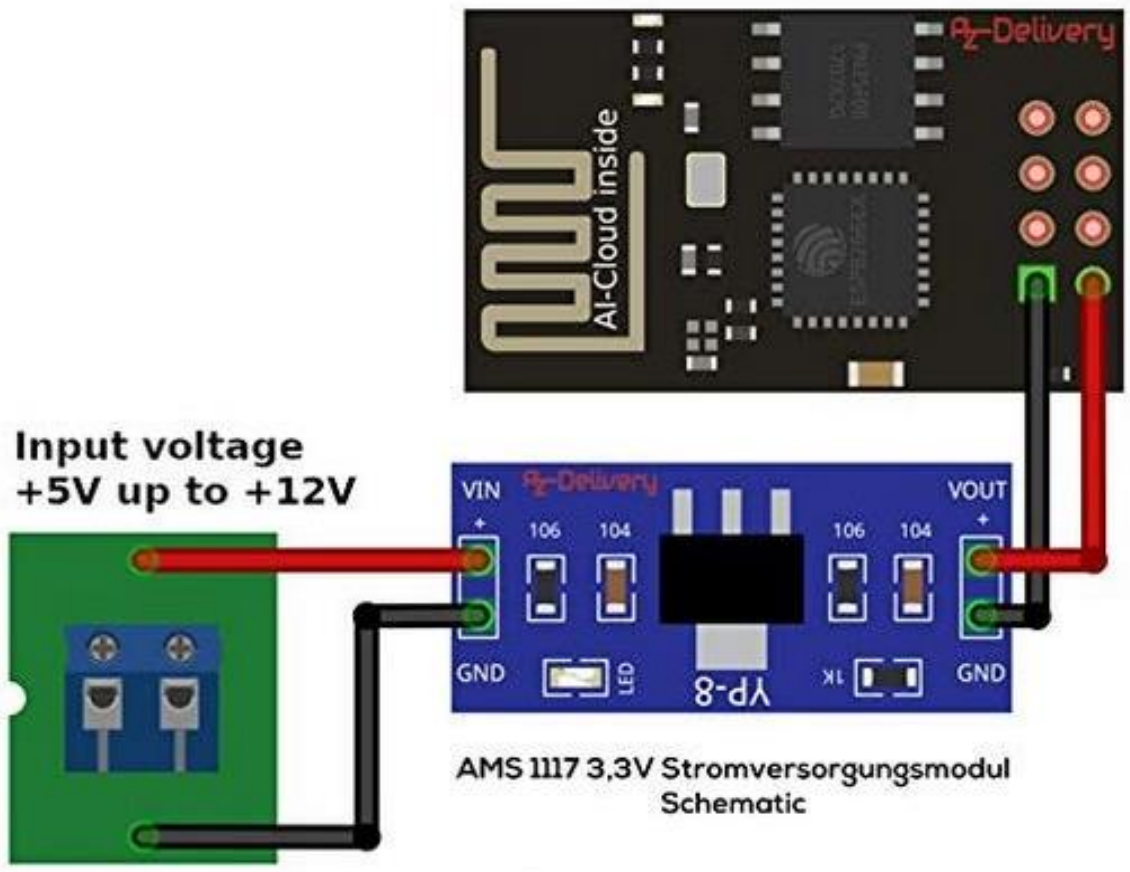
ESP-01 Stromversorgung

Grundlagen

Der ESP01 oder auch ESP8266 wird mit 3,3V Spannungsversorgung betrieben. Sein Stromverbrauch ist mit einigen mA sehr gering.

Basis-Schaltung mit einem 5V USB Netzteil

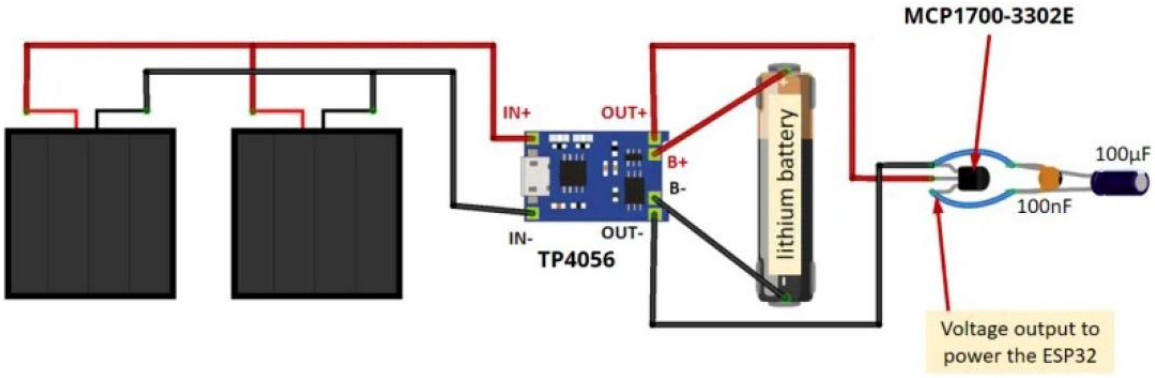


Basis-Schaltung mit Mini-Solar-Panel und Akku

Parts Required

To power the ESP32 or ESP8266 with solar panels, we'll use the following parts:

- ESP32 or ESP8266
- 2x Mini Solar Panel (5/6V 1.2W)
- Lithium Li-ion battery 18650
- Battery holder
- TP4056 Lithium Battery Charger Module
- Voltage regulator:
  - Low-dropout or LDO regulator (MCP1700-3302E)
  - 100uF electrolytic capacitor
  - 100nF ceramic capacitor



MICROCHIP

MCP1700

Low Quiescent Current LDO

Features:

- 1.6 µA Typical Quiescent Current
- Input Operating Voltage Range: 2.3V to 6.0V
- Output Voltage Range: 1.2V to 5.0V
- 250 mA Output Current for Output Voltages ≥ 2.5V
- 200 mA Output Current for Output Voltages < 2.5V
- Low Dropout (LDO) Voltage
  - 178 mV Typical @ 250 mA for V_{OUT} = 2.8V
- 0.4% Typical Output Voltage Tolerance
- Standard Output Voltage Options:
  - 1.2V, 1.8V, 2.5V, 2.8V, 3.0V, 3.3V, 5.0V
- Stable with 1.0 µF Ceramic Output Capacitor
- Short Circuit Protection
- Overtemperature Protection

General Description:

The MCP1700 is a family of CMOS low dropout (LDO) voltage regulators that can deliver up to 250 mA of current while consuming only 1.6 µA of quiescent current (typical). The input operating range is specified from 2.3V to 6.0V, making it an ideal choice for two and three primary cell battery-powered applications, as well as single cell Li-Ion-powered applications.

The MCP1700 is capable of delivering 250 mA with only 178 mV of input to output voltage differential (V_{OUT} = 2.8V). The output voltage tolerance of the MCP1700 is typically ±0.4% at +25°C and ±3% maximum over the operating junction temperature range of -40°C to +125°C.

Output voltages available for the MCP1700 range from 1.2V to 5.0V. The LDO output is stable when using only 1 µF output capacitance. Ceramic, tantalum or aluminum electrolytic capacitors can all be used for