



SPT-P1T13V3-L20D

3Gbps Video SFP Optical Transceiver, 20km Reach



Features

- HD-SDI SFP Transceiver available
- SD-SDI SFP Transceiver available
- 3G-SDI SFP Transceiver available
- SMPTE 297-2006 Compatible.
- Metal enclosure for Lower EMI
- 1310nm DFB laser
- Compliant with SFP MSA and SFF-8472
- Digital Diagnostic Monitoring:
- Compatible with RoHS
- +3.3V single power supply
- Operating case temperature:
- Standard : $0 \text{ to } +70^{\circ}\text{C}$

Applications

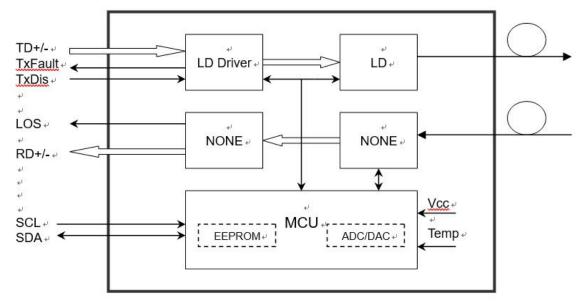
- SMPTE 297-2006 Compatible Electrical-to-Optical Interfaces.
- HDTV/SDTV Service Interfaces.

Description



The SFP Transmitter only is high performance, cost effective modules supporting data-rate of 3Gbps and 20km transmission distance with SMF.

The transceiver consists of three sections: a DFB laser transmitter and MCU control unit. All modules satisfy class I laser safety requirements.



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	%

Recommended Operating Conditions

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Param	neter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard	Тс	0		+70	°C
Power Supply	y Voltage	Vcc	3.13	3.3	3.47	V
Power Supply	y Current	Icc			400	mA
Data R	ate			3		Gbps

Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
		Transmi	tter			
Centre Wavelength	λc	1260	1310	1360	nm	
Spectral Width (-20dB)	σ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	Pout	-5		0	dBm	1
Extinction Ratio	ER	5			dB	

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-	se/Fall Time ~80%)	tr/tf			0.16	ns	
	out Swing crential	V _{IN}	400		1800	mV	2
Input Differen	ntial Impedance	Zin	90	100	110	Ω	
TV Dischla	Disable		2.0		Vcc	V	
TX Disable	Enable		0		0.8	V	
ТУ Бал 14	Fault		2.0		Vcc	V	
TX Fault	Normal		0		0.8	V	
			Receiver-	None			

Notes:

1. The optical power is launched into SMF.

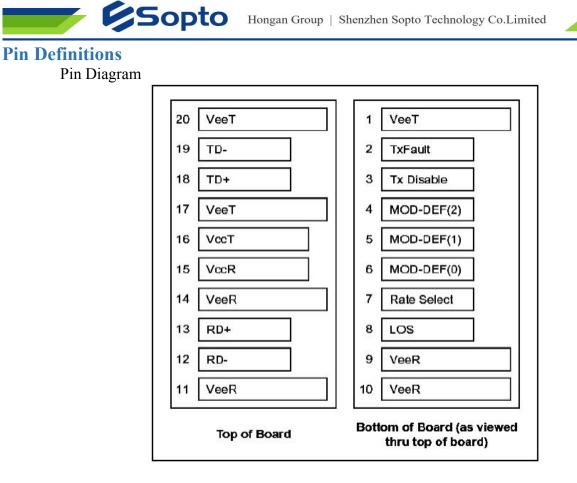
2. PECL input, internally AC-coupled and terminated.

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_clo ck			400	KHz
MOD_DEF (0:2)-High	V_{H}	2		Vcc	V
MOD_DEF (0:2)-Low	V_L			0.8	V

Diagnostics Specification

Parameter	Range	Unit	Accuracy	Calibration
Temperature	0 to +70	°C	±3°C	Internal / External
Voltage	3.0 to 3.6	V	±3%	Internal / External
Bias Current	0 to 100	mA	±10%	Internal / External
TX Power	-5 to 0	dBm	±3dB	Internal / External



Pin Descriptions

Pin	Signal Name	Description	Plug Seq.	Notes
1	V _{EET}	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note 1
3	TX DISABLE	Transmitter Disable	3	Note 2
4	MOD_DEF(2)	SDA Serial Data Signal	3	Note 3
5	MOD_DEF(1)	SCL Serial Clock Signal	3	Note 3
6	MOD_DEF(0)	TTL Low	3	Note 3
7	Rate Select	Not Connected	3	
8	NC			
9	VEER	Receiver ground	1	
10	VEER	Receiver ground	1	
11	VEER	Receiver ground	1	
12	NC			
13	NC			
14	VEER	Receiver ground	1	
15	V _{CCR}	Receiver Power Supply	2	
16	V _{CCT}	Transmitter Power Supply	2	
17	V _{EET}	Transmitter Ground	1	
18	TD+	Transmit Data In	3	Note 4
19	TD-	Inv. Transmit Data In	3	Note 4
20	VEET	Transmitter Ground	1	

Notes:

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Plug Seq.: Pin engagement sequence during hot plugging.

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- 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) TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a $4.7k\sim10k\Omega$ resistor. Its states are:

Low (0 to 0.8V):	Transmitter on
(>0.8V, < 2.0V):	Undefined
High (2.0 to 3.465V):	Transmitter Disabled
Open:	Transmitter Disabled

3) Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a $4.7k\sim10k\Omega$ resistor on the host board. The pull-up voltage shall be VccT or VccR.

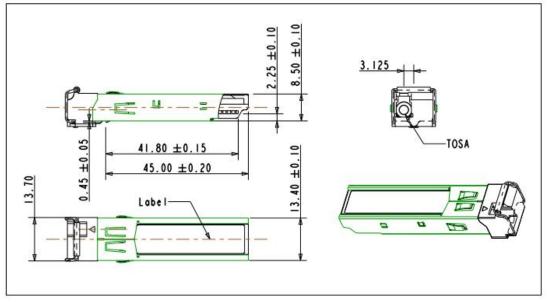
Mod-Def 0 is grounded by the module to indicate that the module is present

Mod-Def 1 is the clock line of two wire serial interface for serial ID

Mod-Def 2 is the data line of two wire serial interface for serial ID

4) TD-/+: These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Mechanical Dimensions



Ordering information

Part Number	Product Description					
SDT D1T12W2 I 20D	1310nm, 3Gbps, SFP, Transmitter only 20km,	$0^{\circ}C \sim +70^{\circ}C$, With Digital				
SPT-P1T13V3-L20D	Diagnostic Monitoring					

Note: If you need more customized services, please contact us.

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