

DAOQSxxxC00D – QSFP28 to 4X SFP28 AOC

1 to 100m / 100x Gigabit Ethernet / Active Optical Cable

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



ESD

This cable 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).

1. Overview

DAOQSxxxC00D is a high performance Active Optical Cable (AOC) for 100x Gigabit Ethernet data links. This cable merges four 25x Gigabit Ethernet SFP28 terminals to a single 100x Gigabit Ethernet QSFP28 terminal. Several cable lengths up to 100m are available,

This transceiver module is compliant with the Quad Small Form-factor Pluggable (QSFP28) and the Small Form-factor Pluggable (SFP+) Multisource Agreement (MSA) and hot pluggable. Always contact Skylane Optics' commercial agents for compatibility with different equipment platforms.

2. Features

- QSFP28 to 4x SFP28 Breakout cable
- Hot pluggable QSFP28 and SFP28 footprints
- QSFP28 Multi-Source Agreement compliant (SFF-8665)
- SFP+ Multi-Source Agreement compliant (SFF-8431)
- Four independent 25.781Gbps full-Duplex Channels
- Cable Lengths up to 100m
- Low power dissipation <2.5 W for QSFP28 and <1.0W for each SFP28 terminal
- Operating Case Temperature 0°C to 70°C
- Digital Diagnostic Monitoring (DDM)
- RoHS Compliant

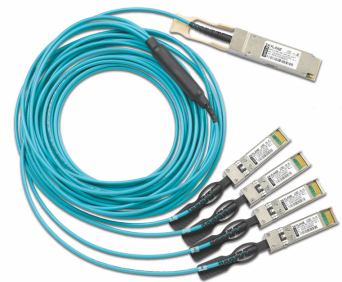


Figure 1. QSFP28 to 4x SFP28
Active Optical Cable
(non-binding illustration)

3. Applications

- 25/100GBase Ethernet
- Infiniband
- Data Centre
- Intra & Inter-racks connections

4. Technical Parameters

4.1. 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			750	mA	QSFP28 terminal
			300		Each SFP28 terminal
Power Dissipation			2500	mW	QSFP28 terminal
			1000		Each SFP28 terminal

4.2. General Specifications

Parameter	Min	Typ	Max	Unit	Notes
Data Rate		25.78125		Gbps	Each QSFP28 lane
		25.78125		Gbps	Each SFP28

4.3. High-speed Electrical Interfaces, Host to QSFP28 & SFP28

QSFP28 Terminal	Min	Typ	Max	Unit	Notes
Transmitter Differential Voltage peak-peak			900	mV	
Transmitter Common Mode Voltage	-350		2850	mV	
Common Mode to Differential Conversion and Differential to Common Mode Conversion	Per OIF CEI-28G-VSR & CAUI-4 requirements			dB	SDC22 & SCD22
Receiver Differential Voltage peak-peak			900	mV	
Receiver Differential Output Voltage Swing	-350		2850	mV	
Common Mode to Differential Conversion and Differential to Common Mode Conversion	Per OIF CEI-28G-VSR & CAUI-4 requirements			dB	SDC22 & SCD22
SFP28 Terminal	Min	Typ	Max	Unit	Notes
Transmitter Differential Voltage peak-peak			900	mV	
Transmitter Common Mode Voltage	-350		2850	mV	
Common Mode to Differential Conversion and Differential to Common Mode Conversion	Per OIF CEI-28G-VSR & CAUI-4 requirements			dB	SDC22 & SCD22
Receiver Differential Voltage peak-peak			900	mV	
Receiver Differential Output Voltage Swing	-350		2850	mV	
Common Mode to Differential Conversion and Differential to Common Mode Conversion	Per OIF CEI-28G-VSR & CAUI-4 requirements			dB	SDC22 & SCD22

5. Transceiver Electrical Pad Layout

5.1. QSFP28 Terminal

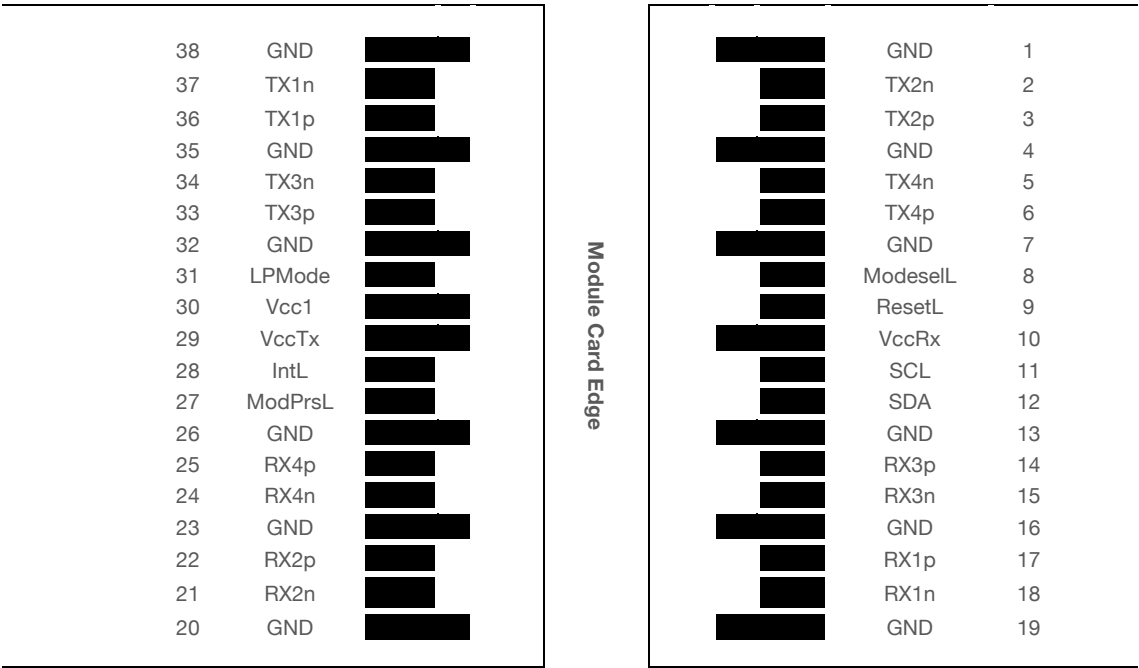


Figure 1. QSFP+ Transceiver Electrical Pad Layout

5.2. SFP28 Terminals

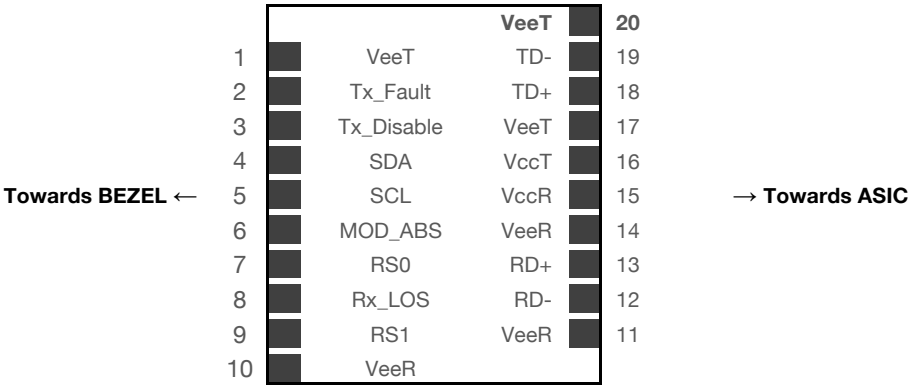


Figure 2. SFP+ Transceiver Electrical Pad Layout

6. Module Electrical Pin Definition

6.1. QSFP28 (1×)

QSFP28 MSA (SFF-8679)

Pin	Symbol	Description	Pin	Symbol	Description
1	GND	Ground	20	GND	Ground
2	TX2n	Transmitter Inverted Data Input	21	RX2n	Receiver Inverted Data Output
3	TX2p	Transmitter Non-Inverted Data Input	22	RX2p	Receiver Non-Inverted Data Output
4	GND	Ground	23	GND	Ground
5	TX4n	Transmitter Inverted Data Input	24	RX4n	Receiver Inverted Data Output
6	TX4p	Transmitter Non-Inverted Data Input	25	RX4p	Receiver Non-Inverted Data Output
7	GND	Ground	26	GND	Ground
8	ModSelL	Module Select	27	ModPrsL	Module Present
9	ResetL	Module Reset	28	Int	Interrupt
10	VccRx	Receiver Power Supply	29	VccTx	Transmitter Power supply
11	SCL	Two-Wire Serial Interface Clock (SCL)	30	Vcc1	Power supply
12	SDA	Two-wire Serial Interface Data (SDA)	31	LPMode	Low Power Mode
13	GND	Ground	32	GND	Ground
14	RX3p	Receiver Non-Inverted Data Output	33	TX3p	Transmitter Non-Inverted Data Input
15	RX3n	Receiver Inverted Data Output	34	TX3n	Transmitter Inverted Data Input
16	GND	Ground	35	GND	Ground
17	RX1p	Receiver Non-Inverted Data Output	36	TX1p	Transmitter Non-Inverted Data Input
18	RX1n	Receiver Inverted Data Output	37	TX1n	Transmitter Inverted Data Input
19	GND	Ground	38	GND	Ground

6.2. SFP28 (4x)

SFP+ MSA (SFF-8431)

Pin Number	Name	Function
1	VeeT	Module Transmitter Ground
2	Tx_Fault	Module Transmitter Fault
3	Tx_Disable	Transmitter Disable
4	SDA	2-Wire Serial Interface Data
5	SCL	2-Wire Serial Interface Clock
6	Mod_ABS	Module Absent
7	RS0	Not Used
8	Rx_LOS	Receiver Loss of Signal
9	RS1	Not Used
10	VeeR	Module Receiver Ground
11	VeeR	Module Receiver Ground
12	RD-	Receiver Inverted Data Output
13	RD+	Receiver Non-Inverted Data Output
14	VeeR	Module Receiver Ground
15	VccR	Module Receiver 3.3V Supply
16	VccT	Module Transmitter 3.3V Supply
17	VeeT	Module Transmitter Ground
18	TD+	Transmitter Non-Inverted Data Input
19	TD-	Transmitter Inverted Data Input
20	VeeT	Module Transmitter Ground

7. EEPROM

7.1. QSFP28 (1×)

QSFP28 MSA (SFF-8636)

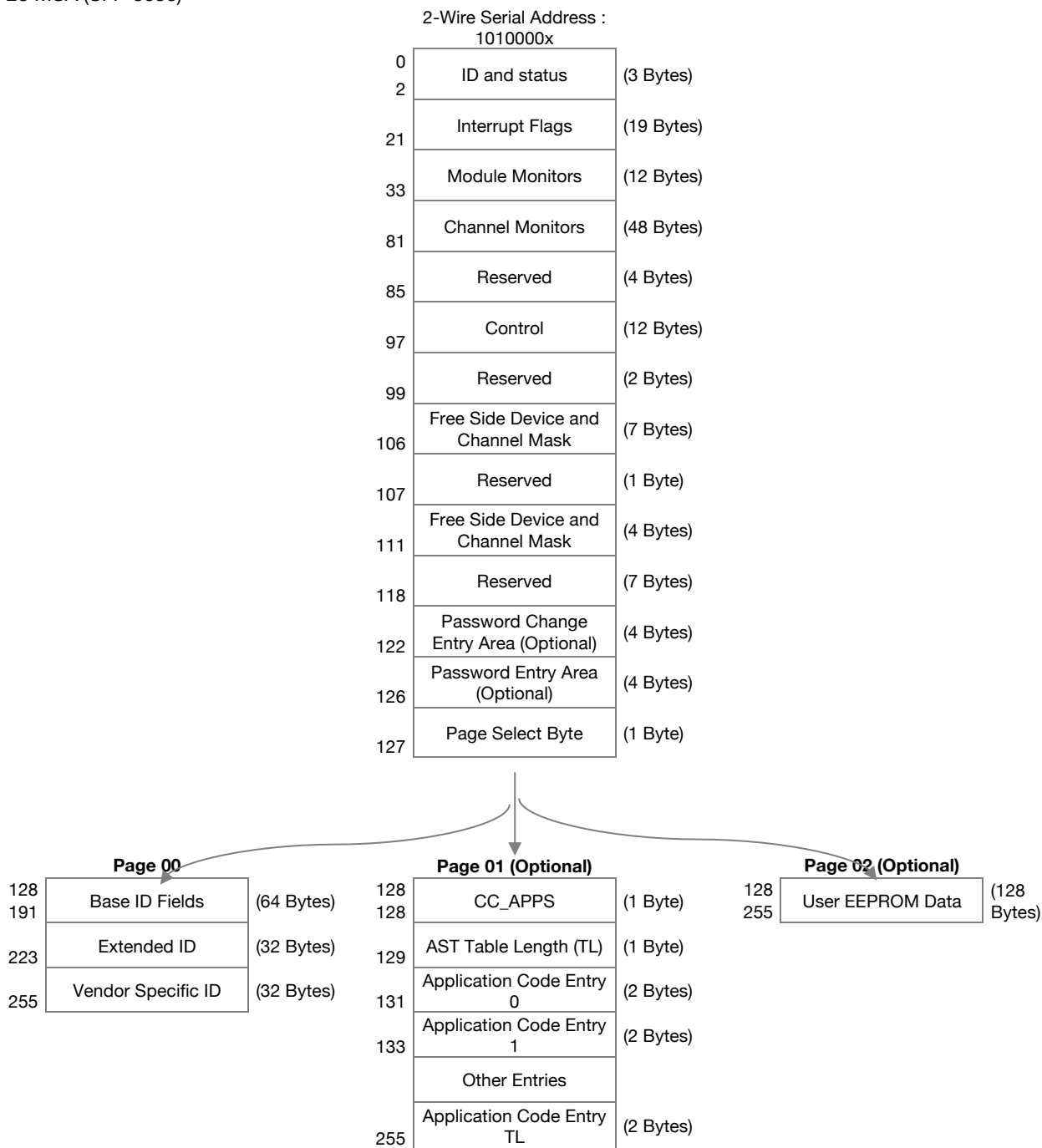


Figure 4. EEPROM of a QSFP28

7.2. SFP28 (4x)

SFP+ MSA (SFF-8472)

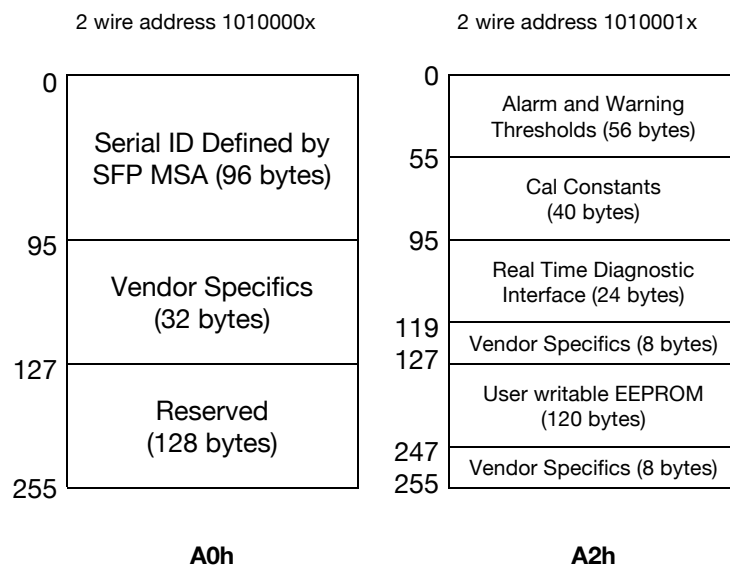


Figure 5. EEPROM of a SFP28

8. Ordering Information

Part Number	Description
DAOQSM01C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 1m , 0°C to 70°C, DDM
DAOQSM02C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 2m , 0°C to 70°C, DDM
DAOQSM03C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 3m , 0°C to 70°C, DDM
DAOQSM05C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 5m , 0°C to 70°C, DDM
DAOQSM10C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 10m , 0°C to 70°C, DDM
DAOQSM30C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 30m , 0°C to 70°C, DDM
DAOQSM50C00D	QSFP28 to 4x SFP28 cable 100BASE-AOC, 25x Gigabit Ethernet, 50m , 0°C to 70°C, DDM
DAOQSM75C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 75m , 0°C to 70°C, DDM
DAOQSP10C00D	QSFP28 to 4x SFP28 cable 100GBASE-AOC, 25x Gigabit Ethernet, 100m , 0°C to 70°C, DDM

9. Document Revision Information

Revision	Description
A	Initial release

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**

**Reliable
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Smartly**

