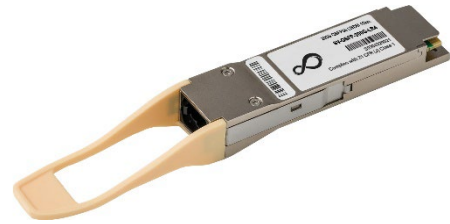


SV-QSFP-200G-LR4

Starview QSFP56 200Gbps module 200G-LR4 aggregating 4 x 50Gbps LWDM SM (LC) with DDM, distance up to 10km



Features

- IEEE802.3bs compliant
- QSFP-DD MSA compliant
- 4 LWDM lanes MUX/DEMUX design
- Supports 212.5Gb/s aggregate bit rate
- Up to 10km transmission on single mode fiber (SMF) with FEC
- Operating case temperature: 0 to 70°C
- 200GAUI-8 and 200GAUI-4 electrical interface
- Maximum power consumption 10.8W
- LC duplex connector
- RoHS compliant

Applications

- Data Center Interconnect
- 200G Ethernet
- Enterprise networking

Ordering Information

Part number	Description
SV-QSFP-200G-LR4	Starview QSFP56 200Gbps module 200G-LR4 aggregating 4 x 50Gbps LWDM (1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1nm) SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 10km

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units	Notes
Storage Temperature	TS	-40	85	degC	
Operating Case Temperature	TOP	0	70	degC	
Power Supply Voltage	VCC	-0.5	3.6	V	
Relative Humidity (non-condensation)	RH	0	85	%	
Damage Threshold, each Lane	THd	3.5		dBm	

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Units	Notes
Operating Case Temperature	TOP	0		70	degC	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Data Rate, each Lane			26.5625		GBd	
			53.125		Gb/s	
Data Rate Accuracy		-100		100	ppm	
Pre-FEC Bit Error Ratio				2.4×10^{-4}		
Post-FEC Bit Error Ratio				1×10^{-12}		1
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Link Distance with G.652	D	0.002		10	km	2

Notes:

1. FEC provided by host system.
2. FEC required on host system to support maximum distance.

Electrical Characteristics

200GAUI-8 Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Units	Notes
Power Consumption				10.8	W	
Supply Current	Icc			3258	mA	
Transmitter (each Lane)						
Signaling rate per lane(200GBASE-LR4)			26.5625±100ppm		GBd	
Peak-to-peak differential output voltage				900	mv	

AC common-mode output voltage		17.5 mV RMS with respect to signal ground		mV
Differential output return loss		Meets Equation (120D-2) constraints		
Reference impedance for output return loss		100		Ω
Common to differential mode conversion	Zin	Meets Equation (83E-3) constraints		
Differential termination mismatch		Less than 10%		
Transition time		Greater than or equal to 12 ps		
Eye width		0.57		UI
Eye height		228		mV
Crosstalk source		Asynchronous crosstalk source using Pattern 5, Pattern 3, or valid 200GBASE-R signal		
Vertical eye closure			5.5	dB
Receiver (each Lane)				
Single-ended Output Voltage		-0.4	3.3	V Referred to signal common
Differential pk-pk input voltage tolerance		900		mV
Differential input return loss		Equation (83E-5)		
Differential to common-mode input return loss		Equation (83E-6)		
Termination Mismatch at 1MHz			10	%
Module stressed input test		See 83E.3.4.1		
DC common mode voltage		-350	2850	mv
Eye width		0.46		UI
Eye height		95		mV

200GAUI-8 Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Units	Notes
Power Consumption				10.8	W	
Supply Current	Icc			3258	mA	
Transmitter (each Lane)						

Signaling rate per lane(200GBASE-LR4)		26.5625±100ppm		GBd	
Peak-to-peak differential output voltage			900	mv	
AC common-mode output voltage			17.5	mV	
Differential output return loss		Equation (83E-2)			
Common to differential mode conversion	Zin	Equation (83E-3)			
Differential termination mismatch			10	%	
Transition time (20% to 80%)		9.5		ps	
DC common mode voltage		-350	2850	mV	
Receiver (each Lane)					
Single-ended Output Voltage		-0.4	3.3	V	Referred to signal common
Differential pk-pk input voltage tolerance		900		mV	
Differential input return loss		Equation (83E-5)			
Differential to common-mode input return loss		Equation(83E-6)			
Termination Mismatch at 1MHz			10	%	
Module stressed input test		See 120E.3.4.1			
DC common mode voltage		-350	2850	mv	

Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Units	Notes
Wavelength Assignment	L0	1294.53	1295.56	1296.59	nm	
	L1	1299.02	1300.05	1301.09	nm	
	L2	1303.54	1304.58	1305.63	nm	
	L3	1308.09	1309.14	1310.19	nm	
Transmitter						
Data Rate, each Lane		26.5625 ± 100 ppm			GBd	
Modulation Format		PAM4				

DATASHEET 5.0

Side-mode Suppression Ratio	SMSR	30		dB	Modulated
Total Average Launch Power	PT		11.3	dBm	
Average Launch Power, each Lane	PAVG	-3.4	5.3	dBm	1
Outer Optical Modulation Amplitude (OMA _{outer}), each Lane	POMA	-0.4	5.1	dBm	2
Launch Power in OMA _{outer} minus TDECQ, each Lane		-1.8		dB	For ER≥4.5dB
		-1.7		dB	For ER <4.5dB
Transmitter and Dispersion Eye Clouser for PAM4, each Lane	TDECQ		3.4	dB	
Extinction Ratio	ER	3.5		dB	
Difference in Launch Power between any Two Lanes (OMA _{outer})			4	dB	
RIN _{16.5OMA}	RIN		-132	dB/Hz	
Optical Return Loss Tolerance	TOL		15.1	dB	
Transmitter Reflectance	TR		-26	dB	
Average Launch Power of OFF Transmitter, each Lane	Poff		-30	dBm	
Receiver					
Data Rate, each Lane			26.5625 ± 100 ppm	GBd	
Modulation Format			PAM4		
Damage Threshold, each Lane	THd	6.3		dBm	3
Average Receive Power, each Lane		-9.7	5.3	dBm	4
Receive Power (OMA _{outer}), each Lane			5.1	dBm	
Difference in Receiver Power between any Two Lanes (OMA _{outer})			4.2	dB	
Receiver Sensitivity (OMA _{outer}), each Lane	SEN		-7.7	dBm	For BER of 2.4E-4
Stressed Receiver Sensitivity (OMA _{outer}), each Lane	SRS		-5.2	dBm	5
Receiver Reflectance	RR		-26	dB	
LOS Assert	LOSA	-25.7		dBm	
LOS De-assert	LOSD		-11.7	dBm	
LOS Hysteresis	LOSH	0.5		dB	
Stressed Conditions for Stress Receiver Sensitivity (Note 6)					
Stressed Eye Closure for PAM4 (SECQ), Lane under Test			3.4	dB	

OMA _{outer} of each Aggressor Lane	-1	dBm
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Notes:

1. Average launch power, each lane (min) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
2. Even if the TDECQ < 1.4 dB for an extinction ratio of ≥ 4.5 dB or TDECQ < 1.3 dB for an extinction ratio of < 4.5 dB, the OMA_{outer} (min) must exceed the minimum value specified here.
3. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.
4. Average receive power, each lane (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
5. Measured with conformance test signal for BER = 2.4×10^{-4} .
6. These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.