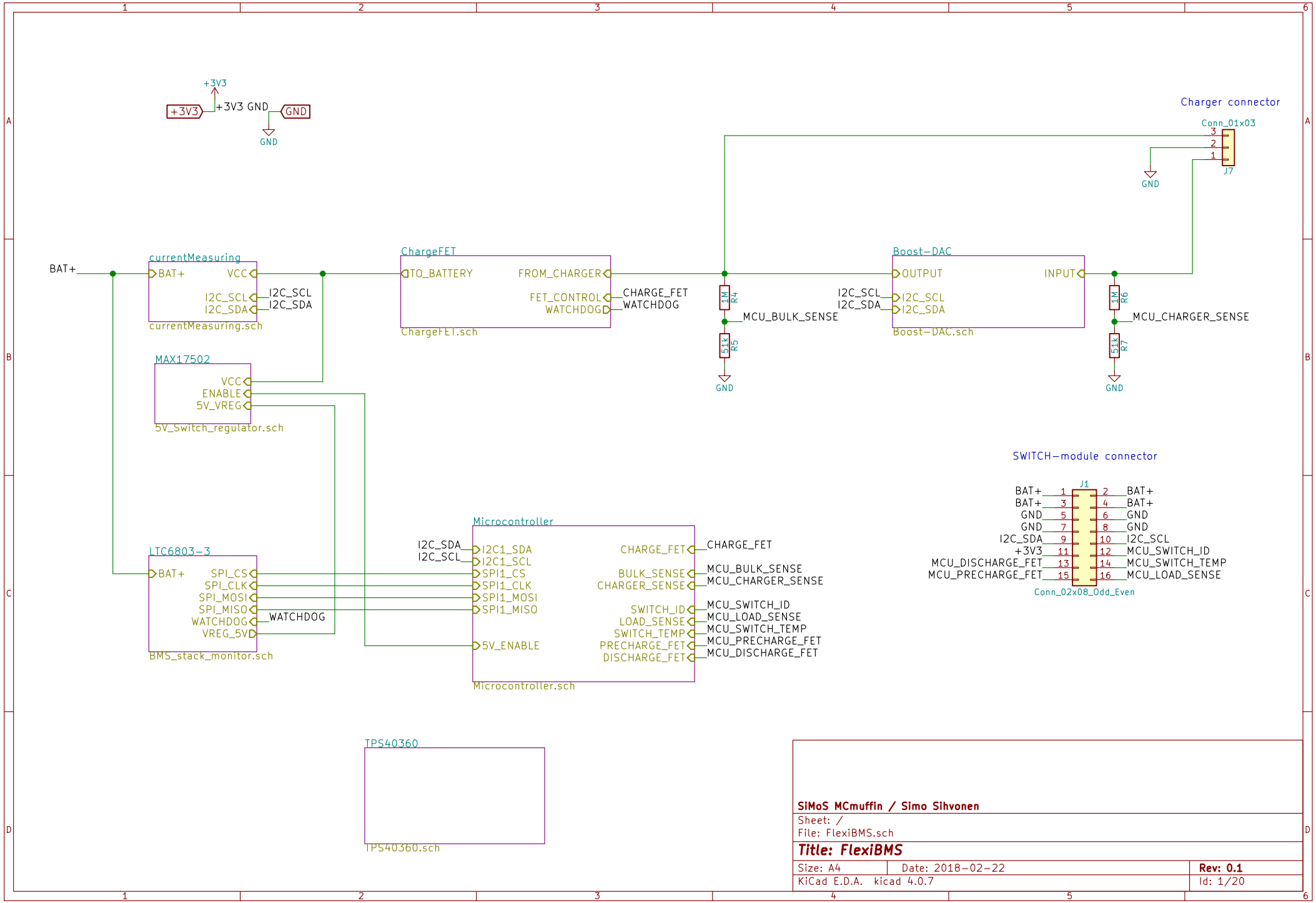
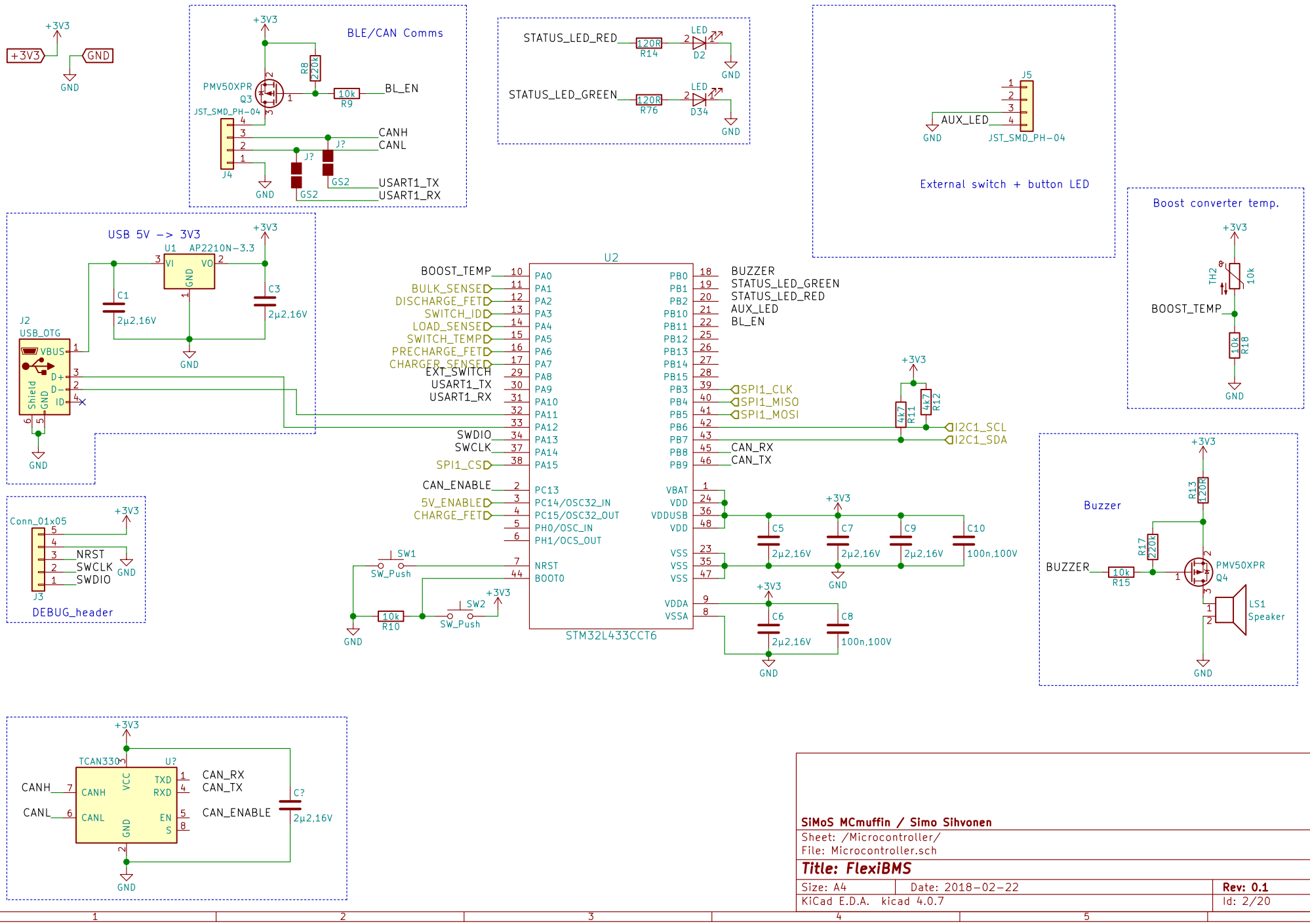

+3V3
+3V3 GND
GND
Charger connector
Conn_01x03
J7
currentMeasuring
BAT+
VCC
I2C_SCL
I2C_SDA
currentMeasuring.sch
ChargeFET
TO_BATTERY
FROM_CHARGER
FET_CONTROL
WATCHDOG
CHARGE_FET
ChargeFET.sch
1M R4
51k R5
MCU_BULK_SENSE
Boost-DAC
OUTPUT
INPUT
Boost-DAC.sch
1M R6
51k R7
MCU_CHARGER_SENSE
MAX17502
VCC
ENABLE
5V_VREG
5V_Switch_regulator.sch
SWITCH-module connector
J1
BAT+
GND
I2C_SDA
+3V3
MCU_DISCHARGE_FET
MCU_PRECHARGE_FET
I2C_SCL
MCU_SWITCH_ID
MCU_SWITCH_TEMP
MCU_LOAD_SENSE
Conn_02x08_Odd_Even
LTC6803-3
SPI_CS
SPI_CLK
SPI_MOSI
SPI_MISO
WATCHDOG
VREG_5V
BMS_stack_monitor.sch
Microcontroller
I2C1_SDA
I2C1_SCL
SPI1_CS
SPI1_CLK
SPI1_MOSI
SPI1_MISO
5V_ENABLE
CHARGE_FET
BULK_SENSE
CHARGER_SENSE
SWITCH_ID
LOAD_SENSE
SWITCH_TEMP
PRECHARGE_FET
DISCHARGE_FET
Microcontroller.sch
TPS40360
TPS40360.sch
SiMoS MCmuffin / Simo Sihvonen
Sheet: /
File: FlexiBMS.sch
Title: FlexiBMS
Size: A4
Date: 2018-02-22
Rev: 0.1
KiCad E.D.A. kicad 4.0.7
Id: 1/20



SiMoS MCmuffin / Simo Sihvonen	
Sheet: /Microcontroller/	
File: Microcontroller.sch	
Title: FlexiBMS	
Size: A4	Date: 2018-02-22
KiCad E.D.A. kicad 4.0.7	**Rev: 0.1**
	Id: 2/20

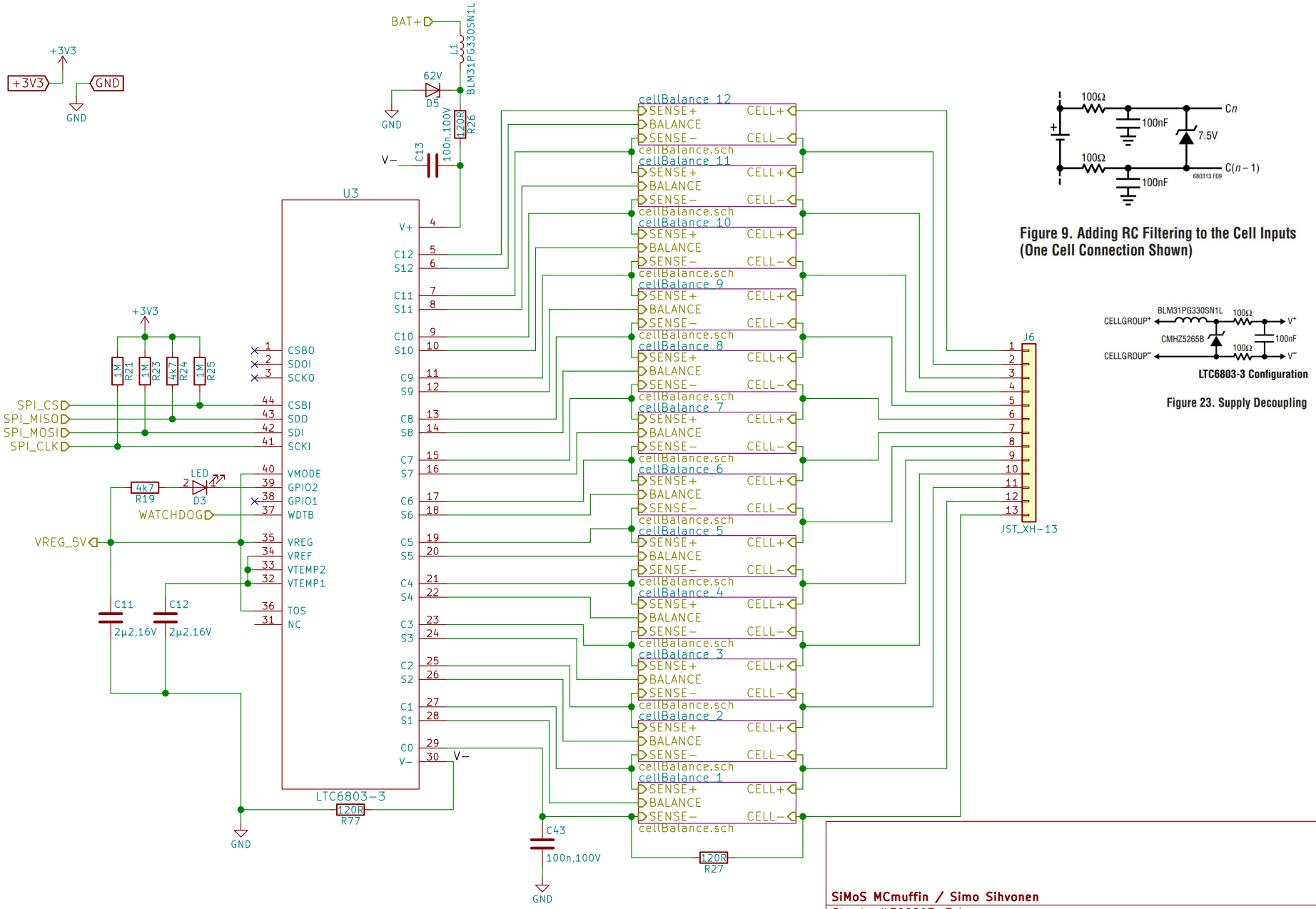
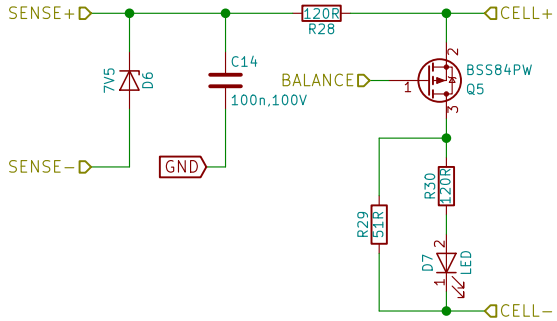


Figure 9. Adding RC Filtering to the Cell Inputs (One Cell Connection Shown)

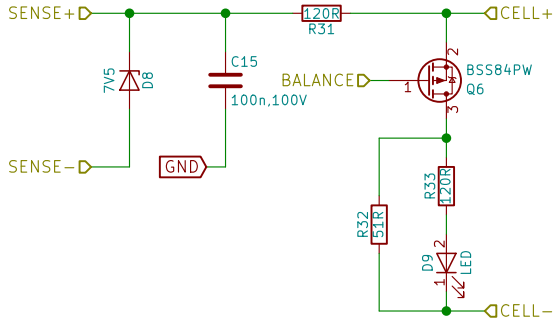
LTC6803-3 Configuration

Figure 23. Supply Decoupling

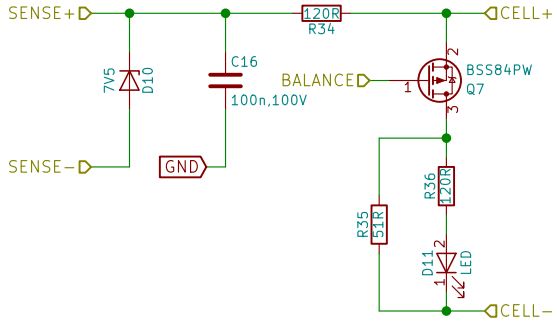
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803−3/		
File: BMS_stack_monitor.sch		
Title: FlexiBMS		
Size: A4	Date: 2018−02−22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 3/20



SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_12/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 4/20



SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_11/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 5/20



SiMoS MCmuffin / Simo Sihvonen		
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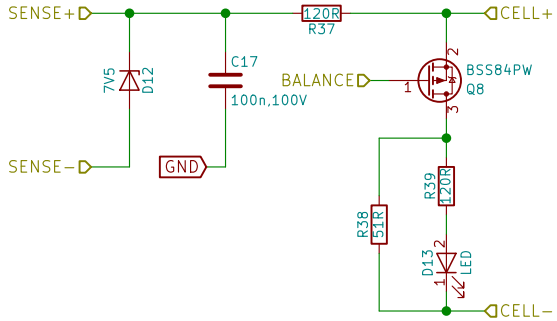
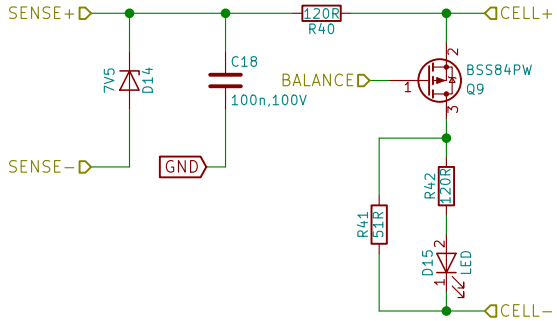
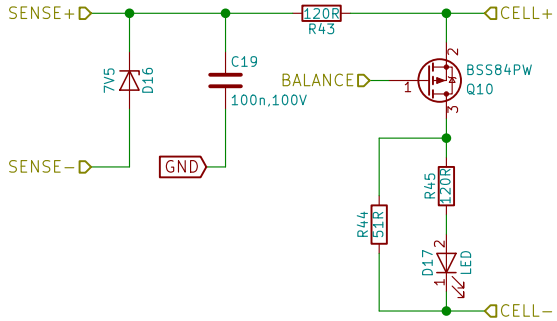
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 6/20



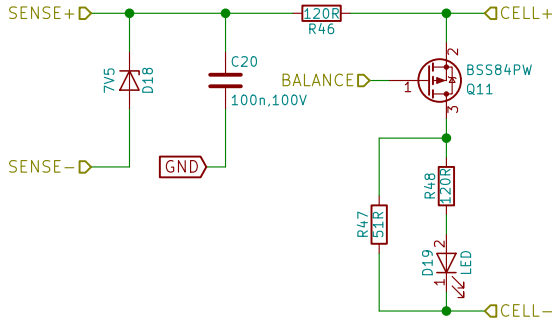
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803−3/cellBalance_9/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018−02−22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 7/20



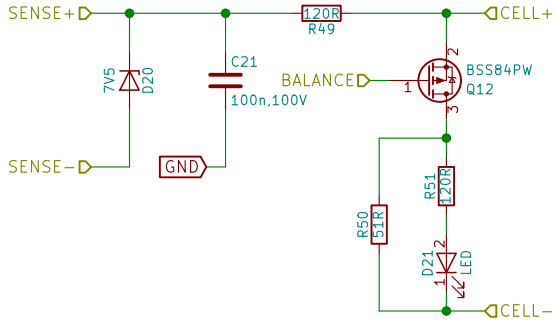
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_8/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 8/20



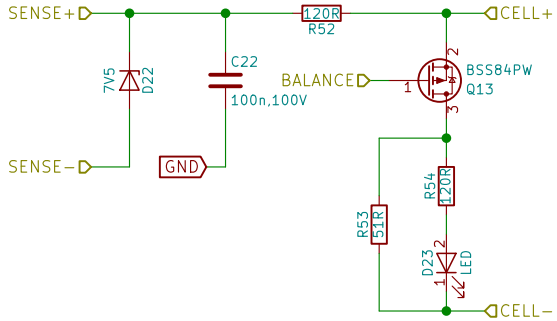
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_7/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 9/20



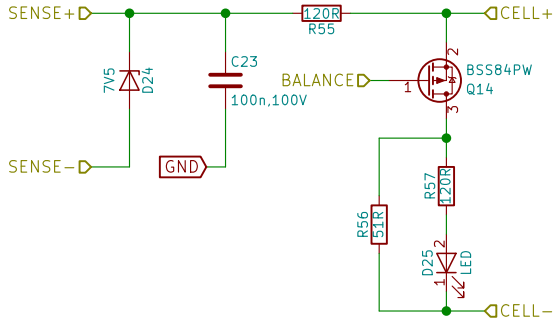
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_6/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 10/20



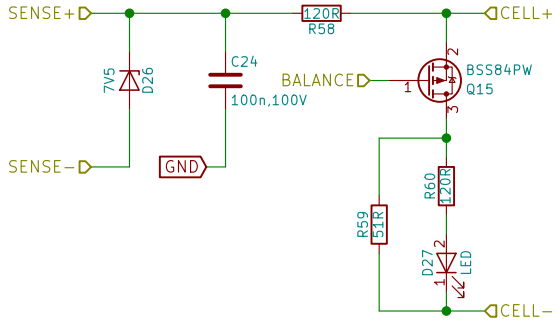
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_5/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 11/20



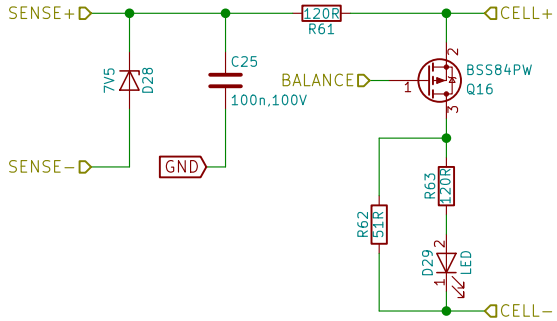
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_4/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 12/20



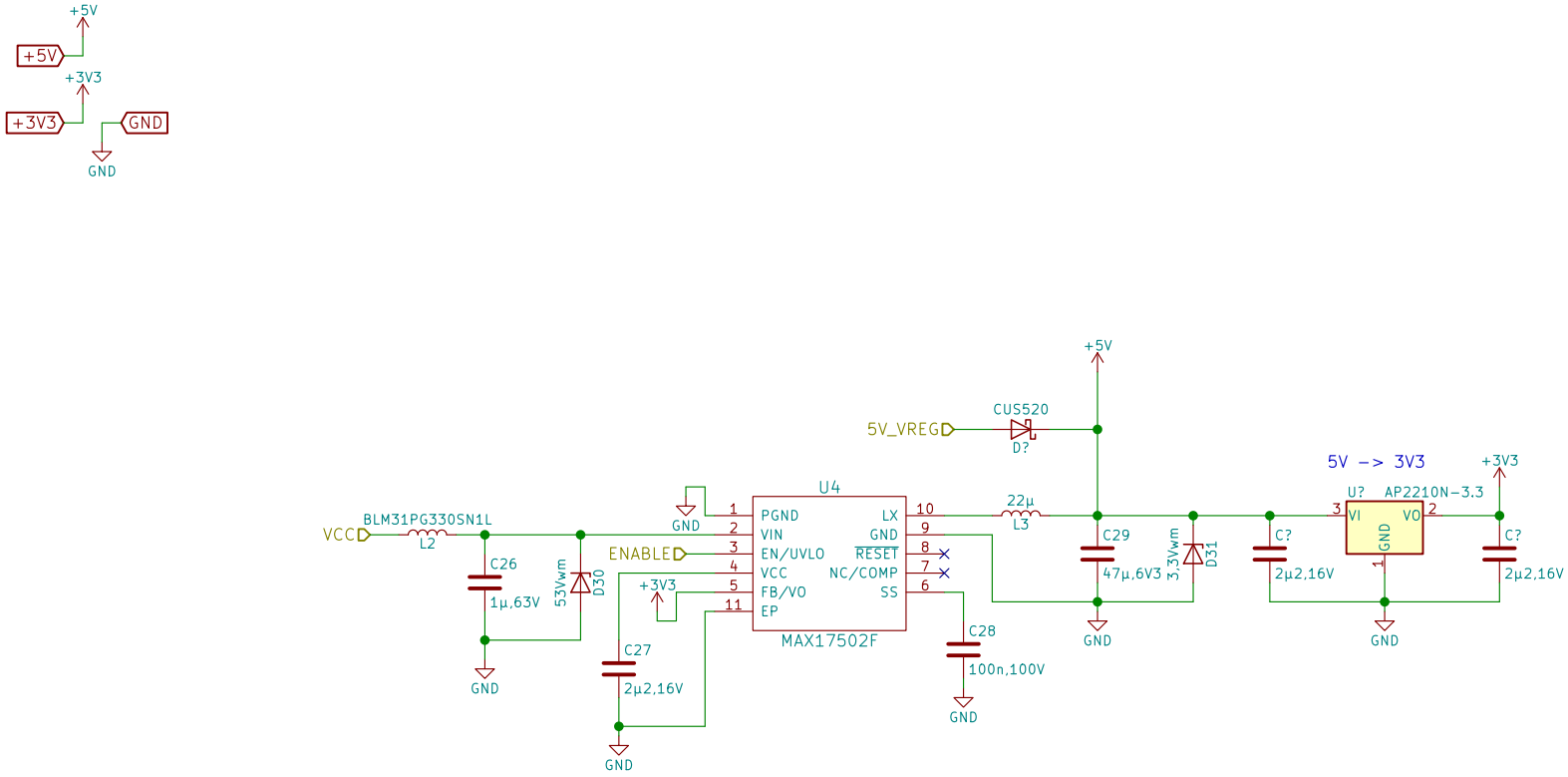
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_3/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 13/20



SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_2/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 14/20

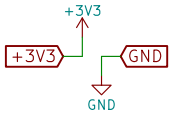


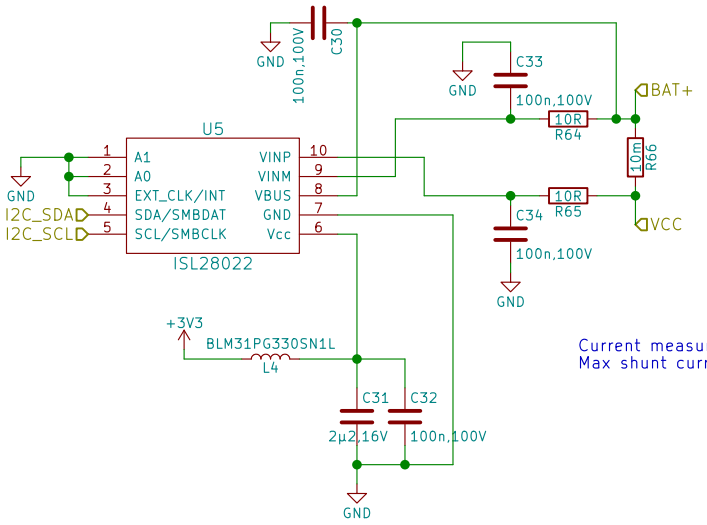
SiMoS MCmuffin / Simo Sihvonen		
Sheet: /LTC6803-3/cellBalance_1/		
File: cellBalance.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 15/20



SiMoS MCmuffin / Simo Sihvonen	
Sheet: /MAX17502/	
File: 5V_Switch_regulator.sch	
Title: FlexiBMS	
Size: A4	Date: 2018-02-22
KiCad E.D.A. kicad 4.0.7	Id: 16/20

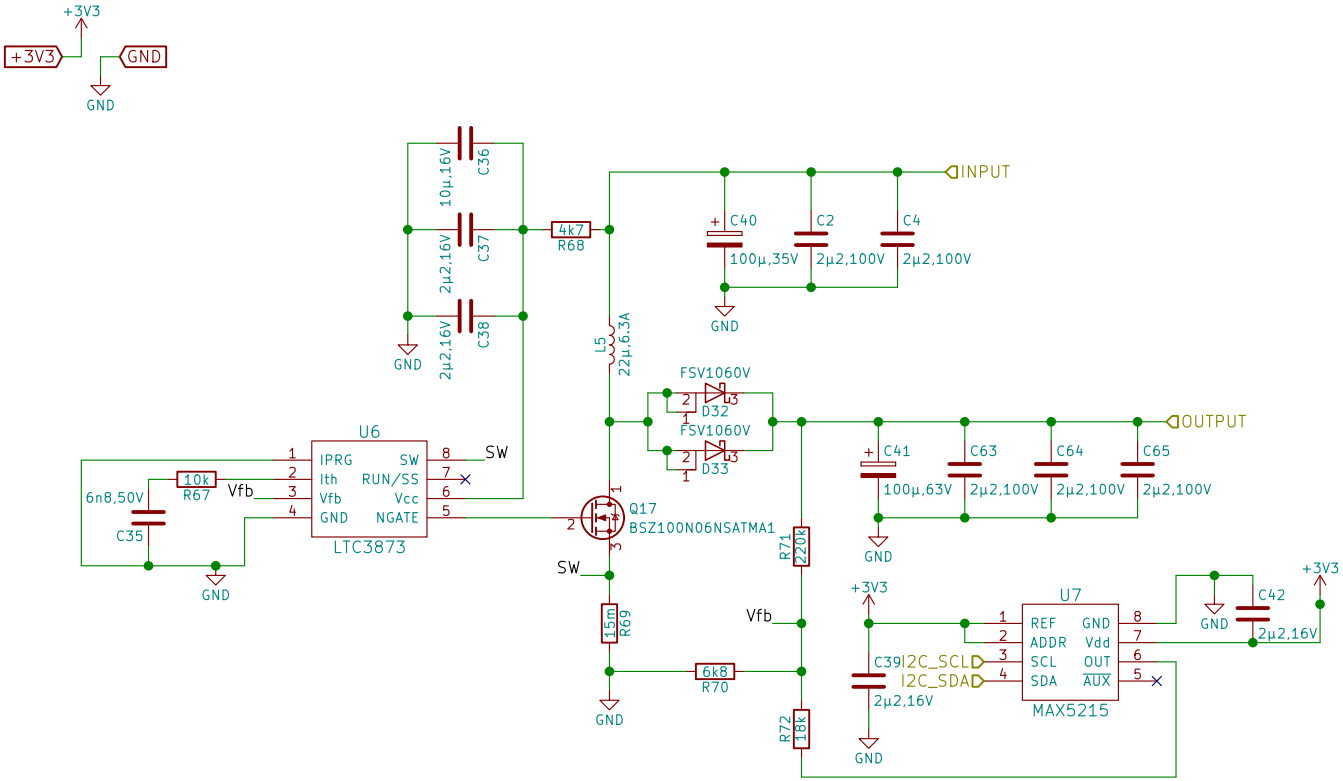
Rev: 0.1





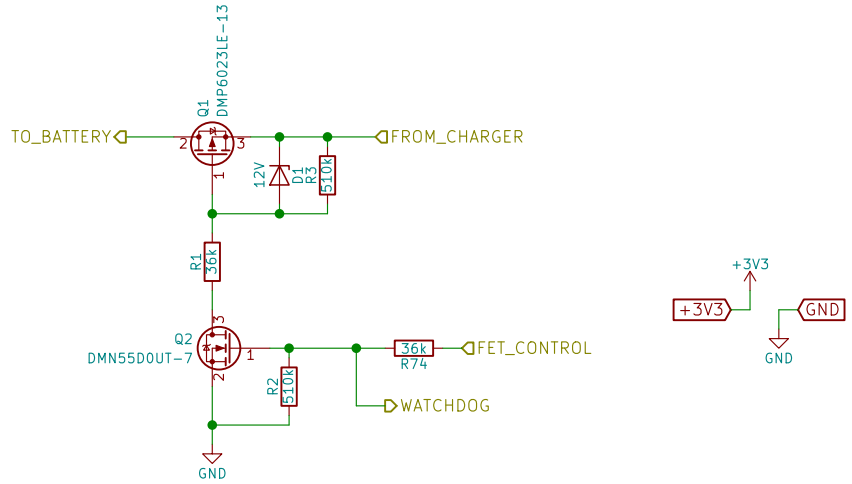
Current measuring resolution: 1mA
Max shunt current: 8A

SiMoS MCmuffin / Simo Sihvonen		
Sheet: /currentMeasuring/		
File: currentMeasuring.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 17/20



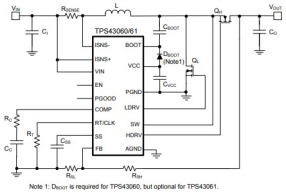
Vout = 1V2(1+220k/6k8+220/18k)-Vdac(220k/18k)
Vdac = 3V3*n/16383, 0 <= n <= 16383
Vdac = 0V -> Vout = 54V7
Vdac = 3V3 -> Vout = 14V4

SiMoS MCmuffin / Simo Sihvonen		
Sheet: /Boost-DAC/		
File: Boost-DAC.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 18/20



Sheet: /ChargeFET/		
File: ChargeFET.sch		
Title: FlexiBMS		
Size: A4	Date: 2018-02-22	**Rev: 0.1**
KiCad E.D.A. kicad 4.0.7		Id: 19/20

4 Simplified Schematic



Switching frequency: 480kHz

Vout = 1V22(1+520k/18+520k/36k)−Vdac(520k/36k)
Vdac = 3V3*n/16383, 0 <= n <= 16383
Vdac = 0V −> Vout = 54V1
Vdac = 3V3 −> Vout = 6V4

Sheet: /TPS40360/		
File: TPS40360.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 4.0.7		Id: 20/20