Product Document

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User Guide

UG001004

AS5070

Adapter Board

AS5070-SO_EK_AB

v2-00 • 2020-Dec-11

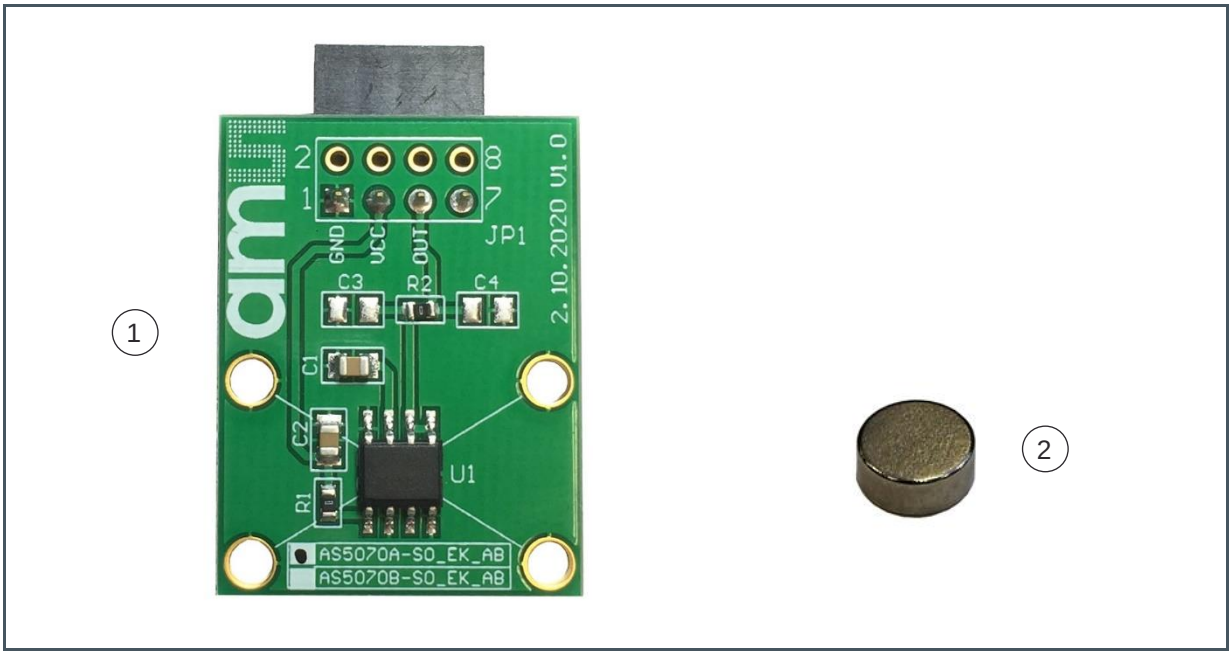
Content Guide

1 Introduction

The AS5070 adapter board is a small PCB allowing simple and quick testing or evaluation of the AS5070 magnetic position sensor without the need to design and manufacture an own PCB.

1.1 Kit Content

Figure 1:
AS5070 Adapter Board Kit Content



Pos.	Item	Comment
1	AS5070-SO_EK_AB	Adapter board
2	AS5000-MD8H-1	Diametric magnet, D8x2.5mm, NdFeB, Bomatec AG

1.2 Ordering Information

Ordering Code	Description
AS5070-SO_EK_AB	AS5070 Eval Kit Adapter Board

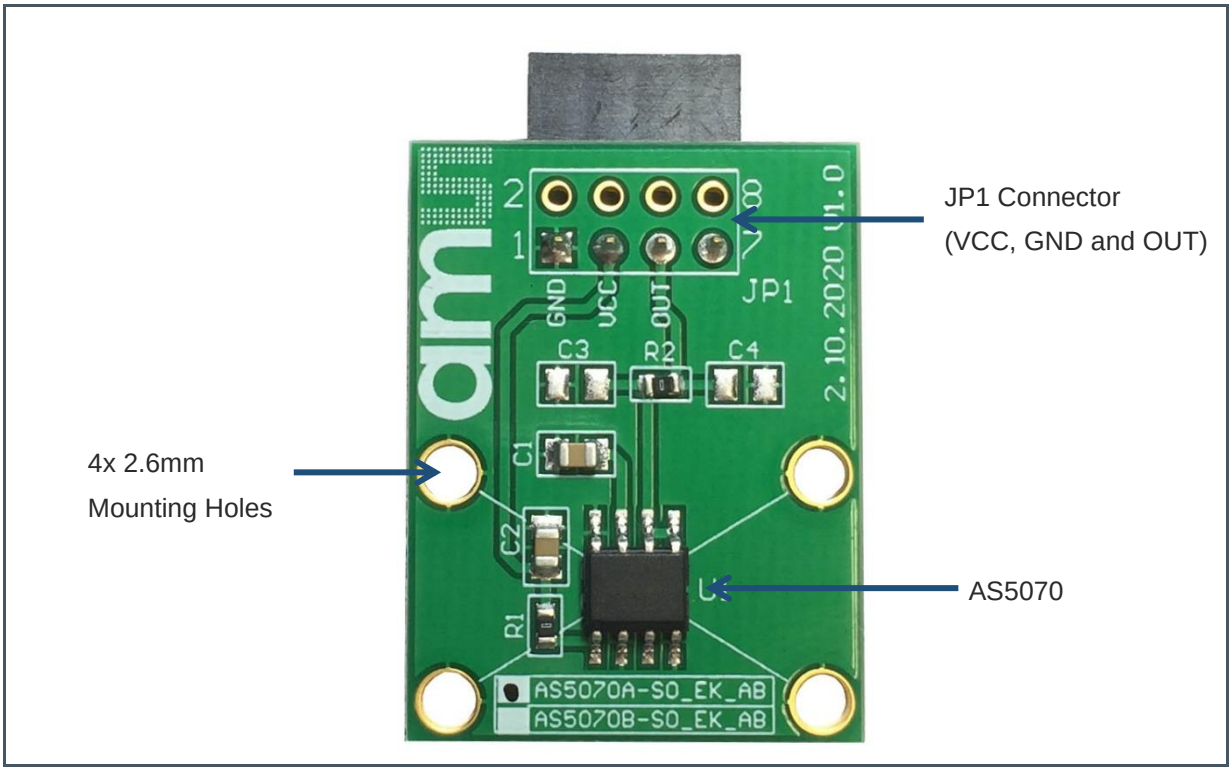
2 Board Description

The PCB can be connected to an external microcontroller or to the AS5xxx-EK-USB-PB UART Programmer which can be used in combination with the AS5070 Software GUI provided by ams AG.

JP1 is populated with a 1x4 female pin header it is required for the power supply (VCC and GND) and output (OUT). This connector directly fits to the UART Programmer.

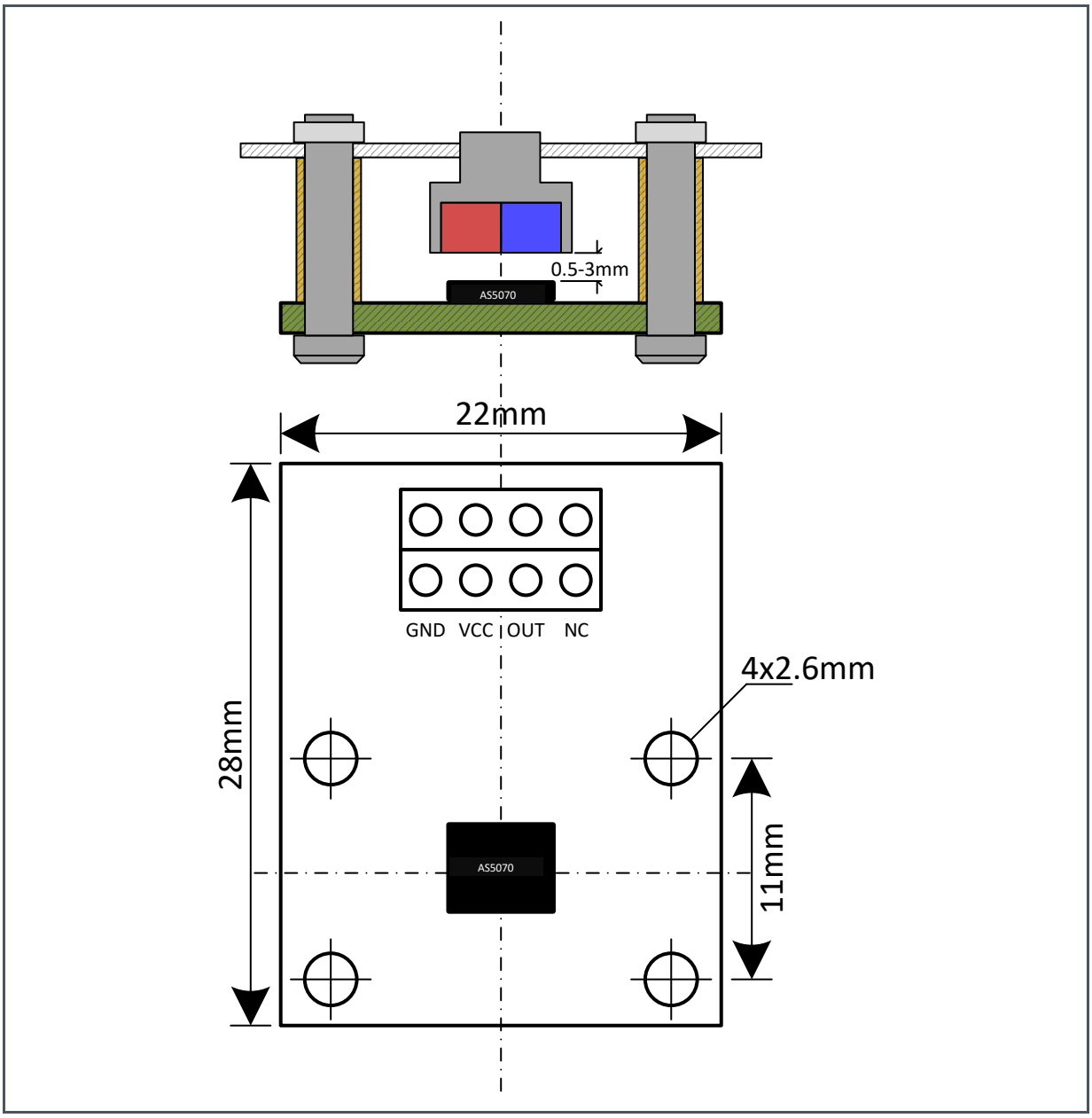
All necessary external components C1 (VDD3V3-GND) and C2 (VDD-GND) are already populated to the PCB.

Figure 2:
AS5070 Adapter Board



2.1 Mounting the AS5070 Adapter Board

Figure 3:
Mounting and Dimensions



An 8x2.5mm diametric magnet must be placed over or under the AS5070 sensor, and should be centered in the middle of the package with a tolerance of 0.5mm. The airgap between the magnet surface and the package should be maintained in the range 0.5mm to 3mm. The magnet holder must not be ferromagnetic. Materials as brass, copper, aluminum, stainless steel are the best choices to make this part.

3 AS5070 Adapter Board and Pinout

Figure 4:
AS5070 Adapter Board and Sensor Pinout

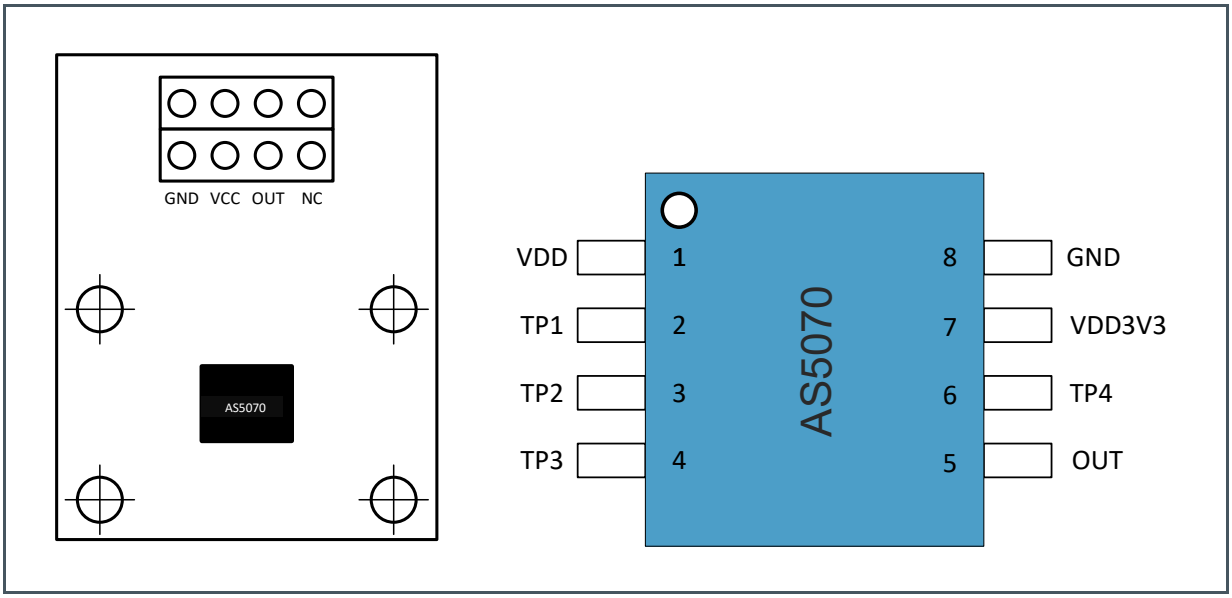


Figure 5:
Pin Description

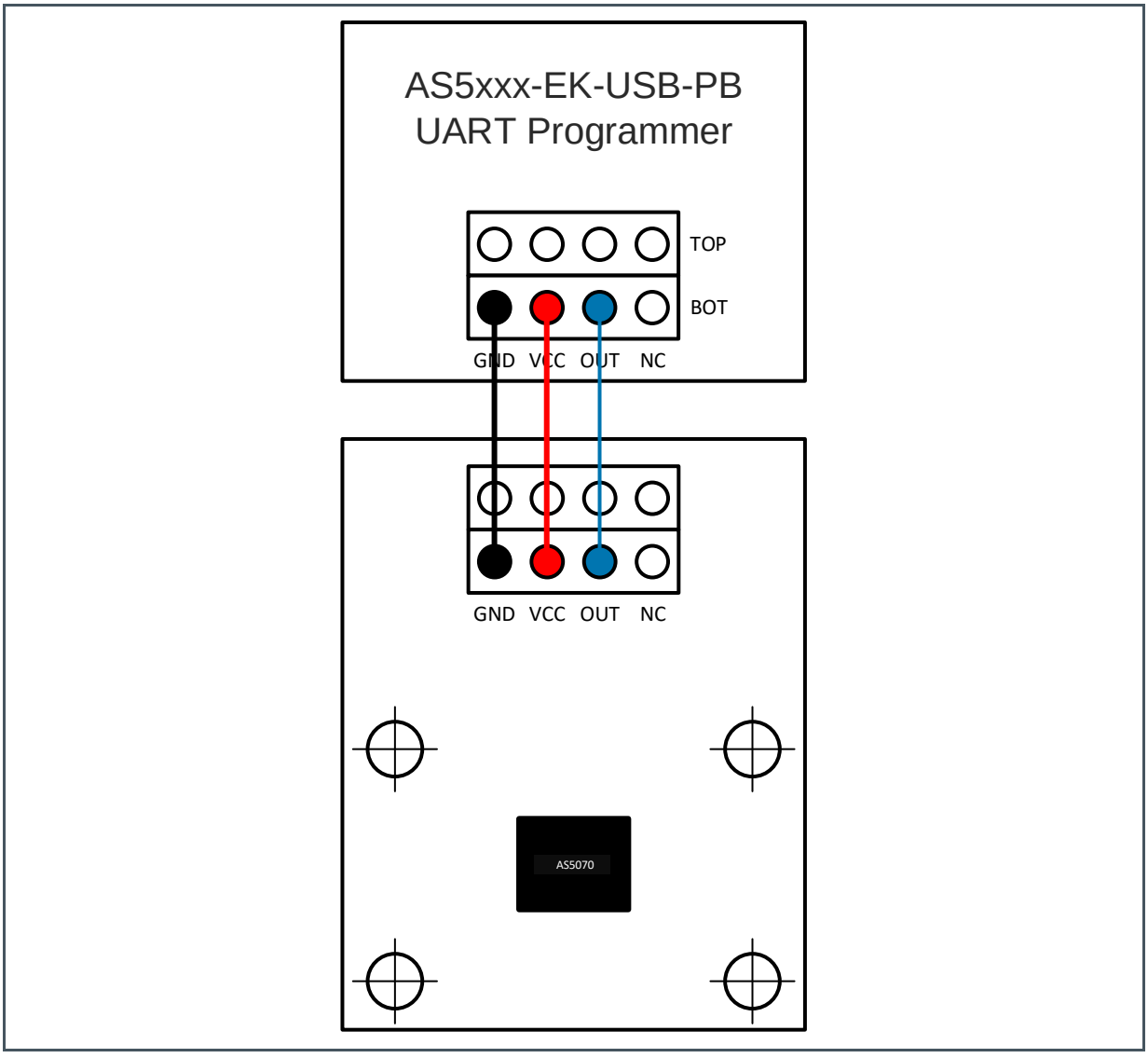
Pin# Board	Pin# AS5070	Symbol Board	Type	Description
JP1 - 1	8	GND	Power supply	Ground
JP1 – 2		NC		
JP1 – 3	1	VCC	Power supply	Positive supply voltage
JP1 - 4		NC		
JP1 – 5	5	OUT	Analog or digital output	Output (UART in communication mode)
JP1 - 6		NC		
JP1 – 7		NC		
JP1 - 8		NC		

4 Operation Case

4.1 Connection to AS5xxx-EK-USB-PB UART Programmer

The AS5070 adapter board can be directly connected to the AS5xxx-EK-USB-PB UART Programmer using only 3 lines (VDD, GND and OUT). The voltage supply is coming directly from the programmer which can either be supplied directly via 5V from USB or externally. The UART communication is taking place over the OUT pin. The necessary pull-up resistor is already in place on the programmer PCB. For AS5070 always use the BOT (bottom) connector of the programmer as shown in figure below.

Figure 6:
One Device SPI Mode, Unidirectional – 3 Wire

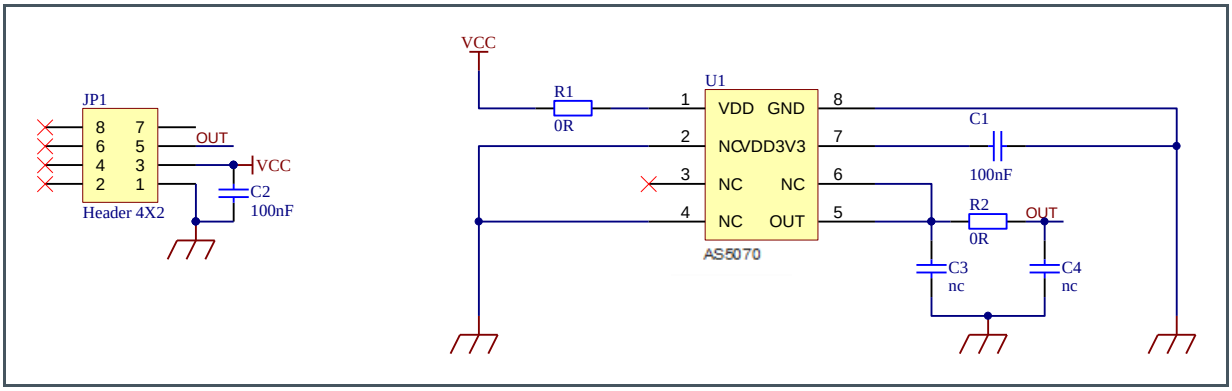


5 AS5070-SO_EK_AB Hardware

5.1 AS5070-SO_EK_AB schematics

The PCB schematic is shown in Figure 7.

Figure 7:
Schematics



5.2 AS5070-SO_EK_AB PCB layout

The PCB layout is shown in Figure 8 (Top Layer)and Figure 9 (Bottom Layer).

Figure 8:
Top Layer

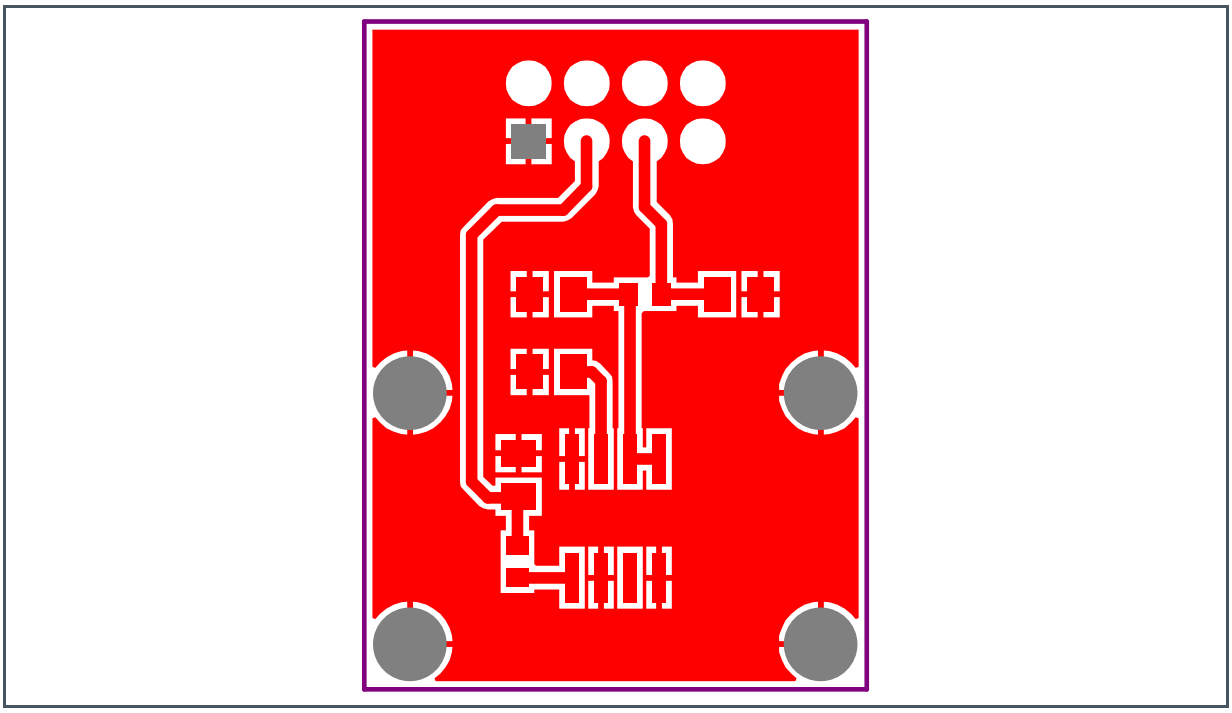
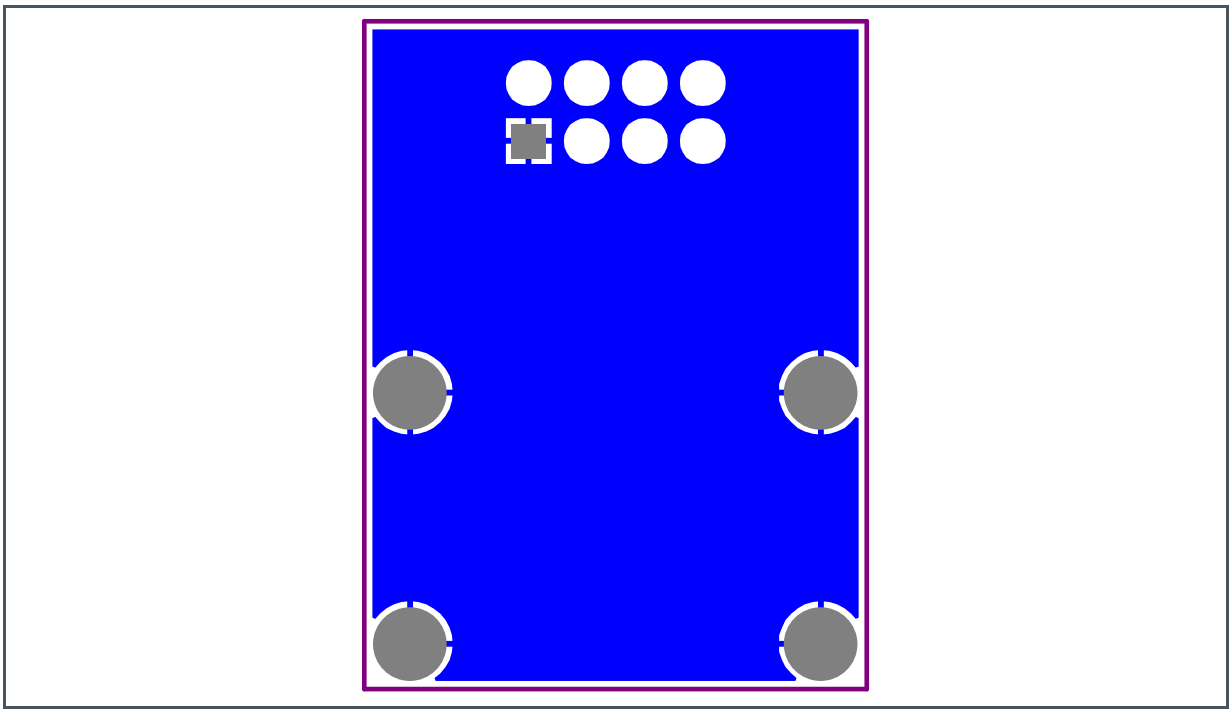


Figure 9:
Bottom Layer



6 Revision Information

Changes from previous version to current revision v2-00	Page
Update to latest template	

- Page and figure numbers for the previous version may differ from page and figure numbers in the current revision.
- Correction of typographical errors is not explicitly mentioned.

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