X2-10GBASE-ZR-AO

MSA Compliant 10GBase-ZR X2 Transceiver (SMF, 1550nm, 80km, SC, DOM)

Features:

- X2 MSA 2.0 Compliance
- Duplex SC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free

Applications:

- 8x/10x Fibre Channel
- 10GBase-ZR Ethernet
- Access, Metro and Enterprise

Product Description

This MSA compliant X2 transceiver provides 10GBase-ZR throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1550nm via an SC connector. It can operate at temperatures between 0 and 70C. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's transceivers are RoHS compliant and lead-free.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage +5V	Vcc5			6.0	V
Supply Voltage +3.3V	Vcc3			4	V
Supply Voltage APS	Vaps			2	V
Storage Temperature	Tstg	-20		85	°C
Optical Input Received Power	APD			-7	dBm

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Case Temperature	Tc			70	°C	
Supply Voltage +5V	Vcc5	4.75	5	5.25	V	
Supply Current +5V	Icc5			500	mA	
Supply Voltage +3.3V	Vcc3	3.14	3.3	3.47	V	
Supply Current +3.3V	Icc3			1000	mA	
Supply Voltage APS	Vaps	1.14	1.2	1.26	V	
Supply Current APS	Iaps			1100	mA	
Module Power Dissipation	PD			4	W	
Transmitter						
Data Rate (TXLINE0-3)	TX-xaui		3125		Mbps	
Differential Impedance	ZOUT	80	100	120	Ω	
Differential Input Amplitude	VIN,pp	160		2000	mVp-p	
Input Rise/Fall	Tr/Tf	60		130	ps	
Differential Impedance of ZIN	ZIN		100		Ω	
Receiver						
Data Rate (TXLINE0-3)	RX-xaui		3125		Mbps	
Supply Voltage	VccRx	3.13	3.3	3.47	V	
Differential Output Amplitude	VOUT,pp	800		1600	mV	
Rise/Fall Time	Tr/Tf	50		90	ps	
Differential Impedance of ZOUT	ZOUT		100		Ω	
Signal						
1.2V CMOS						
Input High Voltage	VIL (MAX)			0.36	V	
Input Low Voltage	VIH (MIN)	0.84		1.25	V	

Capacitance				320	pF	
Pull-Up Resistance	Rpull	10k		22k	Ω	
MDIO I/O						
Output Low Voltage	VOL	-0.3		0.2	V	
Output Low Current	IOL			4	mA	
Input High Voltage	VIH	0.84		1.5	V	
Input Low Voltage	VIL	-0.3		0.36	V	
Pull-Up Supply Voltage	VPULL	1.14	1.2	1.26		
Input Capacitance	CIN			10	Pf	
Load Capacitance	CLOD			470	Pf	
External Pull-Up Resistance	EPULL	200			Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	1530		1565	pm	
Optical Transmit Power	Po			4	dBm	
Optical Transmit Power (Disabled)	Ptx-dis			-40	dBm	
Extinction Ratio	ER	9			dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Eye Mask	IEEE 802.3ae Compliant					
Receiver						
Received Power	Rpo	-24.0		-7	dBm	
Maximum Input Power	RX-overload	-7			dBm	
Input Operating Wavelength	λ	1260		1565	nm	
Dispersion Tolerance	DT			1600	ps/nm	

Pin Descriptions

Pin	Symbol	I/O	Name/Description	Notes
1	GND		Electrical Ground.	1
2	GND		Electrical Ground.	1
3	GND		Electrical Ground.	1
4	5.0V		Power.	2
5	3.3V		Power.	2
6	3.3V		Power.	2
7	APS=1.2V		Adaptive Power Supply.	2
8	APS=1.2V		Adaptive Power Supply.	2
9	LASI		Open drain compatible. 10k-22kΩ pull-up on the host. Logic high: normal operation. Logic low: LASI asserted.	4
10	RESET	I	Open drain compatible. 10k-22kΩ pull-up on the transceiver. Logic high: normal operation. Logic low: reset. Minimum reset assert time 1ms.	4
11	VENDOR-SPECIFIC		Vendor-Specific Pin. Leave unconnected when not in use.	8
12	TX ON/OFF	I	Open drain compatible. 10k-22kΩ pull-up on the transceiver. Logic high: transmitter on (capable). Logic low: transmitter off (always).	4
13	RESERVED		Reserved.	4
14	MOD_DETECT	O	Pulled low inside the module through 1k.	
15	VENDOR-SPECIFIC		Vendor-Specific Pin. Leave unconnected when not in use.	8
16	VENDOR-SPECIFIC		Vendor-Specific Pin. Leave unconnected when not in use.	8
17	MDIO	I/O	Management Data IO.	4, 5
18	MDC	I	Management Data Clock.	4, 5
19	PRTAD4	I	Port Address Bit 4 (Low = 0).	4
20	PRTAD3	I	Port Address Bit 3 (Low = 0).	4
21	PRTAD2	I	Port Address Bit 2 (Low = 0).	4
22	PRTAD1	I	Port Address Bit 1 (Low = 0).	4
23	PRTAD0	I	Port Address Bit 0 (Low = 0).	4
24	VENDOR-SPECIFIC		Vendor-Specific Pin. Leave unconnected when not in use.	8
25	APS SET		Feedback Input for APS.	
26	RESERVED		Reserved for Avalanche Photodiode Use.	8
27	APS SENSE		APS Sense Connection.	
28	APS=1.2V		Adaptive Power Supply.	2

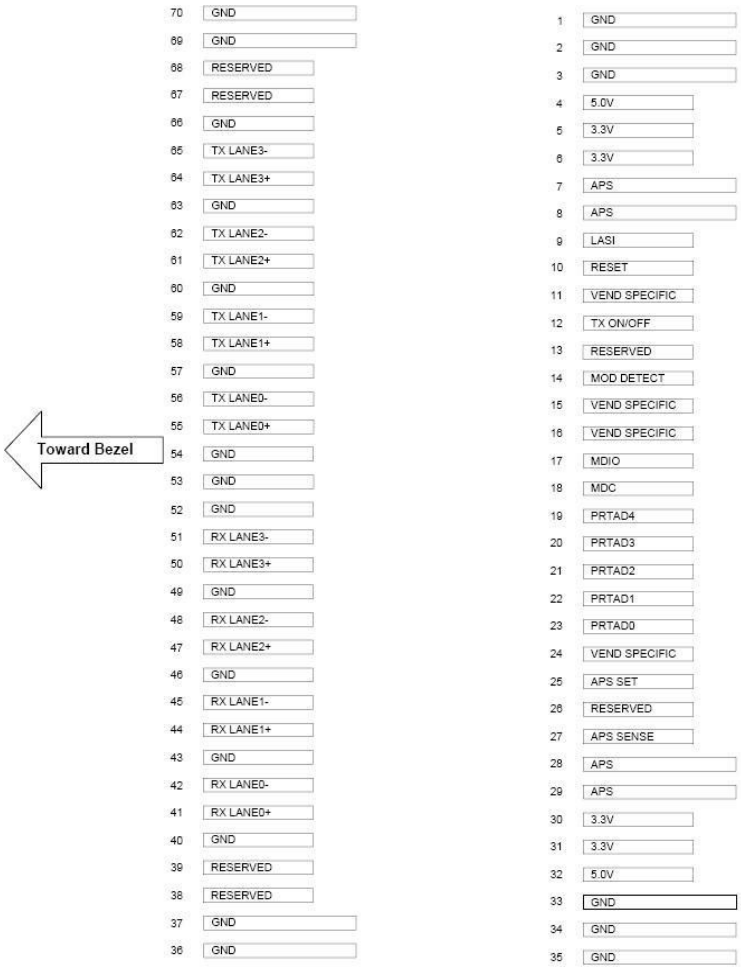
29	APS=1.2V		Adaptive Power Supply.	2
30	3.3V		Power.	2
31	3.3V		Power.	2
32	5.0V		Power.	2
33	GND		Electrical Ground.	1
34	GND		Electrical Ground.	1
35	GND		Electrical Ground.	1
36	GND		Electrical Ground.	1
37	GND		Electrical Ground.	1
38	RESERVED		Reserved.	
39	RESERVED		Reserved.	
40	GND		Electrical Ground.	1
41	RX LANE0+	O	Module XAUI Output Lane 0+.	7
42	RX LANE0-	O	Module XAUI Output Lane 0-.	7
43	GND		Electrical Ground.	1
44	RX LANE1+	O	Module XAUI Output Lane 1+.	7
45	RX LANE1-	O	Module XAUI Output Lane 1-.	7
46	GND		Electrical Ground.	1
47	RX LANE2+	O	Module XAUI Output Lane 2+.	7
48	RX LANE2-	O	Module XAUI Output Lane 2-.	7
49	GND		Electrical Ground.	1
50	RX LANE3+	O	Module XAUI Output Lane 3+.	7
51	RX LANE3-	O	Module XAUI Output Lane 3-.	7
52	GND		Electrical Ground.	1
53	GND		Electrical Ground.	1
54	GND		Electrical Ground.	1
55	TX LANE0+	I	Module XAUI Input Lane 0+.	7
56	TX LANE0-	I	Module XAUI Input Lane 0-.	7
57	GND		Electrical Ground.	1
58	TX LANE1+	I	Module XAUI Input Lane 1+.	7
59	TX LANE1-	I	Module XAUI Input Lane 1-.	7
60	GND		Electrical Ground.	1
61	TX LANE2+	I	Module XAUI Input Lane 2+.	7
62	TX LANE2-	I	Module XAUI Input Lane 2-.	7
63	GND		Electrical Ground.	1
64	TX LANE3+	I	Module XAUI Input Lane 3+.	7

65	TX LANE3-	I	Module XAUI Input Lane 3-.	7
66	GND		Electrical Ground.	1
67	RESERVED		Reserved.	
68	RESERVED		Reserved.	
69	GND		Electrical Ground.	1
70	GND		Electrical Ground.	1

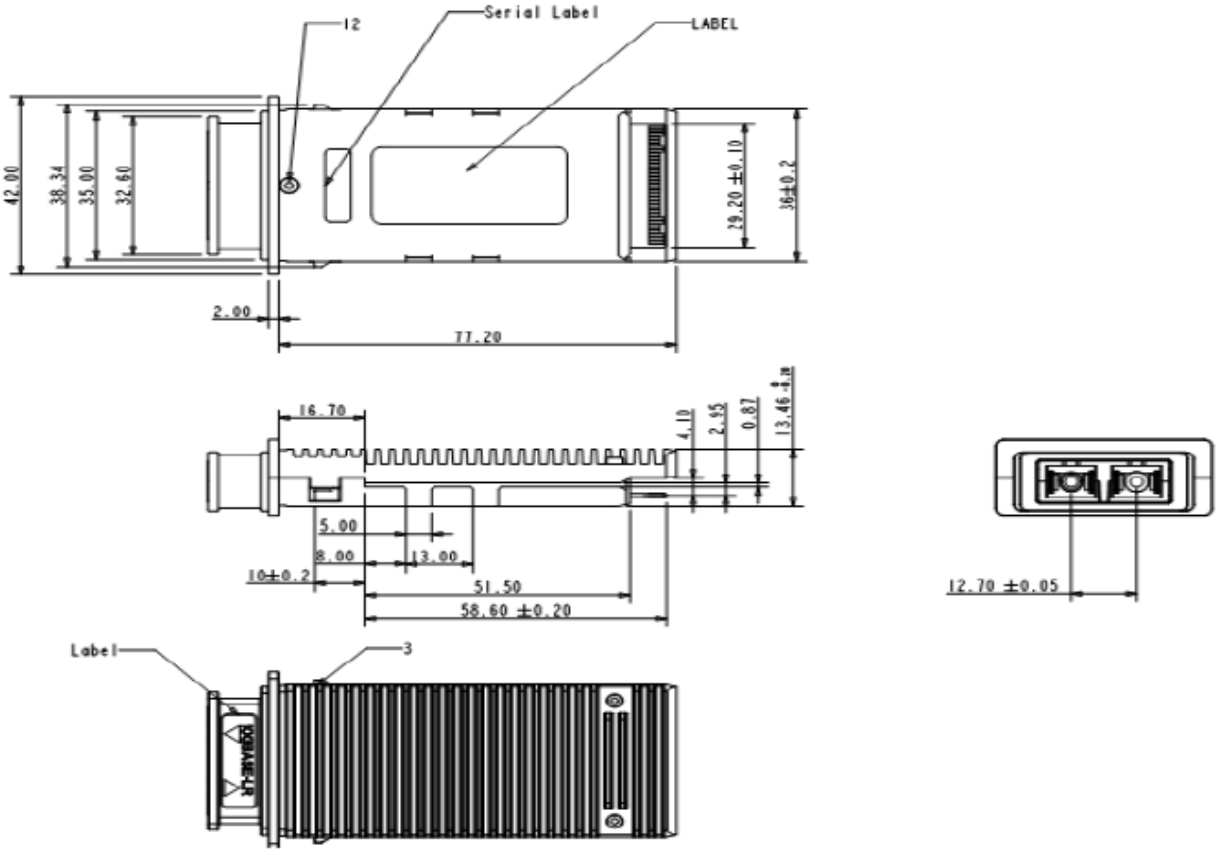
Notes:

1. Ground connections are common for Tx and Rx.
2. All connector contacts are rated at 0.5A nominal.
3. 1.2V CMOS compatible.
4. MDIO and MDC timing must comply with IEEE802.3ae Clause 45.3.
5. XAUI output characteristics should comply with IEEE802.3ae Clause 47.
6. Transceivers will be MSA compliant when no signals are present on the vendor-specific pins.

Electrical Pad Layout



Mechanical Specifications



Dimensions in mm

About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is ingrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications ranging from NEBS Level 3 to ISO 9001:2015 with every new development while maintaining the signature reliability of its products.

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