SNR-QSFP-40G-4xSFP+DA

QSFP to SFP+ Direct Attach Cables, 0.5m/1m/2m/3m Reach
RoHS6 Compliant

Features

- Support 4 lanes of 10 Gb/s
- AC coupling of PECL signals
- 100 ohm differential impedance system
- Power Supply +3.3V
- Low Near-End Crosstalk
- Fully compatible with IEEE802.3ba
- Temperature Range -40 to 85°C
- All-metal housing for superior EMI performance
- Precision process control for minimization of pair-to-pair skew
- EEPROM for cable signature & system communications
- QSFP End Compliant SFF-8436
- SFP+ End Compliant SFF-8431, SFF-8432, SFF-8472
- RoHS6 compliant

Applications

- Networked storage systems
- External storage systems
- Data Center networking
- Hubs, Switches, Routers, Servers

Order Information

Part No.	Description	Passive /Active	Cable Length (m)	AWG
SNR-QSFP-40G-4xSFP+DA	QSFP to 4 SFP+	Passive	0.5	30
SNR-QSFP-40G-4xSFP+DA-1	QSFP to 4 SFP+	Passive	1	28
SNR-QSFP-40G-4xSFP+DA-2	QSFP to 4 SFP+	Passive	2	30
SNR-QSFP-40G-4xSFP+DA-3	QSFP to 4 SFP+	Passive	3	30
SNR-QSFP-40G-4xSFP+DA-5	QSFP to 4 SFP+	Passive	5	30

Note1: Standard version. If you need customized services, please contact us.

Regulatory Compliance

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883G Method 3015.7	Class 1C (>1000 V)
Electrostatic Discharge to the enclosure	EN 55024:1998+A1+A2 IEC-61000-4-2 GR-1089-CORE	Compatible with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN55022:2006 CISPR 22B :2006 VCCI Class B	Compatible with standards Noise frequency range: 30MHz to 6GHz. Good system EMI design practice required to achieve Class B margins. System margins are dependent on customer host board and chassis design.
Immunity	EN 55024:1998+A1+A2 IEC 61000-4-3	Compatible with standards. 1KHz sine-wave, 80% AM, from 80MHz to 1GHz. No effect on transmitter/receiver performance is detectable between these limits.
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1:2007 EN (IEC) 60825-2:2004+A1	CDRH compliant and Class I laser product. TüV Certificate No. 50135086
Component Recognition	UL and CUL EN60950-1:2006	UL file E317337 TüV Certificate No. 50135086 (CB scheme)
RoHS6	2002/95/EC 4.1&4.2 2005/747/EC 5&7&13	Compliant with standards*note2

Note2: For update of the equipments and strict control of raw materials, NAG has the ability to supply the customized products since Jan 1th, 2007, which meet the requirements of RoHS6 (Restrictions on use of certain Hazardous Substances) of European Union.

In light of item 5 in RoHS exemption list of RoHS Directive 2002/95/EC, Item 5: Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.

In light of item 13 in RoHS exemption list of RoHS Directive 2005/747/EC, Item13: Lead and cadmium in optical and filter glass. The three exemptions are being concerned for NAG's transceivers, because NAG's transceivers use glass, which may contain Pb, for components such as lenses, windows, isolators, and other electronic components.

Product Description

SNR-QSFP-40G-4xSFP+DA-X series copper direct-attach cables are suitable for very short distances and offer a highly cost-effective way to establish a 40-Gigabit link between QSFP ports of 4 SFP+ switches within racks and across adjacent racks. These cables are used for 40GbE and Infniband standards, to maximize performance. This interconnect system is fully compliant with existing industry standard specifications such as the QSFP MSA and IBTA (InfiniBand Trade Association). The QSFP+ cables support the bandwidth transmission requirements as defined by IEEE 802.3ba (40 Gb/s) and Infiniband QDR (4x10 Gb/s per channel) specifications.

Absolute Maximum Ratings

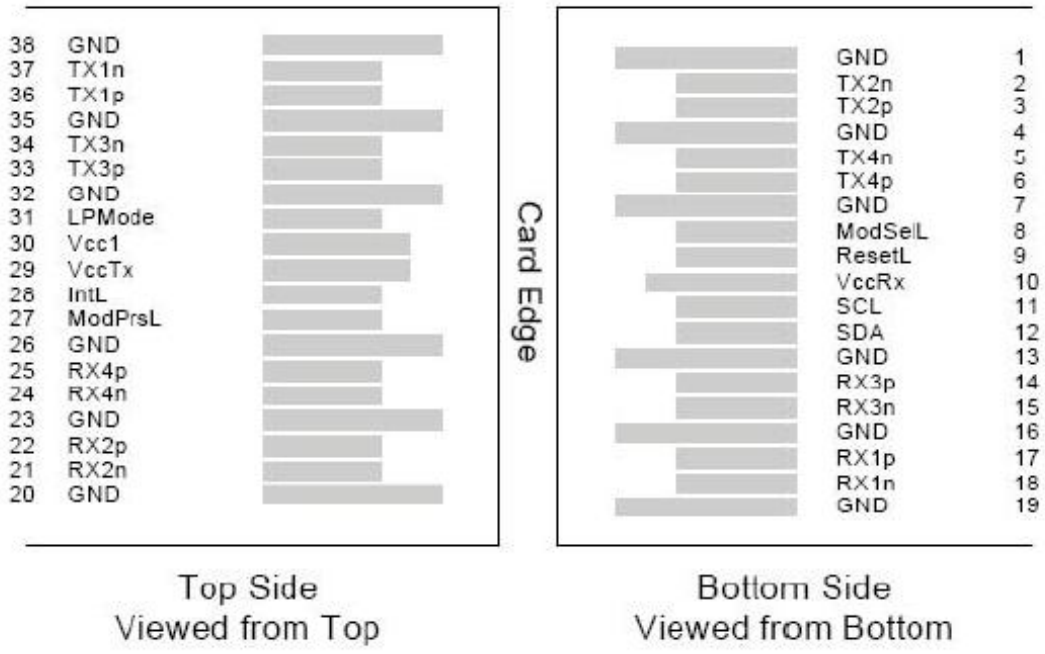
Parameter	Symbol	Min	Typ	Max	Units	Note
Storage Temperature	Tst	-40		125	°C	
Relative Humidity (non-condensation)	RS	-		85	%	
Operating Case Temperature	Topc	-40		85	°C	Note3
Supply Voltage	VCC3	-0.3	3.3	3.6	V	
Voltage on LVTTL Input	Vilvttl	-0.3		VCC3 +0.2	V	

NOTE3: Stress or conditions exceed the above range may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those listed in the operational sections of this specification is not applied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Normal operating condition

Parameter	Symbol	Min	Typ	Max	Units
Operating Case Temperature	Topc	-40		85	°C
Relative Humidity (non-condensation)	RS	-		85	%
Supply Voltage	VCC3	3.135	3.3	3.465	V
Power Supply Current	ICC3	750		-	mA
Total Power Consumption	Pd	-		2.0	W

QSFP Pin Assignments and Descriptions



Pin	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		Vcc Rx	+ 3.3V Power Supply Receiver	2
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CMLO	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CMLO	Rx1p	Receiver Non-Inverted Data Output	
18	CMLO	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CMLO	Rx2n	Receiver Inverted Data Output	

22	CMLO	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CMLO	Rx4n	Receiver Inverted Data Output	1
25	CMLO	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTLO	ModPrsL	Module Present	
28	LVTTLO	IntL	Interrupt	
29		Vcc Tx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTLI	LPMode	Low Power Mode	
32		GND	Ground	1
33	CMLI	Tx3p	Transmitter Non-Inverted Data Input	
34	CMLI	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CMLI	Tx1p	Transmitter Non-Inverted Data Input	
37	CMLI	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Notes:

1. GND is the symbol for signal and supply (power) common for QSFP modules. All are common within the QSFP module and all module voltages are referenced to this potential otherwise noted. Connect these directly to the host board signal common ground plane.
2. Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

SFP+ Pin Assignments and Descriptions

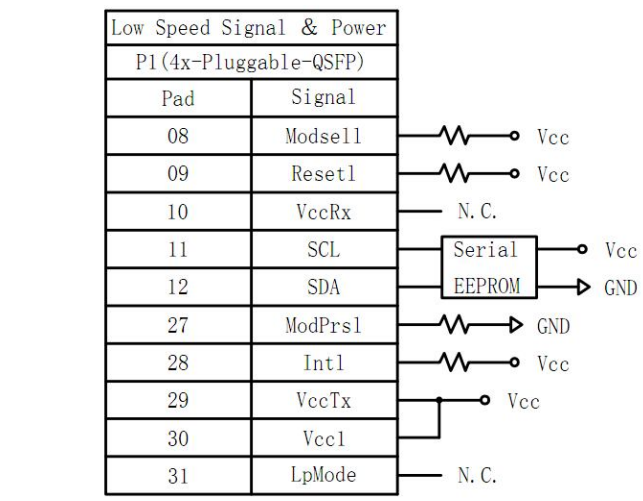
Pin	Logic	Symbol	Name/Description	Note
1		VeeT	Transmitter Ground	
2	LV-TTL-O	TX_Fault	N/A	
3	LV-TTL-I	TX_DIS	Transmitter Disable	
4	LV-TTL-I/O	SDA	Two Wire Serial Data	
5	LV-TTL-I	SCL	Two Wire Serial Clock	
6		MOD_DEF0	Module present, connect to VeeT.	
7	LV-TTL-I	RS0	N/A	
8	LV-TTL-O	LOS	LOS of Signal.	
9	LV-TTL-I	RS1		
10		VeeR	Receiver Ground	
11		VeeR	Receiver Ground	
12	CML-O	RD-	Receiver Data Inverted	

13	CML-O	RD+	Receiver Data NON-Inverted	
14		VeeR	Receiver Ground	
15		VccR	Receiver Supply 3.3V	
16		VccT	Transmitter Supply 3.3V	
17		VeeT	Transmitter Ground	
18	CML-I	TD+	Transmitter Data Non-Inverted	
19	CML_I	TD-	Receiver Data Inverted	
20		VeeT	Transmitter Ground	

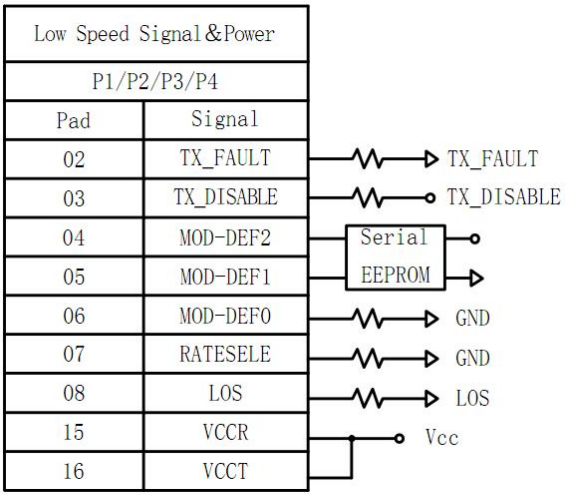
Recommended Wiring Diagram

High Speed signal					
P0(4x-Pluggable-QSFP)			P1/P2/P3/P4		
Pad	Sigal		Pad	Signal	
36	TX1p		12	RD-	P1
37	TX1n		13	RD+	
17	RX1p		18	TD+	
18	RX1n		19	TD-	
02	TX2n		12	RD-	P2
03	TX2p		13	RD+	
21	RX2n		18	TD+	
22	RX2p		19	TD-	
33	TX3p		12	RD-	P3
34	TX3n		13	RD+	
14	RX3p		18	TD+	
15	RX3n		19	TD-	
05	TX4n		12	RD-	P4
06	TX4p		13	RD+	
24	RX4n		18	TD+	
25	RX4p		19	TD-	
GND Group	GND		GND Group	GND	
GND Group 01、04、07、13、16、19、 20、23、26、32、35、38			GND Group(P1/P2/P3/P4) 01、09、10、11、 14、17、20		
Connector Shell			Connector Shell		

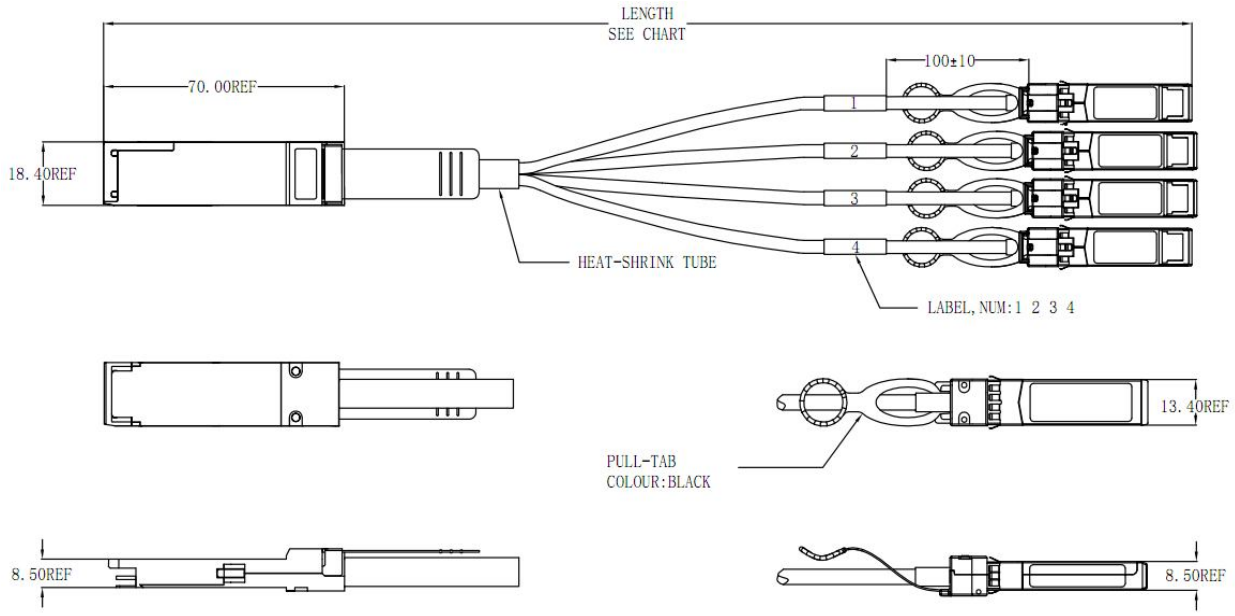
Low Speed Signal & Power	
P1(4x-Pluggable-QSFP)	
Pad	Signal
08	Modsell
09	Resetl
10	VccRx
11	SCL
12	SDA
27	ModPrsl
28	Intl
29	VccTx
30	Vccl
31	LpMode



Low Speed Signal&Power	
P1/P2/P3/P4	
Pad	Signal
02	TX_FAULT
03	TX_DISABLE
04	MOD-DEF2
05	MOD-DEF1
06	MOD-DEF0
07	RATESELE
08	LOS
15	VCCR
16	VCCT



Mechanical Specifications



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