



Product Features

- Supports 25.78Gb/s aggregate bit rate
- 1310nm DFB Laser transmitter and APD/TIA receiver
- Maximum link length of 40km on Single Mode Fiber (SMF)
- Single +3.3V DC power supply
- Hot-pluggable SFP28 footprint
- Duplex LC receptacles
- Maximum power dissipation < 1.8W
- RoHS-6 compliant and lead-free
- I²C management interface
- Compliance SFP MSA, IEEE802.3cc, SFF-8472
- Operating temperature Options: Commercial:0 to 70°C; Industrial: -40 to 85°C

Applications

- 25GBASE-LR 25G Ethernet
- CPRI 10

Product specifications

(1) Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Maximum Supply Voltage	Vcc	-0.5	3.6	V
Storage Temperature	TS	-40	85	°C
Relative Humidity	RH	0	85	%

Note:

- 1、Exceeding any of these values may immediately damage the device.

Optical and Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Signaling rate(range)	Sr		25.7825±100ppm		GBd	
Center Wavelength	λc	1295	1310	1325	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	1310	1325	nm	
Receiver Sensitivity(OMA)	/			-12	dBm	1
Receiver Reflectance	Rfl			-26	dBm	
Loss of Signal Assert	PA	-35			dBm	
Loss of Signal De-assert	PD			-19	dBm	
LOS Hysteresis	PD- PA	0.5			dB	

Note: 1. Hit ratio 5×10^{-5} .

(2) Electrical Interface Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
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	VD	2		VCC	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Receiver						
Differential data output swing	Vout, pp	100		800	mV	2
LOS Fault	VLOS_fault	2		VccHOST	V	3
LOS Normal	VLOS_norm	Vee		Vee+0.8	V	3

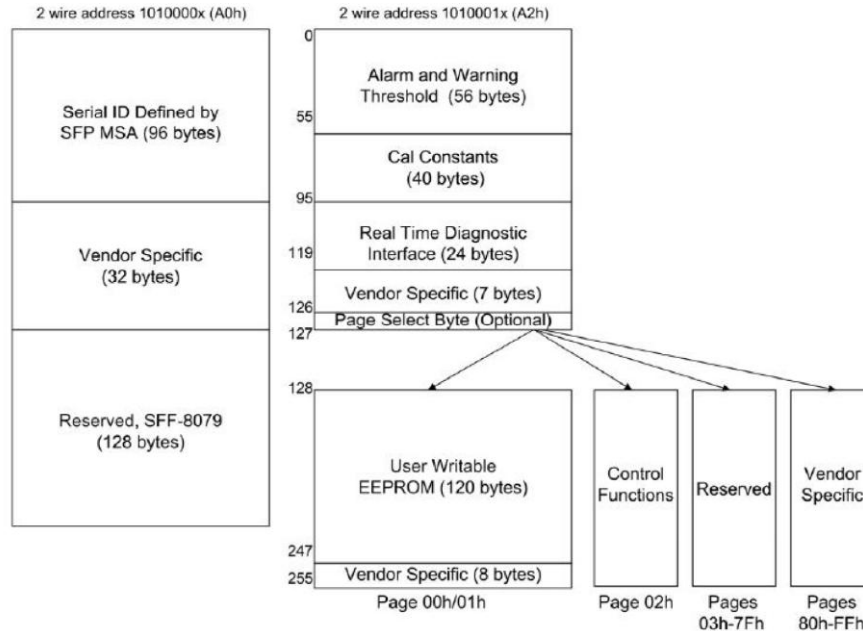
Note:

- 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.

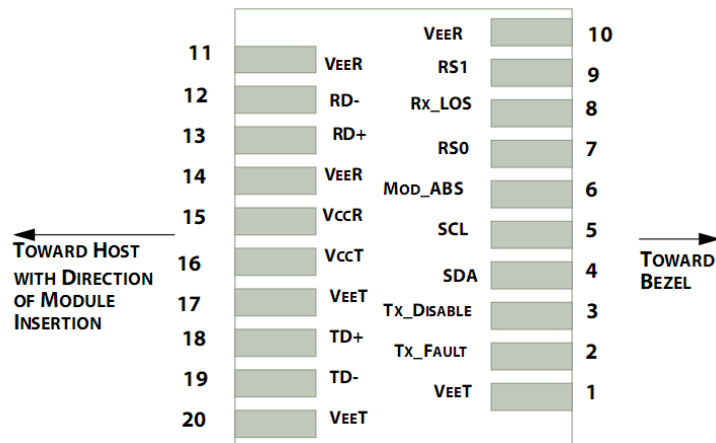
(3) Digital Diagnostic Specifications

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

(4) Digital Diagnostic Memory Map



(5) Pin Assignment and Description



PIN Definition			
PIN	Symbol	Description	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault.	2
3	TDIS	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	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	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	VEER	Receiver Ground (Common with Transmitter Ground)	1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	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	VEET	Transmitter Ground (Common with Receiver Ground)	1

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

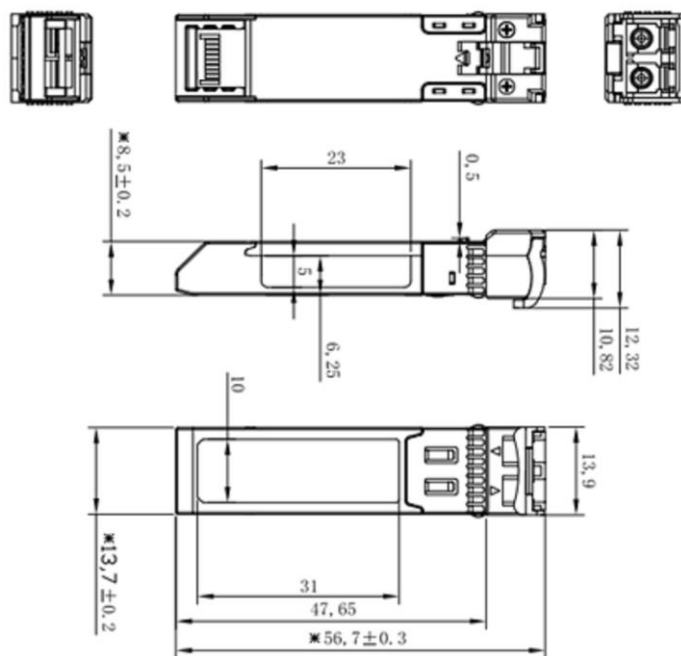
2、TFAULT is an open collector/drain output, which is pulled up with a 4.7k Ω – 10k Ω resistor on the host board, but is grounded inside the SFP+ cable plug.

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

4、Should be pulled up with 4.7k Ω – 10k Ω 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 4.7k Ω – 10k Ω on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

(6) Mechanical Specifications



Ordering Information

Model	Specification Description
SFP28-28G-10LR-31	SFP28 DUAL/25.78G/1310nm/10km/LC/DDM/SMF/0 ~ 70℃



SFP28-28G-40ER-31

SFP28 DUAL/25.78G/1310nm/10km/LC/DDM/SMF/0 ~ 70℃