

1G SFP SX Transceiver

ESTRSCS002

Product Features

- Up to 1.25Gbps
- Serial ID module on MOD (0-2)
- DDM function implemented
- Duplex LC optical receptacle
- AC coupling of PECL signals
- Single +3.3V power supply

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage temperature	T _s	-40	85	°C
Supply voltage	V _{CC3}	-0.5	4	V
Relative humidity	RH	5	95	%
RX input average power	P _{max}		-3	dBm

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating case temperature	T _c	0		70	°C	Commercial
Operating case temperature	T _c	-40		85	°C	Industrial
Power supply voltage	V _{CC}	3.135	3.3	3.465	V	
Data rate			1.25/ 1.0625		Gbps	

Transmitter Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Center wavelength	λ_c	830	850	860	nm	VCSEL LD
Optical power	Po	-9.5	-6	-3	dBm	550m 850nm VCSEL LD
Spectral width	$\Delta\lambda$			0.85	nm	VCSEL LD
Extinction ratio	ER	9			dB	
Relative intensity noise	RIN			-120	dB/Hz	
Eye diagram	Complies with IEEE802.3z eye masks when filtered					
Optical rise/fall time	Trise/Tfall			260	Ps	

Note:

Average optical power shall be measured using the methods specified in TIA/EIA-455-95

Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Receiver sensitivity	S			-18	dBm	550m
Overload		0			dBm	
LOS optical dessert				-21	dBm	
LOS optical assert		-35			dBm	
LOS hysteresis		0.5		5	dB	

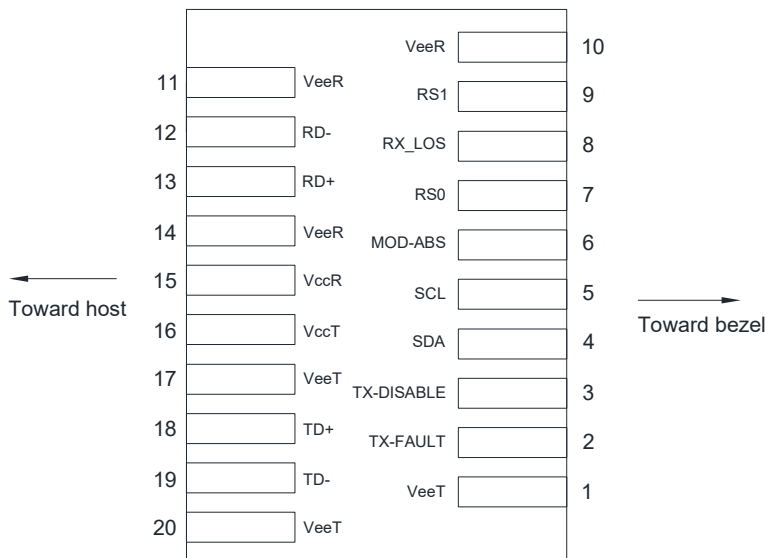
Note:

Receiver sensitivity is informative and shall be measured with conformance test signal for BER=1x10⁻¹²

Control and Status I/O Timing Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply current				300	mA	
Single ended data input swing		150		1100	mV	
Single ended data output swing		300		600	μ s	
TX-fault / LOS output (TTL)	VOH	2.0		Vcc	V	
	VOL	0		0.8	V	
TX_disable input (TTL)	VOH	2.0		100	V	
	VOL	0		0.8	V	

Pin Descriptions



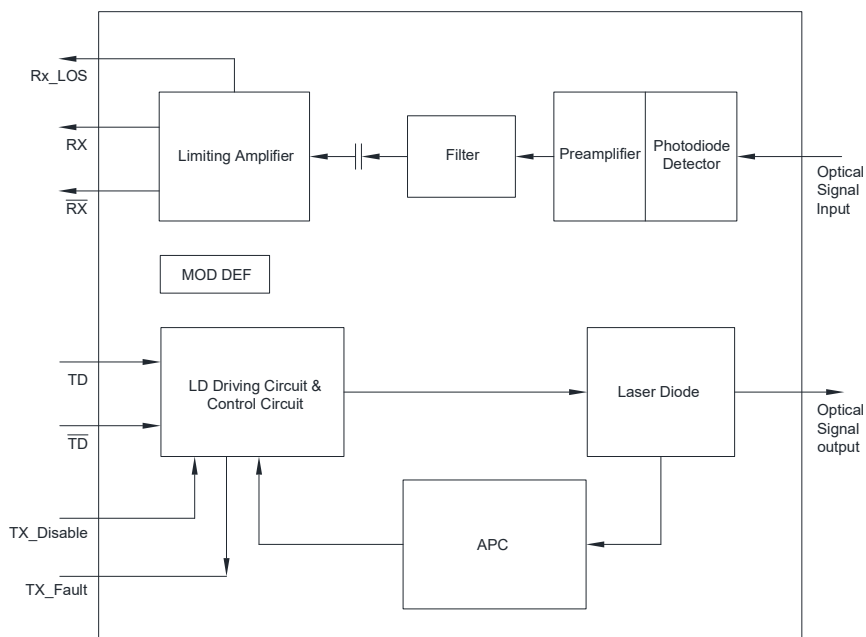
Pin	Symbol	Descriptions	Note
1	VeeT	Module transmitter ground	1
2	TX_fault	Module transmitter fault	3
3	TX_disable	Transmitter disable; turns off transmitter laser output	3
4	SDA	2-wire serial interface data line (same as MOD-DEF2 as defined in INF-8074i)	3
5	SCL	2-wire serial interface clock (same as MOD-DEF1 as defined in INF-8074i)	3
6	MOD_ABS	Module absent, connected to VeeT or VeeR in the module	3
7	RS	Rate select, optionally controls SFP module receiver, when high input data rate 10.3GBd and when low input data rate 1.25GBd	3
8	RX_LOS	Receiver loss of signal indication (in FC designated as RX_LOS, in SONET designated as LOS, and in Ethernet designated as signal detect)	3
9	VeeR	Module receiver ground	1
10	VeeR	Module receiver ground	1
11	VeeR	Module receiver ground	1
12	RD-	Receiver inverted data output	3

13	RD+	Receiver non-inverted data output	3
14	VeeR	Module receiver ground	1
15	VccR	Module receiver 3.3V supply	2
16	VccT	Module transmitter 3.3V supply	2
17	VeeT	Module transmitter ground	1
18	TD+	Transmitter non-inverted data input	3
19	TD-	Transmitter inverted data input	3
20	VeeT	Module transmitter ground	

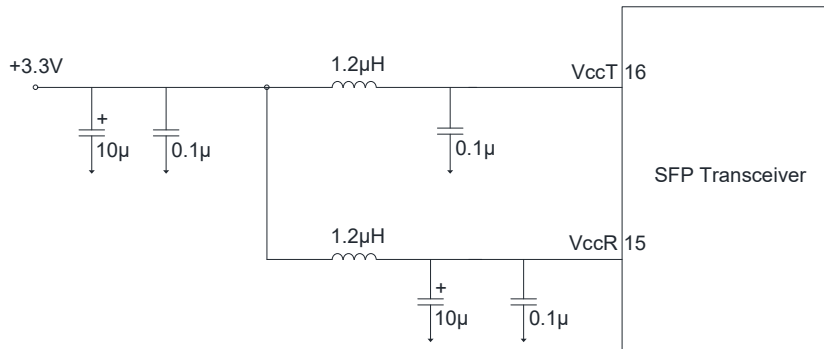
Note:

1. The module signal ground pins, VeeR and VeeT, shall be isolated from the module case
2. This pin is an open collect/drain output pin and shall be pulled up with 4.7k-10kohms to Host_Vcc on the host board. Pull ups can be connected to multiple power supplies. However the host board design shall ensure that no module pin has voltage exceeding module VccT/R + 0.5V
3. This pin is an open collect/drain input pin and shall be pulled up with 4.7k-10kohms to VccT in the module

Block Diagram of Transceiver



Recommended Interface Circuit



Digital Diagnostic Memory Map

