LinkPro™

LPJMLE31-K40C(I)

SFP28 25Gb/s ER 40km DDM

PRODUCT FEATURES

- Supports 25.78Gb/s aggregate bit rate
- 1310nm EML Laser transmitter and APD/TIA receiver
- Maximum link length of 40km on

  Single Mode Fiber (SMF)
- Hot-pluggable SFP28 footprint
- Duplex LC receptacles
- Single 3.3V power supply
- Maximum power dissipation < 1.8W
- RoHS-6 compliant and lead-free
- I^2C management interface
- Case operating temperature

  Commercial: 0°C to +70°C

  Industrial: -40°C to +85°C

APPLICATIONS

- 25GBASE-LR 25G Ethernet
- CPRI 10

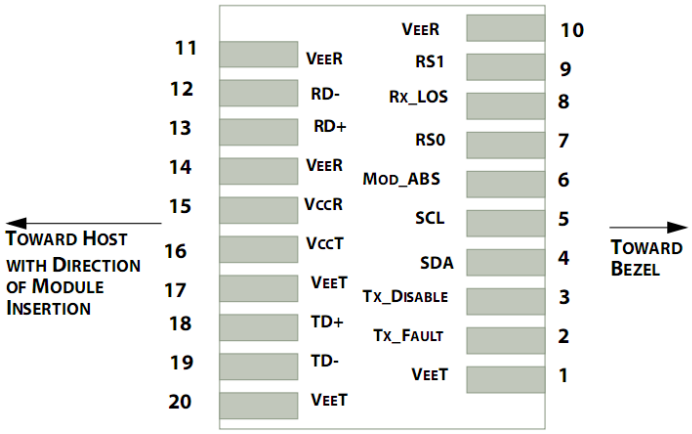
Compliance

- SFP MSA.
- IEEE802.3cc
- SFF-8472
- RoHS

Ordering information

Part No.	Bit Rate (Gbps)	Laser (nm)	Distance	Fiber Type	DDMI	Connector	Temp
LPJMLE31-K40C	25.78125	1310	40km	SMF	YES	LC	0℃~+70℃
LPJMLE31-K40I	25.78125	1310	40km	SMF	YES	LC	-40℃~+85℃

I. Pin Diagram



Pin out of Connector Block on Host Board

II. Pin Descriptions

Pin	Symbol	Name/Description	Ref.
1	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1
2	T_{FAULT}	Transmitter Fault.	2
3	T_{DIS}	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD_ABS	Module Absent. Grounded within the module	4
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic “0” indicates normal operation.	5
9	RS1	No connection required	
10	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
11	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	

14	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
15	V_{CCR}	Receiver Power Supply	
16	V_{CCT}	Transmitter Power Supply	
17	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.

2. TFAULT is an open collector/drain output, which is pulled up with a 4.7kΩ – 10kΩ resistor on the host board, but is grounded inside the SFP+ cable plug.

3. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.

4. Should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. MOD_ABS pulls line low to indicate module is plugged in.

5. LOS is open collector output. Should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

III. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Maximum Supply Voltage	Vcc	-0.5		3.6	V	
Storage Temperature	TS	-40		85	℃	
Relative Humidity	RH	0		85	%	

IV. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Transmitter						
Signaling rate(range)	Sr		25.7825±100ppm		GBd	
Center Wavelength	λc	1295		1310	nm	
Spectral Width(-20dB)	Pm			1	nm	
Average Output Power	Pavg	-3		6	dBm	
Extinction Ratio	ER	4			dB	
Side Mode Suppression Ratio	SMSR	30			dB	
Transmitter OFF Output Power	POff			-30	dBm	
Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3} Hit ratio 5×10-5 hits per sample.		{0.31, 0.4, 0.45, 0.34, 0.38, 0.4}				

Receiver						
Signaling rate(range)	Sr		25.7825±100ppm		GBd	
Center Wavelength	λc	1295		1325	nm	
Receiver Sensitivity(OMA)				-19	dBm	1
Receiver Reflectance	Rfl			-26	dBm	
Loss of Signal Assert	P_A	-35			dBm	
Loss of Signal De-assert	P_D			-20	dBm	
LOS Hysteresis	P_D- P_A	0.5			dB	

Note:1. Hit ratio $5x10^{-5}$.

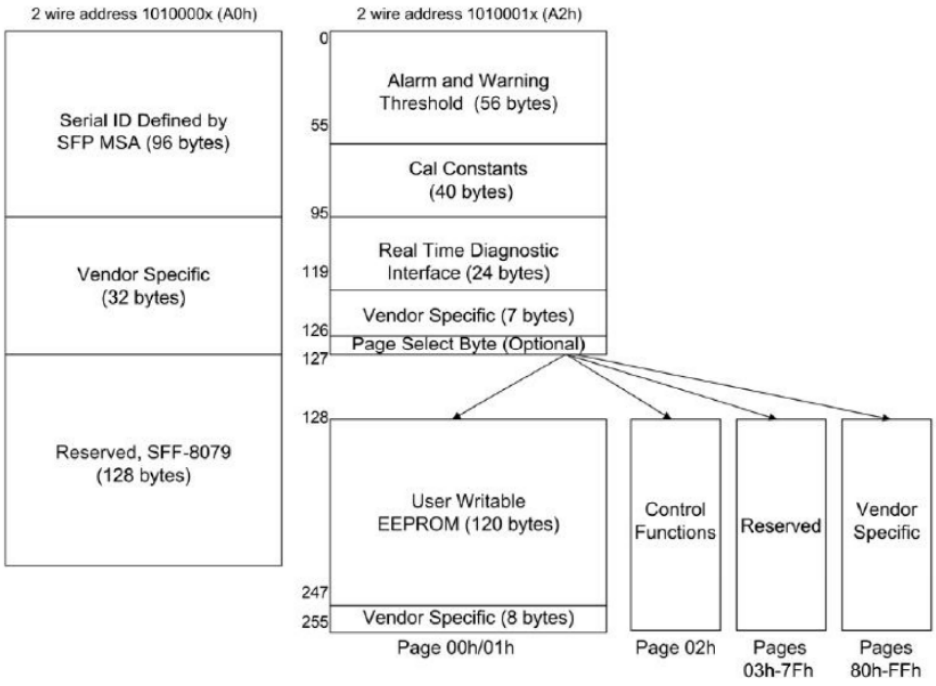
V. Electrical Interface Characteristics

Parameter	Symbol	Min	Type	Max	Unit	Ref.
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Supply Current	Icc			500	mA	Commercial
				550	mA	Industrial
Transmitter						
Input differential impedance	Rin		100			1
Differential data input swing	Vin, pp	100		800	mV	
Transmit Disable Voltage	V_D	2		V_{CC}	V	
Transmit Enable Voltage	V_{EN}	Vee		Vee+0.8	V	
Receiver						
Differential data output swing	Vout, pp	100		800	mV	2
LOS Fault	V_{LOS_fault}	2		VccHOST	V	3
LOS Normal	V_{LOS_norm}	Vee		Vee+0.8	V	3

Notes:

1. Connected directly to TX data input pins.AC coupling from pins into laser driver IC.
2. Into 100Ω differential termination.
3. LOS is an open collector output. Should be pulled up with 4.7kΩ – 10kΩ on the host board. Normal operation is logic 0; loss of signal is logic 1. Maximum pull-up voltage is 5.5V.

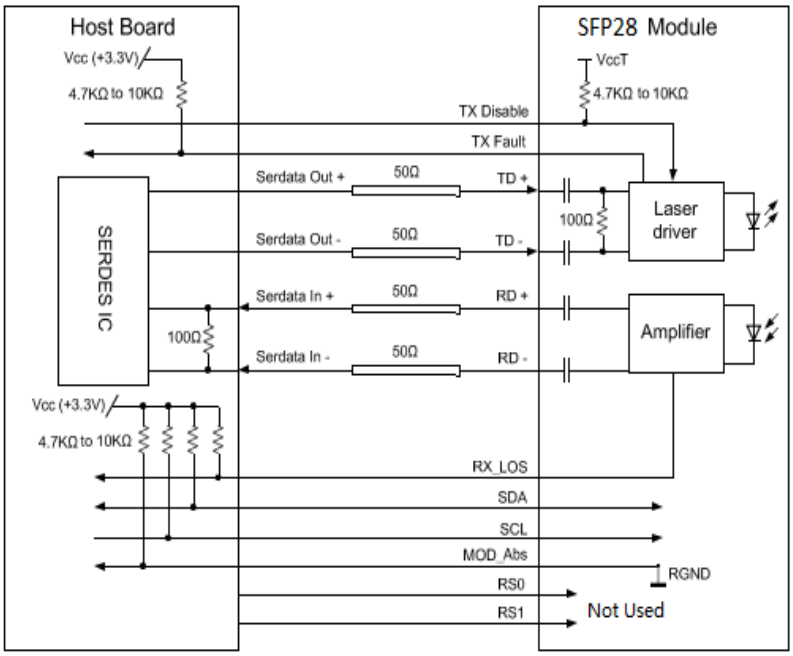
VI. Digital Diagnostic Memory Map



VII. Digital Diagnostic Specifications

Parameter	Unit	Accuracy
Case Temperature	℃	±3
Supply Voltage	V	±3%
Tx Bias Current	mA	±10%
Tx Optical Power	dB	±3
Rx Optical Power	dB	±3

VIII.Recommended Interface Circuit



IX. Mechanical Specifications (Unit: mm)