

The schematic diagram illustrates a USB-to-Battery Charger and Protection circuit. It is divided into two main sections: 'Charger' and 'Protection'.

Charger Section: This section handles the USB input and charging the battery. It includes a USB connector with pins 1 (GND), 2 (D-), 3 (D+), and 4 (VUSB). A 500k resistor (R504) is connected between VUSB and GND. A diode (D1) is connected between VUSB and the VBAT pin of the TP4056 charging IC. The TP4056 IC is configured with VBAT to the battery (+), GND to the battery (-), and CHRG to the USB D+ pin. The IC also includes a 100k resistor (R505) and a 100nF capacitor (C504) for the CHRG pin. The battery is connected to the VBAT and GND pins of the IC. The battery is labeled 'I=1200/R12'.

Protection Section: This section protects the battery from overcharge and over-discharge. It includes a DM840 protection IC. The IC is connected with VBAT to the battery (+), GND to the battery (-), and VBAT- to the battery (-). The IC also includes a 100k resistor (R506) and a 100nF capacitor (C505) for the VBAT- pin. The battery is connected to the VBAT and GND pins of the IC. The battery is labeled 'I=1200/R12'.

Other Components: The circuit includes a 3.3V regulator (U1) with a 100k resistor (R507) and a 100nF capacitor (C506) for the VBAT- pin. The regulator is connected with VBAT to the battery (+), GND to the battery (-), and VBAT+ to the battery (+). The regulator is labeled 'I=1200/R12'.

Legend: The legend indicates that the USB connector pins are: 1 (GND), 2 (D-), 3 (D+), and 4 (VUSB).

Interface

[illegible]