

## 25Gb/s SFP28 Active Optical Cable

### Features

- Support Data Rate 25Gbps
- Built-in CDR
- Up to 70m transmission distance on OM3 MMF
- Up to 100m transmission distance on OM4 MMF
- 850nm VCSEL and PIN receiver
- SFI electrical interface
- 2-wire interface for integrated Digital Diagnostic monitoring
- SFP+ MSA package with duplex LC connector
- Hot pluggable
- Very low EMI and excellent ESD protection
- +3.3V power supply
- Power consumption less than 1W
- Operating case temperature: 0~+70°C

### Applications

- 25G BASE-SR

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### Compliance

- Compliant with SFF-8431
- Compliant with FC-P1-6
- RoHS compliance

## 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	
Relative Humidity(Non-condensing)	RH	5	-	85	%	

Note:No condensation

## Recommended Operating Conditions

Table2-Recommended Operating Conditions						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Operating Case Temperature	T <sub>C</sub>	0		+70	°C	
Power Supply Voltage	V <sub>CC</sub>	3.13	3.3	3.47	V	
	I <sub>CC3</sub>			300	mA	
Power Dissipation	P <sub>D</sub>			1	W	
Data Rate			25.78125		Gbps	
Transmission Distance(OM3 MMF)				70	m	
Transmission Distance(OM4 MMF)				100	m	

Note:

[1] Per terminal

[2] Per channel, PAM4

## Characteristics

Table3-Electrical Characteristics						
Parameter	Symbol	Unit	Min.	Typical	Max.	Note
Transmitter						
Center Wavelength	λ <sub>C</sub>	nm	840	850	860	
Laser Off Power	P <sub>off</sub>	dBm		-	-30	
Average Optical Power	P <sub>avg</sub>	dBm	-8.4	-	2.4	
Extinction Ratio	ER	dB	2	-	-	
Differential input impedance		Ω		100		
Tx Input Diff Voltage	V <sub>I</sub>	mV	100		900	
Tx Fault	V <sub>oL</sub>	V	V <sub>ee</sub>		0.8	
	V <sub>oH</sub>	V	2		V <sub>CC</sub>	

Tx_Disable	VIL	V	Vee		0.8	
	VIH	V	2		Vcc	
Receiver						
Center Wavelength	$\lambda_r$	nm	840	850	860	
Bit Error Rate	Ber				1E-12	
Overload	Pin	dBm	2.4			
Differential output impedance		$\Omega$		100		
Rx Output Diff Voltage	Vo	mV	400		800	
Rx_LOS	VoL	V	Vee		0.8	
	VoH	$\mu$ A	2		Vcc	
RS0,RS1	VIL	V	Vee		0.8	
	VIH	V	2		Vcc	

## Monitoring Specification

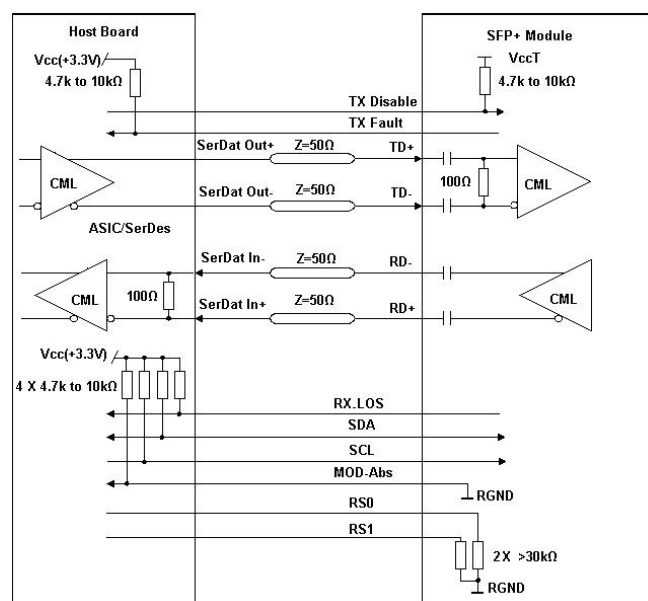


Figure 1 Recommended Interface Circuit

## Pin Description

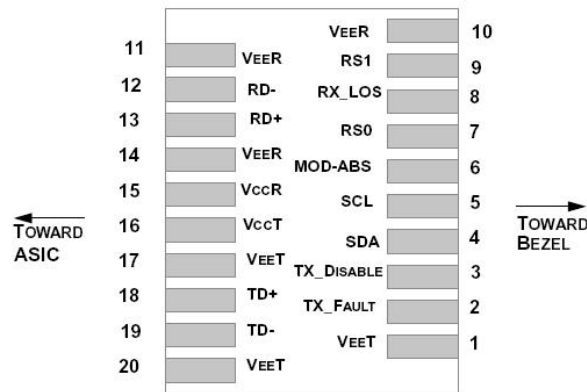


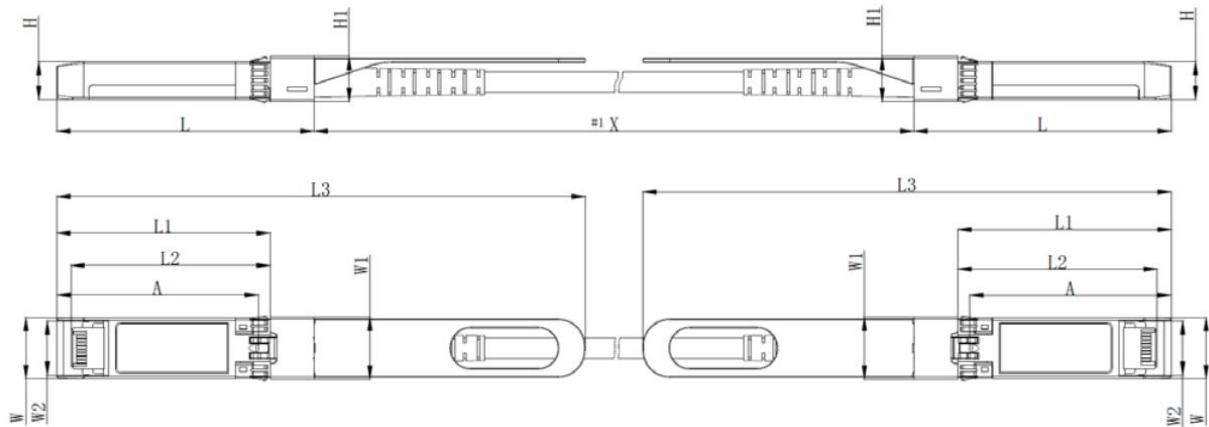
Figure 2 Pin View

## Pin Descriptions

Table4-QSFP-DD Pin Function Definition				
Pin	Logic	Symbol	Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTL-O	TX_Fault	Module Transmitter Fault	2
3	LVTTL-I	TX_Disable	Transmitter Disable; Turns off transmitter laser output	3
4	LVTTL-I/O	SDA	2-wire Serial Interface Data Line (Same as MOD-DEF2 as defined in the INF-8074i)	4
5	LVTTL-I/O	SCL	2-wire Serial Interface Clock (Same as MOD-DEF1 as defined in the INF-8074i)	4
6		MOD_ABS	Module Absent, connected to VeeT or VeeR in the module	5
7	LVTTL-I	RS0		
8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication (In FC designated as RX_LOS, in SONET designated as LOS, and in Ethernet designated at Signal Detect)	2
9	LVTTL-I	RS1		
10		VeeR	Module Receiver Ground	1
11		VeeR	Module Receiver Ground	1
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Non-Inverted Data Output	
14		VeeR	Module Receiver Ground	1
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Transmitter 3.3 V Supply	
17		VeeT	Module Transmitter Ground	1

18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	1

## Mechanica



Unit: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	Orange(OM2),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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