

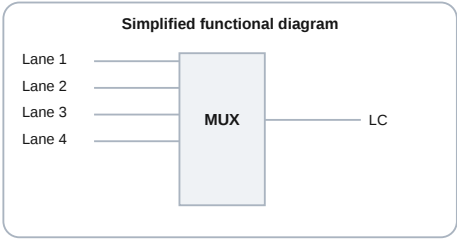
QSFP-ER4-40G

QSFP+, 40GbE-ER4, (4x 11.2Gbps), 40km, LC

QSFP-ER4-40G

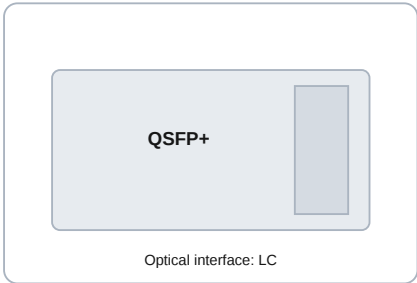
1. Product overview

The QSFP-ER4-40G is a 40GbE QSFP+ optical transceiver for long-reach single-mode links. Four CWDM optical lanes are multiplexed onto a duplex LC interface for transmission up to 40 km. The module uses an APD receiver and supports digital diagnostic monitoring.



2. Key features

- 4-lane CWDM MUX/DEMUX design
- Up to 11.2 Gb/s per channel; aggregate bandwidth >40 Gb/s
- Duplex LC interface with APD receiver
- Up to 40 km transmission
- QSFP MSA compliant with built-in digital diagnostics
- Single +3.3 V supply; 0°C to +70°C



3. Applications

- 40GBASE-ER4 links
- Data center switches and routers
- Metro networks
- Long campus/backbone links

4. Technical data

Parameter	Value	Parameter	Value
Technology	40G QSFP+ ER4 / CWDM	Transmission media	SMF, duplex LC
Typical reach	40 km	Nominal wavelength	1271/1291/1311/1331 nm
Host interface	4 x 10.3125 Gb/s NRZ	Protocol support	40GbE / InfiniBand
Optical budget	16 dB	Operating temperature	0°C to +70°C
Power consumption	3.5 W max	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			40	km

QSFP-ER4-40G

6. Optical characteristics

Parameter	Symbol	Min	Typical	Max	Units
CWDM lane L0		1264.5	1271	1277.5	nm
CWDM lane L1		1284.5	1291	1297.5	nm
CWDM lane L2		1304.5	1311	1317.5	nm
CWDM lane L3		1324.5	1331	1337.5	nm
Average launch power, each lane		-3		+5	dBm
OMA, each lane	OMA	-3		+5	dBm
Receiver input power, each lane	R	-20		-4.5	dBm
LOS de-assert	LOSD	-25			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.

9. Ordering information

Ordering number	Product description
Q40G-ER4	QSFP+, 40GbE-ER4, (4x 11.2Gbps), 40km; CWDM 1270-1330nm, 16dB, 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.