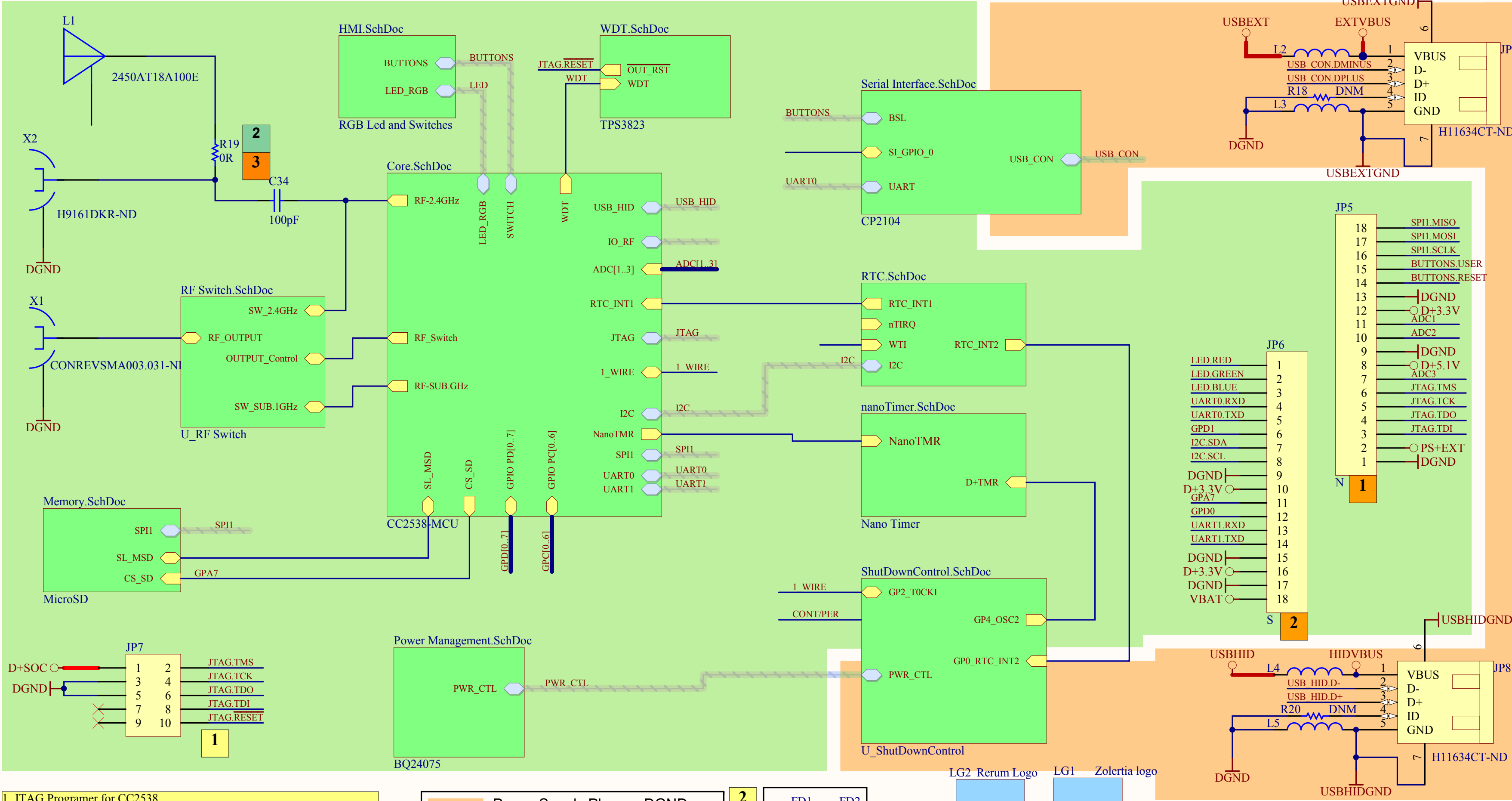


A

B

C

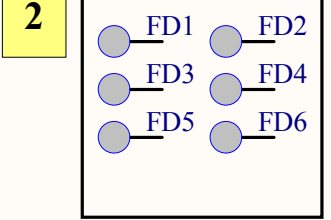
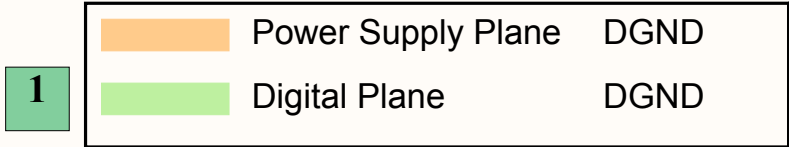
D



1. JTAG Programmer for CC2538  
2. Fiducials. 3 to Top and 3 to Bottom

1. Noth Port  
2. South Port  
3. Added resistor for optional external/internal antenna using.

1. Ground planes are showed in different colours  
2. Depend the width of track impedance, change format resistor



Project Name	RE-Mote	Sheet	1
Title	Main	Version	Rev.A
Author	AMejias JSanchez TLozano	Date	08/07/2015
Comments			



A

B

C

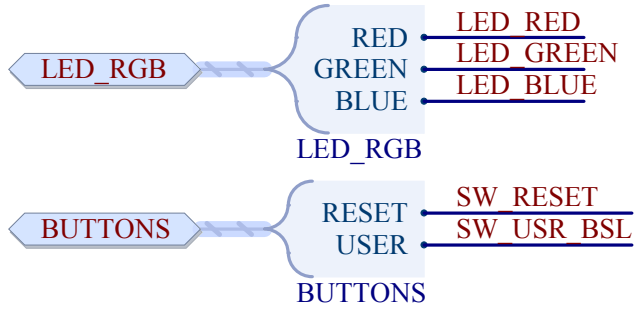
D

A

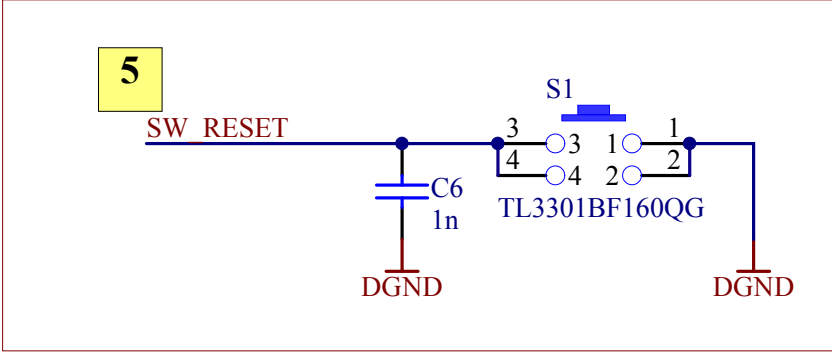
B

C

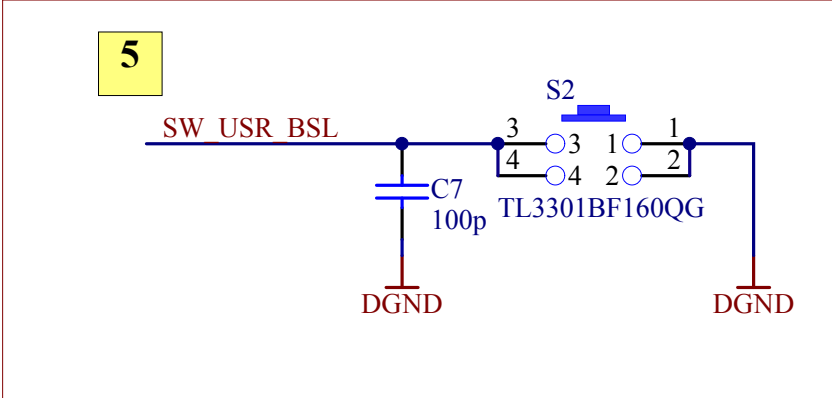
D



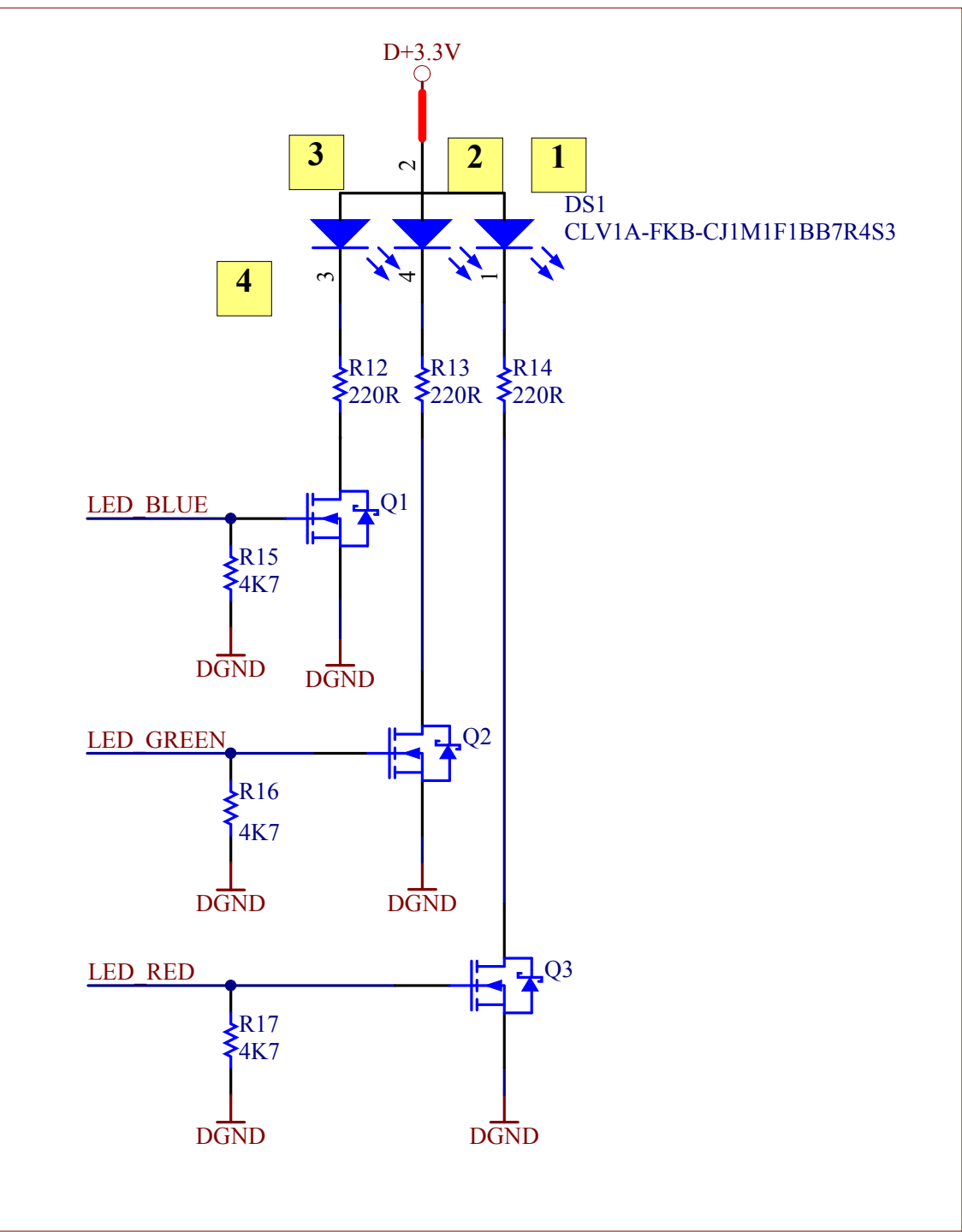
Reset Button



User Buttons



RGB Led



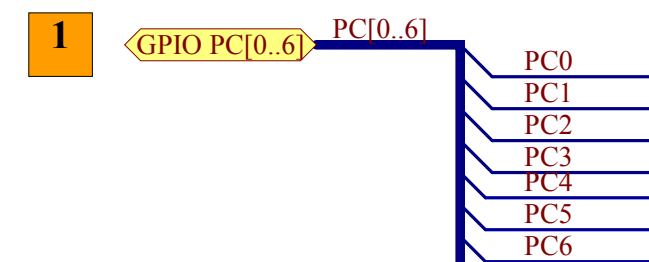
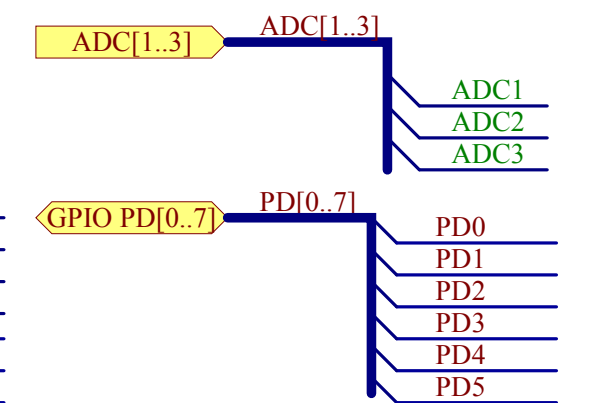
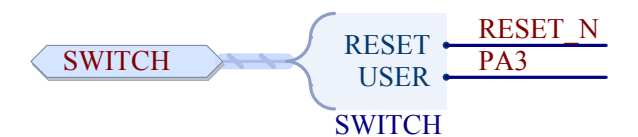
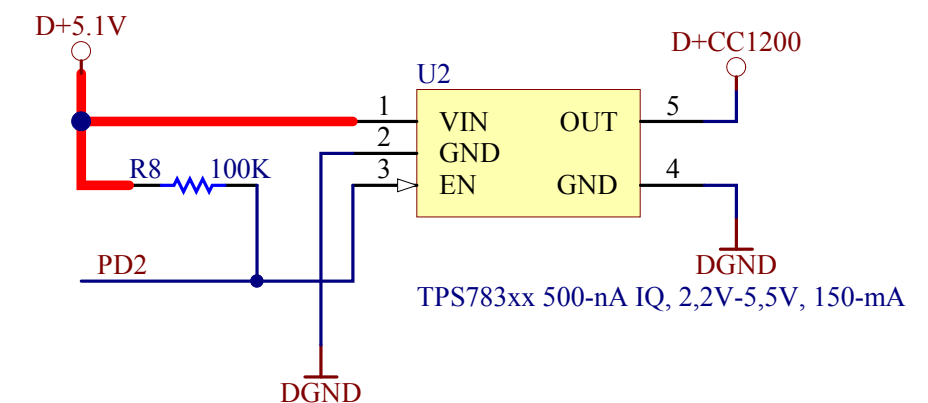
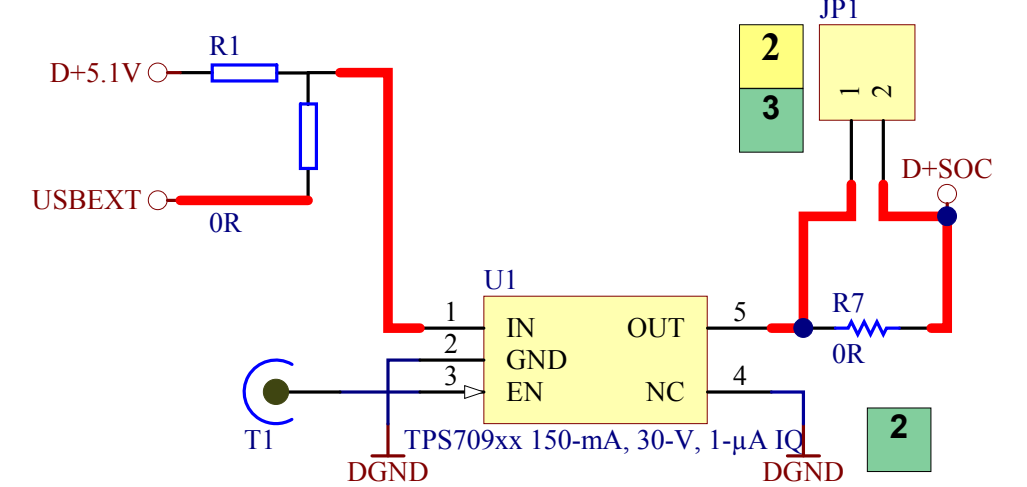
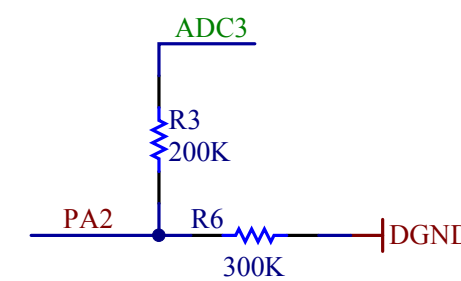
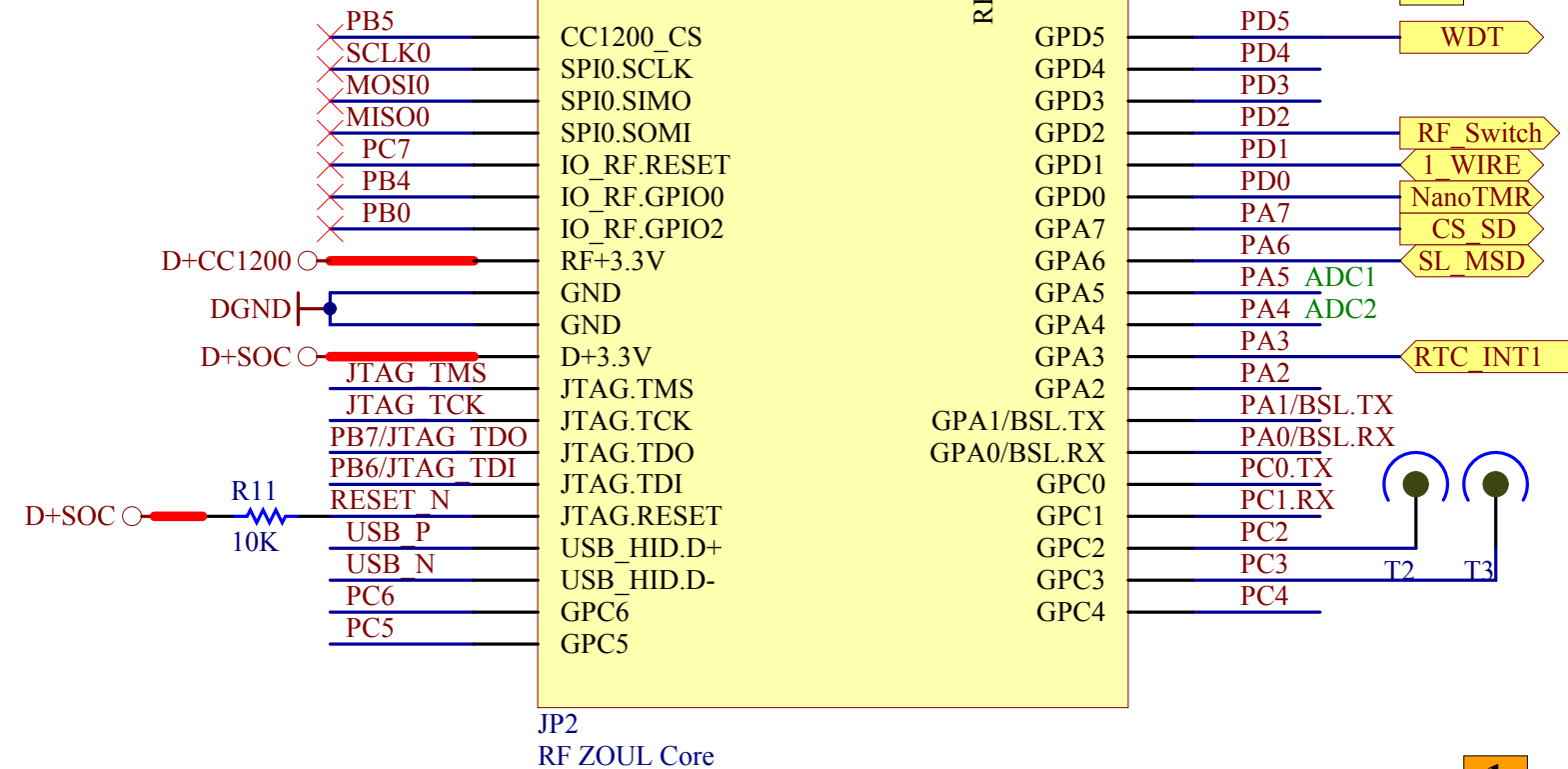
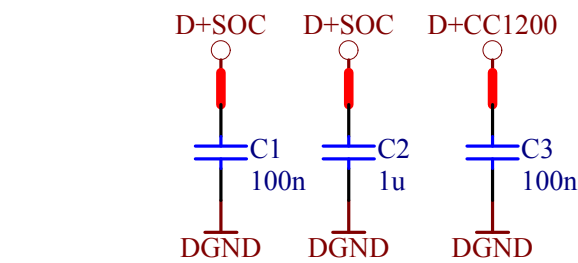
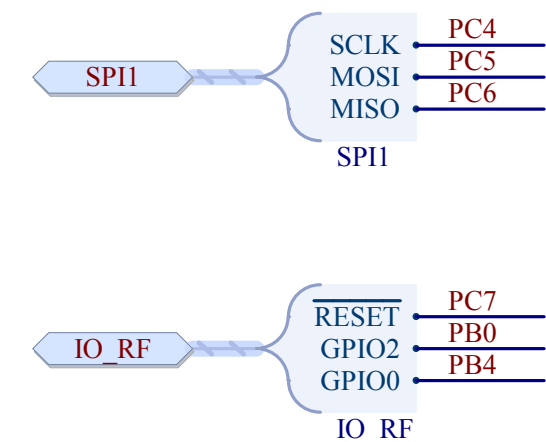
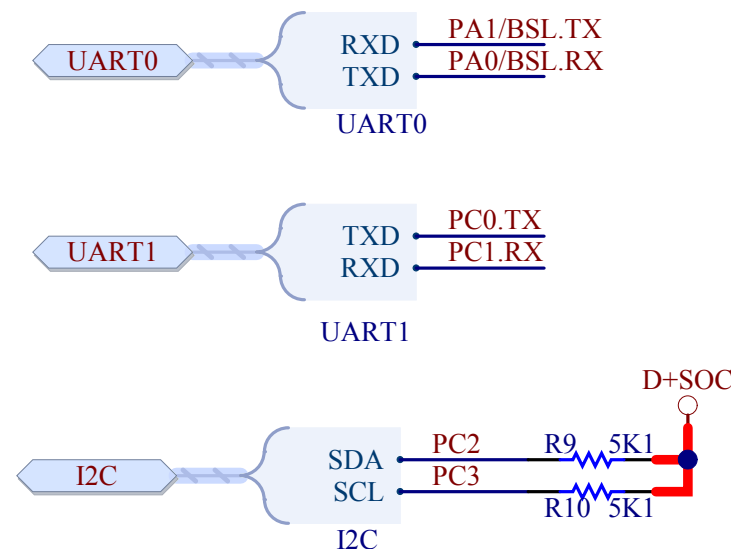
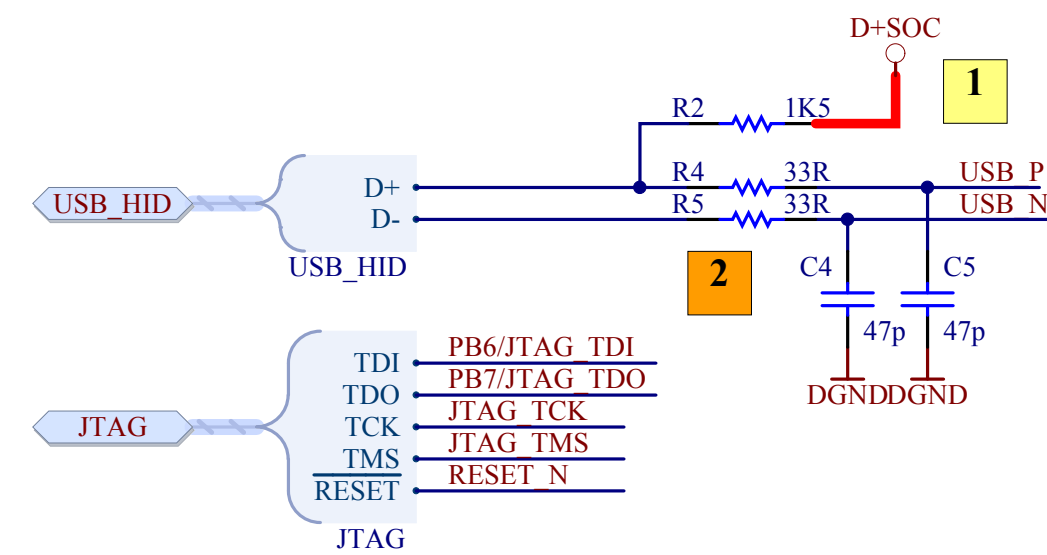
- 1. Red Led
- 2. Green Led
- 3. Blue Led
- 4. Common Anode
- 5. Pull up in other sheet

1.

1.

Project Name	RE-Mote	Sheet	2
Title	HMI	Version	Rev.A
Author	Javier Sanchez	Date	25/05/2015
Comments			





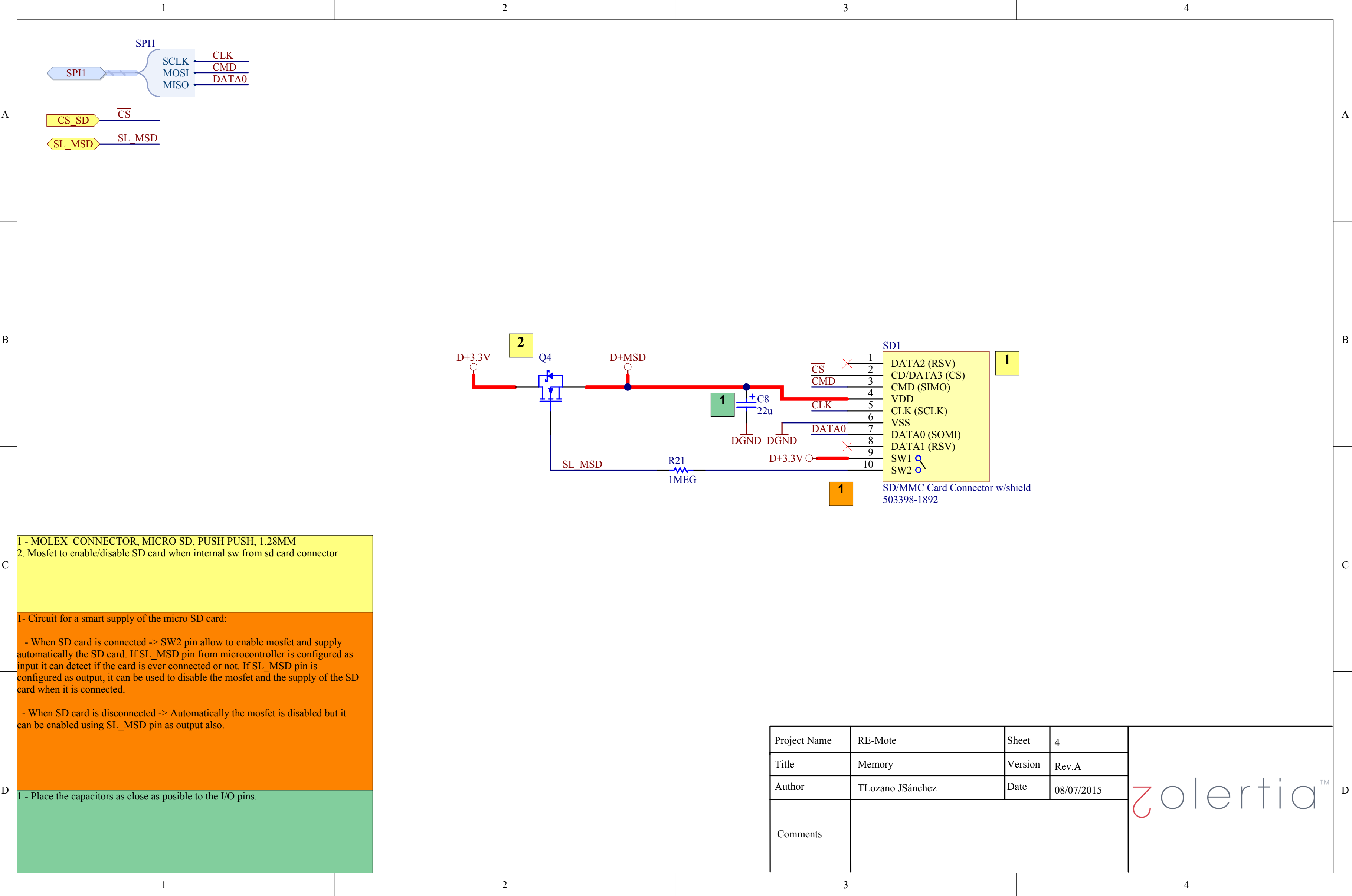
1. External pull up resistor enables USB only as 2.0 protocol.
2. Jumper to measure SOC consumption
3. If WDT is mounted, are necessary remove mosfet to control RED led

1. DVDD\_USB voltage limit is 3.3v
2. Low-Pass Filter

1. Place capacitors close to Core
2. Pin 4 ( NC) better connect to GND to avoid noise , because cap can go more closer
3. Place jumper closer to R9

Project Name	RE-Mote	Sheet	3
Title	MCU	Version	Rev.A
Author	AMejias JSanchez	Date	08/07/2015
Comments			

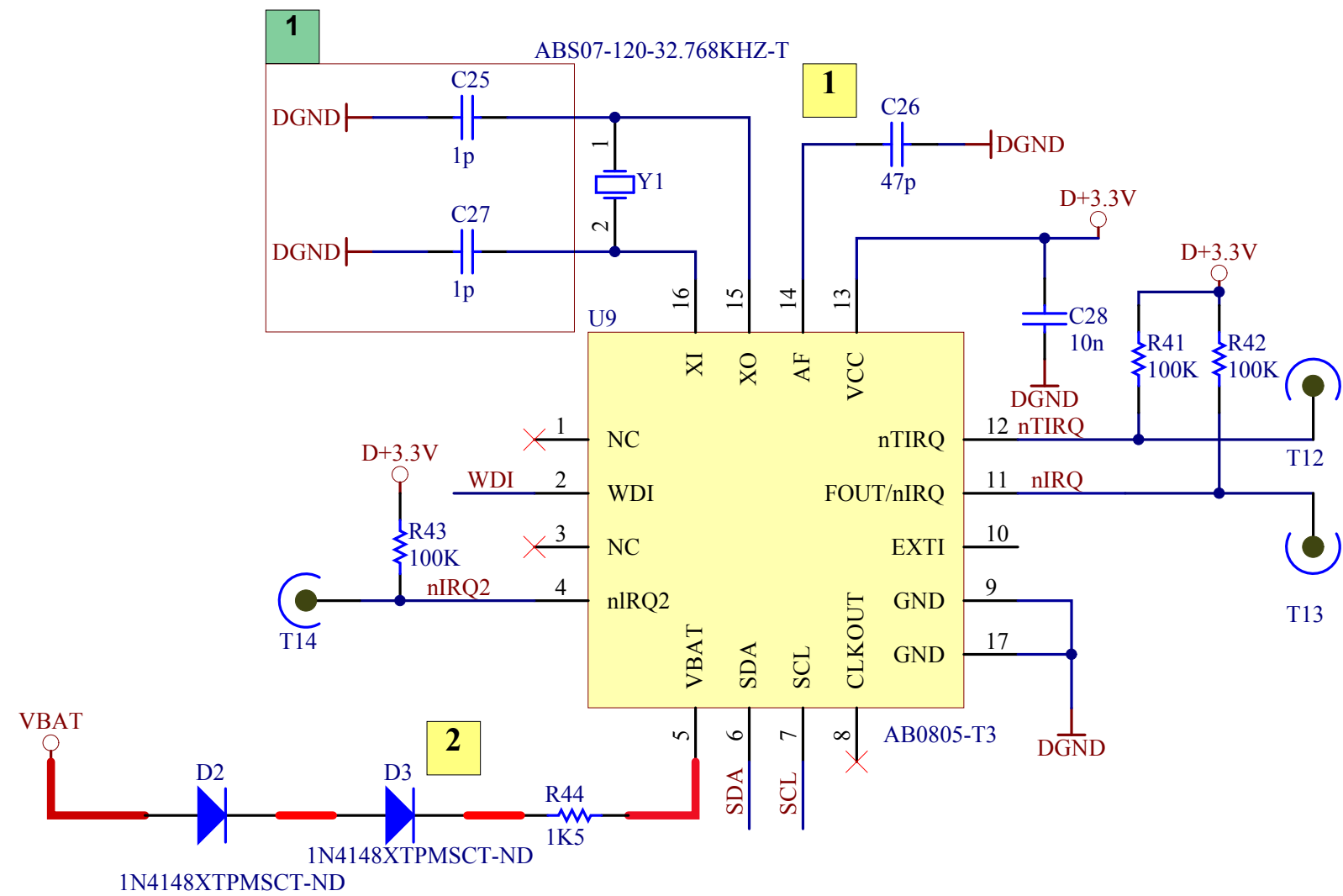
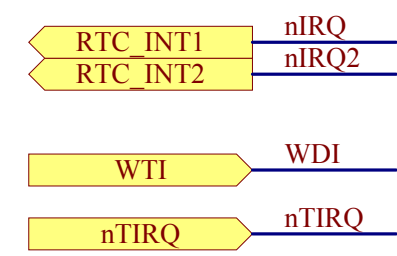
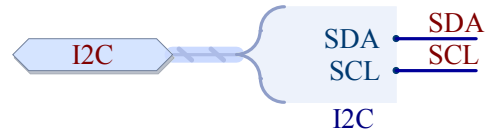
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- 1 - These inductor/ferrites are be placed in the middle of her planes as possible.
- 2 - Do not mount if smart ON system is not necessary. If it is, do not mount R54 (100K) pull down resistor.
- 3 - Place the capacitors as close as possible to the I/O pins.
- 4 - The power pad from the battery charger package should be connected directly to the Vss pin.
- 5 - Pin 4 (NC) better connect to GND to avoid noise, because cap can go closer
- 6 - GND conected to big GND plane to power disipation

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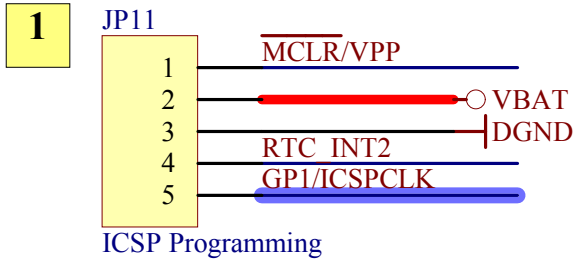
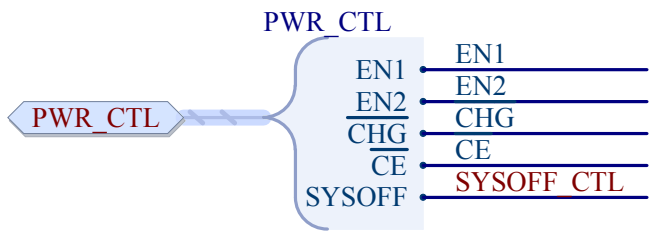


- 1- Required to autocalibration mode  
2- Added 2 diodes to rest 1.1V at input.
1.
1. Optinal mounted

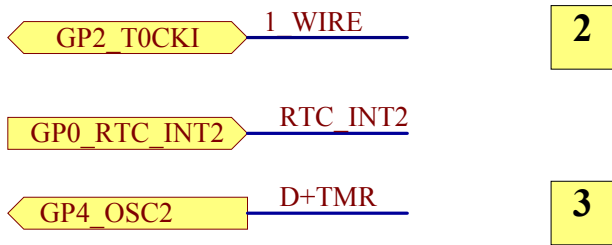
Project Name	RE-Mote	Sheet	6
Title	RTC	Version	Rev.A
Author	Javi Sanchez	Date	27/05/2015
Comments			



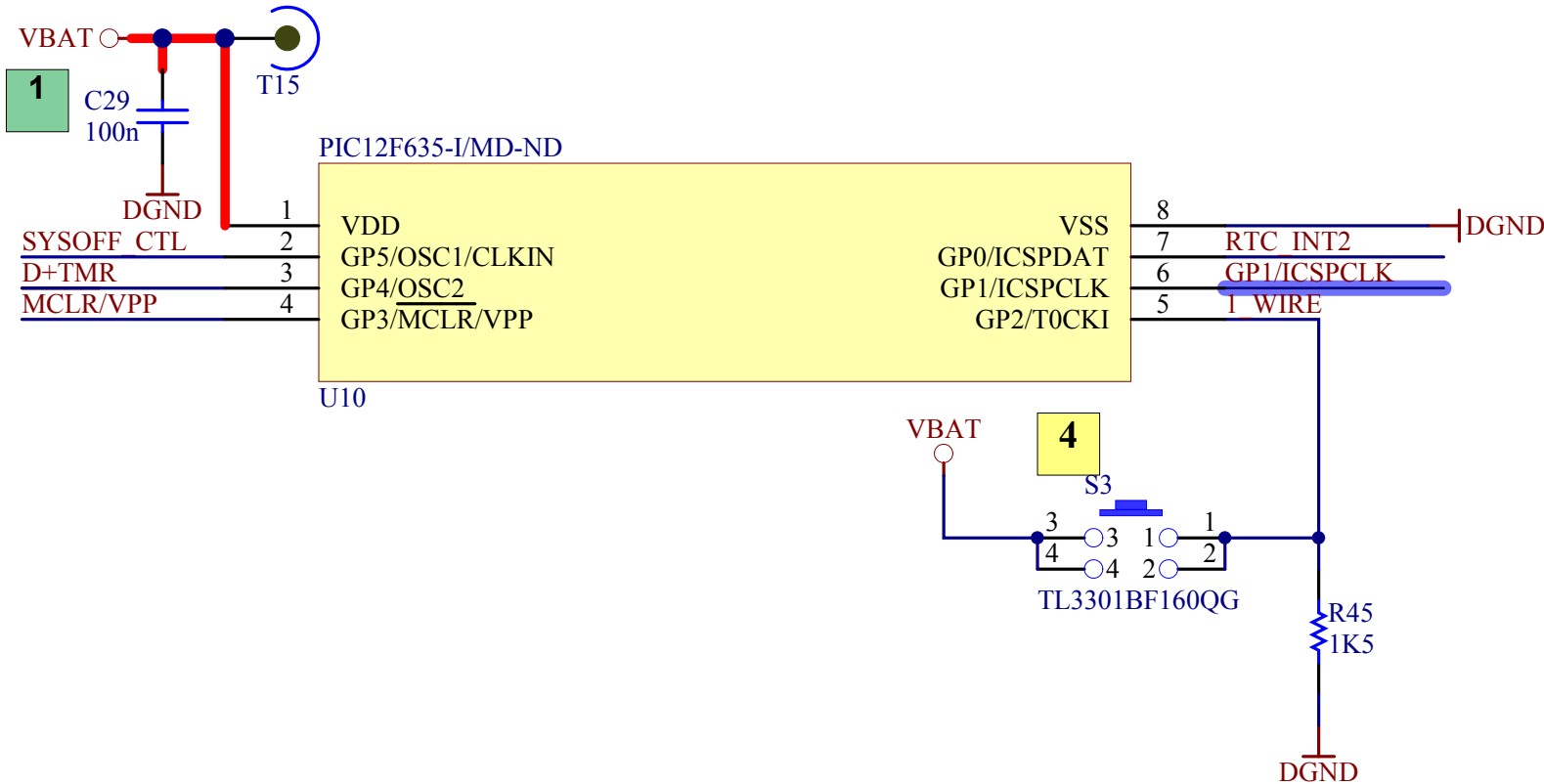
A



B



C



D

1. Programming connector

2. 1 Wire communication with the PIC

3. Pin to TMR power supply

4. Additional pushbutton (not mounted)

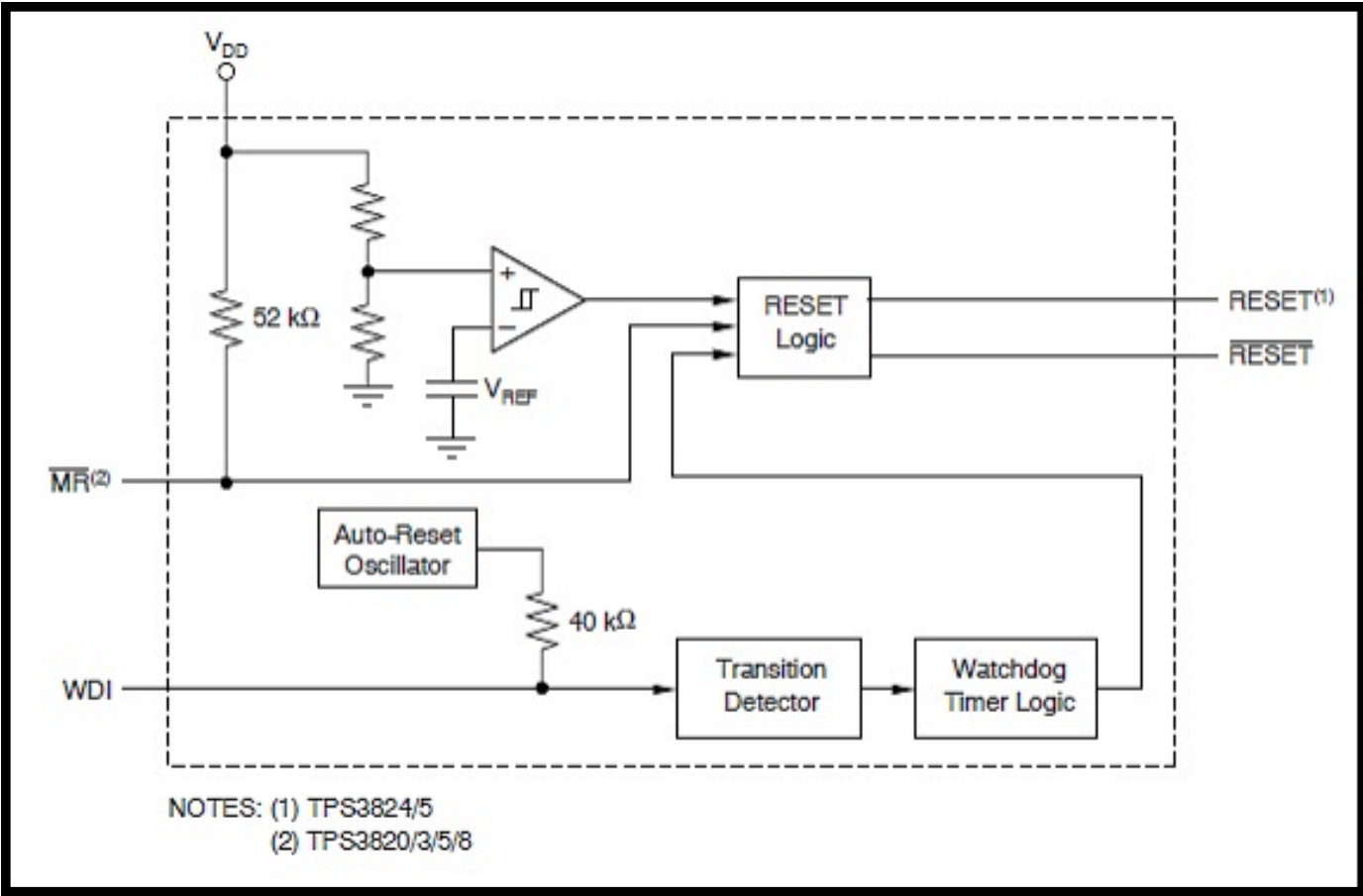
1.

1. Place capacitor close to MCU

Project Name	RE-Mote	Sheet	7
Title	ShutdownControl	Version	Rev.A
Author	Aitor Mejias	Date	27/05/2015
Comments			



A



TPS3823 Block Diagram

B

INPUTS		OUTPUTS	
MR <sup>(1)</sup>	VDD > VIT	RESET	RESET <sup>(2)</sup>
L	0	L	H
L	1	L	H
H	0	L	H
H	1	H	L

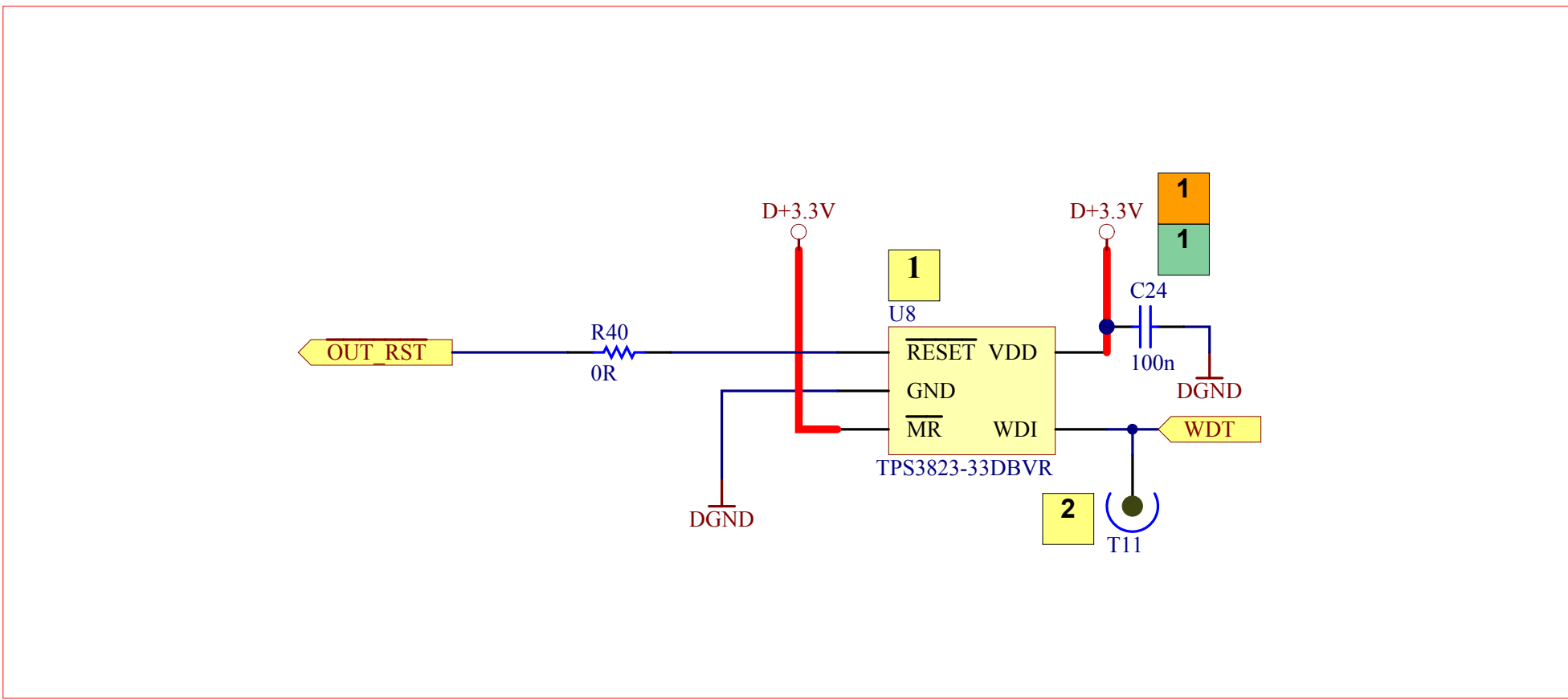
(1) TPS3820/3/5/8  
(2) TPS3824/5

TPS3823 Function/Truth Table

C

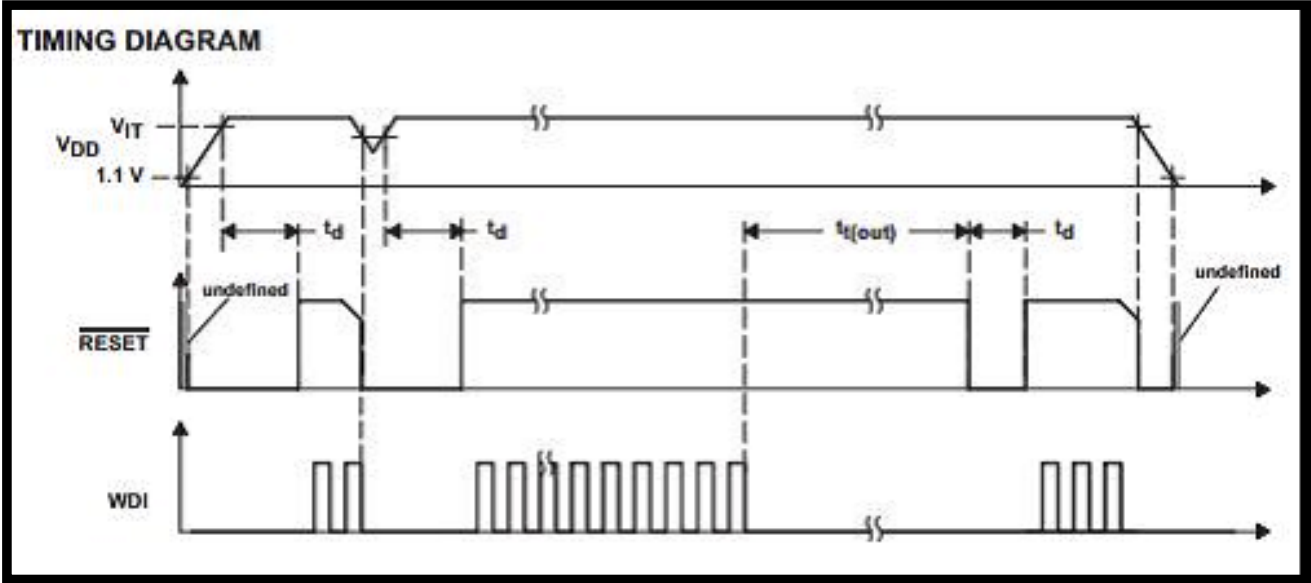
- 1 - The TPS382x family of supervisors provide circuit initialization and timing supervision, primarily for DSP and processor-based systems.
- 2 - Test points to connect logic analyzer if communication issue.
- 1 - Decoupling capacitors.
- 1 - Put capacitor as close as possible to IC.  
2 - Circuit not mounted for first revision.

A



2

B



C

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
t <sub>tout</sub>	Watchdog time out	TPS3820	112	200	310	ms
		TPS3823/4/8	0.9	1.6	2.5	s
t <sub>d</sub>	Delay time	TPS3820	15	25	37	ms
		TPS3823/4/5/8	120	200	300	

Project Name	RE-Mote	Sheet	8
Title	WDT	Version	Rev.A
Author	Toni Lozano	Date	08/07/2015
Comments			



D

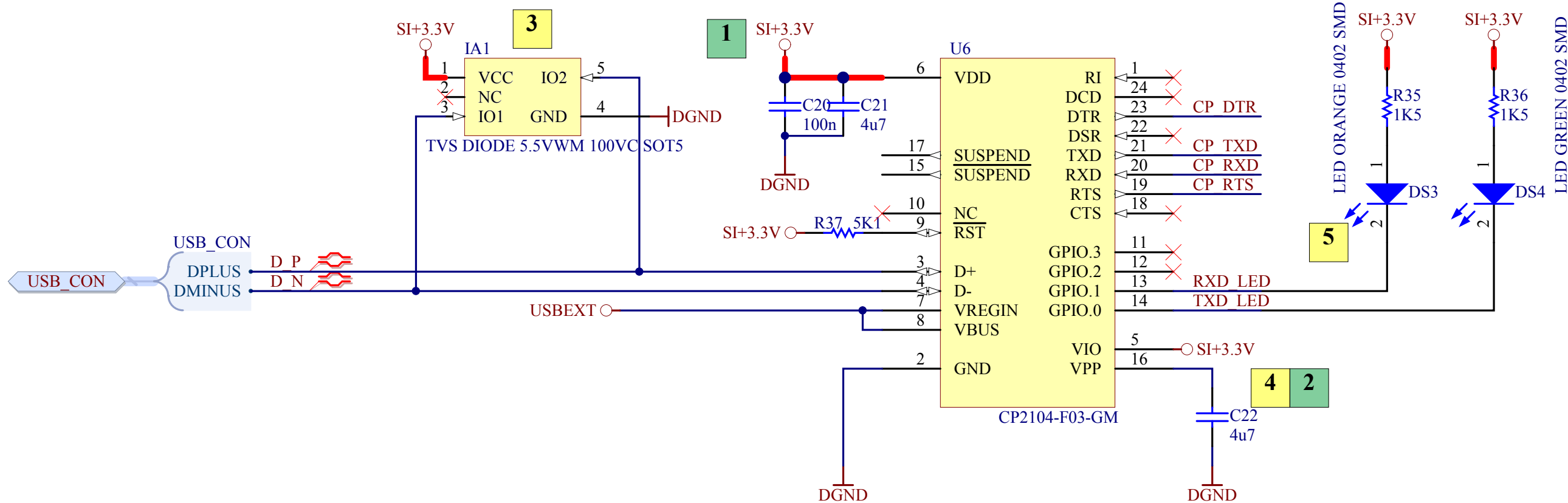
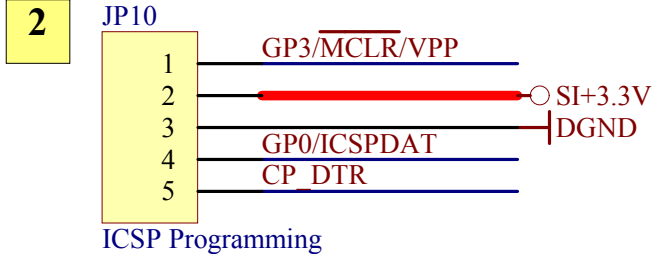
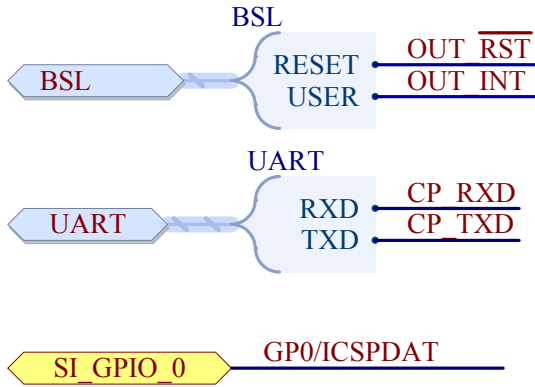


A

B

C

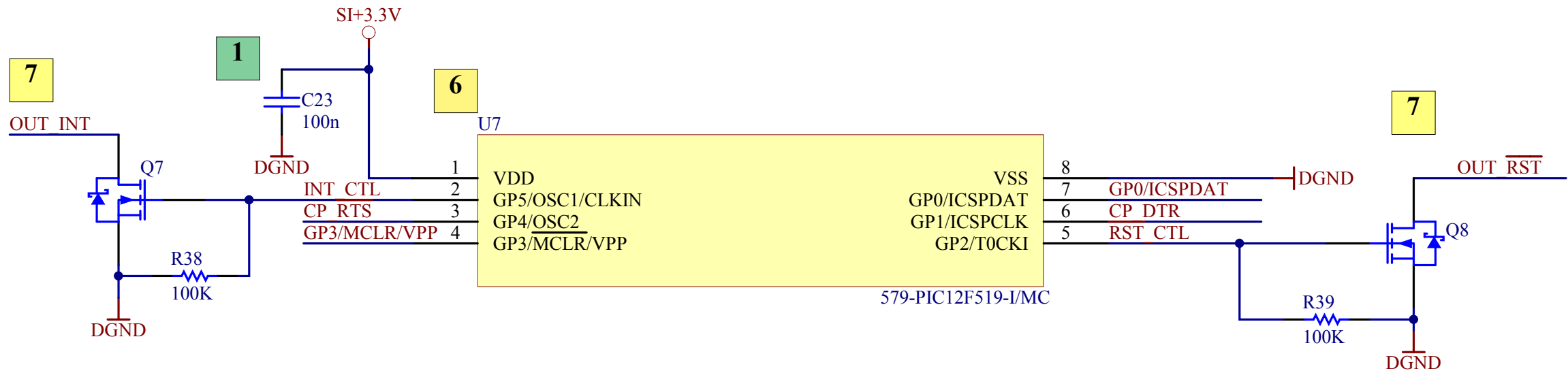
D



- 1.- Pins needed to program using BSL are: DTR (connected to A\*) and RTS (connected to reset)
  - 2.- PIC Programming connector
  - 3.- ESD-Protection for High-Speed Data Interfaces
  - 4.- Capacitor to enable que program of CP2104. Remove this to protect the writing config of the cp2104.
  - 5.- Led Bright transmission. Those leds should be used if program the cp2104.
  - 6.- PIC12F519 8-Pin, 8-Bit Flash Microcontroller
- |                             |            |
|-----------------------------|------------|
| Program Memory Type         | Flash      |
| Program Memory (KB)         | 1.5        |
| CPU Speed (MIPS)            | 2          |
| RAM Bytes                   | 41         |
| Data EEPROM (bytes)         | 64         |
| Timers                      | 1 x 8-bit  |
| Temperature Range (C)       | -40 to 125 |
| Operating Voltage Range (V) | 2 to 5.5   |
| Pin Count                   | 8          |
- 7.- Reset and Interrup controlled by FET to ensure that no parasitic current is driven to the micro.

- 1.- Ensure that we can't reach at 5V.

- 1.- Place components as close possible to source.
- 2.- Capacitor to enable the CP2104 programming parameters. Ensure that in the end of the line process extract the capacitor.



Project Name	RE-Mote	Sheet	9
Title	Serial Interface	Version	Rev.A
Author	Aitor Mejias	Date	08/07/2015
Comments			

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A

B

C

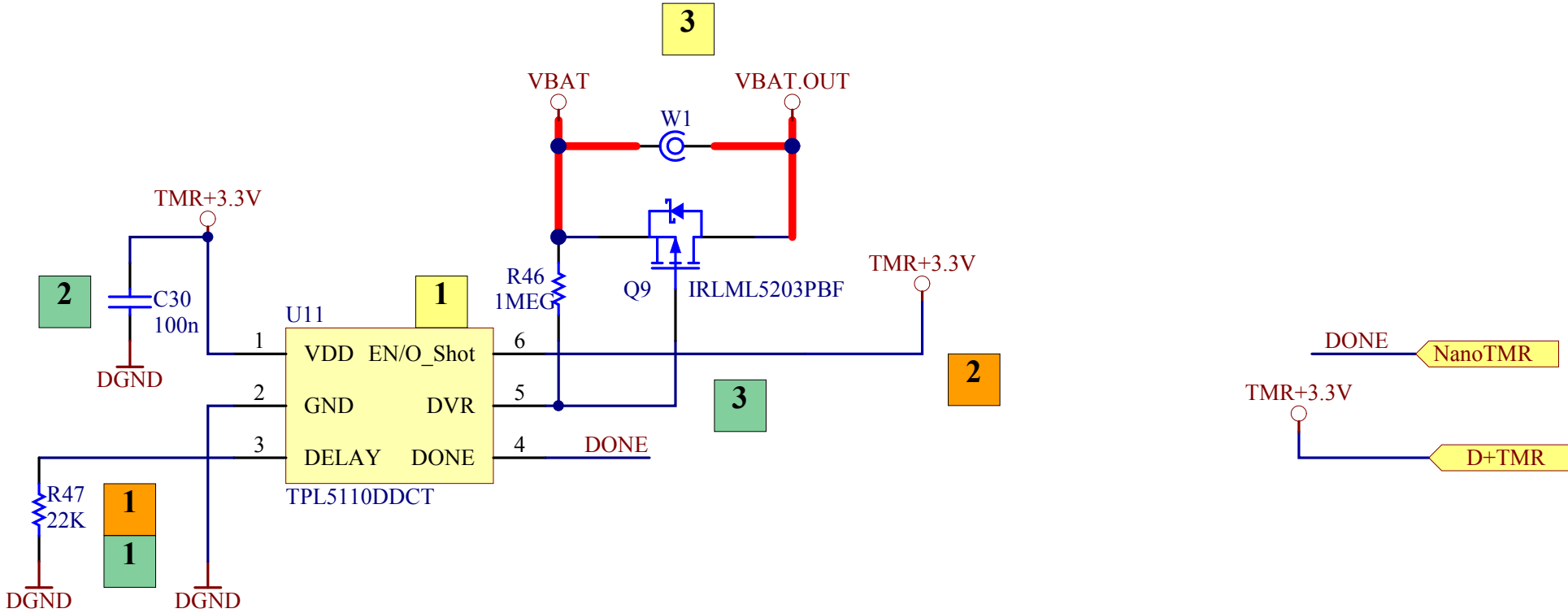
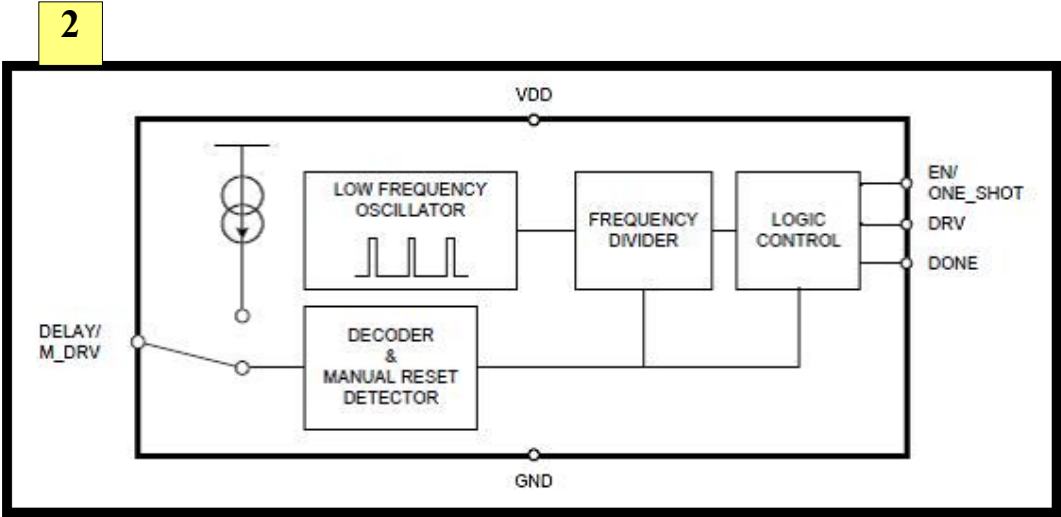
D

A

B

C

D



1 - The TPL5110 Nano Timer is a low power timer with an integrated MOSFET driver ideal for power gating in duty cycled or battery powered application. It requires a voltage supply within 1.8V and 5.5V.  
2 - Functional block diagram.  
3 - Placed a 0 Ohm resistor in order to disable the low power feature.

1 - In order to set the time interval, the external resistance REXT is selected according the following formula:

$$R_{EXT} = 100 \left( \frac{-b + \sqrt{b^2 - 4a(c - 100T)}}{2a} \right)$$

Where:  
- T is the desired time interval in seconds.  
- REXT is the resistance value to use in O.  
- a,b,c are coefficients depending on the range of the time interval.  
See also coefficients for the equation. 22k to 1 minute approximate  
2 - When EN/ONE\_SHOT = HIGH, the TPL5110 works ONE\_SHOT as a TIMER. When EN/ONE\_SHOT = LOW, the TPL5110 turns on the MOSFET one time for the programmed time interval. The next power on of the MOSFET is enabled by the manual power ON.

1 - The DELAY/M\_DRV pin is sensitive to parasitic capacitance. It is suggested that the traces connecting the resistance on this pin to GROUND be kept as short as possible to minimize parasitic capacitance. This capacitance can affect the initial set up of the time interval. Resistor 0805 to facilitate user change  
2 - Place capacitor as close as possible to de pin.  
3 - Signal integrity on the DRV pin is also improved by keeping the trace length between the TPL5110 and the gate of the MOSFET short to reduce the parasitic capacitance.

1

SET	Time Interval Range (s)	a	b	c
1	1 <T≤ 5	0.2253	-20.7654	570.5679
2	5 <T≤ 10	-0.1284	46.9861	-2651.8889
3	10 <T≤ 100	0.1972	-19.3450	692.1201
4	100 <T≤ 1000	0.2617	-56.2407	5957.7934
5	T> 1000	0.3177	-136.2571	34522.4680

Project Name	RE-Mote	Sheet	10
Title	nanoTimer	Version	Rev.A
Author	Toni Lozano	Date	02/06/2015
Comments			



A

B

C

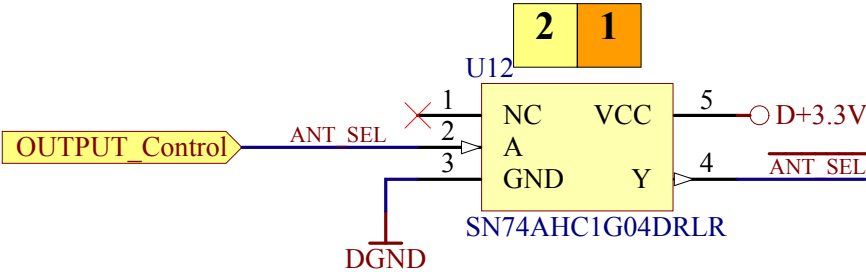
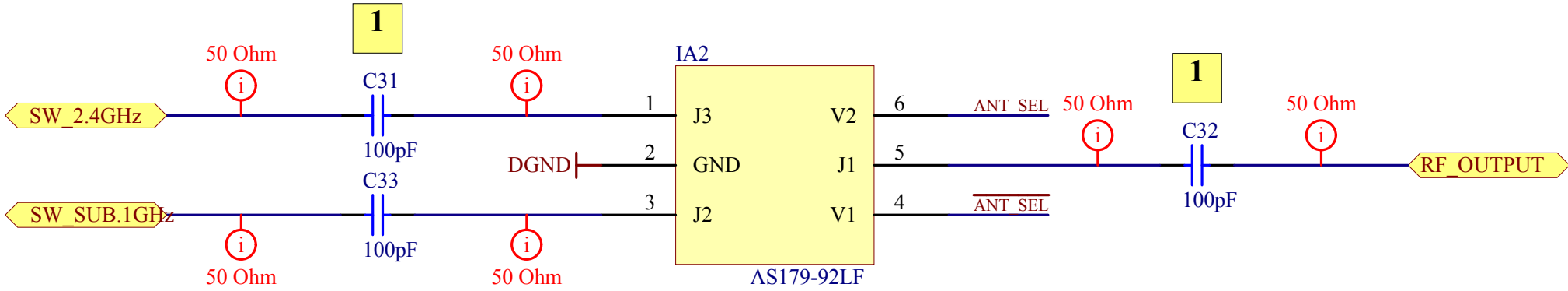
D

A

B

C

D



1

Table 4. Truth Table ( $V_{HIGH} = 2 \text{ to } 5 \text{ V}$ )			
V1	V2	J1-J2	J1-J3
$V_{HIGH}$	0	Isolation	Insertion loss
0	$V_{HIGH}$	Insertion loss	Isolation

**Note:** Any state other than described in this Table places the device in an undefined state. An undefined state does not damage the device.

1. Recommended by antenna switch manufacturer  
2. Inverter Gate for Internal/External Antenna switch

1. When ANT\_SEL is HIGH, LDO active CC1200 and Switch select J1-J2, if ANT\_SEL is LOW, CC1200 are not powered and Switch are J1-J3

1.

Project Name	RE-Mote	Sheet	11
Title	RF Switch	Version	Rev.A
Author	J Sánchez	Date	16/07/2015
Comments			

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