

Q28QD040C07F – QSFP28 Dual Fibre

1310nm* / 40km** / 100GBASE / 4WDM-40

*1310nm LAN-WDM 800GHz

** As per 4-Wavelength WDM MSA, links above 30km are considered to be engineered links

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

1. Overview

Q28QD040C07F is a high performance QSFP28 transceiver module for 100 Gigabit Ethernet data links over a single mode fibre pair. The maximum reach is 40km. The four transmitters are cooled 1310nm LAN-WDM Distributed Feedback (DFB) Lasers generating four optical 25Gbps output signals, which are multiplexed together at the optical output port. The four receivers are Avalanche Photodiodes (APD) which detect (after optical de-multiplexing) 4x 25Gbps optical input signals.

This transceiver module is compliant with the QSFP28 Multisource Agreement (MSA) and hot pluggable. Always contact Skylane Optics® commercial agents for compatibility with different equipment platforms.

2. Features

- QSFP28 Multi-Source Agreement compliant
- Hot pluggable QSFP28 footprint
- Supports 103.125 Gbps Data Rate
- 4x 25.781Gbps Serial Electrical Interface (CEI-28G-VSR)
- Dual LC Optical Connector
- 4x cooled 1310nm LAN-WDM DFB Transmitters
- 4x APD Receivers
- Up to 40km (with FEC) Point-to-Point Transmission on Single Mode Fibre
- Operating temperature range 0°C to 70°C
- Power Dissipation < 4.5W
- Single +3.3V Power Supply

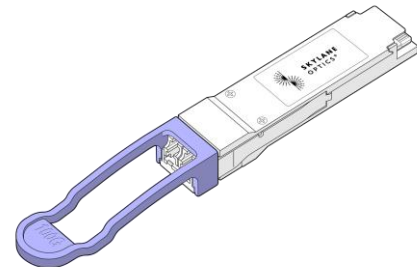


Figure 1. QSFP28 Dual Fibre (non-binding illustration)

3. Applications

- 4WDM-40

4. Optical Interface

P/N	Wavelength	Protocol	Optical Output Power ¹ [dBm]	Stressed Receiver Sensitivity ² (OMA) [dBm]	Optical Receiver Overload ³ [dBm]	Link Length ^{1,4} [km]
Q28QD040C07F	1310nm LAN-WDM 800GHZ	100GBASE	3.5 to 12.5	≤ -16.0	-3.5	≤ 40

1. EOL over operating temperature range
 2. 25.78Gbps, BER≤5×10⁻⁵, PRBS 2³¹-1, each lane
 3. The optical input to each lane of the receiver should not exceed this value. Transmitters must never be directly connected to receivers before ensuring that proper optical attenuation is used
 4. Cabled optical fibre as per 4-Wavelength WDM MSA

5. Technical Parameters

5.1. Recommended Operating Conditions					
Parameter	Min	Typ	Max	Unit	Notes
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70	°C	
Relative Humidity	0		85	%	Non-Condensing
Power Supply Voltage	3.135	3.3	3.465	V	
Power Supply Current			1.36	A	
Power Dissipation			4.5	W	

5.2. Transmitter Optical Specifications					
Parameter	Min	Typ	Max	Unit	Notes
Data Rate, each Lane		25.78125		Gbps	5
Aggregated Data Rate		103.125		Gbps	5
Total Average Output Power			12.5	dBm	6
Average Output Power, each Lane	-2.5		6.5	dBm	6,7
Launched OMA, each Lane	0.5		6.5	dBm	6,8
Launched OMA minus TDP, each lane	-0.5			dBm	6
Difference in launched Power (average and OMA) between any two Lanes			4.0	dB	
Centre Wavelength, Optical Lanes 0 to 3	1294.53	1295.56	1296.59	nm	
	1299.02	1300.05	1301.09		
	1303.54	1304.58	1305.63		
	1308.09	1309.14	1310.19		
Transmitter and Dispersion Penalty (TDP), each Lane			3.0	dB	
Extinction Ratio, each Lane	4.5			dB	

5. IEEE 802.3-2012

6. Output power coupled into a 9/125 µm single mode fibre

7. Minimum average launch power, each lane is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance

8. Even if the TDP < 1.0 dB, the OMA must exceed the minimum value specified here

5.3. Receiver Optical Specifications					
Parameter	Min	Typ	Max	Unit	Notes
Operating Wavelength, Optical Lanes 0 to 3	1294.53	1295.56	1296.59	nm	
	1299.02	1300.05	1301.09		
	1303.54	1304.58	1305.63		
	1308.09	1309.14	1310.19		
Average Receive Power, each Lane	-20.5		-3.5	dBm	9
Receive Power (OMA), each Lane			-3.5	dBm	
Receiver Sensitivity (OMA), each Lane			-18.5	dBm	10
Stressed Receiver Sensitivity (OMA), each Lane			-16.0	dBm	10

9. Minimum average receive power, each lane is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance

10. 25.78Gbps, BER<5×10⁻⁵, PRBS 2³¹-1

8. EEPROM

Memory map as per SFF-8436

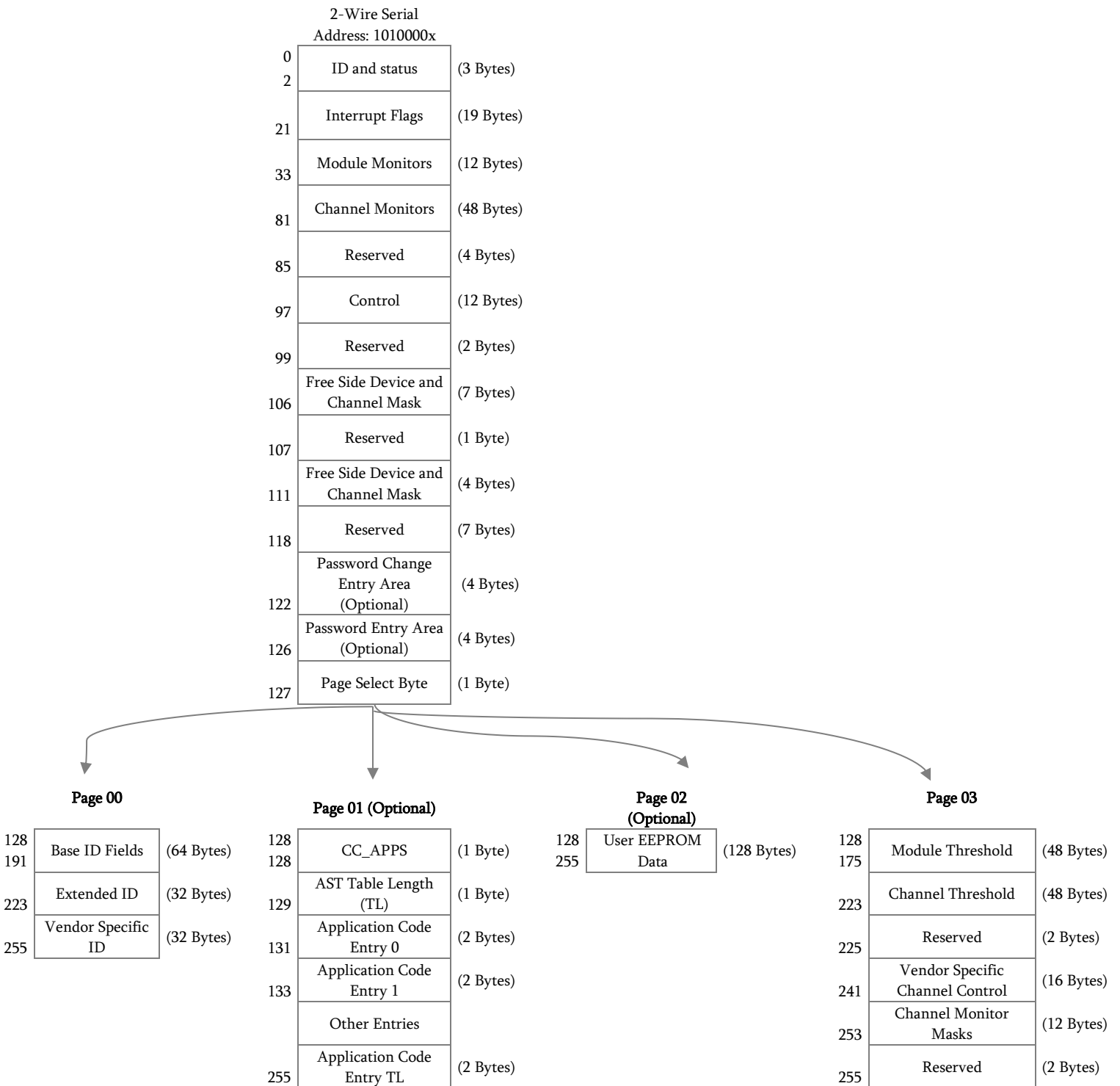


Figure 3. QSFP28 Memory Map

9. Ordering Information

Part Number	Description
Q28QD040C07F	QSFP28 4WDM-40, 1310nm LAN-WDM, Tx (DFB), Rx (APD), maximum distance 40km on SMF, 100 Gigabit Ethernet, dual LC connector, pull-tab, 0°C to 70°C, DDM

10. Document Revision Information

Revision	Description
A	Initial release
B	Receiver technology changed from PIN+SOA to APD

Skylane Optics® supplies a broad range of optical transceivers. Our engineers work closely with our customers to find the best solutions for every application. We are committed to provide high quality products and services to our customers.

For questions on this product please contact:
support@skylaneoptics.com

**Beyond
Quality**

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**Performing
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