PRODUCT SPECIFICATION

Part No.:	AC-QF-8G40-01	
Description:	40G QSFP+ Transceiver, MMF 850nm 100m/300m	
Release Date	**Rev.**	**Revision Change Description**
2017/06/07	**A0**	New Release
2020/12/28	**A1**	Template Update

Features

- ✧ High Channel Capacity: 40 Gbps per module
- ✧ Up to 11.2Gbps Data rate per channel
- ✧ MTP/MPO optical connector
- ✧ High Reliability 850nm VCSEL technology
- ✧ Maximum link length of 100m links on OM3 MM fiber Or 150m links on OM4 Multimode fiber/ Max. 300m over OM3 MM Fiber
- ✧ Hot Pluggable
- ✧ Power dissipation < 0.7W
- ✧ Commercial operating case temperature range: 0~70ºC
- ✧ RoHS-6 Compliant

Application

- ✧ 40GB Ethernet links
- ✧ Infiniband QDR, DDR and SDR
- ✧ 40G Telecom connections

Standard

- ✧ Compliant to IEEE 802.3ba
- ✧ Compliant with QSFP+ MSA
- ✧ Compliant to SFF-8436

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Specification:

Absolute Maximum Ratings				
Parameter	**Symbol**	**Min**	**Max**	**Unit**
Storage Ambient Temperature	T_{STG}	-40	85	℃
Operating Humidity	H_O	5	95	%
Power Supply Voltage	Vcc	-0.5	3.6	V

Recommended Operating Conditions					
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**
Operating Case Temperature	Tc	0		70	℃
Power Supply Voltage	Vcc	3.135	3.3	3.465	V
Power Supply Current	ICC			450	mA
Power Consumption	Pdiss			0.7	W
Aggregate Bit Rate	BRAVE		41.25		Gbps
Data Rate,each Lane	BRAVE		10.3125	11.2	Gbps
Transmission Distance	MMF	-	100	-	m
Transmission Distance	MMF		300		m

Electrical transmitter Characteristics							
Parameter		**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Input Impedance (Differential)		Zin	85	100	115	ohms	Rin > 100 kohms @ DC
Differential data input swing		Vin,pp	180		1000	mV	
TX Disable	Disable	VIH	2		Vcc+0.3	V	
	Enable	VIL	0		0.8		
TX FAULT	Fault	VOH	2.4		Vcc+0.3	V	
	Normal	VOL	0		0.8		
Electrical receiver Characteristics							
Parameter		**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Input Impedance (Differential)		Zin	85	100	115	ohms	
Differential data output swing		Vout,pp	300		850	mV	
RX_LOS	LOS	VoH	2.4		Vcc+0.3	V	
	Normal	VoL	0		0.8		
Rise Time		tr			30	ps	10%~90%
Fall Time		tf			30	ps	10%~90%

Optical transmitter Characteristics						
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Average Launch Power each lane	Pavg	-7.6		2.4	dBm	Reach 100 meters
	Pavg	-7.6		2.4	dBm	Reach 300 meters
Per Lane Bit Rate	Er		3		dB	
Center Wavelength	λ0	840	850	860	nm	
Spectral Width(-20dB)	Δλ			0.65	nm	
Average launch Power off each lane	Poff			-30	dBm	
Transmitter and Dispersion Penalty each lane	TDP			3.5	dB	
Optical Return Loss Tolerance	ORL			12	dB	
Output Eye Diagram	IEEE 802.3ba-2010 Compliant					

Optical receiver Characteristics							
Parameter		**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Receiver Wavelength		λ in	840	850	860	nm	
Receiver sensitivity in OMA, each lane		Pmins			-9.5	dBm	Reach 100 meters
		Pmins			-9.9	dBm	Reach 300 meters
Input Saturation Power (Overload)		Psat	2.4			dBm	
Receiver reflectance		Rr			-12	dB	
LOS	Optical De-assert	LOSD			-12	dBm	
	Optical Assert	LOSA	-30				

Pin Definition

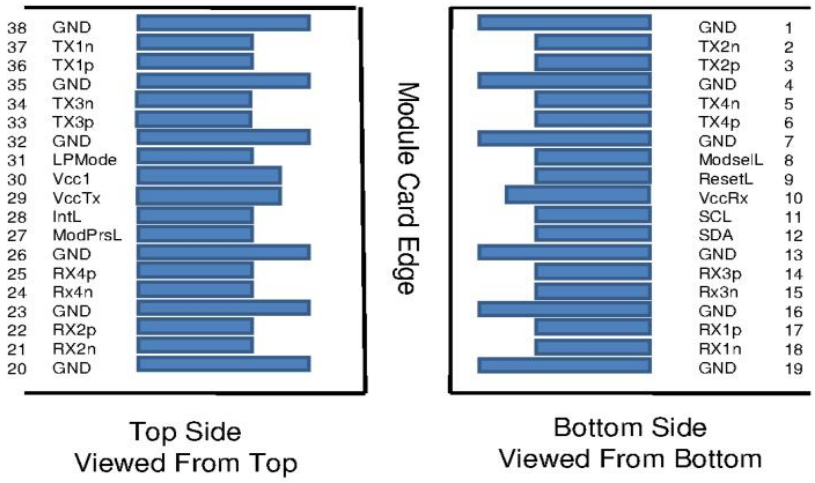

Figure1 QSFP MSA-compliant 38-pin connector

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Pin	Symbol	Name/Description	Notes
1	GND	Transmitter Ground (Common with Receiver 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	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3 V Power supply receiver	2
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	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	1
25	RX4P	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3 V Power supply transmitter	2
30	Vcc1	+3.3 V Power Supply	2
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

Table 1: QSFP Module PIN Definition

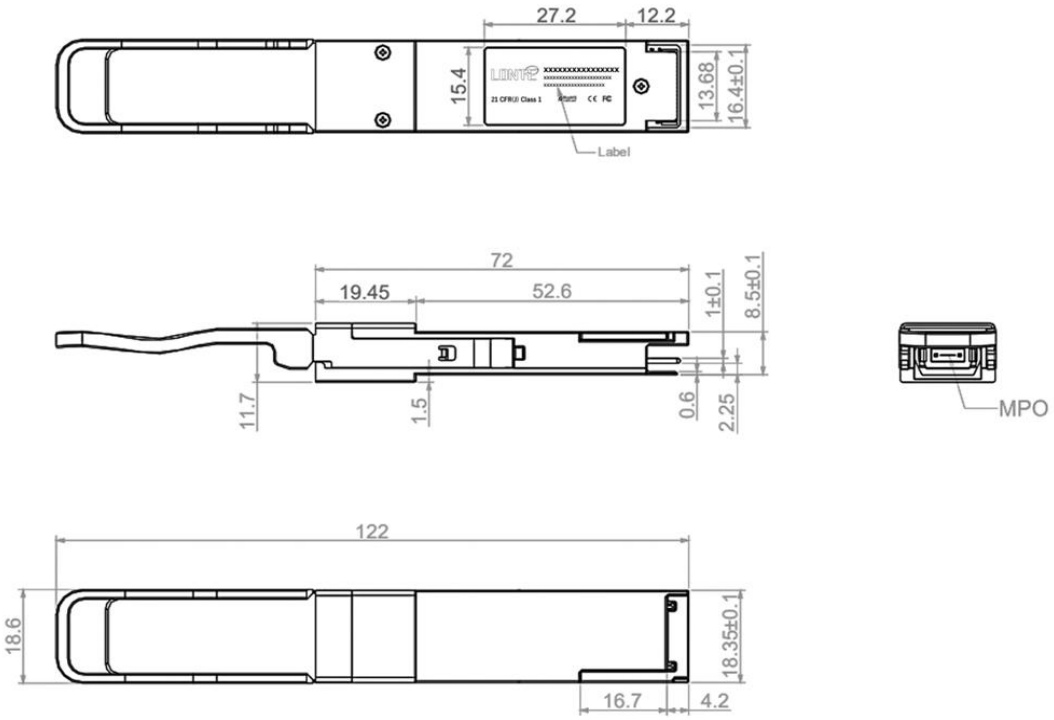
Notes：

1. All Ground (GND) are common within the QSFP+ module and all module voltages are referenced to this potential unless noted otherwise. Connect these directly to the host board signal common ground plane.

2. VccRx, Vcc1 and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. The connector pins are each rated for a maximum current of 500mA.

Package Outline

Dimensions are in millimeters. All dimensions are ±0.2mm unless otherwise specified. (Unit: mm)



Regulatory Compliance

Feature	Test	Method
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1(>1000V for SFI pins, >2000Vfor other pins.)
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	Class 2(>4.0kV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B FCC Class B CENELEC EN55022 VCCI Class 1	Comply with standard
Immunity	IEC61000-4-3	Comply with standard
Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1,2	Compatible with Class I laser Product

Ordering information

Part. No	Specifications								
	Pack	Rate (Gbps)	Tx (nm)	Po (dBm)	RX	Sen (dBm)	Temp (℃)	Reach (M)	DDM
AC-QF-8G40-01 (100M)	QSFP+	41.25G	DFB	-7.6~2.4	PIN	＜-9.5	0~70	100	Y
AC-QF-8G40-01 (300M)	QSFP+	41.25G	DFB	-7.6~2.4	PIN	＜-9.9	0~70	300	Y