

SV-QSFP-100G-LRD4XH

100GBase QSFP28 Single Fiber Bi-Directional module supporting 100Gbps 1304nm / 1309nm SM PAM4 (LC) with DDM, distance up to 40km



Features

- Supports 100GBASE-ER1 BIDI
- Lane signaling rate 106.25Gb/s with PAM4
- Up to 40km transmission on SMF
- EML Laser and APD receiver
- 4x25.78Gb/s with NRZ electrical interface (CAUI-4)
- Support KP4 FEC inside the module
- High speed I/O electrical interface
- I2C interface with integrated Digital Diagnostic monitoring
- QSFP28 MSA package with simplex LC connector
- Single +3.3V power supply
- Power consumption <4.5W
- Operating case temperature: -40 to +85 °C
- Compliant to 802.3cu, SFF-8636&SFF-8679 standard
- Compliant to 100G Lambda MSA 100G-ER1 Optical Specifications
- Complies with EU Directive 2015/863/EU

Applications

- 100 Gigabit Ethernet
- Data center

Part number	Description
SV-QSFP-100G-LRD41H	Starview QSFP28 Single Fiber Bi-Directional module supporting 100Gbps 1304nm TX/ 1309nm RX single fiber PAM4 SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 40km, Industrial temperature range.
SV-QSFP-100G-LRD42H	Starview QSFP28 Single Fiber Bi-Directional module supporting 100Gbps 1309nm TX/ 1304nm RX single fiber PAM4 SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 40km, Industrial temperature range.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	T _s	-40		+85	°C	
Supply Voltage	V _{cc}	-0.5		+4.0	V	
Operating Relative Humidity	RH			+85	%	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T _c	-40	-	+85	°C	
Power Supply Voltage	V _{cc}	3.13	3.3	3.47	V	
Transmission Distance	TD	-	-	40	km	Over SMF

Optical and Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Center Wavelength	CW	1303.54	1304.58	1305.63	nm	
		1308.09	1309.14	1310.19	nm	
Signaling Rate	SR			53.125	GBd	
Frequency Offset	Foffset	-100		100	ppm	
Average Launch Power	PTX	1.7		7.1	dBm	1
Outer Optical Modulation Amplitude	OMA	4.7		7.9	dBm	TDECQ<1.4
		3.3+TDECQ			dBm	TDECQ>1.4
Transmitter and dispersion eye closure for PAM4 (TDECQ) (max)	TDECQ			3.9	dBm	
Average Output Power (Laser Turn off)	Poff			-30	dBm	
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	5			dB	
RIN_OMA	RIN			-136	dB/Hz	
Transmitter reflectance	Tref			-26	dB	

Optical Return Loss Tolerance	ORLT	15.6			dB
Receiver					
Center Wavelength	CW	1303.54	1304.58	1305.63	nm
		1308.09	1309.14	1310.19	nm
Damage threshold	Pdamage	-2.4			dBm2
Average Rx Power	PRx	-16-3.4			dBm3
Receive power _OMAouter	POMA	-2.6			dBm
Receiver sensitivity _OMAouter	SEN _OMA	Max (-13.8,-15.2+TECQ)			dBm4
Reflectance	Ref	-26			dB
Los Assert	LosA	-26			dBm
Los De-Assert	LosDA	-15			dBm
Los Hysteresis	LosH	0.5			dB

Notes:

1. The optical power is launched into SMF.
2. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level. The receiver does not have to operate correctly at this input power.
3. Average receive power, each lane (min) is informative and not the principal indicator of signal strength.
4. Measured with conformance test signal at TP3 using the test pattern PRBS31Q or scrambled idle for stressed receiver sensitivity for the BER= 2.4x10⁻⁴.

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter (Module Input)						
Input Differential Impedance	Rin		100		Ohm	
Differential Data Input Amplitude	VIN,P-P			900	mVpp	
Differential termination mismatch (max)	D-mismatch			10	%	
DC common-mode input voltage		-0.3		2.8	V	
Transition time(20%~80%)	Tr Tf	10			ps	
LPMODE, Reset and ModSelL / Tx dis	VIL	-0.3		0.8	V	
LPMODE, Reset and ModSelL / Tx dis	VIH	2.0		VCC+0.3	V	

Receiver (Module Output)				
Output Differential Impedance	Rout	100	Ohm	
Differential Data Output Amplitude	VOUTP-P	900	mVpp	
Differential termination mismatch (max)	D-mismatch	10	%	
Transition time, 20% to 80%	Tr Tf	12	ps	
ModPrsL and IntL/ Rx los	VOL	0	0.4	V
ModPrsL and IntL/ Rx los	VOH	VCC-0.5	VCC+0.3	V