

### PRODUCT FEATURES

- Twinax Direct-Attach Cable, Passive
- High-Density QSFP 38-PIN Connector
- Length: 50cm to 10 Meters
- 4-Channel Full-Duplex Passive Copper Cable
- Support for multi-gigabit data rates:  
1.0 Gbps - 10.3125Gbps (per channel)
- Maximum aggregate data rate: 41.25 Gbps
- Power Supply: +3.3V
- Low power consumption: 0.02 W (typ.)
- I2C based two-wire serial interface for easy control and monitoring (SFF-8436)
- Temperature Range: 0°C~ 70 °C

### APPLICATIONS

- 10G/40Gigabit Ethernet
- Switches, Routers, and HBAs  
InfiniBand SDR, DDR, QDR Data Centers
- 2x/4x/8x/10x Gigabit Fiber Channel



## Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max.	Unit
Storage Ambient Temperature	TA	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Power Supply Current	Vcc3	3.14	3.3	3.47	V
Power Dissipation	PD	-		2.5	W
Data Rate Per Lane		1		10	Gb/s

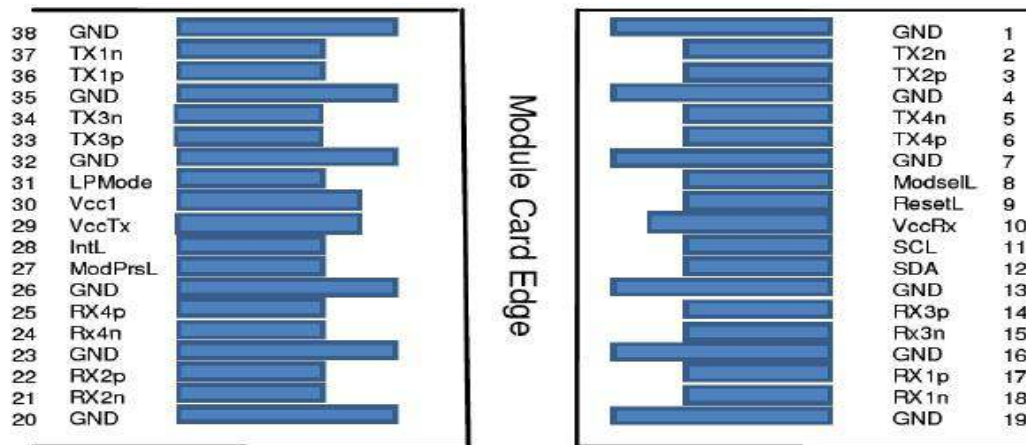
\*Exceeding any one of these values may destroy the device immediately.

## Regulatory Compliance

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883G Method 3015.7	Class 1C (>1000V)
Electrostatic Discharge to the enclosure	EN 55024:2010+A1:2015 IEC-61000-4-2 GR-1089-CORE	Compliant with standards
Electromagnetic Interference (EMI)	FCC 47CFR Part 15 Class B EN55032:2015 CISPR 22B :2006 VCCI Class B	Compliant with standards Noise frequency range: 0.15MHz 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	Compliant with standards. 1KHz sine-wave, 80% AM, from 80MHz to 1GHz. No effect on transmitter/receiver performance is detectable between these limits.
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*(Note1)

Note1: For update of the equipments and strict control of raw materials, OUSENT has the ability to supply the customized products since Jan 1, 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 Ousent's transceivers, because Ousent's transceivers use glass, which may contain Pb, for components such as lenses, windows, isolators, and other electronic components.

## Pin Function Definitions



Top Side  
Viewed From Top

Bottom Side  
Viewed From Bottom

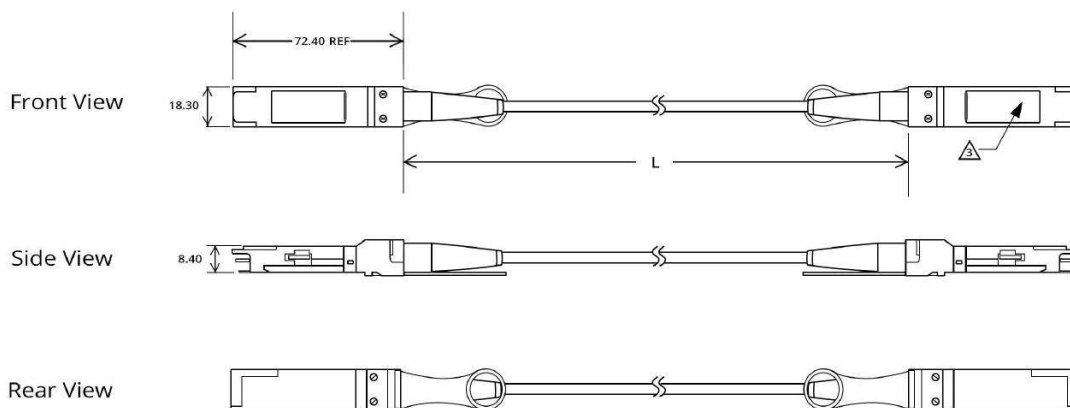
Pin Num.	Name	Function	Plug Seq.	Notes
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Ground	1
8	LVTTTL-I	ModSelL	Module Select	
9	LVTTTL-I	ResetL	Module Reset	
10		Vcc Rx	+3.3V Power Supply Receiver	2
11	LVCMOS/O	SCL	2-wire serial interface clock	
12	LVCMOS/O	SDA	2-wire serial interface data	
13		GND	Ground	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	

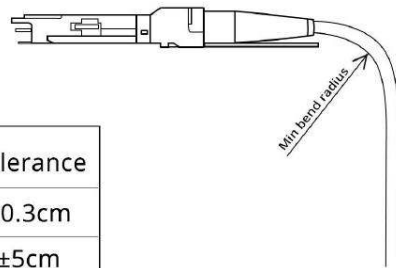
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTTL-O	ModPrsL	Module Present	
28	LVTTTL-O	IntL	Interrupt	
29		Vcc Tx	+3.3V Power supply transmitter	2
30		Vcc1	+3.3V Power supply	2
31	LVTTTL-I	LPMode	Low Power Mode	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

NOTE1: GND is the symbol for signal and supply (power) common for the QSFP+ module. All are common within the QSFP+ module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.

NOTE2: Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power supplies and shall be applied concurrently. Requirements defined for the host side of the Host Edge Card Connector are listed in Table 6. Recommended host board power supply filtering is shown in Figures 3 and 4. Vcc Rx Vcc1 and Vcc Tx may be internally connected within the QSFP+ Module in any combination. The connector pins are each rated for a maximum current of 500mA.

## Mechanical Specifications





L	Tolerance
$L \leq 0.5\text{m}$	$\pm 0.3\text{cm}$
$0.5\text{m} < L \leq 5\text{m}$	$\pm 5\text{cm}$
$5\text{m} < L \leq 20\text{m}$	$\pm 8\text{cm}$
$20\text{m} < L$	$\pm 10\text{cm}$

Notes:

1. Unit: mm
2. "L" for Cable Length
3. Label Specification

