PANNEL

R7
R022

VIN

SWITCHNODE

L1
68uH

VOUT

R8
R016

BATTERY

BUCK_ON

Q1
N-FET

Q2
N-FET

D1

SCHOTTKYMINI2

BUCK_ON

R3
150k

Q8

VOUT_SENSE_ON

R1
110k

D3
20V

R13
0R

IC1

1 REF   OUT 6
2 GND   IN- 5
3 VCC   IN+ 4

IIN_SENSE

+ C1   C10 C11

680u 4.7u 4.7u

C12 C13 C2

10u 10u 820u

R14
0R

IC2

1 REF   OUT 6
2 GND   IN- 5
3 VCC   IN+ 4

IOUT_SENSE

VOUT_SENSE

VIN_SENSE

C9
100n

10k

C3
100n

INA213LONG

R5
33

33
R6

C4
100n

INA213LONG

R4
10k

C8
100n

GNDGND   GNDGNDGND   GND   GND   GND   GND   GNDGND   GNDGND

+12V

R36
100k

P-FET
Q5

BUCK_SUPPLY

SCHOTTKYSOD323

C6
100n

D2

IC4

1 VDD   LO 8
2 HB   GND 7
3 HO   LI 6
4 HS   HI 5

LI
HI

BUCK_ON

Q4

C7 C5
1u 100n

MIC4605

GND   GNDGND   GND

BATTERY

Battery
X1-1
X1-2

GND

PANNEL

Pannel
X2-1
X2-2

GND

+12V

IC9

1 VIN   VOUT 8
2 GND   SW 7
3 EN   PG 6
4 SGND FB 5

100k
R27

18u
L2

+3V3

PWR_GOOD

C18   C14
100n 10u

TPS62120

250k
R11

VCC_HIGH

Q3

R9
390k

C17
22p

R10
250k

C15 C16
10u 10u

GND   GND   GND   GND   GND   GND   GNDGND

SolarCharger_Rev2

07.07.2015 20:23

Sheet: 1/5
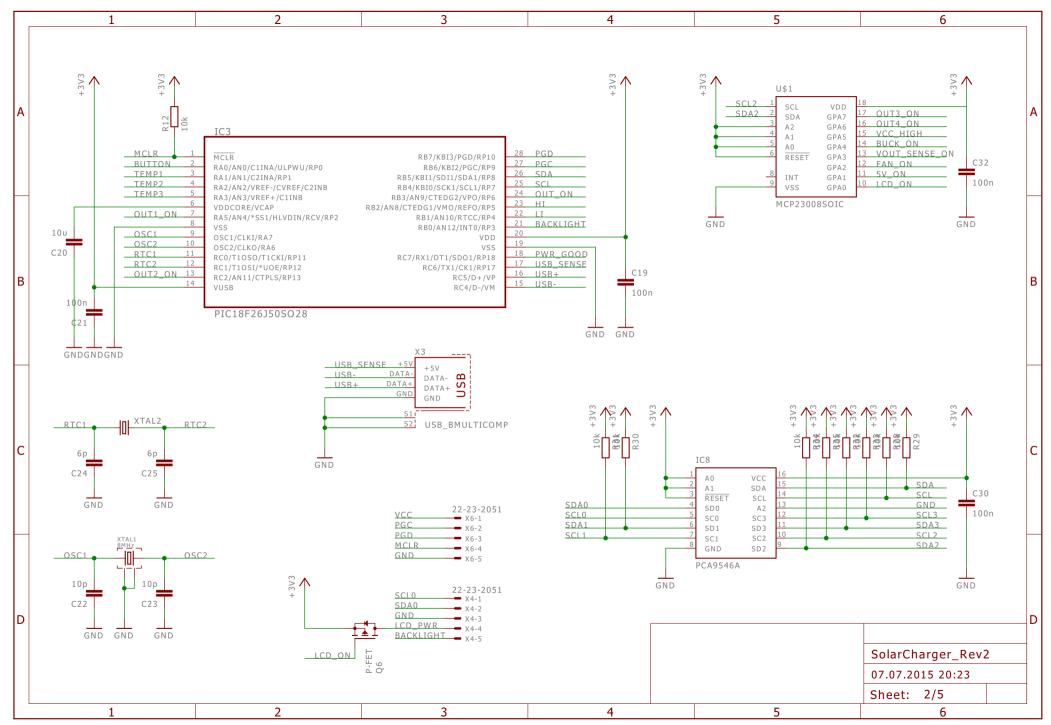
07.07.2015 20:24 f=1.04 Z:\My Documents\EmbeddedSystems\eagle\SolarCharger\SolarCharger_Rev2.sch (Sheet: 1/5)
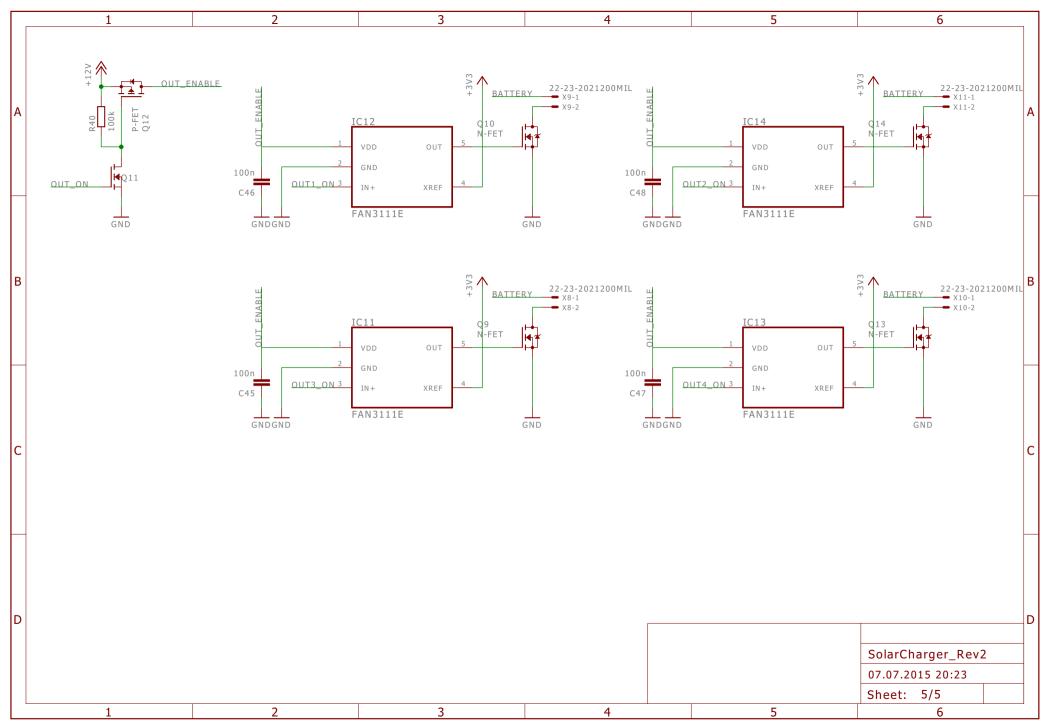
IC3 — PIC18F26J50SO28

Pin	Left Label		Right Label	Pin
1	MCLR		RB7/KBI3/PGD/RP10	28	PGD
2	RA0/AN0/C1INA/ULPWU/RP0 (BUTTON)		RB6/KBI2/PGC/RP9	27	PGC
3	RA1/AN1/C2INA/RP1 (TEMP1)		RB5/KBI1/SDI1/SDA1/RP8	26	SDA
4	RA2/AN2/VREF-/CVREF/C2INB (TEMP2)		RB4/KBI0/SCK1/SCL1/RP7	25	SCL
5	RA3/AN3/VREF+/C1INB (TEMP3)		RB3/AN9/CTEDG2/VPO/RP6	24	OUT_ON
6	VDDCORE/VCAP		RB2/AN8/CTEDG1/VMO/REFO/RP5	23	HI
7	RA5/AN4/*SS1/HLVDIN/RCV/RP2 (OUT1_ON)		RB1/AN10/RTCC/RP4	22	LI
8	VSS		RB0/AN12/INT0/RP3	21	BACKLIGHT
9	OSC1/CLKI/RA7		VDD	20	
10	OSC2/CLKO/RA6		VSS	19	
11	RC0/T1OSO/T1CKI/RP11 (RTC1)		RC7/RX1/DT1/SDO1/RP18	18	PWR_GOOD
12	RC1/T1OSI/*UOE/RP12 (RTC2)		RC6/TX1/CK1/RP17	17	USB_SENSE
13	RC2/AN11/CTPLS/RP13 (OUT2_ON)		RC5/D+/VP	16	USB+
14	VUSB		RC4/D-/VM	15	USB-

+3V3
R12 10k
MCLR
C20 10u
C21 100n
GND GND GND

C19 100n
GND GND

U$1 — MCP23008SOIC

Pin	Left		Right	Pin
1	SCL (SCL2)		VDD	18
2	SDA (SDA2)		GPA7	17 OUT3_ON
3	A2		GPA6	16 OUT4_ON
4	A1		GPA5	15 VCC_HIGH
5	A0		GPA4	14 BUCK_ON
6	RESET		GPA3	13 VOUT_SENSE_ON
			GPA2	12 FAN_ON
8	INT		GPA1	11 5V_ON
9	VSS		GPA0	10 LCD_ON

+3V3
C32 100n
GND
GND

RTC1 — XTAL2 — RTC2
C24 6p   C25 6p
GND   GND

XTAL1 8MHz
OSC1   OSC2
C22 10p   C23 10p
GND GND GND

X3 — USB BMULTICOMP
USB_SENSE +5V
USB- DATA-
USB+ DATA+
GND
S1
S2
GND

22-23-2051
VCC X6-1
PGC X6-2
PGD X6-3
MCLR X6-4
GND X6-5

+3V3
LCD_ON
P-FET Q6

22-23-2051
SCL0 X4-1
SDA0 X4-2
GND X4-3
LCD_PWR X4-4
BACKLIGHT X4-5

IC8 — PCA9546A

Pin	Left		Right	Pin
1	A0		VCC	16
2	A1		SDA	15 SDA
3	RESET		SCL	14 SCL
4	SD0 (SDA0)		A2	13 GND
5	SC0 (SCL0)		SC3	12 SCL3
6	SD1 (SDA1)		SD3	11 SDA3
7	SC1 (SCL1)		SC2	10 SCL2
8	GND		SD2	9 SDA2

+3V3 10k R30 R30
+3V3 10k R34 R35 R32 R33 R31 R34 R29
C30 100n
GND
GND

SolarCharger_Rev2
07.07.2015 20:23
Sheet: 2/5

BATTERY

C34 100n

18u L3

+5V

IC10
BOOT 1 | 8 PH
VIN 2 | 7 GND
EN 3 | 6 COMP
SS 4 | 5 VSENSE
TPS54231

5V_ON

D5 SCHOTTKYMIN2

C36 10u C37 10u C38 10u C39 10u

R37 10k

R38 2k

C40 10u C30 100n C41 10u

C42 15n

C43 47p

1.8n C44

R39 22k

GND

IC15
GND1 1 | 5 VIN1 BUCK_ON
GND2 2 |
OUT 3 | 4 VIN2
LMT86

TEMP1

C49 100n

GND

22-23-2031
BUCK_ON — X12-1
TEMP2 — X12-2
— X12-3
GND

22-23-2031
BUCK_ON — X13-1
TEMP3 — X13-2
— X13-3
GND

+5V +5V +5V

R50 43k R49 75k

R46 TBD

D1- X15
D1+
USB

R47 51k R48 51k

USB_A

GND GND GND

+5V +5V +5V

R45 68k R44 68k

R41 TBD

D2- X14
D2+
USB

R42 25k R43 25k

USB_A

GND GND GND

SolarCharger_Rev2

07.07.2015 20:23

Sheet: 4/5

07.07.2015 20:24 f=1.04 Z:\My Documents\EmbeddedSystems\eagle\SolarCharger\SolarCharger_Rev2.sch (Sheet: 4/5)