

SV-SFPP28-25GSRD

25Gbps, 850nm, Multi mode, 100m, with DDM



Features

- Compliant to IEEE802.3by 25GBASE-LR
- Up to 28.1Gb/s data links
- CWDM DFB transmitter, PIN photo-detector
- Duplex LC Connector
- 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
- Advanced firmware allow customer system encryption information to be stored in transceiver
- RoHS compliant

Applications

- High-speed storage area networks
- Computer cluster cross-connect
- Custom high-speed data pipes

Ordering Information

Part number	Description	TX Power (dBm)	RX Sens. (dBm)	Fiber Budget (dB)	Distance (km)	DDM
SV-SFPP28-25GSRD	Starview SFP28+ module 25G 850nm MM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 70m on 50/125um OM3 MM fiber, 100m for 50/125um MM OM4 MM fiber	-8.4 to 2.4	-10.3 to 2.4	1.9	0.1	YES

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature	Ts	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Power Supply Voltage	Vcc	0		3.6	V
Relative Humidity	RH	5		85	%
Damage Threshold	THd	3.4			dBm

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Case Temperature	Tc	0		70	°C	
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Data Rate, each Lane			25.78125		Gb/s	
Data Rate Accuracy		-100		100	ppm	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Power Consumption				1.5	W	
Supply Current	Icc			300	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	
Stressed Input Test	TP1a		See CEI-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		5.5	dB	
Eye Width at 10 ⁻¹⁵ probability (EW15)	TP4	0.57		UI	
Eye Height at 10 ⁻¹⁵ probability (EH15)	TP4	228		mV	

Note(1): Vcm is generated by the host. Specification includes effects of ground offset voltage.

Note(2): From 250MHz to 30GHz.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Center Wavelength	λ_t	840		860	nm	
RMS Spectral Width				0.6	nm	
Average Optical Power	Pavg	-8.4		2.4	dBm	
Optical Power OMA	POMA	-6.4		3	dBm	1
Launch power in OMA minus TDEC	POMA - TDEC	-7.3			dBm	
Transmitter and Dispersion Eye Closure	TDEC			4.3	dB	
Extinction Ratio	ER	2			dB	
Optical Return Loss Tolerance				12	dB	
Average Launch Power OFF Transmitter	P _{off}			-30	dBm	
Encircled Flux			≥86% at 19 μm ≤30% at 4.5 μm			2
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3} - Hit ratio 1.5x10 ⁻³ hits per sample			{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}			3

Receiver						
Center Wavelength	λ_r	840	850	860	nm	
Damage Threshold		3.4			dBm	4
Average Receiver Power		-10.3			dBm	5
Average Receiver Power (Overload)				2.4	dBm	6
Receiver Power (OMA) (Overload)				3	dBm	7
Stressed Receiver Sensitivity (OMA)				-5.2	dBm	8
Receiver Reflectance				-12	dB	
LOS Assert	LOSA	-30			dBm	
LOS Deassert	LOSD			-12	dBm	
LOS Hysteresis	LOSH	0.5			dB	
Stress Receiver Sensitivity Test Condition (note 9)						
Stressed Eye Closure (SEC)	SEC		4.3		dB	
Stressed Eye J2 Jitter	J2		0.39		UI	
Stressed Eye J4 Jitter	J4		0.53		UI	
OMA of each Aggressor Lane			3		dBm	
Stressed Receiver Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3} - Hit ratio 1.5x10 ⁻⁵ hits per sample		{0.28, 0.5, 0.5, 0.33, 0.33, 0.4}				
As Sinusoidal Jitter for Receiver Conformance Test		See IEEE802.3bm Table 95-11				

Note(1): Even if the TDEC < 0.9dB, the OMA(min) must exceed the minimum value specified here.
 Note(2): If measured into type A1a.2 or type A1a.3 50µm fiber in accordance with IEC 61280-1-4.
 Note(3): Mask margin shall be higher than 5%.
 Note(4): The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level on one lane. The receiver does not have to operate correctly at this input power.
 Note(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.
 Note(6): If TX ER < 5.68dB.
 Note(7): If TX ER > 5.68dB.
 Note(8): Measured with conformance test signal at TP3 for BER specified in IEEE802.3bm95.1.1.
 Note(9): These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

Digital Diagnostic Functions

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

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