E-SFP28-BD-LR-33

25GBASE-BX BIDI SFP28 1330nm-TX/1270nm-RX 10km Transceiver

Features

- Supports up to 25.78Gbps bit rates
- Hot-pluggable SFP+ footprint
- 1330nm DFB laser and PIN photodiode, Up to 10km for SMF transmission
- Compliant with SFP+ MSA and SFF-8472 with simplex LC receptacle
- Compatible with RoHS
- Single +3.3V power supply
- Real Time Digital Diagnostic Monitoring
- Operating case temperature: Standard: 0 to +70°C Industrial: -40 to +85°C

Applications

- 25GBASE-LR

1. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	0	3.6	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	0	85	%

2. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	0		+70	°C
Power Supply Voltage	Vcc	3.135	3.30	3.465	V
Power Supply Current	Icc			300	mA
Data Rate			25.78		Gbps

3. Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λc	1325	1331	1337	nm	
Spectral Width (-20dB)	Δλ			1	nm	
Side-Mode Suppression	SMSR	30	-		dB	

Ratio						
Average Output Power	Pout	-5		2	dBm	1
Extinction Ratio	ER	3.5			dB	
Data Input Swing Differential	VIN	180		450	mV	2
Input Differential Impedance	ZIN	90	100	110	Ω	
TX Disable	Disable		2.0		Vcc	V	
	Enable		0		0.8	V	
TX Fault	Fault		2.0		Vcc	V	
	Normal		0		0.8	V	
Receiver						
Centre Wavelength	λc	1265	1271	1277	nm	
Receiver Sensitivity				-9	dBm	3
Receiver Overload				2	dBm	3
LOS De-Assert	LOSD			-16	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5			dB	
Data Output Swing Differential	Vout	180		450	mV	4
LOS	High	2.0		Vcc	V	
	Low			0.8	V	

Notes:

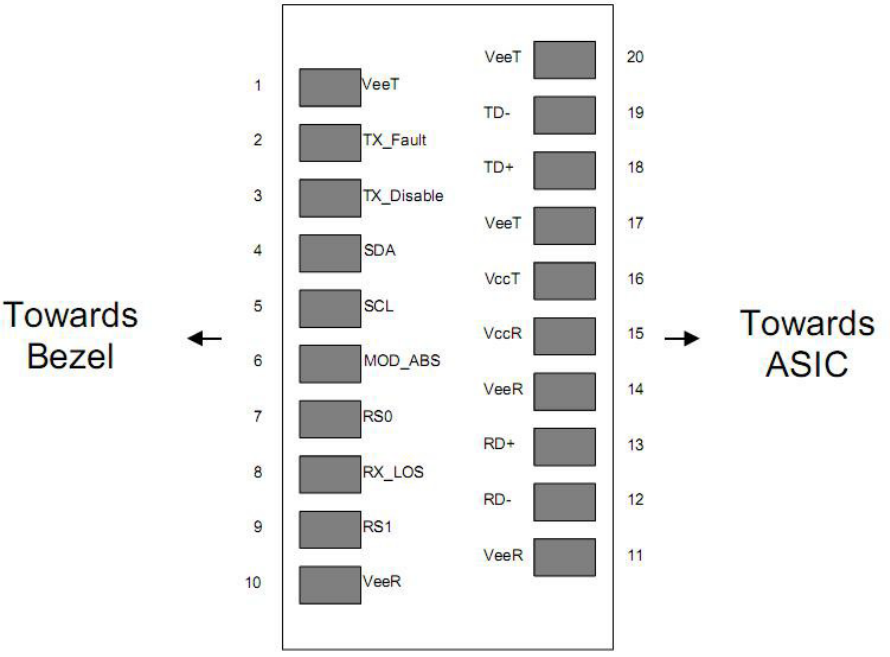
1. The optical power is launched into SMF.

2. PECL input, internally AC-coupled and terminated.

3. Measured with a PRBS 231-1 test pattern @25.78Gps, BER ≤5×10-5.

4. Internally AC-coupled.

4. Pin Descriptions



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

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

1) TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.

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

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

4) RD-/+: These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.

5) *TD-/+: These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.*