

## **1445010F1C-OPC**

ADTRAN® 1445010F1C Compatible TAA 100GBase-CU QSFP28 Direct Attach Cable (Passive Twinax, 1m)

### **Features**

- Up to 100 Gbps bi-directional data links
- Compliant with QSFP28 MSA specifications
- AC coupled inputs and outputs
- 100 Ohm differential impedance
- All-metal housing for superior EMI performance
- Single power supply 3.3V, low power consumption
- Operating Temperature: 0 to 70 Celsius
- ROHS Compliant



### **Applications:**

- 100 Gigabit Ethernet
- Serial Data Transmission
- Infiniband

### **Product Description**

This is an ADTRAN® 1445010F1C compatible 100GBase-CU QSFP28 to QSFP28 direct attach cable that operates over passive copper with a maximum reach of 1.0m (3.3ft). It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This direct attach cable is TAA (Trade Agreements Act) compliant, and is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

### General Specifications

| Parameter             | Symbol | Min. | Typ. | Max.       | Unit     | Notes |
|-----------------------|--------|------|------|------------|----------|-------|
| Bit Error Rate        | BER    |      |      | $10^{-12}$ |          |       |
| Operating Temperature | Tc     | 0    |      | 70         | °C       | 1     |
| Storage Temperature   | Tstg   | -40  |      | 85         | °C       | 2     |
| Input Voltage         | Vcc    | 3.14 | 3.3  | 3.46       | V        | 3     |
| Cable Impedance       | Z      | 90   | 100  | 110        | $\Omega$ |       |
| Product Weight        | GD     |      | 145  | g/PCS      |          | 4     |
| Cable Weight          | GC     |      | 64   | g/M        |          |       |
| Dust Cap Weight       | GQ     |      | 1.40 | g/PCS      |          |       |

#### Notes:

1. Case temperature.
2. Ambient temperature.
3. For electrical power interface.
4. For example, the weight of a 5m cable with 26AWG is  $190 + 110 * (5-1) + 1.40 * 2 = 632.8g$ .

### Cable Dimensions and Insertion Loss Level

| Length | Wire Gauge AWG | Cable Diameter OD (mm) | Minimum Bending Radius R (mm) | Insertion Loss Level |
|--------|----------------|------------------------|-------------------------------|----------------------|
| 1m     | 30WG           | 6.9                    | 35                            | CA-25G-N             |

#### Notes:

1. Cable insertion loss classification standard: IEEE 802.3by 110-10.

### Length Tolerance

| Nominal Length L1 (m) | Tolerance Range $\pm$ (cm) |
|-----------------------|----------------------------|
| $L1 \leq 3$           | 2                          |

## Pin Descriptions

| Pin | Symbol  | Name/Description                                                                      | Notes |
|-----|---------|---------------------------------------------------------------------------------------|-------|
| 1   | GND     | Module Ground.                                                                        | 5     |
| 2   | Tx2-    | Transmitter Inverted Data Input. LAN2.                                                |       |
| 3   | Tx2+    | Transmitter Non-Inverted Data Input. LAN2.                                            |       |
| 4   | GND     | Module Ground.                                                                        | 5     |
| 5   | Tx4-    | Transmitter Inverted Data Input. LAN4.                                                |       |
| 6   | Tx4+    | Transmitter Non-Inverted Data Input. LAN4.                                            |       |
| 7   | GND     | Module Ground.                                                                        | 5     |
| 8   | ModSelL | Module Select Pin. The module responds to 2-wire serial communication when low level. | 1     |
| 9   | ResetL  | Module Reset.                                                                         | 2     |
| 10  | VccRx   | +3.3V Receiver Power Supply.                                                          |       |
| 11  | SCL     | 2-Wire Serial Interface Clock.                                                        |       |
| 12  | SDA     | 2-Wire Serial Interface Data.                                                         |       |
| 13  | GND     | Module Ground.                                                                        | 5     |
| 14  | Rx3+    | Receiver Non-Inverted Data Output. LAN3.                                              |       |
| 15  | Rx3-    | Receiver Inverted Data Output. LAN3.                                                  |       |
| 16  | GND     | Module Ground.                                                                        | 5     |
| 17  | Rx1+    | Receiver Non-Inverted Data Output. LAN1.                                              |       |
| 18  | Rx1-    | Receiver Inverted Data Output. LAN1.                                                  |       |
| 19  | GND     | Module Ground.                                                                        | 5     |
| 20  | GND     | Module Ground.                                                                        | 5     |
| 21  | Rx2-    | Receiver Inverted Data Output. LAN2.                                                  |       |
| 22  | Rx2+    | Receiver Non-Inverted Data Output. LAN2.                                              |       |
| 23  | GND     | Module Ground.                                                                        | 5     |
| 24  | Rx4-    | Receiver Inverted Data Output. LAN4.                                                  |       |
| 25  | Rx4+    | Receiver Non-Inverted Data Output. LAN4.                                              |       |
| 26  | GND     | Module Ground.                                                                        | 5     |
| 27  | ModPrsL | The module is inserted into the indicator pin and grounded in the module.             | 3     |
| 28  | IntL    | Interrupt.                                                                            | 4     |
| 29  | VccTx   | +3.3V Transmitter Power Supply.                                                       |       |
| 30  | Vcc1    | +3.3V Power Supply.                                                                   |       |
| 31  | LPMODE  | Low-Power Mode.                                                                       | 5     |
| 32  | GND     | Module Ground.                                                                        | 5     |
| 33  | Tx3+    | Transmitter Non-Inverted Data Input. LAN3.                                            |       |
| 34  | Tx3-    | Transmitter Inverted Data Input. LAN3.                                                |       |

|    |      |                                            |   |
|----|------|--------------------------------------------|---|
| 35 | GND  | Module Ground.                             | 5 |
| 36 | Tx1+ | Transmitter Non-Inverted Data Input. LAN1. |   |
| 37 | Tx1- | Transmitter Inverted Data Input. LAN1.     |   |
| 38 | GND  | Module Ground.                             | 5 |

#### Notes:

1. ModSelL is the input pin. The module responds to 2-wire serial communication commands when it is held low by the host. ModSelL allows multiple QSFP modules to be used on a single 2-wire interface bus. If ModSelL is "high," the module will not respond to any 2-wire interface communication from the host. ModSelL has internal pull-up resistors in the module.
2. The module restart pin, when the low level on the ResetL pin lasts longer than the minimum pulse length, resets the module and restores all user modules to their default state. When performing reset device, the host should ignore all status bits. Until the module reset interrupt is completed, please note that during hot plugging, the module will issue this information to complete the reset interrupt without resetting.
3. This pin is active "high," indicating that the module is running under a low-power module.
4. IntL is the output pin, which is the open collector output and must be pulled up to Vcc on the motherboard. When it is "low," it indicates that the module may malfunction. The host uses a 2-wire serial interface to identify the interrupt source.
5. The circuit ground is internally isolated from the chassis ground.

#### Electrical Pad Layout



**Mechanical Specifications**



All Dimensions are  $\pm 0.2$ mm Unless Otherwise Specified.  
Unit: mm