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

P/N: AE-SFP28-BX10-D

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

I. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	4.5	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	85	%

II. 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

III. Optical and Electrical Characteristics

Parameter		Symbol	Min	Typical	Max	Unit	Notes
Transmitter							
Centre Wavelength		λc	1320	1330	1340	nm	
Spectral Width (-20dB)		Δλ			1	nm	
Side-Mode Suppression Ratio		SMSR	30	-		dB	
Average Output Power		Pout	-2		4	dBm	1
Extinction Ratio		ER	3.5			dB	
Data Input Swing Differential		VIN	180		850	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	1260	1270	1280	nm	
Receiver Sensitivity					-13	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	300		900	mV	4
LOS		High	2.0		Vcc	V	
		Low			0.8	V	

1. The optical power is launched into SMF.

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

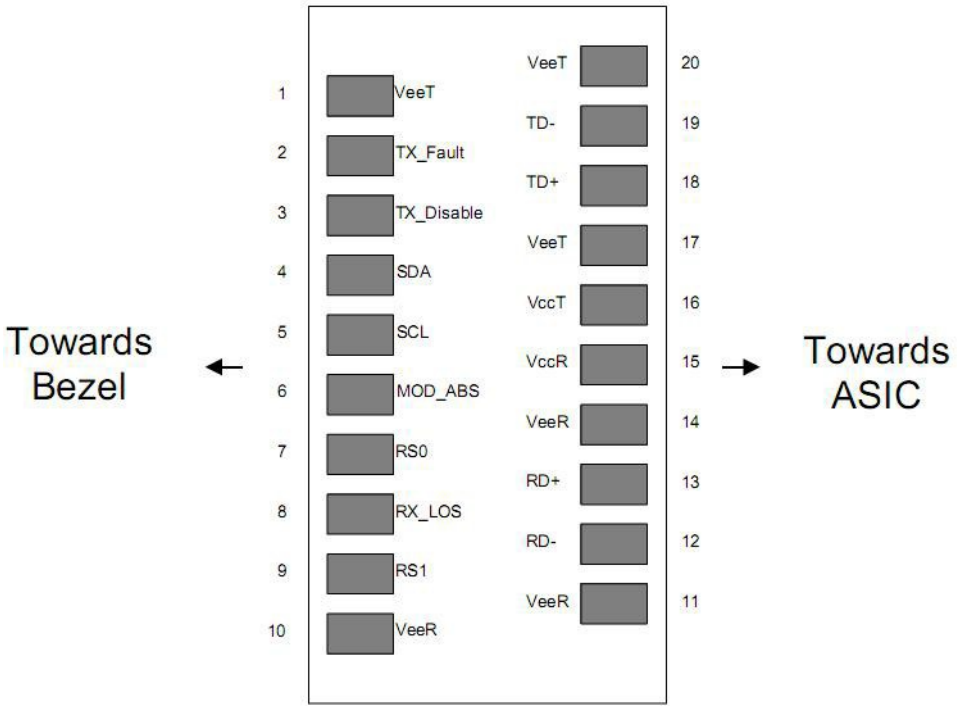
3. Measured with a PRBS 231-1 test pattern @25.78Gps, BER ≤5×10-5.

4. Internally AC-coupled.

IV. Timing and Electrical

Parameter	Symbol	Min	Typical	Max	Unit
Tx Disable Negate Time	t_on			2	ms
Tx Disable Assert Time	t_off			100	μs
Time To Initialize, including Reset of Tx Fault	t_init			300	ms
Tx Fault Assert Time	t_fault			100	μs
Tx Disable To Reset	t_reset	10			μs
LOS Assert Time	t_loss_on			100	μs
LOS De-assert Time	t_loss_off			100	μs
Serial ID Clock Rate	f_serial_clock		100	400	KHz
MOD_DEF (0:2)-High	V_H	2		Vcc	V
MOD_DEF (0:2)-Low	V_L			0.8	V

V. 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.

VI. Ordering Information

Part Number	Product Description
AE-SFP28-BX10-D	1330nm-TX/1270nm-RX, 25Gbps, LC, 10km, 0°C~+70°C, with DDM
AE-SFP28-BX10-DI	1330nm-TX/1270nm-RX, 25Gbps, LC, 10km, -40°C~+85°C, with DDM