

## Features

- Compliant to IEEE802.3by 25GBASE-SR
- 25Gb/s optical interface
- 25G 850nm VCSEL transmitter
- 25G PIN photo-detector
- 2-wire interface for management specifications compliant with SFF-8472 digital diagnostic monitoring interface for optical transceivers
- Operating case temperature: 0 to 70°C
- All-metal housing for superior EMI performance
- 25G electrical interface (OIF CEI-28G-VSR)
- Maximum power consumption 1.0W
- Advanced firmware allows 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
- Inter Rack Connection

### 1. Absolute Maximum Ratings

Any stress beyond the maximum ratings can result in permanent damage. The device specifications are guaranteed only under the recommended operating conditions.

Parameter	Symbol	Min	Max	Unit
Storage Temperature	Ts	-20	85	°C
Operating Case Temperature	Ts	0	70	°C
Power Supply Voltage	Vcc	0	3.6	V
Relative Humidity	RH	5	85	%
Damage Threshold	THd	3.4		dBm

## 2. Recommended Operating Environment

Recommended Operating Environment specifies parameters for which the electrical and optical characteristics hold unless otherwise noted.

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case temperature	Tca	0	-	70	°C
Power Supply Voltage	Vcc	3.135	3.3	3.465	V
Data Rate, each lane			25.78125		Gb/s
Data Rate Accuracy		-100		100	ppm
Control Input Voltage High		2		Vcc	V
Control Input Voltage Low		0		0.8	V

## 3. Electrical Characteristics

The following electrical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Test Point	Min	Typ	Max	Units	Notes
Power Consumption				1.0	W	
Supply Current	Icc			300	mA	
<b>Transmitter</b>						
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				
<b>Receiver</b>						
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			5.5	dB	
Eye Width at 10 <sup>-15</sup> probability (EW15)	TP4	0.57			UI	
Eye Height at 10 <sup>-15</sup> probability (EH15)	TP4	228			mV	

**Notes:**

1. Vcm is generated by the host. Specification includes effects of ground offset voltage.
2. From 250MHz to 30GHz.

**4. Optical Characteristics**

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min	Typ	Max	Units	Notes
<b>Transmitter</b>						
Center Wavelength	λt	840		860	nm	
RMS Spectral Width				0.6	nm	
Average Optical Power	Pavg	-8.4		2.4	dBm	
Optical Power OMA	POMA	-6.4		3	dBm	1
Launch power in OMA minus TDEC	POMA-TDEC	7.3			dBm	
Transmitter and Dispersion Eye Closure	TDEC			4.3	dB	
Extinction Ratio	ER	2			dB	
Optical Return Loss Tolerance				12	dB	
Average Launch Power OFF Transmitter	Poff			-30	dBm	
Encircled Flux		≥86% at 19 μm ≤30% at 4.5 μm				2

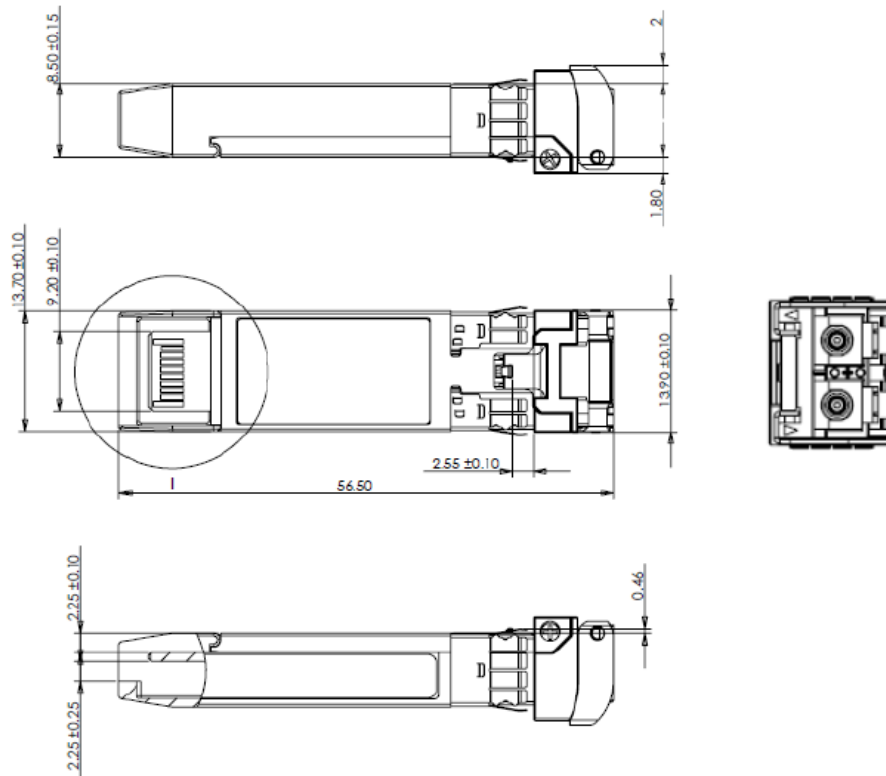
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3} - Hit ratio 1.5x10 <sup>-3</sup> hits per sample		{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}				3
<b>Receiver</b>						
Center Wavelength	$\lambda_r$	840	850	860	nm	
Damage Threshold		3.4			dBm	4
Average Receiver Power		-10.3			dBm	5
Average Receiver Power (Overload)				2.4	dBm	6
Receiver Power (OMA) (Overload)				3	dBm	7
Stressed Receiver Sensitivity (OMA)				-5.2	dBm	8
Receiver Reflectance				-12	dB	
LOS Assert	LOSA	-30			dBm	
LOS Deassert	LOSD			-12	dBm	
LOS Hysteresis	LOSH	0.5			dB	
<b>Stressed Receiver Sensitivity Test Condition (Note 9)</b>						
Stressed Eye Closure (SEC)	SEC		4.3		dB	
Stressed Eye J2 Jitter	J2		0.39		UI	
Stressed Eye J4 Jitter	J4		0.53		UI	
OMA of each Aggressor Lane			3		dBm	
Stressed Receiver Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3} - Hit ratio 1.5x10 <sup>-5</sup> hits per sample		{0.28, 0.5, 0.5, 0.33, 0.33, 0.4}				
As Sinusoidal Jitter for Receiver Conformance Test		See IEEE802.3bm Table 95-11				

**Notes:**

1. Even if the TDEC < 0.9dB, the OMA (min) must exceed the minimum value specified here.
2. If measured into type A1a.2 or type A1a.3 50µm fiber in accordance with IEC 61280-1-4.
3. Mask margin shall be higher than 5%.
4. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level on one lane. The receiver does not have to operate correctly at this input power.
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.
6. If TX ER < 5.68dB.

7. If TX ER > 5.68dB.
8. Measured with conformance test signal at TP3 for BER specified in IEEE802.3bm 95.1.1.
9. These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

## 5. Mechanical Diagram



**Note:** External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

## 6. Ordering Information

OEM	Part Number	OEM	Part Number
Avago	AFBR-725SMZ-A	Finisar	FTLF8536P4BNL-A
Brocade-Foundry	25G-SFP28-SR-A	Finisar	FTLF8536W4BTL-A
Chelsio	SM25G-SR-A	Juniper	JNP-SFP-25G-SR-A
Dell	407-BCBF-A	Lenovo	7G17A03537-A
Dell	407-BCBK-A	Mellanox	25GES-SR-MLX
Edgecore	ET7302-SR-A	MSA	AN-SFP25G-SR
Finisar	FTLF8536P4BCL-A	OnePort	OP-SFP25G-SR
		Samsung	SFG-AFE000DBVZ-A

## 7. Contact Information

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