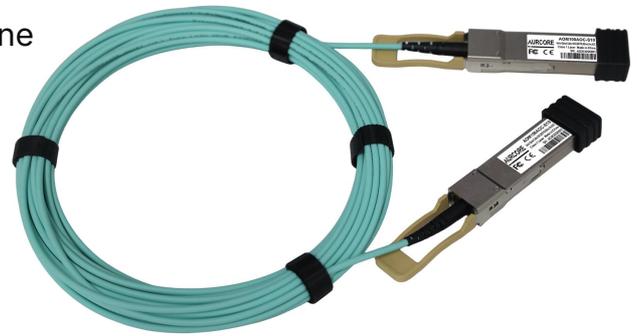


## 100G QSFP28 Active Optical Cable

### Product Features

- Compliant with QSFP28 MSA SFF-8636
- Built-in digital diagnostic functions
- VCSEL array transmitter and PIN array receiver
- Operating data rate: up to 25.78125G for each lane
- Maximum link length of 70m on OM3
- Single +3.3V power supply
- Maximum operation power: 2.5W
- Operation case temperature: 0 to 70°C
- RoHS compliant



### Application

- 100GBASE-SR4 Ethernet
- Data Center, Enterprise and Telecom Networking

### Absolute Maximum Ratings

Parameter	Unit	Min.	Typical	Max.	Notes
Storage Temperature	°C	-40		85	
Operating Relative Humidity	%	5		85	
Power Supply not Damaged Voltage	V	-0.5		3.6	

### Recommended Operating Conditions

Parameter	Unit	Min.	Typical	Max.	Notes
Operating Case Temperature	°C	0		70	
Power Supply Working Voltage	V	3.135	3.3	3.465	
Power Dissipation per terminal	W	-	-	2.5	
Bit Rate per channel	Gbps	10.3125	25.78125		
Bit Error Rate				1E-12	1

Notes:

1. PRBS2^31-1@25.78125Gbps

# Electrical Specifications

Parameter		Unit	Min.	Typical	Max.	Notes
<b>Transmitter</b>						
Data Input Swing Differential		mV	200	-	1000	
Date Differential Impedance		$\Omega$	90	100	110	
ModSelL	Module Select	V	$V_{EE}-0.3$	-	0.4	
	Module Unselect	V	2.0	-	$V_{CC}+0.3$	
LPMode	Low Power Mode	V	$V_{EE}-0.3$	-	0.8	
	Normal Operation	V	2.0	-	$V_{CC}+0.3$	
ResetL	Reset	V	$V_{EE}-0.3$	-	0.8	
	Normal Operation	V	2.0	-	$V_{CC}+0.3$	
<b>Receiver</b>						
Data Output Swing Differential		mV	200	-	1000	
Date Differential Impedance		$\Omega$	90	100	110	
ModPrsL	Normal Operation	V	$V_{EE}-0.3$	-	0.4	
IntL	Interrupt	V	$V_{EE}-0.3$	-	0.4	
	Normal Operation	V	2.0	-	$V_{CC}+0.3$	

## PIN Function Definitions

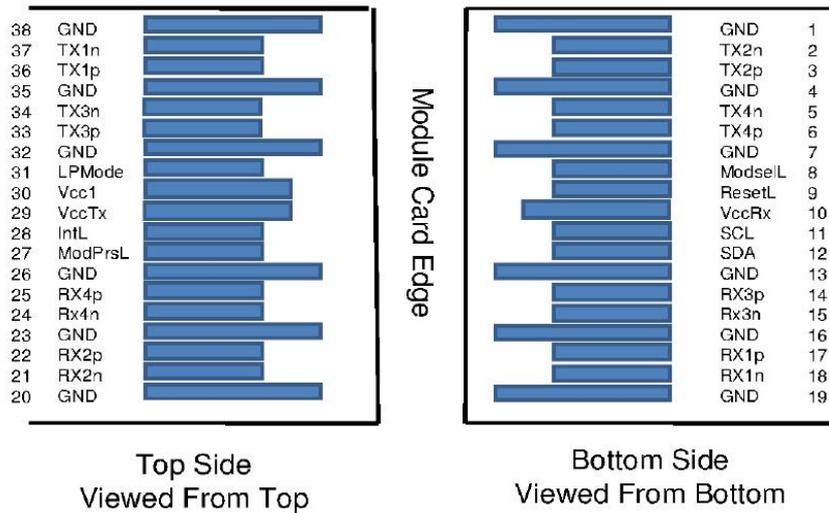
Pin No.	Symbol	Level / Logic	Description	Notes
1	GND		Module Ground	1
2	Tx2n	CML-I	Transmitter Inverted Data Input	
3	Tx2p	CML-I	Transmitter Non-Inverted Data Input	
4	GND		Module Ground	1
5	Tx4n	CML-I	Transmitter Inverted Data Input	
6	Tx4p	CML-I	Transmitter Non-Inverted Data Input	
7	GND		Module Ground	1
8	ModSelL	LVTTL-I	Module Select	
9	ResetL	LVTTL-I	Module Reset	
10	VccRx		+3.3V Power Supply for Receiver	2
11	SCL	LVTTL-I	2-Wire Serial Interface Clock	
12	SDA	LVTTL-I/O	2-Wire Serial Interface Data Line	
13	GND		Module Ground	1
14	Rx3p	CML-O	Receiver Non-Inverted Data Output	
15	Rx3n	CML-O	Receiver Inverted Data Output	
16	GND		Module Ground	1
17	Rx1p	CML-O	Receiver Non-Inverted Data Output	
18	Rx1n	CML-O	Receiver Inverted Data Output	
19	GND		Module Ground	1
20	GND		Module Ground	1
21	Rx2n	CML-O	Receiver Inverted Data Output	
22	Rx2p	CML-O	Receiver Non-Inverted Data Output	
23	GND		Module Ground	1
24	Rx4n	CML-O	Receiver Inverted Data Output	
25	Rx4p	CML-O	Receiver Non-Inverted Data Output	

26	GND		Module Ground	1
27	ModPrsL	LVTTL-O	Module Present	
28	IntL	LVTTL-O	Interrupt	
29	VccTx		+3.3V Power Supply for Transmitter	2
30	Vcc1		+3.3V Power Supply	2
31	LPMode	LVTTL-I	Low Power Mode	
32	GND		Module Ground	1
33	Tx3p	CML-I	Transmitter Non-Inverted Data Input	
34	Tx3n	CML-I	Transmitter Inverted Data Input	
35	GND		Module Ground	1
36	Tx1p	CML-I	Transmitter Non-Inverted Data Input	
37	Tx1n	CML-I	Transmitter Inverted Data Input	
38	GND		Module Ground	1

Notes:

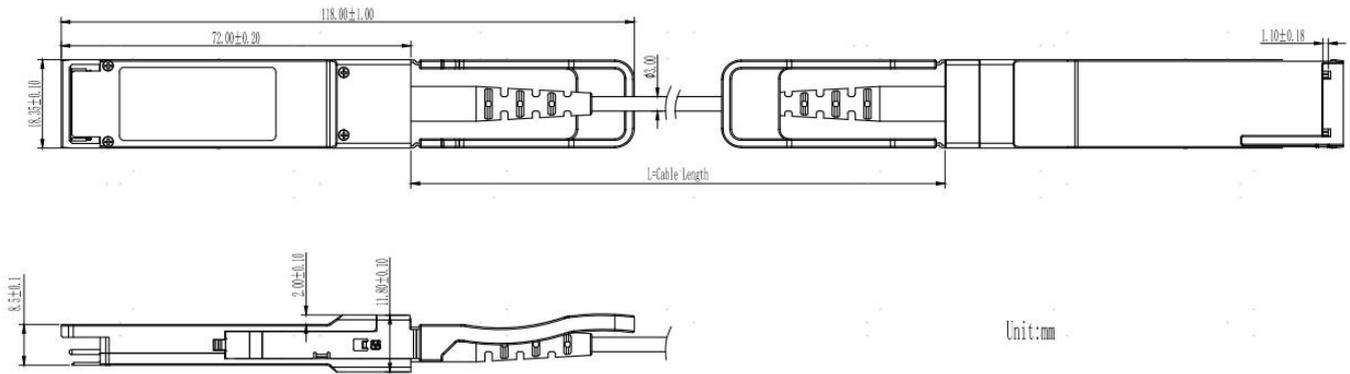
1. 1GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the QSFP28 module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. 2Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power supplies and shall be applied concurrently. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP28 Module in any combination.

## Electrical Pad Layout



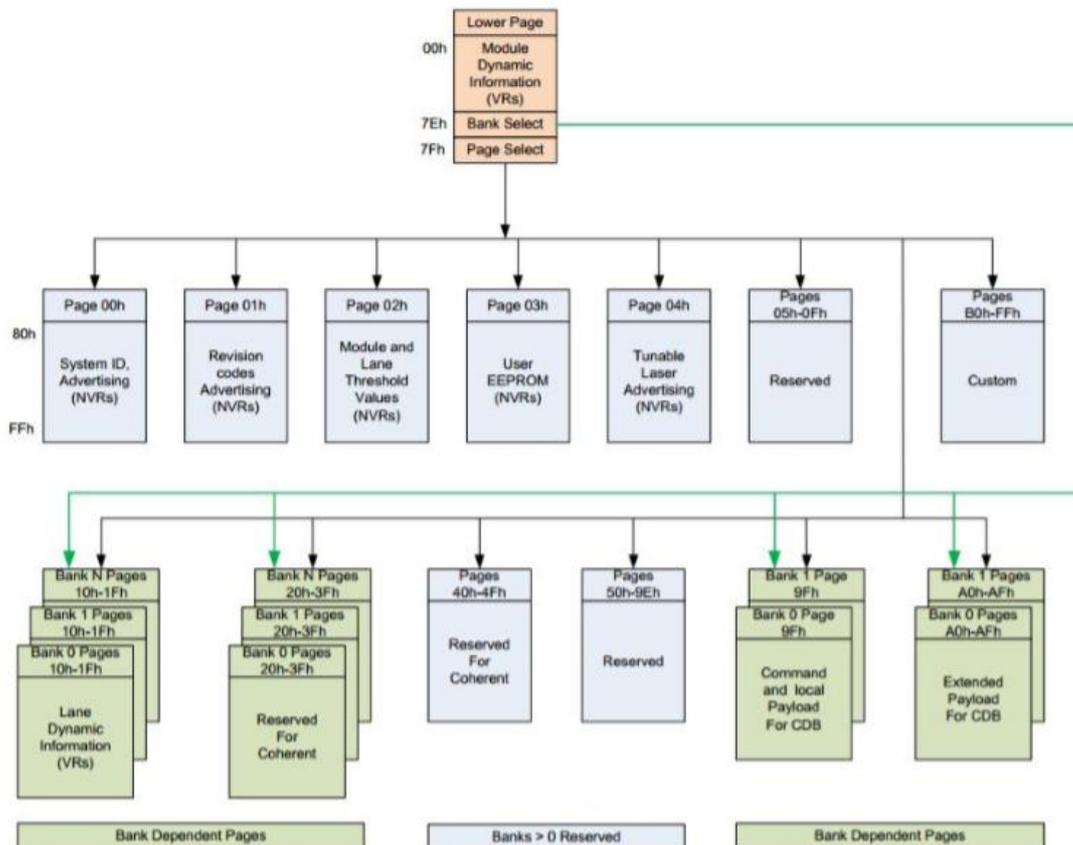
# Mechanical Specifications

For detail mechanical information, please refer to the related document of SFF-8661.



# Digital Diagnostic Functions

Parameter	Unit	Error	NOTES
Temperature Monitor	°C	±3	1LSB=1/256°C
Supply Voltage Monitor	V	±0.1	1LSB=100uV
Bias Current Monitor	mA	±10%	1LSB=2uA
TX Power Monitor	dB	±3	1LSB=0.1uW
RX Power Monitor	dB	±3	1LSB=0.1uW



## ESD

This product is specified as ESD threshold 1Kv for high speed data pins and 2Kv for all other electrical input pins, tested per MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

## Laser Safety

This is a Class 1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

## Ordering Information

Ordering P/Ns	Description
AOM100AOC-S10	10m
-S05	5m
⋮	⋮
-S50	50m
⋮	⋮
-S100	100m