

## ET6401-SR4

### 40-Gbps QSFP+ Optical Transceiver Module



#### Product Overview

The Edgecore Quad Small Form-Factor Pluggable Plus (QSFP+) optical transceiver module is a high-performance module with an MPO optical pluggable connector. The four-channel, full-duplex transceiver with an aggregate 40 Gbps bandwidth is compliant with both Ethernet 40GBASE-SR and InfiniBand QDR applications. The transceiver utilizes multimode fiber with 850 nm VCSELs and PIN PDs. The certified transceiver has superior signal integrity for both the transmit laser and receiver, which enables flexible deployment in data centers and reliable operating performance.

#### Key Features and Benefits

- Compliant with 40GBASE-SR4 per IEEE 802.3ba D3.2 and SFF-8436 QSFP+ MSA Rev. 4.1.
- Operating at 10.3125 Gbps per lane with 64b/66b coded data.
- Low power dissipation < 1.5 W (power level-1).
- Full Digital Diagnostics Monitor Interface.
- Hot pluggable electrical interface.
- Standard 12/8 lane optical fiber with MPO pluggable optical connector.
- 0 to 70°C case temperature operating range.
- 100/150 m Link Length via OM3/OM4 with MPO optical connector.
- RoHS compliance and lead-free.

#### Application

- 40GBASE-SR4 Ethernet links
- InfiniBand QDR, DDR, and SDR
- 4 G/8 G/10 G Fiber Channel
- SATA/SAS storage
- HPC interconnects
- Proprietary interconnections

Optical Transceiver Module

## Specifications

### Environment Specification

Parameter	Minimum	Maximum	Unit
Storage Temperature	-40	85	°C
3.3 V Power Supply Voltage	-0.5	3.6	V
Data Input Voltage - Single Ended	-0.5	V <sub>cc</sub> +0.5	V
Relative Humidity	5	85	%

### Recommended Operating Conditions

Parameter	Minimum	Typical	Maximum	Unit
Case Temperature	0	40	70	°C
3.3 V Power Supply Voltage	3.135	3.3	3.465	V
Signal Rate per Channel	2.5		10.3125	Gbps
Control Input Voltage High	2		V <sub>cc</sub> +0.3	V
Control Input Voltage Low	-0.3		0.8	V
Two Wire Serial (TWS) Interface Clock Rate		100		kHz
Power Supply Noise Ripple Susceptibility (PSNR)			50	mVpp
Receiver Differential Data Output Load		100		Ohms
Fiber Length: 2000 MHz·km 50µm MMF (OM3)	0.5		100	M
Fiber Length: 4700 MHz·km 50µm MMF (OM4)	0.5		150	M

### Electrical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Transceiver Power Consumption			1.5	W
Transceiver Power Supply Current			420	mA
Transceiver Power-On Initialization Time			2000	ms
Data Input Differential Peak-to-Peak Voltage Swing			1200	mVpp
Differential to Common Mode Input Return Loss	10			dB
J2 Jitter Tolerance	0.17			UI
J9 Jitter Tolerance	0.29			UI
Data Output Differential Peak-to-Peak Voltage Swing	200		900	mVpp
Output Transition Time 20% to 80%	28			ps
Output Total Jitter			62	ps
J2 Jitter Output			0.42	UI
J9 Jitter Output			0.65	UI

## Specifications

### Transmitter Optical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Central Wavelength	840		860	nm
Spectral Width – RMS			0.65	nm
Output Optical Power: Average	-7.6		2.4	dBm
Output Optical Modulation Amplitude, per Lane	-5.6		3.0	dBm
Difference in Power between any Two Lanes in OMA			4.0	dB
Transmitter and Dispersion Penalty (TDP) , Each Lane			3.5	dB
Optical Extinction Ratio	3			dB
Disabled Output Optical Power			-30	dBm

### Receiver Optical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Central Wavelength, Each Lane	840	850	860	nm
Damage Threshold	3.4			dBm
Maximum Average Power at Receiver Input, Each Lane			2.4	dBm
OMA, Each Lane			3	dBm
Non-Stressed Receiver Sensitivity (Avg.)			-7.5	dBm
LOS Assert	-30			dBm
LOS De-Assert			-7.5	dBm
LOS Hysteresis	0.5			dB

### For More Information

To find out more about Edgecore Networks Corporation products and solutions, visit [www.edge-core.com](http://www.edge-core.com).

### About Edgecore Networks Corporation

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