LPJMLCxx-K10C

SFP28 25Gb/s CWDM LR 10km DDM

PRODUCT FEATURES

- Up to 25.78Gb/s Bidirectional data links
- CWDM DFB Laser transmitter
- Maximum link length of 10km on Single Mode Fiber (SMF)
- Hot-pluggable SFP+ footprint
- Duplex LC receptacles
- Single 3.3V power supply
- Maximum power dissipation < 1.5W
- RoHS-6 compliant and lead-free
- Built-in digital diagnostic functions
- Case operating temperature

  Commercial: 0°C to +70°C

APPLICATIONS

- 25GBASE-LR 25G Ethernet

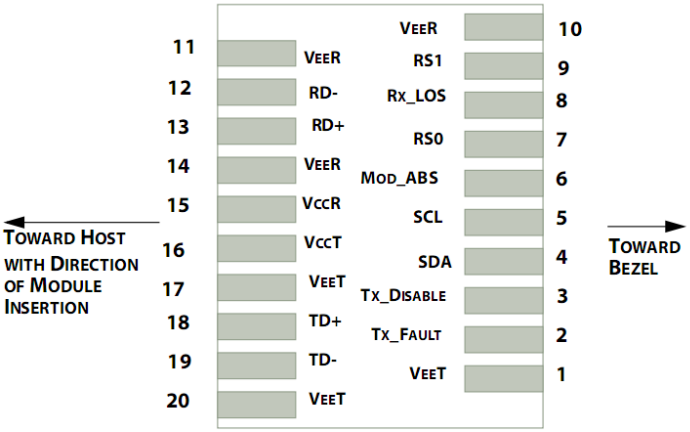
Compliance

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

Ordering information

Part No.	Bit Rate (Gbps)	Laser (nm)	Distance	Fiber Type	DDMI	Connector	Temp
LPJMLC27-K10C	25.78125	1270	10km	SMF	YES	LC	0℃~+70℃
LPJMLC29-K10C	25.78125	1290	10km	SMF	YES	LC	0℃~+70℃
LPJMLC31-K10C	25.78125	1310	10km	SMF	YES	LC	0℃~+70℃
LPJMLC33-K10C	25.78125	1330	10km	SMF	YES	LC	0℃~+70℃
LPJMLC35-K10C	25.78125	1350	10km	SMF	YES	LC	0℃~+70℃
LPJMLC37-K10C	25.78125	1370	10km	SMF	YES	LC	0℃~+70℃

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 pull 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	℃	
Case Operating Temperature	TOP	0		70	℃	
Relative Humidity	RH	0		85	%	1

Notes1.Non-condensing.

IV. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Center Wavelength	CW	λT-6.5	λT	λT+6.5	nm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Signaling rate	BR		25.78125		GBd	
Optical Output Power	Po	1.5	-	7	dBm	
Average launch power of OFF transmitter	Poff			-30	dBm	
Extinction ratio	ER	3.5	-	-	dB	
Optical Eye Mask	Compatible with IEEE802.3cc					
Optical Return Loss Tolerance	ORL	20	-	-	dB	
Relative Intensity Noise	RIN	-	-	-130	dB/Hz	
Receiver						
Center Wavelength	λc	1260	-	1610	nm	
Receiver Sensitivity (OMA)	Psen	-	-	-13.3	dBm	25.78125Gbps, PRBS231-1,BER=5E-5
Overload	Pmax	2	-	-	dBm	
Signaling rate	BR		25.78125		GBd	
Receiver reflectance	Ref			-26	dB	
LOS Activation Level	PLa	-30	-	-	dBm	
LOS Deactivation Level	PLd	-	-	-15	dBm	
LOS Hysteresis	Phys	0.5	-	5	dB	

V. Electrical Interface Characteristics

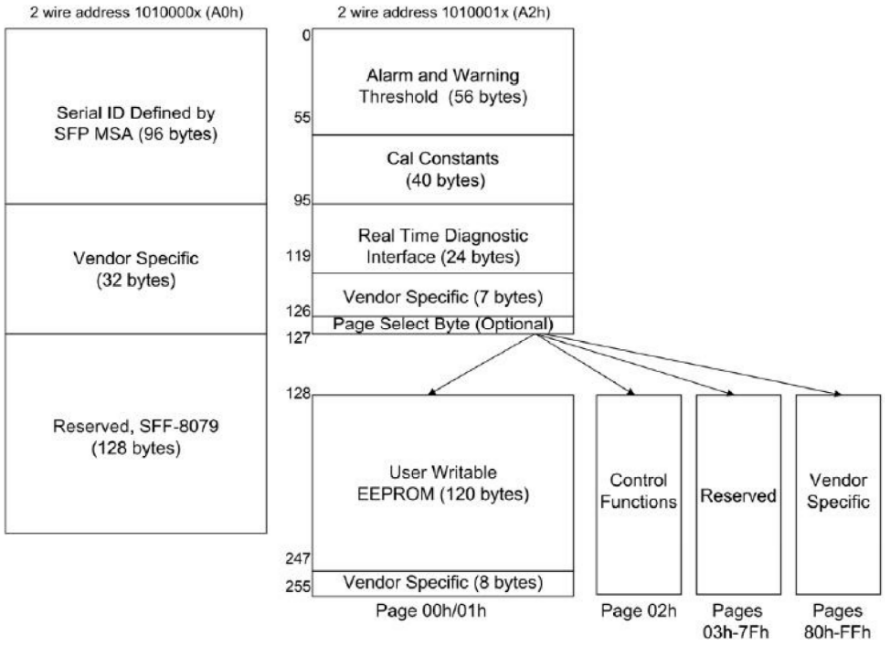
Parameter	Symbol	Min	Type	Max	Unit	Ref.
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Supply Current	Icc			450	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	1
Single-ended data input swing	Vin, pp	100		800	mV	
Transmit Disable Voltage	V_D	2		V_{CC}	V	

Transmit Enable Voltage	V_{EN}	Vee		Vee+0.8	V	
Receiver						
Single-ended 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.

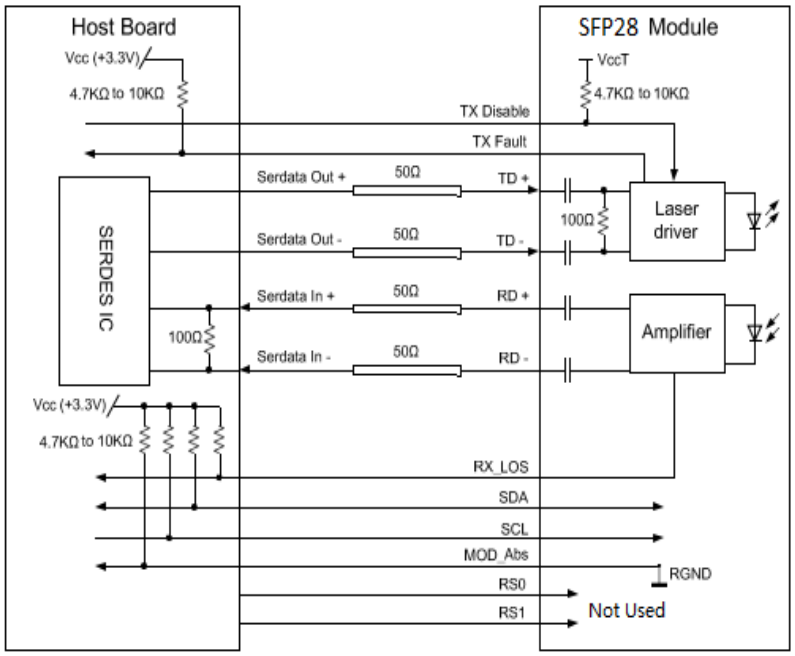
VI. Digital Diagnostic Memory Map



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)