40G QSFP+ Direct Attach Cable
TSQS-PC40G-xxM

General Description

QSFP+ Direct Attach Cables are compliant with the SFF-8436 specifications. Various choices of wire gauge are available from 30 to 26 AWG with various choices of cable length (up to 7m).

Features

- Up to 10.3125Gbps data rate per channel
- Up to 7m transmission
- Hot-pluggable QSFP+ 38 PIN footprint
- Compatible to SFF-8436
- Single 3.3V power supply
- Temperature Range: 0 °C to 70 °C
- RoHS compliant

Applications

- Low EMI radiation switches, servers and routers
- Data center networks
- Storage area networks
- High performance computing
- Telecommunication and wireless infrastructure
- Medical diagnostics and networking
- Test and measurement equipment

Recommended Operation Condition

Parameter	Symbol	Min	Max	Unit
Operating Case Temperature	Topc	0	70	degC
Storage Temperature	Tst	-40	85	degC
Relative Humidity (non-condensation)	RS	35	60	%
Supply Voltage	VCC3	3.135	3.465	V
Voltage on LVTTL Input	Vilvttl	-0.3	VCC3 +0.2	V
Power Supply Current	ICC3		15	mA
Total Power Consumption	Pd	-	0.05	W

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Notes:
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.

Pin Definition

Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output
22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present

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28	IntL	Interrupt
29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc1	+3.3 V Power Supply
31	LPMode	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

General Product Characteristics

QSFP+ DAC Specifications	
Number of Lanes	Tx & Rx
Channel Data Rate	10.3125 Gbps
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Supply Voltage	3.3 V nominal
Electrical Interface	38 pins edge connector
Management Interface	Serial, I2C

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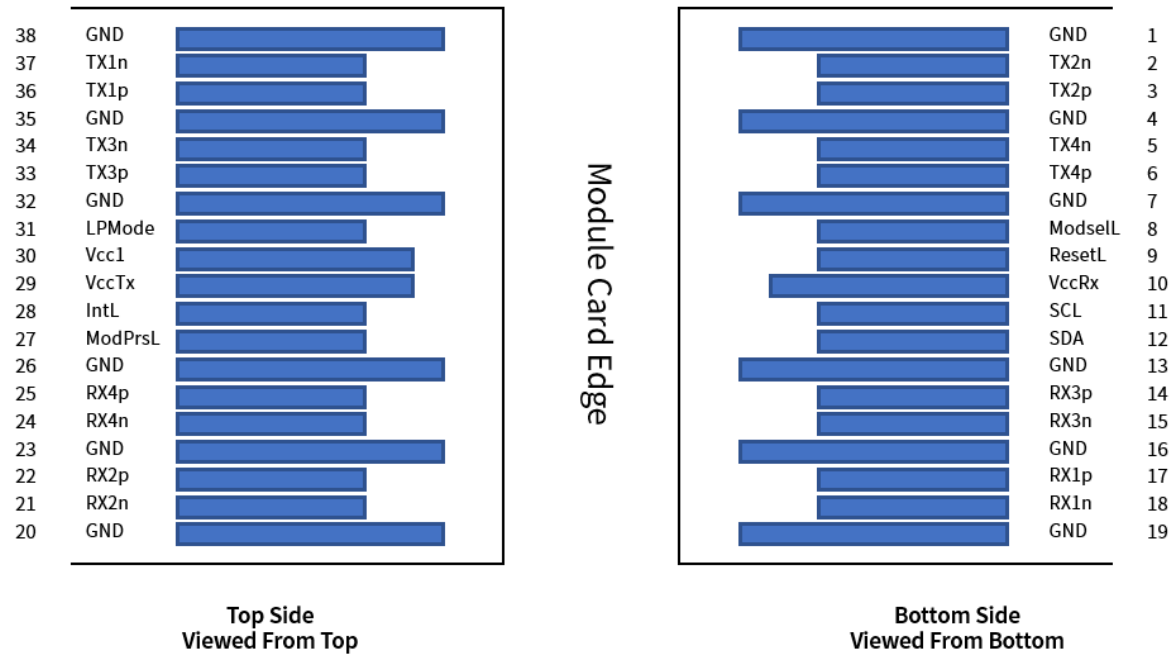
Pin Descriptions



Top Side Viewed From Top

Bottom Side Viewed From Bottom

High Speed Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Notes
Differential Impedance	Zd	90	100	110	Ω	-
Differential Input Return Loss	SDDXX	<-12+2* SQRT (f) with f in GHz			dB	0.01~4.1GHz
		<-6.3+13*$\log_{10} f/5.5$ with f in GHz			dB	4.1~11.1GHz
Common Mode Output Return Loss	SCCXX	< -7+1.6*f with f in GHz			dB	0.01~2.5GHz
		-	-	-3	dB	2.5~11.1GHz
Difference Waveform Distortion	dWDPc	-	-	6.75	dB	-
VMA Loss	L	-	-	4.4	dB	-
VMA Loss to Crosstalk Ratio	VCR	32.5	-	-	dB	-

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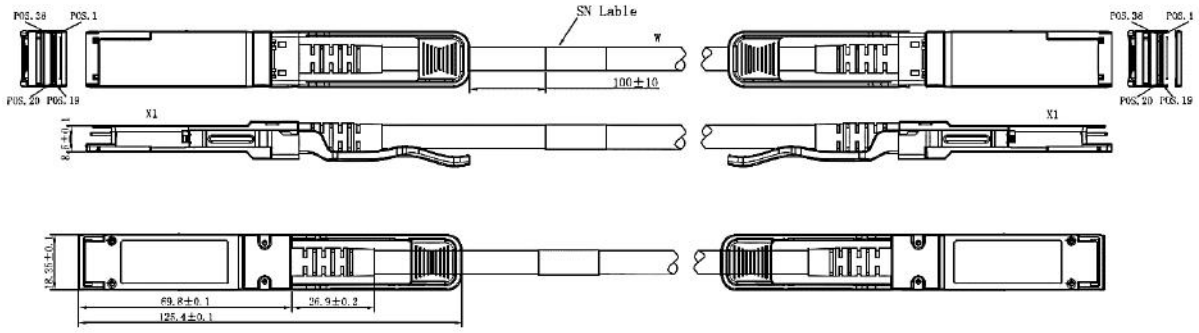
Mechanical Dimensions

The connector is compatible with the SFF-8436 specification.



Length (m)	Cable AWG
1	30
3	30
5	26
7	26

Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the	MIL-STD-883C Method 3015.7	Class 1(>2000 Volts)
Electromagnetic Interference(EMI)	FCC Class B	Compliant with Standards
	CENELEC EN55022 Class B	
	CISPR22 ITE Class B	
RF Immunity(RFI)	IEC61000-4-3	Typically Show no Measurable Effect
RoHS Compliance	RoHS Directive 2011/65/EU and it's	RoHS 6/6 compliant

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