

EQP200-SR4

200G QSFP56 SR4 Optical Transceiver

PRODUCT FEATURES

- **Compliant with 200G-SR4 optical specifications**
- **4x53.125Gb/s electrical interface (200GAUI-4)**
- **Reach up to 70m on MMF(OM3)**
- **Reach up to 100m on MMF(OM4)**
- **Single +3.3V power supply**
- **Case temperature range: 0 ~ +70°C**
- **Maximum power consumption 4W**
- **Single MPO12 connector**
- **RoHS complaint**

APPLICATIONS

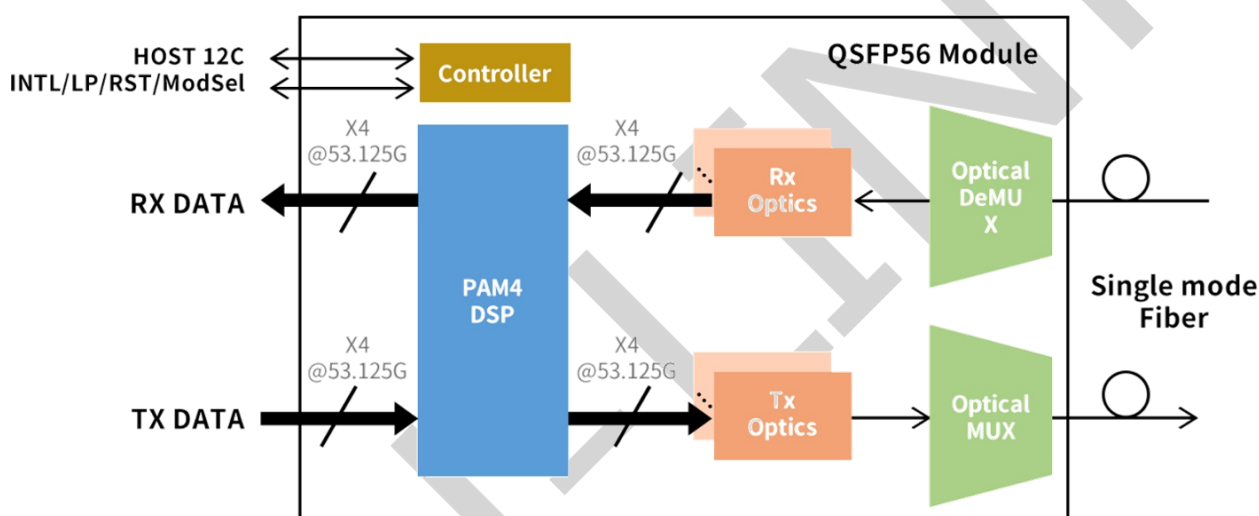
- **200G BASE-SR4 Ethernet links**
- **Data centers**

DESCRIPTIONS

The ETU200G QSFP56 SR4 is a 4x 53.125Gbps multi mode fiber, hot pluggable optical transceiver.

The module integrates four parallel lanes with baud rate at 26.5625GBd each lane. It can transmit up to 70m on fiber OM3 fiber or 100m on OM4 fiber with FEC.

Module Block Diagram



Ordering Information

Part No.	Data Rate(optical)	Laser	Fiber Type	Distance	Optical Interface	Temp	DDMI
EQP200-SR4	200G	VCSEL	MMF	100m	MPO12	0 ~ +70°C	Yes

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Power Supply Voltage	Vcc	-0.3	3.6	V
Input Voltage	Vin	-0.3	Vcc+0.3	V
Storage Temperature	Tst	-40	85	°C
Case Operating Temperature	Top	0	70	°C
Humidity(non-condensing)	RH	10	85	%

Receiver Damage Threshold, each lane	Pin	5		dBm
Maximum Power Consumption	Pmax		4	W

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0	-	70	°C	Without air flow
Power Supply Voltage	VCC	3.135	3.3	3.465	V	

Electrical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Supply Voltage	VCC VCC3.3-Tx VCC3.3-Rx	V	3.135	3.3	3.465	
Power Consumption	Pc	W			6.5	
Transceiver Power-on Initialize Time		ms			2000	
Transmitter						
Differential peak-to-peak input voltage tolerance		mV	900			
Differential termination mismatch		%			10	
Differential input return loss(SDD11)		dB			See CEI-56G-VSR	
Common-mode to differential conversion and differential to common-mode conversion(SCD11,SDC11)		dB			See CEI-56G-VSR	
Receiver						
Differential peak-to-peak output voltage		mV			900	
DC Common Mode Voltage	Vcm	mV	-0.35		2.85	
AC Common Mode Noise, RMS		mV			17.5	
Differential termination mismatch		%			10	
Differential output return loss(SDD22)		dB			See CEI-56G-VSR	
Common-mode to differential conversion and differential to common-mode conversion(SCD22,SDC22)		dB			See CEI-56G-VSR	
IIC communication						
IIC Clock frequency	-	KHZ	/	400	1000	
clock stretching	-	us	/	/	500	
Data hold time	-	ns	/	/	/	

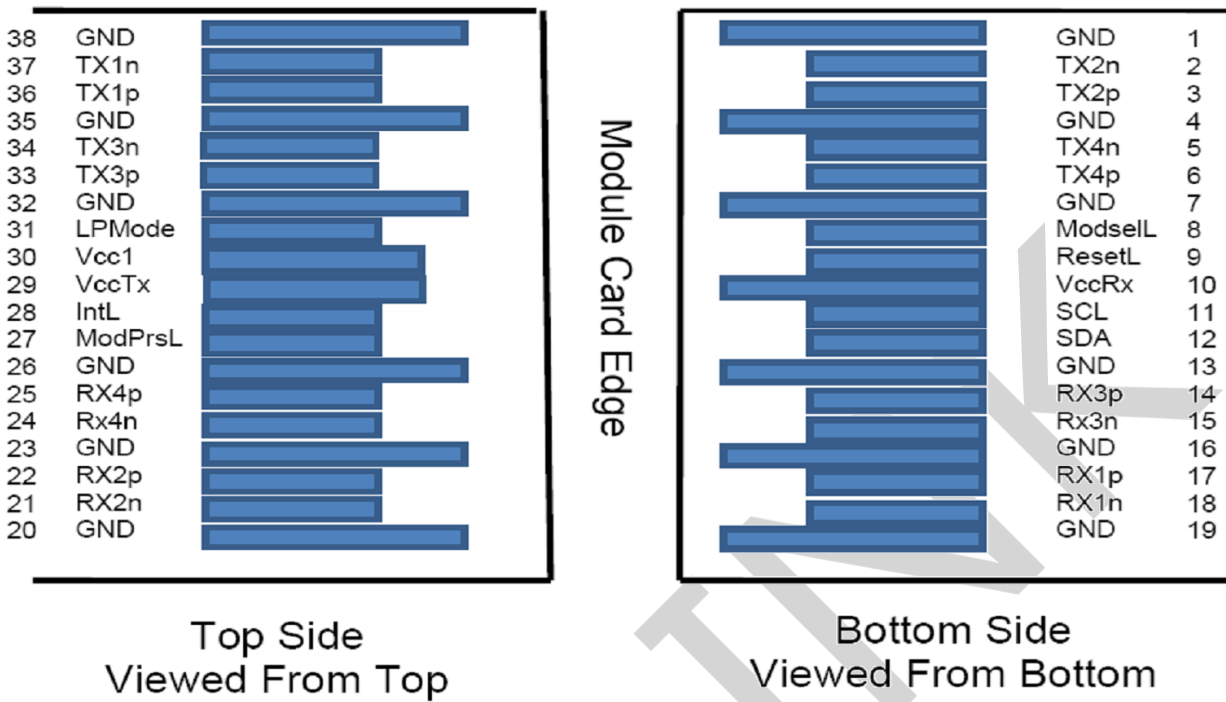
Optical and Characteristics

Parameter	Min	Typical	Max	Unit
Transmitter				
Signaling Rate, each lane (range)	26.5625±100ppm			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 (range)	26.5625±100ppm			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

Digital Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	0 to 70	±3	°C	Internal
Voltage	0 to VCC	3%	V	Internal
Tx Bias Current (Each Lane)	0 to 10	10%	mA	Internal
Tx Output Power (Each Lane)	-6.5 to +4	±3	dB	Internal
Rx Receive Power (Each Lane)	-8.4 to +4	±3	dB	Internal

Pin Diagram



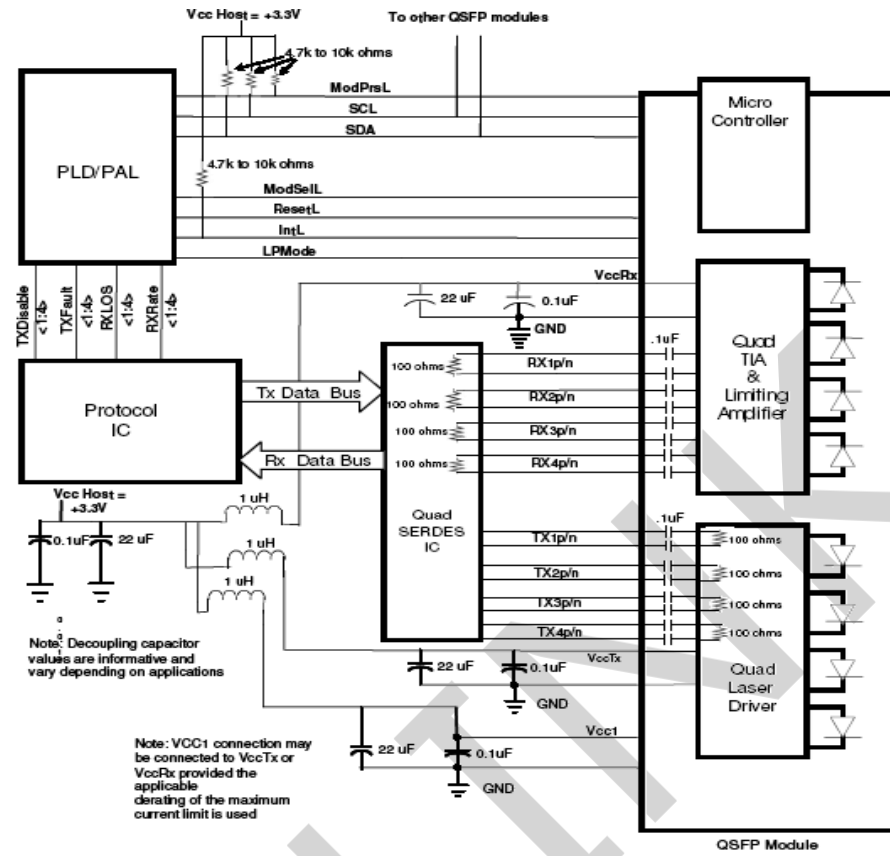
Pin Definitions

The electrical interface to the transceiver is a 38 pins edge connector. The 38 pins provide high speed data, low speed monitoring and control signals, I2C communication, power and ground connectivity. The top and bottom views of the connector are provided below, as well as a table outlining the contact numbering, symbol and full description.

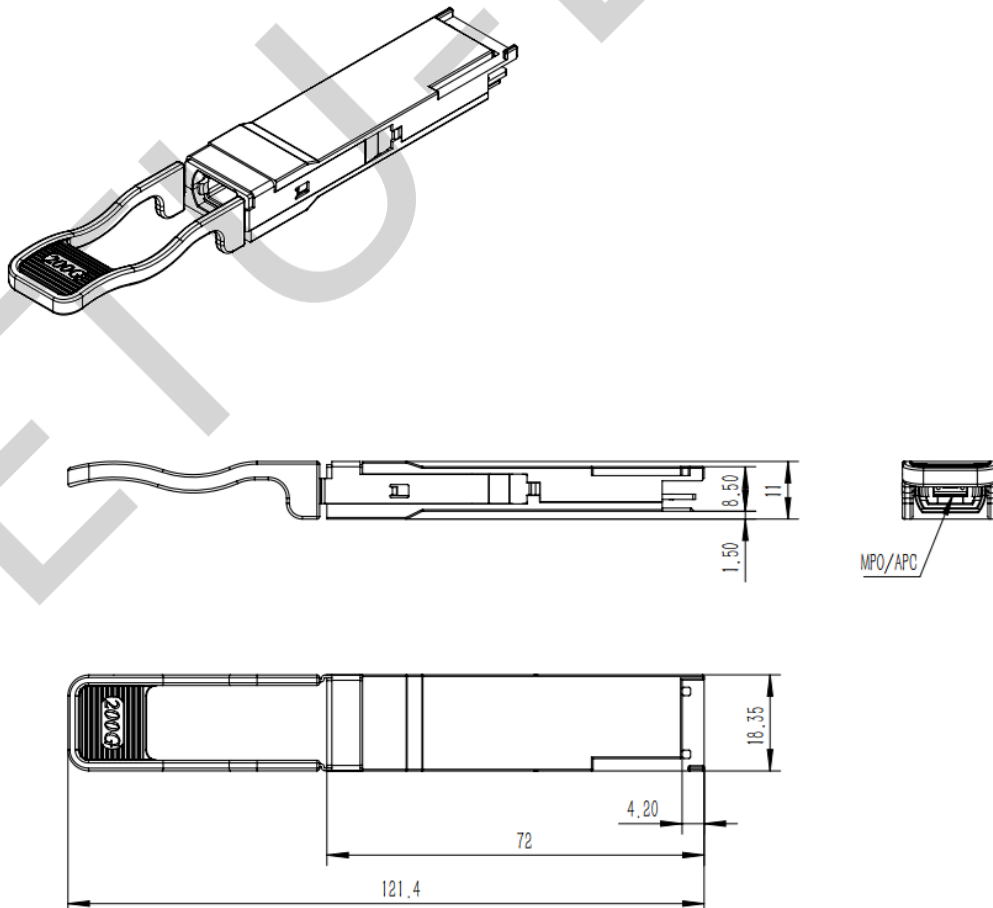
Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply 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	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc1	+3.3 V 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

Recommended Interface Circuit



Mechanical Diagram



Revision History

Version No.	Date	Description
1.0	July 18, 2021	Preliminary datasheet
2.0	Sep 20,2024	Format change

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