

SV-CFP-100G-LR4F

100GBase aggregating 4 x duplex LWDM (1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1nm) SM (LC) with DDM, distance up to 10km, supporting 100GE and OTU-4



Features

- Direct LC receptacle optical interface
- Single +3.3V power supply
- Hot-pluggable
- Operating optical data rate up to 112Gbps
- Operating electrical serial data rate up to 10.3125Gbps
- 10 parallel electrical serial interface
- Transmission distance up to 10km
- AC coupling of CML signals
- 1310 nm window cooled EA-DFB LD
- PIN ROSA
- Low power dissipation(Max:16W)
- Built in digital diagnostic function
- Operating case temperature range:0°C to 70°C
- Compliant with RoHs
- MDIO Communication Interface

Applications

- OTN-OTU4
- Switch to switch interface
- Switch to rounter interface
- P to P Acess Network
- Compliant with IEEE 802.3ba
- Compliant with CFP MSA hardware specification
- Compliant with CFP MSA management specification
- Compliant with ITU-T G.709/Y.1331
- Compliant with RoHS&WEEE

Ordering Information

Part number	Description
SV-CFP-100G-LR4F	Starview CFP 100Gbps module 100GBase aggregating 4 x 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 10km,with Forward Error Correction (FEC) supporting 100GE and OTU-4

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature Range	Tst	-40	85	°C
Relative Humidity	RH	5	85	%
Power Supply Voltage	Vcc	-0.5	3.6	V
Operating Case Temperature Range	Tc	-5	75	°C
Receiver Damage Threshold Per Lane	Pdag	+5.5		dBm

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Case Temperature Range	Tc	0		70	°C	
Power Supply Voltage	Vcc	3.2	3.3	3.4	V	
Data rate	Vcc		103.125	112	Gb/s	

Specifications

Parameter	Symbol	Unit	Min.	Typ.	Max.	Note
Supply Current	Tx Section	Icc	A		5	1
	Rx Section					
Power Supply Noise	Vrip				2%	DC-1 MHz
					3%	1-10 MHz
Dissipation	Class2	Pw	W		16	
Low Power Dissipation		Plow	W		2	
Inrush Current	Class2	I-inrush	mA/usec		50	
Turn-off Current		I-inrush	mA/usec	-50		
Different Signal Electrical Characteristics						
Single Ended Data Input Swing			mV	55	525	
Single Ended Data Output Swing			mV	180	385	
Differential Signal Output Resistance			Ω	80	120	
Differential Signal Input Resistance			Ω	80	120	
3.3V LVCMOS Electrical Characteristics						
Input High Voltage	3.3VIH	V	2.0		Vcc+0.3	
Input Low Voltage	3.3VIL	V	-0.3		0.8	
Input Leakage Current	3.3IIN	uA	-10		+10	
Output High Voltage (I _{OH} =100uA)	3.3VOH	V	Vcc-0.2			
Output Low Voltage (I _{OL} =100uA)	3.3VOL	V			0.2	
Minimum Pulse Width of Control Pin Single	t_CNTL	us	100			
1.2V LVCMOS Electrical Characteristics						
Input High Voltage	1.2VIH	V	0.84		1.5	
Input Low Voltage	1.2VIL	V	-0.3		0.36	
Input Leakage Current	1.2IIN	uA	-100		+100	
Output High Voltage	1.2VOH	V	1.0		1.5	
Output Low Voltage	1.2VOL	V	-0.3		0.2	
Output High Current	1.2IOH	mA			-4	

Output Low Current	1.2IOL	mA	+4		
Input Capacitance	Ci	pF	10		
Optical transmitter Characteristics					
Signaling Rate for Each Lane (100GbE)			25.78125		
Signaling Rate for Each Lane (OTU4)			27.95249		
Four Lane Wavelength Range	λ_1	nm	1294.53	1295.56	1296.59
	λ_2		1299.02	1300.05	1301.09
	λ_3		1303.54	1304.58	1305.63
	λ_4		1308.09	1309.14	1310.19
Side Mode Suppression Ratio	SMSR	dB	30		
Total Average Launch Power	Pt	dBm	10.5		
Average Launch Power for Each Lane(100GbE)			-4.3	+4.5	2
Average Launch Power for Each Lane (OTU4)	Pa	dBm	-2.9	+4.5	2
Optical Modulation Amplitude for Each Lane	OMA	dBm	-1.3	4.5	3
Transmitter and Dispersion Penalty for Each Lanes			TDP		2.2
Average Launch Power of Off Transmitter for Each Lanes	Poff	dBm	-30		
Extinction Ratio(100GbE)	EX	dB	4		
Extinction Ratio(OTU4)			7		
RIN ₂₀ OMA			dB/Hz		-130
Optical Return Loss Tolerance			dB		20
Transmitter Reflectance			dB		-12 4
Eye Diagram	Compliant with IEEE 802.3ba-LR4				
Optical receiver Characteristics					
Receive Rate for Each Lane(100GbE)			25.78125		
Receive Rate for Each Lane(OTU4)			27.95249		
Four Lane Wavelength Range	λ_1	nm	1294.53	1295.56	1296.59
	λ_2		1299.02	1300.05	1301.09
	λ_3		1303.54	1304.58	1305.63
	λ_4		1308.09	1309.14	1310.19
Overload Input Optical Power	Pmax	dBm	5.5	5	
Average Receive Power for Each Lane(100GbE)	Pin	dBm	-10.6	4.5	6&7
Average Receive Power for Each Lane(OTU4)			-9.2	4.5	
Receive Power In OMA for Each Lane	PinOMA	dBm	4.5		
Difference in Receive Power between Any Two Lanes			dBm		5.5
Receiver Sensitivity in OMA for Each Lane(100GbE)	SOMA	dBm	-8.6 8		
Receiver Sensitivity in OMA for Each Lane(OTU4)			-10.8 9		
Stressed Receiver Sensitivity in OMA for Each Lane			dBm		-6.8 10&11
Los Assert			dBm		-12
Los De-assert			dBm		-17
Los Hysteresis			dBm		0.2

Note1. The supply current includes CFP module's supply current and test board working current.

Note2. 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

Note3. Even if the TDP<1dB, the OMA(min) must exceed this value

Note4. Transmitter reflectance is defined looking into the transmitter

Note5. The receiver shall be able to tolerate , without damage, continuous exposure to an optical input signal having this average power level

Note6. The average receive power , each lane (max) for 100GBASE-ER4 is larger than the 100BASE-ER4 transmitter value to allow compatibility with 100BASE-LR4 units at short distances

Note7. 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

Note8. Receiver sensitivity (OMA), each lane (max) is informative

Note9. Measured with PRBS 231-1 for BER=10⁻⁵. The BER for the OTU4 application is required to be met only after FEC has been applied.

Note10. Measured with conformance test signal at TP3 for BER=10⁻¹²

Note11. conditions of stressed receiver sensitivity test: vertical eye closure penalty for each lane is 1.8dB;stressed eye J2 jitter for each lane is 0.3UI; stressed eye J9 jitter for each lane is 0.47UI.