrity traces
- Temperature Monitoring
- Voltage Monitoring
- Insertion Counter
- Power Staging
- Hot pluggable module
- Micro controller based
- Compliant with SFF-8436

Management Data Interface – I2C

- The ML4002-28-C5 supports the I2C interface and is compliant with SFF-8436.

ML4002-28-C5-V2

100G QSFP Passive Electrical Loopback

Introduction

The ML4002-28-C5-V2 loops back 4-lane 28Gb/s transmit data from the Host back to 4-lane 28Gb/s receive data port to the Host.

The ML4002-28-C5-V2 provides programmable power dissipation up to 5W allowing the module to emulate all the QSFP28 power classes. It also provides a voltage sense, an insertion counter, a power staging, a LED blinking rate, an upper temperature cut off and a temperature sensor.

Key Features

- Power consumption of 5W
- Option with 8W power consumption available
- Operation up to 28G per lane
- Dual LED indicator
- Custom Memory Maps
- 100% at rate AC testing, on each unit
- Temperature range from 0° to 80° C
- MSA Compliant Memory Map
- High performance signal integrity traces
- Temperature Monitoring
- Voltage Monitoring
- Insertion Counter
- Power Staging
- Hot pluggable module
- Micro controller based
- Compliant with CMIS 4.0

Management Data Interface – I2C

- The ML4002-28-C5-V2 supports the I2C interface and is compliant with CMIS 4.0.

Electrical Specifications

Parameter	Symbol	Min	Max	Unit
Clock Frequency	f_{SCL}	30	400	kHz
Clock Pulse Width Low	t_{LOW}	1.2		us
Clock Pulse Width High	t_{High}	1.1		us
Time bus free before new transmission can start	t_{BUF}	20.8		us
Input Rise Time (400kHz)	$t_{R,400}$	300		ns
Input Fall Time (400kHz)	$t_{F,400}$	300		ns
ModSelL Setup Time	Host_select_setup	2		ms
ModSelL Hold Time	Host_select_hold	10		us
Serial Interface Clock Holdoff "Clock Stretching"	T_clock_hold		500	us

Ordering Information

Part Number	Description
ML4002-28-C5	QSFP28 Loopback Module
ML4002-28-C5-V2	QSFP28 Loopback Module, compliant with CMIS 4.0
ML4002-28-C5-8W	QSFP56 Loopback Module, 8W power consumption
ML4002-28-C5-V2-8W	QSFP56 Loopback Module, compliant with CMIS 4.0, 8W power consumption
1YW	1 Year standard warranty

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