Basic
EZO ™

Inline Voltage Isolator v6.0
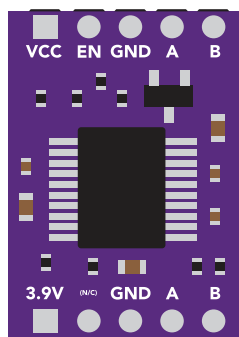
Data input	**UART, I²C and SMBus**
Max data rate	**1 MHz**
Output voltage	**3.9V ± .07**
Voltage input	**3.0V – 5.0V**
Power saving	**EN pin**
Current consumption	5V **15 mA**
	3.3V **20 mA**

VCC   EN   GND   A   B

3.9V   (N/C)   GND   A   B

RoHS

This is an evolving document, check back for updates.

EZO™ circuit dimensions

13.97mm
(0.55″)

VCC EN GND A B

3.9V (N/C) GND A B

20.16mm
(0.79″)

5.8mm
(0.22″)

—1mm Ø

8.38mm
(0.32″)

10.8mm
(0.4″)

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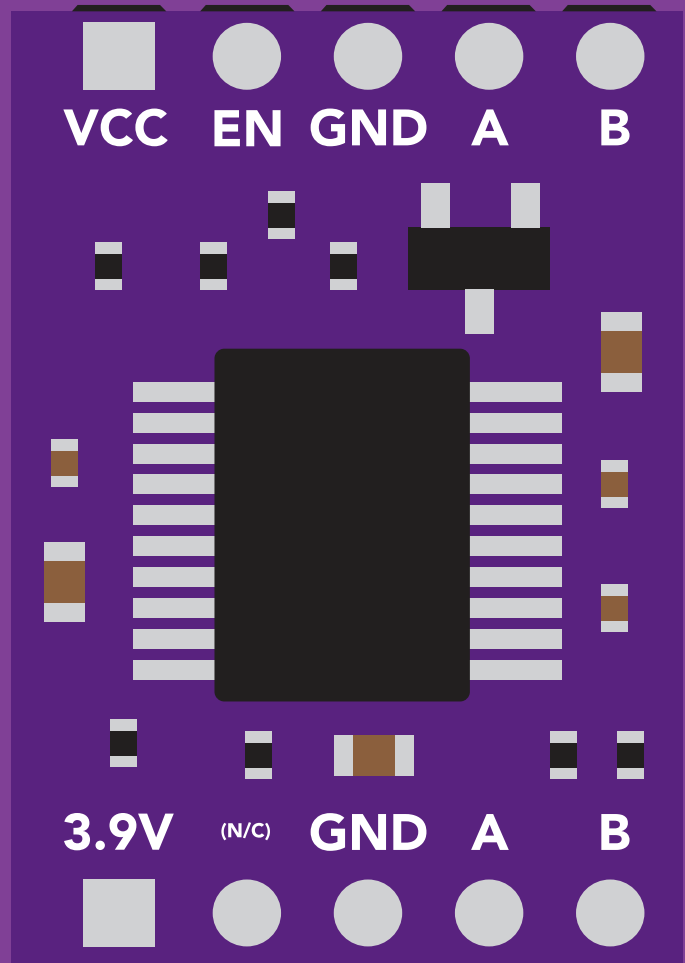
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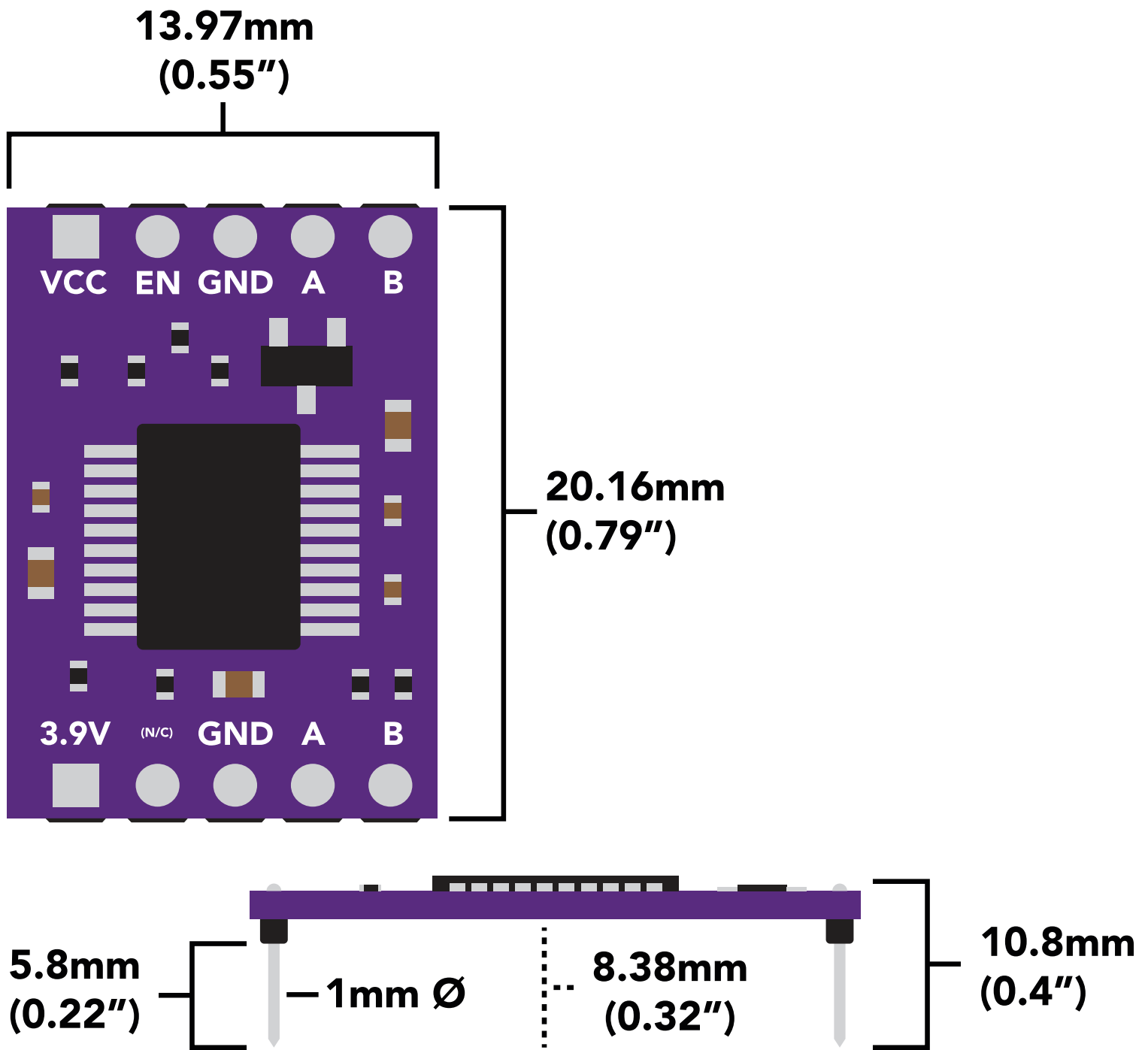
Current consumption

i =15mA

+

i = XmA

$$\ne \; 15 + \text{XmA}$$

The current consumption for the Basic EZO™ Inline Voltage Isolator is non-linear. The table below shows how much current will be consumed when the Basic EZO™ Inline Voltage Isolator is connected to an EZO™ circuit.
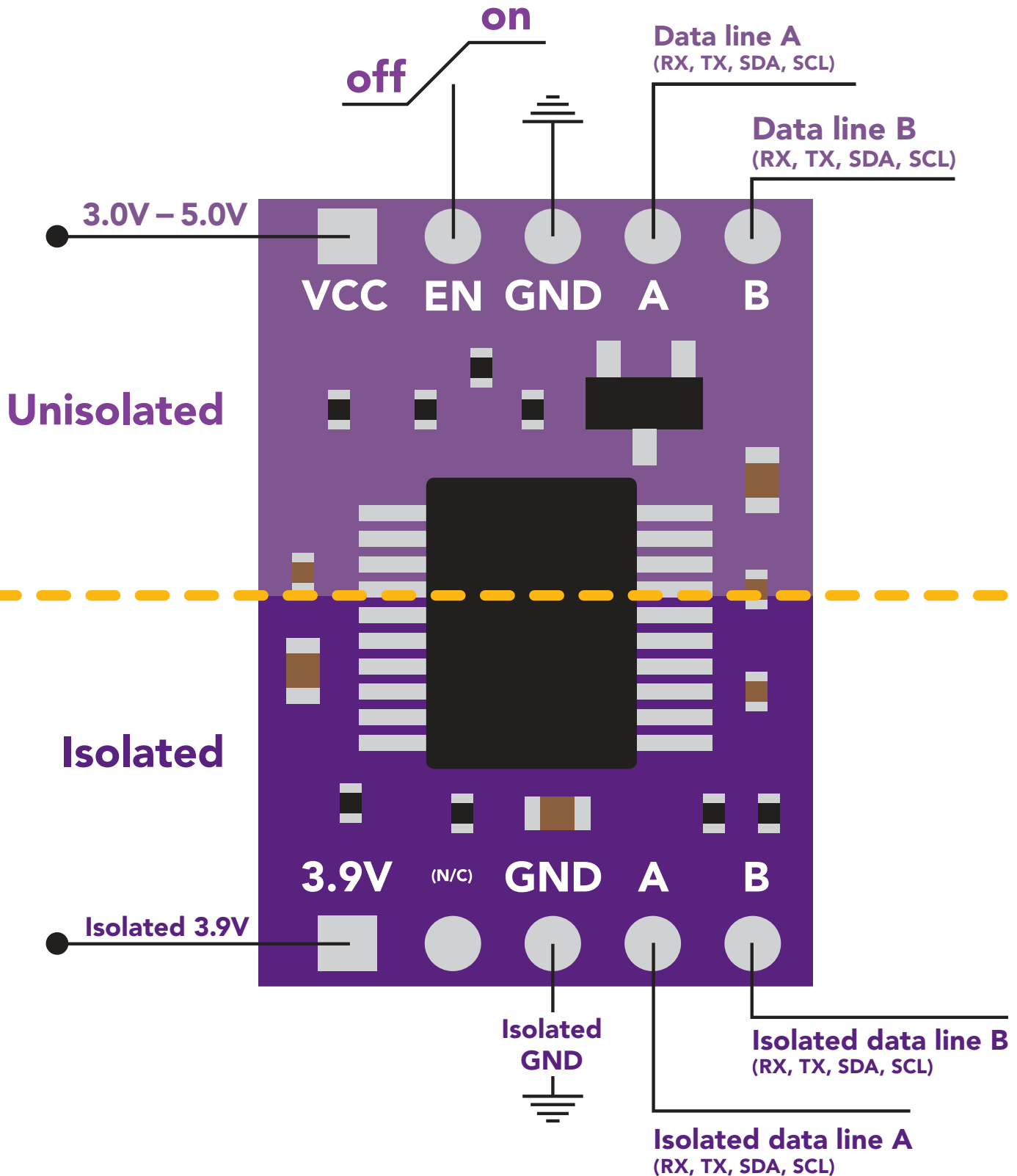
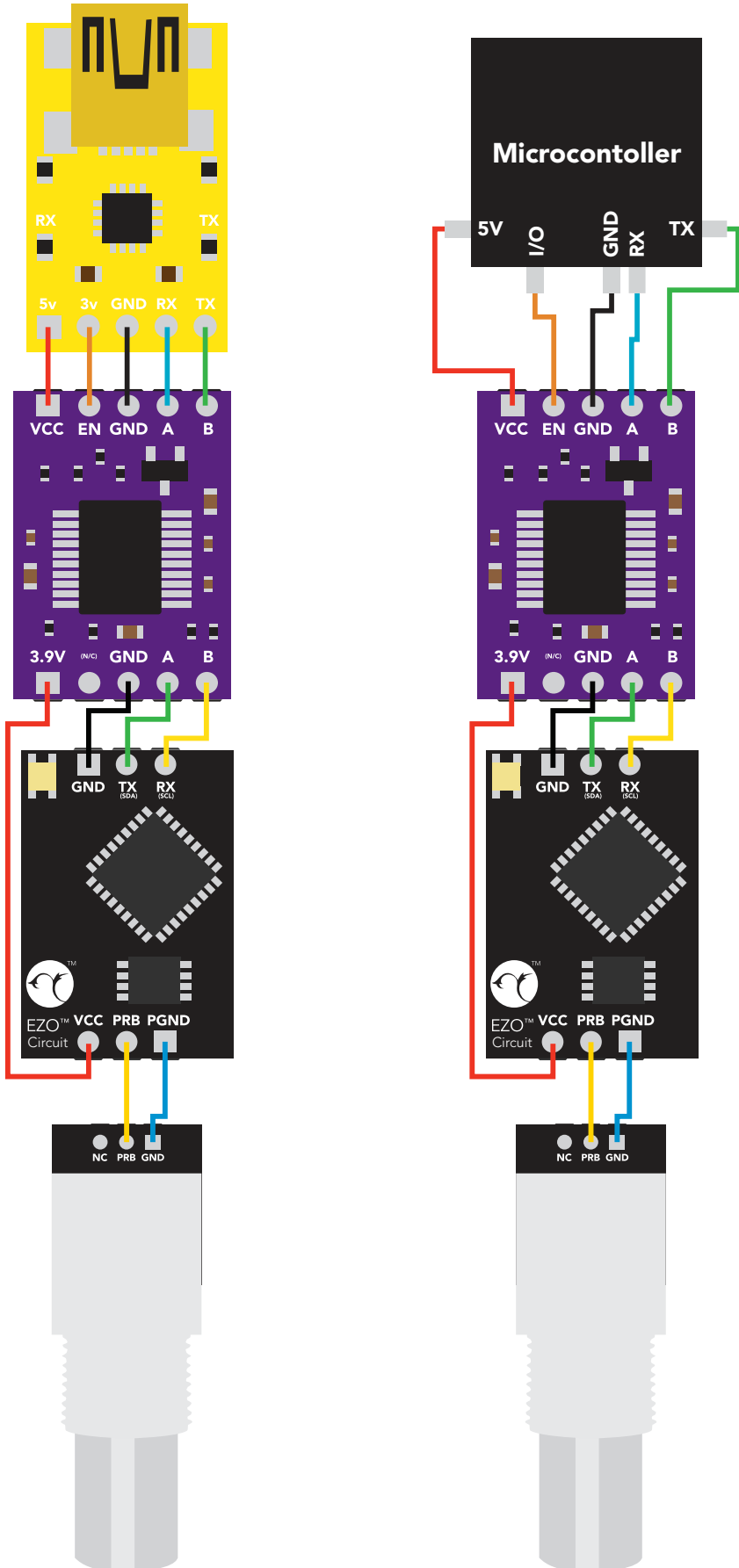|		5V	3.3V
Basic EZO™ Inline Voltage Isolator	**+ EZO™ pH**	**57mA**	**87mA**
	+ EZO™ ORP	**58mA**	**84mA**
	+ EZO™ Dissolved oxygen	**53mA**	**84mA**
	+ EZO™ Conductivity	**82mA**	**97mA**
	+ EZO™ RTD Temperature	**59mA**	**87mA**
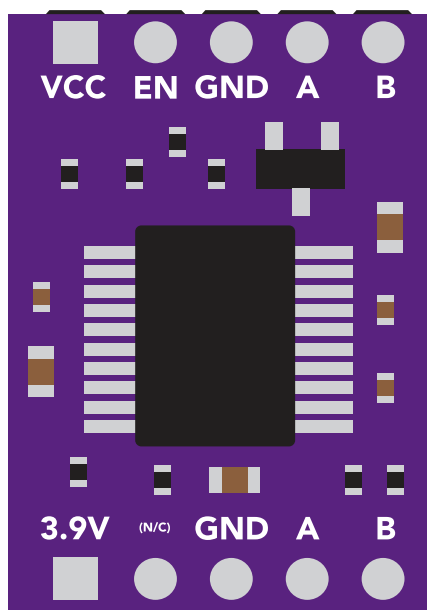
Setting the EN pin to low will shut off the Basic EZO™ Inline Voltage Isolator, along with the connected circuit. The current consumption will be reduced to **3.8 mA**.

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Pin out

Setting the EN pin to low will shut off the Basic EZO™ Inline Voltage Isolator, and any devices it is connected to. The current consumption will be reduced to 3.8 mA. If the EN pin is not used, leave it unconnected or pull to VCC.

on

off

Data line A
(RX, TX, SDA, SCL)

Data line B
(RX, TX, SDA, SCL)

3.0V – 5.0V

VCC   EN   GND   A   B

Unisolated

Isolated

3.9V   (N/C)   **GND**   **A**   **B**

Isolated 3.9V

Isolated GND

Isolated data line B
(RX, TX, SDA, SCL)

Isolated data line A
(RX, TX, SDA, SCL)

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Example wiring diagram

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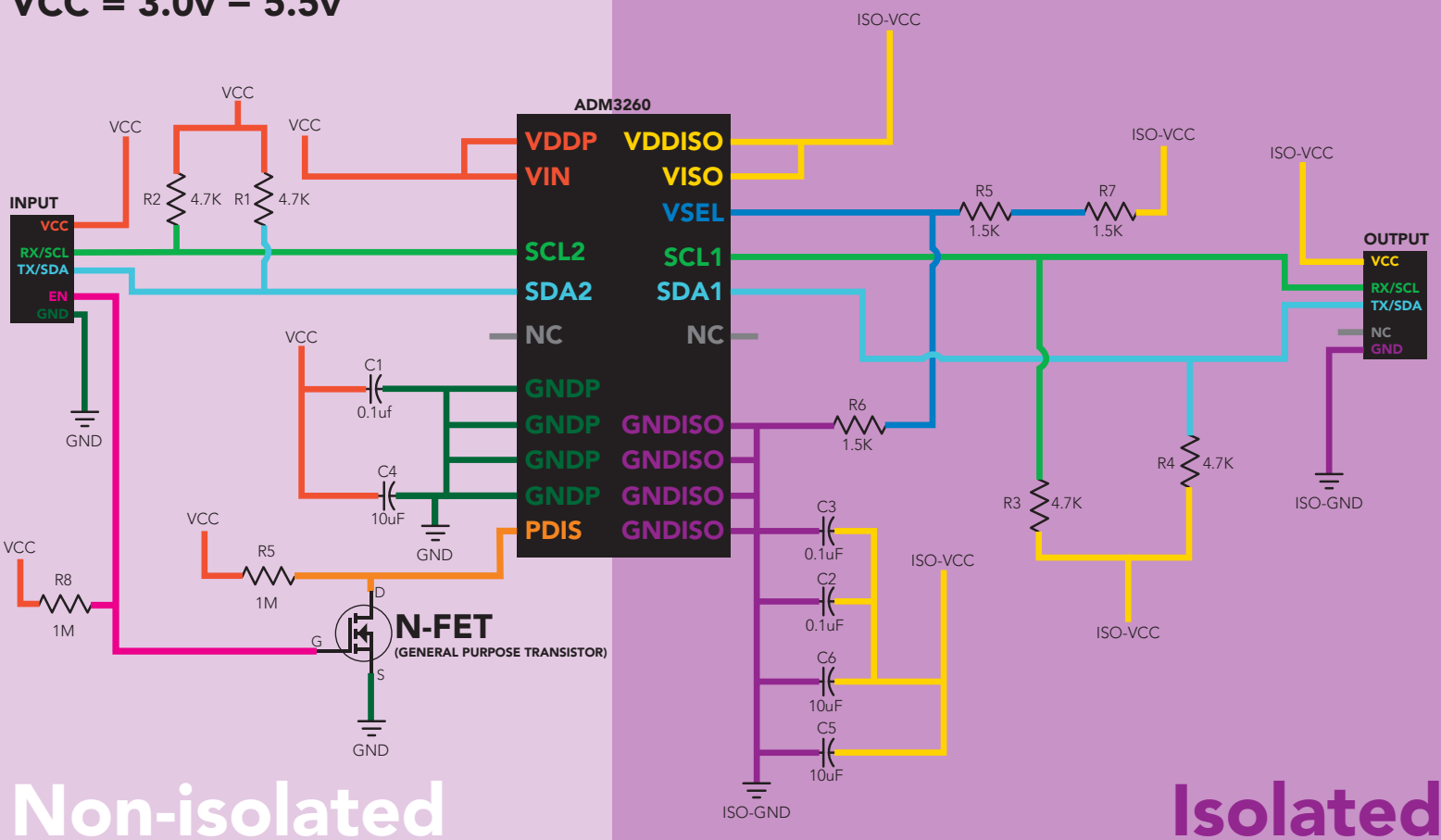
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Data isolation

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.
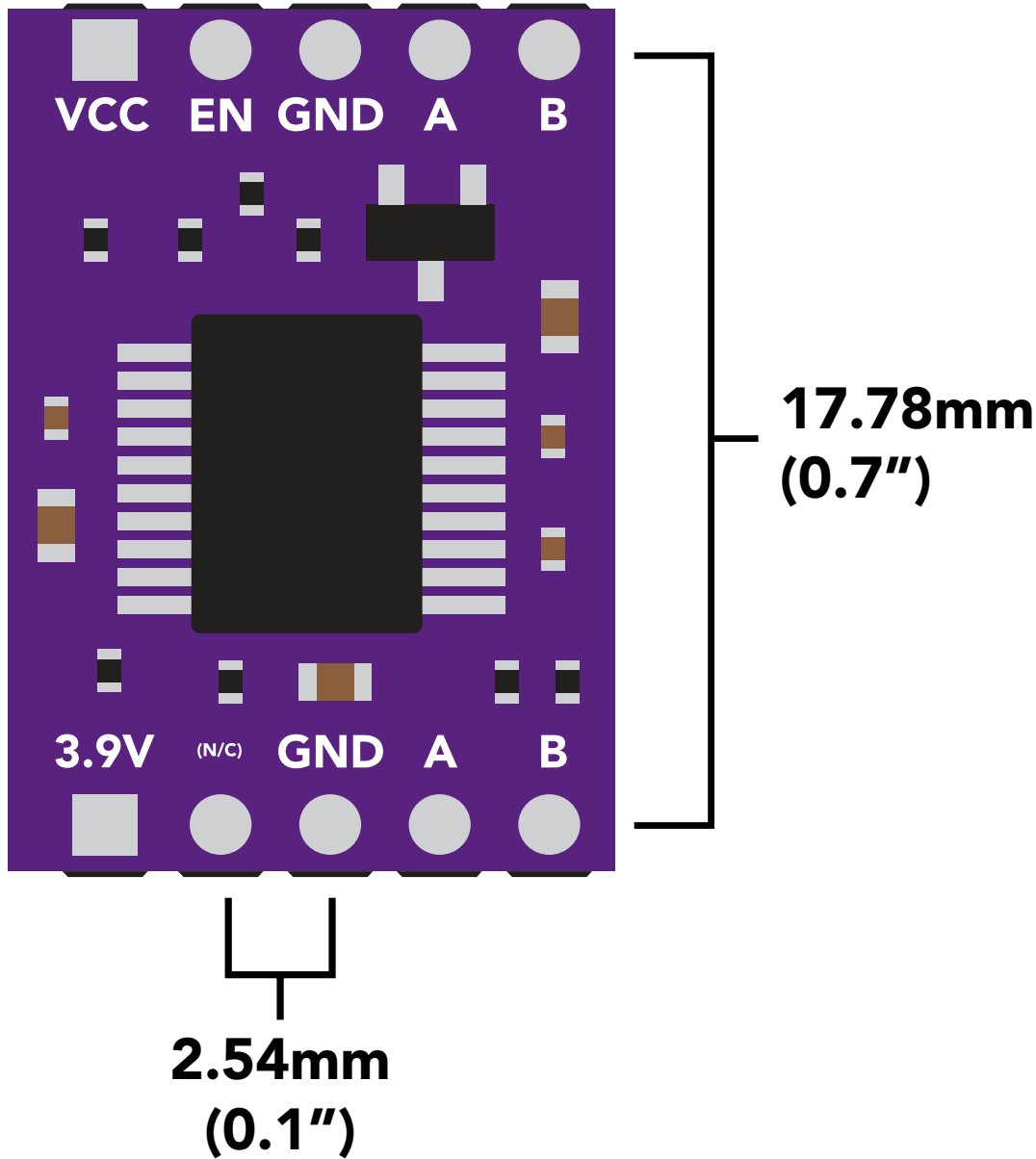
This technology works by using tiny transformers to induce the voltage across an air gap. PCB layout requires special attention for EMI/EMC and RF Control, having proper ground planes and keeping the capacitors as close to the chip as possible are crucial for proper performance. The two data channels 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.
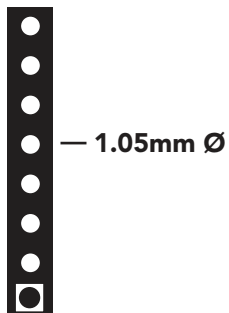

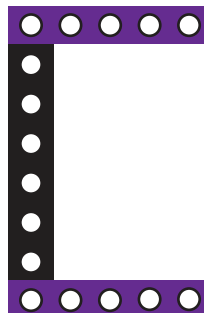Copyright © Atlas Scientific LLC

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EZO™ circuit footprint

VCC   EN   GND   A   B

17.78mm (0.7")

3.9V   (N/C)   GND   A   B

2.54mm (0.1")

1 In your CAD software place a 8 position header.

— 1.05mm Ø

2 Place a 5 position header at both top and bottom of the 8 position.

3 Delete the 8 position header. The two 5 position headers are now 17.78mm (0.7") apart from each other.

17.78mm (0.7")

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r 0.1