

# 100Gb/s DSFP Active Optical Cable

## Features

- Support data rate 106.25Gbps
- Electrical interface compliant to DSFP Module Specification Rev. 1.0
- Compliant to CMIS V4.0
- Hot-pluggable DSFP form factor
- Digital diagnostics functions are available via the I2C interface
- Operating case temperature Commercial: 0°C to +70 °C
- +3.3V single power supply
- Power consumption less than 2.2W
- RoHS compliant
- Maximum link length of 70m on OM3 MMF and 100m on OM4 MMF

## Applications

- 100GBASE-SR2 Ethernet
- Servers, switches, storage and host card adapters
- Other optical links

## Absolute Maximum Ratings

Table1-Absolute Maximum Ratings						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	V <sub>CC3</sub>	-0.5	-	+3.6	V	
Storage Temperature	T <sub>s</sub>	- 40	-	+85	°C	
Operating Humidity	RH	+5	-	+85	%	1

Note:

[1] No condensation

## Recommended Operating Conditions

Table2-Recommended Operating Conditions						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Operating Case Temperature	TC	0	-	+70	°C	
Power Supply Voltage	V <sub>CC</sub>	3.135	3.3	3.465	V	
Power Supply Current	I <sub>CC</sub>	-	-	700	mA	1
Power Dissipation	P <sub>d</sub>	-		2.2	W	1
Total Data Rate			106.25		Gbps	
Data Rate per Lane			26.5625		Gbps	

Note:

[1] Per terminal

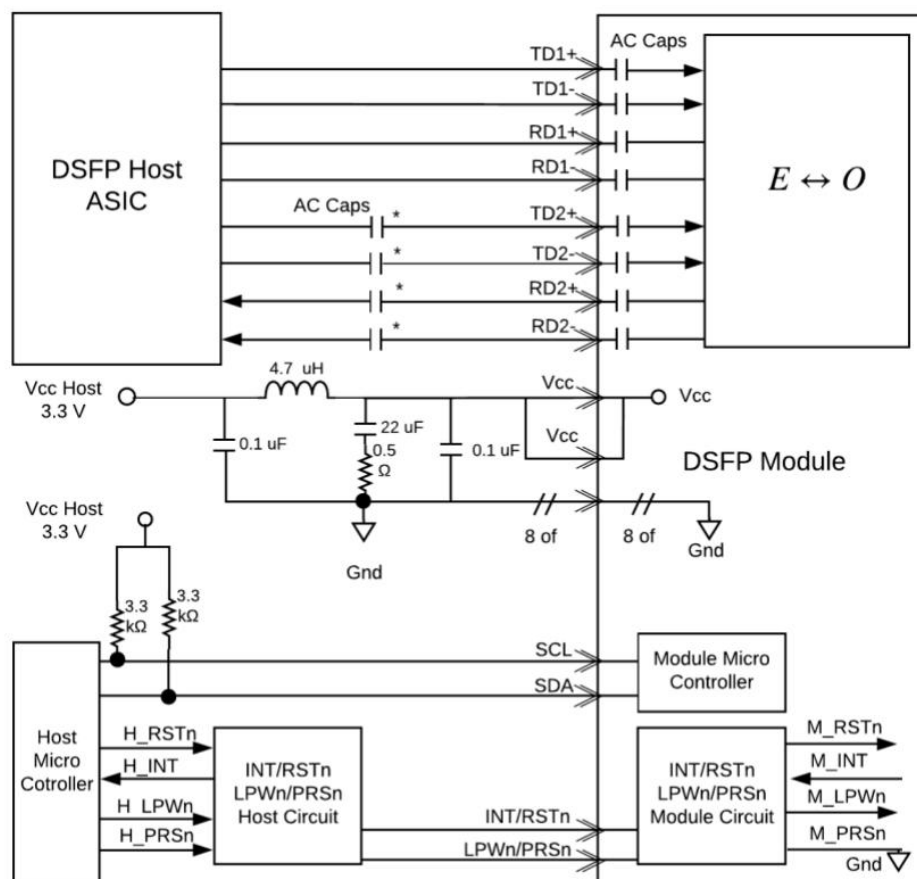
## Characteristics

Table3-Electrical Characteristics						
Parameter	Symbol	Unit	Min.	Typical	Max.	Note
Transmitter						
Signaling rate (each lane)	SR	GBPS	26.5625 ± 100 ppm			
Differential data input voltage per lane	V <sub>in,pp,dif</sub>	mV	900	-	-	
Differential termination mismatched	-	%	-	-	10	
Single-ended voltage tolerance range	-	V	-0.4	-	3.3	
DC common mode voltage	-	mV	-350	10	2850	
Receiver						
Signaling rate (each lane)	SR	GBd	26.5625 ± 100 ppm			
Error Bit Rate	BER				2.4E-4	1
Differential output voltage	-	mV	-	-	900	
Near-end ESMW (Eye symmetry mask	-	UI	0.265	-	-	

width)						
Near-end Eye height, differential (min)	-	mV	70	-	-	
Far-end ESMW (Eye symmetry mask width)	-	UI	0.2	-	-	
Far-end Eye height, differential (min)	-	mV	30	-	-	
Differential termination mismatch	-	%	-	-	10	
Transition time (min, 20% to 80%)	-	ps	9.5	-	-	
DC common mode voltage	-	mV	-350	-	2850	

**Note:PRBS31Q@26.5625Gbd PAM4**

## Recommended Interface



### Figure 1 Recommended Interface Circuit

## Pin arrangement

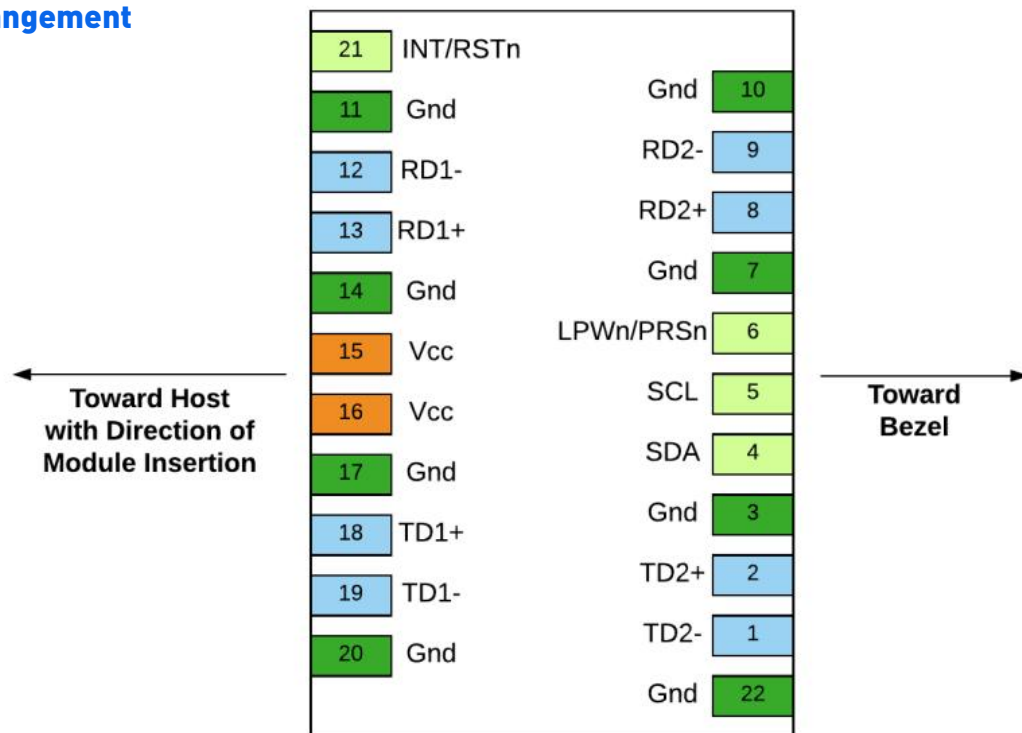


Figure 2 Pin View

## Pin Descriptions

Table4- Pin Function Definition					
Pin	Logic	Symbol	Power Sequence Order	Description	Note
1	CML-I	TD2	3rd	Transmitter Inverted Data Input Lane2	
2	CML-I	TD2+	3rd	Transmitter Non-Inverted Data Input Lane2	
3		Tx2p	1st	Module Ground	5
4	LVTTL-I/O	SDA	3rd	2-wire Serial Interface Data Line	3
5	LVTTL-I/O	SCL	3rd	2-wire Serial Interface Clock	3
6	Multi-level-I/O	LPWn/PRSn	3rd	Low Power Mode/Module Present(Mod_Abs)	
7		Gnd	1st	Module Ground	5
8	CML-O	RD2+	3rd	Receiver Non-Inverted Data Output Lane2	
9	CML-O	RD2-	3rd	Receiver Inverted Data Output Lane2	
10		Gnd	1st	Module Ground	5
11		Gnd	1st	Module Ground	5
12	CML-O	RD1-	3rd	Receiver Inverted Data Output Lane1	4
13	CML-O	RD1+	3rd	Receiver Non-Inverted Data Output Lane1	4
14		Gnd	1st	Module Ground t	5

15		Vcc	2nd	Module 3.3 V Supply	
16		Vcc	2nd	Module 3.3 V Supply	
17		Gnd	1st	Module Ground	5
18	CML-I	TD1+	3rd	Transmitter Non-Inverted Data Output Lane1	4
19	CML-I	TD1-	3rd	Transmitter Inverted Data Output Lane1	4
20		Gnd	1st	Module Ground	4
21	Multi-level-I/O	INT/RSTn	3rd	Dual Function Module interrupt and Reset Pin	
22		Gnd	1st	Module Ground	5

## Mechanical

QSFP-DD AOC terminal are compatible with the QSFP-DD Type 2 Specification for pluggable form factor modules.

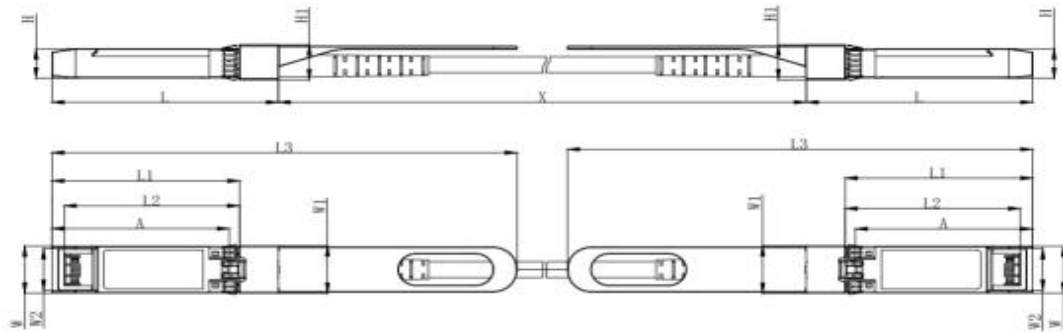


Figure 3 Mechanical Diagram

单位: mm

	L	L1	L2	L3	W	W1	W2	H	H1	A
MAX	57.6	47.7	44.55	119.9	13.8	14.0	12.3	8.7	10.3	45.25
Typical	57.4	47.5	44.35	117.9	13.55	13.8	12.1	8.5	10.1	45
MIN	57.2	47.3	44.15	115.9	13.3	13.6	11.9	8.4	9.9	44.65

## Regulatory Compliance

Parameter	Value	Units
Diameter	3	mm
Minimum bend radius	30	mm
Length tolerance	Length $\leq$ 1 m:	+5 / -0
	1 m $\leq$ length $\leq$ 4.5 m:	+15 / -0
	5 m $\leq$ length $\leq$ 14.5 m:	+30 / -0
	Length $\geq$ 15.0 m	+2% / -0
Cable color	Aqua(OM3),Magenta(OM4)	

## Warnings

**Handling Precautions:** This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

**Laser Safety:** Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.



## Further Information:

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