不死鸟-Bird

目录

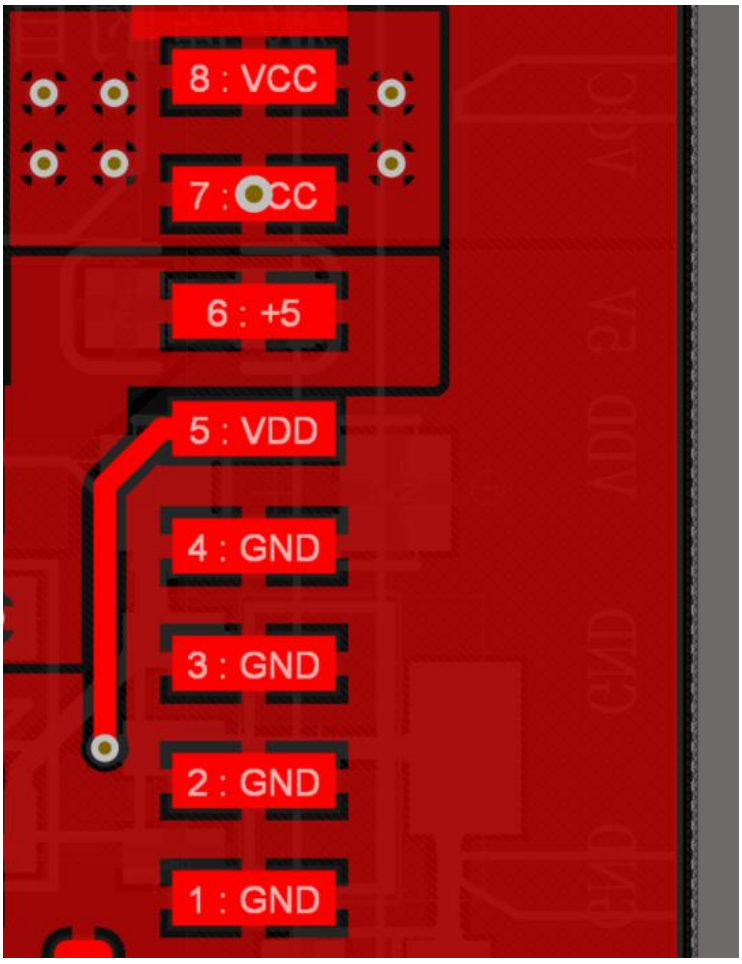
说明

主控：STC15W408AS
频率：24MHz
波特率：9600
ADC:12位
MCU电压：3.3V
输入电压：DC 8--25V （VCC）
输出：VCC 6A(极限) 5V 5A 3.3 1A

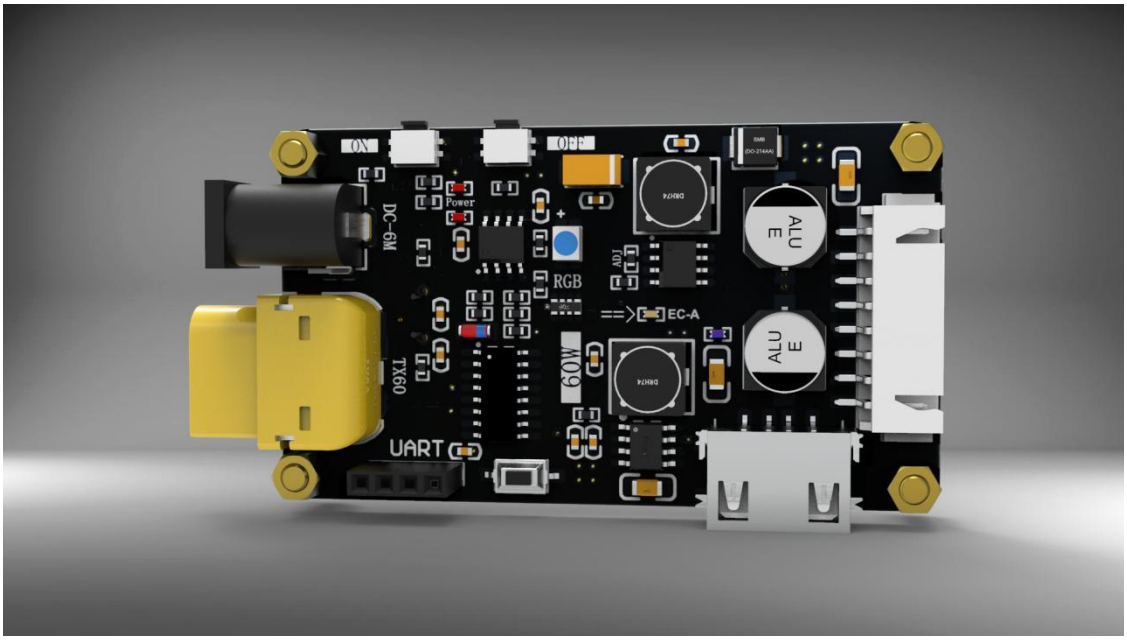
版本号：V7

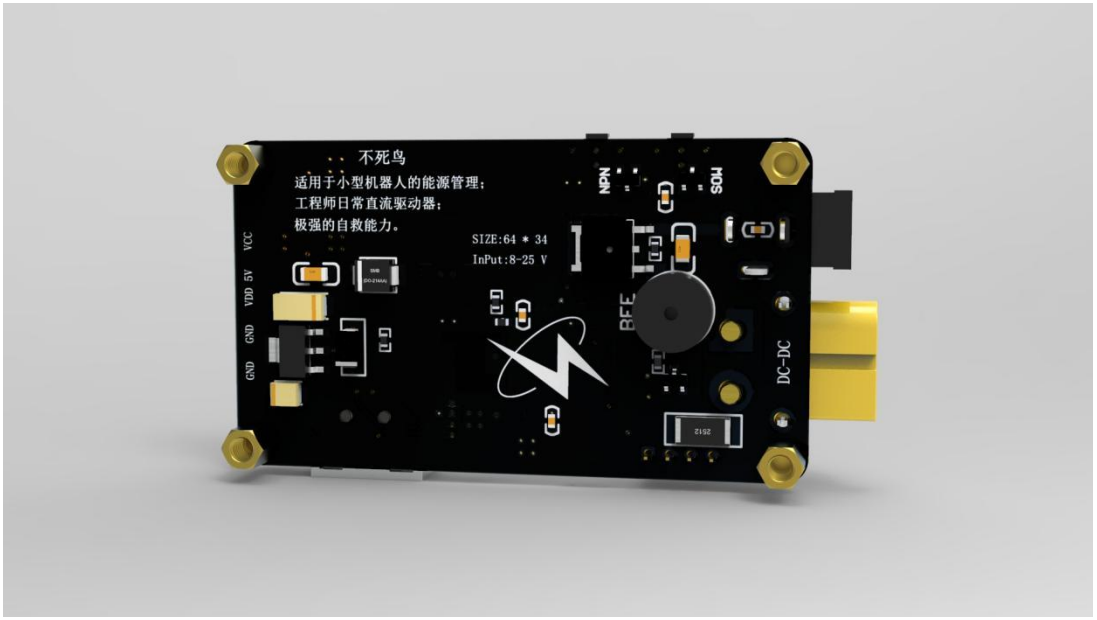
尺寸：

机械：70 mm * 40 mm
孔径：64 mm * 34 mm



接线图

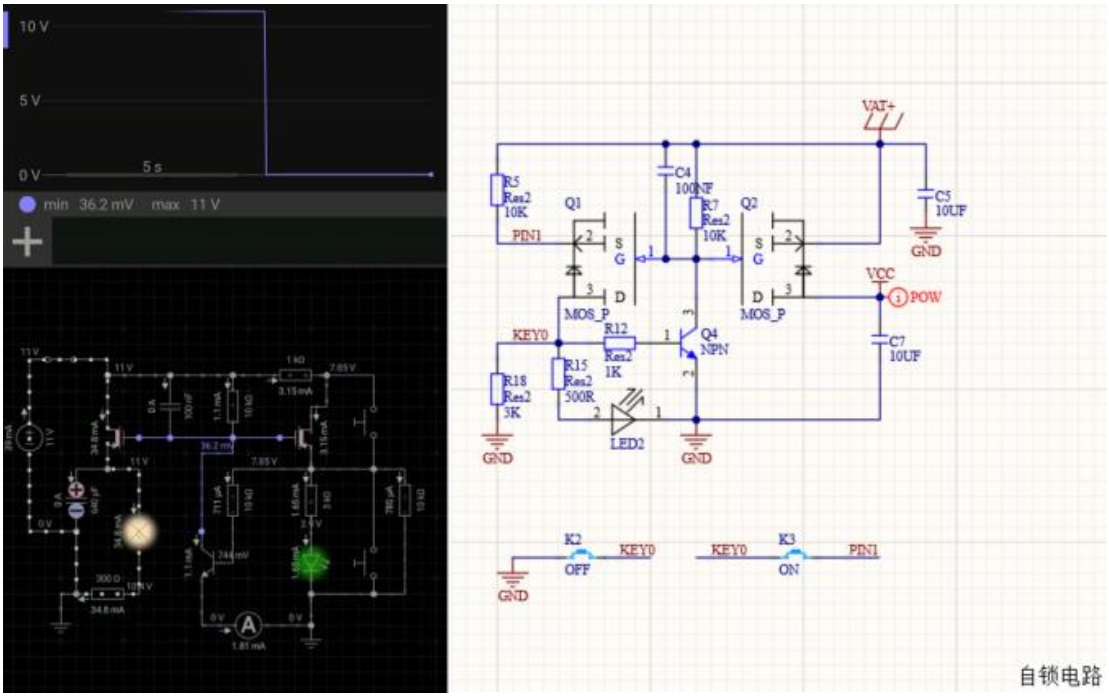

DC-6M
Power
RGB
EC-A
TX60
MOS
UART
ALU
E


不死鸟
适用于小型机器人的能源管理；
工程师日常直流驱动器；
极强的自救能力。
SIZE:64 * 34
InPut:8-25 V
VCC
VDD 5V
GND
GND
NPN
MOS
BFE
DC-DC

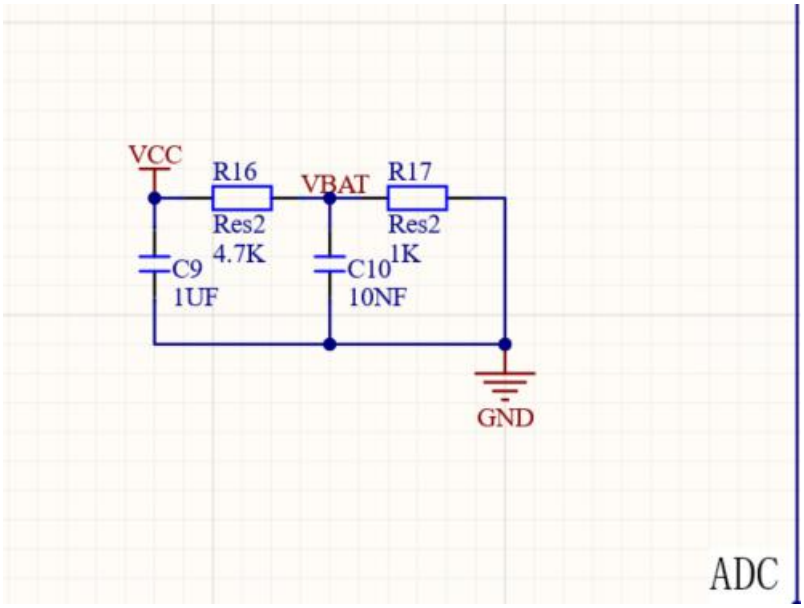

08.86V
1.153A
PCP

功能

1. 自锁电路


10 V
5 V
0 V
5 s
min 36.2 mV max 11 V
VAT+
R5
Res2
10K
Q1
PIN1
C4
100NF
R7
Res2
10K
Q2
C5
10UF
GND
VCC
POW
MOS_P
MOS_P
KEY0
R12
Res2
1K
Q4
NPN
C7
10UF
R15
Res2
500R
R18
Res2
3K
LED2
GND
GND
K2
OFF
KEY0
KEY0
K3
ON
PIN1
GND
自锁电路

2. 电压检测/电池识别

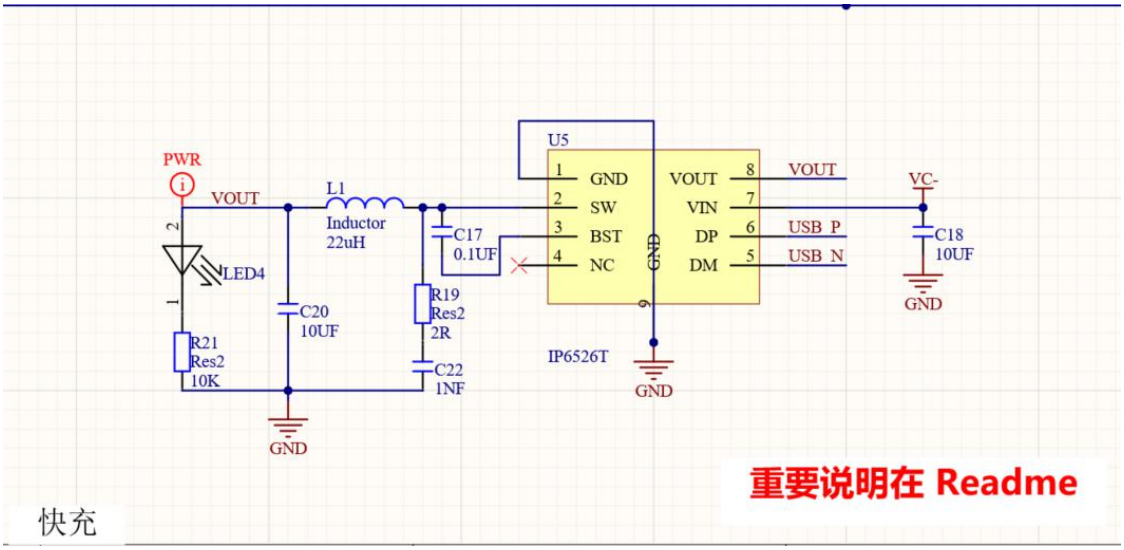


利用分压电路 将VCC分压 VBAT = VCC * R17/(R16 + R17)

```
Voltage.BatV = GPIOX_ADCY(1, VBat, ADC_SPEEDL) * 5.65; //
if (Voltage.BatV < 7000)
    X_S = '0'; //
else if (Voltage.BatV > 7300 && Voltage.BatV < 8500)
    X_S = '2'; //2S
else if (Voltage.BatV > 11000 && Voltage.BatV < 12700)
    X_S = '3'; //3S
else if (Voltage.BatV > 14700 && Voltage.BatV < 16900)
    X_S = '4'; //4S
else
    X_S = ' '; //
```

该程序只在上电时启动。

3. 快充输出



1 特性

- **同步开关降压转换器**
  - ✧ 内置功率 MOS
  - ✧ 输入电压范围：4.5V 到 32V
  - ✧ 输出电压范围：3V 到 12V，根据快充协议自动调整
  - ✧ 输出功率：最大 24W（4V@3.6A，5V@3.4A，9V@2.5A，12V@2A 等）
  - ✧ 输出电压有线补功能
  - ✧ 输出具有 CV/CC 特性(输出电流小于设定值，输出 CV 模式；输出电流大于设定值，输出 CC 模式）
  - ✧ 转换效率最高达 97%
  - ✧ 软启动功能
- **输出快充**
  - ✧ 支持 BC1.2、Apple、三星协议
  - ✧ 支持高通 QC2.0 和 QC3.0（认证编号：4788120153-2）
  - ✧ 支持 MTK PE1.1/PE2.0
  - ✧ 支持华为快充协议 FCP
  - ✧ 支持华为快充协议 SCP
  - ✧ 支持三星快充协议 AFC
  - ✧ 支持展讯快充协议 SFCP

3 简介

IP6505T 是一款集成同步开关的降压转换器、支持 11 种输出快充协议，为车载充电器、快充适配器、智能排插提供完整的解决方案。

IP6505T 内置功率 MOS，输入电压范围是 4.5V 到 32V，输出电压范围是 3V 到 12V，最大能提供 24W 的输出功率，能够根据识别到的快充协议自动调整输出电压和电流，典型输出电压和电流有：4V@ 3.6A，5V@3.4A，7V@3A，9V@2.5A，12V@2A。IP6505T 的降压转换效率高至 97%。

IP6505T 的输出具有 CV/CC 特性，当输出电流小于设定值，输出 CV 模式，输出电压恒定；当输出电流大于设定值，输出 CC 模式，输出电压降低。

IP6505T 的输出电压带有线补功能，输出电流增大后会相应提高输出电压，用以补偿连接线阻抗引起的电压下降。

IP6505T 具有软启动功能，可以防止启动时的冲击电流影响输入电源的稳定。

IP6505T 集成各种快充协议，可以通过 DP/DM

4. 降压输出

(1) 5V

TEXAS INSTRUMENTS
www.ti.com

TPS5450

SLVS757–MARCH 2007

5-A, WIDE INPUT RANGE, STEP-DOWN SWIFT™ CONVERTER

FEATURES

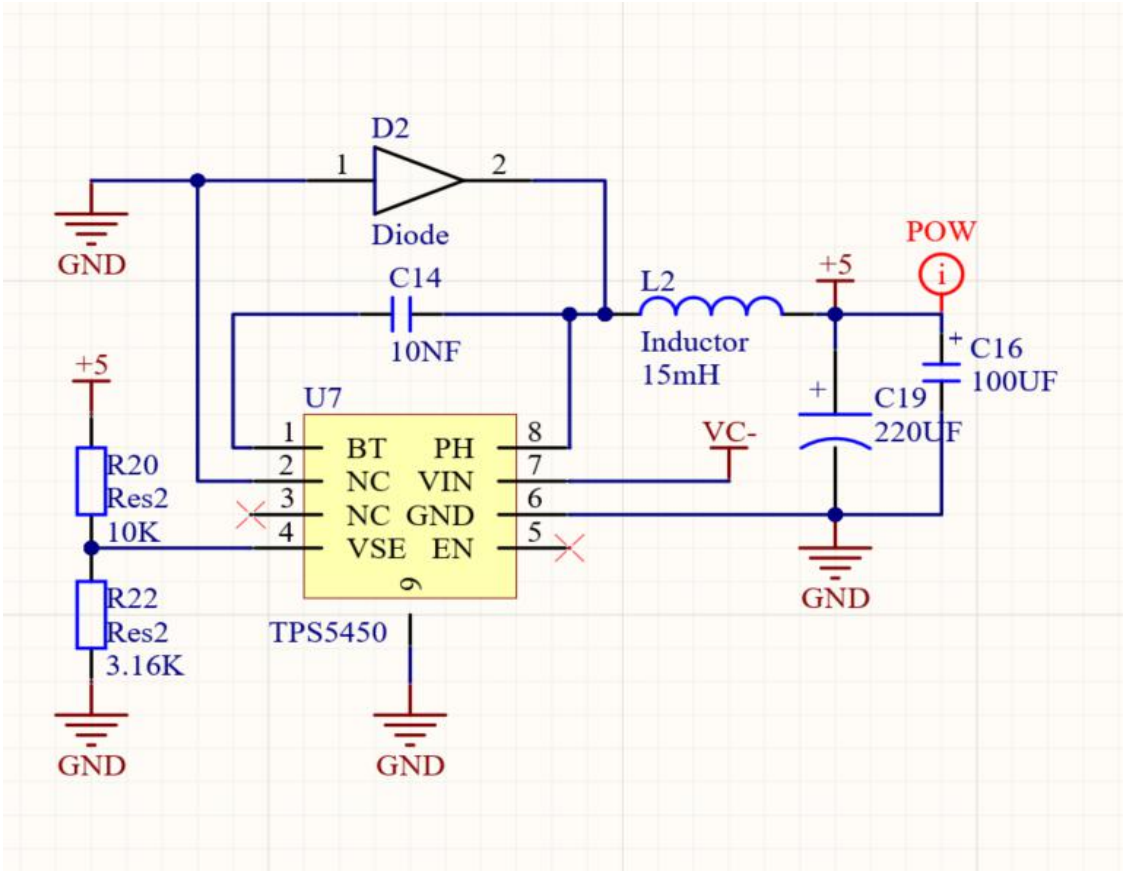
- Wide Input Voltage Range: 5.5 V to 36 V
- Up to 5-A Continuous (6-A Peak) Output Current
- High Efficiency Greater than 90% Enabled by 110-mΩ Integrated MOSFET Switch
- Wide Output Voltage Range: Adjustable Down to 1.22 V with 1.5% Initial Accuracy
- Internal Compensation Minimizes External Parts Count
- Fixed 500 kHz Switching Frequency for Small Filter Size
- 18 μA Shut Down Supply Current
- Improved Line Regulation and Transient Response by Input Voltage Feed Forward
- System Protected by Overcurrent Limiting, Overvoltage Protection and Thermal Shutdown

APPLICATIONS

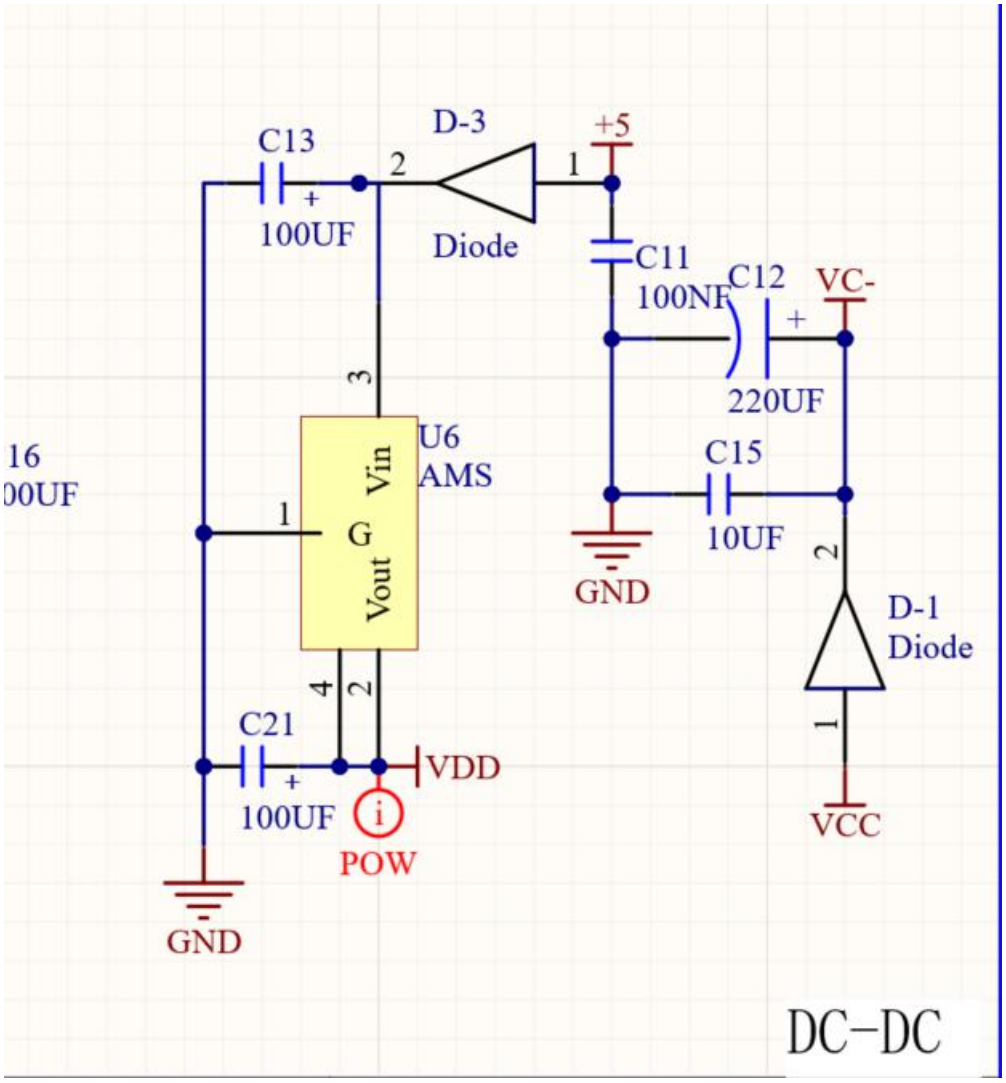
- High Density Point-of-Load Regulators
- LCD Displays, Plasma Displays
- Battery Chargers
- 12-V/24-V Distributed Power Systems

DESCRIPTION

As a member of the SWIFT™ family of DC/DC regulators, the TPS5450 is a high-output-current PWM converter that integrates a low resistance high side N-channel MOSFET. Included on the substrate with the listed features are a high performance voltage error amplifier that provides tight voltage regulation accuracy under transient conditions; an undervoltage-lockout circuit to prevent start-up until the input voltage reaches 5.5 V; an internally set slow-start circuit to limit inrush currents; and a voltage feed-forward circuit to improve the transient response. Using the ENA pin, shutdown supply current is reduced to 18 μA typically. Other features



(2) 3.3



单向整流　　VCC -> VC-

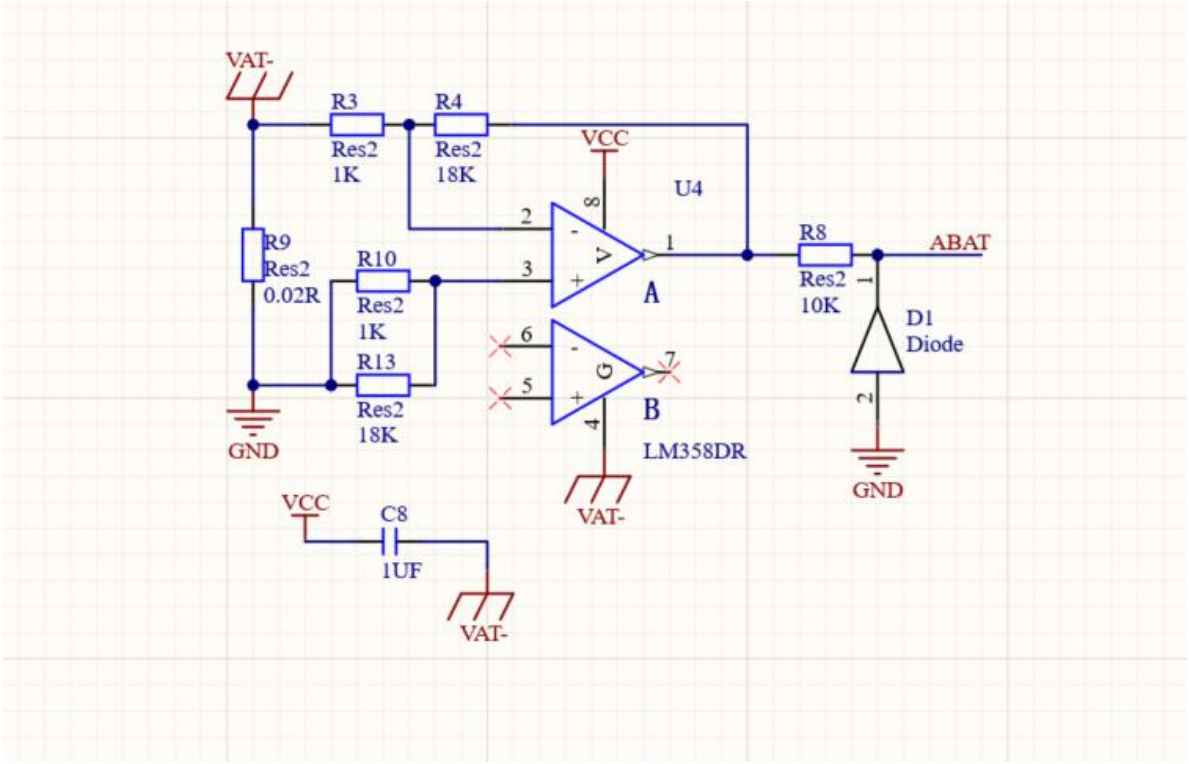
5. 过放保护

当电池电压低于预设值则会将KEY0端口拉低，从而关闭设备。

```
if (X_S == '0' || X_S == ' ')
{
}
else if (Voltage.BatV < 3700 * (X_S - '0'))
{
    time3++;
    if(time3 > 2) KEY0 = KEY_OF;                          // 过放电压
}

if (X_S == '2')
{
    L_LEDP = (Voltage.BatV - 7300) / 15;
}
else if (X_S == '3')
{
    L_LEDP = (Voltage.BatV  - 11100) / 20;
}
else if (X_S == '4')
{
    L_LEDP = (Voltage.BatV  - 14700) / 28;
}
else
{
    L_LEDP = 80;
}
if (L_LEDP >= 80)
    L_LEDP = 80;
```

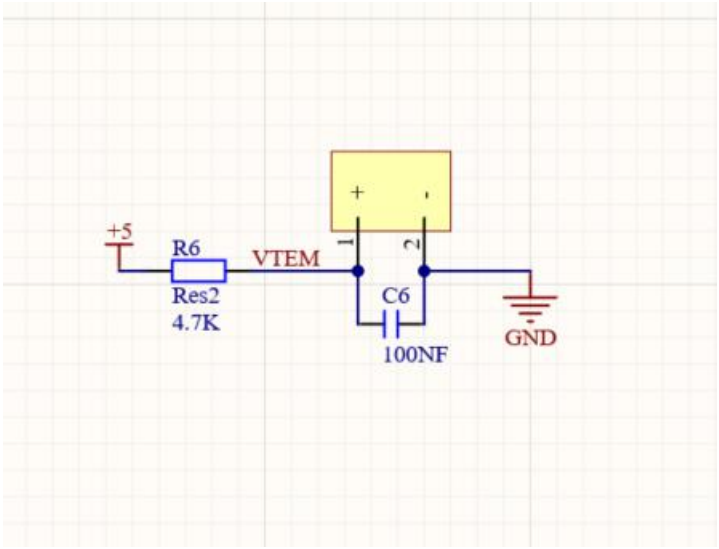
6. 过流保护




```
if(ADC_Channle == ABat)
{
    Voltage.EleC = ADC_RES;
    if (Voltage.EleC > 126)
    {
        time1++;
        if(time1 >= 2)
        {
            KEY0 = KEY_OF;
            LED_RGB('B');
        }
    }
    else time1 = 0;
    L_EleC = Voltage.EleC;
}
```

采样两次，防止因为启动电流过大导致异常。

7. 过温保护




```
if (Voltage.Temp < 2400)                //
{
    LED_RGB('R');
    Bzz = Bzz_ON;
    if (Voltage.Temp < 2200)            //
    {
        time2++;
        if(time2 > 2) KEY0 = KEY_OF;
    }
}
```

将热敏电阻的电压进行滤波和判断。

8. 通讯设置

```
void Uart (void)
{
    if(TCount > 3000 || RXD_Flag == 1)
    {
        TCount = 0;
        r_1 = 0;

        Delayx00ms(1);
        if(array_r[0] == '{')
        {
            if(array_r[1] == 'B' && array_r[2] == 'i' && array_r[3] == 'r' && array_r[4] == 'd')
            {
                if(array_r[5] == '-')
                {
                    if(array_r[6] == 'o' && array_r[7] == 'n');
                    else
                        KEY0 = KEY_OF;
                    UARTX_Send(1, "OK !\r\n", sizeof("OK !\r\n"));
                }
                else if(array_r[5] == ':')
                {
                    Mode = array_r[6];
                }
            }
        }
        else
        {
            UARTX_Send(1, "Error !\r\n", sizeof("Error !\r\n"));
        }
        Clean(sizeof(array_r),array_r);
    }
    RXD_Flag = 0;
}
```

通讯格式：

Cmd

{Bird-on}　　开启

{Bird-off}　　关闭

{Bird:A}　　显示电流数据

{Bird:V}　　显示电压数据

{Bird:T}　　显示温度数据

{Bird:C}　　显示循环数据