



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
- 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

Compliance

- SFF-8472
- SFF-8402
- SFF-8432
- SFF-8431

Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λ_c	840	850	860	nm	/
RMS Spectral Width	Pm			0.6	nm	
Average Output Power	Pavg	-8.4		2.4	dBm	1
Optical Modulation Amplitude (OMA)	Poma	-6.4		3	dBm	
Extinction Ratio	ER	2			dB	
Transmitter Dispersion Penalty	TDEC			4.3	dB	
Optical Return Loss Tolerance	TOL			12	dB	
Transmitter OFF Output Power	POff			-30	dBm	
Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}, Hit ratio 1.5E-3	{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}					

Absolute Maximum Ratings

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

Parameter	Unit	Accuracy
Case Temperature	°C	±3
Supply Voltage	V	±3%
Tx Bias Current	mA	±10%
Tx Optical Power	dB	±3
Rx Optical Power	dB	±3

Electrical Characteristics

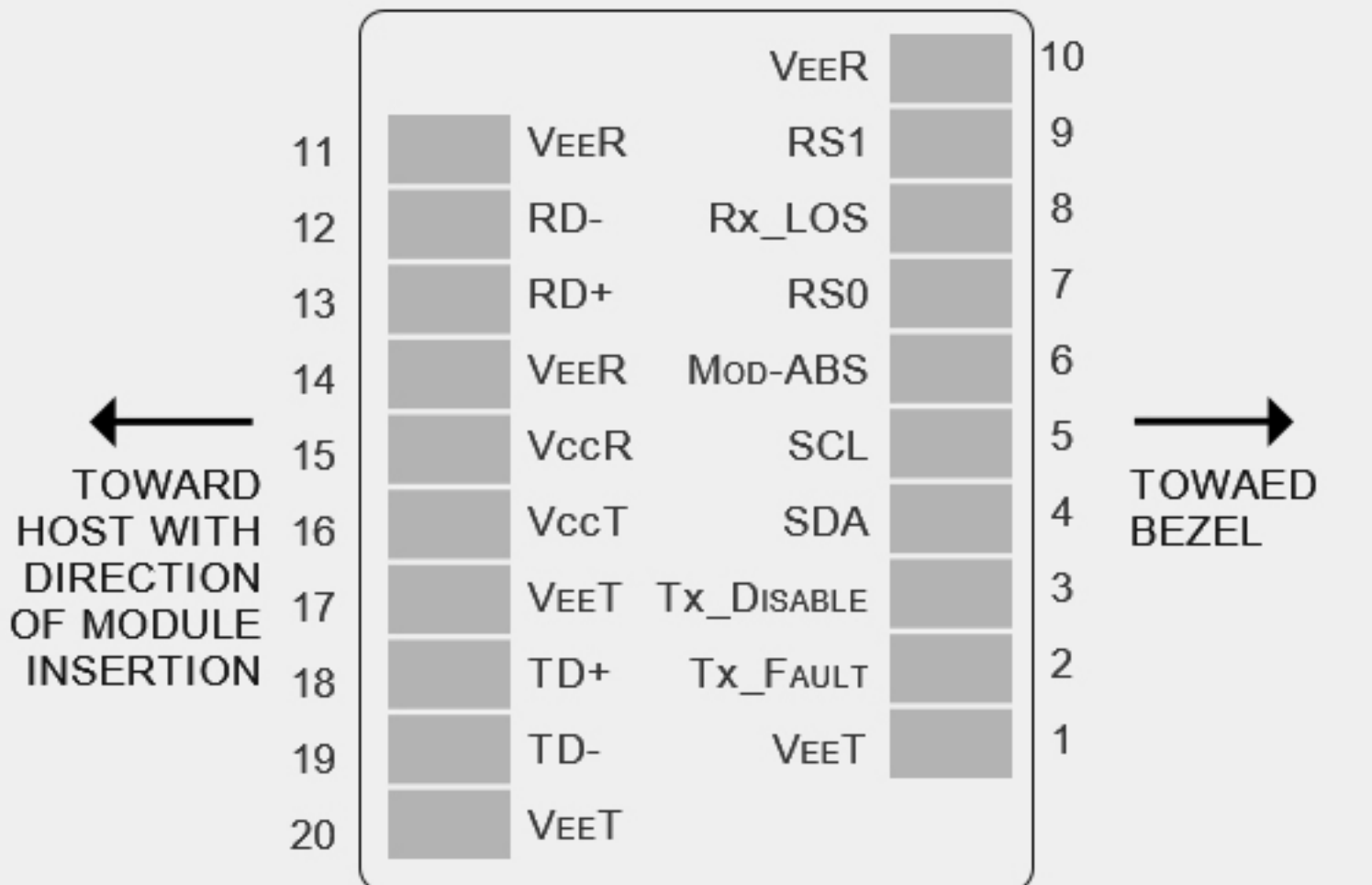
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Supply Voltage	Vcc	3.135	3.3	3.465	V	/
Transmitter						
Input differential impedance	Rin		100			1
Differential data input swing	Vin, pp	200		1000	mV	
Transmit Disable Voltage	VD	2		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	

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 PRBS⁹ is an acceptable alternative. SFF-8431 Rev 4.1.
4. TOP = 0°C to 70°C, VCC = 3.3 ± 5% Volts.

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Supply Current	Icc			300	mA	
Receiver						
Differential data output swing	Vout, pp	200		1000	mV	2
LOS Fault	VLOS_fault	2		Vcc	V	3
LOS Normal	VLOS_norm	Vee		Vee+0.8	V	3
Receiver Threshold Settling Time	VccT/VccR	Per SFF-8431 Rev 4.1			mVpp	

Pin Assignment and Description

PIN	Symbol	Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	Tx Fault	Transmitter Fault.	2
3	Tx Disable	Transmitter Disable. Laser output disabled on high or open	3
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 4.7kΩ – 10kΩ on host board
 - 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>

