

ZISA 40G QSFP+ LR4 optical Transceiver with DDM function



Description

The product has 4 channels per transceiver with data rates maximum 10.5G per channel. The QSFP+ contains a duplex LC connector for the optical interface and a 38-pin connector for the electrical interface. It could be used at key locations in optical networks like 40G Ethernet.

Features

- Up to 10.5Gb/s data rate per channel
- Distance up to 10km over a SMF
- 1310nm range Un-cooled DFB-LD Transmitter with optical MUX
- nPPI(4x10G) Electrical Interface
- Single +3.3V power supply
- DDM function implemented
- 2 Wire Serial Interface for module management
- Maximum power dissipation < 3.5W
- International Class 1 laser safety certified
- Operating temperature range: 0°C ~ +70°C
- Compliant with RoHS6

Applications

- 40GBASE-LR4 Ethernet

Standards

- Compliant with QSFP+
- MSA(SFF-8436 v4.8)
- Compliant with SFF-8472 v10.2
- Compliant with IEEE 802.3ba

Ordering Information

Part No	Specification								
	Package	Maximum Data rate	Laser	Power	Detector	Sensitivity (OMA)	Temp	Reach	Other
RTXM320-400	QSFP+	41.251.25G	DFB	-7 ~ 2.3dBm	PIN	-11.5dBm dBm	0~70°C	10km	DDM, RoHS

Electrical Characteristics (TOP = 0 to 70°C, VCC = 3.1 to 3.47 Volts)

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Supply Voltage	Vcc1, VccTx, VccRx	V	3.1		3.47	
Supply Current	Icc	mA			1080	
Transmitter(per Lane)						
Single Ended input voltage tolerance	VinT	V	-0.3		4.0	
Differential Data Input Swing	Vin,pp	mVpp	190		700	
AC common mode input voltage tolerance(RMS)		mV	15			
Differential Input return loss		dB	Per IEEE P802.3ba, Section 86A.4.1.1			1
J2 Jitter Tolerance	Jt2	UI	0.17			
J9 Jitter Tolerance	Jt9	UI	0.29			
Data Dependent Pulse Width Shrinkage	DDPWS	UI	0.07			
Eye mask coordinates{X1,X2, Y1,Y2}		UI mV	0.11,0.31 95,350			
Receiver(per Lane)						
Single Ended output voltage		V	-0.3		4.0	
Differential Data output Swing	Vout,pp	mVpp	300		850	
AC common mode output voltage (RMS)		mV			7.5	
Termination mismatch at 1MHz		%			5	
Differential output return loss		dB	Per IEEE P802.3ba, Section 86A.4.2.186A.4.			1
Common mode output return loss		dB	Per IEEE P802.3ba, Section 86A.4.2.286A.4.			1
Output transition time,20% to80%		ps	28			
J2 Jitter output	Jo2	UI			0.42	
J9 Jitter output	Jo9	UI			0.65	
Eye mask coordinates{X1,X2, Y1,Y2}		UI mV	0.29,0.5 150,425			

Optical Characteristics (TOP = 0 to 70°C, VCC = 3.1 to 3.47 Volts)

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Transmitter(per Lane)						
Signaling Speed per Lane		GBd		10.3125		
Lane Wavelength (range):						
L0		nm	1264.5	1271	1277.5	
L1			1284.5	1291	1297.5	
L2			1304.5	1311	1317.5	
L3			1324.5	1331	1337.5	
Total Average Launch Power	Pout	dBm			8.3	
Transmit OMA per Lane	TxOMA	dBm	-4		3.5	
Average Launch Power per Lane	TXPx	dBm	-7		2.3	
Optical Extinction Ratio	ER	dB	3.5			
Side-ModeMode Suppression Ratio (SMSR)	SMSR	dB	30			
Average launch power of OFF transmitter,per lane		dBm			-30	
Relative Intensity Noise	RIN	dB/Hz			-128	
Optical Return Loss Tolerance		dB			20	
Transmitter Reflectance		dB			-12	
Transmitter Eye mask definition {X1,X2,X3,Y1,Y2,Y3}			{0.25,0.4,0.4,0.4,0.45,0.25,0.28,0.4}			
Receiver(per Lane)						
Signaling Speed per Lane		GBd		10.3125		
Lane Wavelength (range):						
L0		nm	1264.5	1271	1277.5	
L1			1284.5	1291	1297.5	
L2			1304.5	1311	1317.5	
L3			1324.5	1331	1337.5	
Receive Power(OMA) per Lane	RxOMA	dBm			3.5	
Average Received Power per Lane	RXPx	dBm	-13.7		2.3	
Receiver sensitivity (OMA), each lane (max)		dBm			-11.5	
Stressed Receive Sensitivity(OMA) per lane	SRS	dBm			-9.6	
Damage Threshold Per Lane	Pmax	dBm	3.4			
Return Loss	RL				-26	
Vertical eye closure penalty, per lane		dB			1.9	
Receiver electrical 3dB upper cutoff frequency,per lane		GHz			12.3	
LOS De-Assert	LOSD	dBm			-15	
LOS Assert	LOSA	dBm	-30			
LOS Hysteresis		dB		1		

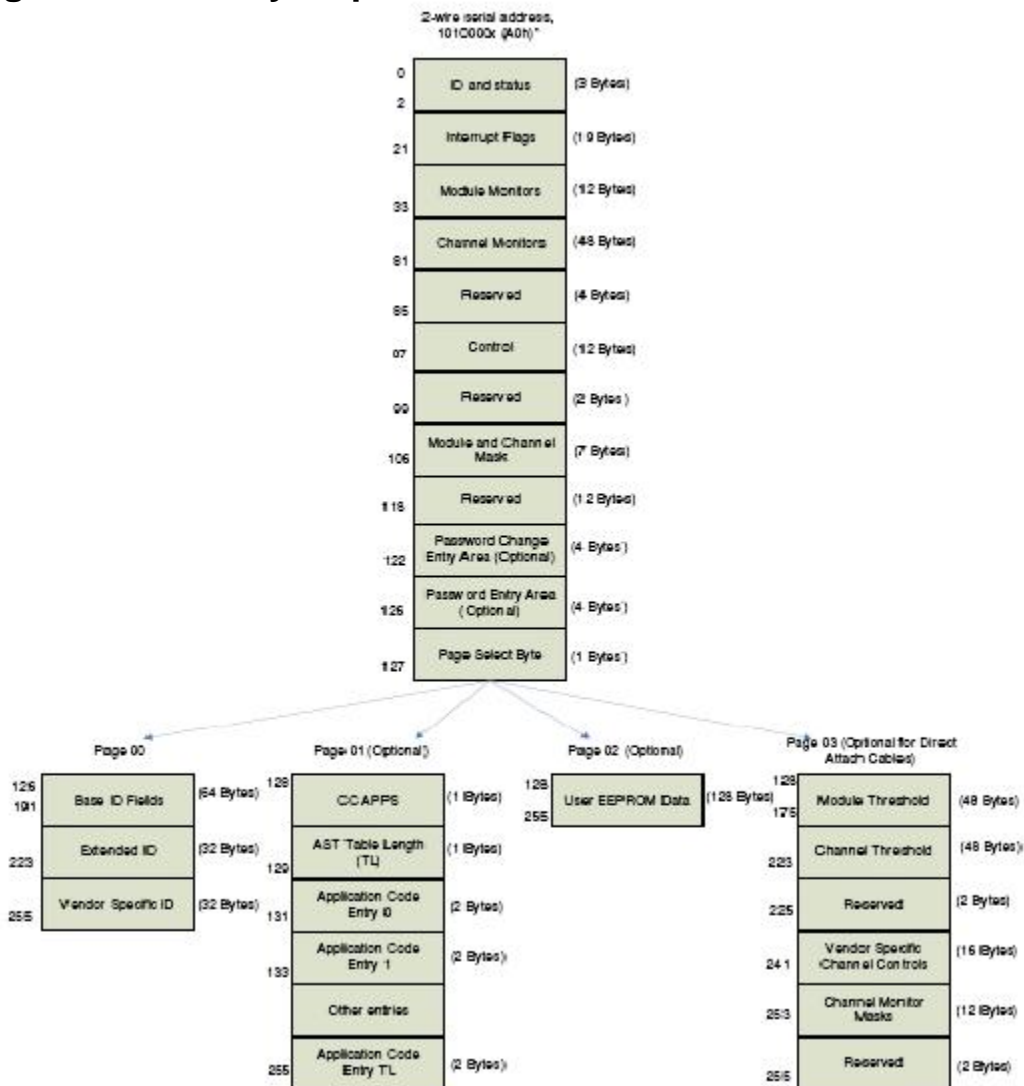
Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Typ	Max
Maximum Supply Voltage	Vcc1, VccTx, VccRx	V	-0.5		3.6
Storage Temperature	Ts	°C	-40		85
Case Operating Temperature	Top	°C	0		70
Relative Humidity	RH	%	0		85
Damage Threshold,per Lane	DT	dBm	3.4		

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Case Operating Temperature Range	Tc	°C	0	-	70
Power Supply Voltage	Vcc	V	3.1	3.3	3.47
Data rate(Per channel)		Gbps			10.5

Digital Diagnostic Memory Map



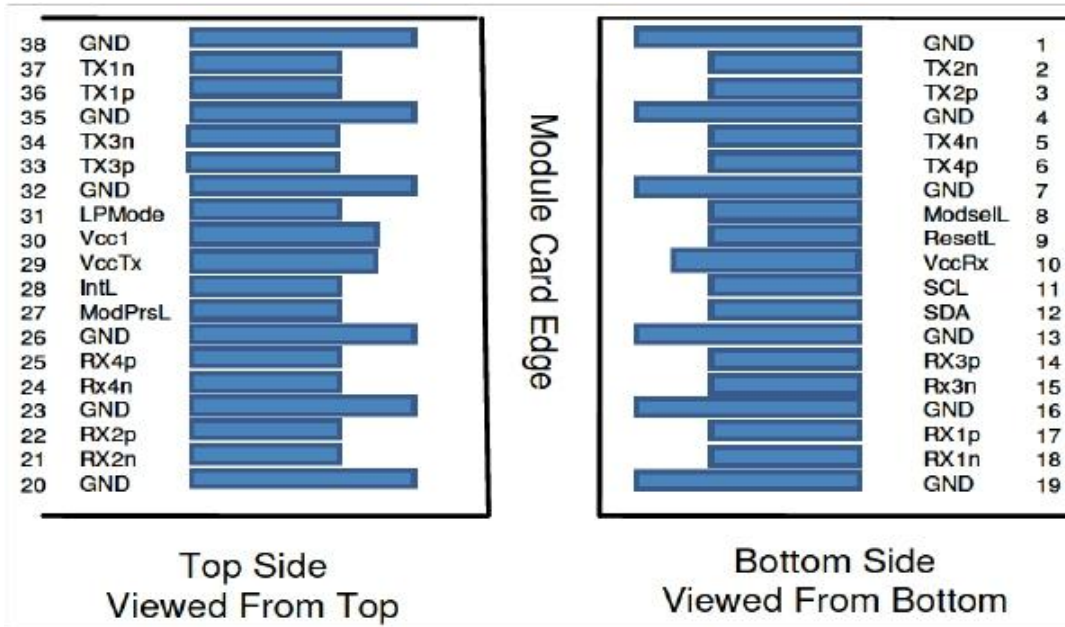
Lower Memory Map

The lower 128 bytes of the 2 access a variety of measurements and diagnostic functions, a set of control functions, and a means to select which of the various upper memory map pages are accessed on subsequent reads.

Table 1 Lower Memory Map (A0h)

Data Address	Size (Bytes)	Name of Field	Description
0	1	Identifier	Read--Only
1-2	2	Status	Read--Only
3-21	19	Interrupt Flags	Read--Only
22-33	10	Module Monitors	Read--Only
34-81	48	Channel Monitors	Read--Only
82-85	4	Reserved	Read--Only
86-97	12	Control	Read/Write
98-99	2	Reserved	Read/Write
100-106	7	Module and Channel Masks	Read/Write
107-118	12	Reserved	Read/Write
119-122	4	Password Change Entry	Read/Write
123-126	4	Password Change Entry Area (optional)	Read/Write
127	1	Page Select Byte	Read/Write

Pin Description



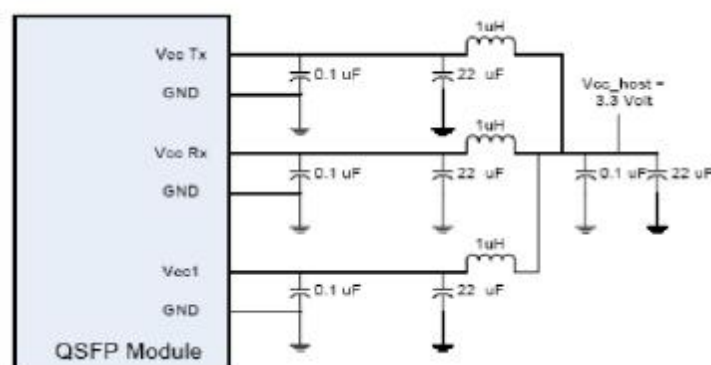
Pin	Name	Description	Plug Sequence	Notes
1	GND	Ground	1	1
2	Tx2n	Transmitter Inverted Data Input	3	
3	Tx2p	Transmitter Non-Inverted Inverted Data Input	3	
4	GND	Ground	1	1
5	Tx4n	Transmitter Inverted Data Input	3	
6	Tx4p	Transmitter Non-Inverted Inverted Data Input	3	
7	GND	Ground	1	1
8	ModSelL	Module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

24	Rx4n	Receiver Inverted Data Output	3	
25	Rx4p	Receiver Non-InvertedInverted Data Output	3	
26	GND	Ground	1	1
27	ModPrsL	Module Present	3	
28	IntL	Interrupt	3	
29	Vcc Tx	+3.3 V Power supply transmitter	2	
30	Vcc1	+3.3 V Power Supply	2	
31	LPMoDe	Low Power Mode	3	
32	GND	Ground	1	1
33	Tx3p	Transmitter Non-InvertedInverted Data Input	3	
34	Tx3n	Transmitter Inverted Data Input	3	
35	GND	Ground	1	1
36	Tx1p	Transmitter Non-InvertedInverted Data Input	3	
37	Tx1n	Transmitter Inverted Data Input	3	
38	GND	Ground	1	1

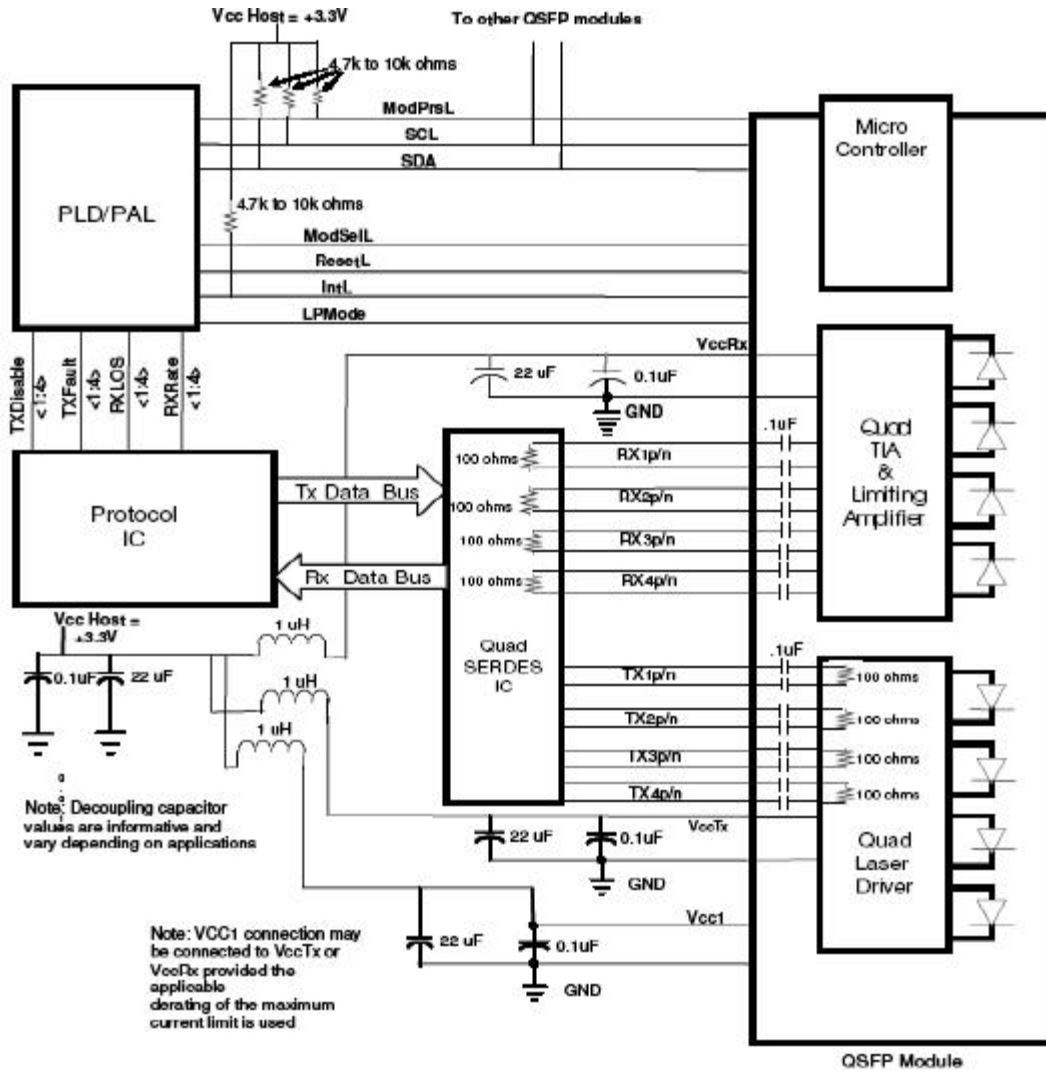
Note 1.Circuit ground is internally isolated from chassis ground.

Required Host Board Components

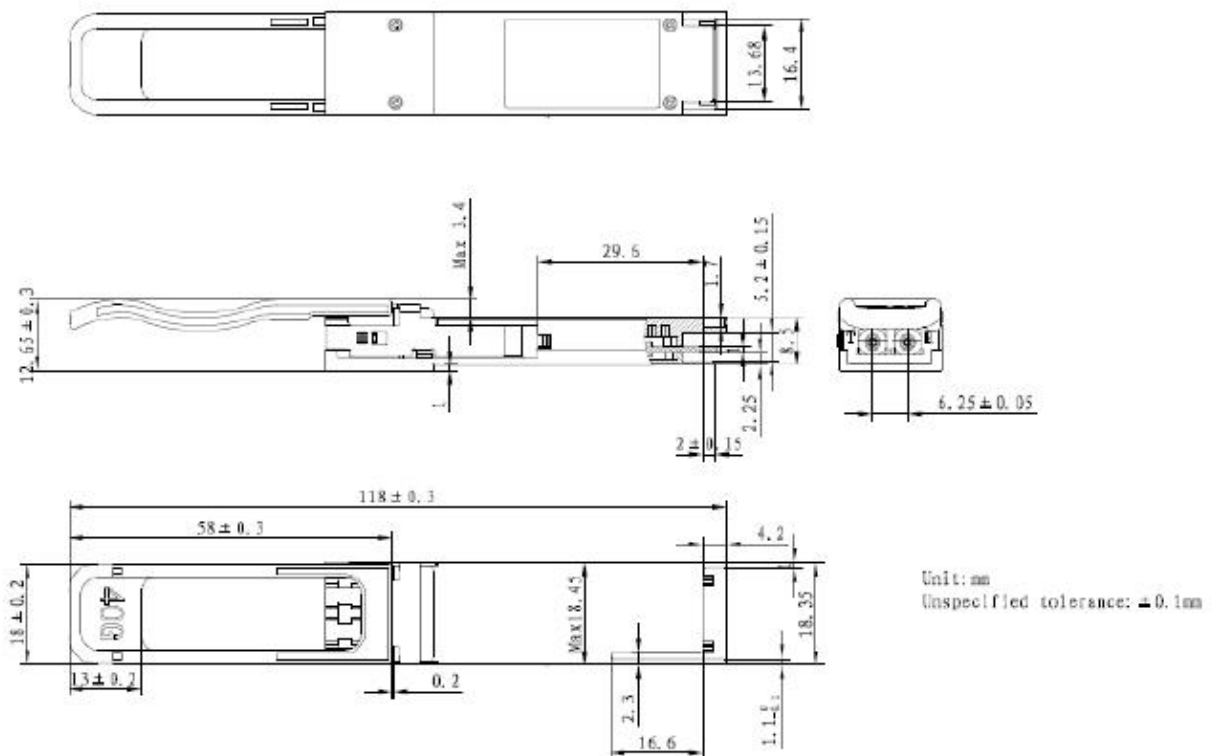
Any voltage drop across a filter network on the host is counted against the host DC set point accuracy specification. Inductors with DC Resistance of less than 0.1 Ohm should be used in order to maintain the required voltage at the H the suggested transceiver/host interface.



Typical Application Circuit



Package Outline



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