RG 40GBASE Series
Optical Modules

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Product Pictures

Appearance of 40G-AOC-xx

Appearance of 40G Module

Product Overview

As an industry-leading ICT infrastructure and industry solution provider, Ruijie offers customers a wide variety of high-density and low-power 40G optical modules. They are applicable to data centers, high-performance computing (HPC) networks, and enterprise core and aggregation layers, enabling cost-effective and efficient high-speed interconnection between data center servers and switches.

Ruijie 40G-QSFP-SR-MM850 Module

The 40G-QSFP-SR-MM850 is aligned to IEEE 40GBASE-SR optical specifications and supports a link length of up to 150 meters over a multimode fiber (MMF) with an MPO connector. It adopts the QSFP+ form factor and operates at a wavelength of 850 nm. The transceiver conforms to IEEE 802.3ba 40GBASE-SR4, FF-8436 QSFP+ MSA, and RoHS standards.

Ruijie 40G-QSFP-LSR-MM850 Module

The 40G-QSFP-LSR-MM850 is aligned to IEEE 40GBASE-SR optical specifications and supports a link length of up to 400 meters over an MMF with an MPO connector. It adopts the QSFP+ form factor and operates at a wavelength ranging from 840 nm to 860 nm. The transceiver conforms to IEEE 802.3ba 40GBASE-SR4, FF-8436 QSFP+ Multisource Agreement (MSA), and RoHS standards.

Ruijie 40G-QSFP-LR4-SM1310 Module

The 40G-QSFP-LR4-SM1310 is aligned to IEEE 40GBASE-LR4 optical specifications and supports a link length of up to 10 kilometers over a single-mode fiber (SMF) with an MPO connector. It adopts the QSFP+ form factor and operates at a wavelength of 1310 nm. The transceiver conforms to IEEE 802.3ba 40GBASE-LR4, FF-8436 QSFP+ MSA, and RoHS standards.

Ruijie 40G-QSFP-iLR4-SM1310 Module

The 40G-QSFP-iLR4-SM1310 is aligned to IEEE 40GBASE-iLR4 optical specifications and supports a link length of up to 2 kilometers over an SMF with an LC connector. It adopts the QSFP+ form factor and operates at a wavelength ranging from 1264 nm to 1337 nm. The transceiver conforms to IEEE 802.3ba 40GBASE-IR4, FF-8436 QSFP+ MSA, and RoHS standards.

Ruijie 40G-QSFP-LX4-SM1310 Module

The 40G-QSFP-LX4-SM1310 is aligned to IEEE 40GBASE-LX4 optical specifications and supports a link length of up to 150 meters over OM3 or OM4 MMF or 2 kilometers over SMF with an LC-LC connector. It adopts the QSFP+ form factor and operates at a wavelength ranging from 1264 nm to 1337 nm. The transceiver conforms to the IEEE 802.3ba 802.3bm, FF-8436 QSFP+ MSA, and RoHS standards.

Ruijie 40G-AOC-xx Cable

QSFP+ 40G to QSFP+ 40G active optical cables (AOCs) are suitable for short-distance transmission and offer a flexible way to connect within and across racks. AOCs are much thinner and lighter than copper cables, which makes cable management easier. AOCs enable efficient system airflow, which is crucial in high-density racks. The 40G-AOC-xx series cable comes into three models: 40G-AOC-5M, 40G-AOC-10M, and 40G-AOC-30M in lengths of 5 meters, 10 meters, and 30 meters respectively.

Product Features

- Hot swapping, allowing for simplified maintenance
- High reliability and low power consumption, allowing for prolonged service life
- Compliance with RoHS, REACH, and FDA standards

Product Specifications

Optical Module Specifications

Model	40G-QSFP-SR-MM850	40G-QSFP-LSR-MM850	40G-QSFP-LR4-SM1310	40G-QSFP-iLR4-SM1310	40G-QSFP-LX4-SM1310
Data rate	41.25 Gbps (4 x 10.3125 Gbps)				
Form factor	QSFP+				

Model	40G-QSFP-SR-MM850	40G-QSFP-LSR-MM850	40G-QSFP-LR4-SM1310	40G-QSFP-iLR4-SM1310	40G-QSFP-LX4-SM1310
Connector type	MPO 1 x 12	MPO 1 x 12	Duplex LC	Duplex LC	Duplex LC
Cable type	MMF	MMF	SMF	SMF	MMF/SMF
Fiber end face finish type	Ultra Physical Contact (UPC)				
Transmitter type	VCSEL	VCSEL	DFB	DFB	DFB
Receiver type	PIN				
Reach	OM3: 100 m (328.08 ft.) OM4: 150 m (492.13 ft.)	OM3: 300 m (984.25 ft.) OM4: 400 m (1,312.34 ft.)	10 km (32,808.40 ft.)	2 km (6,561.68 ft.)	MMF 150 m (492.13 ft.) SMF 2 km (6,561.68 ft.)
Bit error ratio (BER)	1.00E-12				
Data diagnosis-capable (DDM/DOM)	Yes				
Power consumption	≤ 1.5 W	≤ 1.5 W	≤ 3.5 W	≤ 3.5 W	≤ 3.5 W

Transmitter Optical Parameters

Model	40G-QSFP-SR-MM850	40G-QSFP-LSR-MM850	40G-QSFP-LR4-SM1310	40G-QSFP-iLR4-SM1310	40G-QSFP-LX4-SM1310
Wavelength (nm)	(840, 860)	(840, 860)	(1264.5, 1277.5) (1284.5, 1297.5) (1304.5, 1317.5) (1324.5, 1337.5)	(1264.5, 1277.5) (1284.5, 1297.5) (1304.5, 1317.5) (1324.5, 1337.5)	(1264.5, 1277.5) (1284.5, 1297.5) (1304.5, 1317.5) (1324.5, 1337.5)
Max. transmit power (AVG)	2.4 dBm	1 dBm	2.3 dBm	2.5 dBm	MMF 3.5 dBm SMF 2.5 dBm
Min. transmit power (AVG)	–7.6 dBm	–7.5 dBm	–7 dBm	–6.5 dBm	MMF –10.5 dBm SMF –11.5 dBm
Min. extinction ratio	3 dB	3 dB	3.5 dB	3.5 dB	3.5 dB

Receiver Optical Parameters

Model	40G-QSFP-SR-MM850	40G-QSFP-LSR-MM850	40G-QSFP-LR4-SM1310	40G-QSFP-iLR4-SM1310	40G-QSFP-LX4-SM1310
Receive sensitivity (OMA)	< –9.5 dBm	< –9.5 dBm	< –11.5 dBm	< –10.5 dBm	MMF < –10.5 dBm

Model	40G-QSFP-SR-MM850	40G-QSFP-LSR-MM850	40G-QSFP-LR4-SM1310	40G-QSFP-iLR4-SM1310	40G-QSFP-LX4-SM1310
Overload optical power (AVG)	2.4 dBm	2.4 dBm	2.3 dBm	2.5 dBm	MMF 3.5 dBm SMF 2.3 dBm

Environment and Reliability

Model	40G-QSFP-SR-MM850	40G-QSFP-LSR-MM850	40G-QSFP-LR4-SM1310	40G-QSFP-iLR4-SM1310	40G-QSFP-LX4-SM1310
Operating temperature	0°C to 70°C (32°F to 158°F)				
Operating humidity	10% RH to 90% RH				
Storage temperature	–40°C to +85°C (–40°F to +185°F)				
Storage humidity	10% RH to 90% RH				

Dimensions and Weight

Model	40G-QSFP-SR-MM850	40G-QSFP-LSR-MM850	40G-QSFP-LR4-SM1310	40G-QSFP-iLR4-SM1310	40G-QSFP-LX4-SM1310
Dimensions (W x D x H)	122 mm x 18 mm x 8.5 mm (4.80 in. x 0.71 in. x 0.33 in.)				
Weight	50 g (0.11 lbs.)				

Cable Specifications

Model	40G-AOC-5M	40G-AOC-10M	40G-AOC-30M
Data rate	41.25 Gbps (4 x 10.3125 Gbps)		
Form factor	QSFP+		
Connector type	QSFP+ to QSFP+		
Cable type	Orange, 3.0 mm (0.12 in.) core diameter, at least OM2		
Data diagnosis-capable (DDM/DOM)	No		
Length	5 m (16.40 ft.)	10 m (32.81 ft.)	30 m (98.43 ft.)
Module type	Active		

Order Information

Model	Description
40G-QSFP-SR-MM850	40G SR module, QSFP+ form factor, MPO, 150 m (492.13 ft.) over MMF
40G-QSFP-LSR-MM850	40G SR module, QSFP+ form factor, MPO, 400 m (1,312.34 ft.) over MMF
40G-QSFP-LR4-SM1310	40G LR4 module, QSFP+ form factor, MPO, 10 km (32,808.40 ft.) over SMF
40G-QSFP-iLR4-SM1310	40G iLR4 module, QSFP+ form factor, LC, 2 km (6,561.68 ft.) over SMF
40G-QSFP-LX4-SM1310	40G LX4 module, QSFP+ form factor, LC-LC connector, 150 m (492.13 ft.) over OM3/OM4 MMF, or 2 km (6,561.68 ft.) over SMF
40G-AOC-5M	40G QSFP+ AOC cable, 5 m (16.40 ft.)
40G-AOC-10M	40G QSFP+ AOC cable, 10 m (32.81 ft.)
40G-AOC-30M	40G QSFP+ AOC cable, 30 m (98.43 ft.)

Ruijie Networks Co., Ltd.

For further information, please visit our website https://www.ruijienetworks.com