SV-SFPP-25GLRD1Cxx

25Gbps, CWDM, Single mode, 10km, 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
- Wireless base station system

Ordering Information

Part number	Description	TX Power (dBm)	RX Sens. (dBm)	Fiber Budget (dB)	Distance (km)	DDM
SV-SFPP-25GLRD1Cxx	Starview SFP28+ module, 25G CWDM SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 10km.	-6.5 to 2.5	-13 to -11.3	6.5	10	YES

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	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	5		95	%
Damage Threshold	Pmin	3.5		-	dBm

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Case Temperature	Tc	-40		85	°C	
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Data Rate		24.3	25.78125	28.1	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	1

Note(1): When the long distance is used, it is recommended to use FEC to guarantee the link budget

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
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	
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	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	λt		Ref order information		nm	
Center Wavelength Stability	ΔλD	-6.5		6.5	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Power	Pavg	-6.5		2.5	dBm	1
Laser Off Power	Poff			-30	dBm	
Optical Modulation Amplitude	OMA	-4		2.5	dBm	2
Launch power in OMA minus TDP	OMA-TDP	-5			dBm	
Extinction Ratio	ER	3.5			dB	
Transmitter Optical Eye Mask	{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	T_R			-20	dB	
Relative Intensity Noise	RIN20OMA			-130	dB/Hz	

Receiver					
Center Wavelength	λr	1260	1350	nm	
Damage Threshold	TH_d	3.5		dBm	4
Average Receive Power		-13.3	2.5		5
Unstressed Receiver Sensitivity (OMA)	Sens		-11.3	dBm	6
LOS Assert	LOSA	-30		dBm	
LOS De-assert	LOSD		-13	dBm	
LOS Hysteresis	LOSH	0.5		dB	
Receiver Reflectance	R_R		-26	dB	

Note(1): Average optical power shall be measured using the methods specified in TIA/EIA-455-95.
Note(2): Even if the TDP < 1 dB, the OMA (min) must exceed this value.
Note(3): Hit ratio 5 x 10-5 hits per sample.
Note(4): The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.
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): Receiver sensitivity (OMA), (max) is informative. The bit error ratio (BER) shall be less than 1×10^{-12}.

Digital Diagnostic Functions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Temperature monitor absolute error	DMI_Temp	-3		3	°C	Over operating temp
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	

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.

λC Wavelength Guide

Wavelength(nm)	Code
1270 nm	27
1290 nm	29
1310 nm	31
1330 nm	33