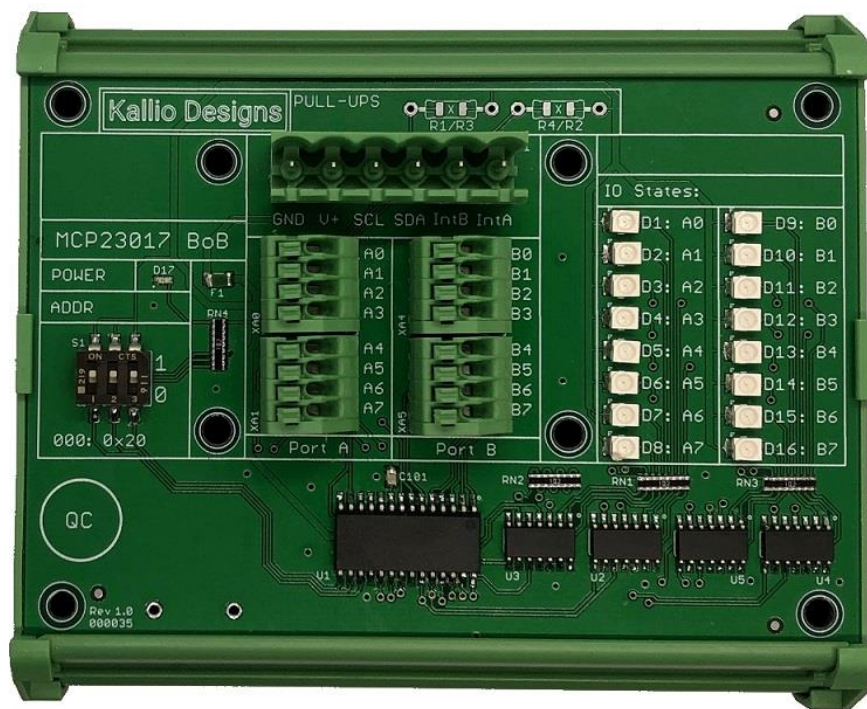


MCP23017 GPIO BoB User Manual

220002-EN



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2. Introduction

2.1. Product Summary

Breakout board for MCP23017 GPIO chip.

GPIO BoB provides 16 inputs or outputs that have been routed to spring-cage PCB terminal blocks. The device has two interrupt outputs.

The product can be mounted on a 35 mm DIN rail and control interface is I2C bus, commands according to MCP23017 specification.

2.2. Support

Contact sales@kalliodesigns.com for any question about installation, integration, technical specification, etc. and your query will be forwarded to the correct party.

3. Getting Started

Connect power and I2C bus according to [pinout](#). Refer to MCP23017 for commands to be sent to control inputs and outputs.

3.1. I2C Pull Up Resistors

Solder I2C pull up resistors if needed to positions shown in image below. Pull-ups can be either SMD (1206) or through hole resistors (1/4 W). Recommended resistance is 4.7 k Ω



Image 1

4. Pinout

4.1. Input Connector

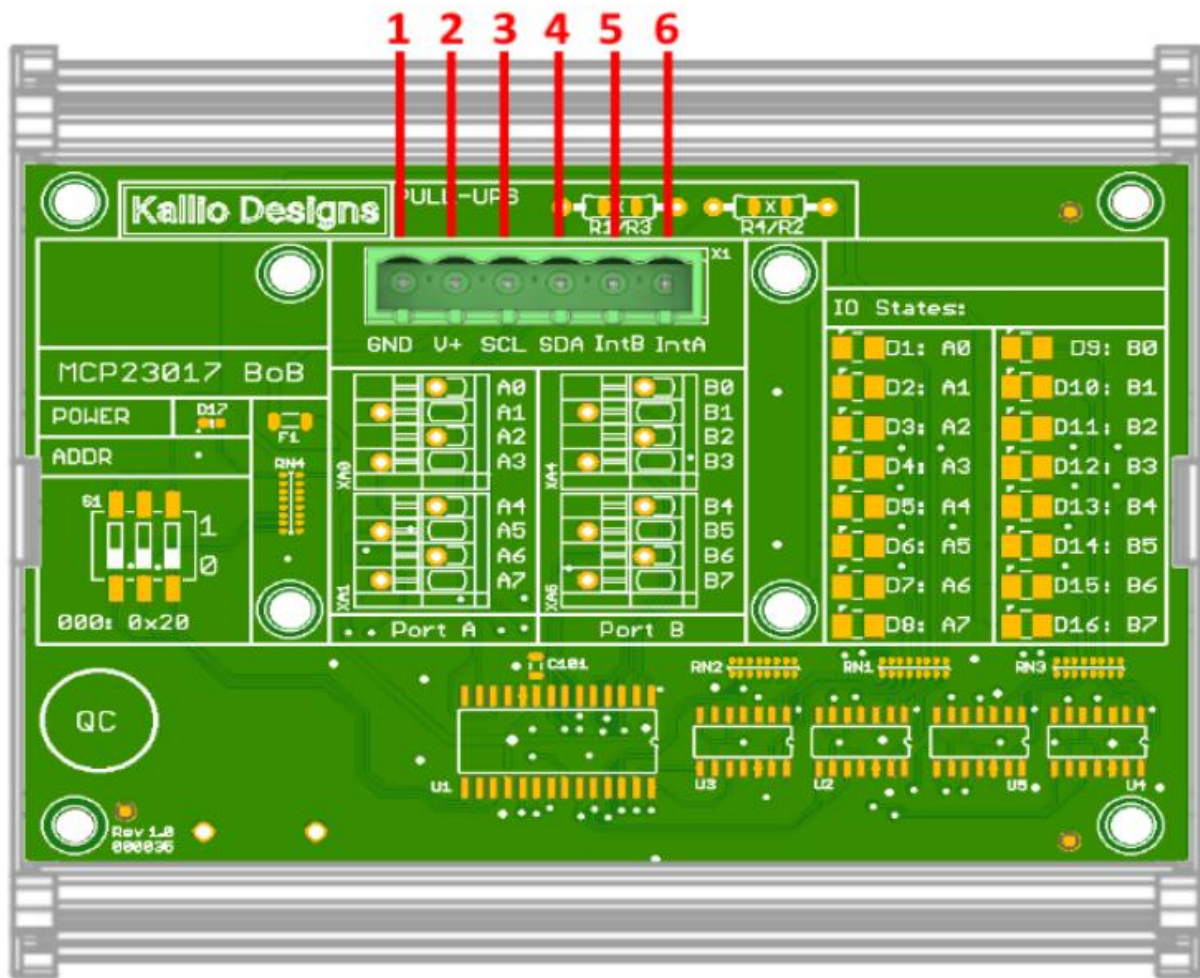


Image 2

Pin no	Description
1	GND
2	5 V Input
3	I ² C SCL
4	I ² C SDA
5	External interrupt B
6	External interrupt A

Table 1

4.2. I/O Connector And Address Selector

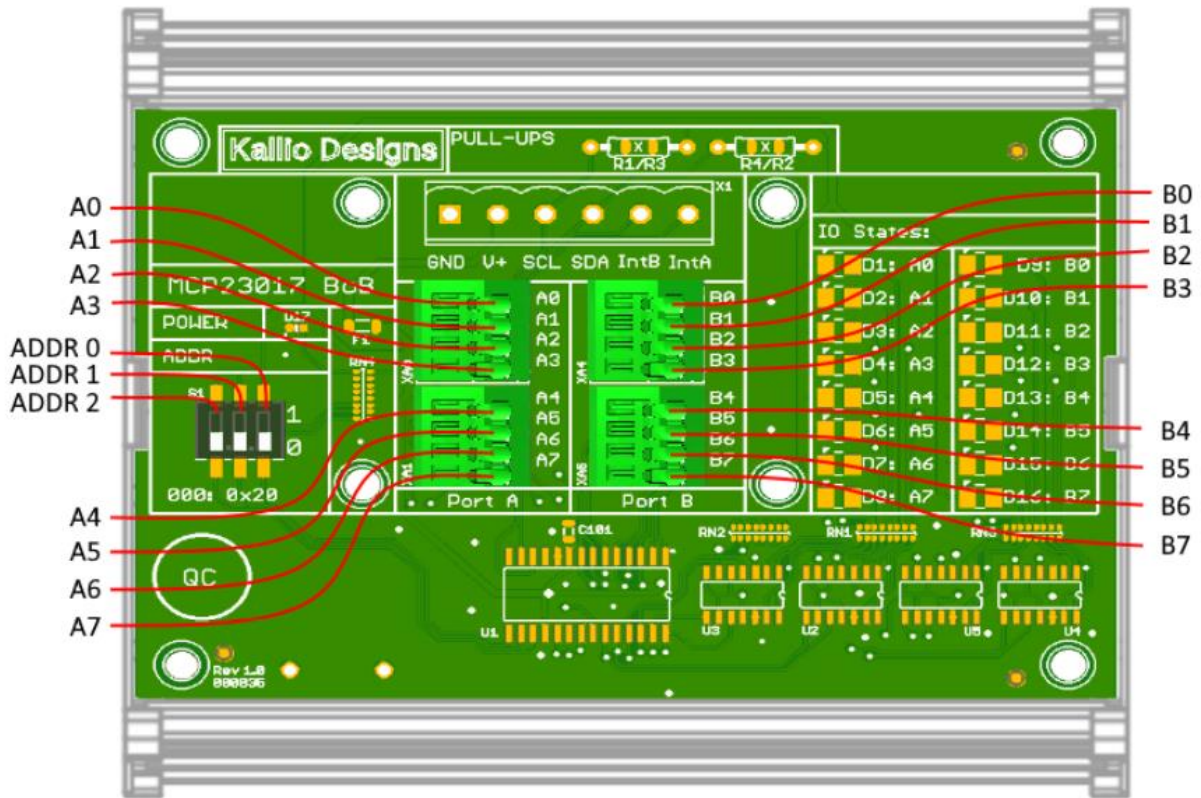


Image 3

Pin no	Description
A0 - A7	MCP23017 GPIO PORT A
B0 - B7	MCP23017 GPIO PORT B
ADDR 0	Address selector LSB
ADDR 1	Address selector
ADDR 2	Address selector MSB

Table 2

5. Technical Specification

5.1. Mounting

GPIO BoB can be mounted on standard 35 mm DIN rail. First slide the top part in place and then push the bottom section to secure mounting. Remove in reverse order. Attaching and removing can be done without tools.

5.2. Electrical Characteristics

Description	Conditions	Min	Typical	Max	Unit
Supply voltage		4.5		5.5	V
Operating current				100	mA
Operating temperature	non-condensing	0		60	°C
Storage temperature	non-condensing	-40		80	°C

Table 3

5.3. Dimensions

5.3.1. Enclosure

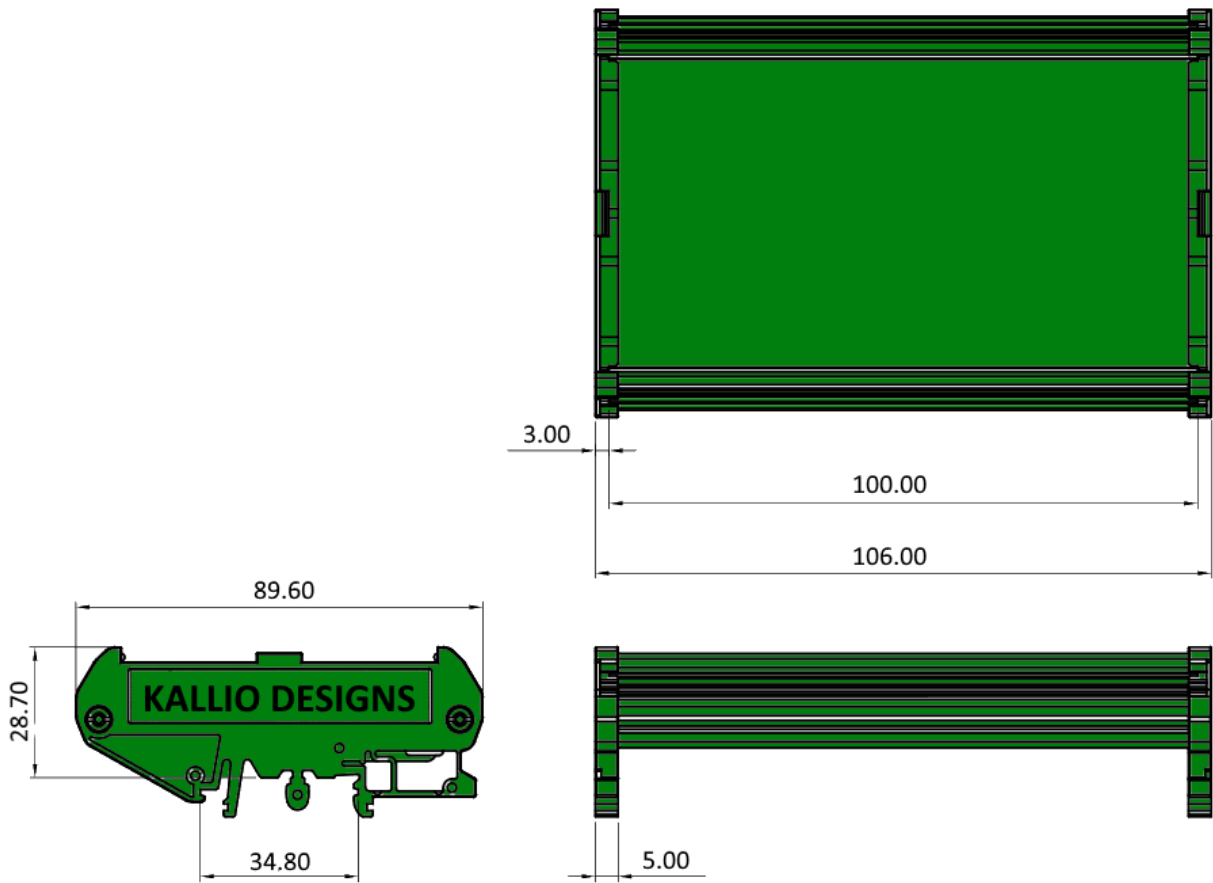


Image 4

5.3.2. PCB

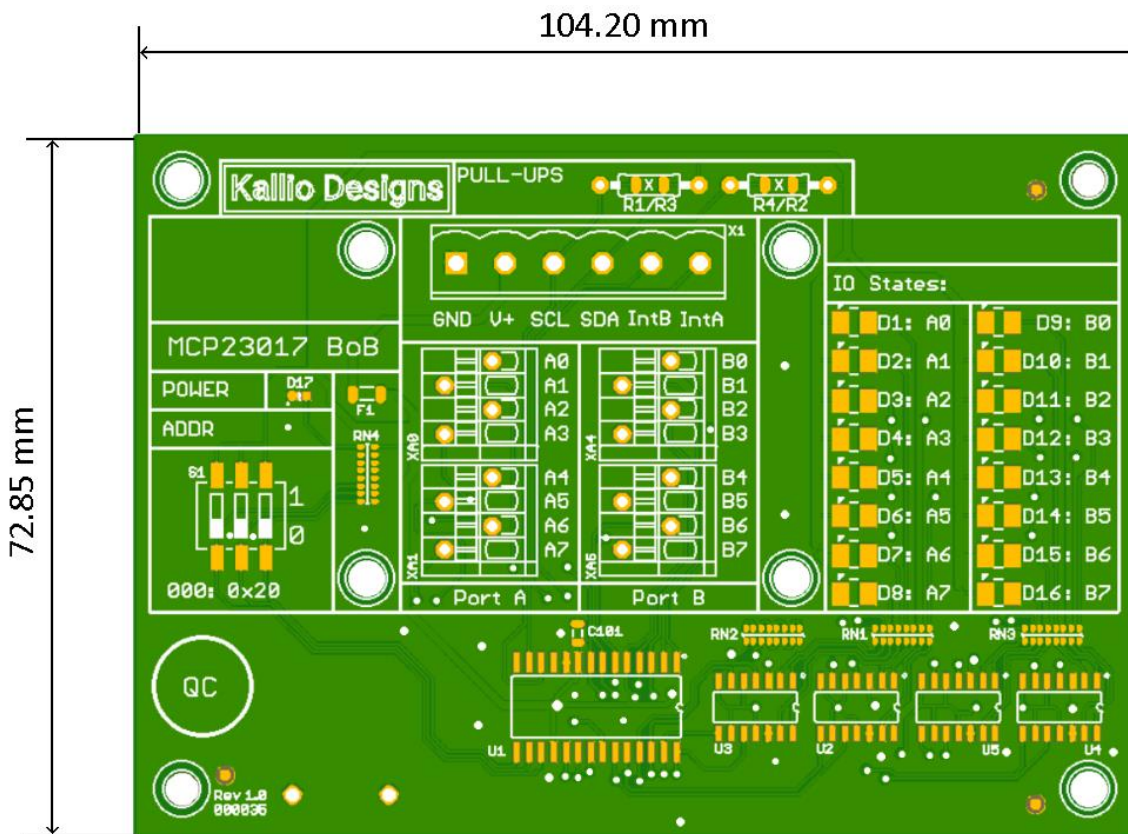


Image 5

6. Example Arduino Code

All example codes are written using Adafruit Arduino library ([Adafruit-MCP23017-Arduino-Library](#)).

6.1. Simple Button input

```
#include <Wire.h>
#include "Adafruit_MCP23017.h"

// Basic pin reading and pullup test for the MCP23017 I/O expander

// Connect input connector terminal 3 (SCL) of the GBIO BoB to Arduino pin Analog 5 (i2c clock)
// Connect input connector terminal 4 (SDA) of the GBIO BoB to Arduino pin Analog 4 (i2c data)
// Connect all ADDR selector switches of GBIO BoB to 0 (address selection)
// Connect input connector terminal 2 (V+) of the GBIO BoB to 5V (power)
// Connect input connector terminal 1 (GND) of the GBIO to ground (common ground)

// Input #0 is on terminal A0 so connect a button or switch from there to ground

Adafruit_MCP23017 mcp;

void setup() {
  mcp.begin(); // use default address 0

  mcp.pinMode(0, INPUT);
  mcp.pullUp(0, HIGH); // turn on a 100K pullup internally

  pinMode(13, OUTPUT); // use the p13 LED as debugging
}

void loop() {
  // The LED will 'echo' the button
  digitalWrite(13, mcp.digitalRead(0));
}
```

Code block 1