

Dual Channel Transmitters 1310 nm Single Mode, 2-40 km SDI SFP Dual LC Connector



SDI Video Small Form Pluggable (SDI SFP)

Description

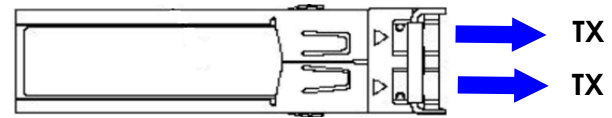
OptixCom's video SFP optical modules are deployed for the increasing demand of high definition video applications over a long distance. The design supports pathological patterns for SD, ED, HD, and 3G SDI (Serial Digital Interface) signals from 50 Mb/s to 3 Gb/s. The high data rate enables crystal clear video resolution with minimum degradation. In addition to standard optical transceiver components used in the module, a micro-controller IC is utilized to process video signals. This electrical-optical interface is also compatible with SMPTE 297-2006 standard and SFP Multi-Source Agreement (MSA) package specifications.

This particular optical module supports two channels of transmitter for one-way video transmission. 1310 nm laser is used with a typical transmission distance of 2-40 km. This product is RoHS compliant and typical power consumption is < 1.7 W.



Lead-Free

SDI-2970LX-2TXXK
(XX = 2, 20, 40)



Key Features

- 1310 nm single mode
- Dual transmitter channels
- 50 Mb/s – 3 Gb/s, 2-40 km reach
- SMPTE 297-2006 compatible
- Support SMPTE 424M/292M/297M/259M
- Duplex LC connector optical interface
- Single 3.3 V power supply
- Z-axis hot pluggable
- SFF-8472 MSA Compliant
- RoHS compliant

Applications

- ✓ Serial Digital Interface (SDI) standard
- ✓ SMPTE 297-2006 compatible electrical-optical interface
- ✓ Remote digital display systems or security surveillance
- ✓ Professional video broadcast
- ✓ Digital cinema system

Ordering Information

Part Number: SDI-2970LX-2TXXK

Description:

1310 nm, 50 Mb/s to 2.97 Gb/s, single mode, SDI video SFP dual channel transmitters, XX km reach, 0-70°C

XX = 2, 20, 40

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
Data Rate	50	2970	3000	Mb/s
Supply Voltage	3.15	3.3	3.45	V
Supply Current	---	---	500	mA

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(XX = 2, 20, 40)

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	T_{st}	-40	85	°C
Humidity	$R.H.$	---	85	%
Soldering Temperature (10 sec. on leads)	T_{sd}	---	260	°C

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage ¹	ΔV_i	0.4	---	1.8	V
Differential Input Impedance ²	Z	90	100	110	ohm
Optical Output Power (2 km) ³	P_o	-8	-3	0	dBm
Optical Output Power (20 km) ³	P_o	-6	-2	0	dBm
Optical Output Power (40 km) ³	P_o	-2	0	+3	dBm
Optical Wavelength	λ_o	1260	1310	1360	nm
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm
Side Mode Suppression Ratio	$SMSR$	30	---	---	dB
Extinction Ratio	ET	5	8	---	dB
Rise/Fall Time (20% - 80%)	SD-SDI	---	---	1500	ps
	HD-SDI	T_r/T_f	---	270	
	3G-SDI	---	---	135	
Total Jitter PRBS & Color Bar	SD-SDI	---	70	200	ps
	HD-SDI	T_j	---	135	
	3G-SDI	---	70	100	
Total Jitter Pathological	SD-SDI	---	200	300	ps
	HD-SDI	T_j	---	115	
	3G-SDI	---	120	---	

Notes:

1. Applied to AC LVPECL I/O coupling. See the design guide for proper termination.
2. Single ended will be 50 ohm for each signal line.
3. Output of coupling optical power into 9/125 μ m SMF.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11



(XX = 2, 20, 40)

Transmitter Electro-Optical Characteristics (Cont'd)

Parameter	Symbol	Min.	Typical	Max.	Units
TX Disable Voltage – High	V_{DH}	2.0	---	V_{CC}	V
TX Disable Voltage - Low	V_{DL}	0	---	0.8	V
TX Fault Output - High	V_{FH}	2.0	---	V_{CC}	V
TX Fault Output - Low	V_{FL}	0	---	0.8	V
TX Disable Assert Time	T_{ass}	---	---	10	μ s
TX Disable Deassert Time	T_{disass}	---	---	1.0	ms
Serial ID Clock Rate	f_c	---	---	280	kHz
Time to Initialize	T_{as}	---	---	300	ms
TX Fault from Fault to Assertion	T_{fault}	---	---	100	μ s
TX Disable Time to Start Reset	T_{reset}	10	---	---	μ s

PIN Assignment and Description

Top of Board

20	TX1_DIS
19	TD1-
18	TD1+
17	VEE_TX1
16	VCC_TX1
15	VCC_TX2
14	VEE_TX2
13	NC
12	TX2_FAULT
11	VEE_TX2

Bottom of Board

(as viewed through top of board)

1	VEE_TX1
2	TX1_FAULT
3	NC
4	VEE_TX1
5	I ² C CLK
6	I ² C DATA
7	VEE_TX2
8	TD2+
9	TD2-
10	TX2_DIS

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