

Features

- Fully compliant to the latest SFP+ & QSFP MSA (Multi-Source-Agreement)
- Supports all current 10-Gigabit Ethernet and 40-Gigabit Ethernet standards
- Up to 10.3125 Gbps transfer rate per SFP+ channel (40 Gbps aggregate)
- 30 AWG to 26 AWG cable sizes available
- 100 ohm differential impedance system
- Single 3.3V power supply, low power consumption, <0.5W
- Operating case temperature: -20 to 85°C
- All-metal housing for superior EMI performance
- Precision process control for minimization of pair-to-pair skew
- AC coupling of PECL signals
- EEPROM for cable signature & system communications
- Low cross-talk and pair-to-pair skew maintains signal integrity



- Fully RoHS compliant for environmental protection

Applications

- 40G Ethernet transmission
- Fiber Channel
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Networking
- Hubs, switches, routers, servers
- Data center interconnect
- High Performance Computing application

1. Recommended Operation Condition

Parameter	Symbol	Min	Max	Unit
Operating Case Temperature	Topc	-40	85	°C
Relative Humidity (non-condensation)	RS	-	85	%
Supply Voltage	VCC3	3.135	3.465	V
Voltage on LVTTTL Input	Vi lvttl	-0.3	VCC3 +0.2	V
Power Supply Current	ICC3	70	-	mA
Total Power Consumption	Pd	-	0.5	W

2. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	Tst	-40	125	°C
Relative Humidity (non-condensation)	RS	-	85	%
Operating Case Temperature	Topc	-40	85	°C
Supply Voltage	VCC3	-0.3	3.6	V
Voltage on LVTTTL Input	Vi lvttl	-0.3	VCC3 +0.2	V

Note: 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.

3. QSFP+ Module Electrical Characteristics per SFF-8436

Parameters	Min	Typ	Max	Units
QSFP+ Input electrical characteristics per lane				
Single-ended input voltage tolerance	-0.3		4.0	V
SDD11-Differential input return loss	(note 1)			dB
SCD11 -Differential to common-mode input return loss	(note 2)			dB
QSFP+ Output electrical characteristics per lane				
Single-ended output voltage	-0.3		4.0	V
SDD22 - Differential output return loss	(note 1)			dB
SCC22 - Common-mode output return loss	(note 3)			dB

Notes:

1. SDD11/SDD22 differential return loss is measured at TP1 and TP4 as: $\{-12+2*\text{SQRT}(f) @ 0.01 \text{ to } 4.1\text{GHz} < -6.3 + 13 * \log_{10}(f/5.5), \text{ with } f \text{ in GHz ; } @4.1 \text{ to } 11.1\text{GHz}\}$
2. SCD11 measured at TP1 $> 10 \text{ dB } \{ 10\text{Mhz to } 11.1\text{GHz}\}$
3. SCC22 - Common-mode output return loss at TP4 is defined as: $\{ 7-1.6f \text{ } 0.01 < f < 2.5, 3 \text{ } 2.5 < f < 11.1 \}$ f is the frequency in GHz

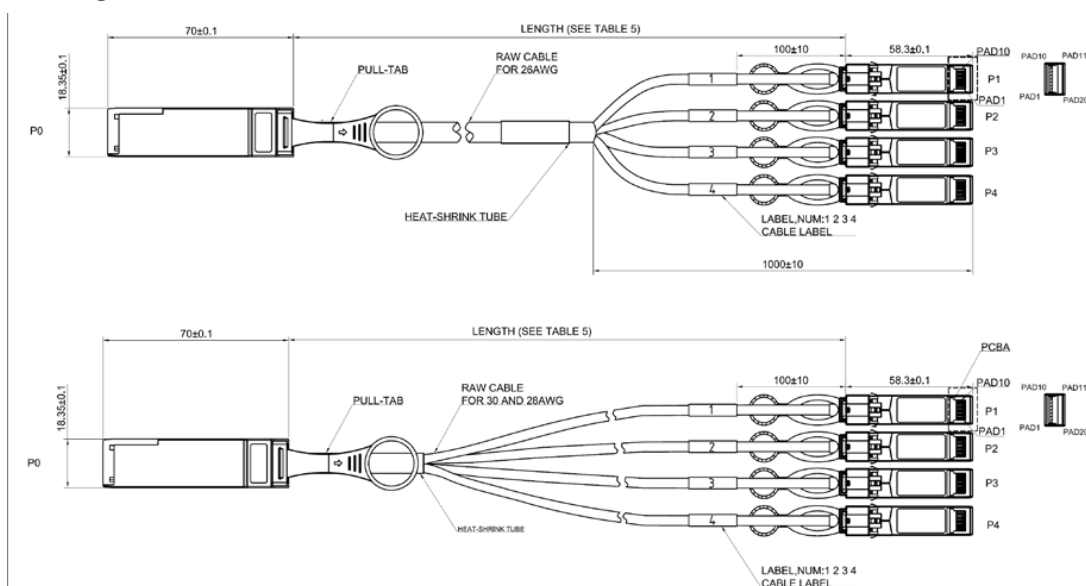
4. SFP+ Module Electrical Characteristics per SFF-8431

Parameters	Min	Typ	Max	Units
SFP+ Input electrical characteristics per module				
Single-ended input voltage tolerance	-0.3		4.0	V
Signaling rate/channel, NRZ			10.5	Gbit/s
SDD11 – differential input return loss	(note 1)			dB
SCD11- reflected differential to common mode input return loss	(note 2)			dB
SFP+ Output electrical characteristics per module				
Single-ended output voltage tolerance	-0.3		4	V
AC common mode output voltage			7.5	mV rms
SDD22 – differential output return loss	(note 1)			
SCC22 – Common-mode output return loss	(note 3)			dB

Notes:

1. SDD11/SDD22 differential return loss is measured at TP1 and TP4 as: $\{-12+2*\text{SQRT}(f) @ 0.01 \text{ to } 4.1\text{GHz} < -6.3 + 13 * \log_{10}(f/5.5), \text{ with } f \text{ in GHz} ; @4.1 \text{ to } 11.1\text{GHz}\}$
2. SCD11 measured at TP1 $> 10 \text{ dB} \{ 10\text{Mhz to } 11.1\text{GHz}\}$
3. SCC22 – Common-mode output return loss at TP4 is defined as: $\{ 7-1.6f 0.01 < f < 2.5, 3 2.5 < f < 11.1 \}$ f is the frequency in GHz

5. Mechanical Diagram



Note: External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

6. Ordering Information

OEM	Part Numbers	OEM	Part Numbers
Amphenol	610640000-A	HPE	JG330A-A
Amphenol	610640008-A	HPE	JG331A-A
Amphenol	610640007-A	Intel	X4DACBL50-A
Amphenol	610640004-A	Intel	X4DACBL1.5-A
Amphenol	610640001-A	Intel	X4DACBL2.5M-A
Amphenol	610640002-A	Intel	X4DACBL4-A
Amphenol	610640003-A	Intel	X4DACBL1-A
Amphenol	610640005-A	Intel	X4DACBL2-A
Arista	CAB-Q-S-0.5M-A	Intel	X4DACBL3-A
Arista	CAB-Q-S-1.5M-A	Intel	X4DACBL5-A
Arista	CAB-Q-S-2.5M-A	Juniper	QFX-QSFP-DACBO-0.5M-A
Arista	CAB-Q-S-4M-A	Juniper	QFX-QSFP-DACBO-1.5M-A
Arista	CAB-Q-S-1M-A	Juniper	QFX-QSFP-DACBO-2.5M-A
Arista	CAB-Q-S-2M-A	Juniper	QFX-QSFP-DACBO-4M-A
Arista	CAB-Q-S-3M-A	Juniper	QFX-QSFP-DACBO-1M-A
Arista	CAB-Q-S-5M-A	Juniper	QFX-QSFP-DACBO-2M-A
Brocade	40G-QSFP-4SFP-C-0105-A	Juniper	QFX-QSFP-DACBO-3M-A
Brocade	40G-QSFP-4SFP-C-0101-A	Juniper	QFX-QSFP-DACBO-5M-A
Brocade	40G-QSFP-4SFP-C-0201-A	Mellanox	MC2609130-050-A
Brocade	40G-QSFP-4SFP-C-0301-A	Mellanox	MC2609130-001.5-A
Brocade	40G-QSFP-4SFP-C-0501-A	Mellanox	MC2609130-002.5-A
Cisco	QSFP-4SFP10G-CU50CM-A	Mellanox	MC2609130-001-A
Cisco	QSFP-4SFP10G-CU1M-A	Mellanox	MC2609130-002-A
Cisco	QSFP-4SFP10G-CU1.5M-A	Mellanox	MC2609130-003-A
Cisco	QSFP-4SFP10G-CU2M-A	Mellanox	MC2609125-005-A
Cisco	QSFP-4SFP10G-CU2.5M-A	Molex	747641051-A
Cisco	QSFP-4SFP10G-CU3M-A	Molex	747641101.5M-A
Cisco	QSFP-4SFP10G-CU4M-A	Molex	747641202.5M-A
Cisco	QSFP-4SFP10G-CU5M-A	Molex	747641101-A
Dell	470-AAVO-A	Molex	747641201-A
Dell	470-AAXG-A	Molex	747641301-A
Dell	470-AAXH-A	MSA	AN-Q40S10-P-50CM
Dell	470-AAWU-A	MSA	AN-Q40S10-P-1.5M
Edgecore	ET6402-10DAC-50CM-A	MSA	AN-Q40S10-P-2.5M
Edgecore	ET6402-10DAC-1.5M-A	MSA	AN-Q40S10-P-4M
Edgecore	ET6402-10DAC-2.5M-A	MSA	AN-Q40S10-P-1M

Edgecore	ET6402-10DAC-4M-A	MSA	AN-Q40S10-P-2M
Edgecore	ET6402-10DAC-1M-A	MSA	AN-Q40S10-P-3M
Edgecore	ET6402-10DAC-2M-A	MSA	AN-Q40S10-P-5M
Edgecore	ET6402-10DAC-3M-A	MSA	CAB-QSFP-4SFP10G-DACP-1M-C1
Edgecore	ET6402-10DAC-5M-A	MSA	CAB-QSFP-4SFP10G-DACP-2M-C1
Extreme	10202-50CM-A	MSA	CAB-QSFP-4SFP10G-DACP-3M-C1
Extreme	10202-1.5M-A	MSA	CAB-QSFP-4SFP10G-DACP-5M-C1
Extreme	10203-2.5M-A	Siemon	SFPPQSFP30-00.5-A
Extreme	10321-4M-A	Siemon	SFPPQSFP30-01.5-A
Extreme	10202-A	Siemon	SFPPQSFP30-02.5-A
Extreme	10203-A	Siemon	SFPPQSFP30-01-A
Extreme	10321-A	Siemon	SFPPQSFP30-02-A
Extreme	10322-A	Siemon	SFPPQSFP30-03-A
HPE	JG329A-A	Siemon	SFPPQSFP30-05-A

7. Contact Information

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