Video Transceiver (SFP) Modules

Optical Video Transceiver

DATASHEET FIBER OPTICS

Features

- SMPTE 424M, SMPTE 292M, and SMPTE 259M compliant
- 19 Mbps up to 3 Gbps
- Supports DVB-ASI and SMPTE 310M
- Supports video pathological patterns for SD-SDI, HD-SDI and 3G-SDI
- Hot-pluggable
- Mutlimode and Singlemode
- 1310, 1550 and CWDM
- PIN- Standard receiver sensitivity -18 dBm
- APD- High receiver sensitivity -28 dBm
- Supports Serial ID functionality
- RoHS-6 compliant
- Compliant with Digital Diagnostic Monitoring (Option)

Applications

- Broadcast contribution
- Broadcast inter-facility distribution
- Studio to transmitter links
- SMPTE compliant video switching networks over fiber

Optical Video Transceiver (SFP) Modules Design

EMCORE offers a range of Small Form-factor Pluggable (SFP) optical video transceiver modules, which transmit and receive optical SDI signals from 19 Mbps up to 2.97 Gbps using an optical fiber cable with LC connectors. Our video SFP's are designed specifically to achieve compliance with SMPTE 424M, SMPTE 292M and SMPTE 259M video standards. When used in conjunction with EMCORE's matrix switches and insert cards, they provide a perfect solution for systems requiring SMPTE compliant video for optical wavelength conversion, optical switching/routing, and long or short distance optical transport.

EMCORE optical video transceiver modules come in three types: dual transmitter, dual receiver and transceiver. The transceiver module is MSA compliant and can be plugged into MSA complaint SFP ports on optical routers, transponders or converter cards, providing the ability to transport error-free SMPTE video over standard fiber networks. Optical video SFP's can accommodate multimode or singlemode fiber.

Within Emcore optical fiber transmission networks, SFPs provide the optical interface (input and output) for the EMX and OMX optical physical layer switches. Each SFP transceiver module provides the physical ports for one input and one output. Each port input provides an option of data retiming or bypass of retiming.

SFPs may be utilized within EMX and OMX switches to achieve multiple configurations of the non-blocking cross-point physical layer switch. As a result of the multiple models of SFPs, the switches may also facilitate wavelength and media conversion.

SFP OPTICAL PORT CARD (OMX-SFP-B)

Multimode, Singlemode & CWDM up to 4.25 Gbps

Specifications	Values
Media Conversion	Yes
Status Indicators	LED front panel power
Data Rate	Up to 4.25 Gbps
Dimensions	16.5" (W) x 3.9" (D) x 1" (H) 41.9 cm (W) x 9.9 cm (D) x 2.5 cm (H)
Physical Interfaces	SFP x 16

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Video Specifications

Specifications	Values
Standards	SMPTE 259M, 292M, 424M, 310M and ASI
Data Rate	19 Mbps to 3 Gbps
Pathological test code	RP-178

Transmitter Electrical Characteristics

Specifications		Symbol	Values				Conditions
			Min.	Typ.	Max.	Units	
Differential Input Data		VIH-IL	300	-	1600	mV	
Differential Input Impedance		Zin	90	100	110	ohm	
TX_Disable	Input_Low	VIL	0	-	0.8	V	LVTTL
	Input_High	VIH	2	-	Vcc	V	
Tx_Fault	Output_Low	VtoL	0	-	0.8	V	LVTTL
	Output_High	VtoH	2	-	Vcc	V	

Receiver Electrical Characteristics

Specifications		Symbol	Values			
			Min.	Typ.	Max.	Units
Differential Input Data		Vout	300	-	1600	mV
Differential Input Impedance		Zout	90	100	110	ohm
	SMPTE 424M2.97Gbps	-	120	-	135	ps
	SMPTE 292M1.485Gbps	-	120	-	270	ps
	SMPTE 259M270Mbps	-	135	-	270	ps

Absolute Maximum Ratings

Specifications	Symbol	Values	Units	Conditions
Storage Temperature	Tstg	-40 ~ +85	oC	Case
Operating Temperature	Top	0 ~ +70	oC	Case
		-20 ~ +70 (Optional)		
Power Supply Voltage	VCC	< +5.0	V	
Ambient Humidity	Hop	5 ~ 95	%	w/o dew

Operating Conditions

Specifications	Symbol	Values				Conditions
		Min.	Typ.	Max.	Units	
Power supply voltage	VCC	+3.135	+3.30	+3.465	V	
Power supply current	ICC	-	TBD		mA	
Power supply noise	Ncc	-	-	100	mVp-p	from 100Hz to 1MHz
Ambient Humidity	Hop	5 ~ 95	%	w/o dew		

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Video Transceiver (SFP) Modules

Optical Video Transceiver

DATASHEET FIBER OPTICS

Dual Transmitter Models & Optical Specifications

SFP Modules	Wavelength (nm)	Distance (Km)	Output Power (dBm)
SFP-VDTT-CC-MM/SM	1310 MM	0.5	0 to -5
SFP-VDTT-CC-MM/SM	1310 SM	10	0 to -5
SFP-VDTT-CC-DFB	1310 SM	30	0 to +3
SFP-VDTT-OO-DFB	1550 SM	50	0 to +3
SFP-VDTT-AB-CWDM	1270/1290 SM	30-50	0 to +3
SFP-VDTT-CD-CWDM	1310/1330 SM	30-50	0 to +3
SFP-VDTT-EF-CWDM	1350/1370 SM	30-50	0 to +3
SFP-VDTT-GH-CWDM	1390/1410 SM	30-50	0 to +3
SFP-VDTT-IJ-CWDM	1430/1450 SM	30-50	0 to +3
SFP-VDTT-KL-CWDM	1470/1490 SM	30-50	0 to +3
SFP-VDTT-MN-CWDM	1510/1530 SM	30-50	0 to +3
SFP-VDTT-OP-CWDM	1550/1570 SM	30-50	0 to +3
SFP-VDTT-QR-CWDM	1590/1610 SM	30-50	0 to +3

Dual Receiver Models & Optical Specifications

SFP Modules	Wavelength (nm)	RX Sensitivity (dBm)
SFP-VDRR-P-MM/SM	1270-1610 MM/SM	-18
SFP-VDRR-AP-SM	1270-1610 SM	-28

Transceiver Models & Optical Specifications

SFP Modules	Wavelength (nm)	Distance (Km)	Output Power (dBm)	RX Sensitivity (dBm)
SFP-VDTR-C-MM/SM	1310 MM	0.5	0 to -5	-18
SFP-VDTR-C-MM/SM	1310 SM	10	0 to -5	-18
SFP-VDTR-C-DFB	1310 SM	30	0 to +3	-18
SFP-VDTR-O-DFB	1550 SM	50	0 to +3	-18
SFP-VDTR-A-CWDM	1270 SM	30-50	0 to +3	-18
SFP-VDTR-B-CWDM	1290 SM	30-50	0 to +3	-18
SFP-VDTR-C-CWDM	1310 SM	30-50	0 to +3	-18
SFP-VDTR-D-CWDM	1330 SM	30-50	0 to +3	-18
SFP-VDTR-E-CWDM	1350 SM	30-50	0 to +3	-18
SFP-VDTR-F-CWDM	1370 SM	30-50	0 to +3	-18
SFP-VDTR-G-CWDM	1390 SM	30-50	0 to +3	-18
SFP-VDTR-H-CWDM	1410 SM	30-50	0 to +3	-18
SFP-VDTR-I-CWDM	1430 SM	30-50	0 to +3	-18
SFP-VDTR-J-CWDM	1450 SM	30-50	0 to +3	-18
SFP-VDTR-K-CWDM	1470 SM	30-50	0 to +3	-18
SFP-VDTR-L-CWDM	1490 SM	30-50	0 to +3	-18
SFP-VDTR-M-CWDM	1510 SM	30-50	0 to +3	-18
SFP-VDTR-N-CWDM	1530 SM	30-50	0 to +3	-18
SFP-VDTR-O-CWDM	1550 SM	30-50	0 to +3	-18
SFP-VDTR-P-CWDM	1570 SM	30-50	0 to +3	-18
SFP-VDTR-Q-CWDM	1590 SM	30-50	0 to +3	-18
SFP-VDTR-R-CWDM	1610 SM	30-50	0 to +3	-18
SFP-VDTR-A-AP-CWDM	1270 SM	30-50	0 to +3	-28
SFP-VDTR-B-AP-CWDM	1290 SM	30-50	0 to +3	-28
SFP-VDTR-C-AP-CWDM	1310 SM	30-50	0 to +3	-28
SFP-VDTR-D-AP-CWDM	1330 SM	30-50	0 to +3	-28
SFP-VDTR-E-AP-CWDM	1350 SM	30-50	0 to +3	-28
SFP-VDTR-F-AP-CWDM	1370 SM	30-50	0 to +3	-28
SFP-VDTR-G-AP-CWDM	1390 SM	30-50	0 to +3	-28
SFP-VDTR-H-AP-CWDM	1410 SM	30-50	0 to +3	-28
SFP-VDTR-I-AP-CWDM	1430 SM	30-50	0 to +3	-28
SFP-VDTR-J-AP-CWDM	1450 SM	30-50	0 to +3	-28
SFP-VDTR-K-AP-CWDM	1470 SM	30-50	0 to +3	-28
SFP-VDTR-L-AP-CWDM	1490 SM	30-50	0 to +3	-28
SFP-VDTR-M-AP-CWDM	1510 SM	30-50	0 to +3	-28
SFP-VDTR-N-AP-CWDM	1530 SM	30-50	0 to +3	-28
SFP-VDTR-O-AP-CWDM	1550 SM	30-50	0 to +3	-28
SFP-VDTR-P-AP-CWDM	1570 SM	30-50	0 to +3	-28
SFP-VDTR-Q-AP-CWDM	1590 SM	30-50	0 to +3	-28
SFP-VDTR-R-AP-CWDM	1610 SM	30-50	0 to +3	-28

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