

SFP28-ZR

25GBASE, SFP28, ZR, SMF TRANSCEIVER

1310nm, 80km REACH, DUPLEX LC CONNECTOR

Product Features

- Up to 25.78Gb/s data links
- 1310nm DFB laser and PIN+SOA receiver
- Up to 80km on 9/125um SMF
- Hot-pluggable SFP footprint
- Support Digital Monitoring interface
- Class 1 laser safety certified
- Cost effective SFP28 solution, enables higher port densities and greater bandwidth
- RoHS-10 compliant and lead-free
- Single +3.3V power supply
- 2-wire interface for management specifications compliant with SFF-8472 digital diagnostic monitoring interface for optical transceivers
- All-metal housing for superior EMI performance
- Available operating temperature ranges:
 - Commercial: 0°C to 70°C
 - Industrial: -40°C to 85°C



Product Applications

- 2High-speed storage area networks
- 25GBASE 80KM
- Other Optical Links

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	TS	-40		+85	°C
Relative Humidity (non-condensing)	RH	5		95	%
Power Supply Voltage	Vcc	-0.5		3.6	V
Damage Threshold	THd	3			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	3.135	3.3	3.465	V	
Data Rate			25.78		Gbps	
Control Input Voltage High		2		Vcc		
Control Input Voltage Low		0		0.8		
Transmission Distance	TD			80	km	9/125um

III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_c	1295	1310	1325	nm	
Optical Spectral Width	$\Delta\lambda$			1	nm	
Average Optical Power	P _{AVG}	1		6	dBm	1
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	6			dB	
Transmitter OFF Output Power				-30	dBm	
Optical Return Loss Tolerance	OTL			20	dB	
Transmitter Reflectance	TR			-26	dB	
Transmitter Eye Mask	Compliant with IEEE802.3ae					
Receiver						
Center Wavelength	λ_c	1295	1310	1325	nm	
Average Receive Power		-30		-7	dBm	
Receiver Sensitivity (average, each lane)	Sen 1			-23	dBm	2
	Sen 2			-29	dBm	3
Input Saturation Power (Overload)	Psat	-7			dBm	
LOS Assert	LOS A	-40			dBm	
LOS Deassert	LOS D			-29	dBm	
LOS Hysteresis	LOS H	0.5			dB	
Damage Threshold	THd	-3			dBm	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulations.
2. Measured @25.78125Gbps, ER=6.2dB, BER=<1E-12, PRBS=2³¹-1
3. Measured @25.78125Gbps, ER=6.2dB, BER=<5E-5, PRBS=2³¹-1

IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	P			3	W	
Supply Current	I _{cc}			865	mA	
Transmitter						
Single-ended Input Voltage Tolerance	V _{cc}	-0.3		4.0	V	
Common mode voltage tolerance		15			mV	
Differential Input Voltage Swing	V _{in,pp}	180		700	mVpp	
Differential Input Impedance	Z _{in}	90	100	110	Ohm	1
Transmit Disable Assert Time					us	
Transmit Disable Voltage	V _{dis}	V _{cc} -1.3		V _{cc}	V	
Transmit Enable Voltage	V _{en}	V _{ee}		V _{ee} +0.8	V	2
Receiver						
Single-ended Input Voltage Tolerance	V _{cc}	-0.3		4.0	V	
Differential Output Voltage Swing	V _{out,pp}	300		900	mVpp	
Differential Output Impedance	Z _{out}	90	100	110	Ohm	3
Data output rise/fall time	Tr/Tf		12		ps	4
LOS Assert Voltage	LOSA	V _{cc} -1.3		V _{cc}	V	5
LOS De-assert Voltage	LOSD	V _{ee}		V _{ee} +0.8	V	5

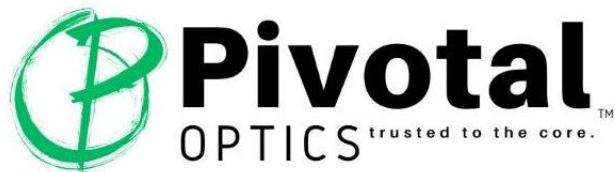
Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Input 100 ohms differential termination.
4. These are unfiltered 20-80% values.
5. Loss of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

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V. Ordering Information

Pivotal Part Number	Description
SFP28-ZR	SFP28, 1310nm, ZR SMF 80km, 25G DDM, C-Temp
SFP28-ZRI	SFP28, 1310nm, ZR SMF 80km, 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.