

SV-SFP28-LRD1xx

25GbE 1270nm TX/ 1330nm RX (1330nm TX/ 1270nm) SM (LC) with DDM, distance up to 10km



Features

- Compliant to IEEE802.3cc 25GBASE-LR
- Up to 25.78 Gb/s data links
- 1270/1330 DFB transmitter, PIN photo-detector
- Single LC Connector for bi-directional application
- Electrical interface compliant to SFF-8431 MSA
- 2-wire interface for management specifications compliant with SFF-8472 digital diagnostic monitoring interface for optical transceivers
- Operating case temperature: -40 to 85°C
- All-metal housing for superior EMI performance
- Maximum power consumption 1.5W
- RoHS compliant

Applications

- High-speed storage area networks
- Custom high-speed data pipes
- 25GE Ethernet
- eCPRI and CPRI

Ordering Information

Part number	Description	TX Power (dBm)	RX Sens. (dBm)	Fiber Budget (dB)	Distance (km)	DDM
SV-SFP28-LRD11	Starview SFP28 Single Fiber Bi-Directional module supporting 25GbE 1270nm TX/ 1330nm RX single fiber SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 10km	-7 to -2	-12 to 2	5	10	Yes
SV-SFP28-LRD12	Starview SFP28 Single Fiber Bi-Directional module supporting 25GbE 1330nm TX/ 1270nm RX single fiber SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 10km	-7 to -2	-12 to 2	5	10	Yes

Absolute Maximum Ratings

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	VCC	0	3.6	V
Storage Temperature	Tc	-40	85	°C
Operating Case Temperature	Tc	-40	85	°C
Relative Humidity	RH	0	85	%
Damage Threshold	Pmin	3.5	-	dBm

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Units	Notes
Operating Case Temperature	Tc	-40		85	°C	
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Data Rate		24.3	25.78125		Gb/s	
Data Rate Operating Range		-100		100	ppm	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Link Distance with G.652	D	0.002		10	km	

Electrical Characteristics

Parameter	Test Point	Min	Typical	Max	Units	Notes
Power Consumption				1.5	W	
Supply Current	Icc			450	mA	
Transmitter						
Overload Differential Voltage pk-pk	TP1a	900			mV	
Common Mode Voltage (Vcm)	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	

See CEI-

Stressed Input Test	TP1a	28G-VSR Section			
13.3.11.2.1					
Receiver					
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	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	Unit	Notes
Transmitter						
Center Wavelength	λ_t		Ref order information		nm	
Center Wavelength Stability	$\Delta\lambda$	-10		10	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Power	Pavg	-7		2	dBm	1
Average launch power of OFF transmitter	Poff			-20	dBm	
Optical Modulation Amplitude	OMA	-4		2.2	dBm	2
Launch power in OMA minus TDP	OMA-TDP	-5			dBm	

Transmitter and dispersion penalty (TDP),	TDP		2.7	dB	
Extinction Ratio	ER	3		dB	
Transmitter eye mask definition	{X1, X2, X3, Y1, Y2, Y3}		{0.31, 0.4, 0.45, 0.34, 0.38, 0.4}		3
Optical Return Loss Tolerance	OTL		20	dB	
Transmitter Reflectance	TR		-26	dB	
Relative Intensity Noise	RIN _{20OMA}		-130	dB/Hz	
Receiver					
Center Wavelength	λ_r		Ref order information	nm	
Damage Threshold	TH _d	3		dBm	4
Average Receive Power		-13.3	2	dBm	5
Unstressed Receiver Sensitivity (OMA)	Sens		-12	dBm	6
Stressed receiver sensitivity (OMA)	SRS		-9.5	dBm	
LOS Assert	LOSA	-30		dBm	
LOS De-assert	LOSD		-13	dBm	
LOS Hysteresis	LOSH	0.5		dB	
Receiver Reflectance	RR		-26	dB	

Notes:

1. Average optical power shall be measured using the methods specified in TIA/EIA-455-95.
2. Even if the TDP < 1 dB, the OMA (min) must exceed this value.
3. Hit ratio 5×10^{-5} hits per sample.
4. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.
5. Average receive power (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.
6. Receiver sensitivity (OMA), (max) is informative. The bit error ratio (BER) shall be less than 5×10^{-5} .

Digital Diagnostic Functions

Parameter	Symbol	Min.	Max	Unit	Notes
Temperature monitor absolute error	DMI_Temp	-3	3	degC	Over operating tem
Laser power monitor absolute error	DMI_TX	-2	2	dB	1
RX power monitor absolute error	DMI_RX	-2	2	dB	1
Supply voltage monitor absolute error	DMI_VCC	-0.1	0.1	V	Full operating range
Bias current monitor	DMI_Ibias	-10%	10%	mA	

Notes:

1. Due to measurement accuracy of different single mode fibers, there could be an additional +/-1 dB fluctuation, or a +/- 3 dB total accuracy.