

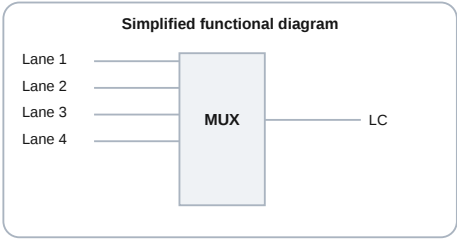
QSFP-ZR4-40G

QSFP+, 40GbE-ZR4, LWDM4, DDM, 80km, LC

QSFP-ZR4-40G

1. Product overview

The QSFP-ZR4-40G is a QSFP+ optical transceiver for long-reach 40GbE links over single-mode fiber. Four electrical 10Gb/s-class lanes are converted to four LAN-WDM optical lanes and multiplexed onto a duplex LC interface for transmission up to 80 km.



2. Key features

- 4-lane MUX/DEMUX design with integrated LAN-WDM TOSA/ROSA
- Up to 11.2 Gb/s per channel; aggregate bandwidth >40 Gb/s
- Duplex LC optical interface and APD receiver
- QSFP MSA compliant with built-in digital diagnostics
- Single +3.3 V supply; operating case temperature 0°C to +70°C
- RoHS compliant

3. Applications

- Long-reach 40GbE links
- Data center switches and routers
- Metro networks
- Rack-to-rack and router interconnects

4. Technical data

Parameter	Value	Parameter	Value
Technology	40G QSFP+ LAN-WDM	Transmission media	SMF, duplex LC
Typical reach	80 km	Nominal wavelength	1296/1300/1305/1309 nm
Host interface	4 x 10.3125 Gb/s NRZ	Protocol support	40GbE / InfiniBand QDR/DDR
Optical budget	28 dB	Operating temperature	0°C to +70°C
Power consumption	3.5 W max (operating table)	Digital diagnostics	Yes

5. Recommended operating conditions

Parameter	Symbol	Min	Typical	Max	Units
Operating case temperature	Tcase	0		70	°C
Supply voltage	Vcc	3.13	3.3	3.47	V
Data rate, each lane		10.3125		11.2	Gb/s
Link distance	D			80	km

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6. Optical characteristics

Parameter	Symbol	Min	Typical	Max	Units
LAN-WDM lane L0	λ_0	1294.53	1295.56	1296.59	nm
LAN-WDM lane L1	λ_1	1299.02	1300.05	1301.09	nm
LAN-WDM lane L2	λ_2	1303.54	1304.58	1305.63	nm
LAN-WDM lane L3	λ_3	1308.09	1309.14	1310.19	nm
Average launch power, each lane	Pavg	+4		+7	dBm
Receiver input power, each lane	R	-24		-6	dBm
LOS de-assert	LOSD	-25			dBm
LOS assert	LOSA	-35			dBm

7. Digital diagnostics and management

Figure 3. QSFP+ mechanical form factor

Parameter	Value
Digital diagnostic monitoring	Supported
Management interface	2-wire serial / I2C via QSFP+ MSA
Monitored parameters	Temperature, supply voltage, TX bias/power and RX power
Module controls	Module select, reset, interrupt and low-power mode

QSFP+ MSA

8. Safety, regulatory and ESD

RoHS compliant. Normal ESD precautions are recommended when handling optical transceivers and host equipment. The source data sheet also identifies Class 1 laser safety requirements.

9. Ordering information

Ordering number	Product description
Q40G-ZR4	QSFP+, 40GbE-ZR4, LWDM4, DDM, 80km; 1310nm, 28dB, SM, LC

10. General definitions

Parameter	Description
Technology	Optical transceiver type and optical application, e.g. SR, LR, CWDM, DWDM or parallel optics.
Transmission media	Fiber type and connector type, e.g. single-mode or multimode fiber with LC or MPO connector.
Typical reach	Nominal distance stated in the product specification and dependent on link loss and operating conditions.
Power consumption	Maximum or worst-case operating power stated in the source specification.
DDM / DMI	Digital Diagnostic Monitoring via the module management interface.