

USB Connection & Selection

The diagram illustrates the electrical connection and power supply selection for a USB interface. Key components and connections include:

- USB Connector (X3conn1):** Pins 1 (VBUS), 2 (D-), 3 (D+), 4 (ID), 5 (Shield/GND), and 6 (GND) are shown.
- Power Supply Selection:** The VBUS line is connected to a +5V supply through a 500mA fuse (F2) and a diode (TR1, DMP3098L-7). The D+ and D- lines are connected to a 74LVC1G125 inverter (IC3) through 100k pull-up resistors to +5V. The ID line is connected to a +3.3V supply through a 330R resistor (R11). The inverter output is connected to the +3.3V supply.
- Shielding:** A ferrite bead is placed on the GND line between the connector and the ground plane to reduce noise.

Power Supply : 5V

The diagram illustrates a 5V power supply circuit. It begins with a barrel jack (J1) providing input. This input passes through a diode (CR1, MBR120VLSFT1G) to a MOSFET (Q1, DMP3098L-7). A 10k resistor (R7) is connected between the diode's cathode and the MOSFET's gate. A push-button (JP1) is connected to the MOSFET's gate. The MOSFET's drain is connected to a 47uF/25V capacitor (PC1) and the input of a voltage regulator (U1, NCP1117ST50T3G). The regulator's output is connected to a 47uF/25V capacitor (PC2) and a .1uF capacitor (C12). The final output is +5V, which is also connected to a .1uF capacitor (C2). All components are grounded.

The schematic diagram illustrates the ATAMD51J19 board layout. Key components include:

- Microcontroller:** ATAMD51J19, shown with its 32 pins. Pins 1-16 are connected to Port A, and pins 17-32 are connected to Port B.
- Reset Circuit:** A reset button (RESET1) connected to the microcontroller's reset pin (pin 10) through a pull-up resistor (R3, 10k). A 10µF capacitor (C17) is connected to the reset pin to ground.
- ICSP Header:** A 6-pin header (ICSP) for in-circuit programming, connected to the microcontroller's ICSP pins (pins 1, 2, 3, 4, 5, 6).
- Power Regulation:** A +3.3V regulator section featuring a 10µF capacitor (C17), a 10µF capacitor (C18), a 10µF capacitor (C19), a 10µF capacitor (C20), a 10µF capacitor (C21), and a 10µF capacitor (C22).
- Connectors:**
 - Port A:** A 32-pin connector (Port_A) for digital I/O.
 - Port B:** A 32-pin connector (Port_B) for digital I/O.
 - Power1:** A 10-pin connector (Power1) for power supply.
 - IOH1:** A 10-pin connector (IOH1) for digital I/O.
 - AD1:** A 10-pin connector (AD1) for analog input.
 - IOL1:** A 10-pin connector (IOL1) for digital I/O.

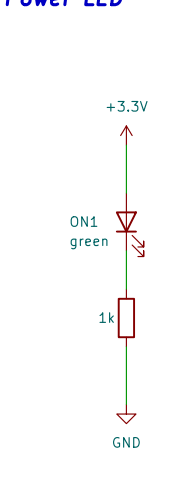
Neopixel LED

The diagram shows a Neopixel LED (WS2812B) connected to a microcontroller. The LED is represented as a yellow square with pins 1, 2, 4, and 5. Pin 1 is VDD (+3.3V), pin 2 is DOUT, pin 4 is DIN (labeled Neopixel1), and pin 5 is VSS (GND). A resistor R5 is connected between the DIN pin and GND.

QSPI Flash

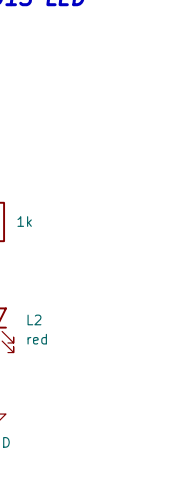
The diagram shows a QSPI Flash (U3) connected to a microcontroller. The flash is represented as a yellow square with pins 1, 2, 3, 4, 5, 6, 7, and 8. Pin 1 is SI/IO0, pin 2 is SCK, pin 3 is CS, pin 4 is WP/IO2, pin 5 is HOLD/IO3, pin 6 is VCC (+3.3V), pin 7 is SO/IO1, and pin 8 is GND. A resistor R5 is connected between the CS pin and GND.

Power LED



The circuit diagram for the Power LED shows a green wire connected to a +3.3V supply. The wire passes through a red diode symbol pointing upwards, labeled "ON1 green". Below the diode is a red rectangle representing a 1k resistor, labeled "1k". The wire then connects to a ground symbol labeled "GND".

D13 LED



The circuit diagram for the D13 LED shows a green wire connected to a ground symbol labeled "GND". The wire passes through a red diode symbol pointing downwards, labeled "L2 red". Above the diode is a red rectangle representing a 1k resistor, labeled "1k". The wire then connects to a +3.3V supply.

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SWD Interface

Title:		
Size: A3	Date:	Rev:
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