

200G QSFP56 SR4 100 m Transceiver

QSFP56 Series



- **Compliant with 200G-SR4 optical specifications**
- **Hot-pluggable QSFP form factor**
- **CMIS4.0 or SFF8636 compliant**
- **SFF-8679 compliant**
- **Low power consumption**
- **Single MPO12 connector**
- **RoHS compliant**

Ascent's QSFP56-200G-SR01 QSFP56 Optical Transceiver Module is designed for 200GBASE Ethernet throughput over MPO-12 connectors using OM3 or OM4 multimode fiber (MMF) with a wavelength of 850 nm up to 100m (70 m for OM3).

The transceiver is compliant with IEEE 802.3cd and SFF-8679 standards. It is suitable for data centers, high performance computing networks, enterprise core and distribution layer applications.

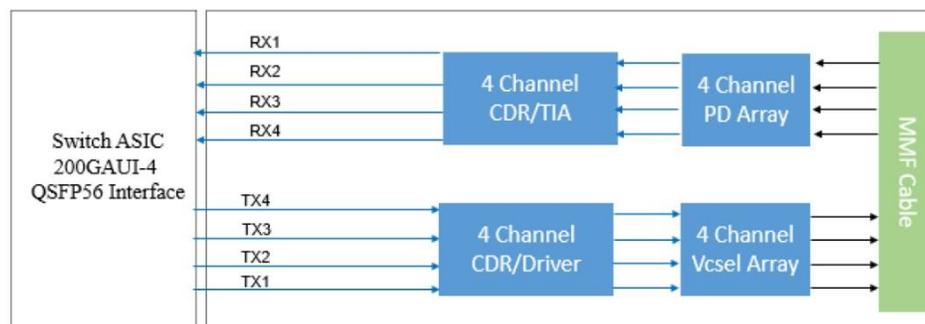
The 200G QSFP56 SR4 Transceiver is designed to transmit and receive serial optical data links up to 53.125 Gb/s data rate (per channel) over multi-mode fiber.

QSFP56-200G-SR01 can be used in Data Centers, High-speed interconnects within and between switches, routers and transport equipment, Server-Server Clusters, Super-computing interconnections and other network applications.

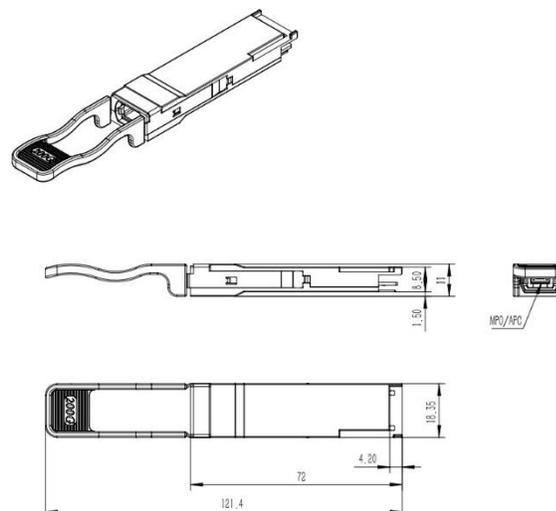
Key Features

- Compliant with 200G-SR4 optical specifications
- Hot-pluggable QSFP form factor
- CMIS4.0 or SFF8636 compliant
- SFF-8679 compliant
- Compliant with IEEE 802.3cd
- Digital diagnostic functions
- 4x53.125 Gb/s electrical interface (200GAUI-4)
- Low power consumption
- Operating case temperature: 0 °C to +70 °C
- Maximum link length of 70 m with MMF OM3, 100 m with MMF OM4
- Single MPO12 connector
- RoHS compliant

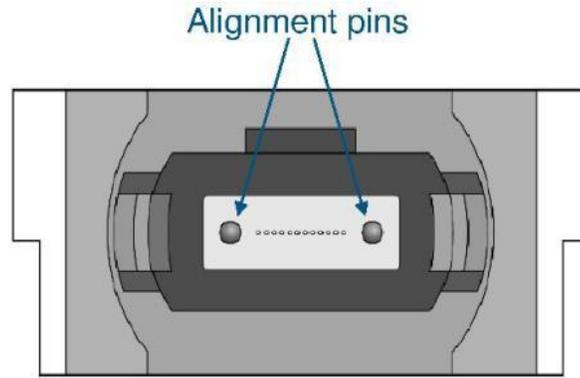
Block Diagram



Outline Diagram

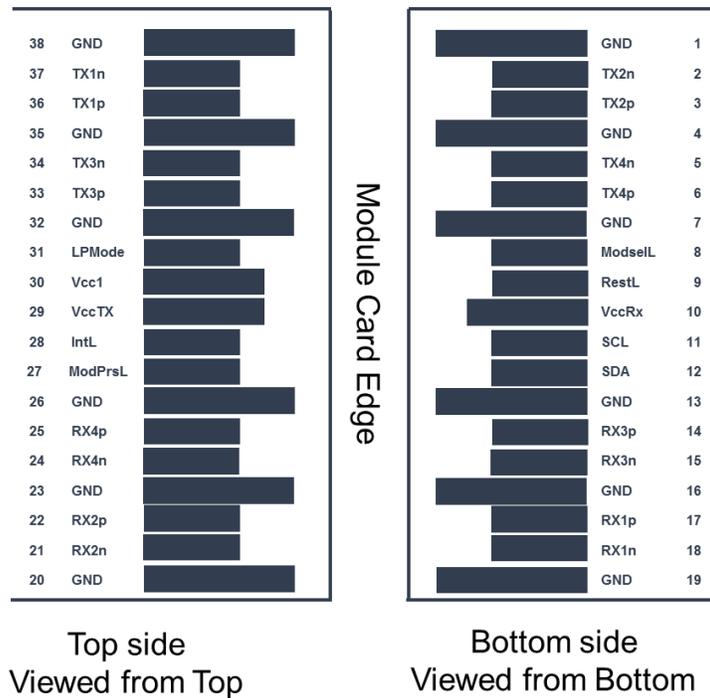


Optical Interface



Transmit Channels: 1 2 3 4
 Unused positions: x x x x
 Receive Channels: 4 3 2 1

Pin Assignment



Pin	Logic	Symbol	Description	Note
1		GND	Ground	
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Ground	1
8	LVTTL-I	ModSelL	Module Select	2
9	LVTTL-I	ResetL	Module Reset	2
10		VccRx	+3.3V Power Supply	

Pin	Logic	Symbol	Description	Note
11	LVC MOS-I/O	SCL	2-wire Serial Interface Clock	2
12	LVC MOS-I/O	SDA	2-wire Serial Interface Data	2
13		GND	Ground	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3V Power Supply	
30		Vcc1	+3.3V Power Supply	
31	LVTTL-I	LPMODE	Low Power Mode	2
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Input	
35		GND	Ground	
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Input	
38		GND	Ground	1

Notes:

1. GND is the symbol for signal and supply (power) common for the module. All are common within the module and all module voltages are reference to this potential unless otherwise noted. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector, should be pulled up with 4.7 kΩ to 10 kΩ on the host board to a voltage between 3.15 V and 3.6 V.

Specifications

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V _{CC}	-0.3	3.6	V	
Input Voltage	V _{in}	-0.3	V _{CC} +0.3	V	
Storage Temperature	T _{st}	-40	85	°C	
Operating Case Temperature	T _{op}	0	70	°C	
Humidity	RH	10	85	%	(Non-Condensing)
Receiver Damage Threshold, each lane	P _{in}	5		dBm	
Maximum Power Consumption	P _{max}		4	W	

Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Unit	Note
Operating Case Temperature	Tcase	0	-	70	
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	

Note: Without air flow.

Optical Characteristics

Parameter	Min.	Typ.	Max.	Unit	Note
Transmitter					
Signaling Rate, each Lane	26.5625 ppm ± 100 ppm			GBd	
Center Wavelength Range	840		860	nm	
Modulation Format	PAM4				
RMS Spectral Width			0.6	nm	
Average Launch Power, each Lane	-6.5		4	dBm	
Outer Optical Modulation Amplitude (OMA _{outer}), each Lane	-4.5		3	dBm	
Launch Power in OMA _{outer} minus TDECQ	-5.9			dBm	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each Lane			4.5	dB	
Extinction Ratio, each Lane	3			dB	
Optical Return Loss Tolerance			12	dB	
Encircled Flux	≥86% at 19um ≤30% at 4.5um				
Receiver					
Signaling Rate, each Lane	26.5625 ppm ± 100 ppm			GBd	
Center Wavelength Range	840		860	nm	
Modulation Format	PAM4				
Average Receive Power, each Lane	-8.4		4	dBm	
Receive Power, each Lane (OMA _{outer})			3	dBm	
Receiver Reflectance			-12	dB	
Stressed Receiver Sensitivity (OMA _{outer}), each Lane			-3.4	dBm	
Receiver Sensitivity (OMA _{outer}), each Lane	Max(-6.5, SECQ-7.9)			dBm	
Stressed Eye Closure for PAM4 (SECQ), Lane Under Test		4.5		dB	
SECQ – 10log10(Ceq) (Max.), Lane Under Test			4.5	dB	

Ordering Information

Product Name	Product Description
QSFP56-200G-SR01	QSFP56 Plug-in, 200GBASE-SR4 850 nm 100 m optical transceiver, MPO-12 Male, DOM

Contact Information



Ascent Communication Technology Ltd

AUSTRALIA

140 William Street, Melbourne
Victoria 3000, AUSTRALIA
Phone: +61-3-8691 2902

Hong Kong SAR

Room 1210, 12th Floor, Wing Tuck Commercial Centre
181 Wing Lok Street, Sheung Wan , Hong Kong SAR
Phone: +852-2851 4722

CHINA

Unit 1933, 600 Luban Road
200023, Shanghai, CHINA
Phone: +86-21-60232616

USA

2710 Thomes Ave
Cheyenne, WY 82001, USA
Phone: +1 203 350 9822

EUROPE

Pfarrer-Bensheimer-Strasse 7a
55129 Mainz, GERMANY
Phone: +49 (0) 6136 926 3246

VIETNAM

11th Floor, Hoa Binh Office Tower
106 Hoang Quoc Viet Street, Nghia Do Ward
Cau Giay District, Hanoi 10649, VIETNAM
Phone: +84-24-37955917

WEB: www.ascentcomtec.com

EMAIL: sales@ascentcomtec.com

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