

# 10G SFP+ LR 10km Transceiver

## ESTRSCS006

### Product Features

- Up to 11.3Gb/s data links
- Up to 10km on 9/125μm SMF
- 1310nm DFB transmitter
- SFP+ MSA package with duplex LC connector
- Management interface specification per SFF-8431 and SFF-8472
- Electrical interface specification per SFF-8431
- +3.3V power supply

### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage temperature	T <sub>s</sub>	-40	85	°C
Supply voltage	V <sub>CC3</sub>	-0.5	4	V
Relative humidity	RH	5	95	%

### Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating case temperature	T <sub>c</sub>	-40		85	°C
Power supply voltage	V <sub>CC3</sub>	3.135	3.3	3.465	V
	I <sub>CC3</sub>			300	mA
Power dissipation	P <sub>D</sub>			1	W
Data rate		1	10.3125	11.3	Gbps
Transmission distance				10	km

### Transmitter Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Center wavelength	$\lambda_c$	1260	1310	1360	nm
SMSR	SMSR	30			dB
-20dB spectral width				1	nm
Launch optical power	Po	-8		0.5	dBm
OMA optical power	Po	-5			dBm
Extinction ratio	ER	3.5			dB
Pout @TX-disable asserted	Poff			-30	dBm
Relative intensity noise	RIN <sub>12OMA</sub>			-128	dB/Hz
Optical return loss tolerance	ORLT			12	dB

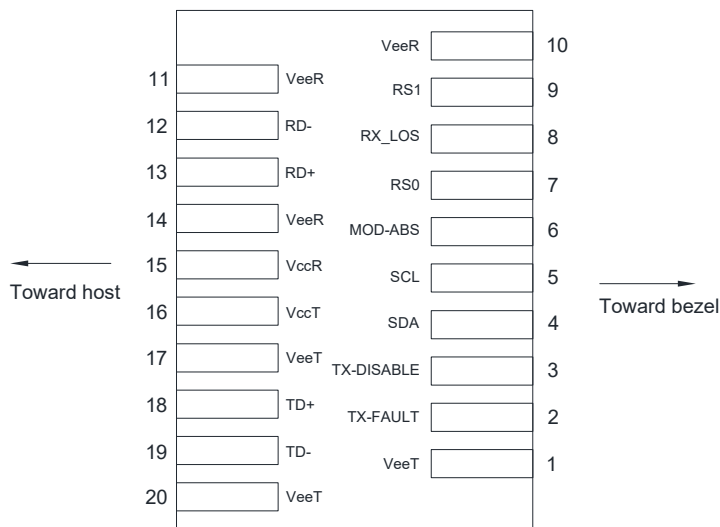
### Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Center wavelength	$\lambda_r$	1260		1610	nm
Receiver sensitivity (Pavg)	S			-14.4	dBm
LOS assert	LOS_A	-30			dBm
LOS dessert	LOS_D			-17	dBm
LOS hysteresis		0.5			dB
Receiver overload (Pavg)		1			dBm
Receiver reflectance				-12	dB

### Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Input differential impedance			100		$\Omega$
Differential data input swing		180		1000	mV
Differential data output swing		300		850	mV
Tx_fault, LOS output voltage	High	2.0		V <sub>CCHOST</sub>	V
	Low	0		0.8	V
Tx disable	VIH	2.0		V <sub>CCHOST</sub>	V
	VIL	0		0.8	V

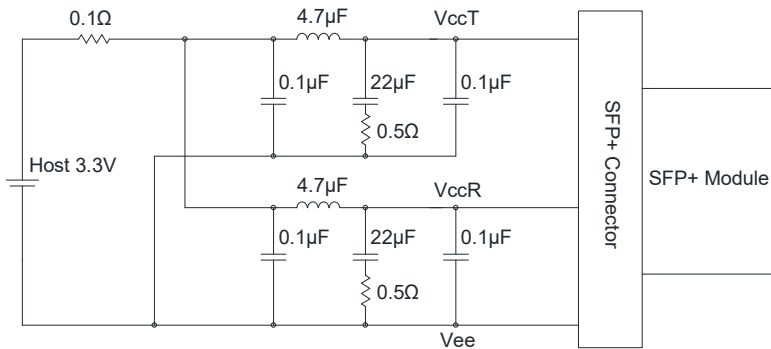
## Pin Descriptions



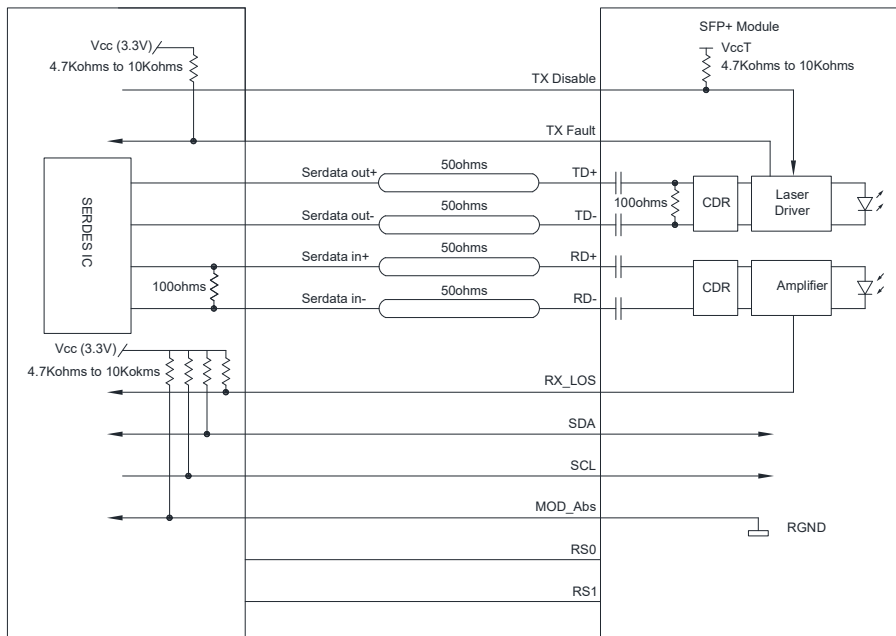
Pin	Symbol	Descriptions
1	VeeT	Module transmitter ground
2	TX fault	Module transmitter fault
3	TX disable	Transmitter disable; turns off transmitter laser output
4	SDA	2-wire serial interface data line (same as MOD-DEF2 as defined in INF-8074i)
5	SCL	2-wire serial interface clock (same as MOD-DEF1 as defined in INF-8074i)
6	MOD_ABS	Module absent, connected to VeeT or VeeR in the module
7	RS0	Rate select 0, optionally controls SFP+ module receiver
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)
9	RS1	Rate select 1, optionally controls SFP+ module transmitter
10	VeeR	Module receiver ground
11	VeeR	Module receiver ground
12	RD-	Receiver inverted data output
13	RD+	Receiver non-inverted data output
14	VeeR	Module receiver ground
15	VccR	Module receiver 3.3V supply
16	VccT	Module transmitter 3.3V supply

17	VeeT	Module transmitter ground
18	TD+	Transmitter non-inverted data input
19	TD-	Transmitter inverted data input
20	VeeT	Module transmitter ground

### Recommended Host Board Power Supply Filter Network



### Recommended Application Interface Block Diagram



## Digital Diagnostic Memory Map

