

## **SFP-10GB-DW62-80-I-OPC**

MSA and TAA 10GBase-DWDM SFP+ Transceiver C-Band 50GHz (SMF, 1527.99nm, 80km, LC, DOM, -40 to 85C)

### **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:**

- 10x Gigabit Ethernet over DWDM
- 8x/10x Fibre Channel
- 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 1527.99nm via an LC connector. It is capable of withstanding rugged environments and can operate at temperatures between -40 and 85C. 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. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

## 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 Relative Humidity	RH	5		95	%	
Power Supply Current	Icc			2000	mW	
Bit Rate	BR			11.1	Gbps	1
Bit Error Rate	BER			10E <sup>-12</sup>		2
Maximum Supported Link Length	Lmax			80	km	1

### Notes:

- 10GBASE-ZR, 10GBASE-ZW, and 1200-SM-LL-L 10GFC.
- Tested with a 2<sup>31</sup>-1 PRBS.

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	3.14	3.3	3.46	V	
Transmitter						
Input Differential Impedance	RIN	80	100	120	Ω	
Differential Data Input	VIN	180		700	mVp-p	
Transmit Disable Voltage	VDIS	2		Host_Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Transmit Fault Assert Voltage	VFA	2		Host_Vcc	V	
Transmit Fault De-Assert Voltage	VFDA	Vee		Vee+0.4	V	
Receiver						
Differential Data Output	VOD	mVp-p	350		850	
Output Rise Time	Tr	pS	25			
Output Fall Time	Tf		25			
LOS Fault	VLOSft		2		Host_Vcc	
LOS Normal	VLOSnr		Vee		Vee+0.4	

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
Side-Mode Suppression Ratio	SMSR	30			dB	
Optical Output Power	Pavg	0		4	dBm	
Extinction Ratio	ER	8.2			dB	
Average Launch Power of Off Transmitter	Poff			-30	dBm	
Relative Intensity Noise	RIN			-128	dB/Hz	
<b>Receiver</b>						
Center Wavelength	$\lambda_C$	1260		1620	nm	
Receiver Sensitivity	Rsense			-24	dBm	1
Receiver Sensitivity @80km Fiber	Rsense			-21	dBm	2
Receiver Overload		-7			dBm	
Optical Return Loss		27			dB	
LOS Assert	LOSA	-37			dBm	
LOS De-Assert	LOSD			-27	dBm	
LOS Hysteresis		0.5			dB	

### Notes:

1. Measured at 1528-1600nm, ER=9dBm, PRBS 2<sup>31</sup>-1, and BER better than 10E<sup>-12</sup>.
2. Loopback using 80km fiber (SMF-28).

## Pin Descriptions

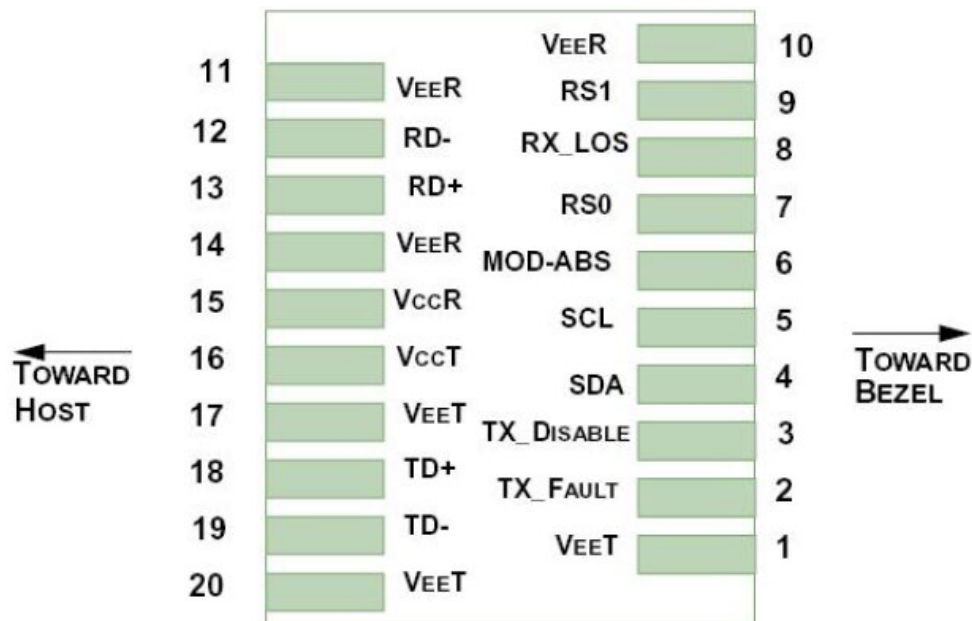
Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Transmitter Fault Out.	2
3	Tx_Disable	Transmitter Disable In. LVTTTL.	3
4	SDA	Module Definition Identifiers.	4
5	SCL	Module Definition Identifiers.	4
6	MOD_ABS	Module Definition Identifiers.	4
7	RS0	Receiver Rate Select. LVTTTL. Transmitter Rate Select.	5
8	LOS	Loss of Signal.	6
9	RS1	Receiver Rate Select. LVTTTL. Transmitter Rate Select.	5
10	VeeR	Receiver Ground.	1
11	VeeR	Receiver Ground.	1
12	RD-	Receiver Negative Data Out. CML.	7
13	RD+	Receiver Positive Data Out. CML.	8
14	VeeR	Receiver Ground.	1
15	VccR	Receiver Power Supply.	9
16	VccT	Transmitter Power Supply.	9
17	VeeT	Transmitter Ground.	1
18	TD+	Transmitter Positive Data In. CML.	10
19	TD-	Transmitter Negative Data In. CML.	11
20	VeeT	Transmitter Ground.	1

## Notes:

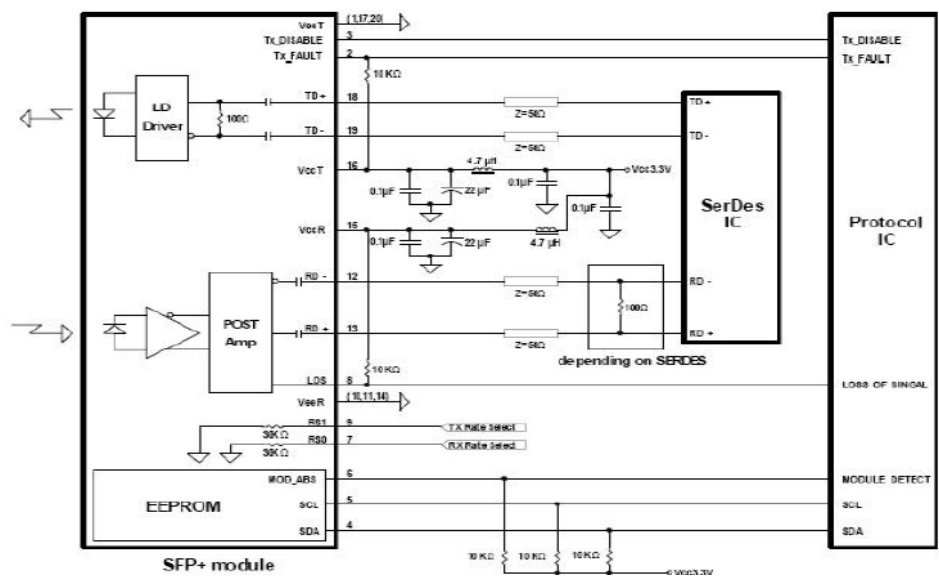
- These pins should be connected to the signal ground on the host board.
- Logic "1" Output = Laser fault (Laser off before Tx\_Fault).  
Logic "0" Output = Normal operation.  
This pin is open collector compatible and should be pulled up to the Host\_Vcc with a 10kΩ resistor.
- Logic "1" Input (or No Connection) = Laser off.  
Logic "0" Input = Laser on.  
This pin is internally pulled up to the VccT with a 10kΩ resistor.
- Serial ID with SFF-8472 diagnostics module definition pins should be pulled up to the Host\_Vcc with 10kΩ resistors.
- These pins have an internal 30kΩ pull-down to ground. A signal on either of these pins will not affect module performance.
- Sufficient optical signal for potential  $BER < 1 \times 10^{-12}$  = Logic "0."  
Insufficient optical signal for potential  $BER < 1 \times 10^{-12}$  = Logic "1."  
This pin is open collector compatible and should be pulled up to the Host\_Vcc with a 10kΩ resistor.

7. Light On = Logic "0" output receiver data output is internally AC coupled and series terminated with a 50Ω resistor.
8. Light On = Logic "1" output receiver data output is internally AC coupled and series terminated with a 50Ω resistor.
9. This pin should be connected to a filtered +3.3V power supply on the host board.
10. Logic "1" Input = Light on transmitter data inputs are internally AC coupled and terminated with a 100Ω resistor.
11. Logic "0" Input = Light on transmitter data inputs are internally AC coupled and terminated with a 100Ω resistor.

### Pin Connectors



Recommended Circuit Schematic



Mechanical Specifications

