

## 200 Gb/s QSFP-DD LR4 10 km Transceiver

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### QSFP-DD Series



### Product Overview

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The ACT QDD-200-LR4-LP10 is a high-performance 200 Gb/s QSFP-DD optical transceiver designed for next-generation data center and service provider networks requiring high bandwidth and extended reach. Supporting 200GBASE-LR4 with four LAN-WDM wavelengths over single-mode fiber, the module enables reliable transmission distances of up to 10 km, making it well suited for data center interconnect (DCI), metro aggregation, and high-capacity enterprise applications.

Built on PAM4 modulation with a lane data rate of 53.125 Gb/s, the transceiver complies fully with IEEE 802.3cn 200GBASE-LR4, QSFP-DD MSA, and CMIS standards, ensuring broad interoperability with leading network platforms. The module integrates LAN-WDM lasers and PIN receivers in a compact QSFP-DD form factor with LC duplex connector, while maintaining a maximum power consumption of 10 W for efficient thermal performance in high-density environments.

Designed for operational reliability, the ACT QDD-200-LR4-LP10 supports comprehensive Digital Diagnostic Monitoring (DDM), allowing real-time access to critical parameters such as temperature, voltage, bias current, and optical power. With the compliance with EU Directive 2015/863/EU (RoHS), this transceiver provides a robust, standards-based solution for scalable 200G optical deployments.

### Key Features

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- Supports 200GBASE-LR4
- Lane bit rate 53.125 Gb/s with PAM4
- Up to 10km transmission on SMF
- LAN WDM laser and PIN receiver
- 200GAUI-8 Electrical interface with 8 Lanes 26.5625Gb/s NRZ high-speed signal
- QSFP-DD MSA package with duplex LC connector
- Compliant with IEEE 802.3cn 200GBASE-LR4
- Single +3.3V power supply
- Maximum power consumption 10W
- Operating case temperature: 0 to +70 °C
- Compliant to QSFP-DD CMIS & QSFP-DD MSA HW standard
- Complies with EU Directive 2015/863/EU

## Specifications

### Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	T <sub>S</sub>	-40	-	85	°C	
Supply Voltage	V <sub>CC</sub>	-0.5	-	3.6	V	
Operating Relative Humidity	RH	-	-	85	%	

### Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Case Temperature	T <sub>C</sub>	0	-	70	°C	
Power Supply Voltage	V <sub>CC</sub>	3.13	3.3	3.47	V	
Power Supply Current	I <sub>CC</sub>	-	-	3.03	A	3.3V
Power Consumption	P	-	-	10	W	
Aggregate Bit Rate	BR <sub>AVE</sub>	-	212.5	-	Gb/s	With PAM4
Lane Bit Rate	BR <sub>LANE</sub>	-	53.125	-	Gb/s	With PAM4
Transmission Distance	TD	-	-	10	km	Over SMF

### Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
<b>Transmitter</b>						
Signaling Rate, each Lane	BR	26.5625 ± 100 ppm			GBd	
Modulation Format		PAM4				
Lane Wavelengths	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	
Side-Mode Suppression Ratio	SMSR	30	-	-	dB	
Total Average Launch Power	P <sub>MAX</sub>	-	-	11.3	dBm	
Average Launch Power, each Lane	P <sub>OUT</sub>	-3.4	-	5.3	dBm	
Outer OMA, each Lane	OMA <sub>outer</sub>	-0.4	-	5.1	dBm	
Difference in Launch Power between Lanes (OMA)		-	-	4	dB	
Transmitter and Dispersion Eye Closure for PAM4	TDECQ	-	-	3.2	dB	
Average P <sub>OUT</sub> (Laser Turn Off)	P <sub>OFF</sub>	-	-	-30	dBm	
Extinction Ratio, each Lane	ER	3.5	-	-	dB	
<b>Receiver</b>						
Signaling Rate, each Lane	BR	26.5625 ± 100 ppm			GBd	
Modulation Format		PAM4				
Lane Wavelengths	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	
Damage Threshold, each Lane	P <sub>DAMAGE</sub>	6.3	-	-	dBm	
Average Receive Power, each Lane	P <sub>RX_LANE</sub>	-9.7	-	5.3	dBm	
Receive Power (OMA <sub>outer</sub> ), each Lane	RX <sub>OMA</sub>	-	-	5.1	dBm	
Receiver Sensitivity (OMA <sub>outer</sub> ), each Lane	SEN <sub>OMA</sub>	-	-	-7.2	dBm	

## Ordering Information

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Product Name	Product Description
QDD-200-LR4-LP10	QSFP DD PAM4 Plug-in, 200GBASE-LR4 10km, SMF,LC Duplex, DOM

## Contact Information

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