

SV-QSFP-50G-LR1

Starview QSFP28 50GBase LR Single Lambda SM (LC) with DDM, distance up to 10km



Features

- QSFP28 MSA compliant
- Supports 26.56Gbaud
- IEEE802.3cd Specification compliant
- Up to 10km transmission on single mode fiber (SMF) with FEC
- Operating case temperature: 0°C to 70°C
- 50GAUI-2 electrical interface (OIF CEI- 28G-VSR)
- Maximum power consumption 4.5W
- LC duplex connector
- RoHS compliant

Applications

- Wireless application
- 50G Ethernet
- Enterprise networking

Ordering Information

Part number	Description
SV-QSFP-50G-LR1	Starview QSFP28 50Gbps module 50GBase LR Single Lambda SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 10km

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
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	5.2		dBm

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Units	Notes
Operating Case Temperature	T _{OP}	0		70	degC	
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V	
Electrical Data Rate, each Lane (NRZ)			26.562 5		Gb/s	
Optical Data Rate (PAM4)			26.562 5		GBd	
Data Rate Accuracy		-100		100	ppm	
Pre-FEC Bit Error Ratio				2.4x10 ⁻⁴		
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 with G.652	D	0.002		10	km	

Notes:

1. FEC is provided by host.

Electrical Characteristics

Parameter	Test Point	Min	Typical	Max	Units	Notes
Power Consumption				4.5	W	
Supply Current	I _{cc}			1.36	A	
Transmitter (each Lane)						
Overload Differential Voltage pk-pk	TP1a	900			mV	
Common Mode Voltage (V _{cm})	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	

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
Transmitter						
Center Wavelength	λ_t	1304.5		1317.5	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Launch Power	PAVG	-4.5		4.2	dBm	1
Outer Optical Modulation Amplitude (OMA _{outer})	POMA	-1.5		4	dBm	2
Launch Power in OMA _{outer} minus Transmitter and Dispersion Eye Closure (TDECQ)		-2.9			dBm	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ)	TDECQ			3.2	dB	
Extinction Ratio	ER	3.5			dB	
RIN _{15,6OMA}	RIN			-132	dB/Hz	
Optical Return Loss Tolerance	TOL			15.6	dB	
Transmitter Reflectance	RT			-26	dB	
Average Launch Power OFF Transmitter	Poff			-30	dBm	
Receiver						
Center Wavelength	λ_r	1304.5		1317.5	nm	
Damage Threshold	TH _d	5.2			dBm	3
Average Receive Power		-10.8		4.2	dBm	
Receive Power (OMA _{outer})				4	dBm	
Receiver Sensitivity (OMA _{outer})	SEN			-8.4	dBm	For BER= 2.4x10 ⁻⁴
Stressed Receiver Sensitivity (OMA _{outer})	SRS			-6.6	dBm	
Receiver Reflectance	RR			-26	dB	

LOS Assert	LOSA	-30		dBm
LOS Deassert	LOSD		-11	dBm
LOS Hysteresis	LOSH	0.5		dB
Conditions of Stress Receiver Sensitivity Test (Note 4)				
Stressed Eye Closure for PAM4 (SECQ)			3.2	dB

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 < 1.4dB for an extinction ratio of ≥ 4.5dB or TDECQ < 1.3dB for an extinction ratio of < 4.5dB, the OMAouter (min) must exceed the minimum value specified here.
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. Stressed eye closure definition is test condition for measuring stressed receiver sensitivity. It is not a characteristic of the receiver.