

SFP28-SR

25GBASE, SFP28, SR, MMF TRANSCEIVER

850nm, 100m REACH, DUPLEX LC CONNECTOR

Product Features

- Up to 25.78Gbps Data Links
- Up to 100m transmission on MMF
- Compliant to IEEE802.3by 25GBASE-SR
- Power dissipation < 1.0W
- Metal enclosure for lower EMI
- 2-wire interface for management specifications compliant with SFF-8472 digital diagnostic monitoring interface for optical transceivers
- 25G 850nm VCSEL transmitter
- 25G PIN photo-detector
- RoHS compliant
- Available operating temperature ranges:
 - Commercial: 0°C to 70°C
 - Industrial: -40°C to 85°C



Product Applications

- 25GBase-SR Ethernet
- FC / CPRI

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	TS	-20		+85	°C
Power Supply Voltage	Vcc	0		3.6	V
Relative Humidity	RH	5		85	%
Damage Threshold	THd	3.4			dBm

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	0		+70	°C	Commercial
		-40		+85	°C	Industrial
Power Supply Voltage	VCC	3.14	3.3	3.47	V	
Data Rate, each lane	BR		25.78125		Gbps	
Data Rate Accuracy		-100		100	ppm	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Transmission Distance	TD			100	m	
Coupled fiber	Multi-mode fiber					

III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ	840	850	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		7.3			dBm	
Transmitter Dispersion Eye Closure	TDEC			4.3	dB	
Extinction Ratio	ER	2			dB	
Optical Return Loss Tolerance	OTL			12	dB	
Encircled Flux		$\geq 86\%$ at $19\ \mu\text{m}$ $\leq 30\%$ at $4.5\ \mu\text{m}$				2
Average Launch Power OFF Transmitter	Poff			-30	dBm	
Eye Mask {X1, X2, X3, Y1, Y2, Y3} : Hit ratio 1.5×10^{-3} hits per sample		{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}				3

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver						
Center Wavelength	λ	840	850	860	nm	
Damage Threshold	THD	3.4			dBm	4
Average Receive Power		-10.3			dBm	5
Average Receive Power (Overload)				2.4	dBm	6
Receiver Power (OMA – Overload)				3	dBm	7
Stressed Receiver Sensitivity (OMA)				-5.2	dBm	8
Receiver Reflectance	RR			-12	dB	
LOS Assert	LOS A	-30			dBm	
LOS Deassert	LOS D			-12	dBm	
LOS Hysteresis	LOS H	0.5			dB	
Stressed Receiver Sensitivity Test Condition						9
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	
As Sinusoidal Jitter for Receiver Conformance Test		See IEEE802.3bm (Table 95-11)				
SRS Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3} Hit ratio 5x10 ⁻⁵ per sample		{0.28, 0.5, 0.5, 0.33, 0.33, 0.4}				

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 50 μ m 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.

IV. Electrical Characteristics

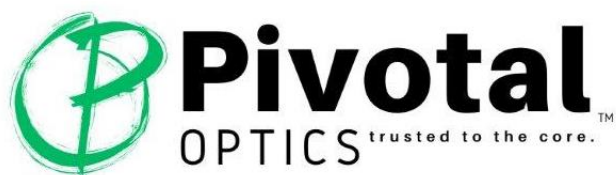
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption				1.0	W	
Supply Current	Icc			300	mA	
Transmitter						
Overload Differential Voltage pk-pk	TP1a	900			mV	
Common Mode Voltage (Vcm)	TP1	-350		2850	mV	1
Differential Termination Resistance Mismatch	TP1			10	%	@1MHz
Differential Return Loss (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				
Receiver						
Differential Voltage, pk-pk	TP4			900	mV	
Common Mode Voltage (Vcm)	TP4	-350		2850	mV	
Common Mode Noise, RMS	TP4			17.5	mV	
Differential Termination Resistance Mismatch	TP4			10	%	@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 (SDC11, SCD11)	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 ⁻¹⁵ probability (EW15)	TP4	0.57			UI	
Eye Height at 10 ⁻¹⁵ probability (EH15)	TP4	228			mV	

Notes:

- V_{cm} is generated by the host. Specification includes effects of ground offset voltage.
- From 250MHz to 30GHz.

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850nm, 100m REACH, DUPLEX LC CONNECTOR



v. Ordering Information

Pivotal Part Number	Description
SFP28-SR	SFP28, 850nm, SR MMF 100m, 25G DDM, C-Temp
SFP28-SRI	SFP28, 850nm, SR MMF 100m, 25G DDM, I-Temp

Notes:

1. Please contact sales for specific OEM Platform part numbers to fit your network.

Warranty

<https://pivotaloptics.com/warranty/>

Disclaimer

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.