

25G SFP28 Active Optical Cable (STC-25G-AOC) Datasheet



- ▶ Up to 70m/100m by active optical cable with OM3/OM4 fiber
- ▶ Operating environment temperature: 0 to 70°C
- ▶ SFP28 housing with enhanced EMI shielding
- ▶ 25G electrical interface (OIF CEI-28G-VSR)
- ▶ Maximum power consumption 1.0W each terminal
- ▶ Single 3.3V power supply
- ▶ RoHS compliant

Applications:

- ▶ 25G Ethernet
- ▶ High capacity IO with SFP28 interface
- ▶ Data center and in-rack connection

Features:

- ▶ SFF-8432 Mechanical MSA
- ▶ 25G 850nm VCSEL transmitter
- ▶ 25G PIN photo-detector
- ▶ 2-wire interface for management specifications compliant with SFF 8472 digital diagnostic monitoring interface for optical transceivers
- ▶ Pre-terminated fiber cable

▶ Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units	Note
Power Supply Voltage	VCC	0	3.6	V	
Storage Temperature	Ts	40	85	°C	
Operating Case Temperature	TC	0	70	°C	
Relative Humidity	RH	0	85	%	

► Recommended Operating Conditions and Supply Requirements

Parameter	Symbol	Min.	Typical	Max.	Units	Note
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Operating Case Temperature	TC	0	25	70	°C	
Data Rate, each Lane			25.78125		Gb/s	
Data Rate Accuracy		-100		100	ppm	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Fiber Bend Radius	Rbend	3			cm	

► Electrical Characteristics – Transmitter

Parameter	Test point	Min.	Typical	Max.	Units	Note
Power Consumption				1.0	W	1
Supply Current	Icc			300	mA	1
Overload Differential Voltage pk-pk	TP1a	900			mV	
Common Mode Voltage (Vcm)	TP1	-350		2850	mV	2
Differential Termination Resistance Mismatch	TP1			10	%	At 1MHz
Differential Return Loss (SDD11)	TP1			See CEI-28G VSR Equation	dB	
Common Mode to Differential conversion and Differential to Common Mode conversion (SDC11, SCD11)	TP1			See CEI-28G VSR Equation 13-20	dB	
Stressed Input Test	TP1a			See CEI-28G-VSR Section		

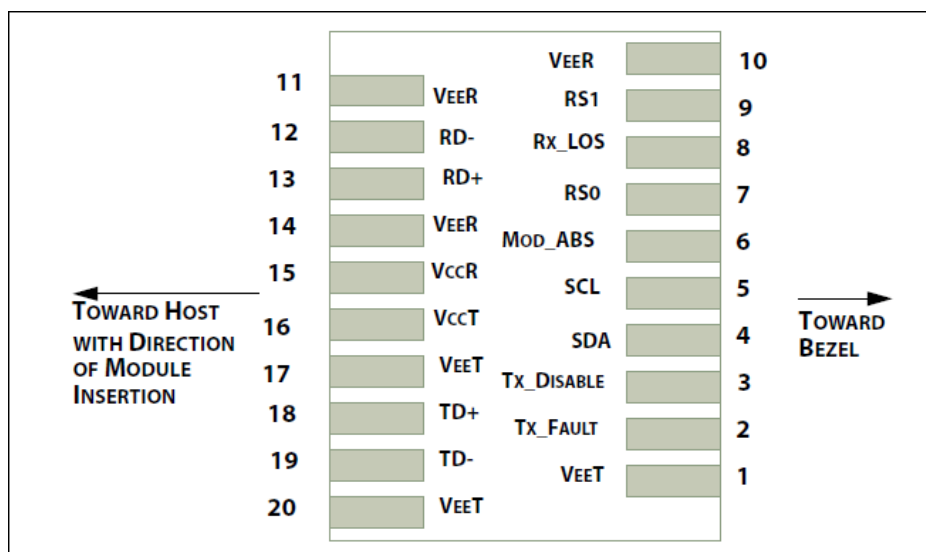
► Electrical Characteristics – Receiver

Parameter	Symbol	Min.	Typical	Max.	Units	Note
Differential Voltage, pk-pk	TP4			900	mV	
Common Mode Voltage (V _{cm})	TP4	-350		2850	mV	2
Common Mode Noise, RMS	TP4			17.5	mV	At 1MHz
Differential Termination Resistance Mismatch	TP4			10	%	
Differential Return Loss (SDD22)	TP4			See CEI-28G VSR Equation 13-	dB	
Common Mode to Differential conversion and Differential to Common Mode conversion (SDC22, SCD22)	TP4			See CEI-28G VSR Equation 13-19	dB	
Common Mode Return Loss (SCC22)	TP4			-2	dB	3
Transition Time, 20 to 80%	TP4	9.5			Ps	
Vertical Eye Closure (VEC)	TP4			5.5	dB	
Eye Width at 10 ⁻¹⁵ probability (EW15)	TP4	0.57			UI	
Eye Height at 10 ⁻¹⁵ probability (EH15)	TP4	228		mV		

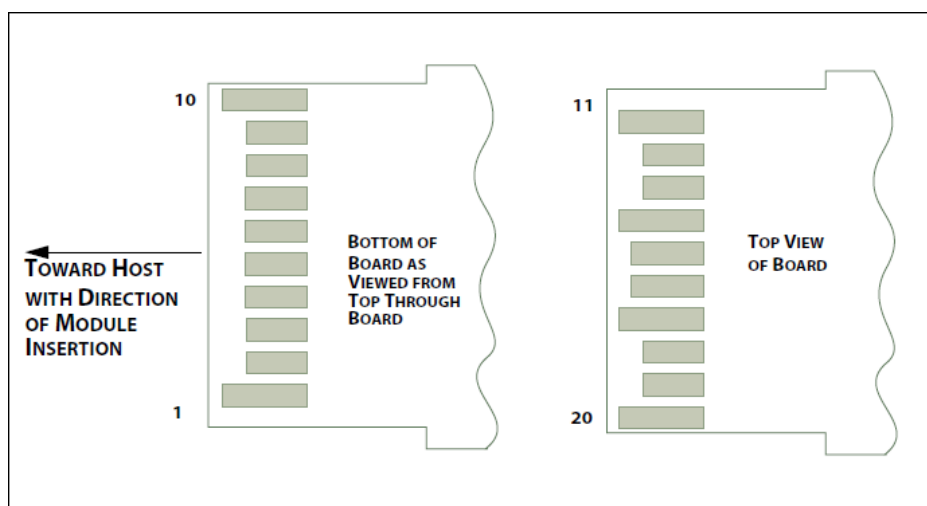
Notes:

1. Per terminal.
2. V_{cm} is generated by the host. Specification includes effects of ground offset voltage.
3. From 250MHz to 30GHz.

► Pin Assignment



Interface to Host



Contact Assignment

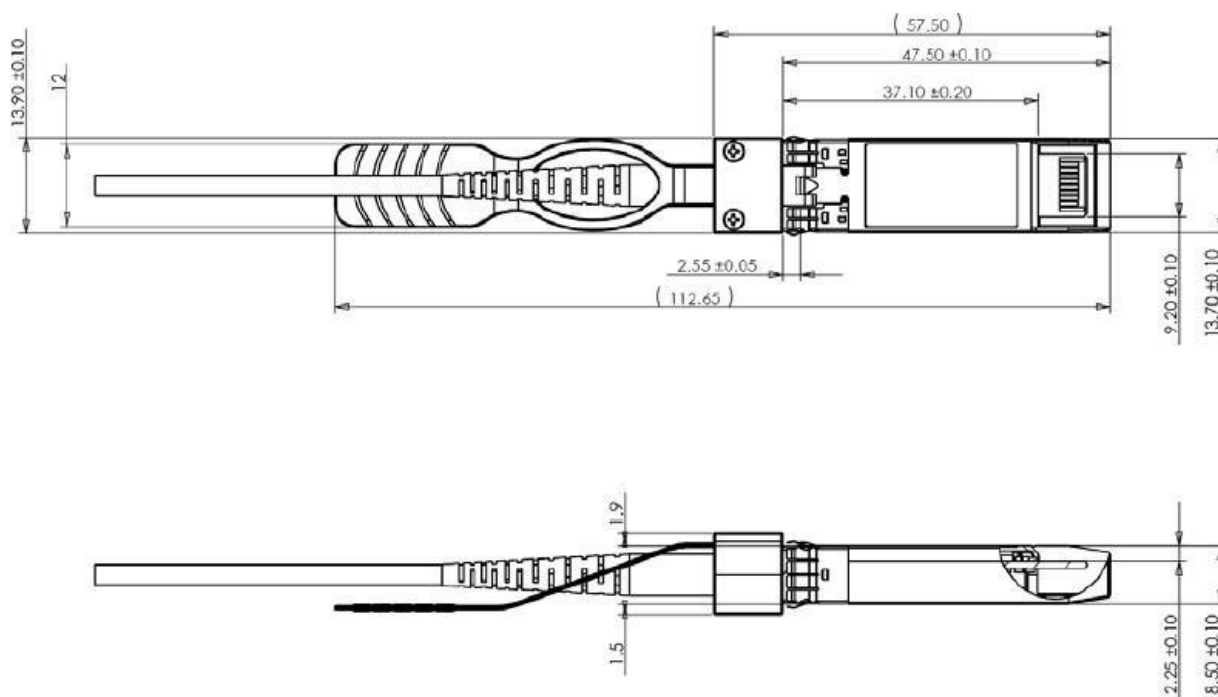
► Pin Description

Pin	Logic	Symbol	Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTL-O	TX_Fault	Module Transmitter Fault	
3	LVTTL-I	TX_Dis	Transmitter Disable; Turns off transmitter laser output	
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	2
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	2
6		MOD-	Module Definition, Grounded in the	
7	LVTTL-I	RS0	No connection required	

Pin	Logic	Symbol	Description	Note
8	LVTTL-O	RX-LOS	Receiver Loss of Signal Indication. Logic 0 indicates normal operation	
9	LVTTL-I	RS1	No connection required	
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 Data Output	
14		VeeR	Module Receiver Ground	1
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Receiver 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

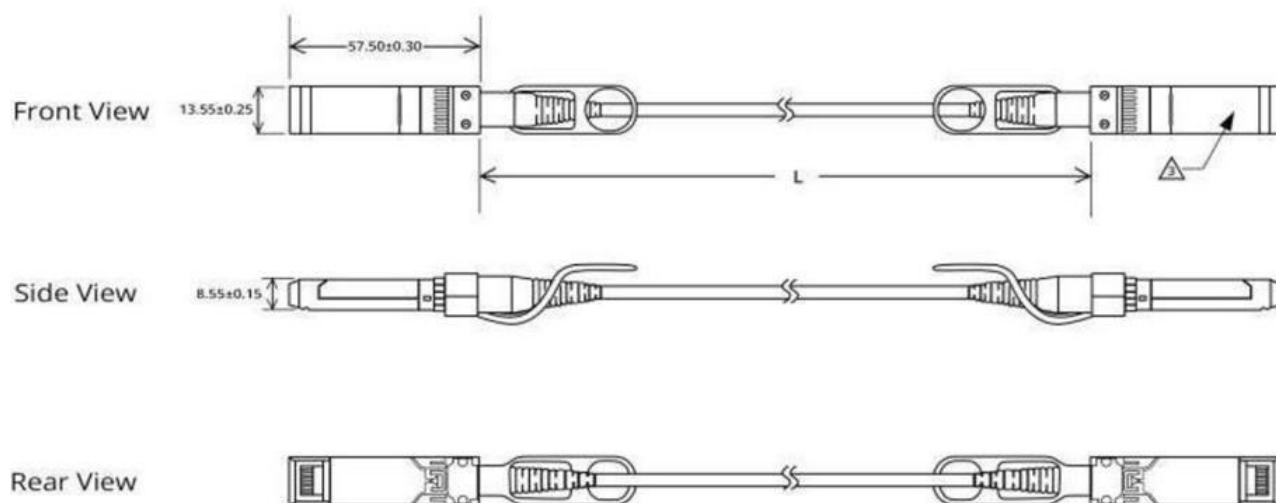
Notes:

1. Module ground pins GND are isolated from the module case.
2. Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

► Dimensions


The length

The length starts at the module connection and the module connection (as shown below). Acceptable Standards are shown below



Acceptable standard

Type	Length(m)		Tolerance (cm)
AOC	$L \leq 1$		+7~-0
	$1 < L < 7$		+10~-0
	$L \geq 7$		+2%~-0

Lable solt size

Type	Size(mm)	Tolerance (mm)
Lable	31mm*10mm	±0.5mm

► Order Information

Part Number	Product Description
STC-25G-AOC	x meter SFP+ Active Optical Cable,x=0.5~100m

Note:

- Cable Length which is 100m maximum can be defined as the customer required.
- Cable Length is defined as the length of the fiber only (not including the SFP28 module-ends).

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