

LPANLC23-K10C

QSFP+ 40Gb/s LR4 10km DDM

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 interface
- Case operating temperature

Commercial: 0°C to +70°C



APPLICATIONS

- 40GBASE-LR4 40G Ethernet

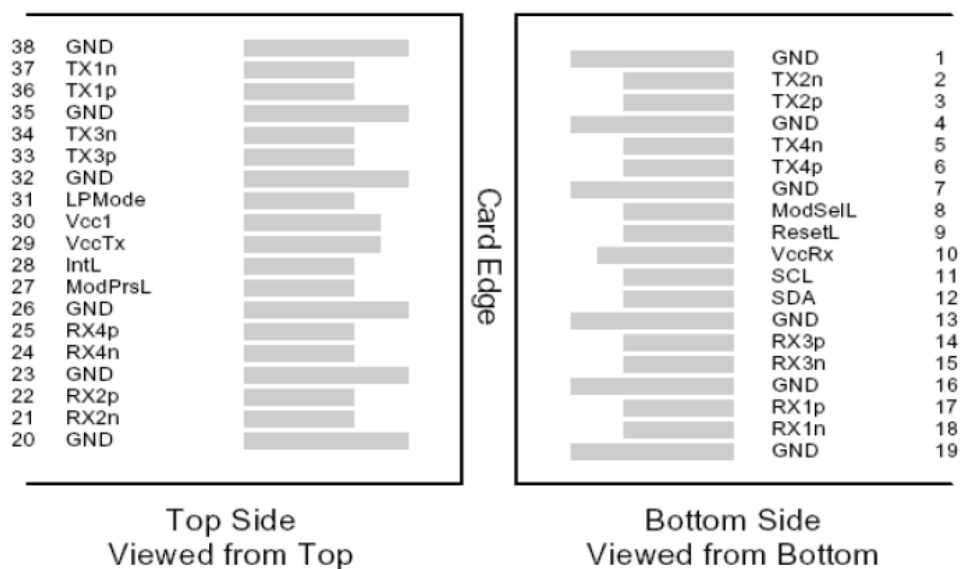
Compliance

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

Ordering information

Part NO.	Bit Rate (Gbps)	Laser (nm)	Distance(km)	Media	DDMI	Connector	Temp (℃)
LPANLC23-K10C	10.3125	1271nm 1291nm 1311nm 1331nm	10	single-mode fiber	YES	LC	0~70

I. Pin Diagram

**QSFP+ MSA-compliant 38-pin connector**

II. Pin Descriptions

Pin	Symbol	Name/Description	Ref.
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	ModSe1L	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	Interrupt	
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

Note:

1. Circuit ground is internally isolated from chassis ground.

III. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Storage Temperature	T_S	-40		85	°C	
Storage Ambient Humidity	H_A	5		85	%	
Maximum Supply Voltage	V_{CC1} , $V_{CC}T_X$, $V_{CC}R_X$	-0.5		3.6	V	
Signal Input Voltage		-0.3		$V_{CC}+0.3$	V	
Receiver Damage Threshold		+3.4			dBm	
Lead Soldering Temperature/Time	T_{SOLD}			260/10	°C/sec	1
Lead Soldering Temperature/Time	T_{SOLD}			360/10	°C/sec	2

Note:

1. Suitable for wave soldering.
2. Only for soldering by iron.

IV. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
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	λ _C		1264.5 – 1277.5 1284.5 – 1297.5 1304.5 – 1317.5 1324.5 – 1337.5		nm	
Sidemode Suppression ratio	SMSR	30			dB	
Transmitter and Dispersion Penalty	TDP			3.5	dB	
Transmitter OFF Output Power	P _{Off}			-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 1284.5 – 1297.5 1304.5 – 1317.5 1324.5 – 1337.5		nm	
Rx Sensitivity per lane	R _{SENS1}			-11.5	dBm	

Input Saturation Power (Overload)	P_{SAT}			+3.3	dBm	
Receiver Reflectance	R_{fl}			-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.

V. Memory Map and Control Registers

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

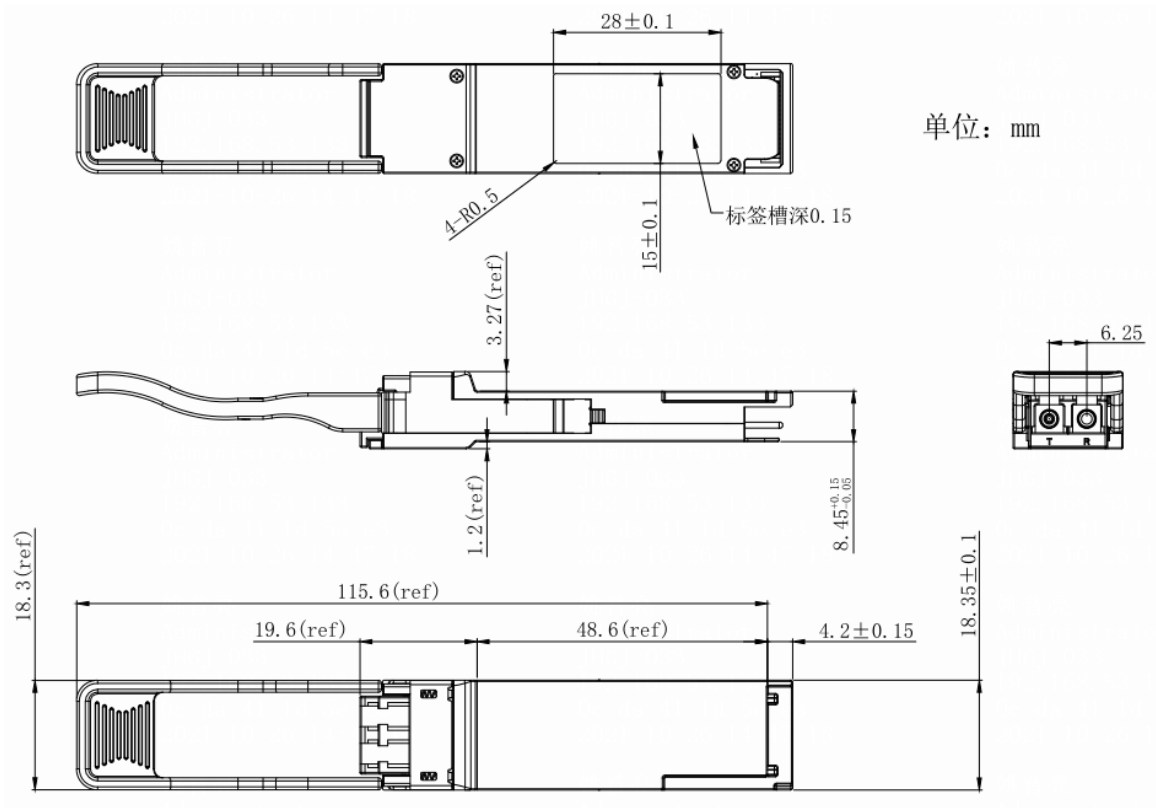
VI. Electrical Interface Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	$V_{CC1},$ $V_{CCTx},$ V_{CCRx}	3.15		3.45	V	
Supply Current	I_{CC}			1120	mA	
Transmitter						
Input different impedance	R_{in}	90	100	110	Ω	2
Single ended data input swing	$V_{in,pp}$	120		820	mV	
Transmitter Disable Voltage	V_{DIS}	2		V_{CC}	V	3
Transmitter Enable Voltage	V_{EN}	0		0.8	V	
Receiver						
Output different impedance	R_{out}	90	100	110	Ω	2
Single ended data output swing	$V_{out,pp}$	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 100 Ω differential termination.
- 5.Loss Of Signal is LVTTTL. Logic “0” indicates normal operation; logic “1” indicates no signal detected.

VII. Mechanical Specifications (Unit: mm)



Appendix A. Document Revision

Version	Initiated	Reviewed	Revision	Release Date
A0	Lynn	Luke	New Release	2019-7-31