

SPT-P1RV3-L20D (MSA)

3Gbps Video SFP Optical Receiver, PIN photodetector

Features

- HD-SDI SFP Receiver available
- SD-SDI SFP Receiver available
- 3G-SDI SFP Receiver available
- SMPTE 297-2006 Compatible
- Metal enclosure for Lower EMI
- PIN photodetector
- Supports video pathological patterns for SD-SDI, HD-SDI and 3G-SDI
- Compliant with SFP MSA and SFF-8472 with duplex LC receptacle
- Without DDM(Digital Diagnostic functions)
- Compatible with RoHS
- +3.3V single power supply
- Operating case temperature:
Standard : 0 to +70°C

Application

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

Description

The video series transceivers are high performance, cost effective modules for duplex video transmission application over single mode fiber.

The receiver is designed to receive data rates from 50Mbps to 2.97Gbps and is specifically designed for robust performance in the presence of SDI pathological patterns for SMPTE 259M, SMPTE 344M, SMPTE 292M and SMPTE 424M serial rates. The module is fully compliant with SMPTE 297M-2006.

The receiver is consists of a PIN photodiode integrated with a trans-impedance preamplifier (TIA). All modules satisfy class I laser safety requirements.



The receivers are compatible with SFP Multi-Source Agreement (MSA). For further information, please refer to SFP MSA.

Technical Parameters

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	Rh	5	85	%

Recommended Operating Conditions

Parameter	Symbol	Min	ypical	Max	Unit
Operating Case Temperature	T _c	0		70	°C
Power Supply Voltage	V _{cc}	3.13	3.3	3.47	V
Power Supply Current	I _{cc}			150	mA
Data Rate			3		Gbps

Optical and Electrical Characteristics

Parameter		Symbol	Min	Typical	Max	Unit	Notes
Receiver							
Rise/Fall Time (20%~80%)	SD-SDI	tr/τf			1500	ps	1
	HD-SDI				270		
	3G-SDI				135		
Total Output Jitter	PRBS and colour bar	SD-SDI		70	200	ps	
		HD-SDI		50	135		
		3G-SDI		70	100		
	pathological	SD-SDI		200	300		
		HD-SDI		115			
		3G-SDI		120			
Centre Wavelength		λ _c	1260		1580	nm	
Receiver Sensitivity (PRBS)	SD-SDI				-22	dBm	
	HD-SDI				-22	dBm	
	3G-SDI				-22	dBm	
Receiver Sensitivity (Pathological)	SD-SDI				-20	dBm	
	HD-SDI				-22	dBm	

	3G-SDI				-22	dBm	
Receiver Overload			0			dBm	3
LOS De-Assert		LOS _D			-20	dBm	
LOS Assert		LOS _A	-30			dBm	
LOS Hysteresis			1		4	dB	
Data Output Swing Differential		V _{out}	650	800	1000	mV	2
LOS		High	2.0		V _{cc}	V	
		Low			0.8	V	

Note:

1. Rise and fall times, 20% to 80%, are measured following a fourth-order Bessel-Thompson filter with a bandwidth of 0.75 x clock frequency corresponding to the serial data rate.
2. PECL input, internally AC-coupled and terminated.
3. Internally AC-coupled.

Timing and Electrical

Parameter	Symbol	Mi	Ma	Uni
LOS Assert Time	t _{loss_on}		100	μs
LOS De-assert Time	t _{loss_off}		100	μs
Serial ID Clock Rate	f _{serial_clock}		280	KHz
MOD_DEF (0:2)-High	V _H	2	V _{cc}	V
MOD_DEF (0:2)-Low	V _L		0.8	V

Diagnostics Specification

Parameter	Range	Uni	Accuracy	Calibration
Temperature	0 to +70	°C	±3°C	Internal / External
Voltage	3.0 to 3.6	V	±3%	Internal / External
RX Power	-20 to -6	dBm	±3dB	Internal / External

I2C Bus Interface

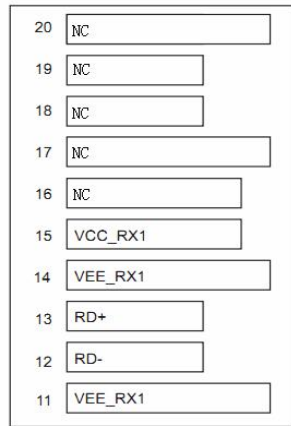
The I2C bus interface uses the 2-wire serial CMOS E2PROM protocol. The serial interface meets the following specifications:

1. Support a maximum clock rate of 280Khz.
2. Input/Output levels comply with LVCMOS/LVTTL or compatible logics.
 Low: 0 – 0.8 V
 High: 2.0 – 3.3 V
 Undefined: 0.8 – 2.0 V

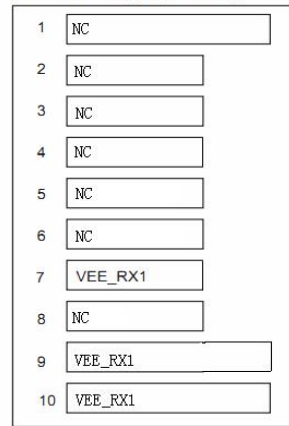
Pin Description

Pin Diagram

Top of Board



Bottom of Board
(as viewed through top of board)



Pin Descriptions

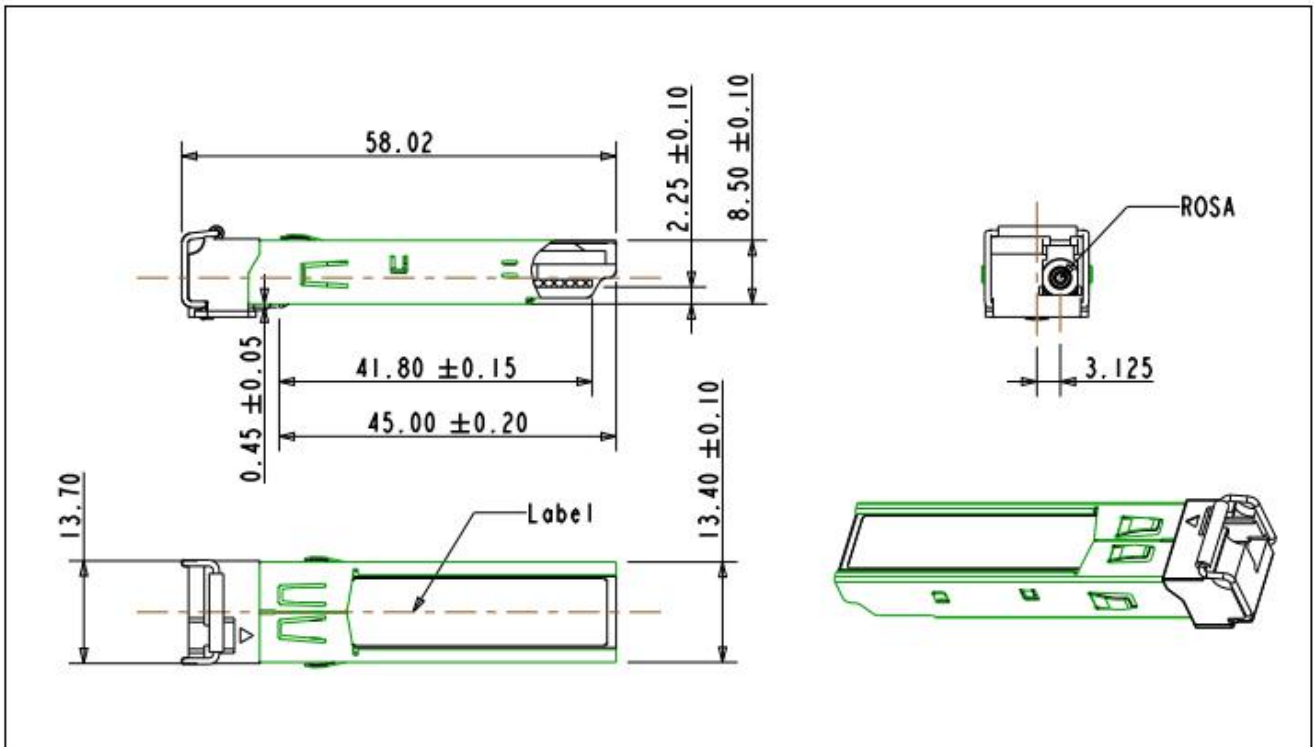
Pin	Signal Name	Description	Plug Seq.	Notes
1	NC	Not Connected	1	
2	NC	Not Connected	3	
3	NC	Not Connected	3	
4	NC	Not Connected	3	
5	NC	Not Connected	3	
6	NC	Not Connected	3	
7	VEE_RX1	Receiver1 Ground	3	
8	NC	Not Connected	3	
9	VEE_RX1	Receiver1 Ground	1	
10	VEE_RX1	Receiver1 ground	1	
11	VEE_RX1	Receiver1 ground	1	
12	RD-	Inv. Received Data Out	3	Note 1
13	RD+	Received Data Out	3	Note 1
14	VEE_RX1	Receiver1 ground	1	
15	VCC_RX1	Receiver1 Power Supply	2	
16	NC	Not Connected	2	
17	NC	Not Connected	1	
18	NC	Loss of Signal	3	
19	NC	Not Connected	3	
20	NC	Not Connected	1	

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

1) 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.

Mechanical Dimensions



Ordering Information

Part Number	Product Description	Notes
SPT-P1RV3-L20D	Transceiver SFP Single RX Video 3G SDI 20km LC Interface with DDM Commercial Temperature	SFP MSA Type.

Note:

- 1、 Default operating case temperature is 0 ~ 70°C. If you need -40 ~ 85°C products, add "T" after Part Number .
- 2、 If you need more customized services, please contact us.

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

E-mail: info@sopto.com.cn

Web : <http://www.sopto.com.cn>