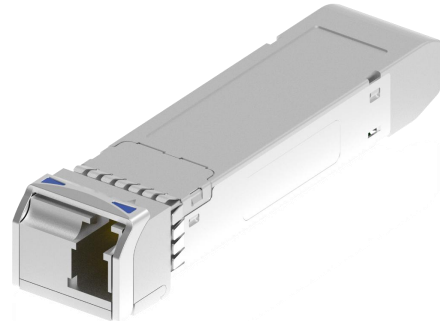


3Gbps Video SFP Optical Receiver GRR-3G-xxx

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
- ◆ Digital Diagnostic functions available through the I²C interface
- ◆ Compatible with RoHS
- ◆ +3.3V single power supply
- ◆ Operating case temperature:
Standard : 0 to +70°C



Applications

- ◆ 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).

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

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard Tc	0		+70	°C
					°C
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Power Supply Current	Icc			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			1500			
	HD-SDI	tr		270	ps	1	
	3G-SDI	tf		135			
Total Output Jitter	PRBS and colour bar	SD-SDI	70	200			
		HD-SDI	50	135			
	3G-SDI	70	100				
	pathological	SD-SDI		200	300	ps	
		HD-SDI		115			
		3G-SDI		120			
Centre Wavelength	λ_c	1260		1580	nm		
Receiver Sensitivity (PRBS)	SD-SDI			-20	dBm		
	HD-SDI			-20	dBm		
	3G-SDI			-20	dBm		
Receiver Sensitivity	SD-SDI			-16	dBm		

(Pathological)	HD-SDI			-15	dBm	
	3G-SDI			-14	dBm	
Receiver Overload		0			dBm	3
LOS De-Assert	LOS _D			-20	dBm	
LOS Assert	LOS _A	-30			dBm	
LOS Hysteresis					dB	
Data Output Swing Differential	V _{out}	650	800	1000	mV	2
	High	2.0		V _{cc}	V	
LOS	Low			0.8	V	

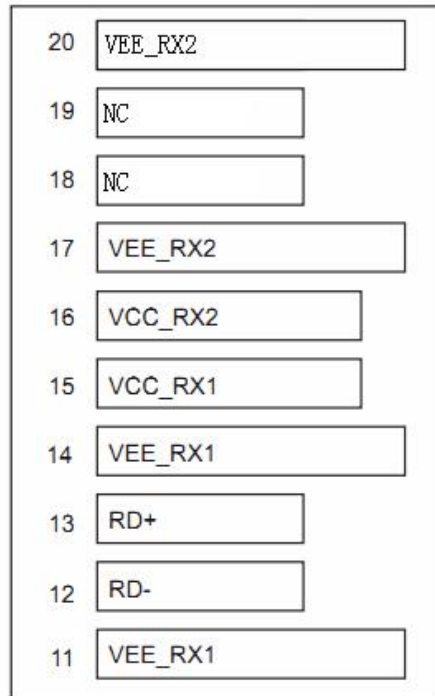
Notes:

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.

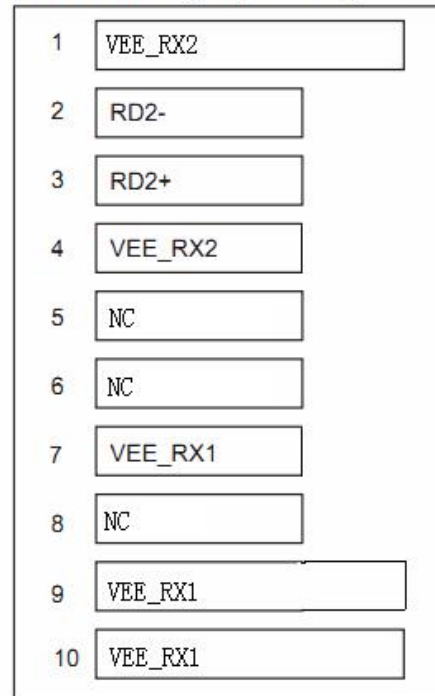
Pin Definitions

Pin Diagram

Top of Board



Bottom of Board
(as viewed through top of board)





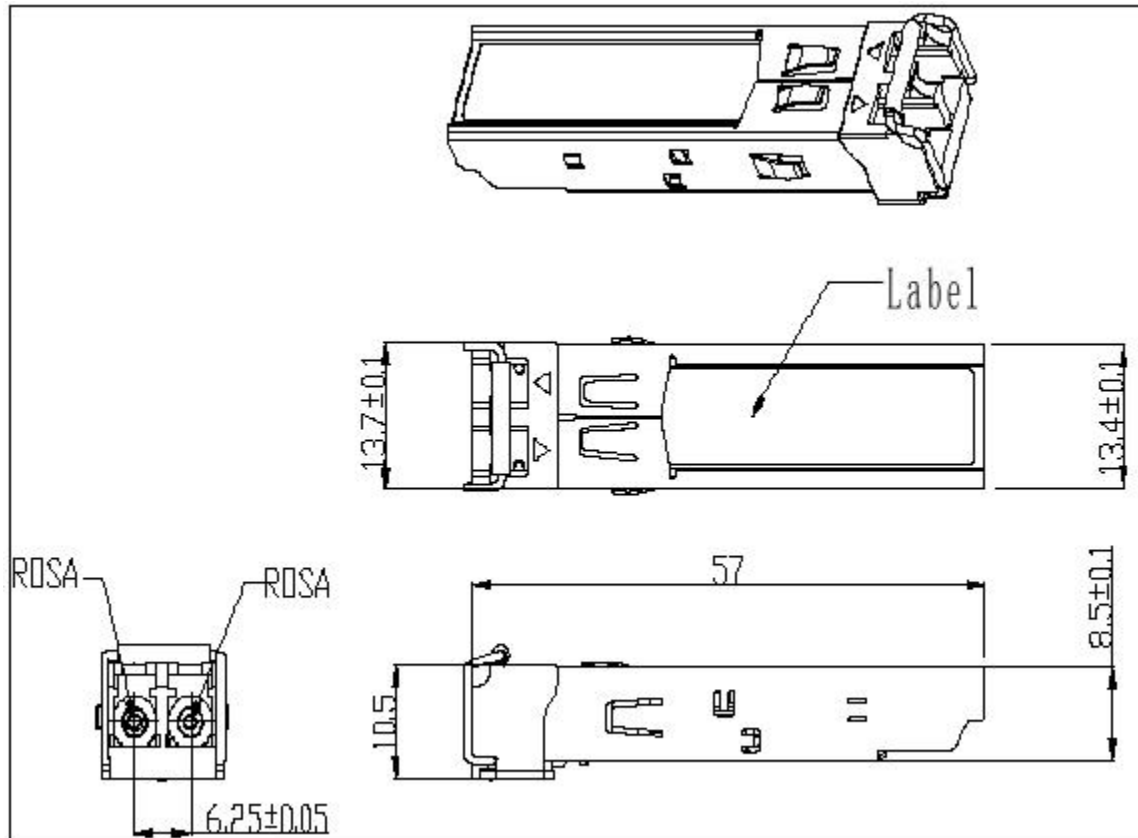
Pin Descriptions

Pin	Signal Name	Description	Plug Seq.	Notes
1	VEE_RX2	Receiver2 Ground	1	
2	RD2-	Inv. Received2 Data Out	3	Note 1
3	RD2+	Received2 Data Out	3	Note 1
4	VEE_RX2	Receiver2 Ground	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	VCC_RX2	Receiver2 Power Supply	2	
17	VEE_RX2	Receiver2 Ground	1	
18	NC	Not Connected	3	
19	NC	Not Connected	3	
20	VEE_RX2	Receiver2 Ground	1	

Notes:

- 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
GRR-3G-XXC	PIN, 3Gbps, 0°C ~ +70°C, No With Digital Diagnostic Monitoring, non-msa pinout

Important Notice

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Revision History

Version	Date	Description
V0	Mar. 10th, 2012	New release
V1	Oct. 20th, 2021	Change Max PRBS receiver sensitivity -22dBm to -20dBm; Change Max pathological Rx sensitivity SD-SDI -20dBm to -16dBm, HD-SDI -22 to -15dBm, 3G-SDI -22 to -14dBm