SFP-10G-DZ-60.61-100-PRO

Arista Networks® SFP-10G-DZ-60.61-100 Compatible TAA Compliant 10GBase-DWDM 100GHz SFP+ Transceiver (SMF, 1560.61nm, 100km, 0 to 70C, LC)

Features

- • SFF-8432 and SFF-8472 Compliance
- • Duplex LC 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:

- • 10x Gigabit Ethernet over DWDM
- • 8x/10x Fibre Channel
- • Access, Metro and Enterprise

Product Description

This Arista Networks® SFP-10G-DZ-60.61-100 compatible SFP+ transceiver provides 10GBase-DWDM throughput up to 100km over single-mode fiber (SMF) using a wavelength of 1560.61nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Arista Networks® 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.

Proline's 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.

Rev. 022824

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)
61	196.1	1528.77
60	196.0	1529.55
59	195.9	1530.33
58	195.8	1531.12
57	195.7	1531.90
56	195.6	1532.68
55	195.5	1533.47
54	195.4	1534.25
53	195.3	1535.04
52	195.2	1535.82
51	195.1	1536.61
50	195.0	1537.40
49	194.9	1538.19
48	194.8	1538.98
47	194.7	1539.77
46	194.6	1540.56
45	194.5	1541.35
44	194.4	1542.14
43	194.3	1542.94
42	194.2	1543.73
41	194.1	1544.53
40	194.0	1545.32
39	193.9	1546.12
38	193.8	1546.92
37	193.7	1547.72
36	193.6	1548.51
35	193.5	1549.32
34	193.4	1550.12
33	193.3	1550.92
32	193.2	1551.72
31	193.1	1552.52
30	193.0	1553.33
29	192.9	1554.13
28	192.8	1554.94
27	192.7	1555.75
26	192.6	1556.55

25	192.5	1557.36
24	192.4	1558.17
23	192.3	1558.98
22	192.2	1559.79
21	192.1	1560.61
20	192.0	1561.42
19	191.9	1562.23
18	191.8	1563.05
17	191.7	1563.86

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	4.0	V
Storage Temperature	TS	-40	+85	°C
Operating Case Temperature	Tc	0	70	°C
Operating Humidity	RH	5	95	%
Receiver Power	R_{MAX}		-7	dBm
Maximum Bitrate	B_{max}		11.3	Gbps

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Module Supply Current		Icc		300	450	mA	
Supply Voltage		Vcc	3.135	3.3	3.465	V	
Power Dissipation		P_D		1.0	1.5	W	
Transmitter							
Input Differential Impedance		Z_{IN}		100		Ω	
Differential Data Input Swing		$V_{IN, P-P}$	180		700	mV_{P-P}	
TX_FAULT	Transmitter Fault	V_{OH}	2.0		V_{CCHOST}	V	
	Normal Operation	V_{OL}	0		0.8	V	
TX_DISABLE	Transmitter Disable	V_{IH}	2.0		V_{CCHOST}	V	
	Transmitter Enable	V_{IL}	0		0.8	V	
Receiver							
Output Differential Impedance		Z_O		100		Ω	
Differential Data Output Swing		$V_{OUT, P-P}$	300		850	mV_{P-P}	1
Data Output Rise Time, Fall Time		t_r, t_f	28			ps	2
RX_LOS	Loss of signal (LOS)	V_{OH}	2.0		V_{CCHOST}	V	3
	Normal Operation	V_{OL}	0		0.8	V	3

Notes:

1. Internally AC coupled, but requires a external 100Ω differential load termination.
2. 20–80%.
3. LOS is an open collector output. Should be pulled up with 4.7KΩ on the host board.

Optical Characteristics

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Transmitter						
Launch Optical Power	Po	+1.0		+4.0	dBm	1
Center Wavelength Range	λc	1528.77		1550.22	nm	
Center Wavelength Spacing			100		GHz	
Center Wavelength Tolerance	Δλc	-100		100	pm	
Extinction Ratio	EX	9.0			dB	2
Side Mode Suppression Ratio	SMSR	30			dB	
Spectral Width（-20dB）				1	nm	
Transmitter and Dispersion Penalty	TDP			4.0	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Optical Return Loss Tolerance	ORLT			21	dB	
Pout @TX-Disable Asserted	P_{off}			-30	dBm	1
Eye Diagram	IEEE Std 802.3-2005 10Gb Ethernet 10GBASE-ZR compatible					
Receiver						
Center Wavelength	λc	1528		1565	nm	
Receiver Sensitivity (P_{avg})	S			-26	dBm	3
Receiver Overload (P_{avg})	P_{OL}	-7.0			dBm	3
Optical Return Loss	ORL			-27	dB	
OSNR		27			dB	4
Max OSNR Path Penalty				4	dB	4
Dispersion Limited Distance				100	Km	
LOS De-Assert	LOS_D			-26	dBm	
LOS Assert	LOS_A	-35			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. The optical power is launched into 9/125μm SMF.
2. Measured with a PRBS 2^{31}-1 test pattern @10.3125Gbps.
3. Measured with PRBS 2^{31}-1 test pattern, 10.3125Gb/s, BER<10^{-12}.
4. Receiver power@ -7~-18dBm, 10.3125Gb/s, BER<10^{-12}.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
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 Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in 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 to 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 +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 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 Host board
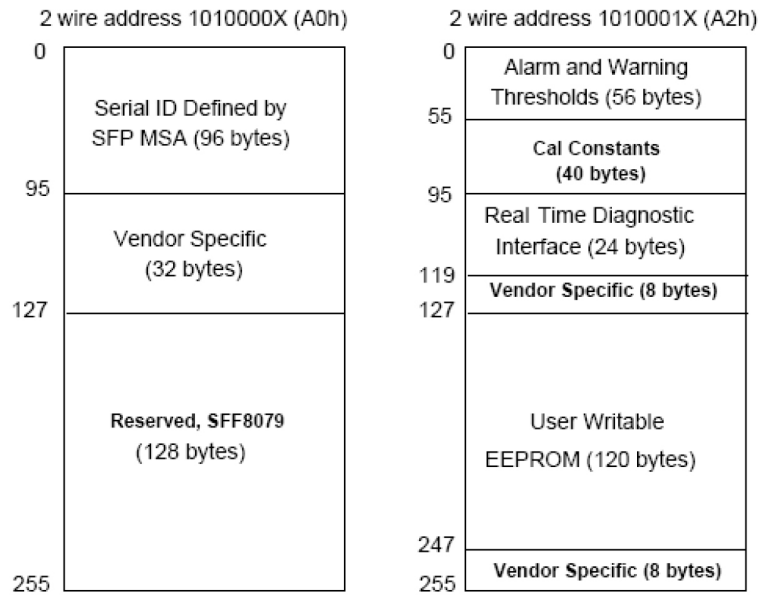
Recommended Circuit Schematic

Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

EEPROM Information

EEPROM memory map specific data field description is as below:

About Us:

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.

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