

1.25Gb/S SFP BIDI 10km Transceiver

P/N: TBSFP-1FxF35(53)A



Product Features

- Compliant with SFP MSA and SFF-8472 with LC receptacle
- Complies with Telcordia (Bellcore) GR-468-CORE
- Up to 10km distance
- 1310nm FP laser and PIN receiver for TBSFP-1FxF35A
- 1550nm DFB laser and PIN receiver for TBSFP-1FxF53A
- Typical data rate 1.25Gbps
- Case operating temperature range:
0°C to +70°C or -40 to 85°C
- RoHS-6 Compliant
- Part number
(1:0°C to 70°C, 5:-40°C to 85°C)
- TBSFP-1F1(5)F35A , TX1310/RX1550
- TBSFP-1F1(5)F53A , TX1550/RX1310

Application

- Gigabit Ethernet
- Fiber Channel

Absolute Maximum Rating

Parameter	Min	Max	Unit	Note
Storage Temperature	-40	85	°C	
3.3V Power Supply Voltage	-0.5	+3.6	V	

Recommended Operating Conditions

Parameter	Min	Typical	Max	Unit	Note
Case Operating Temperature	0		70	°C	
	-40		85	°C	
Power Supply Voltage	3.135	3.3	3.465	V	
Data Rate		1.25		Gbps	
Supply Current			300	mA	
Link Distance			10	km	

Electrical-Optical Characteristics (Tx:1310nm/Rx:1550nm)

Parameter		Symbol	Min	Typical	Max	Unit	Note
Transmitter							
Center Wavelength		λ	1275	1310	1350	nm	
Optical Spectral Width – RMS	1260nm	$\Delta\lambda$			2.09	nm	
	1270nm				2.52		
	1280nm				3.13		
	1286nm				3.5		
	1343nm						
	1350nm				3.06		
	1360nm				2.58		
Average Launch Optical Power		LOP	-9		-3	dBm	
Extinction Ratio		ER	9			dB	
Rise/Fall time					260	ps	
Differential Input Voltage		V _{pp-DIF}	500		2400	mV	
Output Optical Eye			Compliant with ITU recommendation IEEE802.3z				

Receiver						
Center Wavelength	λ	1480		1600	nm	
Sensitivity	Psen			-23	dBm	
Saturation		-3			dBm	1
LOS Assert	LOSA	-45			dBm	
LOS De-assert	LOSD			-23	dBm	
LOS Hysteresis	LOSH	0.5		5	dB	
Receiver Reflectance				-12	dB	
Differential Data Output Voltage	V _{pp-DIF}	370		2000	mV	
LOS Output Voltage-Low	V _{OL}	-		0.8	V	
LOS Output Voltage-High	V _{OH}	2.0		-	V	

Electrical-Optical Characteristics (Tx:1550nm/Rx:1310nm)

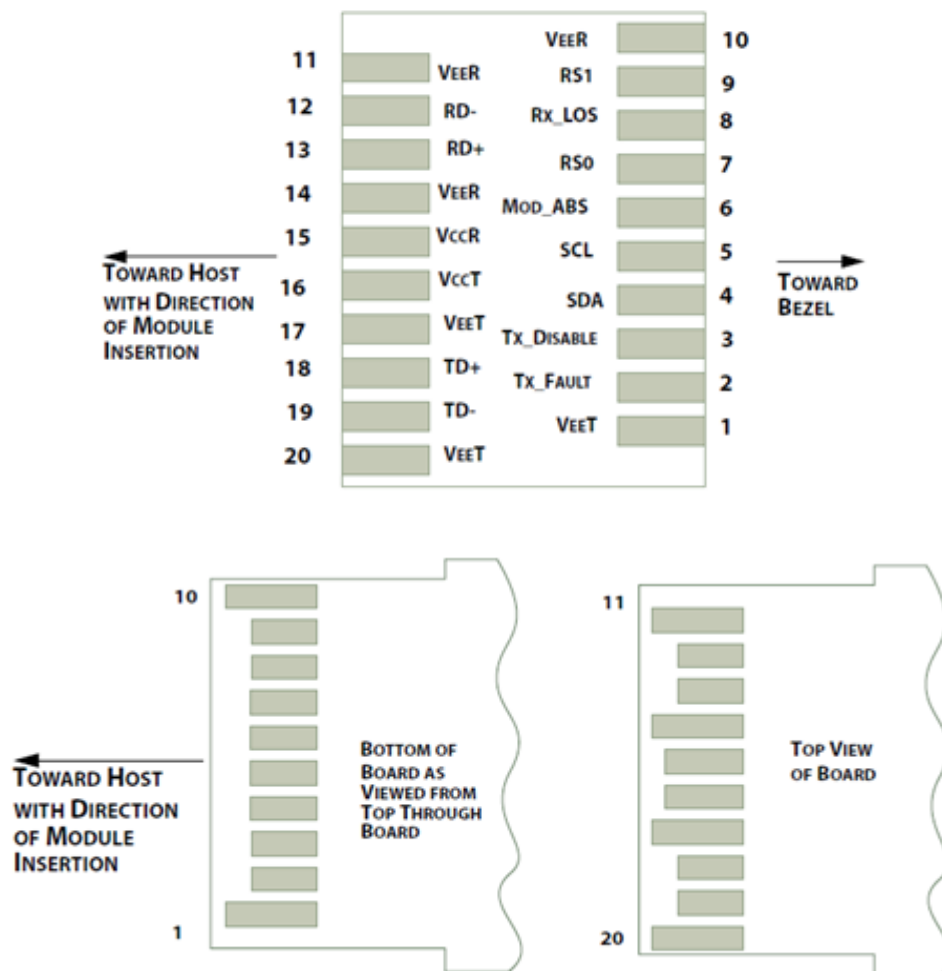
Parameter	Symbol	Min	Typical	Max	Unit	Note
Transmitter						
Center Wavelength	λ	1500	1550	1580	nm	
Optical Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Launch Optical Power	LOP	-9		-3	dBm	
Extinction Ratio	ER	9			dB	
Rise/Fall time				260	ps	
Differential Input Voltage	V _{pp-DIF}	500		2400	mV	
Output Optical Eye		Compliant with ITU recommendation IEEE802.3z				
Receiver						
Center Wavelength	λ	1260		1360	nm	
Sensitivity	P _{sen}			-23	dBm	
Saturation		-3			dBm	1
LOS Assert	LOSA	-45			dBm	

LOS De-assert	LOSD			-23	dBm	
LOS Hysteresis	LOSH	0.5		5	dB	
Receiver Reflectance				-12	dB	
Differential Data Output Voltage	V_{pp-DIF}	370		2000	mV	
LOS Output Voltage-Low	V_{OL}	-		0.8	V	
LOS Output Voltage-High	V_{OH}	2.0		-	V	

Notes

1. Minimum Sensitivity and saturation levels for an 8B10B 2^7-1 PRBS. $BER \leq 10^{-12}$, 1.25Gpbs, ER=9dB

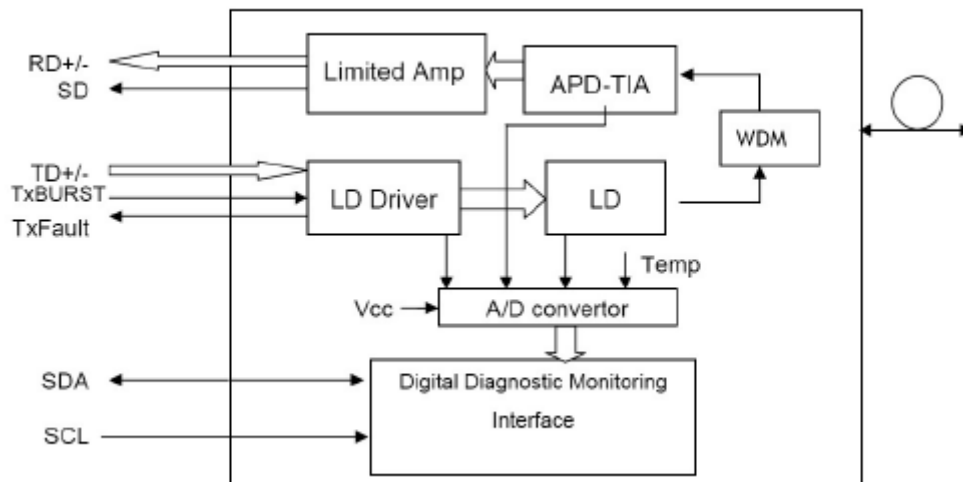
SFP Module Pad Assignments and Descriptions



PIN	Logic	Symbol	Name / Description	Note
1		VeeT	Module Transmitter Ground	
2	LVTTL-O	TX_Fault	Module Transmitter Fault	
3	LVTTL-I	TX_Dis	Transmitter Disable; Turns off transmitter laser output	
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	
6		MOD_DEF0	Module Definition, Grounded in the module	
7	LVTTL-I	RS0	Receiver Rate Select, default is high for 8G/10G application, when set to low by system, transceiver will set the bandwidth to under 4.25G to improve the sensitivity at low data rate	

8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication Active LOW	
9	LVTTL-I	RS1	Transmitter Rate Select, default input is high for 8G/10G application, when set to low by system, transceiver will set the TX optical output to be compliant with low data rate fiber channel specifications	
10		VeeR	Module Receiver Ground	
11		VeeR	Module Receiver Ground	
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Data Output	
14		VeeR	Module Receiver Ground	
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Transmitter 3.3 V Supply	
17		VeeT	Module Transmitter Ground	
18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	

Transceiver Block Diagram



Mechanical Design Diagram

Unit: mm

