

QSFP56-FR4-200GD

200GBASE, QSFP56, FR4, SMF TRANSCEIVER 1310nm, 2km REACH, DUPLEX LC CONNECTOR

Product Features

- Up to 50Gbps data rate per channel by PAM4 modulation
- 4 duplex channels transmitters and receivers
- 4 CWDM lanes MUX/DEMUX design
- LC/UPC connecting interface compliant.
- Single +3.3V power supply
- DDM function implemented.
- Hot-pluggable QSFP56 form factor
- Transmission length up to 2km with FEC
- Low power dissipation: <6.5w
- Compliant with ROHS10
- International class 1 laser safety certified
- Standards:
 - IEEE 802.3bs 200GBASE-FR4 Compliant
 - CMIS Rev 4.0
 - OIF-CEI-04.0 56G-VSR-PAM4
 - QSFP56 MSA Compliant
- Case operating temperature:
 - Commercial: 10 ~ 60°C



Product Applications

- 200GBASE-FR4 Ethernet
- Switch & Router Connections
- Data Centers
- Other 200G Interconnect Requirements.

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature Range	Ts	-40		+85	°C
Power Supply Voltage	Vcc	-0.5		3.6	V
Relative Humidity (non-condensation)	RH	0		85	%

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	10		+60	°C	
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Baud Rate (per channel)	BR		26.5625		GBd	
Link Distance (SMF)	D			2	km	

III. Optical Characteristics

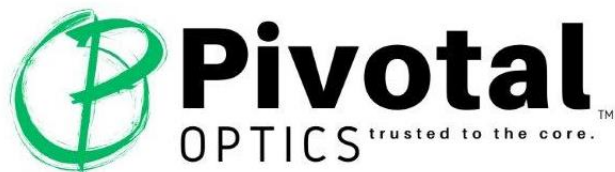
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Center Wavelength (range)	L0	1264.5	1271	1277.5	nm	
	L1	1284.5	1291	1297.5	nm	
	L2	1304.5	1311	1317.5	nm	
	L3	1324.5	1331	1337.5	nm	
Signaling Speed (each lane)			26.5625		GBd	
Transmitter (per lane)						
Modulation Format			PAM4			
Side-Mode suppression ratio	SMSR	30				
Average Launch Power (each lane)	Pavg	-4.2		4.7	dBm	
Tx OMA (per lane)	TxOMA	-1.2		4.5	dBm	
Extinction Ratio	ER	3.5			dB	
Transmitter and Dispersion eye closure for PAM4 (per lane)	TDECQ			3.3	dB	
Optical Return Loss Tolerance	ORL			16.5	dB	
Relative Intensity Noise	RIN			-132	dB/Hz	
Receiver (per lane)						
Damage Threshold	DT	5.7			dBm	
Average Receive Power (per lane)	RXP	-8.2		4.7	dBm	
Receiver reflectance	Rfl			-26	dB	
Difference in receive power between any two lanes				4.1	dB	
Receiver Sensitivity (OMAouter)				-6	dBm	@2.4e-4
Stressed Receiver Sensitivity (OMAouter)				-3.6	dBm	@2.4e-4

IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	P			6	W	
Supply Current	I _{cc}			1.81	A	
Signaling Rate (each lane)	TP1 & TP4	26.5625 ± 100 ppm			GBd	TX & RX
Transmitter (each lane)						
Differential pk-pk Input Voltage Tolerance	TP1a	900			mVpp	1
Differential termination mismatch	TP1			10	%	
Differential input return loss	TP1	IEEE 802.3-2015 Equation (83E-5)			dB	
Differential to Common Mode Input Return Loss	TP1	IEEE 802.3-2015 Equation (83E-6)			dB	
Module Stressed Input Test	TP1a	See IEEE 802.3bs 120E.3.4.1				2
Single-ended Voltage Tolerance Range (Min)	TP1a	-0.4 to 3.3			V	
DC Common Mode Input Voltage	TP1	-350		2850	mV	3
Receiver (each lane)						
Differential pk-pk Output Voltage	TP4			900	mVpp	
AC Common Mode Output Voltage, RMS	TP4			17.5	mV	
Differential Termination Mismatch	TP4			10	%	
Differential Output Return Loss	TP4	IEEE 802.3-2015 Equation (83E-2)				
Common to Differential Mode Conversion Return Loss	TP4	IEEE 802.3-2015 Equation (83E-3)				
Transition Time, 20% to 80%	TP4	9.5			ps	
Near-end Eye Symmetry Mask Width (ESMW)	TP4		0.265		UI	
Near-end Eye Height, Differential	TP4	70			mV	
Far-end Eye Symmetry Mask Width (ESMW)	TP4		0.2		UI	
Far-end Eye Height, Differential	TP4	30			mV	
Far-end Pre-cursor ISI Ratio	TP4	-4.5		2.5	%	
Common Mode-Output Voltage	TP4	-350		2850	mV	3

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Notes:

1. With the exception to IEEE 802.3bs 120E.3.1.2 that the pattern is PRBS31Q or scrambled idle.
2. Meets BER specified in IEEE 802.3bs 120E.1.1.
3. DC common mode voltage generated by the host. Specification includes effects of ground offset voltage.

v. Ordering Information

Pivotal Part Number	Description
QSFP56-FR4-200GD	QSFP56, 1310nm, FR4 SMF 2km Duplex LC, 15-65C , 200G DDM, C-Temp

Notes:

1. Please contact sales for specific OEM Platform part numbers to fit your network.

Warranty

<https://pivotaloptics.com/warranty/>

Disclaimer

External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.