

40G QSFP+ 850nm MPO Transceiver

Up to 100M, DDM, SR4, Hot Pluggable

QSFP-40G-850-100M-MP



40G QSFP+ transceiver

850nm

Up to 150M

4x10G VCSEL and PIN array

MPO-12 Connector

DDM Function

Hot Pluggable

0°C~+70°C

Overview

The AirLive QSFP-40G-850-100M-MP Optical Transceiver Module is designed for use in 40GBASE Ethernet throughput up to 150m over OM4 multimode fiber (MMF) and 100m over OM3 MMF, using a wavelength of 850nm via a single MPO-12 connector. This transceiver is compliant with IEEE 802.3bm, 40GBASE-SR4 and breakout to 4x10GBASE-SR standard. Digital diagnostics (DDM) functions are also available via the I2C interface, as specified by the QSFP+ MSA, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable to be used in various applications, such as for use in inter- and intra-connect data centers, high-performance computing networks, enterprise core and distribution layer applications.

Features

- Hot Pluggable QSFP+ form factor
- Supports 41.25Gb/s aggregate bit rate
- Multirate capability: 1.06Gb/s to 10.5Gb/s per channel
- Maximum link length of 100m on OM3 MMF and 150m on OM4 MMF
- Single MPO-12 connector
- Power dissipation: <1.5 W
- Single 3.3V power supply
- 4x10Gb/s 850nm VCSEL and PIN array
- Unretimed XLPP electrical interface
- I2C management interface
- Case temperature range of 0°C to 70°C
- Compliant with QSFP+ MSA
- Compliant to IEEE 802.3bm
- Compliant to SFF-8436

Application

- 40GBASE-SR4 40G Ethernet
- 40G-IB-QDR /20G-IB-DDR / 10G-IB-SDR InfiniBand
- Breakout to 4 x 10GBASE-SR
- Fiber Channel Infrastructure
- ATM Switches and Routers
- SDH/SONET Switch Infrastructure

Application Environment examples

- Datacenter
- Bank
- AirPort
- Hotel
- Expressway
- Petrochemical Industry
- Metro
- Factory

Main Specifications

Model	Type	Rate* (Gbps)	Po (dBm)	RX	Sen* (dBm)	Reach (m)	DDM
QSFP-40G-850-100M-MP	QSFP+	4 x 10.3125	-7.6~2.4	PIN	<-9.5	150	Yes

*Note:

1. Measured with a PRBS 2³¹-1 test pattern, @10.3125Gb/s, BER<1E-12.
2. Receiver sensitivity in OMA

Transmitter Operating Characteristic Optical

Transmitter					
Parameter	Symbol	Min.	Typical	Max.	Unit
Center Wavelength	λ_{out}	840	850	860	nm
Average Launch Power each lane	P_{out}	-7.6	-	2.4	dBm
Difference in Power between any two lanes [OMA]	DPx		-	4.0	dB
Peak Power per Lane	PPx		-	4.0	dBm
Spectral Width (RMS)	σ			0.65	nm
Optical Extinction Ratio	ER	3.0			dB
Transmitter and Dispersion Penalty each lane	TDP			3.5	dB
Optical Return Loss Tolerance	ORL			12	dB
Average launch power of OFF transmitter, per lane				-30	dBm
Transmitter eye mask definition {X1,X2,X3,Y1,Y2,Y3}		{0.23, 0.34, 0.43, 0.27, 0.35, 0.4}			

Receiver Operating Characteristic Optical

Receiver					
Parameter	Symbol	Min.	Typical	Max.	Unit
Receiver Wavelength	λ_{in}	840	-	860	nm
Average Receive Power per Lane	RXPx	-9.5	-	2.4	dBm
Stressed Receiver Sensitivity in OMA	SRS			-5.4	dBm (Note:1)
LOS Assert	LOSA	-30			dBm
LOS De-Assert	LOSD			-12	dBm
LOS Hysteresis		0.5			dB
Receiver Reflectance	Rfl			-12	dB

Note:1. Measured with a PRBS 2³¹-1 test pattern, @10.315Gb/s, BER<1E-12.

Digital Diagnostic Monitoring Information

DDM offers more information about the fiber connection and makes it easier to find any faults or bad connections.

DDM			
Parameter	Accuracy	Calibration	Note
Temperature	±3°C	Internal	0~70°C
Voltage	±3%	Internal	3.1~3.5V
Bias Current	±10%	Internal	Specified by normal value
TX Power	±2dB	Internal	-7.6~2.4dBm
RX Power	±2dB	Internal	-9.5~2.4dBm

Characteristic Electrical

Transmitter/Receiver					
Parameter	Symbol	Min.	Typical	Max.	Unit
Power Supply Voltage	VCC	3.13	3.3	3.47	V
Power Supply Current	ICC			450	mA
Transmitter					
Differential input impedance	Rin		100		Ω
Differential data input swing	Vin,pp	300		1100	mV
Single ended input voltage tolerance	VinT	-0.3		4.0	V
Receiver					
Differential data output swing	Vout,pp	300		850	mV
Single-ended output voltage		-0.3		4.0	V

Absolute Maximum Ratings

Absolute Maximum Ratings					
Parameter	Symbol	Min.	Max.	Unit	
Storage Ambient Temperature	TSTG	-40	85	$^{\circ}\text{C}$	
Relative Humidity(Non-condensing)	HS	5	90	%	
Power Supply Voltage	Vcc	-0.3	+3.6	V	
Input Voltage	Vin	-0.3	Vcc+0.3	V	
Damaged Threshold, per Lane	DT	3.4		dBm	

Recommended Operating Conditions

Recommended Operating Conditions					
Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	Tc	0		70	$^{\circ}\text{C}$
Operating Humidity	Rh	5		85	%
Data Rate, per Lane	DR		10.3	10.5	Gbps
Power Consumption	Pw			1.5	W

Model	AirLive QSFP-40G-850-100M-MP
<p>Hardware</p> <ul style="list-style-type: none"> • Device Interface: QSFP+ Form Factor Single MPO-12 Connector • Power Supply Voltage: 3.13V~3.47V Typical Power Supply Voltage: 3.3V • Standard Compliant with QSFP+ MSA Compliant with IEEE 802.3bm Compliant with SFF-8436 DDM Support • Total Supply Current: 450mA • Data Rate: 40Gbps (4*10.3125Gbps Data Rate, per Lane) • Power Consumption Max 1.5W • Transmitter (Electrical - Optical) Center Wavelength: - Min.:840nm - Typical: 850nm - Max.: 860nm Average Launch Power each lane: Min. -7.6dBm, Max 2.4dBm Difference in Power between any two lanes [OMA] : Max 4dB Optical Extinction Ratio: Min: 3.0dB Optical Return Loss Tolerance: Max. 12dB Differential data input swing: - Min. 300 mV - Max. 1100 mV Single ended input voltage: - Min. -0.3V - Max. 4.0V • Receiver -Optical, Electrical Center Wavelength: - Min. 840nm - Max. 860nm Average Receive Power per Lane: - Min. -9.5dBm - Max. 2.4dBm Los Assert: Min. -30dBm Los De-Assert: Max. -12dBm Los Hysteresis: Min. 0.5dB Differential data output swing: - Min. 300 mV - Max. 850 mV Single-ended output voltage: - Min. -0.3 V - Max. 4.0 V 	<p>Environment</p> <ul style="list-style-type: none"> • Operating Case Temperature: 0°C to +70°C • Storage Temperature: -40°C to +85°C • Operating Humidity: 5%~85% • Relative Humidity: 5%~90% <p>Standard package of Module</p> <ul style="list-style-type: none"> • Product size: 72.00 x 18.35 x 8.50 mm(L*W*H) (module only) 127.20 x 18.35 x 8.50 mm(L*W*H) (module+pull tab) • Package size: TBD mm(L*W*H) • Package Weight: N.W: TBD kg; G.W:TBD kg • Package content: 1 x Module <p>Standard carton package</p> <ul style="list-style-type: none"> • Quantity: 10 pcs / 1 Blister • Dimensions TBD mm(L*W*H) • Weight TBD kg <p>Ordering Information</p> <ul style="list-style-type: none"> • Model: QSFP-40G-850-100M-MP • Name: 40Gbps Fiber QSFP+ Transceiver, 850nm, MPO connector, 100M, Hot-Pluggable

AirLive

* Specification will be changed without prior notice

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