

56G QSFP+ Active Optical Cable (AOC)



Application

- 10G/40Gigabit Ethernet
- Data Center

Features

- 4 channels 850nm VCSEL and PIN
- Hot Pluggable QSFP form factor
- 3.3V power supply voltage
- Electrical interface compliant to SFF-8436
- Built-in digital diagnostic functions
- Round OFNP-rated cable
- Operating case temperature 0° C to +70° C
- Support 56Gbps data rate
- UL certification cables (optional)

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Storage Temperature	T_{STG}	-20		85	°C	
Case Operating Temperature	T_{Case}	0		70	°C	
Supply Voltage	V_{CC}	-0.5	3.3	3.6	V	
Input Voltage	V_{ilvttl}	-0.5		$V_{CC}+0.5$	V	

II. Recommended Operating Environment

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Case Operating Temperature	T_{Case}	0		70	°C	
Supply Voltage	V_{CC}	3.15	3.3	3.45	V	
Differential data input voltage per lane	V_{din}	200		1200	mV	
Signaling rate per lane	D_r	1.25	14.025		Gbit/s	
Differential Termination Resistance				10%		

III. Electrical Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Bit Error Ratio	BER			10^{-12}		
Differential data output voltage per lane	V_{OUTpp}	320	450		mV	
Differential Termination Resistance	Z_{out}	80	100	120	Ω	

Module total power

P

1.5

W

Transmit turn-on time

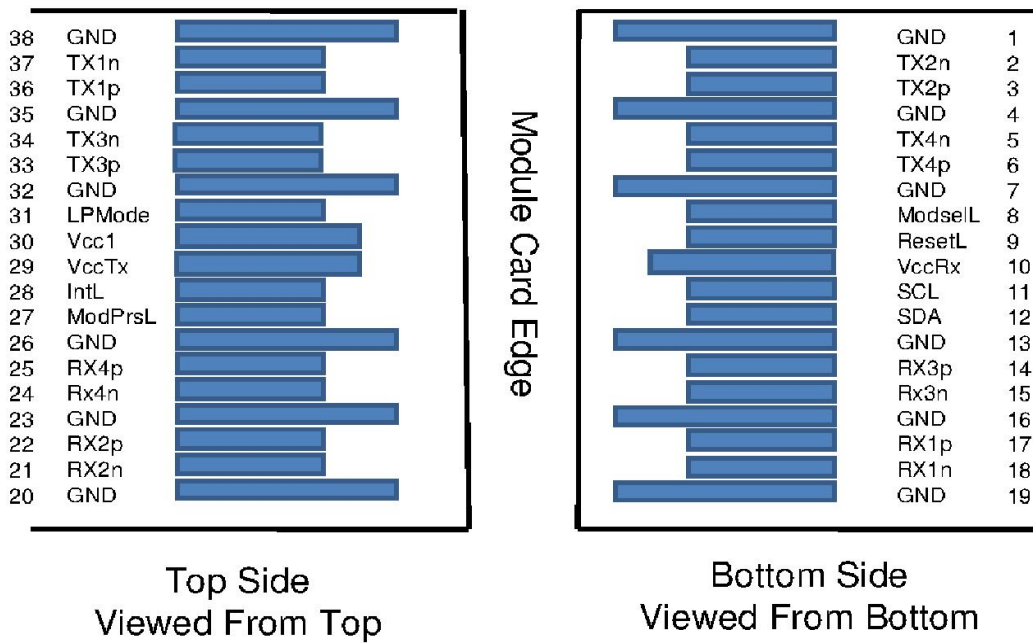
2000

ms

Note:

Tested with a PRBS31 test pattern.

IV. Pin Assignment

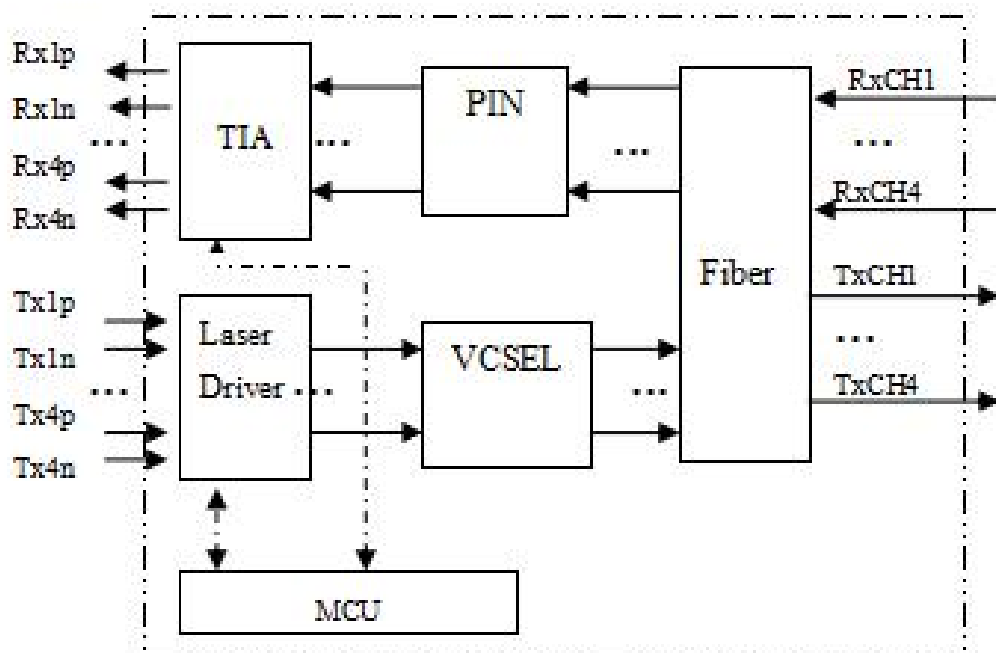


Pin	Symbol	Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground

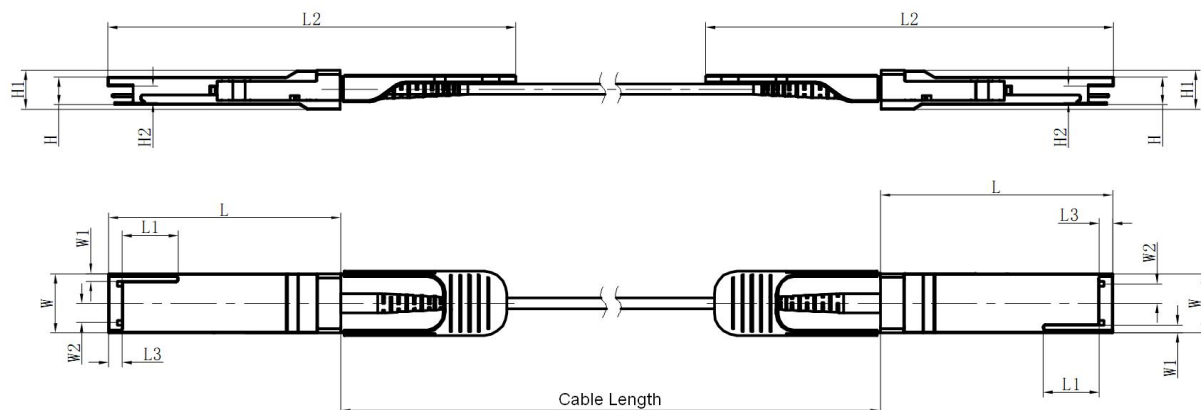
8	ModSelL	Module Select
9	ResetL	Module Reset
10	VccRx	+3.3 V Power Supply Receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output
22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	VccTx	+3.3V Power supply transmitter
30	Vcc1	+3.3V Power supply
31	LPMode	Low Power Mode

32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

V. Diagram Mechanical Drawing



VI. Diagram Mechanical Drawing



Unit: mm

	L	L1	L2	L3	W	W1	W2	H	H1	H2
MAX	72.2	—	122	4.35	18.45	—	6.2	8.6	12.0	5.35
Typical	72.0	—	—	4.20	18.35	—	—	8.5	11.8	5.2
MIN	68.8	16.5	118	4.05	18.25	2.2	5.8	8.4	11.6	5.05

Cable Length Tolerant

Cable Length (Unit: m)	Tolerant (Unit: cm)
< 1.0	+5/-0
1.0~4.5	+15/-0
5.0~14.5	+30/-0
≥15.0	+2%/-0

Test Center

FS.COM transceivers are tested to ensure connectivity and compatibility in our test center before shipped out. FS.COM test center is supported by a variety of mainstream original brand switches and groups of professional staff, helping our customers make the most efficient use of our products in their systems, network designs and deployments.

The original switches could be found nowhere but at FS.COM test center, eg: Juniper MX960 & EX 4300 series, Cisco Nexus 9396PX & Cisco ASR 9000 Series, HP 5900 Series & HP 5406R ZL2 V3(J9996A), Arista 7050S-64, Brocade ICX7750-26Q & ICX6610-48, Avaya VSP 7000 MDA 2, etc.



Cisco ASR 9000 Series(A9K-MPA-1X40GE)



ARISTA 7050S-64(DCS-7050S-64)



Juniper MX960



Brocade ICX 7750-26Q



Extreme Networks X670V VIM-40G4X



Mellanox M3601Q



Dell N4032F



HP 5406R ZL2 V3(J9996A)



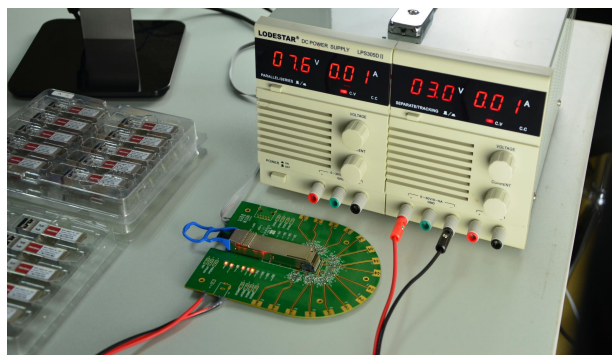
AVAYA 7024XLS(7002QQ-MDA)

Test Assured Program

FS.COM truly understands the value of compatibility and interoperability to each optics. Every module FS.COM provides must run through programming and an extensive series of platform diagnostic tests to prove its performance and compatibility. In our test center, we care of every detail from staff to facilities—professionally trained staff, advanced test facilities and comprehensive original-brand switches, to ensure our customers to receive the optics with superior quality.



Our smart data system allows effective product management and quality control according to the unique serial number, properly tracing the order, shipment and every part.



Our in-house coding facility programs all of our parts to standard OEM specs for compatibility on all major vendors and systems such as Cisco, Juniper, Brocade, HP, Dell, Arista and so on.



With a comprehensive line of original-brand switches, we can recreate an environment and test each optics in practical application to ensure quality and distance.



The last test assured step to ensure our products to be shipped with perfect package.

Order Information

Part Number	Data Rate	Length	Wire Gauge	Connector Type	Temp.Range	Cable Jacket
QSFP56-AO01	Up to 56G	1m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO02	Up to 56G	2m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO03	Up to 56G	3m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO05	Up to 56G	5m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO10	Up to 56G	10m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO15	Up to 56G	15m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO20	Up to 56G	20m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO25	Up to 56G	25m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO30	Up to 56G	30m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP
QSFP56-AO50	Up to 56G	50m	QSFP+ to QSFP+	AOC Cable	0-70°C	OFNP



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