

# SV-SFPP-16GERD4

16G FC 4G/ 8G/ 16Gbps Fibre Channel  
 Optical Transceiver, 1550nm, SM, 40km,  
 with DDM



## Features

- Operating data rate up to 14.025Gbps
- 14dB Power Budget
- Single 3.3V Power supply and TTL Logic Interface
- Duplex LC Connector Interface
- Hot Pluggable
- Power Dissipation < 2W
- Compliant with SFF-8431 MSA
- Compliant with SFF-8432 MSA
- Compliant with SFF-8472 MSA
- Compliant with 8G and 4G Fibre Channel
- Operating Case Temperature Standard: 0°C~+70°C
- Safety Certification: TUV/UL/FDA\*
- RoHS Compliant

## Applications

- Multi-rate 16x / 8x / 4x Fibre Channel
- Other optical links

## Ordering Information

Part number	Description	TX Power (dBm)	RX Sens. (dBm)	Fiber Budget (dB)	Distance (km)	DDM
<b>SV-SFPP-16GERD4</b>	Starview SFP+ Fiber Channel 4G/ 8G/ 16Gbps module 1550nm SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 40km	-0.0 to 4.0	-26.0 to -4.0	26.0	40	YES

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TS	-40	+85	°C
Supply Voltage	VCC	-0.5	3.6	V
Input Voltage	Vin	-0.5	Vcc	V

## Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	Tc	0		+70	°C
Power Supply Voltage	VCC	3.15	3.3	3.45	V
Power Supply Current	ICC		430	606	mA
Surge Current	ISurge			+30	mA
Baud Rate		4.25	14.025		Gbps

## Performance Specifications – Electrical

Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Transmitter						
CML Inputs(Differential)	Vin	250		1000	mVpp	AC coupled inputs
Input Impedance (Differential)	Zin	85	100	115	ohm	Rin > 100 kohms @ DC
Differential Input S-parameter	SDD11	-	-	-10	dB	
Differential to Common Mode Conversion	SCD11	-	-	-10	dB	
Tx_DISABLE Input Voltage – High		2		3.45	V	
Tx_DISABLE Input Voltage – Low		0		0.8	V	
Tx_FAULT Output Voltage – High		2		Vcc+0.3	V	Io = 400µA; Host Vcc
Tx_FAULT Output Voltage – Low		0		0.5	V	Io = -4.0mA
Receiver						
CML Outputs (Differential)	Vout	350		700	mVpp	AC coupled outputs
Output AC Common Mode Voltage		0		15	mV	RMS
Output Impedance (Differential)	Zout	85	100	115	ohm	

Differential Output S-parameter	SD22	-	-	-10	dB	
Rx_LOS Output Voltage – High		2		V <sub>CC</sub> +0.3	V	I <sub>o</sub> = 400µA; Host V <sub>CC</sub>
Rx_LOS Output Voltage – Low		0		0.8	V	I <sub>o</sub> = -4.0mA
MOD_DEF ( 0:2 )	VoH	2.5			V	With Serial ID
	VoL	0		0.5	V	

## Performance Specifications – Optical

Parameter	Symbol	Min.	Typical	Max.	Unit
Power Budget			14		dB
Data Rate		4.25	14.025		Gbps
Transmitter					
Optical Wavelength	$\lambda_C$	1530	1550	1565	nm
-20dB Spectrum Width	$\Delta\lambda$			1	nm
Side Mode Suppression Ratio	SMSR	30			dB
Average Output Power*Note4	P <sub>out</sub>	0		+4	dBm
Extinction Ratio	ER	8.2			dB
Average Power of OFF Transmitter	P <sub>off</sub>			-30	dBm
Transmitter Dispersion Penalty	TDP			2.5	dB
TX Disable Assert Time	t <sub>off</sub>	-	-	10	us
TX_DISABLE Negate Time	t <sub>on</sub>	-	-	1	ms
TX_BISABLE time to start reset	t <sub>reset</sub>	10	-	-	us
Time to initialize, include reset of TX_FAULT	t <sub>init</sub>	-	-	300	ms
TX_FAULT from fault to assertion	t <sub>fault</sub>	-	-	100	us
Total Jitter	TJ	-	-	0.28	UI(p-p)
Data Dependant Jitter	DDJ	-	-	0.1	UI(p-p)
Uncorrelated Jitter	UJ	-	-	0.023	RMS
Receiver					
Centre Wavelength	$\lambda$	1260		1370	nm
Sensitivity*Note5	P <sub>min</sub>			-14	dBm
Receiver Overload	P <sub>max</sub>	0			dBm
Optical Return Loss	ORL			-12	dB
LOS De-Assert	LOSD			-16	dBm
LOS Assert	LOSA	-26			dBm
LOS	High	2.0		V <sub>CC</sub> +0.3	V
	Low	0		0.8	

Note4: Output is coupled into a 9/125um SMF.

Note5: Minimum average optical power measured at the BER less than  $1\text{E-}12$ , back to back. The measure patternis PRBS  $2^{31}-1$ .