

QSFP-56G-AOCxM

56Gbps QSFP+ to QSFP+ Active Optical Cables

1M, 2M, 3M, 5M, 10M, 15M, 20M, 25M, 30M 50M Reach



Product Features

- ❖ Support Infiniband and Fibre Channel application
- ❖ Compliant to QSFP+ Electrical MSA SFF-8436
- ❖ Multi rate of up to 14.025Gbps
- ❖ +3.3V single power supply
- ❖ Transmission distance up to 150m
- ❖ Low power consumption

- ❖ Operating case temp Commercial: 0°C to +70 °C
- ❖ RoHS compliant

Applications

- ❖ InfiniBand FDR at 56Gb
- ❖ 16G Fibre Channel at 14Gb per lane
- ❖ Super Computer
- ❖ Other optical links

Absolute Maximum Ratings

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Supply Voltage	Vcc ₃	-0.5	-	+3.6	V	
Storage Temperature	Ts	-10	-	+70	°C	
Operating Humidity	RH	+5	-	+85	%	No condensation

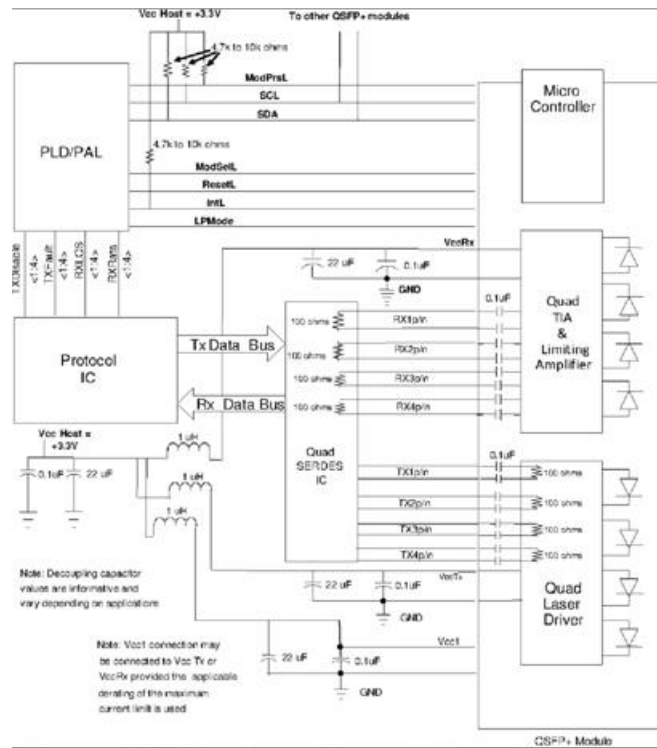
Recommended Operating Conditions & Su

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	TC	0	-	+70	°C	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Dissipation	Pd	-	-	1.5	W	Per terminal
Bit Rate	BR	1.25	14.025	-	Gbps	

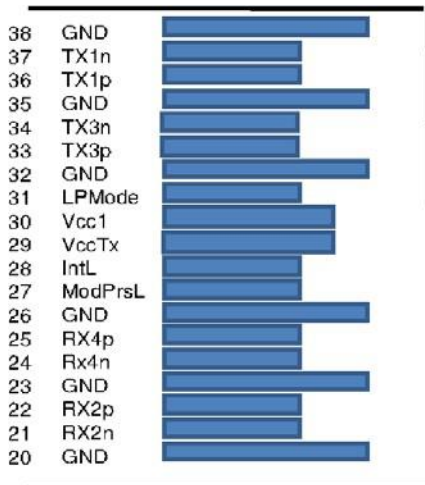
Electrical Characteristics

Parameter		Symbol	Min	Typical	Max	Units	Notes
ModSelL	Module Select	V_{OL}	0	-	0.8	V	
	Module Unselect	V_{OH}	2.5	-	V_{CC}	V	
LPMode	Low Power Mode	V_{IL}	0	-	0.8	V	
	Normal Operation	V_{IH}	2.5	-	$V_{CC}+0.3$	V	
ResetL	Reset	V_{IL}	0	-	0.8	V	
	Normal Operation	V_{IH}	2.5	-	$V_{CC}+0.3$	V	
ModPrsL	Normal Operation	V_{OL}	0	-	0.4	V	
IntL	Interrupt	V_{OL}	0	-	0.4	V	
	Normal Operation	V_{oH}	2.4	-	V_{CC}	V	
Electrical Transmitter Characteristics							
Differential Date Input Swing		V_{out}	200	-	1600	mV	
Output Differential Impedance		Z_D	90	100	110	Ω	
Electrical Receiver Characteristics							
Differential Data Output Swing		$V_{in,P-P}$	350	-	800	mVPP	
Bit Error Rate		BER			E-12		PRBS2 ³¹ -1@14.025Gbps
Input Differential Impedance		Z_{IN}	90	100	110	Ω	

Recommended Interface Circuit

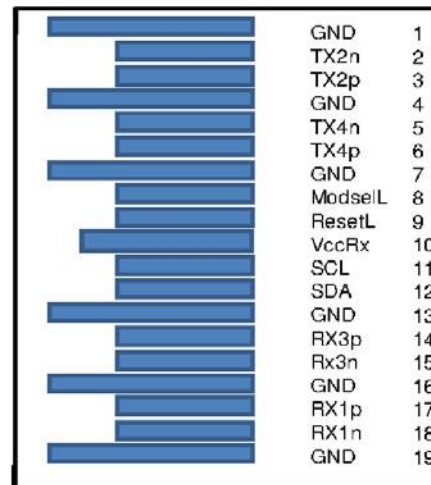


Pin Arrangement



Top Side
Viewed From Top

Module Card Edge



Bottom Side
Viewed From Bottom

Pin Function Definitions

Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1

27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power supply	
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

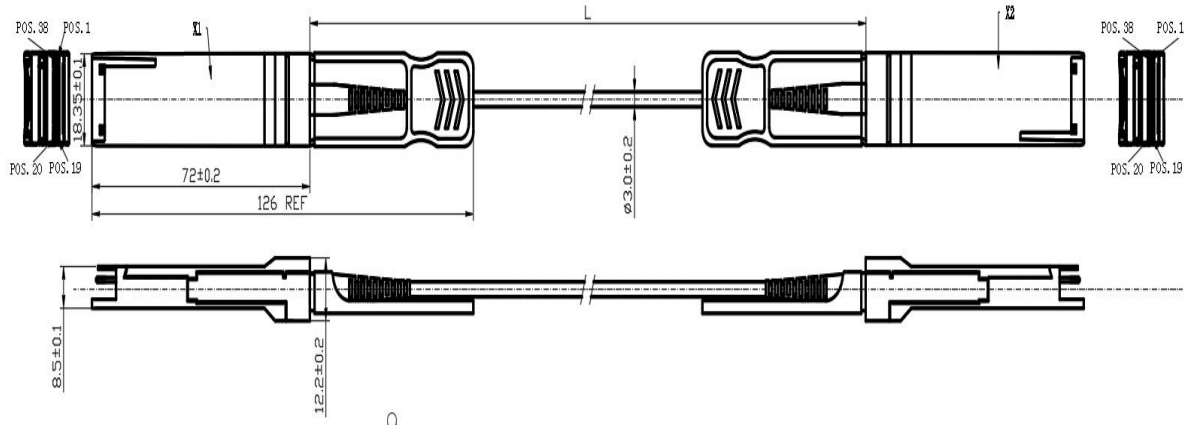
Note: 1. Circuit ground is internally isolated from chassis ground.

Monitoring Specification

2-Wire Serial Address 1010000x	
Lower Page 00h	
0	Identifier
1- 2	Status
3- 21	Interrupt Flags
22- 33	Free Side Device Monitors
34- 81	Channel Monitors
82- 85	Reserved
86- 98	Control
99	Reserved
100-104	Hardware Interrupt Pin Masks
105-106	Vendor Specific
107	Reserved
108-110	Free Side Device Properties
111-112	Assigned for use by PCI Express
113	Free Side Device Properties
114-118	Reserved
119-122	Password Change Entry Area (Optional)
123-126	Password Entry Area (Optional)
127	Page Select Byte

Upper Page 00h	Optional Page 01h	Optional Page 02h	Optional Page 03h
128 Identifier	128 CC_APPS	128-255 User EEPROM Data	128-175 Free Side Device Thresholds
129-191 Base ID Fields	129 AST Table Length (TL)		
	130-131 Application Code Entry 0		
	132-133 Application Code Entry 1		
	134-253 other entries		
192-223 Extended ID		176-223 Channel Thresholds	
224-255 Vendor Specific ID		224 Tx EQ & Rx Emphasis Magnitude ID	
		225 RX output amplitude indicators	
		226-241 Channel Controls	
		242-251 Channel Monitor Masks	
	254-255 Application Code Entry TL	252-255 Reserved	

Mechanical Dimensions



Ordering Information

Part Number	Product Description
QSFP-56G-AOC1M	56G QSFP+ to QSFP+ Active Optical Cable, 1m (3ft), 0° C ~ +70° C
QSFP-56G-AOC2M	56G QSFP+ to QSFP+ Active Optical Cable, 2m (7ft), 0° C ~ +70° C
QSFP-56G-AOC3M	56G QSFP+ to QSFP+ Active Optical Cable, 3m (10ft), 0° C ~ +70° C
QSFP-56G-AOC5M	56G QSFP+ to QSFP+ Active Optical Cable, 5m (16ft), 0° C ~ +70° C
QSFP-56G-AOC10M	56G QSFP+ to QSFP+ Active Optical Cable, 10m (33ft), 0° C ~ +70° C
QSFP-56G-AOC15M	56G QSFP+ to QSFP+ Active Optical Cable, 15m (49ft), 0° C ~ +70° C
QSFP-56G-AOC20M	56G QSFP+ to QSFP+ Active Optical Cable, 20m (66ft), 0° C ~ +70° C
QSFP-56G-AOC25M	56G QSFP+ to QSFP+ Active Optical Cable, 25m (82ft), 0° C ~ +70° C
QSFP-56G-AOC30M	56G QSFP+ to QSFP+ Active Optical Cable, 30m (98ft), 0° C ~ +70° C
QSFP-56G-AOC50M	56G QSFP+ to QSFP+ Active Optical Cable, 50m (164ft), 0° C ~ +70° C