
DWDM SFP28 CH17~CH61 10km DDM SMF Transceiver
P/N: AE-SFP28-D10-XX

Features

- Supports up to 25.78Gbps bit rates
- Hot-pluggable SFP+ footprint
- 100GHz ITU, C Band DWDM Cooled EML laser and PIN photodiode
- Up to 10km for SMF transmission
- Compliant with SFP+ MSA and SFF-8472 with duplex LC receptacle
- Compatible with RoHS
- Single +3.3V power supply
- Power dissipation <2.3W
- Real Time Digital Diagnostic Monitoring
- Operating case temperature: Standard: 0 to70°C

Applications

- 25G Ethernet

I. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V _{cc}	-0.5	4.5	V
Storage Temperature	T _s	-40	+85	°C
Operating Humidity	-	5	85	%

II. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	T _c	0		+70	°C
Power Supply Voltage	V _{cc}	3.135	3.30	3.465	V
Power Supply Current	I _{cc}			700	mA
Data Rate			25.78		Gbps

III. Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ_c	1528.77		1563.05	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side-Mode Suppression Ratio	SMSR	30	-		dB	
Average Output Power	P _{out}	-2		+7	dBm	1
Extinction Ratio	ER	6			dB	
Data Input Swing Differential	V _{IN}	180		850	mV	2
Input Differential Impedance	Z _{IN}	90	100	110	Ω	
TX Disable	Disable	2.0		V _{cc}	V	
	Enable	0		0.8	V	
TX Fault	Fault	2.0		V _{cc}	V	
	Normal	0		0.8	V	
Receiver						
Centre Wavelength	λ_c	1510		1570	nm	
Receiver Sensitivity				-14	dBm	3
Receiver Overload		2			dBm	3
LOS De-Assert	LOSD			-16	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5			dB	
Data Output Swing Differential	V _{out}	300		900	mV	4
LOS	High	2.0		V _{cc}	V	
	Low			0.8	V	

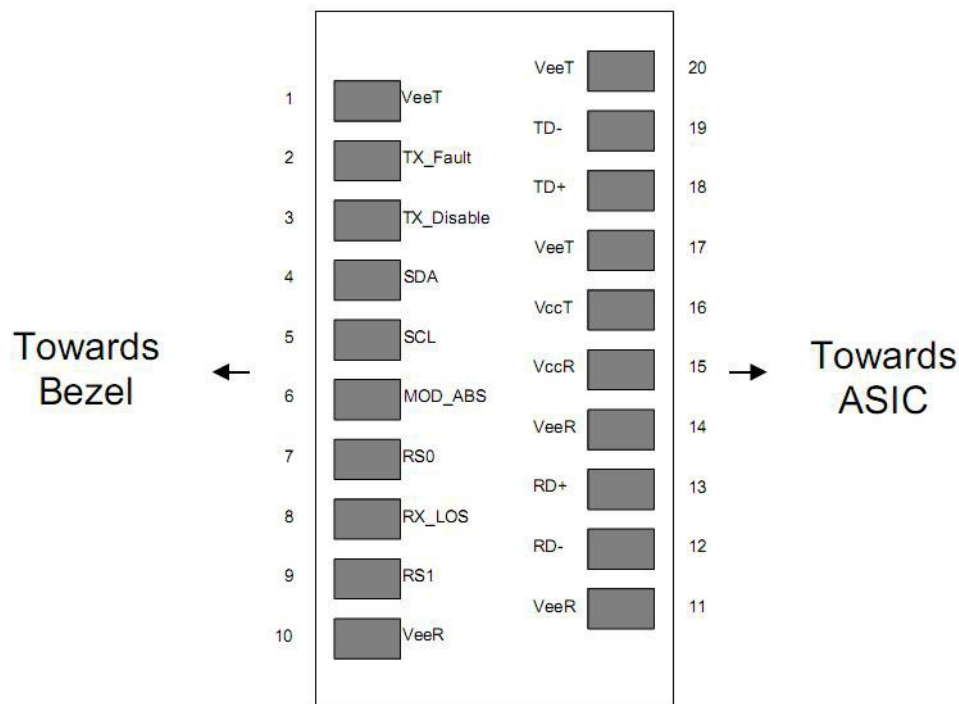
Notes:

- The optical power is launched into SMF.
- PECL input, internally AC-coupled and terminated.
- Measured with a PRBS 231-1 test pattern @25.78Gbps, BER $\leq 5E-5$.
- Internally AC-coupled.

IV. Timing and Electrical

Parameter	Symbol	Min	Typical	Max	Unit
Tx Disable Negate Time	t_on			1	ms
Tx Disable Assert Time	t_off			10	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	VH	2		Vcc	V
MOD_DEF (0:2)-Low	VL			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. λ C Wavelength Guide

λC Wavelength Guide					
ITU Channel Product Code	Frequency (THz)	Wavelength	ITU Channel Product Code	Frequency (THz)	Wavelength
18	191.8	1563.05	40	194.0	1545.32
19	191.9	1562.23	41	194.1	1544.53
20	192.0	1561.42	42	194.2	1543.73
21	192.1	1560.61	43	194.3	1542.94
22	192.2	1559.79	44	194.4	1542.14
23	192.3	1558.98	45	194.5	1541.35
24	192.4	1558.17	46	194.6	1540.56
25	192.5	1557.36	47	194.7	1539.77
26	192.6	1556.55	48	194.8	1538.98
27	192.7	1555.75	49	194.9	1538.19
28	192.8	1554.94	50	195.0	1537.40
29	192.9	1554.13	51	195.1	1536.61
30	193.0	1553.33	52	195.2	1535.82

31	193.1	1552.52	53	195.3	1535.04
32	193.2	1551.72	54	195.4	1534.25
33	193.3	1550.92	55	195.5	1533.47
34	193.4	1550.12	56	195.6	1532.68
35	193.5	1549.32	57	195.7	1531.90
36	193.6	1548.51	58	195.8	1531.12
37	193.7	1547.72	59	195.9	1530.33
38	193.8	1546.92	60	196.0	1529.55
39	193.9	1546.12	61	196.1	1528.77

VII. Ordering Information

Part Number	Product Description
AE-SFP28-D10-XX	25G DWDM SFP28,100Ghz ITU channel xx (1528.77~1563.05nm), LC,10km, 0°C~+70°C, with DDM