

# SV-QSFP-100G-ER4X

Starview QSFP28 100G module LWDM wavelengths SM (LC) DDM, distance up to 40km



## Features

- Supports 103Gbps
- Single 3.3V Power Supply and Power dissipation
- Commercial: <4W  
Industrial: < 5W
- Up to 40km over SMF with FEC on host
- RoHS-6 compliant (lead-free)
- Operating case temperature range of  
Commercial: 0°C to 70°C  
Industrial: -40°C to 85°C
- Four 25Gbps Cooled DFB LAN-WDM lasers on transmitter side
- APD and TIA array on the receiver side
- 4x25G electrical interface
- Duplex LC receptacles
- I2C interface with integrated Digital Diagnostic Monitoring
- Safety Certification: TUV/UL/FDA
- RoHS Compliant

## Applications

- 100G 40km applications with FEC on host side
- 100G Datacom& Telecom connections

## Ordering Information

Part number	Description
<b>SV-QSFP-100G-ER4</b>	Starview QSFP28 100Gbps module 100GBase aggregating 4 x 25Gbps duplex LWDM (1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1nm) wavelengths SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 40km, supporting 100GE
<b>SV-QSFP-100G-ER4H</b>	Starview QSFP28 100G module 100GBase aggregating 4 x 25Gbps duplex LWDM (1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1nm) wavelengths SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 40km with FEC on host equipment, supporting 100GE, Industrial temperature range

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	Ts	-40	+85	°C
Supply Voltage	Vcc	-0.5	3.6	V
Operating Relative Humidity	RH	5	85	%

## Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	Tc	SV-QSFP-100G-ER4	0	70	°C
		SV-QSFP-100G-ER4H	-40	+85	°C
Power Supply Voltage	Vcc	3.135	3.3	3.465	V
Power Dissipation	PD	SV-QSFP-100G-ER4		4	W
		SV-QSFP-100G-ER4H		5	W

## Performance Specifications – Electrical

Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Transmitter						
Differential Data Input Swing Per Lane				900	mv <sub>p-p</sub>	
Input Impedance (Differential)	Zin			10	%	
Stressed Input Parameters						
Eye Width		0.46			UI	
Applied Pk-Pk Sinusoidal Jitter		IEEE 802.3bm Table 88-13				
Eye Height		95			mV	
DC Common Mode Voltage		-350		2850	mV	
Receiver						
Differential Output Amplitude		200		900	mv <sub>p-p</sub>	
Output Impedance (Differential)	Zout			10	%	
Eye Width		0.57			UI	
Eye Height Differential		228			mV	
Vertical Eye Closure				5.5	dB	

## Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Signaling Speed per Lane	BRAVE		25.78		Gbps
Data Rate Variation		-100		+100	ppm
Lane_0 Center Wavelength	λ <sub>CO</sub>	1294.53	1295.56	1296.59	nm

DATASHEET 5.0

Lane_1 Center Wavelength	$\lambda_{C1}$	1299.02	1300.05	1301.09	nm
Lane_2 Center Wavelength	$\lambda_{C2}$	1303.54	1304.58	1305.63	nm
Lane_3 Center Wavelength	$\lambda_{C3}$	1308.09	1309.14	1310.19	nm
Total Average launch Power	PT			12.5	dBm
Average Launch Power per Lane*(Note4)	Peach	-2.5		6.5	dBm
Optical Modulation Amplitude(OMA),each lane(max)	OMAm <sub>max</sub>			6.5	dBm
Optical Modulation Amplitude(OMA), each lane(min) *(Note5)	OMAm <sub>min</sub>	0.5			dBm
Launch power in OMA minus TDP, each lane(min)	OMA-TDP	-0.5			dBm
Average launch Power of OFF Transmitter per Lane				-30	dBm
Side-mode Suppression Ratio	SMSR <sub>min</sub>	30			dB
Difference in Launch Power Between Any Two Lanes (OMA)				4	dB
Optical Return Loss Tolerance		20			dB
Transmitter Reflectance*(Note6)				-26	
Extinction Ratio*(Note7)	ER	4.5			dB
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}*(Note7)			{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}		
Receiver					
Signaling Speed per Lane	BRAVE		25.78		Gbps
Data Rate Variation		-100		+100	ppm
Receiver Overload per Lane	Psat	-3			dBm
Lane_0 Center Wavelength	$\lambda_{C0}$	1294.53	1295.56	1296.59	nm
Lane_1 Center Wavelength	$\lambda_{C1}$	1299.02	1300.05	1301.09	nm
Lane_2 Center Wavelength	$\lambda_{C2}$	1303.54	1304.58	1305.63	nm
Lane_3 Center Wavelength	$\lambda_{C3}$	1308.09	1309.14	1310.19	nm
Average Receive Power per Lane*(Note8)	Rxp <sub>ow</sub>	-20.5		-3.5	dBm
Damage threshold per lane(min) *(Note9)	Pd <sub>amage</sub>			-2.5	dBm
Receive Sensitivity in OMA per Lane*(Note10)	Rxs <sub>ens</sub>			-18.5	dBm
Stressed Receiver Sensitivity (OMA) per Lane*(Note11)	RXSRS			-16	dBm
Optical Return Loss	ORL			-26	dB

LOS Assert	LOSA	-30	dBm
LOS De-Assert	LOSD	-21	dBm
LOS Hysteresis		0.5	dB
Conditions of stressed receiver sensitivity test:			
Vertical eye closure penalty per lane*(Note12)		2.5	dB
Stressed eye J2 Jitter per lane*(Note12)		0.33	UI
Stressed eye J4 Jitter per lane*(Note12)		0.48	UI
SRS eye mask definition {X1, X2, X3, Y1, Y2, Y3}*(Note12)		{0.39, 0.5, 0.5, 0.39, 0.39, 0.4}	

Note4: 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.

Note5: Even if the TDP < 1.0dB, the OMA (min) must exceed this value. Note6: Transmitter reflectance is defined looking into the transmitter.

Note7: Eye mask hit ratio is 5E-5.

Note8: Average receive power, each lane (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.

Note9: The receiver shall be able to tolerate, without damage, continuous exposure to an optical signal having this average power level.

Note10: Receiver sensitivity (OMA), each lane (max) at 5E-5 BER is a normative specification. Note11: Measured with conformance test signal at TP3 for BER = 5\*10-5.

Note12: 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.