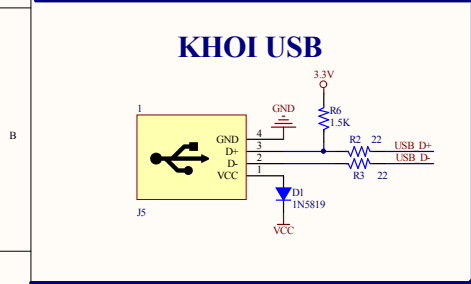


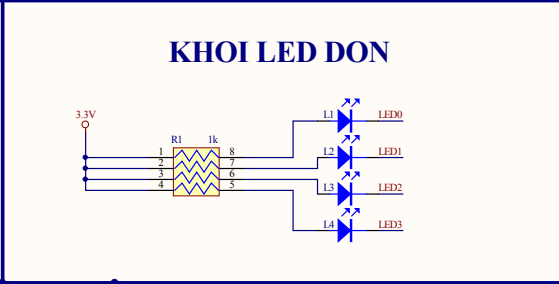
## KHOI USB

The diagram illustrates the internal circuit of the KHOI USB module. It features a USB Type-B connector (J5) on the left, which is connected to a USB Type-A connector (D1, 1N5819) on the right. The circuit includes a 3.3V regulator, a 1.5K resistor (R6), and two 22-ohm resistors (R2, R3) connected to the USB D+ and D- lines. The USB D+ line is connected to the VCC pin of the USB Type-B connector. The USB D- line is connected to the GND pin of the USB Type-B connector. The USB D+ line is also connected to the D+ pin of the USB Type-A connector. The USB D- line is also connected to the D- pin of the USB Type-A connector. The USB D+ line is also connected to the D+ pin of the USB Type-A connector. The USB D- line is also connected to the D- pin of the USB Type-A connector.



## KHOI LED ĐƠN

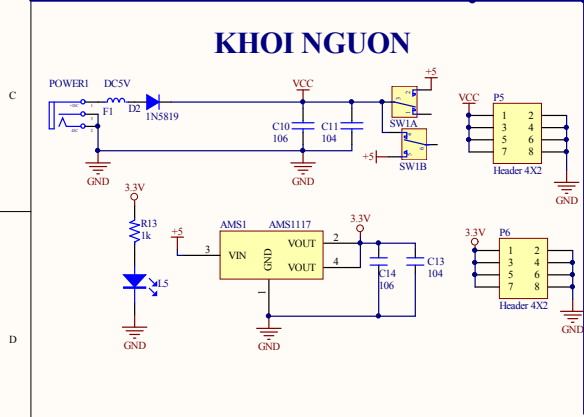
The diagram illustrates a simple LED circuit. A 3.3V DC source is connected to a 1k resistor (R1). The other end of the resistor is connected to the anode of the first LED (LED0). The cathode of LED0 is connected to the anode of LED1, and this pattern continues for LED2 and LED3. The cathode of the last LED (LED3) is connected to ground. This configuration allows all four LEDs to be driven by a single current source through the resistor.



# KHOI NGUON

The diagram illustrates a power supply system with the following components and connections:

- DC-DC Converter (POWER1):** Converts a 3.3V input to a +5V output. Components include an inductor (F1), a diode (D2, 1N5819), and capacitors (C10, C11).
- Reference Voltage:** A 3.3V input is divided by a resistor (R13) and a diode to provide a +5V reference.
- Switching and Headers:** The +5V output is connected to a switch (SW1A, SW1B) and a 4x2 header (P5).
- AMS1117 Regulator:** Converts the +5V input to a 3.3V output, which is connected to another 4x2 header (P6).

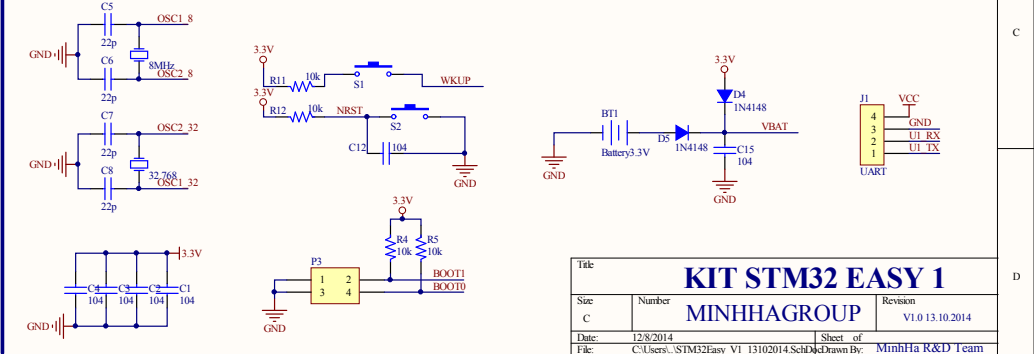
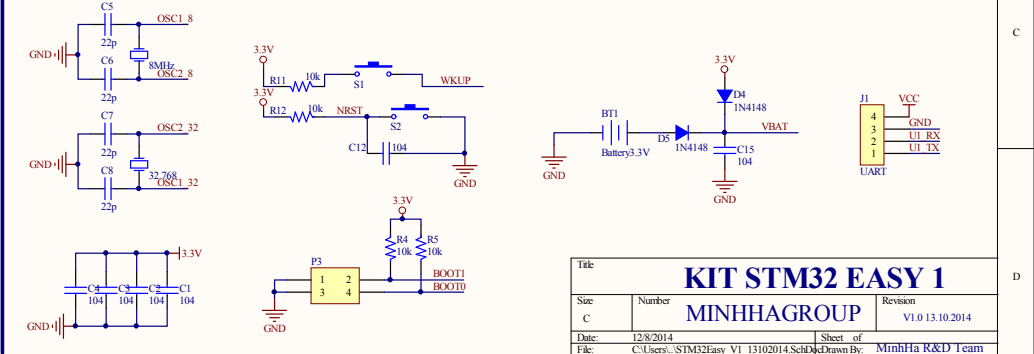
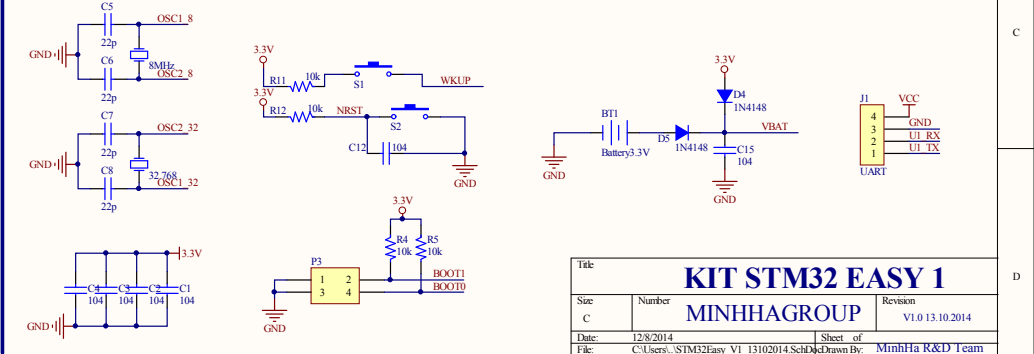
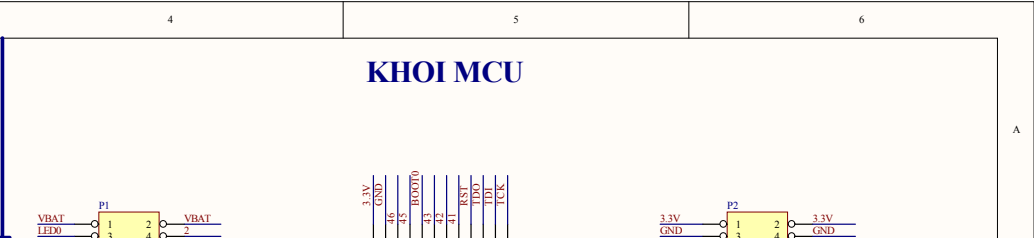
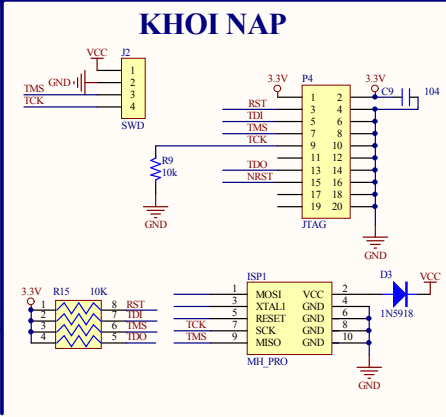


The diagram illustrates the electrical connections for the KH01 NAP project. It features three main components: a JTAG debugger, a 3.3V voltage regulator, and a 1N5918 diode.

- JTAG Debugger:** A yellow component with pins labeled JTAG, NRST, TDO, TCK, TMS, TDI, and RST. It is connected to a 3.3V supply (P4) and ground (GND). A 10k resistor (R9) is connected between the NRST pin and ground.
- 3.3V Regulator:** A yellow component with pins labeled VCC, GND, and SCK. It is connected to a 3.3V supply (P4) and ground (GND). A 10k resistor (R15) is connected between the VCC pin and ground.
- 1N5918 Diode:** A blue component with pins labeled VCC, GND, and SCK. It is connected to a 3.3V supply (P4) and ground (GND).

The connections are as follows:

- JTAG Debugger:**
  - RST: 3.3V
  - TDI: 1
  - TMS: 2
  - TCK: 3
  - TDO: 4
  - NRST: 5
  - JTAG: 6
- 3.3V Regulator:**
  - VCC: 3.3V
  - GND: 1
  - SCK: 2
- 1N5918 Diode:**
  - VCC: 3.3V
  - GND: 1
  - SCK: 2



The schematic diagram illustrates the internal components of the STM32 Easy 1 kit. It includes two crystal oscillators: one for 8MHz (OSC2\_8) and another for 32.768kHz (OSC1\_32). Both are buffered by op-amp-like symbols. The power management section consists of a 3.3V voltage regulator (U1) with feedback resistors R11 and R12, and output filter capacitors C12 and C15. A switch SW1 controls the WKUP pin. The boot loader circuit uses a BOOT0 pin connected to ground through a 10k resistor (R4) and a pull-up resistor (R5). A USB connector J1 provides VCC, GND, and UART signals (UI RX, UI TX).