



## Active Optical Cable SFP+ 10Gbps, 50m, MSA Compatible

### Active Optical Cables Technical Data Sheet

**AOCSP10-050**

#### Features

- Up to 11.1Gbps Data rate
- Maximum link length of 100m
- High Reliability 850nm VCSEL technology
- Electrically hot-pluggable
- Electrical interface compliant to SFF-8431
- Case operating temperature range: 0°C to 70°C
- Power dissipation < 1.0W per cable end

#### Applications

- 10G Ethernet Data center Intra-Rack and Inter-Rack links

#### Description

The AOCSP10-050 is an active optical cable designed for use in 10 Gigabit Ethernet links. They are electrically compliant with SFF-8431 and mechanically compliant with SFF-8432. The AOCSP10-050 allows for greater link length than direct attach cables with a lower total cost and lower power consumption than transceiver-based solutions.

#### SFP+ Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40	-	85	°C	
Relative Humidity	RH	5	-	95	%	
Power Supply Voltage	VCC	-0.3	-	4	V	
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V	

#### SFP+ Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0	-	70	°C	Without air flow
Power Supply Voltage	VCC	3.14	3.3	3.46	V	
Power Supply Current	ICC	-		300	mA	per cable end
Data Rate	BR		10.3125		Gbps	

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Active Optical Cable SFP+ 10Gbps, 50m, MSA Compatible AOCSP10-050](#)



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### SFP+ General Product Characteristics

Parameter	Value	Unit	Notes
Module Form Factor	SFP+		
Maximum Data Rate	11.1	Gb/s	
Standard Cable Lengths	3, 5, 7, 10, 50, 100	meters	Other lengths may be available upon request (<= 300m)
Protocols Supported	Typical applications include Infiniband, Fibre Channel, 10G Ethernet		
Electrical Interface and Pin-out	20-pin edge connector		Pin-out as defined by the SFP+ MSA
Standard Optical Cable Type	Multimode ribbon fiber cable assembly		
Maximum Power Consumption per End	1.0	W	per cable end
Management Interface	Serial, I2C-based, 400 kHz maximum frequency		As defined by the SFP+ MSA

### SFP+ Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	NOTE
Supply Voltage	VccT, VccR	3.14	3.3	3.46	V	
Supply Current	Icc			300	mA	
<b>Transmitter</b>						
Differential data input swing	V <sub>in,pp</sub>	180		1000	mV	1
Single ended input voltage tolerance	V <sub>inT</sub>	-0.3		4.0	V	
<b>Receiver</b>						
Differential data output swing	V <sub>out,pp</sub>	300		850	mV	2
Single-ended output voltage		-0.3		4.0	V	

#### Notes:

1. AC coupled internally. Self-biasing 100Ω differential input.
2. AC coupled with 100Ω differential output impedance.

### Mechanical Specifications

Length	1,968.5 in [50 m]
Cable Color	Orange

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an INFINIT<sup>®</sup> brand



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### Environmental Specifications

SFP+

Temperature (Operational)	+0C to +70C
Temperature (Storage)	-40C to +85C
Relative Humidity	5% to 95%

### Compliance Certifications

RoHS Compliant Yes

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Our portfolio includes cable assemblies, connectors, adapters and custom products, as well as their wireless product line which includes antennas, RF amplifiers, coaxial lightning and surge protectors, and NEMA rated enclosures.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Active Optical Cable SFP+ 10Gbps, 50m, MSA Compatible AOCSP10-050](#)

URL: <https://www.l-com.com/active-optical-cable-sfp-10gbps-50m-msa-compatible-aocsp10-050-p.aspx>

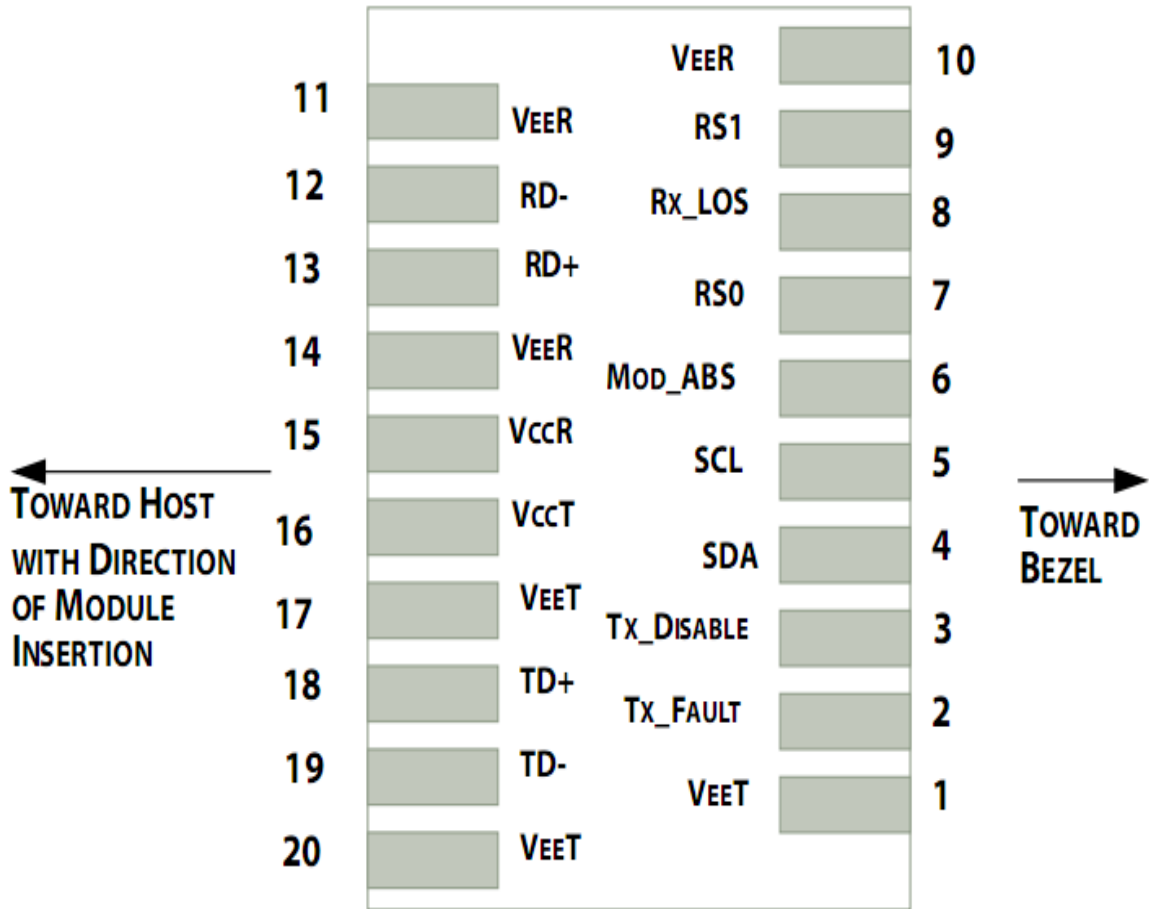
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## SFP+ Pin Assignment



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### SFP+ Pin Assignment Table

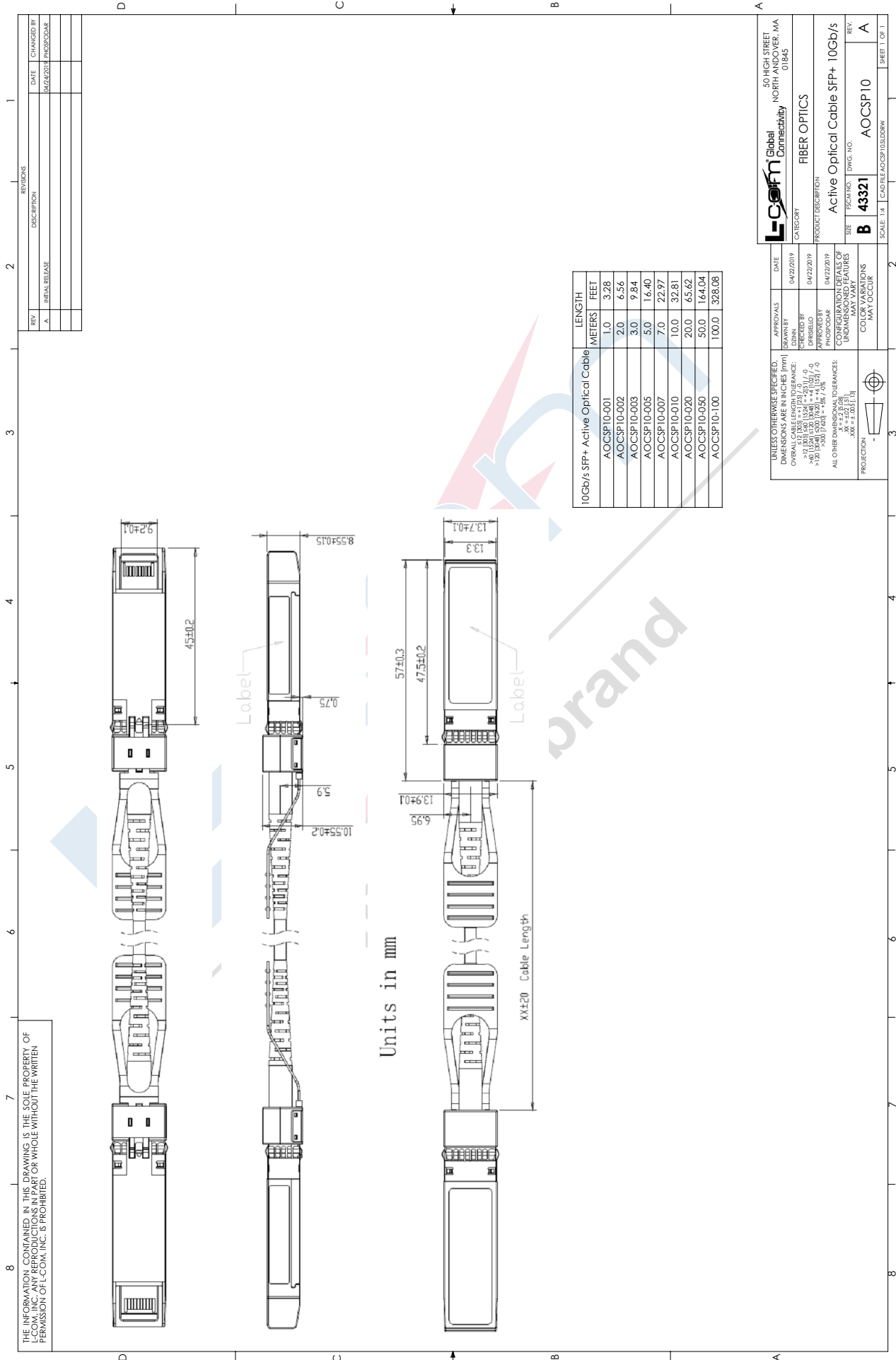
Pin	Symbol	Name/Description	NOTE
1	$V_{EET}$	Transmitter Ground (Common with Receiver Ground)	1
2	$T_{FAULT}$	Transmitter Fault.	2
3	$T_{DIS}$	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD_ABS	Module Absent. Grounded within the module	4
7	RS0	Rate Select 0	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	6
9	RS1	No connection required	1
10	$V_{EER}$	Receiver Ground (Common with Transmitter Ground)	1
11	$V_{EER}$	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	$V_{EER}$	Receiver Ground (Common with Transmitter Ground)	1
15	$V_{CCR}$	Receiver Power Supply	
16	$V_{CCT}$	Transmitter Power Supply	
17	$V_{EET}$	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	$V_{EET}$	Transmitter Ground (Common with Receiver Ground)	1

#### Notes:

1. Circuit ground is internally isolated from chassis ground.
2.  $T_{FAULT}$  is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to  $V_{CC} + 0.3V$ . A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
3. Laser output disabled on  $T_{DIS} > 2.0V$  or open, enabled on  $T_{DIS} < 0.8V$ .
4. Should be pulled up with 4.7k $\Omega$ - 10k $\Omega$  host board to a voltage between 2.0V and 3.6V. MOD\_ABS pulls line low to indicate module is plugged in.
5. Internally pulled down per SFF-8431 Rev 4.1.
6. LOS is open collector output. It should be pulled up with 4.7k $\Omega$  – 10k $\Omega$  on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

# AOCSP10-050 CAD Drawing

## Active Optical Cable SFP+ 10Gbps, 50m, MSA Compatible



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REV	DESCRIPTION	DATE	CHANGED BY
A	INITIAL RELEASE	03/24/2019	PHOSKODAR

**L-com** Global Connectivity  
50 HIGH STREET  
NORTH ANDOVER, MA  
01845

CATEGORY: FIBER OPTICS  
PRODUCT DESCRIPTION: Active Optical Cable SFP+ 10Gb/s  
SIZE: XXX ± .001 [0.1]  
REV: B 43321 AOCSP10  
SCALE: 1:1  
SHEET 14 OF 14  
CADD: AOCSP10U30DW

APPROVALS	DATE
DRAWN BY: PHOSKODAR	04/22/2019
CHECKED BY: PHOSKODAR	04/22/2019
APPROVED BY: PHOSKODAR	04/22/2019

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES (mm).  
OVERALL LENGTH TOLERANCE:  
0.131 (3.3) - 0.134 (3.4) ± .001 [0.025]  
>0.134 (3.4) - 0.137 (3.5) ± .001 [0.025]  
>0.137 (3.5) - 0.140 (3.6) ± .001 [0.025]  
ALL OTHER DIMENSIONAL TOLERANCES:  
X ± .001 [0.025]  
Y ± .001 [0.025]  
Z ± .001 [0.025]  
XXX ± .001 [0.025]

CONFIGURATION DETAILS OF UNUSUAL FEATURES MAY VARY  
COLOR VARIATIONS MAY OCCUR