40G QSFP+ SR4 Active Optical Cable

MTRQ-4S100

Features

- Support Data Rate 4x1Gbps~4x10.3125Gbps
- 4 channels 850nm VCSEL array
- 4 channels PIN photo detector array
- DDM function implemented
- Single MPO connector receptacle
- Hot Pluggable QSFP+ form factor
- Single +3.3V power supply
- Power consumption less than 1W
- Operating case temperature: 0~+70°C
- Distance 1m/3m/5m/10m/15m/20m/30m/50m/100m

Applications

- 1G/10G Ethernet
- Datacom/Telecom switch&router connections
- Data Aggregation and Backplane Applicationgs
- Infiniband transmission at 4ch QDR,FDR and EDR

Compliance

- Compliant with SFF-8436 Rev 2.7
- Compliant with IEEE 802.3ae
- Compliant with QSFP+ MSA
- GR-468-CORE
- RoHS compliance

Description

MTRQ-4S100 is a Four-Channel, Parallel, Fiber-Optic QSFP+ Avtive Optical Cable for 40G Base-SR4 Ethernet Applications. This transceiver is a high performance module for short-reach muti-lane data communication and interconnect applications.it integrates four data lanes in each direction with 41.25Gbps bandwidth. Each lane can operate during 4x1Gbps~4x10.3125Gbps.

These modules are designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 38 contact edge type connector. The optical interface uses an 12 fiber MTP(MPO) connector.

A serial EEPROM in the transceiver allows the user to access transceiver monitoring and configuration data via the 2-wire QSFP Management Interface. This interface uses a single address, A0h, with a memory map divided into a lower and upper area. Basic digital diagnostic (DD) data is held in the lower area while specific data is held in a series of tables in the high memory area.

Specification

Absolute Maximum Ratings				
Parameter	**Symbol**	**Min.**	**Max.**	**Unit**
Storage Temperature	T_S	-40	+85	℃
Supply Voltage	V_{CC3}	0	3.6	V
Relative Humidity	RH	5	85	%

Recommended Operating Conditions						
Parameter	**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**	Note
Operating Case Temperature	T_C	0		70	℃	
Power Supply Voltage	V_{CC3}	3.13	3.3	3.47	V	
	I_{CC3}			300	mA	
Power Dissipation	P_D			1	W	
Data Rate per channel		1	10.3125		Gbps	

Electrical Characteristic						
Parameter	**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**	**Note**
Input differential impedance			100		Ω	
Differential data input swing		180		700	mV	
Differential data output swing		300		850	mV	
Transition Time, 20 to 80%	Tr, Tf	28			ps	
AC common-mode input voltage tolerance(RMS)		15			mV	
Two Wire Serial (TWS) Interface Clock Rate				400	kHz	

Pin-out Definition

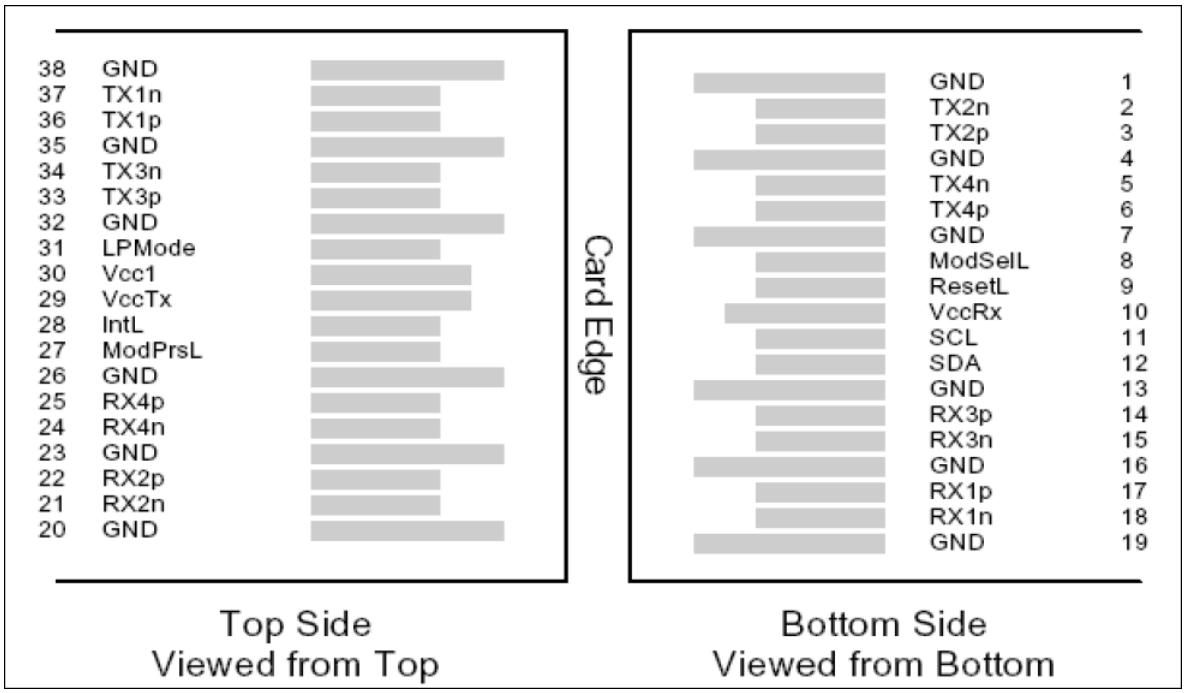

Figure1

Pin Assignment

Pin	Name	Description	Notes
1	GND	Ground	Note1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	Note1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	Note2
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	Note1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	Note1
19	GND	Ground	Note1
20	GND	Ground	

21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	Note1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3V Power supply transmitter	Note2
30	Vcc1	+3.3V Power supply	Note2
31	LPMode	Low Power Mode	
32	GND	Ground	Note1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	Note1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	Note1

Notes：

[1] GND is the symbol for signal and supply (power) common for the QSFP+ module. All are common within the QSFP+ module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.

[2] Vcc Rx, Vcc1 and VccTx are the receiver and transmitter power supplies and shall be applied concurrently.Recommended host board power supply filtering is shown in Figure 7. Vcc Rx Vcc1 and VccTx may be internally connected within the QSFP+ Module in any combination. The connector pins are each rated for a maximum current of 500 mA.

Optical Interface Lanes and Assignment

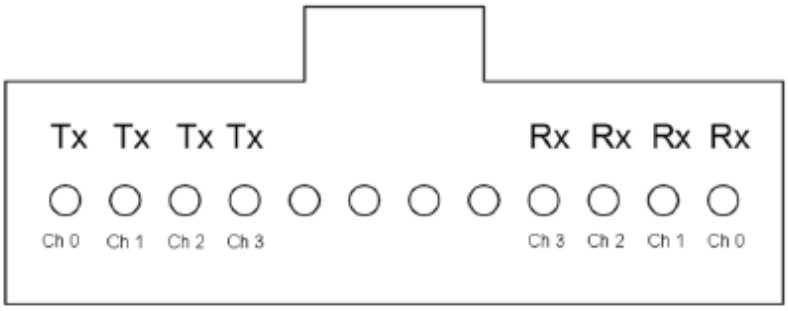

Figure 2 Optical lane assignment (front view of MPO receptacle)

Mechanical Dimensions

Unit is millimeter. All dimensions are ±0.1mm unless otherwise specified.

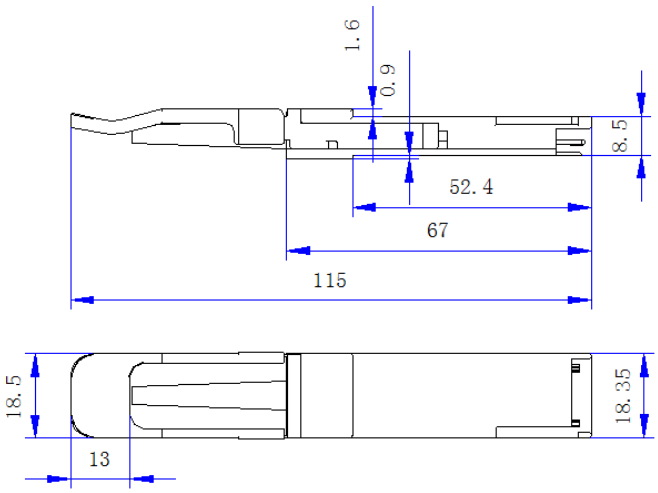

Figure3 Mechanical Package Outline

Digital Diagnostic Memory Map

2-Wire Serial Address: 1010000x（A0H）

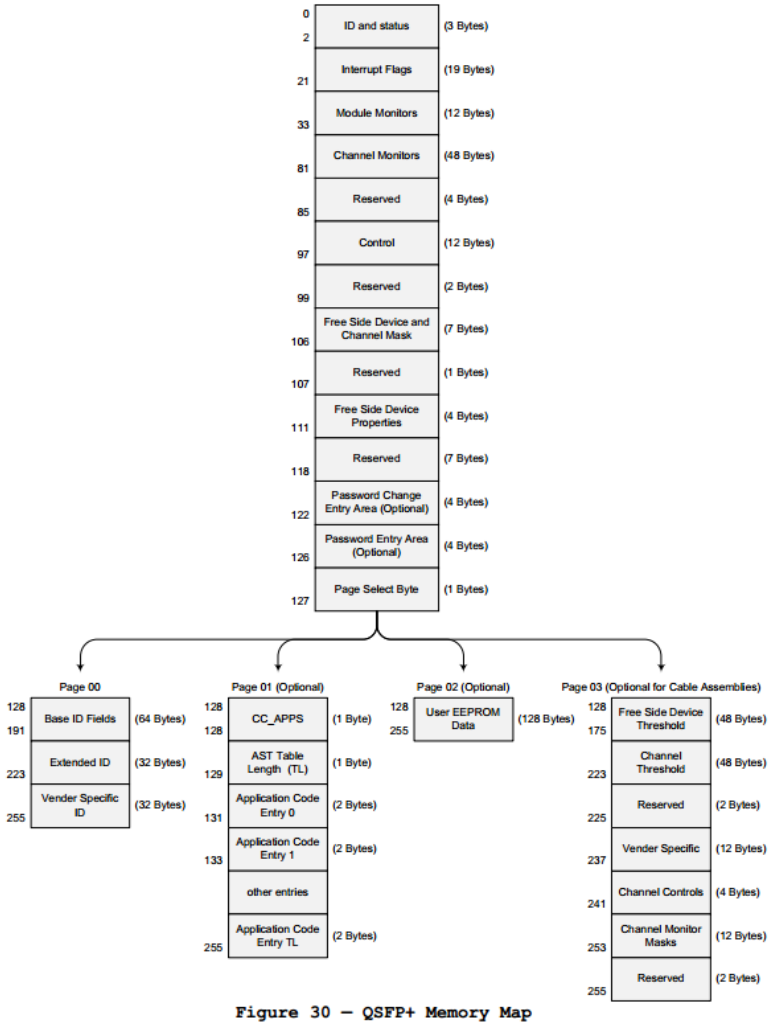

Figure 30 – QSFP+ Memory Map

Ordering Information

Part No	Specification							
	Pack	Rate	4 Tx	Standard Cable Lengths	4 Rx	Standard Optical Cable Type	Case temperature	Others
MTRQ-4S100 AOC	QSFP+	4x1G~ 4x10.3125G	850nm VCSEL	1, 3, 5, 10, 15, 20, 30, 50, 100	PIN	Multimode round fiber cable	0~70℃	DDM/RoHS

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Publishing Date: 2016-10-20