Product Features

- Supports 41.2 Gb/s aggregate bitrates
- Uncooled 4x10Gb/s CWDM transmitter
- Maximum link length of 10km on Single Mode Fiber (SMF)
- Hot-pluggable QSFP+ footprint
- Duplex LC receptacles
- Power dissipation < 3.5W
- RoHS-6 compliant and lead-free
- Single 3.3V power supply
- Support Digital Diagnostic Monitor interfac
- Case operating temperature Commercial: 0°C to +70°C

Applications

- 40GBASE-LR4　40G Ethernet

Compliance

- QSFP+ MSA.
- IEEE802.3ba
- SFF-8436
- RoHS

Product specifications

(1) Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Storage Temperature	T_S	-40		85	ºC	
Storage Ambient Humidity	H_A	5		85	%	
Maximum Supply Voltage	$V_{CC}1$, $V_{CC}T_X$, $V_{CC}R_X$	-0.5		3.6	V	
Signal Input Voltage		-0.3		Vcc+0.3	V	
Receiver Damage Threshold		+3.4			dBm	
Lead Soldering Temperature/Time	TSOLD			260/10	ºC/sec	1
Lead Soldering Temperature/Time	TSOLD			360/10	ºC/sec	2

Note:

1、Suitable for wave soldering.

2、Only for soldering by iron.

(2) Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Total Average Launch Power	P_{OUT}			8.3	dBm	
Average Output Power per lane	P_{OUT}	-7		2.3	dBm	
Transmit OMA per Lane	TxOMA	-4.0		3.5	dBm	1
Extinction Ratio	ER	3.5			dB	
Center Wavelength	λC	1264.5		1277.5	nm	
		1284.5		1297.5		
		1304.5		1317.5		
		1324.5		1337.5		
Sidemode Suppression ratio	SMSR	30			dB	
Transmitter and Dispersion Penalty	TDP			3.5	dB	
Transmitter OFF Output Power	POff			-30	dBm	
Transmitter eye mask definition {X1,X2,X3,Y1,Y2,Y3}		0.25,0.4,0.45,0.25,0.28,0.4				
Receiver						
Input Optical Wavelength	λ_{IN}	1264.5		1277.5	nm	
		1284.5		1297.5		
		1304.5		1317.5		
		1324.5		1337.5		
Rx Sensitivity per lane	R_{SENS1}			-11.5	dBm	
Rx Sensitivity(OMA)	R_{SENS2}			-9.6	dBm	
Input Saturation Power (Overload)	PSAT			+3.3	dBm	
Receiver Reflectance	Rfl			-12	dBm	
Loss of Signal Assert	P_A	-30			dBm	
Loss of Signal De-assert	P_D			-12.5	dBm	
LOS Hysteresis	P_D - P_A	0.5		6	dB	

Note:

1、Even if TDP is <0.9dB, the OMA min must exceed this value.

(3) Memory Map and Control Registers

Compatiable with SFF-8436Rev.4.8(QSFP+).

(4) Electrical Interface Characteristics

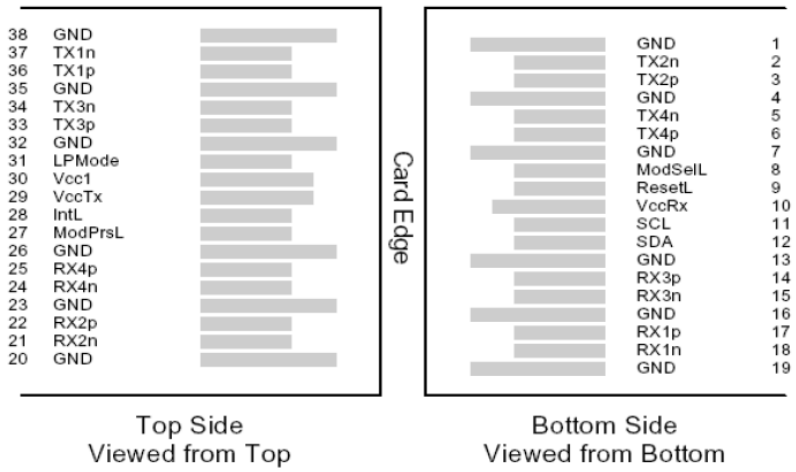
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage	$V_{CC}1$, $V_{CC}T_X$, $V_{CC}R_X$	3.15		3.45	V	
Supply Current	I_{CC}			350	mA	
Transmitter						

Input different impedance	R_{in}	90	100	110	Ω	2
Single ended data input swing	Vin,pp	120		820	mV	
Transmitter Disable Voltage	VDIS	2		V_{CC}	V	3
Transmitter Enable Voltage	VEN	0		0.8	V	
Receiver						
Output different impedance	R_{out}	90	100	110	Ω	2
Single ended data output swing	Vout,pp	340		850	mV	4
LOS Asserted	V_{LOSA}	2		V_{CCHOST}	V	5
LOS De-asserted	V_{LOSD}	0		0.8	V	5
Power Supply Rejection	PSR	50			mVpp	

Note:

1、Maximum total power value is specified across the full temperature and voltage range.
2、Connected directly to TX data input pins. AC coupled thereafter.
3、Or open circuit.
4、Into 100Ω differential termination.
5、Loss Of Signal is LVTTL. Logic “0” indicates normal operation; logic “1” indicates no signal detected.

(5) Pin Diagram



QSFP+ MSA-compliant 38-pin connector

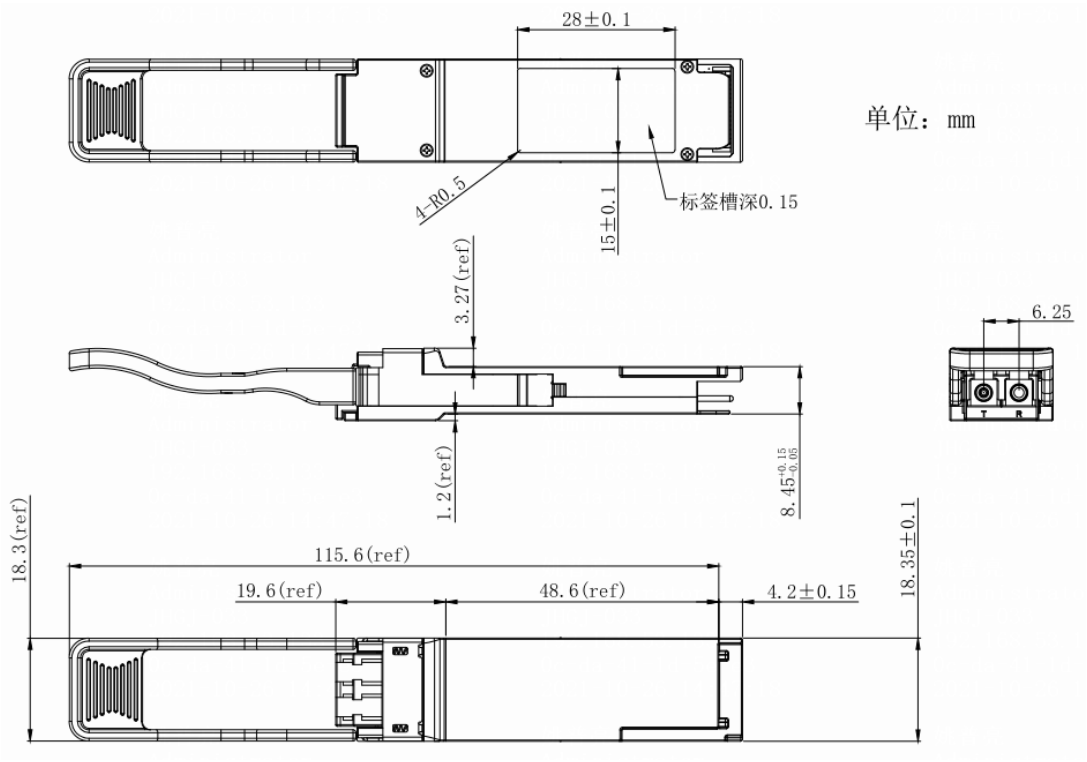
PIN Definition			
PIN	**Symbol**	**Description**	**Notes**
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	-
3	Tx2p	Transmitter Non-Inverted Data Input	-
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	-
6	Tx4p	Transmitter Non-Inverted Data Input	-
7	GND	Ground	1

8	ModSelL	Module Select	-
9	ResetL	Module Reset	-
10	Vcc Rx	+3.3V Power Supply Receiver	-
11	SCL	2-wire serial interface clock	-
12	SDA	2-wire serial interface data	-
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	-
28	IntL/RxLOS	Interrupt/optional RxLOS	-
29	Vcc Tx	+3.3V Power supply transmitter	-
30	Vcc1	+3.3V Power supply	-
31	LPMode/TxDis	Low Power Mode/optional TX Disable	-
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

Note:

1、Circuit ground is internally isolated from chassis ground.

(6) Mechanical Specifications (Unit: mm)



Ordering Information

Model	Specification Description
QSFP-40G-10ER	QSFP+ 41.25G/1310nm/10km/0 ~ 70℃/LC/DDM/SMF/DML/ Blue
QSFP-40G-40ER	QSFP+ 41.25G/1310nm/40km/-40 ~ 85℃/LC/DDM/SMF/DML/Red