

HSGQ-SFP 25G 1SR 85



Product Features

- Up to 25.7813Gbps Data Links
- 850nm VCSEL laser transmitter and PIN receiver
- Maximum link length of 70m on OM3 Multimode Fiber (MMF) and 100m on OM4 MMF

Absolute Maximum Ratings

Parameter	Symbol	Min	Тур	Max	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5	1270	3.6	V	
Storage Temperature	TS	-40	1330	85	°C	

- Hot-pluggable SFP28 footprint
- Duplex LC receptacles
- Low power dissipation
- RoHS compliant and lead-free
- Support Digital Diagnostic Monitor interface
- 0°C to +70°C case operating temperature

Case Operating Temperature	TOP	0	70	°C	
Relative Humidity	RH	0	85	%	2

Note: 1. Exceeding any of these values may immediately damage the device. 2. Non-condensing.

Digital Diagnostic Monitoring Information

Compliance	Parameter	Unit	Accuracy
Compliance	Case Temperature	°C	±3
• SFF-8472	Supply Voltage	V	±3%
• SFF-8402	Tx Bias Current	mA	±10%
• SFF-8432	Tx Optical Power	dB	±3
• SFF-8431	Rx Optical Power	dB	±3

Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes	Parameter	Symbol	Min	Typical	Max	Unit	Notes
	Receiver												
Center Wavelength	λc	840	850	860	nm	1	Center Wavelength	λc	840	850	860	nm	
RMS Spectral Width	Pm			0.6	nm		Receiver Stress Sensitivity, OMA				-5.2	dBm	
Average Output Power	Pavg	-8.4		2.4	dBm	1	Receiver Sensitivity,				-10.3	dBm	1
Optical Modulation Amplitude (OMA)	Poma	-6.4		3	dBm		Average Power				-5.2	dBm	2
Extinction Ratio	ER	2			dB		Receiver Reflectance	Rfl			-26	dBm	
Transmitter Dispersion Penalty	TDEC			4.3	dB		Loss of Signal Assert	PA	-30			dBm	
Optical Return Loss Tolerance	TOL			12	dB		Loss of Signal De-assert	PD			-13	dBm	
Transmitter OFF Output Power	POff			-30	dBm		LOS Hysteresis	PD- PA	0.5			dB	
Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}, Hit ratio 1.5E-3						Note: 1.BER=5×10-5; PRBS 231-1@25.78195Gbps. 2.BER=1×10-12; PRBS 231-1@25.78195Gbps. 3.TOP = 0°C to 70°C, VCC = 3.3 ± 5% Volts.							

Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes	Parameter	Symbol	Min	Typical	Max	Unit	Notes
Supply Voltage	Vcc	3.135	3.3	3.465	V	1	Supply Current	Icc			300	mA	
Transmitter									Receiver				
Input differential impedance	Rin		100			1	Differential data output swing	Vout, pp	200		1000	mV	2
Differential data input swing	Vin, pp	200		1000	mV		LOS Fault	VLOS_fault	2		Vcc	V	3
Transmit Disable Voltage	VD	2		Vcc	V		LOS Normal	VLOS_norm	Vee		Vee+0.8	V	3
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V		Receiver Threshold Settling Time	VccT/VccR	Per S	FF-8431	Rev 4.1	mVpp	

Note: 1. Connected directly to TX data input pins.AC coupling from pins into laser driver IC.

2. Into 100Ω differential termination.

3. Measured with Module Compliance Test Board and OMA test pattern. Use of four 1's and four 0's in sequence in the PRBS^9 is

an acceptable alternative. SFF-8431 Rev 4.1.

4. TOP = 0°C to 70°C, VCC = $3.3 \pm 5\%$ Volts.

Pin Assignment and Description

PIN	Symbol	Description	Notes		
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1		VEER 10 VEER RS1 9
2	Tx Fault	Transmitter Fault.	2	11	RD- Rx_LOS 8
3	Tx Disable	Transmitter Disable. Laser output disabled on high or open	3	13	RD+ RS0 7
4	SDL	2-wire Serial Interface Data Line	4	14	VEER MOD-ABS 6
5	SCL	2-wire Serial Interface Clock Line	4	TOWARD 15 HOST WITH 16	VccR SCL 5 VccT SDA 4 BEZEL
6	MOD-ABS	Module Absent. Grounded within the module	4	DIRECTION OF MODULE 17	VEET TX_DISABLE 3
7	RS0	No connection required		INSERTION 18	TD+ Tx_Fault 2
8	LOS	Loss of Signal indication. Logic "0" indicates normal operation.	5	19	TD- VEET 1 VEET
9	RS1	No connection required		20	VEET

4	SDL	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD-ABS	Module Absent. Grounded within the module	4
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic "0" indicates normal operation.	5
9	RS1	No connection required	
10	VeeR	Receiver Ground (Common with Transmitter Ground)	1
11	VeeR	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out.AC Coupled	
13	RD+	Receiver Non-inverted DATA out.AC Coupled	
14	VeeR	Receiver Ground (Common with Transmitter Ground)	1
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground)	1

Note:

 Circuit ground is internally isolated from chassis ground. TFAULT is an open collector/drain output, which is

- pulled up with a 4.7kΩ 10kΩ resistor on the host board, but is grounded inside the SFP+ cable plug.
 Laser output disabled on TDIS >2.0V or open, enabled
- 3. on TDIS <0.8V. Should be pulled up with $4.7k\Omega - 10k\Omega$ on host board

4. to a voltage between 2.0V and 3.6V.MOD_ABS pull line low to indicate module is plugged in.

LOS is open collector output. Should be pulled up with

 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

For more information, please visit: http://www.hsgq.com

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