#### SFP-10GERLC-DW4932-80-OPC

Moxa® SFP-10GERLC-DW4932-80 Compatible TAA 10GBase-DWDM SFP+ Transceiver C-Band 100GHz (SMF, 1549.32nm, 80km, LC, DOM)

#### **Features**

- SFF-8432 and SFF-8472 Compliance
- Duplex LC Connector
- Temperature-stabilized EML transmitter and APD receiver
- Single-mode Fiber
- Commercial Temperature 0 to 70 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, Metro and Enterprise

#### **Product Description**

This Moxa® SFP-10GERLC-DW4932-80 compatible SFP+ transceiver provides 10GBase-DWDM throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1549.32nm 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 Moxa®. 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.

# 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.	Тур.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	0.5		4.0	V	
Storage Temperature	Tstg	-40		+85	°C	1
Operating Case Temperature	Тс	0		70	°C	
Data Rate	BR	1.2	10.3125	11.3	Gbps	2
Bit Error Rate	BER			10-12		
Supply Current	Icc		450	500	mA	3

### Notes:

- 1. Ambient temperature.
- 2. IEEE 802.3ae.
- 3. For electrical power interface.

# Electrical Characteristics Vcc=3.4 to 3.46V, Tc

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes		
Input Voltage	Vcc	3.14	3.3	3.46	V			
Power Consumption	P <sub>D</sub>			1.5	W			
Transmitter								
Differential Input Impedance	ZIN		100		Ω			
Differential Data Input Swing	VIN,pp	300		850	mV			
Transmit Enable voltage	V <sub>D</sub>	2		Vcc	V			
Transmit Enable voltage	V <sub>EN</sub>	VeeT		VeeT + 0.8	V			
Receiver								
Differential Data Output Swing	VOUT_pp	300		850	mV			
Data Output Rise/Fall Time (20%-80%)	Tr/Tf	28			ps			
LOS Asserted	LOSA	2		Host_Vcc	V			
LOS De-Asserted	LOSD	VeeR		VeeR+ 0.5	V			

### Notes:

1. For electrical power interface.

# **Optical Characteristics**

Parameter	Symbol	Min	Тур.	Max	Unit	Notes		
Transmitter								
Optical Power	PTX	0		4	dBm	1		
Optical Wavelength	λ	λ-0.1	λ	λ+0.1	nm	2		
Extinction Ratio	ER	9			dB			
Spectral Width (-20dB)	Δλ			0.6	nm			
Side Mode Suppression Ratio	SMSR	30			dB			
Relative Intensity Noise	RIN			-128	dB/Hz			
Transmitter Dispersion Penalty	TDP			3.2	dB			
Launch Power of OFF Transmitter	Poff			-30	dBm	1		
Receiver								
Optical Center Wavelength	λc	1260		1620	nm			
Average Receive Power	P <sub>RX</sub>	-24		-7	dBm			
Receiver Sensitivity @ 10.3 GBps	PX_SEN			-24	dBm	3		
Receiver Reflectance	TR <sub>RX</sub>			-27	dB			
LOS Assert	LOSA	-35			dB			
LOS De-assert	LOSD			-27	dB			
LOS Hysteresis	LOSH	0.5			dB			

### Notes:

- 1. Average.
- 2.  $\lambda$  = specified ITU Grid wavelength.
- 3. Measured with PRBS 2<sup>31</sup>-1 test mode, BER<10<sup>-12</sup>.

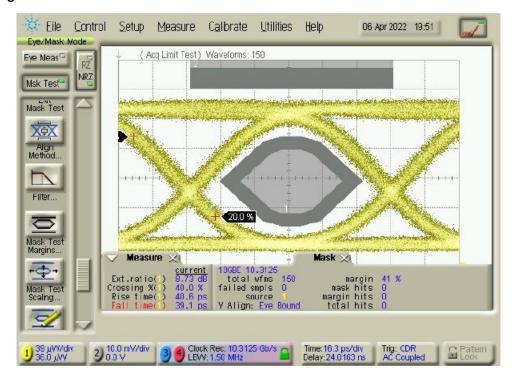
# **Pin Descriptions**

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX_Fault	Transmitter Fault.	
3	TX_Disable	Transmitter Disable. Laser output disabled on "high" or "open."	2
4	SDA	2-Wire Serial Interface Data.	3
5	SCL	2-Wire Serial Interface Clock.	3
6	MOD_ABS	Module Absent. Grounded within the module.	3
7	RS0	Rate Select 0. Not used.	
8	LOS	Loss of Signal indication. "Logic 0" indicates normal operation.	4
9	RS1	Rate Select 1. Not used.	1
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.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled.	
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.	
19	TD-	Transmitter Inverted Data In. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

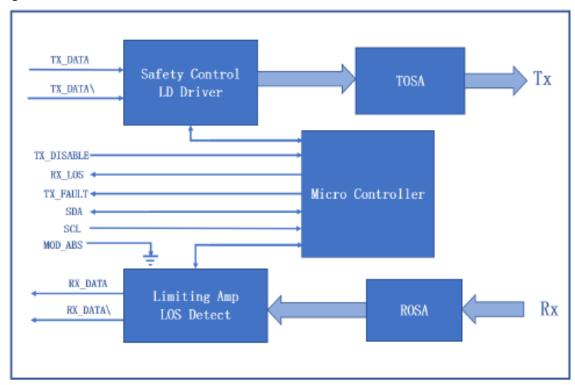
### Notes:

- 1. Circuit ground is isolated form chassis ground.
- 2. Disable TDIS>2Vor open. Enable TDIS<0.8V.
- 3. Should be pulled up with  $4.7k\Omega$ -10K $\Omega$  on host board to a voltage between 2V and 3.46V.
- 4. LOS is open collector output.

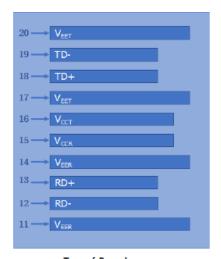
### **Typical eye Diagram**



### **Block Diagram**

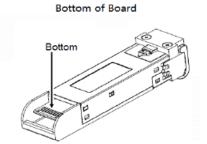


# **Electrical Pad Layout**



 $1 \longrightarrow V_{EET}$   $2 \longrightarrow TX_FAULT$   $3 \longrightarrow TX_DISABLE$   $4 \longrightarrow SDA$   $5 \longrightarrow SCL$   $6 \longrightarrow MOD_ABS$   $7 \longrightarrow RSO$   $8 \longrightarrow LOS$   $9 \longrightarrow RS1$   $10 \longrightarrow V_{EER}$ 

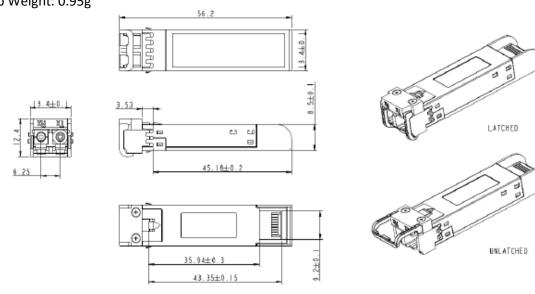
Top of Board



# **Mechanical Specifications**

Module Weight: 16.5g

Dust Cap Weight: 0.95g



All Dimensions are ±0.2mm unless otherwise specified