

SV-QSFP-100G-LRD1XH

100GBase QSFP28 Single Fiber Bi-Directional module supporting 100Gbps 1271nm / 1331nm SM PAM4 (LC) with DDM, distance up to 10km



Features

- Lane signaling rate 106.25Gb/s with PAM4
- Up to 10km transmission on SMF
- EML Laser and PIN 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 W
- Compliant to SFF-8636&SFF-8679 standard
- Compliant to 100G Lambda MSA 100G-LR1 Optical Specifications
- Complies with EU Directive 2015/863/EU
- Operating case temperature: -40 to +85 °C

Applications

- 100GBASE-LR BIDI
- Data center

Part number	Description
SV-QSFP-100G-LRD11H	Starview QSFP28 Single Fiber Bi-Directional module supporting 100Gbps 1271nm TX/ 1331nm RX single fiber PAM4 SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 10km,Industrial temperature range
SV-QSFP-100G-LRD12H	Starview QSFP28 Single Fiber Bi-Directional module supporting 100Gbps 1331nm TX/ 1271nm RX single fiber PAM4 SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 10km,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
Transmitter						
Center Wavelength	CW	1264.5	1271	1277.5	nm	
		1324.5	1331	1337.5	nm	
Signaling Rate	SR			53.125	GBd	
Frequency Offset	Foffset	-100		100	ppm	
Average Launch Power	PTX	-1.4		4.5	dBm	1
Outer Optical Modulation Amplitude	OMA	0.7		4.7	dBm	1
Launch power in OMA minus TDECQ	OMA-TDECQ	-0.7			dBm	ER≥4.5 dB
		-0.6			dBm	ER<4.5dB
Transmitter and dispersion eye closure for PAM4 (TDECQ) (max)	TDECQ			3.4	dBm	
Average Output Power (Laser Turn off)	Poff			-30	dBm	
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	3.5			dB	
RIN_OMA	RIN			-136	dB/Hz	
Transmitter reflectance	Tref			-26	dB	
Optical Return Loss Tolerance	ORLT			15.6	dB	
Receiver						
Center Wavelength	CW	1324.5	1331	1337.5	nm	
		1264.5	1271	1277.5	nm	
Damage threshold	Pdamage	5.5			dBm	2
Average Rx Power	PRx	-7.7		4.5	dBm	3

Receive power _OMAouter	POMA	4.7	dBm	
Receiver sensitivity _OMAouter		-6.1		
for TDECQ < 1.4 dB	SEN _OMA	-7.5 +	dBm	4
for 1.4 dB ≤ TDECQ ≤ 3.4 dB		TDECQ		
Reflectance	Ref	-26	dB	
Los Assert	LosA	-26	dBm	
Los De-Assert	LosDA	-10	dBm	
Los Hysteresis	LosH	0.5	dB	
Stressed receiver sensitivity _OMAouter	SRS	-4.1	dBm	5
Conditions of stressed receiver sensitivity teste :				
Stressed eye closure for PAM4 (SECQ)		3.4	dB	6
SECQ-10*IgCeq		3.4	dB	6

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.
5. Measured with conformance test signal at TP3 (see3.11) for the BER specified in IEEE Std 802.3cu
6. Ceq is a coefficient defined in IEEE Std 802.3-2022 clause 121.8.5.3 which accounts for reference equalizer noise enhancement.

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter (Module Input)						
Input Differential Impedance	Rin		100		Ohm	
Differential Data Input Amplitude	V _{IN,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	V _{IL}	-0.3		0.8	V	
LPMODE, Reset and ModSelL / Tx dis	V _{IH}	2.0		V _{CC} +0.3	V	
Receiver (Module Output)						
Output Differential Impedance	Rout		100		Ohm	

Differential Data Output Amplitude	V_{OUTP-P}		900	mVpp
Differential termination mismatch (max)	D-mismatch		10	%
Transition time, 20% to 80%	Tr Tf	12		ps
ModPrsL and IntL/ Rx los	V_{OL}	0	0.4	V
ModPrsL and IntL/ Rx los	V_{OH}	$V_{CC}-0.5$	$V_{CC}+0.3$	V