

SV-QSFP-100G-PSR4

100Gbps module 100GBase aggregating 4 x 850nm duplex MM (MPO-12) with DDM distance up to 100m on 50/125um OM3 MM fiber, 150m for 50/125um MM OM4 MM fiber



Features

- QSFP28 MSA compliant
- Compliant to IEEE 802.3bm 100GBASE-SR4
- Four independent full-duplex channels
- Supports 103.1Gb/s aggregate bit rate
- Up to 100m OM4 MMF transmission
- Operating case temperature: 0 to 70°C
- Single 3.3V power supply
- 4x25G electrical interface (OIF CEI-28G- VSR)
- Maximum power consumption 2.5W
- MTP/MPO optical connector
- RoHS-6 compliant

Applications

- Rack to Rack
- Data Center
- Infiniband QDR, DDR and SDR
- 100G Ethernet

Part number	Description
SV-QSFP-100G-PSR4	Starview QSFP28 100Gbps module 100GBase aggregating 4 x 850nm duplex MM (MPO-12) with Digital Diagnostic Monitoring (DDM), distance up to 100m on 50/125um OM3 MM fiber, 150m for 50/125um MM OM4 MM fiber

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature	T _s	-40	85		°C
Operating Case Temperature	T _{OP}	0	70		°C
Power Supply Voltage	V _{CC}	-0.5	3.6		V
Relative Humidity (non-condensation)	RH	0	85		%
Damage Threshold, each Lane	TH _d	3.4			dBm

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Case Temperature	T _{OP}	0		70	°C	
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	
Pre-FEC Bit Error Ratio				5x10 ⁻⁵		
Post-FEC Bit Error Ratio				1x10 ⁻¹²		1
Control Input Voltage High		2		V _{CC}	V	
Control Input Voltage Low		0		0.8	V	
Link Distance (OM3 MMF)	D1			70	m	2
Link Distance (OM4 MMF)	D2			100	m	2

Notes:

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

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Center Wavelength	λ _C	840	850	860	nm	
RMS Spectral Width	Δλ _{rms}			0.6	nm	
Average Launch Power, each Lane	P _{AVG}	-8.4		2.4	dBm	
Optical Modulation Amplitude (OMA), each Lane	P _{OMA}	-6.4		3.0	dBm	1
Launch Power in OMA minus TDEC, each Lane		-7.3			dBm	
Transmitter and Dispersion Eye Closure (TDEC), each Lane				4.3	dB	
Extinction Ratio	ER	2.0			dB	
Optical Return Loss Tolerance	TOL			12	dB	

Average Launch Power OFF Transmitter, each Lane	Poff					-30	dBm	
Encircled Flux		≥ 86% at 19 μm ≤ 30% at 4.5 μm						
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}						2
Receiver								
Center Wavelength	λC	840	850	860			nm	
Damage Threshold, each Lane	THd	3.4					dBm	3
Average Receive Power, each Lane		-10.3		2.4			dBm	
Receive Power (OMA), each Lane				3.0			dBm	
Receiver Sensitivity (OMA), each Lane	SEN			-9.2			dBm	for BER = 5x10 ⁻⁵
Stressed Receiver Sensitivity (OMA), each Lane				-5.2			dBm	4
Receiver Reflectance	RR			-12			dB	
LOS Assert	LOSA	-30					dBm	
LOS Deassert	LOSD			-12			dBm	
LOS Hysteresis	LOSH	0.5					dB	
Conditions of Stress Reliever Sensitivity Test Note(4)								
Stressed Eye Closure (SEC), Lane under Test			4.3				dB	
Stressed Eye J2 Jitter, Lane under Test			0.39				UI	
Stressed Eye J4 Jitter, Lane under Test				0.53			UI	
OMA of each Aggressor Lane			3				dBm	
Stressed Receiver Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}, Hit ratio 5x10 ⁻⁵ hits per sample		{0.28, 0.5, 0.5, 0.33, 0.33, 0.4}						

Note(1): Even if the TDP < 0.9 dB, the OMA min must exceed the minimum value specified here.

Note(2): Hit ratio 1.5x10⁻³ hits per sample.

Note(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.

Note(4): Measured with conformance test signal at receiver input for BER = 5x10⁻⁵.

Note(5): Vertical eye closure penalty, stressed eye J2 jitter, stressed eye J4 jitter, and stressed receiver eye mask definition are test conditions for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

Digital Diagnostics Functions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Temperature monitor absolute error	DMI_Temp	-3		+3	°C	Over operating temp
Supply voltage monitor absolute error	DMI_VCC	-0.15		0.15	V	Full operating range
Channel RX power monitor absolute error	DMI_RX_Ch	-2		2	dB	1
Channel Bias current monitor	DMI_Ibias_Ch	-10%		10%	mA	Ch1-Ch4
Channel TX power monitor absolute error	DMI_TX_Ch	-2		2	dB	1

Note(1): Due to measurement accuracy of different single mode fibers, there could be an additional +/-1 dB fluctuation, or a +/- 3 dB total accuracy

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Power Consumption				2.5	W	
Supply Current	Icc			757	mA	
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 Common Mode conversion (SDC11, SCD11)	TP1			See CEI- 28G-VSR Equation 13-20	dB	
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	

Note(1): Vcm is generated by the host. Specification includes effects of ground offset voltage.

Note (2):From 250MHz to 30GHz.