SFP-1GB-DW2028-120-AV-AO

ADVA® Compatible TAA 1000Base-DWDM SFP Transceiver 100GHz (SMF, 1561.41nm to 1554.94nm, 120km, LC, DOM)

Features:

- EML Tunable Transmitter
- DWDM with 100GHz ITU Grid
- Hot Pluggable
- SFP MSA Compliant
- Duplex LC Connector
- Up to 1.25Gbps Bi-directional Data Links
- Class 1 Laser Safety Certified
- Up to 120km on 9/125um SMF
- RoHS Compliant and Lead-Free
- Operating Temperature: 0 to 70 Celsius

Applications:

- Access, Metro and Enterprise
- Gigabit Ethernet over DWDM

Product Description

This ADVA® compatible SFP transceiver provides 1000Base-DWDM throughput up to 120km over single-mode fiber (SMF) using a wavelength of 1561.41nm to 1554.94nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with ADVA®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows 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.

AddOn'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."

TAA COMPLIANT

Channel Wavelengths

Channel	Frequency (THz)	Wavelength (nm)
CH20-CH28	192.00-192.80	1561.42-1554.94
CH29-CH36	192.90-193.60	1554.13-1548.51
CH37-CH44	193.70-194.40	1547.72-1542.14
CH45-CH52	194.50-195.20	1541.35-1535.82
CH53-CH60	195.30-196.00	1535.04-1529.55

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	DR			1.25	Gbps	
Operating Temperature	Tc	0		70	℃	
Storage Temperature	Tstg	-40		85	℃	
Maximum Voltage	Vcc	-0.5		4	V	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Current	Icc			606	mA	
Input Voltage	Vcc	3.135	3.3	3.465	V	
Power Dissipation	PD			2.0	W	
Transmitter						
Input Differential Impedance	ZIN		100		Ω	
Differential Data Input Swing	VIN,pp	180		900	mVp-p	
Transmit Disable Voltage	VD	2.0		Vcc+0.3	V	
Transmit Enable Voltage	VE	0		0.8	V	
Receiver						
Differential Output Impedance	ZOUT		100		Ω	
Differential Data Output Swing	VOUT,pp	450	600	900	mV	
LOS Assert Voltage	VLOSA	2.0		Vcc	V	
LOS De-Assert Voltage	VLOSD	0		0.8	V	

Notes:

1. For the electrical power interface.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	Po	-1.0		4.0	dBm	1
Center Wavelength	λC	1554.94		1561.42	nm	
Center Wavelength Spacing			100		GHz	
Center Wavelength Deviation	ΔλC	-12.5		12.5	GHz	
Wavelength Tuning Time				2	seconds	
Extinction Ratio	ER	9			dB	2
Side-Mode Suppression Ratio	SMSR	30			dB	
POUT @Tx_Disable Asserted	Poff			-30	dBm	1
Receiver						
Optical Center Wavelength	λC	1260		1620	nm	
Receiver Sensitivity @120km	S			-30	dBm	3
Receiver Overload	POL	-7			dBm	
Optical Return Loss	ORL			-27	dB	
LOS Assert	LOSA	-45			dBm	
LOS De-Assert	LOSD			-31	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. The optical power is launched into 9/125μm SMF.
2. Measured with a PRBS7 test pattern @1.25Gbps.
3. Measured with a PRBS7 test pattern @1.25Gbps. BER=1E^{-12}.

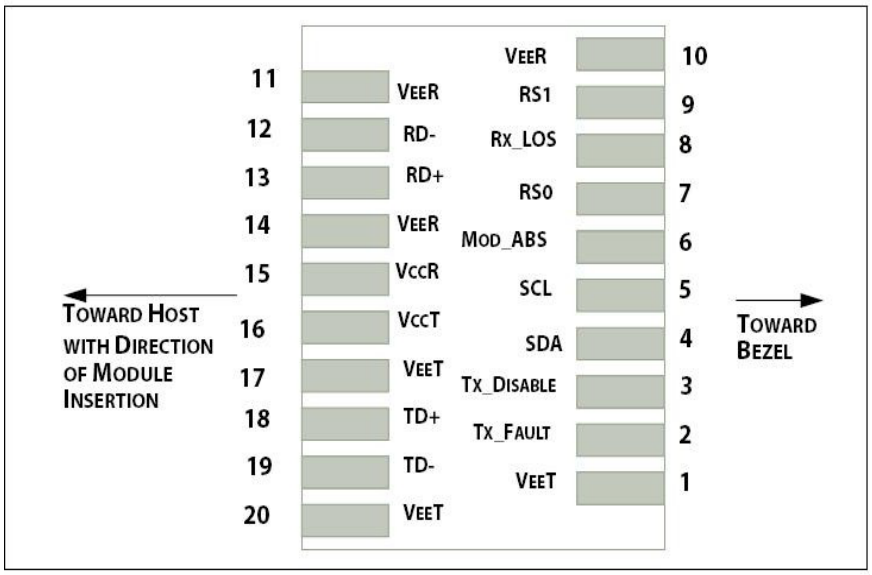
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Transmitter Fault (LVTTL-O). "High" indicates a fault condition.	2
3	Tx_Disable	Transmitter Disable (LVTTL-I). "High" or "open" disables the transmitter.	3
4	SDA	2-Wire Serial Interface Data (LVCMOS-I/O) (MOD-DEF2).	4
5	SCL	2-Wire Serial Interface Clock (LVCMOS-I/O) (MOD-DEF1).	4
6	MOD_ABS	Module Absent Output. Connected to the VeeT or VeeR in the module.	5
7	RS0	No Connection Required.	
8	Rx_LOS	Receiver Loss of Signal (LVTTL-O).	2
9	RS1	No Connection Required.	
10	VeeR	Receiver Ground.	1
11	VeeR	Receiver Ground.	1
12	RD-	Receiver Inverted Data Out. CML-O.	
13	RD+	Receiver Data Out. CML-O.	
14	VeeR	Receiver Ground.	
15	VccR	+3.3V Receiver Power Supply.	
16	VccT	+3.3V Transmitter Power Supply.	
17	VeeT	Transmitter Ground.	1
18	TD+	Transmitter Data In. CML-I.	
19	TD-	Transmitter Inverted Data In. CML-I.	
20	VeeT	Transmitter Ground.	1

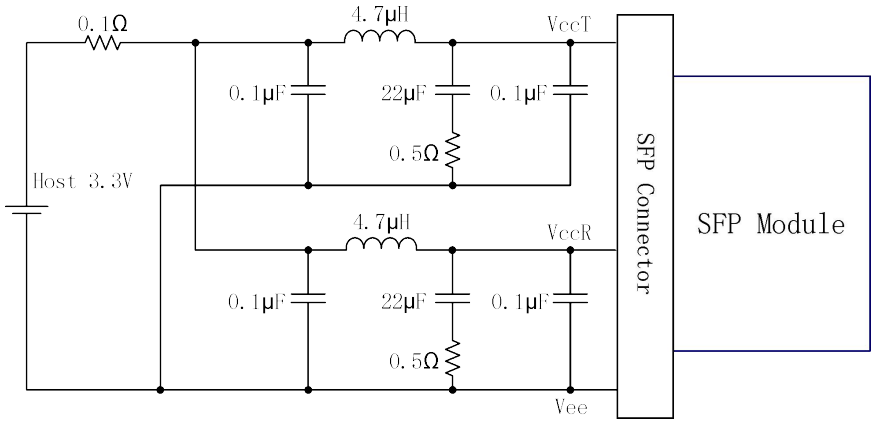
Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that, on the host board, requires a 4.7kΩ to 10kΩ pull-up resistor to the Host_Vcc.
3. This input is internally biased "high" with a 4.7kΩ to 10kΩ pull-up resistor to the VccT.
4. 2-wire serial interface clock and data line requires an external pull-up resistor.
5. This is a ground return that, on the host board, requires a 4.7kΩ to 10kΩ pull-up resistor to the Host_Vcc.

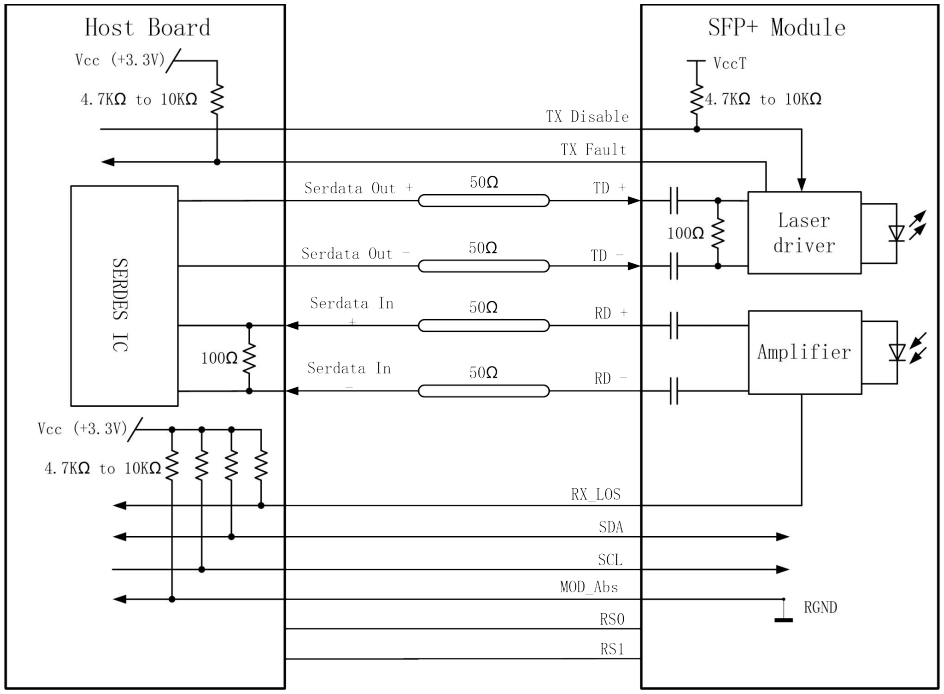
Electrical Pad Layout



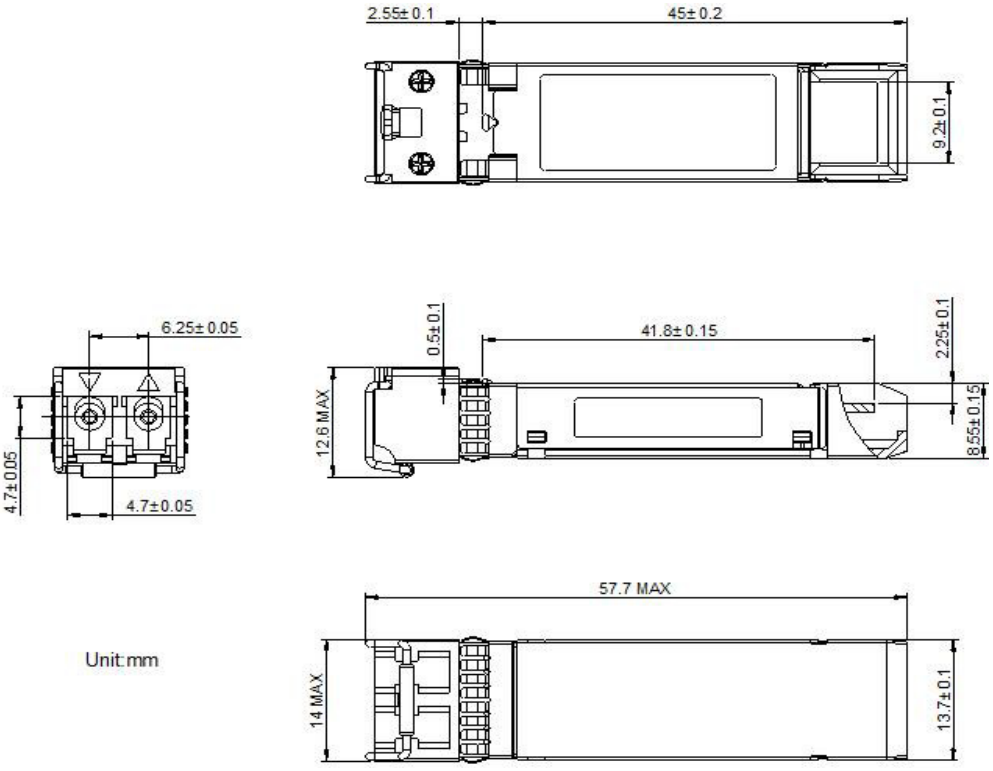
Recommended Host Board Supply Filter Network



Block Diagram of Transceiver



Mechanical Specifications



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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