GL40-MM85SR4C

41.2Gbps 850nm QSFP+ Transceiver

Features

- Hot-plug gable QSFP+ footprint
- Operates at 10.3Gbps per channel
- 4x10.3Gbps 850nm VCSEL transmitter
- 4x10.3Gpbs electrical interface
- Maximum link length of 300m on OM3 MMF
- Power Dissipation <1.5W
- Single +3.3V power supply
- Single MPO12 receptacle
- Operating Case temperature range
  0°C to 70°C
- RoHS-6 compliant
- Compliant with SFF-8679
- Compliant with SFF-8636

Applications

- 40GBASE-SR4
- Date Center

Ordering information

Part No.	Data Rate	Laser	Temp.	Optical Interface	DDMI
GL40-MM85SR4C	41.2Gbps	VCSEL	0°C to 70°C	MPO12	YES

Description

GL40-MM85SR4C transceiver is designed for using in 41.2Gbps data rate over multi mode fiber. The transceiver is compliant with SFF-8436, and the mechanical QSFP+ plug is compatible with SFF-8661. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8636.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	V_{CC}	0	---	3.6	V	---
Storage Temperature	Ts	-40	---	+85	°C	---
Relative Humidity	RH	5	---	85	%	Non-condensing
Case Operating Temperature	Tc	0	---	+70	°C	---

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V	---
Power Dissipation	P_D	---	---	1.5	W	---
Power Supply Current	Icc	---	---	450	mA	---
Aggregate Data Rate	---	---	41.2	---	Gbps	---
Signaling rate per lane	---	---	10.3125	---	Gbps	---
Clock Rate-I2C	---	---	---	400	kHz	---
Transmitter						
Input Differential impedance	Z_{IN}	---	100	---	ohm	---
Differential data input swing	V_{IN}	180	---	900	mV	---
Single-ended voltage tolerance	---	-0.3	---	3.3	V	---
Receiver						
Output Differential impedance	Zout	---	100	---	ohm	---
Differential data Output Swing	Vout	300	---	850	mV	---

Optical Parameters

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power budget	---	7.0	---	---	dB	---
Aggregate Data Rate	---	---	41.2	---	Gbps	---
Signaling rate per lane	---	---	10.3125	---	Gbps	---
Transmitter						
Center Wavelength	λ	840	850	860	nm	---
RMS spectral width	$\Delta\lambda_{RMS}$	---	---	0.65	nm	---
Average Optical Power	P_{AVG}	-5	---	0	dBm	---
Laser Off Power	P_{OFF}	---	---	-30	dBm	---
Extinction Ratio	ER	3	4	---	dB	---
Transmitter and dispersion eye closure	TDEC	---	---	3.5	dB	---
Optical Return Loss Tolerance	ORL	---	---	12	dB	---
Receiver						
Center Wavelength	λ	840	850	860	nm	---
Receiver Sensitivity (OMA)	R_{SENSE1}	---	---	-10.5	dBm	1
Stressed Receiver Sensitivity (OMA)	SRS	---	---	-7.5	dBm	---

Maximum Input Power	Pmax	3.4	---	---	dBm	---
Los Assert	LOS_A	-30	---	---	dBm	---
Los Dessert	LOS_D	---	---	-12	dBm	---
Los Hysteresis	LOS_H	0.5	---	---	dB	---
Receiver Reflectance	R_{REFL}	---	---	-12	dB	---

Note1: Sensitivity for 10.3125Gbps PRBS31 and BER better than or equal to E-12.

General Specifications

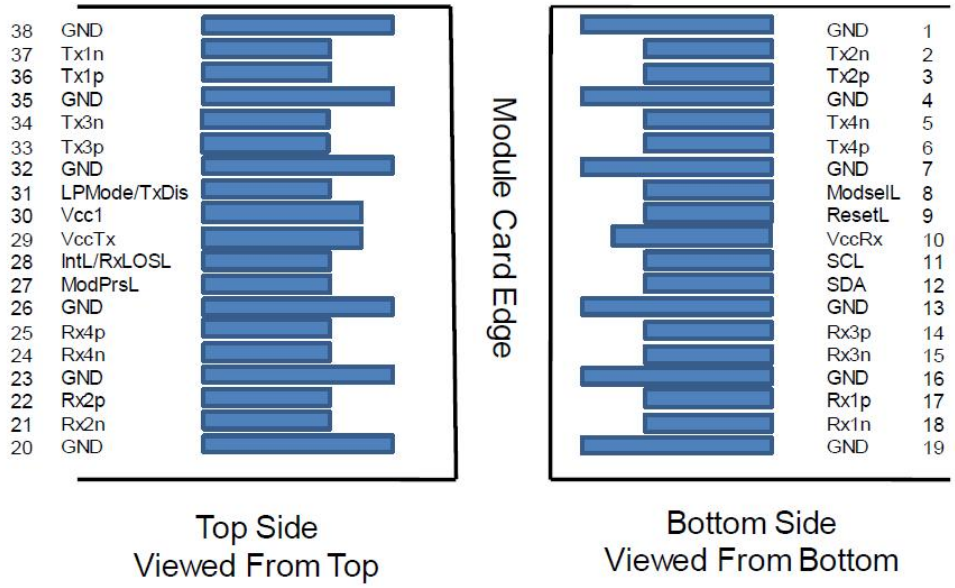
Parameter		Symbol	Min.	Typical	Max.	Unit	Note
Aggregate Data Rate		---	---	41.2	---	Gbps	---
Signaling rate per lane		---	---	10.3125	---	Gbps	---
Bit Error Ratio		BER	---	---	1E-12	---	PRBS31
Maximum Supported Distances							
Fiber Type	Bandwidth (850nm)	---	---	---	---	---	---
50um	500MHz*km	---	---	---	82	m	OM2
50um	2000MHz*km	---	---	---	300	m	OM3
50um	4700MHz*km				400	m	OM4

Digital Diagnostic Functions

GL40-MM85SR4C transceivers can be used in host systems that require either internally or externally calibrated digital diagnostics.

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Temperature monitor absolute error	---	-3	---	3	℃	---
Laser power monitor absolute error	---	-3	---	3	dB	---
RX power monitor absolute error	---	-3	---	3	dB	---
Supply voltage monitor absolute error	---	-100	---	100	mV	---
Bias current monitor	---	-10%	---	10%	mA	---

Pin Assignment:



Pin Descriptions

PIN	Symbol	Name / Description	Note
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	---
3	Tx2p	Transmitter Non-Inverted Data Input	---
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	---
6	Tx4p	Transmitter Non-Inverted Data Input	---
7	GND	Ground	1
8	ModSelL	Module Select	2
9	ResetL	Module Reset	---
10	Vcc Rx	3.3V Power Supply Receiver	---
11	SCL	2-wire serial interface clock	3
12	SDA	2-wire serial interface data	3
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	---
15	Rx3n	Receiver Inverted Data Output	---
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	---
18	Rx1n	Receiver Inverted Data Output	---
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	---
22	Rx2p	Receiver Non-Inverted Data Output	---

23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	---
25	Rx4p	Receiver Non-Inverted Data Output	---
26	GND	Ground	1
27	ModPrsL	Module Present	3
28	IntL	Interrupt	3
29	Vcc Tx	3.3V power supply transmitter	---
30	Vcc1	3.3V power supply	---
31	LPMode	Low Power Mode	---
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	---
34	Tx3n	Transmitter Inverted Data Input	---
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	---
37	Tx1n	Transmitter Inverted Data Input	---
38	GND	Ground	1

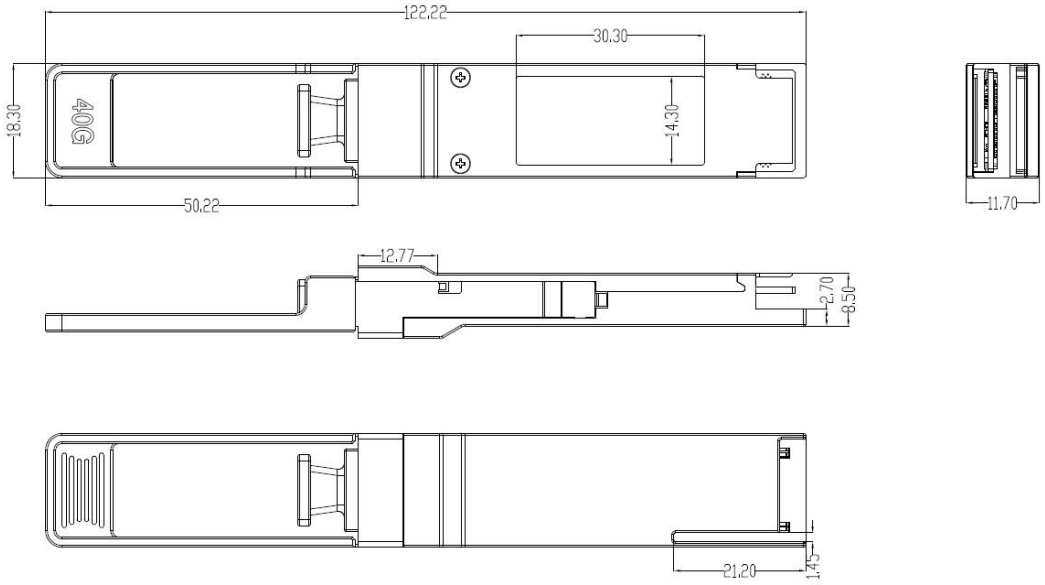
Note1: Module ground pins GND are isolated from the module case.

Note2: ModSelL is an input signal. When held low by the host, the module responds to two-wire serial communication commands. The ModSelL signal allows the use of multiple modules on a single two-wire interface. When ModSelL is high, the module shall not respond to or acknowledge any two-wire interface communication from the host.

Note3: Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

Mechanical Dimensions

Unit: mm



Revision History

Revision	Initiated	Reviewed	Approved	DCN	Release Date
V1.0	LIN	---	Ethan Li	Released.	May 16, 2022

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