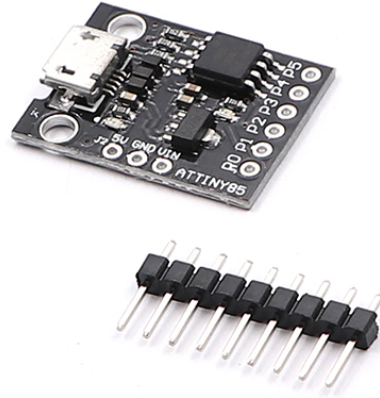# Development Board ATTINY85 for Arduino USB use Micro Model:Digispark Kickstarter

Features:

The ATtiny85 based mini development board is similar to the Arduino, but cheaper and smaller (ofcourse a bit less powerful). With a whole host of shields to extend its functionality and the ability to use the familiar Arduino IDE, this board is a great way to jump into microcontroller electronics.

- Support for the Arduino IDE 1.0+ (OSX/Win/Linux)
- Power via USB or External Source
- Onboard 5V Regulator
- Built-in USB
- 6 I/O Pins
- 8k Flash Memory (about 6k after bootloader)
- I2C and SPI (vis USI)
- PWM on 3 pins (more possible with Software PWM)
- ADC on 4 pins
- Power LED and Test/Status LED
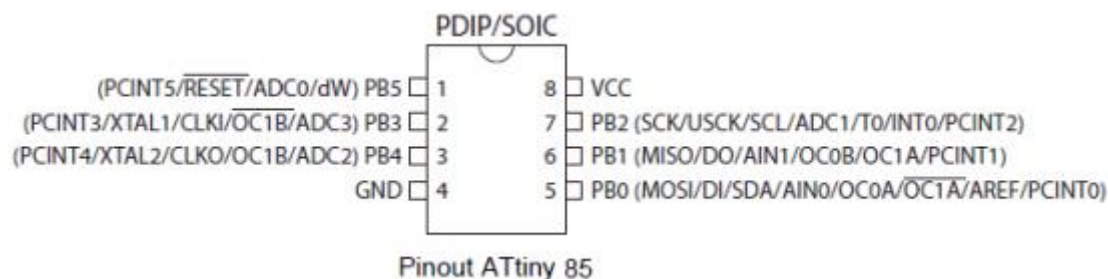
Circuit Description:
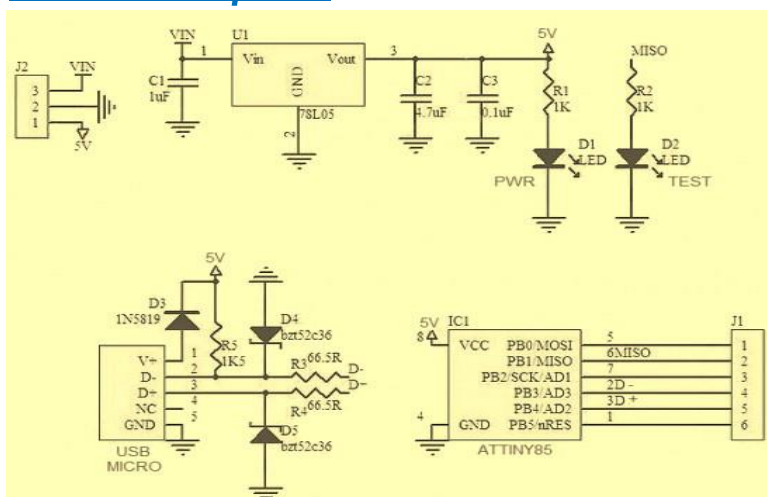
Main interface of the board is the USB MICRO connector. The board can be powered from this USB interface or from a suitable external source through the 3-pin connector J2 (5V/GND/VIN). The 5V onboard voltage regulator is built around U1 (78L05). D1 is the power LED and D2 is the test/status LED. Diodes D3-D5 are added for total USB interface protection. D3 is a common Schottky diode, and the rest (D4-D5) are 36V zener diodes. Finally IC1 (ATtiny85) is the master-brain of the mini development board. Total (6) I/O pins of IC1 (P0-P5) are available through the 6-pin connector J1. Pin assignment of connector J1 is shown below:

Pin	Connection
1	PB0/MOSI
2	PB1/MISO
3	PB2/SCK/AD1
4	PB3/AD3 // (D-)*
5	PB4/AD2 // (D+)*
6	PB5/nRES

* Note that out of these 6 connections, 2 (4&5) are reserved for USB only if your program actively communicates over USB. Otherwise you can use all 6 even if you are programming via USB!

The ATtiny 85 is a low-power CMOS 8-bit microcontroller based on the AVR enhanced RISC architecture. By executing powerful instructions in a single clock cycle, the ATtiny 85 achieves throughputs approaching 1 MIPS per MHz allowing the system designer to optimize power consumption versus processing speed. The Attiny 85 provides 8K bytes of In-System Programmable Flash, 128/256/512 bytes EEPROM, 256 bytes SRAM, 6 general purpose I/O lines, 32 general purpose working registers, one 8-bit Timer/Counter with compare modes, one 8-bit high speed Timer/Counter, Universal Serial Interface, Internal and External Interrupts, a 4-channel, 10-bit ADC, a programmable Watchdog Timer with internal Oscillator, and three software selectable power saving modes. Port B is a 6-bit bidirectional I/O port with internal pull-up resistors (selected for each bit). The Port B output buffers have symmetrical drive characteristics with both high sink and source capability. As inputs, Port B pins that are externally pulled low will source current if the pull-up resistors are activated. The Port B pins are tri-stated when a reset condition becomes active, even if the clock is not running. Further, Port B also serves the functions of various special features of the ATtiny 85. The reset pin (pin 1) can also be used as a (weak) I/O pin.

PDIP/SOIC

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(PCINT5/RESET/ADC0/dW) PB5 ☐ 1        8 ☐ VCC
(PCINT3/XTAL1/CLKI/OC1B/ADC3) PB3 ☐ 2  7 ☐ PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)
(PCINT4/XTAL2/CLKO/OC1B/ADC2) PB4 ☐ 3  6 ☐ PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)
                         GND ☐ 4        5 ☐ PB0 (MOSI/DI/SDA/AIN0/OC0A/OC1A/AREF/PCINT0)
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Pinout ATtiny 85

Made in China