

OX210G-3110DCR

10GBASE-LR X2 Transceiver, 1310nm, SC, 10km Reach

Features

- Compatible with X2 MSA Rev2.0b
- Hot Z-pluggable
- XAUI Electrical Interface: 4lanse@3.125Gbit/s
- Below 4W power dissipation
- SC-Duplex Optical Receptacle
- Digital Diagnostic Monitor Interface
- Very low EMI and excellent ESD protection
- 1310nm DFB laser and PIN ROSA
- Up to 10KM for single mode fiber
- Operating temperature range 0°C to 70°C

**Applications**

- 10GE Ethernet switches and routers
- 10GE Core-routers
- 10GE Storage
- Other 10Gbps Ethernet Transmission System

Product Description

The Optcore's OX210G-3110DCR is high performance and cost effective X2 LR transceiver module. This X2 LR transceiver module provides 10-Gigabit connectivity up to 10km over single mode fiber (SMF) for data center, enterprise wiring closet and service provider transport applications. It is fully comply with the X2 Multi-Sourcing Agreement (MSA) and can be used with any MSA compliant equipment. The X2 LR transceiver module is a Class 1 laser product complies with FDA/CDRH and IEC-60825 standards.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Ref.
Storage Ambient Temperature Range	T _s	-40	+85	°C	non condensing
Operating Case Temperature	T _o	0	+70	°C	non condensing
Adaptable Power Supply (APS)	Vapsense	0	1.5	V	Voltage @ Pin APS Sense
Supply Voltage Range @ 3.3V	Vcc3	-0.5	4.0	V	

Any stress beyond the maximum ratings can result in permanent damage. The device specifications are guaranteed only under the recommended operating conditions.

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	T _c	0		+70	°C
Power Supply Voltage	V _{CC3}	3.14	3.0	3.47	V
	V _{APS}	1.152	1.2	1.248	

Power Dissipation	PD		1.7	2.4	W
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XAUI I/O Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
XAUI Data Rate	DR		3.125		Gb/s	
XAUI Baud Rate Tolerance		-100		+100	ppm	Relative Tolerance
Differential Input Voltage Swing		220		1600	mv	8B/10B Coded Input Signal
Differential Output Voltage Swing		800		1600	mVp-p	RLOAD = 100Ω ± 5%
Differential Input Impedance		80	100	120	Ω	
Total Output Jitter	TJXAUI			0.35	UI	no pre-equalization
Total Deterministic Output Jitter	DJXAUI			0.17	UI	no pre-equalization

Optical Interface

Transmitter Characteristics

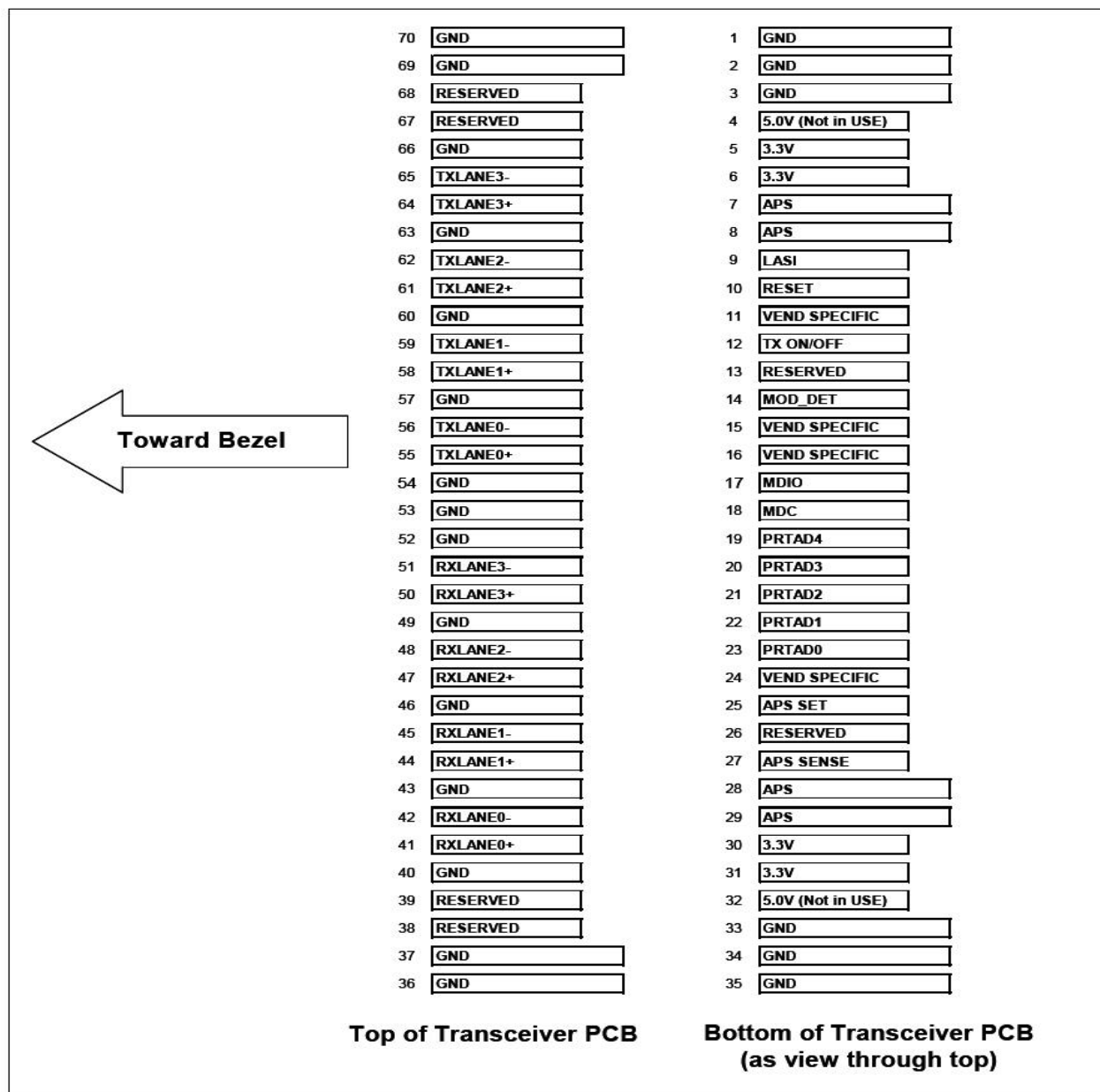
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Range				10	km	SMF
Operating Data Rate			10.3125		Gb/s	
Output Power	Po	-5.0		0.5	dBm	
Input Centre Wavelength	λ	1280	1310	1340	nm	
Extinction Ratio	ER	3.5				
Optical Modulation Amplitude	OMA	525			μW	
Transmitter and Dispersion Penalty	TDP			3	dB	

Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Data Rate			10.3125		Gb/s	
Overload	Po	0.5			dBm	
Minimum Sensitivity	Pmin			-14.4	dBm	1

Note : 1. Measured at 10.3125Gb/s,Non-framed PRBS2³¹-1,NRZ

Electrical PAD Layout



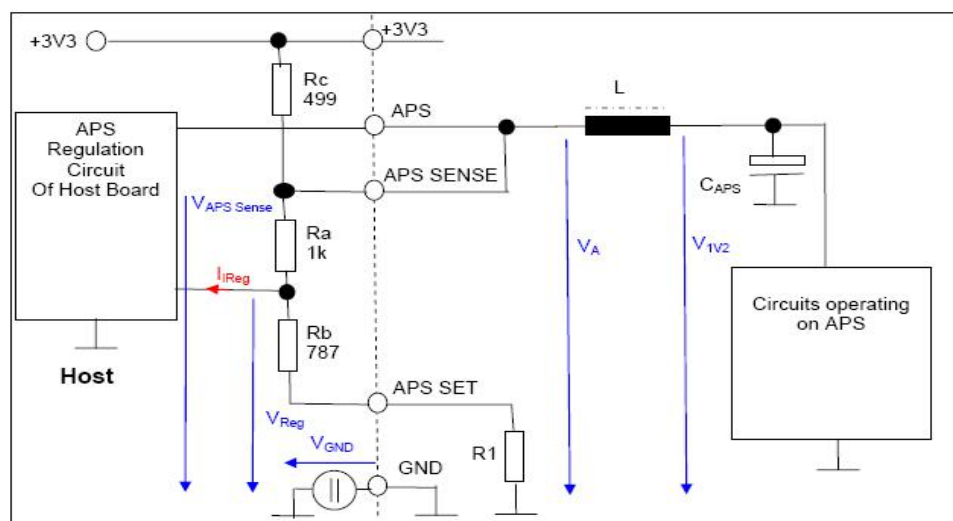
Pin Descriptions

Pin NO	Name	Dir	Logic	Function	Notes
1	GND			Electrical Ground	
2	GND			Electrical Ground	
3	GND			Electrical Ground	
4	5.0V			Power	
5	3.3V			Power	
6	3.3V			Power	
7	APS			Adaptive Power Supply	
8	APS			Adaptive Power Supply	

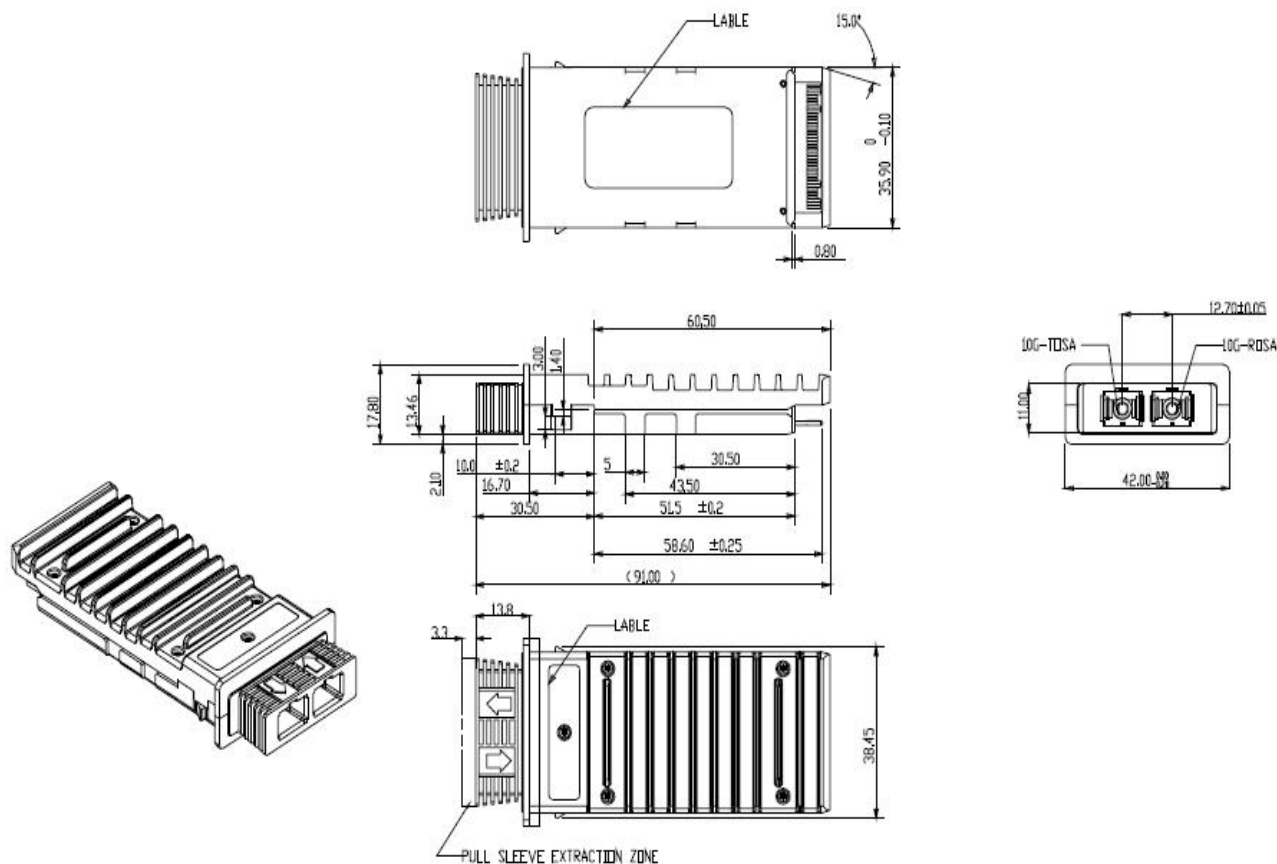
9	LASI	O	1.2V CMOS Open Drain	Link Alarm Status Interrupt, low active, Open Drain Output A pull-up resistor with 10-22KΩ to 1,2V is expected. Logic High: Normal Operation Logic Low: Link Alarm is indicated	
10	Reset	I	1.2V CMOS Open Drain	Low active Reset Input 10KΩ pull-up on Transceiver Logic high = Normal Operation Logic Low = Reset asserted	
11	VEND SPECIFIC			Vendor Specific Pin,. leave unconnected	
12	TX ON/OFF	I	1.2V CMOS Open Drain	High active Transmitter Enable Input 10KΩ pull-up on Transceiver Logic high = Transmitter active (normal Operation) And Register Bit 1.9.0 set to low as well Logic Low = shut down of Transmitter	
13	RESERVED			RESERVED	
14	MOD DETECT	O		1kΩ to Ground On Transceiver	
15	VEND SPECIFIC			Vendor Specific Pin,. leave unconnected	
16	VEND SPECIFIC			Vendor Specific Pin,. leave unconnected	
17	MDIO	I/O	1.2V CMOS	Management Data I/O. Requires external 10-22 kΩ pull-up to 1.2 V on host	
18	MDC	I	1.2V CMOS	Management Clock Input	
19	PRTAD4	I		Port Address Bit 4(LOW=0)	
20	PRTAD3	I		Port Address Bit 3(LOW=0)	
21	PRTAD2	I		Port Address Bit 2(LOW=0)	
22	PRTAD1	I		Port Address Bit 1(LOW=0)	
23	PRTAD0	I		Port Address Bit 0(LOW=0)	
24	VEND SPECIFIC			Vendor Specific Pin,. leave unconnected	
25	APS SET	I		Feedback Input for APS, Input of APS Setting Resistor	
26	RESERVED			RESERVED	
27	APS SENSE	O		APS Sense Output for APS Control Circuit	
28	APS			Adaptive Power Supply	
29	APS			Adaptive Power Supply	
30	3.3V			Power	
31	3.3V			Power	
32	5.0V			Power	
33	GND			Electrical Ground	
34	GND			Electrical Ground	
35	GND			Electrical Ground	
36	GND			Electrical Ground	
37	GND			Electrical Ground	
38	RESERVED			RESERVED	
39	RESERVED			RESERVED	
40	GND			Electrical Ground	
41	RX LANE 0+			Module XAUI Output Lane 0+	
42	RX LANE 0-			Module XAUI Output Lane 0-	

43	GND			Electrical Ground	
44	RX LANE 1+			Module XAUI Output Lane 1+	
45	RX LANE 1-			Module XAUI Output Lane 1-	
46	GND			Electrical Ground	
47	RX LANE 2+			Module XAUI Output Lane 2+	
48	RX LANE 2-			Module XAUI Output Lane 2-	
49	GND			Electrical Ground	
50	RX LANE 3+			Module XAUI Output Lane 2+	
51	RX LANE 3-			Module XAUI Output Lane 2-	
52	GND			Electrical Ground	
53	GND			Electrical Ground	
54	GND			Electrical Ground	
55	RX LANE 0+			Module XAUI Output Lane 0+	
56	RX LANE 0-			Module XAUI Output Lane 0-	
57	GND			Electrical Ground	
58	TX LANE 1+			Module XAUI Output Lane 1+	
59	TX LANE 1-			Module XAUI Output Lane 1-	
60	GND			Electrical Ground	
61	TX LANE 2+			Module XAUI Output Lane 2+	
62	TX LANE 2-			Module XAUI Output Lane 2-	
63	GND			Electrical Ground	
64	TX LANE 3+			Module XAUI Output Lane 2+	
65	TX LANE 3-			Module XAUI Output Lane 2-	
66	GND			Electrical Ground	
67	RESERVED			RESERVED	
68	RESERVED			RESERVED	
69	GND			Electrical Ground	
70	GND			Electrical Ground	

Block Diagram of Adapter Power Supply Circuit



Package Dimensions



Ordering information

Part number	Description
OX210G-3110DCR	10GBASE-LR X2 Transceiver, SMF, 1310nm, 10km, SC, DDM, 0°C~+70°C

Warnings

Process plug

The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles. It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.

Handling Precautions

The transceiver optics is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety

The transceiver optics is a Class 1 laser product per international standard IEC 60825-1. Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

For more product information, visit us on the web at www.optcore.net



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