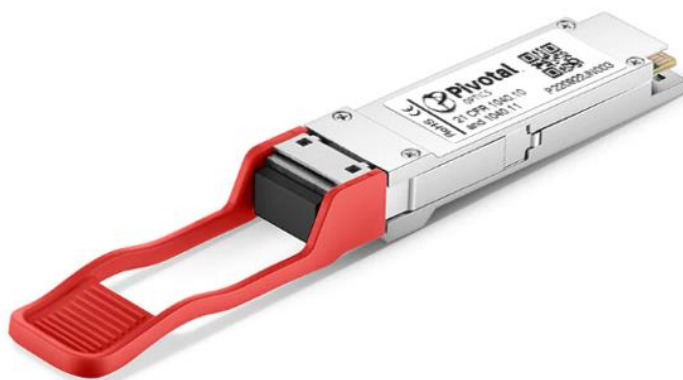


QSFP28-100G-ER4L

Single-Rate 100GBase QSFP28 ER4 1295-1310nm 30km(without FEC) / 40km(with FEC) SMF Transceiver

Product Features

- Compliant with QSFP28 Standard:
 - SFF-8665, SFF-8636
- Compliant with 100G 4WDM-40 (MSA)
- Support up to 40km transmission (with FEC) and 30km transmission (without FEC).
- High speed I/O electrical interface (CAUI-4) compliant with IEEE 802.3bm
- Single 3.3V Supply Voltage
- Maximum power consumption: 5.0 W
- LAN WDM EML laser and APD Receiver
- QSFP28 MSA with duplex LC connector
- Two Wire Serial Interface with Digital Diagnostic Monitoring
- Complies with EU Directive 2011/65/EU
- Class 1 Laser
- Case operating temperature
 - Commercial: 0 ~ 70°C
 - Industrial: -40 ~ +85°C



Product Applications

- 100GBASE-ERL 100G Ethernet
- Infiniband QDR and DDR interconnects
- Client-side 100G Telecom connections

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	5		95	%
Data Input Voltage Differential				1.0	V
Control Input Voltage	VI	-0.3		Vcc+0.5	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
		-40		+85		Industrial
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Instantaneous peak current (at hot plug)	Icc_IP			2000	mA	
Sustained peak current (at hot plug)	Icc_SP			1650	mA	
Maximum Power Dissipation	PD			5	W	
Maximum Power Dissipation (Low Power Mode)	PDLP			1.5	W	
Aggregate Bit rate	ABR		103.125		Gb/s	
Data Rate (each lane)	DRL		25.78125		Gb/s	
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		
Power Supply Noise Tolerance				66	mVpp	10Hz-10MHz
Rx Differential Data Output Load			100		ohms	
Operating Distance	OD			30	km	without FEC
				40	km	with FEC

III. Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Lane Wavelength (range)	L0	1294.53	1295.56	1296.59	nm	
	L1	1299.02	1300.05	1301.09	nm	
	L2	1303.54	1304.58	1305.63	nm	
	L3	1308.09	1309.14	1310.19	nm	
Data rate (each lane)			25.78125		Gb/s	
Transmitter						
Side-Mode suppression ratio	SMSR	30				
Total Launch power	Pout			12.5	dBm	
Average Launch Power (each lane)	Pavg	-2.5		6.5	dBm	
Average launch power of OFF transmitter (each lane)	Poff			-30	dBm	
Extinction Ratio	ER	4.4			dB	
Optical Modulation Amplitude (each lane)	OMA	0.5		6.5	dBm	
Difference in Launch Power between any Two Lanes (OMA)	Ptx,diff			4	dB	
Launch Power in OMA minus TDP (Each Lane)	OMA-TDP	-0.5			dBm	
Transmitter and Dispersion Penalty (each lane)	TDP			3	dB	
Transmitter reflectance	R _T			-26	dB	
Optical Return Loss Tolerance	ORLT	20			dB	
Transmitter eye mask { X1, X2, X3, Y1, Y2, Y3 }		{ 0.25, 0.4, 0.45, 0.25, 0.28, 0.4 }				
Receiver						
Average Receive Power (each lane)		-2.50		-3.5	dBm	
Receive Power OMA (each lane)	OMA			-3.5	dBm	
Receiver Sensitivity OMA (each lane)	SEN1			-13.3	dBm	BER = 1x10 ⁻¹²
Receiver Sensitivity OMA (each lane)	SEN2			-18.5	dBm	BER = 5x10 ⁻⁵
Stressed Receiver Sensitivity OMA (each lane)				-16	dBm	BER = 5x10 ⁻⁵
Receiver reflectance				-26	dB	
Damage Threshold (each lane)	Pin,dmg	-2.5			dBm	

IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Differential Termination Mismatch				10	%	
Differential Data Input Amplitude	$V_{in, PP}$	95		900	mVpp	
LPMode, Reset and ModSelL	V_{IL}	-0.3		0.8	V	
	V_{IH}	2		$V_{CC}+0.3$	V	
Receiver						
Differential Data output Amplitude	$V_{out, PP}$	250		900	mV	
Differential Termination Mismatch				10	%	
Transition Time, 20 to 80%		9.5			Ps	
ModPrsL and IntL	V_{OL}	0		0.4	V	
	V_{OH}	$V_{CC}-0.5$		$V_{CC}+0.3$	V	

Warranty

All transceivers feature a limited lifetime 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.