

QSFP28-SR4-100GD

100GBASE, QSFP28, SR4, MMF TRANSCEIVER**850nm, 100m REACH, MTP/MPO CONNECTOR**

Product Features

- 4 independent full-duplex channels
- Up to 28Gb/s data rate per channel
- QSFP28 MSA compliant
- Up to 100m OM4 MMF transmission
- Compliant to IEEE 802.3bm
- 100GBASE-SR4
- Single 3.3V power supply
- Maximum power consumption 3.5W
- MTP/MPO optical connector
- RoHS-6 compliant
- Case operating temperature:
 - Commercial: 0°C to 70°C
 - Industrial: -40°C to 85°C



Product Applications

- 100GBASE Ethernet Links
- Infiniband QDR and DDR interconnects
- Data Center

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
Power Supply Voltage	Vcc	-0.5		3.6	V
Relative Humidity (non-condensation)	RH	0		85	%
Damage Threshold (each lane)	THd	3.4			dBm

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	0		70	°C	Commercial
		-40		+85		Industrial
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Data Rate, each Lane			25.78125		Gb/s	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Link Distance (OM3 MMF)				70	M	
Link Distance (OM4 MMF)				100	M	

III. Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λ_C	840	850	860	nm	
RMS Spectral Width	$\Delta\lambda_{rms}$			0.6	nm	
Avg. Optical Launch Power (each lane)	PAVG	-8.4		2.4	dBm	
Optical Modulation Amplitude (each lane)	POMA		-6.4	3.0	dBm	1
Difference in launch power between any two lanes (OMA)	Ptx,diff			4.0	dB	
Launch Power in OMA minus TDP (each lane)		-7.3			dBm	
Transmitter and Dispersion Penalty (each lane)				4.3	dB	
Extinction Ratio	ER	2.0			dB	
Optical Return Loss Tolerance	TOL			12	dB	
Encircled Flux		$\geq 86\%$ at 19um $\leq 30\%$ at 4.5um				
Transmitter eye mask { X1, X2, X3, Y1, Y2, Y3 } 5x10-5 hits/sample		{ 0.3, 0.38, 0.45, 0.35, 0.41, 0.5 }				
Average Launch Power OFF Transmitter (each lane)	Poff			-30	dBm	
Stressed Eye Closure (SEC), Lane under Test				4.3	dB	
Stressed Eye J2 Jitter, Lane under Test	J2			0.39	UI	
Stressed Eye J4 Jitter, Lane under Test	J4			0.53	UI	
OMA of each Aggressor Lane				2	dBm	
Stressed Receiver eye mask definition { X1, X2, X3, Y1, Y2, Y3 }		{ 0.28, 0.5, 0.5, 0.33, 0.33, 0.4 }				

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Receiver						
Center Wavelength	λ_C	840	850	860	nm	
Damage Threshold (each lane)	THd	3.4			dBm	2
Average Receive Power (each lane)		-10.3		2.4	dBm	
Receiver Reflectance	RR			-12	dB	
Receive Power (OMA), (each lane)				3.0	dBm	
Receiver Sensitivity (OMA), (each lane)	SEN			-9.2	dBm	
Stressed Receiver Sensitivity (OMA), each Lane				-5.2	dBm	3
LOS Assert	LOSA	-30			dBm	
LOS De-assert	LOSD			-12	dBm	
LOS hysteresis	LOSH	0.5			dB	

Notes:

1. Even if the TDP < 0.9 dB, the OMA min must exceed the minimum value specified here.
2. The receiver shall be able to tolerate, without damage, continuous exposure to a modulated optical input signal having this power level on one lane. The receiver does not have to operate correctly at this input power.
3. Measured with conformance test signal at receiver input for BER = 1×10^{-12} .
4. Stressed eye closure and stressed eye jitter are test conditions for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

IV. Electrical Characteristics

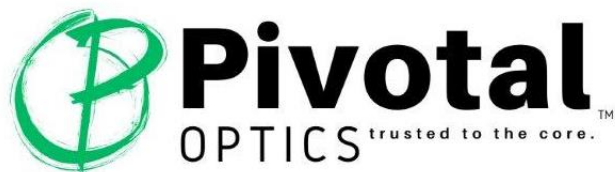
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	p			3.5	W	
Supply Current	I _{cc}			1060	mA	
Transceiver Power-on Initialization Time				2000	ms	1
Transmitter						
Single-ended Input Voltage Tolerance		-0.3		4.0	V	2
AC Common Mode Input Voltage Tolerance		15			mV	RMS
Differential Input Voltage Swing Threshold (LOSA)		50			mV _{pp}	LOSA Threshold
Differential Input Voltage Swing	V _{in,pp}	180		1000	mV _{pp}	
Differential Input Impedance	Z _{in}	90	100	110	Ohm	
Total Jitter				0.40	UI	
Deterministic Jitter				0.15	UI	
Receiver						
Single-ended Output Voltage		-0.3		4.0	V	
AC Common Mode Output Voltage				7.5	mV	RMS
Differential Output Voltage Swing	V _{out,pp}	300		850	mV _{pp}	
Differential Output Impedance	Z _{out}	90	100	110	Ohm	
Total Jitter				0.3	UI	
Deterministic Jitter				0.3	UI	

Notes:

- Power-on Initialization Time is the time from when the power supply voltages reach and remain above the minimum recommended operating supply voltages to the time when the module is fully functional.
- The single ended input voltage tolerance is the allowable range of the instantaneous input signals.

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V. Ordering Information

Pivotal Part Number	Description
QSFP28-SR4-100GD	QSFP28, 850nm, SR4 MMF 100m, 100G DDM, C-Temp
QSFP28-SR4-100GDI	QSFP28, 850nm, SR4 MMF 100m, 100G 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.