SV-QSFP-100G-CDR4

Starview QSFP28 100G module CWDM (1271/ 1291/ 1311/ 1331nm) wavelengths SM (LC) DDM, distance up to 500m

Features

- QSFP28 MSA compliant
- 4 CWDM lanes MUX/DEMUX design
- Supports 103.1Gb/s aggregate bit rate
- 100G CWDM4 MSA Technical Spec Rev1.1
- Up to 500m transmission on single mode fiber (SMF) with FEC
- Operating case temperature: 0 to 70oC
- 4x25G electrical interface (OIF CEI-28G-VSR)
- Maximum power consumption 3.5W
- LC duplex connector
- RoHS compliant

Applications

- Data Center Interconnect
- 100G Ethernet
- Infiniband QDR and DDR interconnects
- Enterprise networking

Ordering Information

Part number	Description
SV-QSFP-100G-CDR4	Starview QSFP28 100Gbps module 100GBase aggregating 4 x 25Gbps duplex CWDM (1271/ 1291/ 1311/ 1331nm) wavelengths SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 500m

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units	Notes
Storage Temperature	T_S	-40	85	degC	
Operating Case Temperature	T_{OP}	0	70	degC	
Power Supply Voltage	V_{CC}	-0.5	3.6	V	
Relative Humidity (non-condensation)	RH	0	85	%	
Damage Threshold, each Lane	TH_d	3.5		dBm	

Recommended Operating Conditions and Power Supply Requirements

Parameter	Symbol	Min	Typical	Max	Units
Operating Case Temperature	T_{OP}	0		70	degC
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V
Data Rate, each Lane			25.78125		Gb/s
Data Rate Accuracy		-100		100	ppm
Control Input Voltage High		2		Vcc	V
Control Input Voltage Low		0		0.8	V
Link Distance with G.652	D	0.002		2	km

Electrical Characteristics

Parameter	Test Point	Min	Typical	Max	Units	Notes
Power Consumption				3.5	W	
Supply Current	Icc			1.06	A	
Transmitter (each Lane)						
Overload Differential Voltage pk-pk	TP1a	900			mV	
Common Mode Voltage (Vcm)	TP1	-350		2850	mV	1
Differential Termination Resistance Mismatch	TP1			10	%	At 1MHz
Differential Return Loss (SDD11)	TP1			See CEI-28G-VSR Equation 13-19	dB	
Common Mode to Differential conversion and Differential to	TP1			See CEI-28G-VSR	dB	

Common Mode conversion (SDC11, SCD11)			Equation 13-20		
Stressed Input Test	TP1a	See CEI-28G-VSR Section 13.3.11.2.1			
Receiver (each Lane)					
Differential Voltage, pk-pk	TP4		900	mV	
Common Mode Voltage (Vcm)	TP4	-350	2850	mV	1
Common Mode Noise, RMS	TP4		17.5	mV	
Differential Termination Resistance Mismatch	TP4		10	%	At 1MHz
Differential Return Loss (SDD22)	TP4		See CEI-28G-VSR Equation 13-19	dB	
Common Mode to Differential conversion and Differential to Common Mode conversion (SDC22, SCD22)	TP4		See CEI-28G-VSR Equation 13-21	dB	
Common Mode Return Loss (SCC22)	TP4		-2	dB	2
Transition Time, 20 to 80%	TP4	9.5		ps	
Vertical Eye Closure (VEC)	TP4		5.5	dB	
Eye Width at 10^{-15} probability (EW15)	TP4	0.57		UI	
Eye Height at 10^{-15} probability (EH15)	TP4	228		mV	

Notes:

1. Vcm is generated by the host. Specification includes effects of ground offset voltage.
2. From 250MHz to 30GHz.

Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Units	Notes
Wavelength Assignment	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	
Transmitter						
Side Mode Suppression Ratio	SMSR	30			dB	
Total Average Launch Power	P_T			8.5	dBm	
Average Launch Power, each Lane	P_{AVG}	-6.5		2.5	dBm	
Optical Modulation Amplitude (OMA), each Lane	P_{OMA}	-4		2.5	dBm	1
Launch Power in OMA minus Transmitter and Dispersion Penalty (TDP), each Lane		-5			dBm	
TDP, each Lane	TDP			3.0	dB	
Extinction Ratio	ER	3.5			dB	
Relative Intensity Noise	RIN			-130	dB/Hz	12dB reflection
Optical Return Loss Tolerance	TOL			20	dB	
Transmitter Reflectance	R_T			-12	dB	
Average Launch Power OFF Transmitter, each Lane	Poff			-30	dBm	
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		{0.31, 0.4, 0.45, 0.34, 0.38, 0.4}				2
Receiver						
Damage Threshold, each Lane	TH_d	3.5			dBm	3
Total Average Receive Power				8.5	dBm	
Average Receive Power, each Lane		-11.5		2.5	dBm	
Receive Power (OMA), each Lane				2.5	dBm	
Receiver Sensitivity (OMA), each Lane	SEN			-10	dBm	for BER = $5x10^{-5}$
Stressed Receiver Sensitivity (OMA), each Lane				-7.3	dBm	4
Receiver Reflectance	R_R			-26	dB	
LOS Assert	LOSA	-30			dBm	
LOS Deassert	LOSD			-15	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Receiver Electrical 3 dB upper Cutoff Frequency, each Lane	31	GHz
Conditions of Stress Receiver Sensitivity Test (Note 5)		
Vertical Eye Closure Penalty, each Lane	1.9	dB
Stressed Eye J2 Jitter, each Lane	0.33	UI
Stressed Eye J4 Jitter, each Lane	0.48	UI
SRS eye mask definition { X1, X2, X3, Y1, Y2, Y3}	{0.39, 0.5, 0.5, 0.39, 0.39, 0.4}	

Notes:

1. Even if the TDP < 1.0 dB, the OMA min must exceed the minimum value specified here.
2. Hit ratio $5x10^{-5}$.
3. The receiver shall be able to tolerate, without damage, continuous exposure to a modulated optical input signal having this power level on one lane. The receiver does not have to operate correctly at this input power.
4. Measured with conformance test signal for BER = $5x10^{-5}$.
5. Vertical eye closure penalty, stressed eye J2 jitter, stressed eye J4 jitter, and SRS eye mask definition are test conditions for measuring stressed receiver sensitivity. They are not characteristics of the receiver.