

PRODUCT FEATURES

- Support up to 25.78Gb/s bit rates
- Compliant with SFP28 MSA and SFF-8431
- Hot-pluggable SFP28 footprint
- Up to 10 km on 9/125um SMF G.652
- RoHS2.0 compliant
- Class 1 laser product complies with EN 60825-1
- Operating temperature range: 0°C to 70°C

-40°C to 85°C

APPLICATIONS

- 25GBASE-LR
- eCPRI

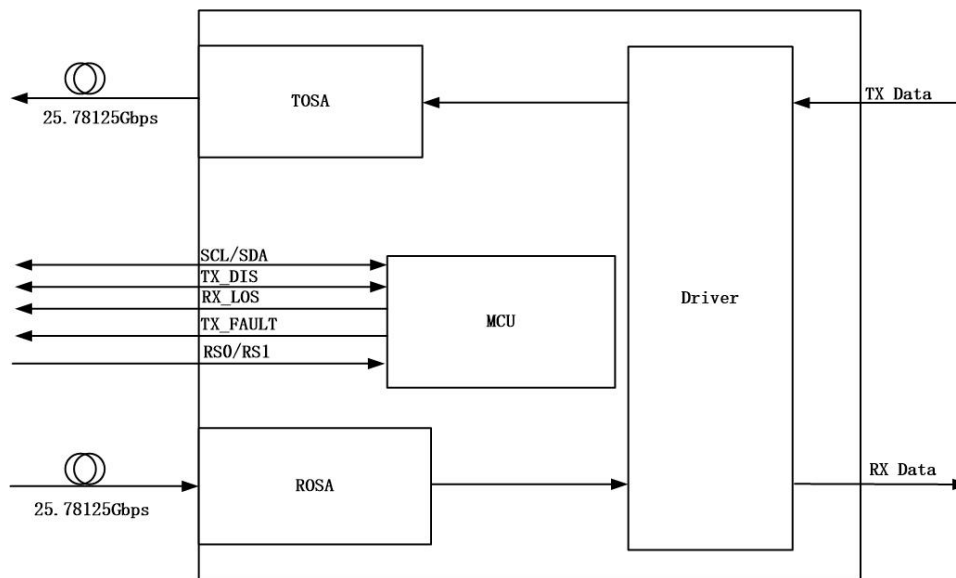
Ordering information

Part Number	Data Rate (Gb/s)	Media	Wavelength(nm)	Operating distance(km)	Temperature(°C)
IP-FFLK10B31C	25.78125	SMF	1310	10	0 ~ 70
IP-FFLK10B31I	25.78125	SMF	1310	10	-40 ~ 85

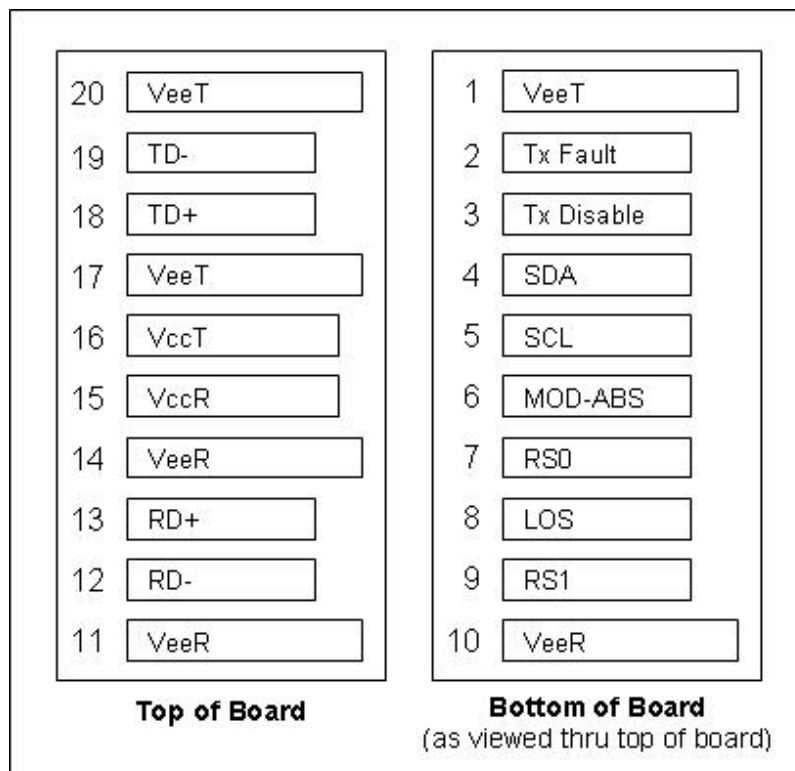
PRODUCT DESCRIPTION

The transceiver is intended for 10km reach service from 24.33Gb/s to 25.78Gb/s single mode high-speed communications equipment where low-cost, extraordinary performance and reliability are essential. It utilizes internal clock and data recovery (CDR) units on transmitter and the receiver chains for low jitter compliance. The differential AC coupled Tx and Rx data interfaces are CML compatible. The device is Class I laser safety compliant.

1. Block Diagram



2. Pin Diagram



3. Pin Descriptions

Pin	Signal Name	Description	Notes
1	VEET	Transmitter Ground	
2	TX FAULT	Transmitter Fault Indication	1
3	TX DISABLE	Transmitter Disable	
4	SDA	SDA Serial Data Signal	
5	SCL	SCL Serial Clock Signal	
6	MOD_ABS	Module Absent. Grounded within the module	
7	RS0	Rx Rate Select	2
8	LOS	Loss of Signal	1
9	RS1	Not Connected	2
10	VEER	Receiver ground	
11	VEER	Receiver ground	
12	RD-	Inv. Received Data Out	3
13	RD+	Received Data Out	3
14	VEER	Receiver ground	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground	
18	TD+	Transmit Data In	4
19	TD-	Inv. Transmit Data In	4
20	VEET	Transmitter Ground	

Notes:

1. Shall be pulled up with 4.7k-10k ohms to a voltage between 3.1V and 3.5V on the host board.
2. The pins are pulled low to VEET with a >30k resistor in the module.
3. The 100Ohms differential Rx Data output is internally AC coupled and terminated.
4. The 100Ohms differential Tx Data input is internally AC coupled and terminated.

4. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	TS	-40	85	°C	
Operating Case Temperature	TOP	0	70	°C	C-Temp
		-40	85	°C	I-Temp
Power Supply Voltage	VCC	-0.3	3.6	V	
Relative Humidity (non-condensation)	RH	5	85	%	

5. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Note
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Power Consumption				1.2	W	C-temp
				1.5	W	I-temp

Power Supply Current @ 3.3V	I _{cc}			360	mA	C-temp
				450	mA	I-temp

6. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Differential Data input Swing	V _{IN}	200		800	mV	
Tx Differential Input Impedence	Z _{IN}		100		Ω	
Transmitter Disable Voltage	V _D	2.0		V _{CC} +0.3	V	
Transmitter Enable Voltage	V _{EN}	0		0.8	V	
Receiver						
Differential Data Output Swing	V _{OUT}	200		800	mV	
Rx Differential Output Impedence	Z _{OUT}		100		Ω	
LOS Assert Voltage	V _{LOSA}	2.4		V _{CC}	V	
LOS De-assert Voltage	V _{LOSD}	V _{EE}		V _{EE} +0.4	V	

7. Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Transmitter Laser Type		1310nm DML				
Average Output Power	P _{out}	-4		6	dBm	
Extinction ratio	ER	3			dB	
Wavelength	λ	1290	1310	1330	nm	
Spectral Line RMS Width @ -20dB	Δλ			1	nm	
Side Mode Suppression Mode	SMSR	30			dB	
Average Output Power (Laser Off)	P _{OFF}			-30	dBm	
Receiver						
Receiver Type		PIN/TIA				
Wavelength	λ	1260	1310	1360	nm	
Received Sensitivity (OMA)	P _{IN(OMA)}			-12	dBm	1
Optical Power Overload	P _{IN(SAT)}	2			dBm	
Rx_LOS of Signal Assert	LOSA	-30			dBm	
Rx_LOS of Signal De-assert	LOSD			-14	dBm	
Rx_LOS of Signal Hysteresis	LOSH	0.5		5	dB	

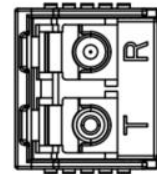
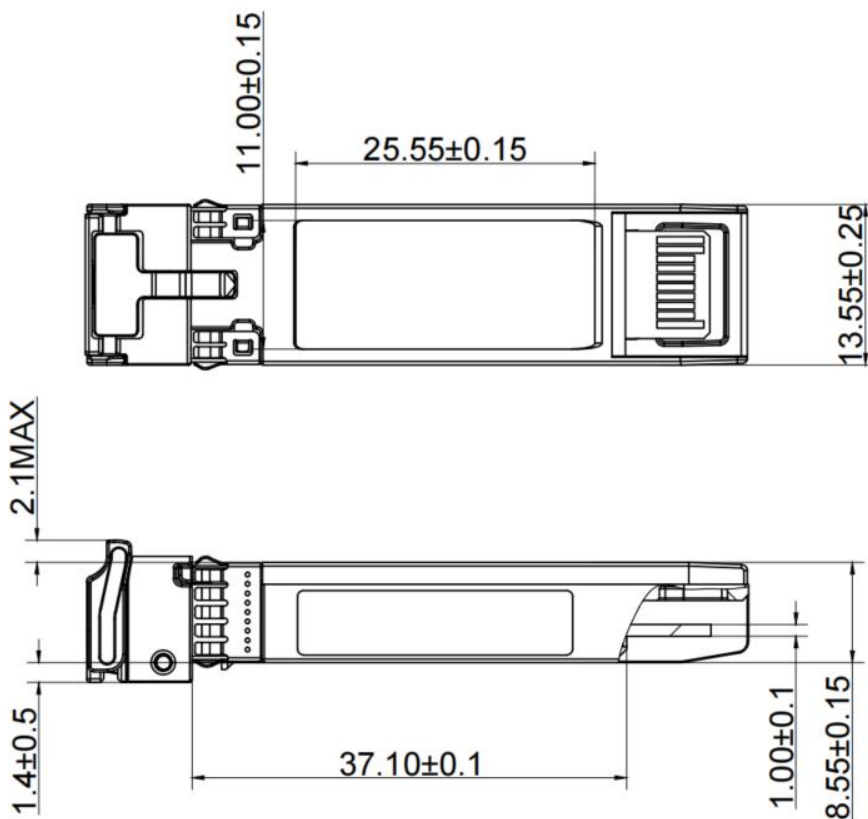
Note:

1. Measured at 25.78Gb/s with PRBS 2³¹⁻¹ NRZ test pattern for BER < 5x10⁻⁵.

8. Digital Diagnostic Monitor Accuracy

Parameter	Symbol	Spec	Units	Conditions / Notes
Temperature		+/-3℃	℃	
Voltage		+/-3%	V	
IBias		+/-10%	mA	
Rx power		+/-3	dBm	
Tx power		+/-3	dBm	

9. Mechanical Specifications(mm)



Unit:mm
Unspecified
Tolerance:±0.1mm

10. Contact Information

Wuhan Inphilight Technology Company Limited

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11. Revision History

Version No.	Date	Description
1.0	May.23, 2021	Preliminary datasheet
1.1	Apr.1, 2024	Update the product description, the pin descriptions, the specifications of power consumption , and the electrical and optical characteristics
1.2	Jun.30, 2024	Update contact information.