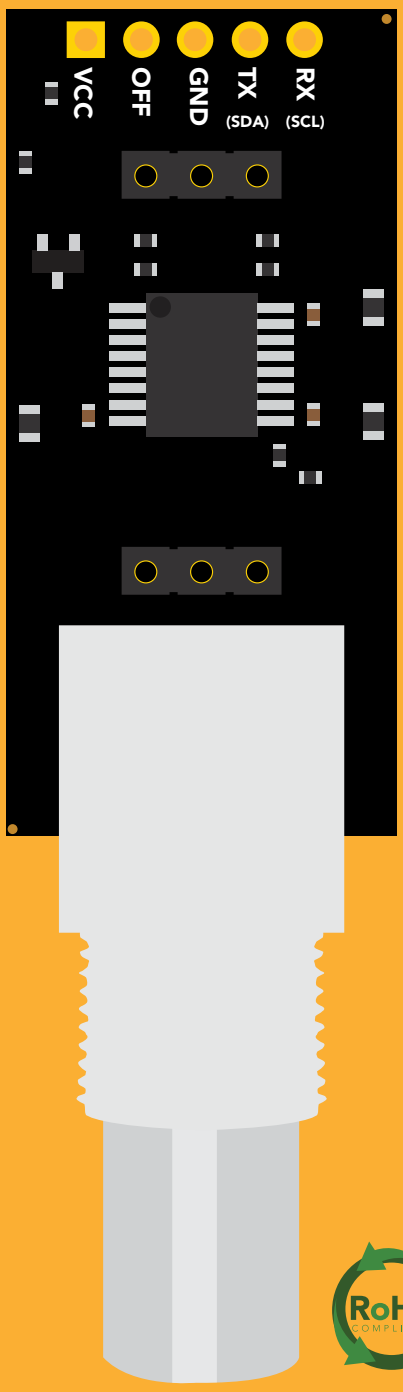
Atlas Scientific™
Environmental Robotics
V 2.0

Electrically Isolated

EZO™ Carrier Board

Data input		**UART & I²C**
Voltage input		**3.3V – 5.0V**
Power saving		**OFF pin**
Current consumption	5V	**15 mA**
	3.3V	**20 mA**

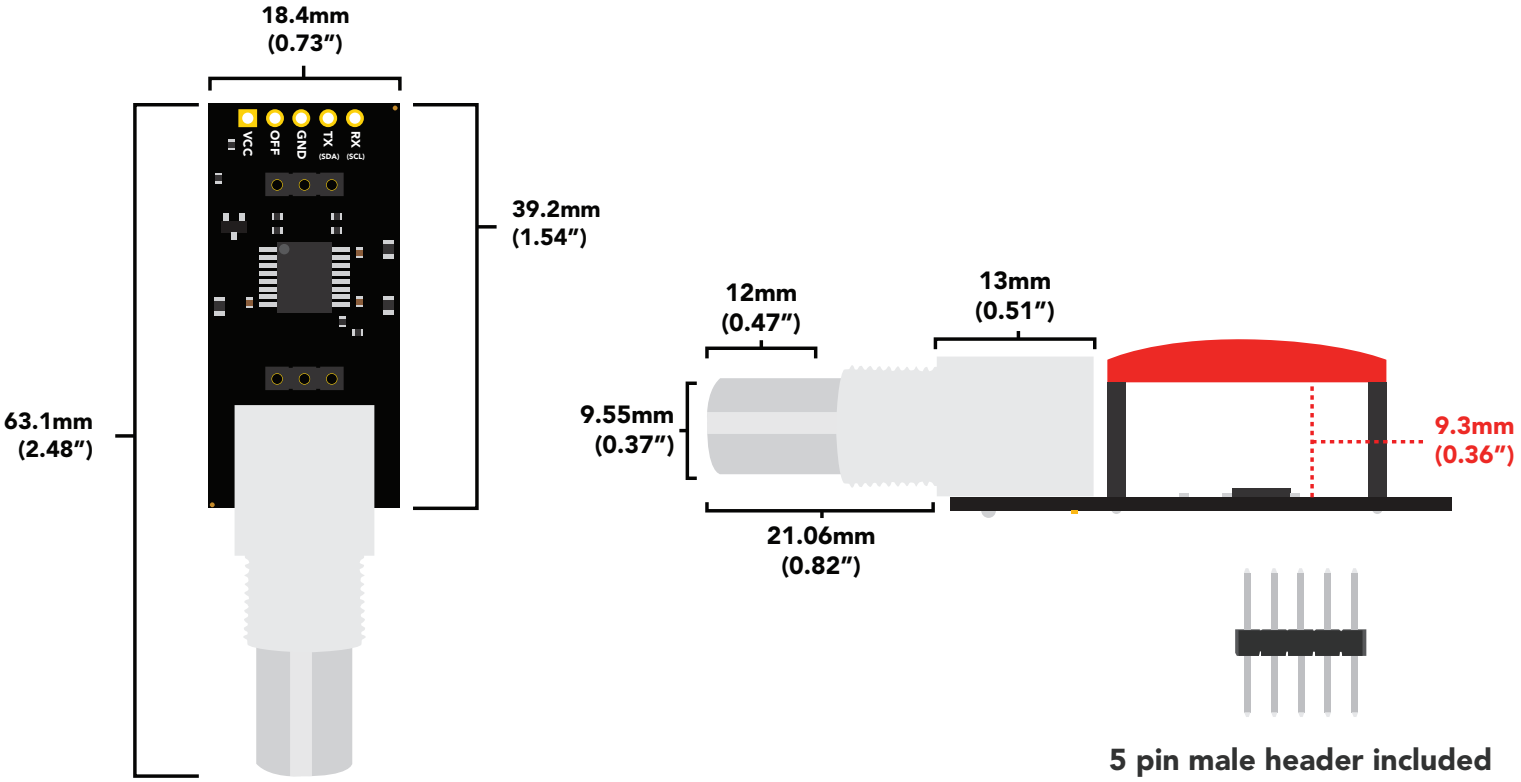


RoHS COMPLIANT

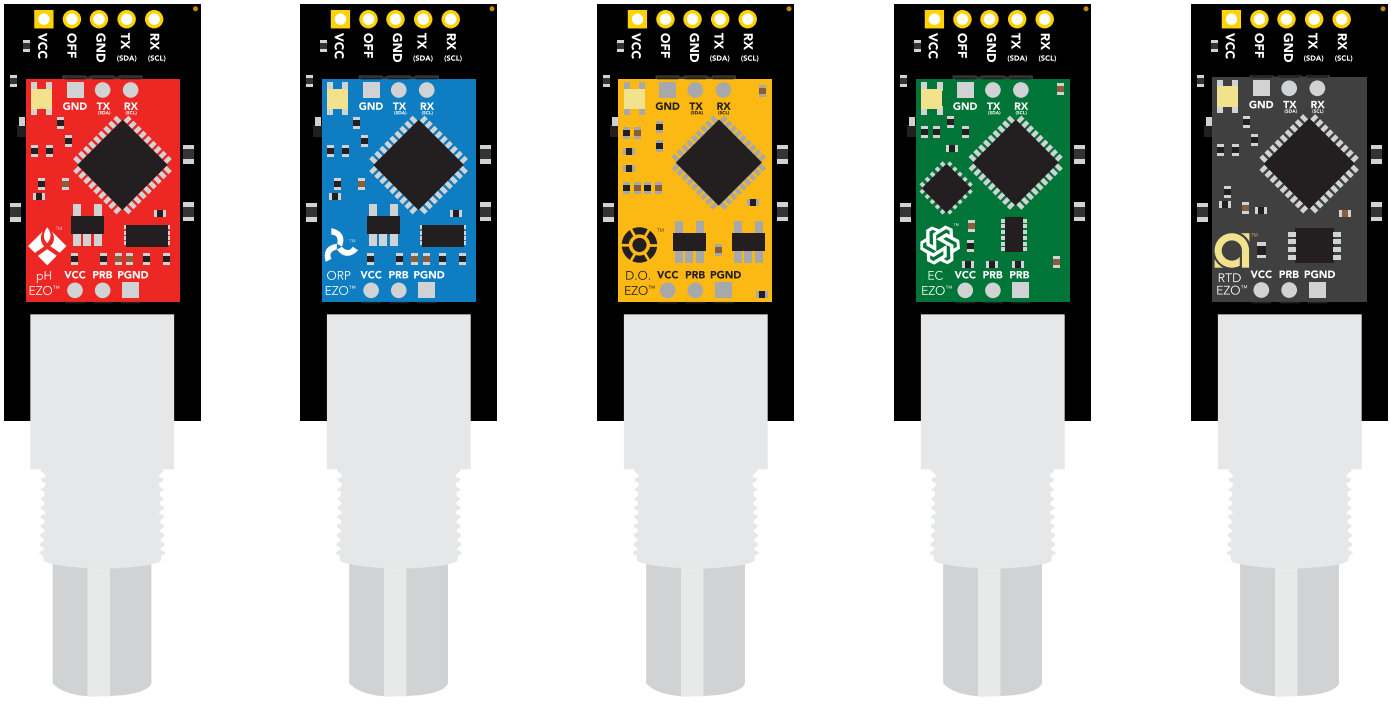
Written by Jordan Press
Designed by Noah Press

This is an evolving document, check back for updates.

Carrier board dimensions

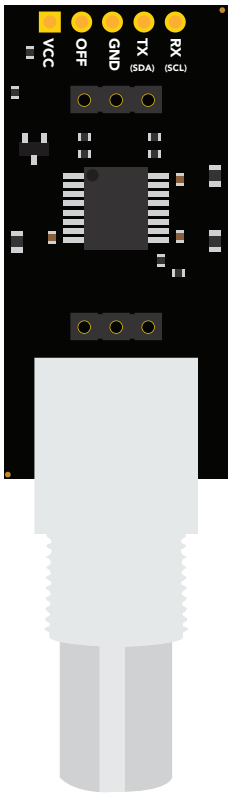


The Electrically Isolated EZO™ Carrier Board works with almost all EZO™ circuits, except the EZO™ Universal Flow Meter Totalizer.



The Electrically Isolated EZO™ Carrier Board does not come with EZO™ class devices.

Current consumption



i =15mA

+

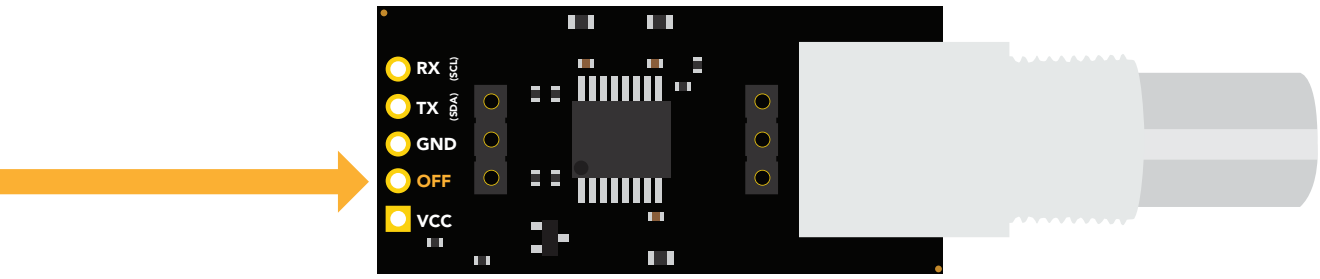
i = XmA

≠ 15 + XmA

The current consumption for the Electrically Isolated EZO™ Carrier Board is non-linear. The table below shows how much current will be consumed when an EZO™ circuit is connected to the Electrically Isolated EZO™ Carrier Board.

		5V	3.3V
Electrically Isolated EZO™ Carrier Board	No Load	15mA	20mA
	EZO™ pH	57mA	87mA
	EZO™ ORP	58mA	84mA
	EZO™ Dissolved oxygen	53mA	84mA
	EZO™ Conductivity	82mA	97mA
	EZO™ RTD Temperature	59mA	87mA

Setting the OFF pin to low will turn off the Electrically Isolated EZO™ Carrier Board, along with the connected EZO™ circuit. The current consumption will be reduced to **3.8 mA**.



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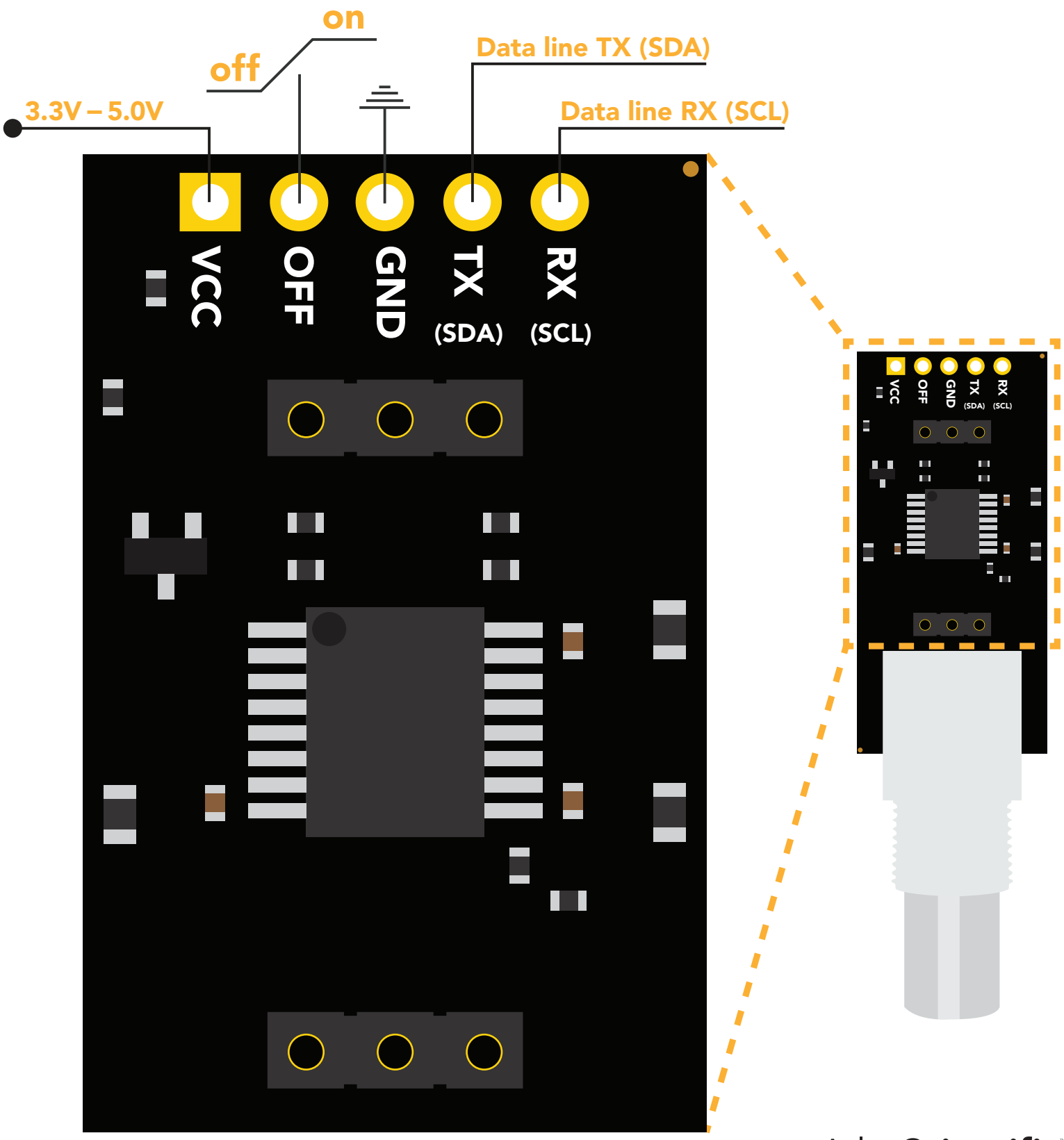
Pin out

Setting the OFF pin to low will turn off the Electrically Isolated EZO™ Carrier Board, along with the connected EZO™ circuit. The current consumption will be reduced to 3.8mA. If the OFF pin is not used, leave it unconnected or pull to VCC.

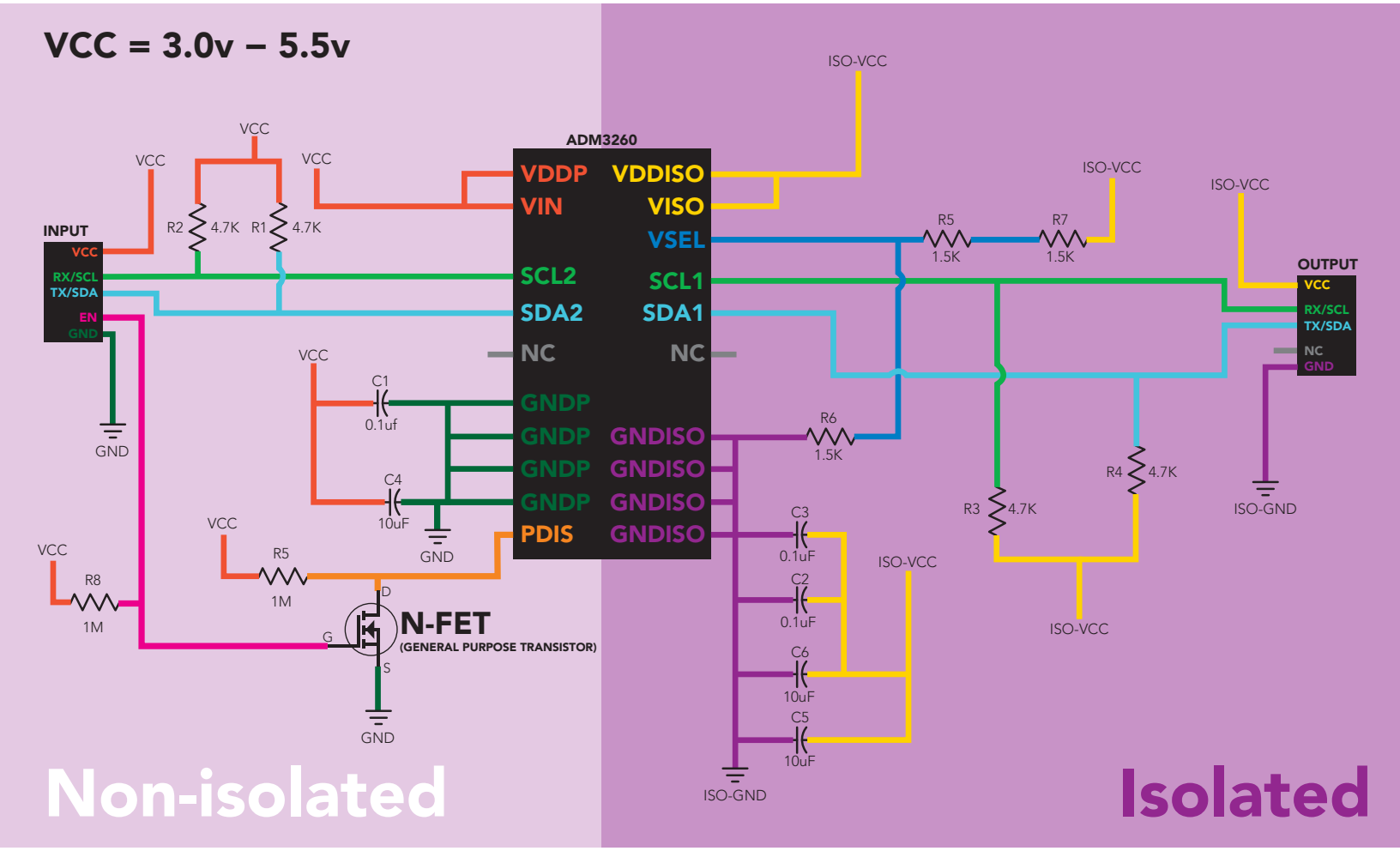


Data isolation

This schematic shows exactly how we isolate data and power using the *ADM3260* and a few passive components. The ADM3260 can output isolated power up to 150 mW and incorporates two bidirectional data channels.

This technology works by using tiny transformers to induce the voltage across an air gap. PCB layout requires special attention for EMI/EMC and RF Control, having proper ground planes and keeping the capacitors as close to the chip as possible are crucial for proper performance. The two data channels have 4.7kΩ pull up resistor on both the isolated and non-isolated lines (R1, R2, R3, and R4) The output voltage is set using a voltage divider (R5, R6, and R,7) this produces a voltage of 3.9V regardless of your input voltage.

Isolated ground is different from non-isolated ground, these two lines should not be connected together.



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