1509445-611-C

Arris® 1509445-611 Compatible TAA 4Gbs Fibre Channel DWDM 100GHz SFP Transceiver (SMF, 1528.77nm, 80km, LC, DOM, -40 to 92C)

Features:

- SFF-8432 and SFF-8472 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Industrial Temperature -40 to +85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

Applications:

- Ethernet over DWDM
- Access, Metro and Enterprise

Product Description

This Arris® SFP transceiver provides 4GBase-DWDM Fibre Channel throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1528.77nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Arris® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4.
- ESD to the LC Receptacle: compatible with IEC 61000-4-3.
- EMI/EMC: compatible with FCC Part 15 Subpart B Rules, EN55022:2010.
- Laser Eye Safety: compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1, 2.
- RoHS: compliant with EU RoHS 2.0 directive 2015/863/EU.

Wavelength Guide (100GHz ITU-T Channel)

ITU Channel #	Frequency (THZ)	Center Wavelength (nm)
64	196.4	1526.44
63	196.3	1527.22
62	196.2	1527.99
61	196.1	1528.77

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		3.6	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-40		85	°C	
Operating Humidity	RH	0		95	%	
Bit Rate	BR			11.1	Gbps	1
Bit Error Ratio	BER			$10e^{-12}$		2
Max. Supported Link Length	LMAX			80	km	1

Notes:
1. 10GBase-ZR, 10GBase-ZW, and 1200-SM-LL-L 10GFC.
2. Tested with a 2^{31}-1 PRBS.

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		Vcc	3.14	3.3	3.46	V	
Module Power		Icc			2000	mW	
Transmitter							
Input Differential Impedance		ZIN	80	100	120	Ω	
Differential Data Input		VIN	180		700	mVp-p	
Tx_Fault	Assert	VFA	2.0		Host_Vcc	V	
	De-Assert	VFDA	Vee		Vee+0.4	V	
Tx_Disable	Transmitter Disable	VIH	2.0		Host_Vcc	V	
	Transmitter Enable	VIL	Vee		Vee+0.8	V	
Receiver							
Differential Data Output		VOUT	350		850	mVp-p	
Output Rise Time		Tr	25			pS	
Output Fall Time		Tf	25			pS	
LOS Fault		LOS	2.0		Host_Vcc	V	
LOS Normal		LOS	Vee		Vee+0.4	V	

Optical Characteristics

| Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Average Launch Optical Power	POUT	0		4	dBm	1
Center Wavelength Range	λC	1526.44		1563.86	nm	
Center Wavelength Spacing			100		GHz	
Center Wavelength Tolerance	ΔλC	x-100	x	x-100	pm	
Extinction Ratio	ER	8.2			dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Average Launch Power of Off Tx	Poff			-30	dBm	
Receiver						
Optical Center Wavelength	λC	1260		1620	nm	
Receiver Sensitivity	RSENSE			-24	dBm	2
Receiver Sensitivity @80km Fiber	RSENSE			-21	dBm	3
Receiver Overload	P_{OL}	-7			dBm	
Optical Return Loss	ORL	27			dB	
LOS De-Assert	LOSD			-27	dBm	
LOS Assert	LOSA	-37			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. The optical power is launched into the SMF.
2. Measured at 1528-1600nm, ER>9dBm, PRBS 2^{31}-1, and BER better than or equal to $10E^{-12}$.
3. Loopback using 80km fiber (SMF-28).

Pin Descriptions

Pin	Symbol	Name/Description	Note
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. LVTTL-O.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on "high" or "open." LVTT-I.	3
4	SDA	2-Wire Serial Interface Data (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent. Connect to the VeeT or VeeR in the module.	4
7	RS0	Rate Select 0. Not Used.	5
8	LOS	Loss of Signal Indication. "Logic 0" indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not Used.	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted Data Out. AC Coupled. CML-O.	
13	RD+	Receiver Non-inverted Data Out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted Data In. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted Data In. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7kΩ-10kΩ. Pull-ups can be connected to one or several power supplies; however, the host board design shall ensure that no module contract has voltage exceeding module VccT/R+0.5V.
3. Tx_Disable is an input contact with a 4.7kΩ-10kΩ pull-up resistor to the VccT inside the module.
4. MOD_ABS is connected to the VeeT or VeeR in the SFP+ module. The host may pull the contract up to Host_Vcc with a resistor in the range from 4.7kΩ-10kΩ. MOD_ABS is asserted "high" when the SFP+ module is physically absent from a host slot.
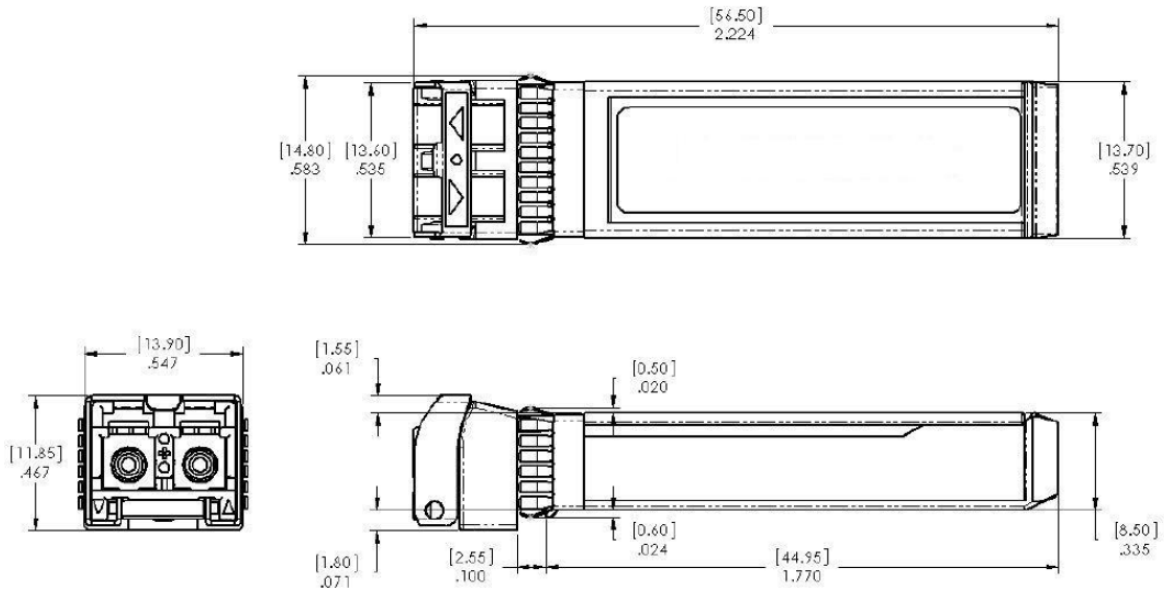5. Internally pulled down per SFF-8431.
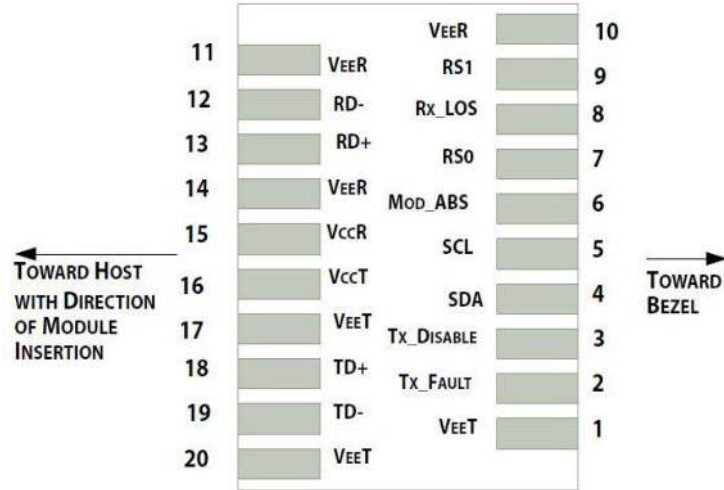
Pin-Out of Connector Block on the Host Board
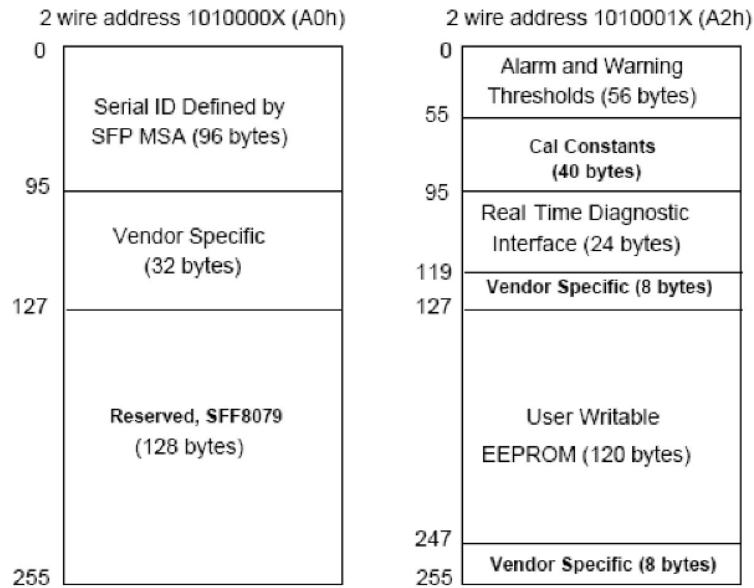
Recommended Circuit Schematic

Mechanical Specifications

EEPROM Information

EEPROM memory map-specific data field description is as below:

About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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