

QSFP28-LR-100G

Single-Lambda 100GBASE, QSFP28, LR, SMF TRANSCEIVER 1311nm, 10km REACH, DUPLEX LC CONNECTOR

Product Features

- Supports 100Gbps
- 100G Lambda MSA 100G-LR Specification Compliant
- Single 3.3V Power Supply
- Power Dissipation < 4.5W
- Up to 10km over SMF with FEC
- QSFP28 MSA Compliant
- SFF-8636 Compliant
- 4x25G Electrical Interface
- LC Duplex Connector
- I2C Interface with Integrated Digital Diagnostic Monitoring
- Safety Certification: TUV/UL/FDA*1
- RoHS Compliant
- Case operating temperature:
 - Commercial: 0 ~ 70°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
Supply Voltage	Vcc	-0.3		3.6	V
Relative Humidity (non-condensation)	RH	5		95	%
Data Input Voltage Differential	IVDIP-VDINI			1.0	V
Control Input Voltage	VI	-0.3		Vcc+0.3	V
Control Output Current	IO	-20		20	mA

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	0		70	°C	Commercial
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Instantaneous peak current (hot plug)	Icc_IP			1800	mA	
Sustained peak current (hot plug)	Icc_SP			1485	mA	
Maximum Power Dissipation	PD			4.5	W	
Maximum Power Dissipation, Low Power Mode	PDLP			1.5	W	
Signaling Rate	SR		53.125		GBd	
Control Input Voltage High	VIH	Vcc*0.7		Vcc+0.3	V	
Control Input Voltage Low	VIL	-0.3		Vcc*0.3	V	
Two Wire Serial Interface Clock Rate				400	kHz	
Power Supply Noise				66	mVpp	10Hz-10MHz
Rx Differential Data Output Load			100		ohms	
Link Distance		2		10000	m	

III. Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Wavelength	λ_C	1304.5	1311	1317.5	nm	
Side mode suppression ratio	SMSR	30			dB	
Average Optical Launch Power	Pout	-1.4		4.5	dBm	
Average Launch Power Tx_Of				-15	dBm	
Extinction Ratio	ER	3.5			dB	
Outer Optical Modulation Amplitude		0.7		4.7	dBm	
Launch Power in OMAouter minus TDECQ for ER $\geq$ 4.5dB		-0.7			dBm	
Launch Power in OMAouter minus TDECQ for ER < 4.5dB		-0.6			dBm	
Transmitter and dispersion eye closure	TDECQ			3.4	dB	
TDECQ-10*log10(Ceq)				3.4	dB	
Transmitter transition time	TTx			17	ps	
RIN17.1OMA	RIN			-136	dB/Hz	
Optical return loss tolerance				15.6	dB	
Transmitter reflectance	TR			-26	dB	

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Parameter	Symbol	Min	Typical	Max	Unit	Notes
Receiver						
Wavelength	λ_C	1304.5	1311	1317.5	nm	
Damage Threshold	THd	5.5			dBm	
Average Receive Power	Pavg	-7.7		4.5	dBm	
Receive Power (OMAouter)	RP			4.7	dBm	
Receiver Reflectance	RR			-26	dBm	
Receiver Sensitivity (OMAouter)	RS	max (-6.1, SECQ-7.5)			dBm	
Stressed Receiver Sensitivity	SRS			-4.1	dBm	
Stressed Receiver Sensitivity Test Conditions:						
Stressed eye closure for PAM4	SECQ			3.4	dB	
SECQ-10*log10(Ceq)				3.4	dB	

IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Differential Data Input Amplitude	Vin,p-p	95		900	mVpp	1
Differential Termination Mismatch				10	%	
LPMode, Reset and ModSelL	VIL	-0.3		Vcc*0.3	V	
	VIH	Vcc*0.7		Vcc+0.3	V	
Receiver						
Differential Data Output Amplitude	Vout,p-p	250		900	mVpp	
Differential Termination Mismatch				10	%	
Output Rise/Fall Time (20%~80%)	TR	9.5			ps	
ModPrsL and IntL	VOL	0		0.4	V	IOL=4mA
	VOH	Vcc-0.5		Vcc+0.3	V	IOL=-4mA

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v. Ordering Information

Pivotal Part Number	Description
QSFP28-LR-100G	QSFP28, PAM4 1310nm, LR 100G SMF 10km (FEC), DDM, C-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.