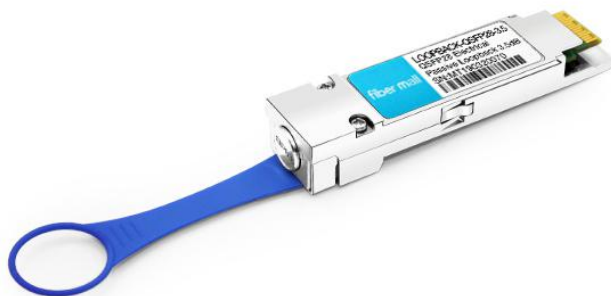


LOOPBACK-QSFP28-x

100G QSFP28 Electrical Passive Loopback, 0dB/ 3.5dB/ 5dB



Product Features

- ❖ Customizable power consumption
- ❖ Custom memory maps available, Supports 100Gbps total data rate
- ❖ Host-pluggable MSA footprint
- ❖ Full SFF-8665 MSA compliant
- ❖ Temperature range from 0°C to 80°C
- ❖ Compliant with SONET, SDH, GBE, Fibre Channel
- ❖ MSA Compliant EEPROM
- ❖ Power Classes 1 through 6 are available

Applications

- ❖ QSFP port/system testing
- ❖ Ethernet IEEE 802.3 (Gigabit, 10 Gigabit, 40 Gigabit, and 100 Gigabit Ethernet)
- ❖ SDR, DDR and QDR Infiniband Transmission
- ❖ SONET, SDH, GBE, Fibre Channel Support

Product Description

QSFP28 Electrical Passive Loopback has Excellent signal integrity, It is used for Economical and flexible 100Gbps QSFP28 port testing\Board level system testing and Power on validation .

The loopback module is packaged in a standard MSA housing compatible with all QSFP+/QSFP28 ports. Transmit data from the host is electrically routed, (internal to the loopback module), to the receive data outputs and back to the host. It provides an economical way to exercise QSFP/QSFP+ ports during R&D validation, production testing, and field testing.

Recommended Operation Condition

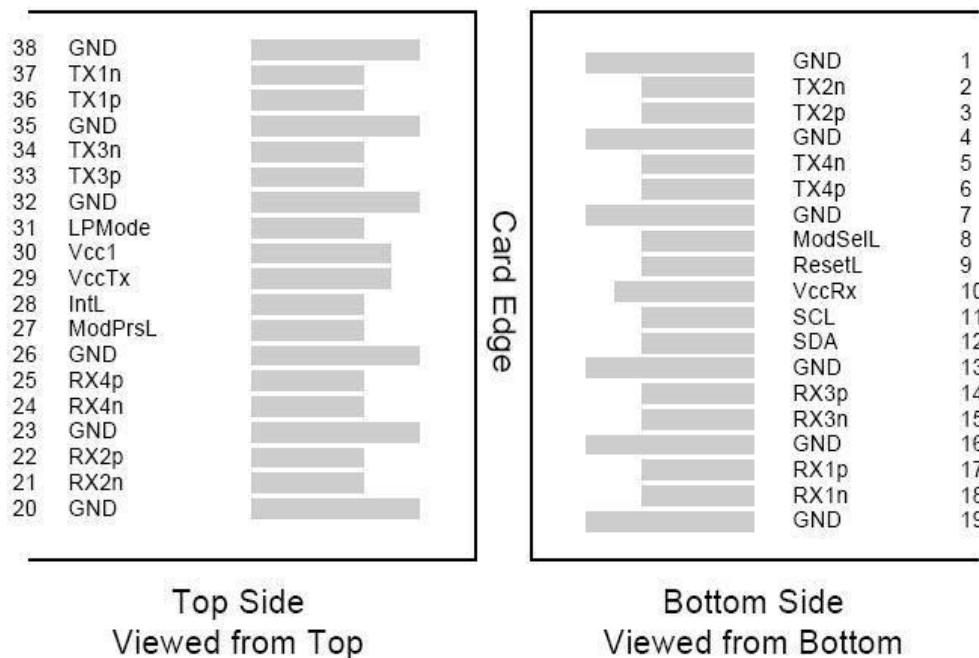
Parameter	Symbol	Notes/Conditions	Min	Type	Max	Units
Operating Temperature	TA	Note 1	W		80	°C
+3.3V Supply Voltage	VCC	Main Supply Voltage	3.00	3.3	3.60	V
Data Rate		Guaranteed to work at 28Gbps per lane	0		112	Gbps
Input/ Output Load Resistance	RL		90	100	110	Ω
Jitter		Note 2		33		
Power Level 0		0 A			0	W

Note:

1. Ambient temperature with a minimum of 100 linear feet per minute of air flow
2. Measured with Fiber Mall 25G BERT and Fiber Mall QSFP28 Host Test Board

Host board Connector Pin out

MSA Compliant Connector



Pin Definitions

PIN	Logic	Symbol	Name/Description
1		GND	Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data output
4		GND	Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data output
7		GND	Ground
8	LVTLL-I	ModSelL	Module Select
9	LVTLL-I	ResetL	Module Reset
10		VccRx	+ 3.3V Power Supply Receiver
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data

13		GND	Ground
14	CML-O	Rx3p	Receiver Non-Inverted Data Output
15	CML-O	Rx3n	Receiver Inverted Data Output
16		GND	Ground
17	CML-O	Rx1p	Receiver Non-Inverted Data Output
18	CML-O	Rx1n	Receiver Inverted Data Output
19		GND	Ground
20		GND	Ground
21	CML-O	Rx2n	Receiver Inverted Data Output
22	CML-O	Rx2p	Receiver Non-Inverted Data Output
23		GND	Ground
24	CML-O	Rx4n	Receiver Inverted Data Output
25	CML-O	Rx4p	Receiver Non-Inverted Data Output
26		GND	Ground
27	LVTTL-O	ModPrsL	Module Present
28	LVTTL-O	IntL	Interrupt
29		VccTx	+3.3 V Power Supply transmitter
30		Vcc1	+3.3 V Power Supply
31	LVTTL-I	LPMODE	Low Power Mode
32		GND	Ground
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input
34	CML-I	Tx3n	Transmitter Inverted Data Output
35		GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input
37	CML-I	Tx1n	Transmitter Inverted Data Output
38		GND	Ground

Notes:

1. GND is the symbol for signal and supply (power) common for QSFP modules. All are common within the QSFP module and all module voltages are referenced to this potential otherwise noted. Connect these directly to the host board signal common ground plane
2. Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

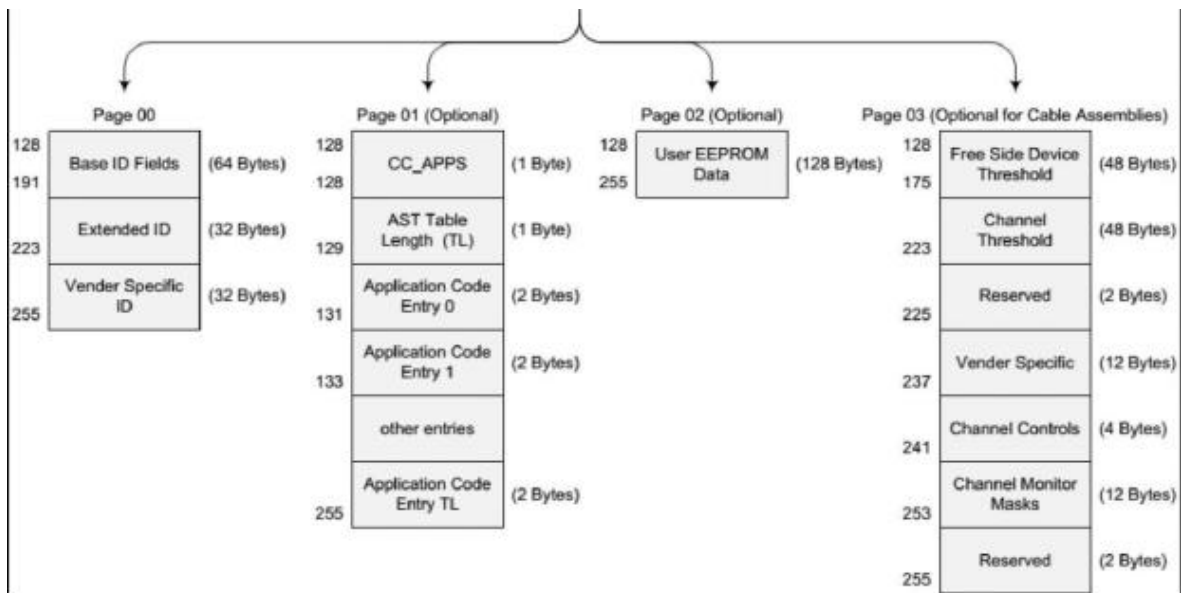
Memory Map

In addition to the electrical loopback function, this loopback module provides an MSA standard 2-wire serial communication interface to digital diagnostics and preloaded 256kB EEPROM memory maps; both standard and custom memory maps are available.

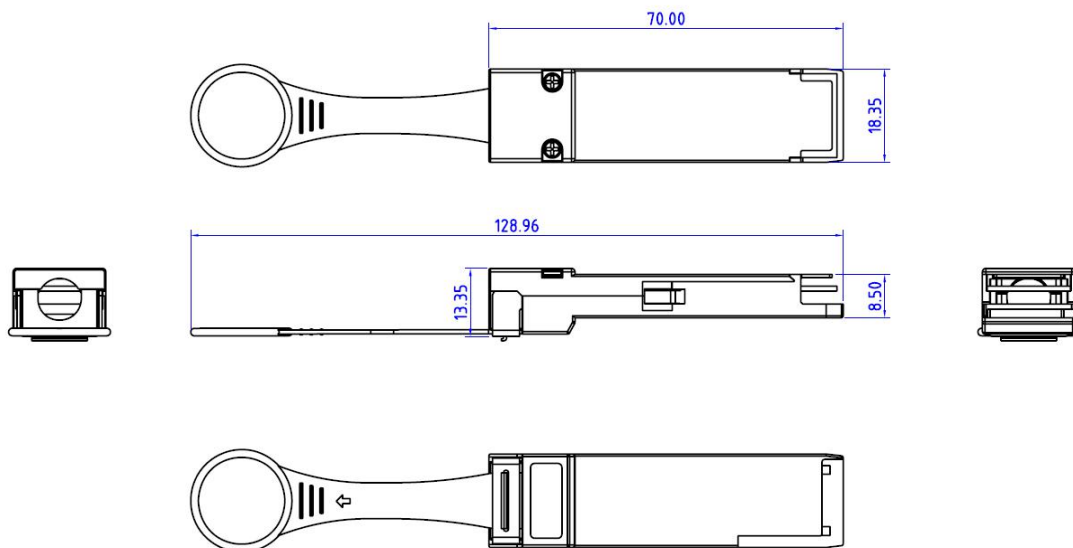
2-wire Management Interface

The transceivers provide management two-wire interface and the management memory map is specified by SFF-8436.

2-Wire Serial Address: 1010000x		
0	ID and status	(3 Bytes)
2		
21	Interrupt Flags	(19 Bytes)
33	Module Monitors	(12 Bytes)
81	Channel Monitors	(48 Bytes)
85	Reserved	(4 Bytes)
97	Control	(12 Bytes)
99	Reserved	(2 Bytes)
106	Free Side Device and Channel Mask	(7 Bytes)
107	Reserved	(1 Bytes)
111	Free Side Device Properties	(4 Bytes)
118	Reserved	(7 Bytes)
122	Password Change Entry Area (Optional)	(4 Bytes)
126	Password Entry Area (Optional)	(4 Bytes)
127	Page Select Byte	(1 Bytes)



Mechanical Specifications



Ordering Information

Part Number	Product Description
LOOPBACK-QSFP28-0	QSFP28 Electrical Passive Loopback, 0dB, 0W
LOOPBACK-QSFP28-3.5	QSFP28 Electrical Passive Loopback, 3.5dB, 0W
LOOPBACK-QSFP28-5	QSFP28 Electrical Passive Loopback, 5dB, 0W

Notes: Maximum total power value is specified across the full temperature and voltage range and may vary according to different options.