

### SFP-10GB-DW63-80-I-AO

MSA and TAA 10GBase-DWDM SFP+ Transceiver C-Band Channel DW63 50GHz (SMF, 1527.22nm, 80km, LC, DOM, -40 to 85C)

#### Features

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



#### Applications

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

#### Product Description

This MSA Compliant SFP+ transceiver provides 10GBase-DWDM throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1527.22nm via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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.

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."



## 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 <sup>-12</sup>		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<sup>31</sup>-1 PRBS.

## Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		V <sub>CC</sub>	3.14	3.3	3.46	V	
Module Power		I <sub>CC</sub>			2000	mW	
Transmitter							
Input Differential Impedance		Z <sub>IN</sub>	80	100	120	Ω	
Differential Data Input		V <sub>IN</sub>	180		700	mVp-p	
Tx_Fault	Assert	VFA	2.0		Host_Vcc	V	
	De-Assert	VFDA	V <sub>ee</sub>		V <sub>ee</sub> +0.4	V	
Tx_Disable	Transmitter Disable	V <sub>IH</sub>	2.0		Host_Vcc	V	
	Transmitter Enable	V <sub>IL</sub>	V <sub>ee</sub>		V <sub>ee</sub> +0.8	V	
Receiver							
Differential Data Output		V <sub>OUT</sub>	350		850	mVp-p	
Output Rise Time		T <sub>r</sub>	25			pS	
Output Fall Time		T <sub>f</sub>	25			pS	
LOS Fault		LOS	2.0		Host_Vcc	V	
LOS Normal		LOS	V <sub>ee</sub>		V <sub>ee</sub> +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	$\lambda_C$	1526.44		1563.86	nm	
Center Wavelength Spacing			100		GHz	
Center Wavelength Tolerance	$\Delta\lambda_C$	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	$\lambda_C$	1260		1620	nm	
Receiver Sensitivity	RSENSE			-24	dBm	2
Receiver Sensitivity @80km Fiber	RSENSE			-21	dBm	3
Receiver Overload	POL	-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:

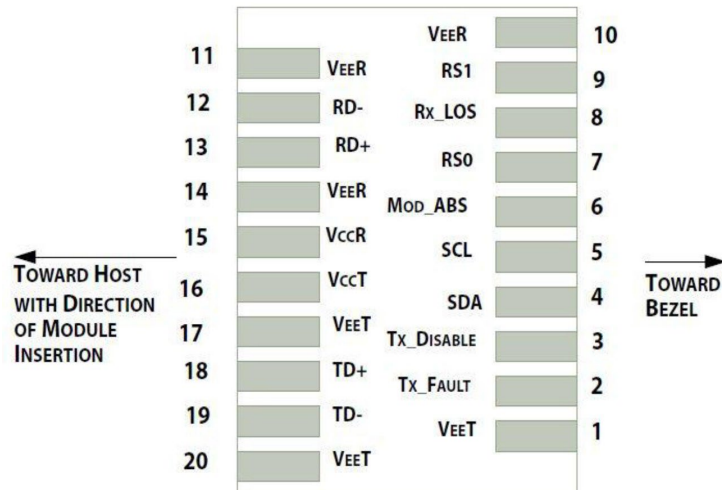
1. The optical power is launched into the SMF.
2. Measured at 1528-1600nm, ER>9dBm, PRBS 2<sup>31</sup>-1, and BER better than or equal to 10E<sup>-12</sup>.
3. Loopback using 80km fiber (SMF-28).

## Pin Descriptions

Pin	Symbol	Name/Description	Note
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. LVTTTL-O.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on “high” or “open.” LVTTTL-I.	3
4	SDA	2-Wire Serial Interface Data (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O.	
5	SCL	2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTTL-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. LVTTTL-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

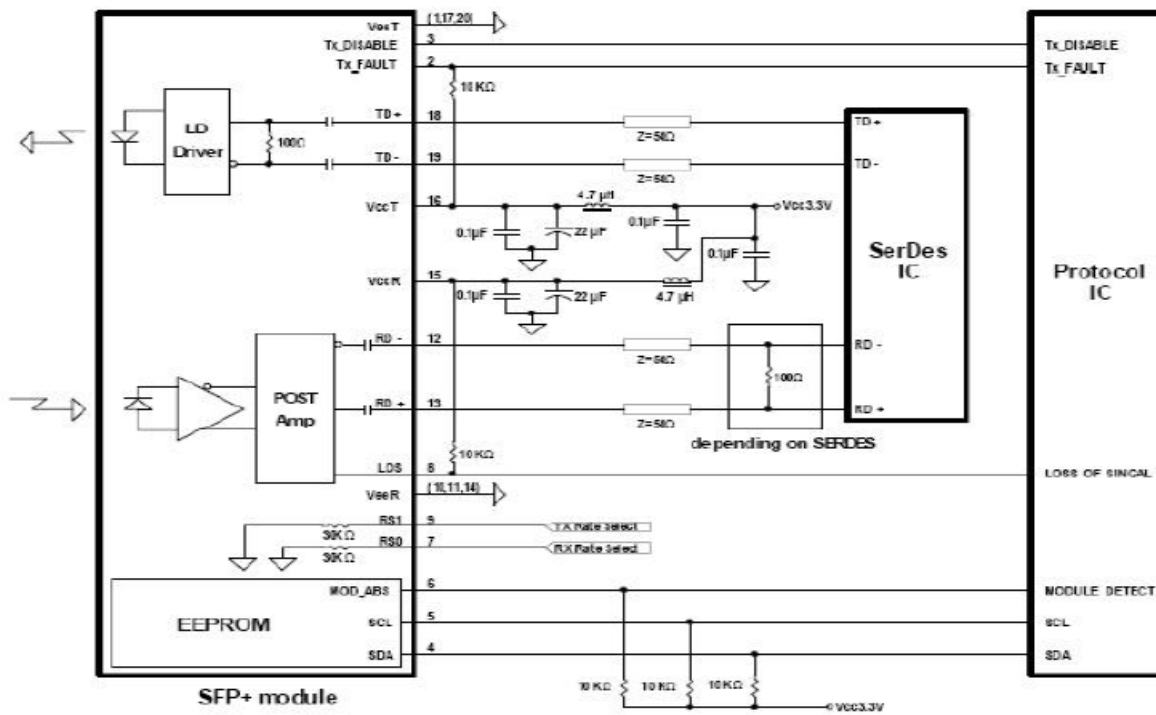
### Notes:

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 resistor 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.

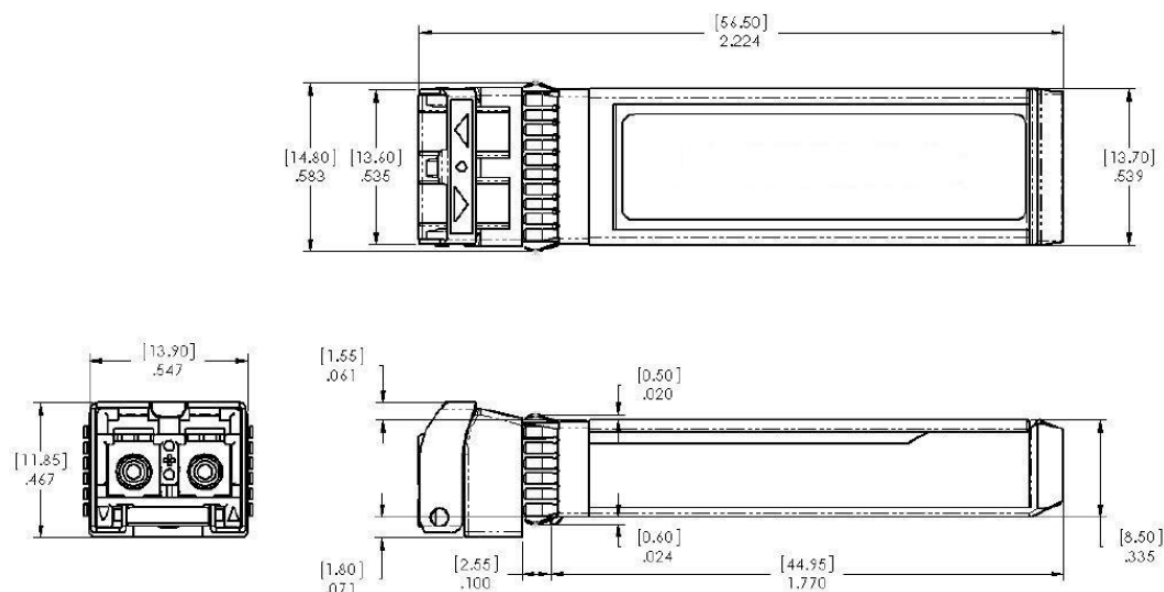


Pin-Out of Connector Block on the Host Board

### Recommended Circuit Schematic

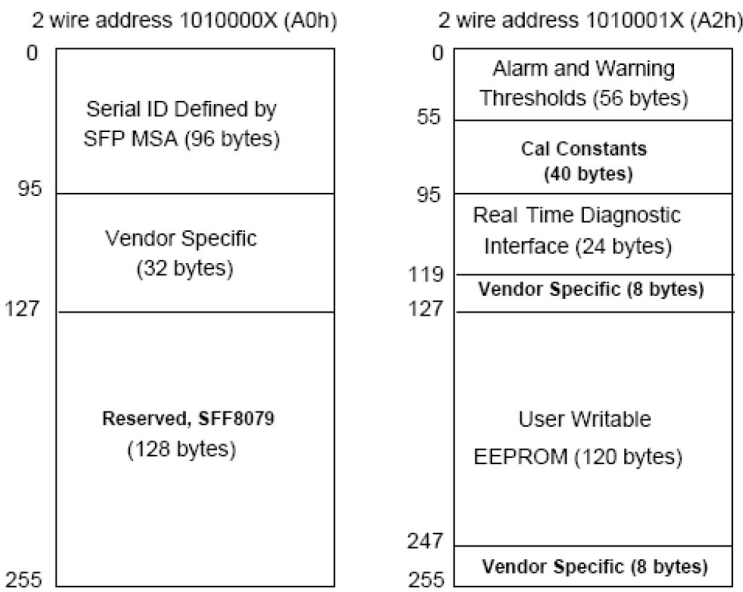


Mechanical Specifications



EEPROM Information

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



## About 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 from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.



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