

## Features

- 10Gb/s serial optical interface compliant to 802.3ae 10GBASE-ER/EW
- Electrical interface compliant to SFF-8431 specifications
- 1550nm cooled EML transmitter with TEC, PIN photo-detector
- 2-wire interface for management specifications compliant with SFF 8472 Standard
- Operating case temperature: 0 to 70 °C
- All-metal housing for superior EMI performance
- Low power consumption, less than 1.5w
- Advanced firmware allow customer system encryption information to be stored in transceiver
- cost effective SFP+ solution, enables higher port densities and greater bandwidth
- RoHS compliant



## Applications

- 10GBASE-ER/EW
- 10GBASE-ER/EW + FEC
- 10G Storage system

## ABSOLUTE MAXIMUM RATING

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	V <sub>cc</sub>	0	3.6	V
Storage Temperature	T <sub>c</sub>	-40	85	°C
Operating Case Temperature	T <sub>c</sub>	0	70	°C
Relative Humidity	RH	5	95	%
RX Input Average Power	P <sub>max</sub>	-	0	dBm

## RECOMMENDED OPERATING ENVIRONMENT

Parameters	Symbol	Min.	Typical	Max	Unit
Power Supply Voltage	V <sub>cc</sub>	3.135	3.3	3.465	V
Power Supply Current	I <sub>cc</sub>	-	350	450	mA
Operating Case Temperature	T <sub>c</sub>	0	25	70	°C

**OPTICAL CHARACTERISTICS**

Parameter	Symbol	Min.	Typical	Max	Unit	Note
Operating Reach				40	km	
<b>Transmitter</b>						
Center wavelength	$\lambda$	1530		1565	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Optical spectrum width(-20dB)				1	nm	
Launched power	Po	-3		3	dBm	
Launched power in OMA		-2.1			dBm	
Transmitter and dispersion penalty	DP			2	dB	4
Average launch power of OFF transmitter	Poff			-30	dBm	
Extinction ratio	ER	6			dB	
RIN	RIN			-128	dB/Hz	
Optical Return Loss Tolerance	RL	21			dB	
<b>Receiver</b>						
Center wavelength	$\lambda$	1250	-	1600	nm	
Receiver Overload		-1			dBm	
Receiver Sensitivity	RSEN			-15.8	dBm	1
Receiver sensitivity in OMA				-14.1	dBm	2
Receiver Reflectance	Rf			-26	dB	
Stressed receiver sensitivity in OMA				-11.3	dBm	
Vertical eye closure penalty				2.7	dB	3
LOS Assert	LOSA	-30			dBm	
LOS De-assert	LOSD			-16	dBm	
LOS Hysteresis		0.5			dB	
Stressed eye jitter		0.3			UI	2
Receive electrical 3dB upper cutoff frequency				12.3	GHz	

Receiver power (damage)				5	dBm	
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**Notes:**

1. Average optical power shall be measured using the methods specified in TIA/EIA-455-95.
2. Receiver sensitivity is informative. Stressed receiver sensitivity shall be measured with conformance test signal for BER =  $1 \times 10^{-12}$ .
3. Vertical eye closure penalty and stressed eye jitter are the test conditions for measuring stressed receiver sensitivity. They are not the required characteristic of the receiver.
4. Path penalty is intended as the power penalty of the interface between back-to-back and the maximum applied dispersion.

**ELECTRICAL CHARACTERISTICS**

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Data Rate		-	10.3125	11.3	Gbps	NRZ
Power Consumption		-	1200	1500	mW	
<b>Transmitter</b>						
Single Ended Output Voltage Tolerance		-0.3	-	4	V	
C common mode voltage tolerance		15	-	-	mV	
Tx Input Diff Voltage	VI	180		700	mV	
Tx Fault	VoL	-0.3		0.4	V	
	Voh	2.0		Vcc+0.3	V	
Tx Disable	VoL	Vee		Vee+0.8	V	
	Voh	2		Vcc	V	
Data Dependent Input Jitter	DDJ			0.1	UI	
Data Input Total Jitter	TJ			0.28	UI	
<b>Receiver</b>						
Single Ended Output Voltage Tolerance		-0.3	-	4	V	
Rx Output Diff Voltage	Vo	300		850	mV	
Rx Output Rise and Fall Time	Tr/Tf	30			ps	20% to 80%
Total Jitter	TJ			0.7	UI	
Deterministic Jitter	DJ			0.42	UI	

**DITITAL DIAGNOSTIC FUNCTIONS**

Parameter	Symbol	Min.	Max	Unit	Notes
Temperature monitor absolute error	DMI_Temp	-3	3	degC	Over operating temp
Laser power monitor absolute error	DMI_TX	-3	3	dB	
RX power monitor absolute error	DMI_RX	-3	3	dB	-1dBm to -15dBm range
Supply voltage monitor absolute error	DMI_VCC	-0.1	0.1	V	Full operating range
Bias current monitor	DMI_Ibias	-10%	10%	mA	

**Ordering Information**

Part number	Description	TX Power (dBm)	RX Sens. (dBm)	Fiber Budget (dB)	Distance (km)	DDM
<b>SV-SFPP-6GLRD4H</b>	Starview SFP module Multi-rate 1.25Gbps to 6.25Gbps supporting CPRI and OBSAI Fiber Optic 1550nm SM (LC) with Digital Diagnostic Monitoring (DDM), Industrial temperature range, distance up to 40km	-3 to 3	-14.1 to -1	11.1	40	NO