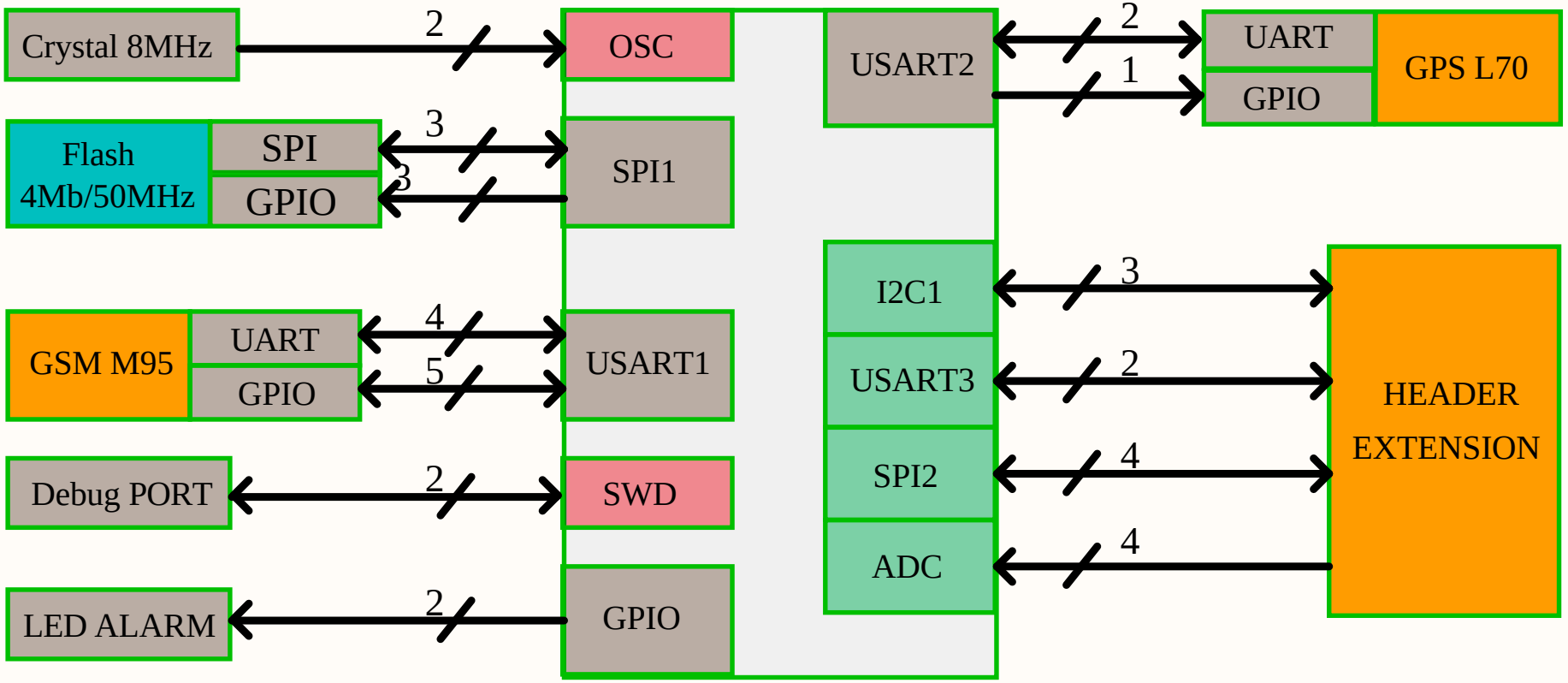
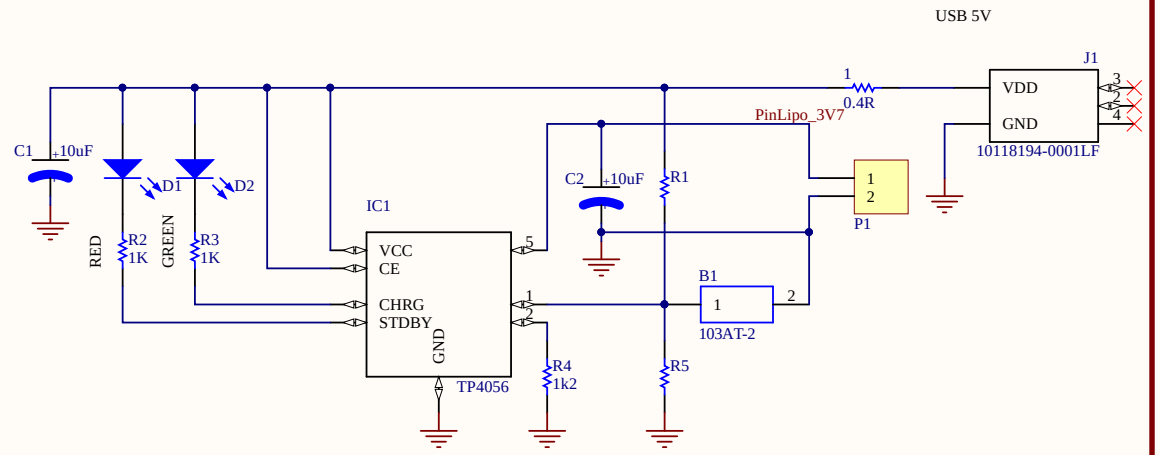
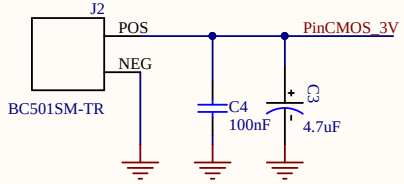


Title		
Size A4	Number	Revision
Date: 21-Nov-18	Sheet of	
File: D:\workspace\..\Page1_BlockDiagram.SchDoc	Drawn By:	

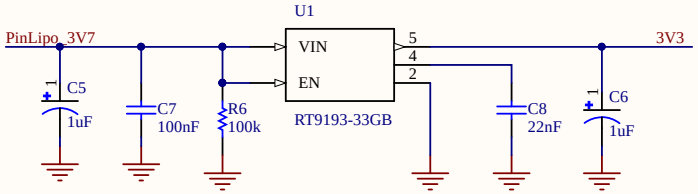


POWER SUPPLY GSM

Charge voltage: 4.2V with 1.5% accuracy
Charge current: 1000 mA
Led status: Datasheet



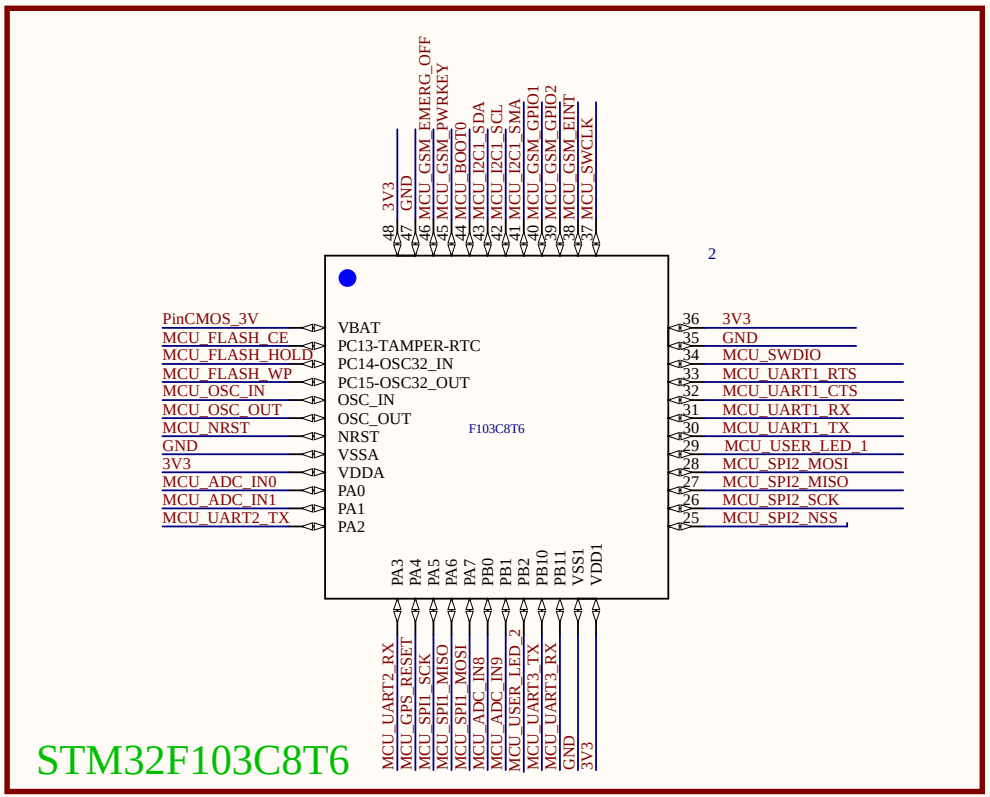
POWER SUPPLY RTC

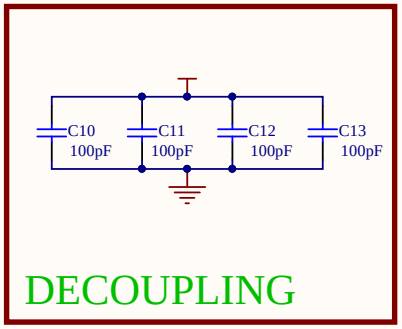


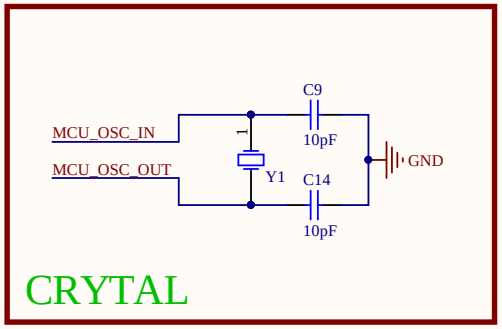
VOUT = 3V3.
Drop voltage: 220 mV.
Max current: 300 mA

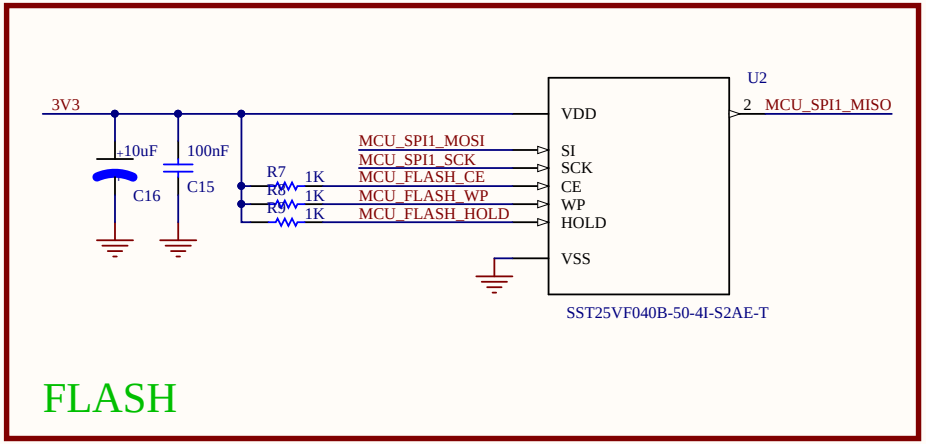
POWER SUPPLY MCU & GPS

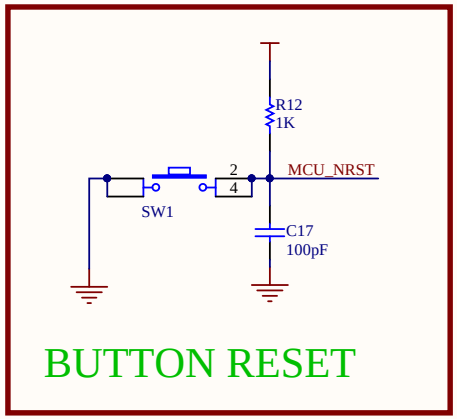
Title		
Size A4	Number	Revision
Date: 21-Nov-18		Sheet of
File: D:\workspace\..\Page2_Power.SchDoc		Drawn By:

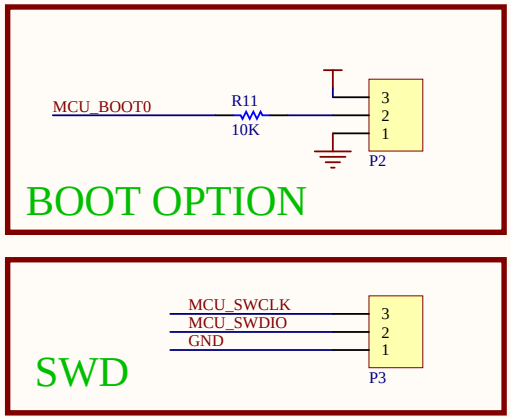


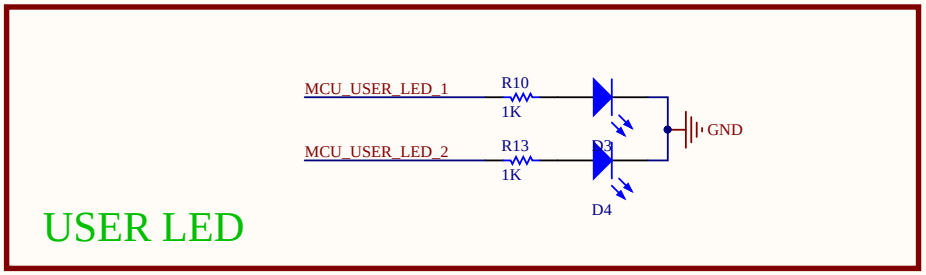






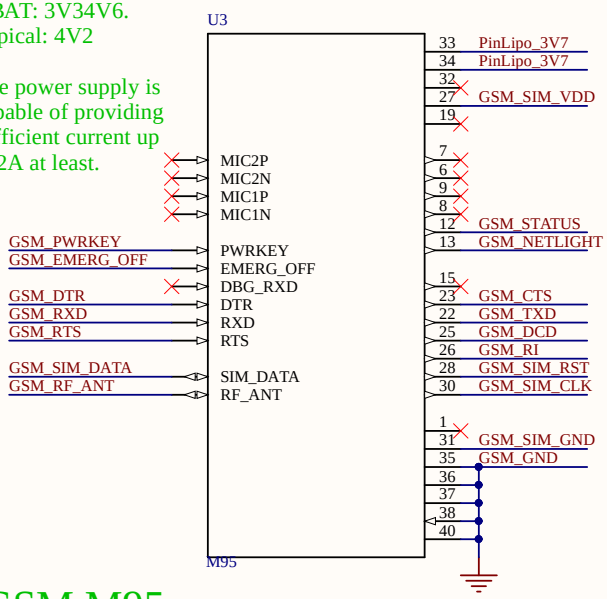




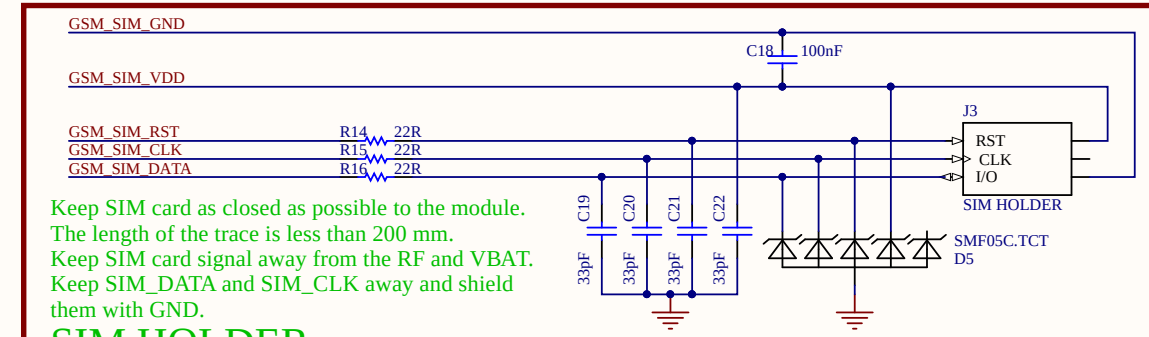


Title		
Size A4	Number	Revision
Date: 21-Nov-18		Sheet of
File: D:\workspace\..\Page3_MCU.SchDoc		Drawn By:

VBAT: 3V34V6.
Typical: 4V2
.
The power supply is capable of providing sufficient current up to 2A at least.



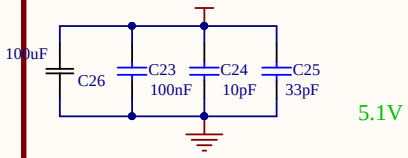
GSM M95



Keep SIM card as closed as possible to the module.
The length of the trace is less than 200 mm.
Keep SIM card signal away from the RF and VBAT.
Keep SIM_DATA and SIM_CLK away and shield them with GND.

SIM HOLDER

Diode zener makes sure stable output.

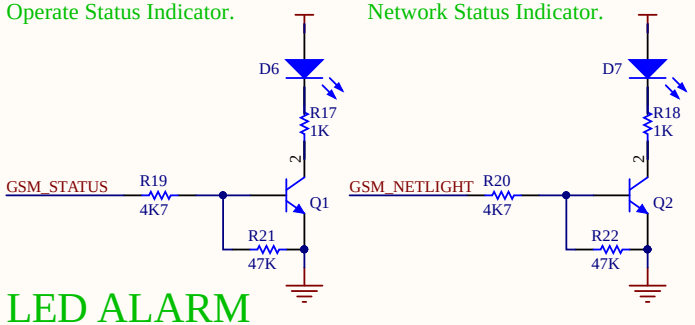


5.1V

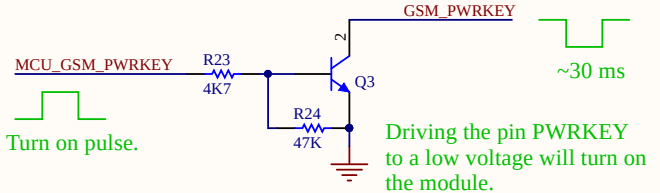
DECOUPLING

Operate Status Indicator.

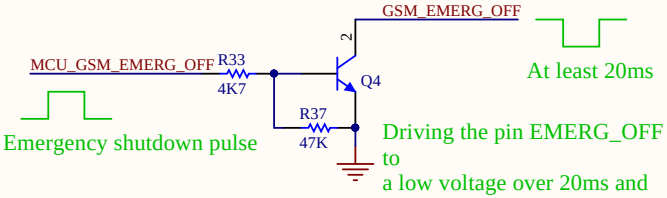
Network Status Indicator.



LED ALARM



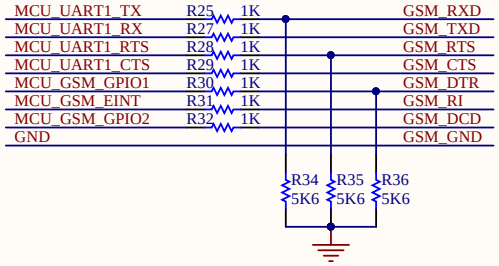
Driving the pin PWRKEY to a low voltage will turn on the module.



Driving the pin EMERG_OFF to
a low voltage over 20ms and then releasing it will

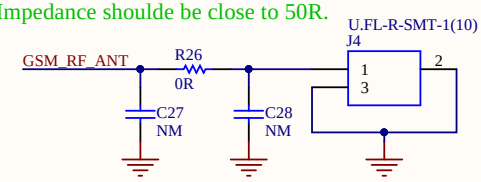
MCU CONTROL

If the host is a 3V system, change the 5.6K to 10K.



INTERFACE MCU

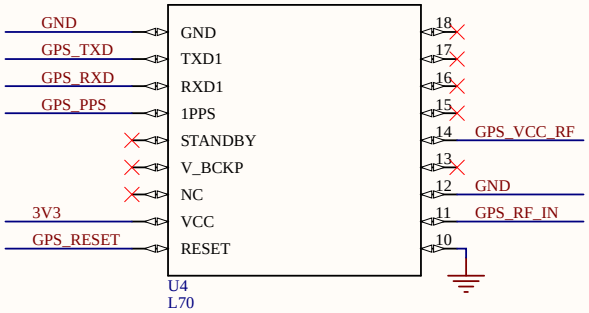
Impedance shoulde be close to 50R.



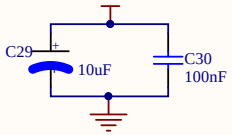
ANTENA

Title		
Size A4	Number	Revision
Date: 21-Nov-18		Sheet of
File: D:\workspace\..\Page4_GSM.SchDoc		Drawn By:

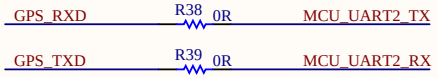
VCC: 2V84V3.
Typical: 3V3.
Typical VCC peak current may reach to 30mA during GPS acquisition after being powerd up.



GPS L70-R

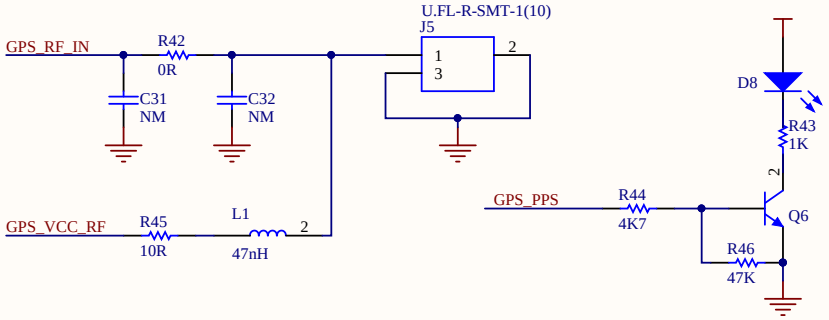


DECOUPLING

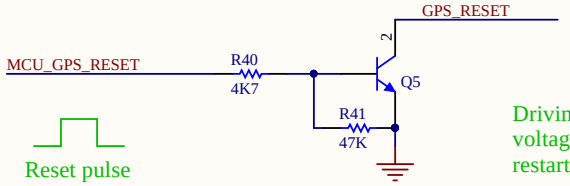


INTERFACE MCU

The impedance of RF trace line should be controlled by 50R, and the length shoule be kept as short as possible.
L1 is no less than 47nH.



ANTENA



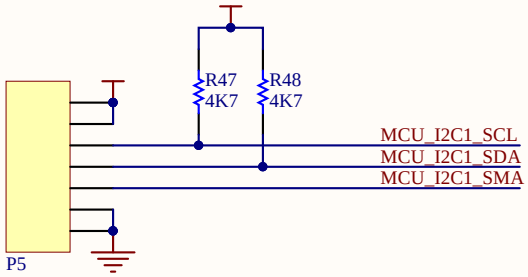
Driving the RESET to a low level voltage and then releasing it will restart the module.

The operation will reset the digital part of the GPS receiver.

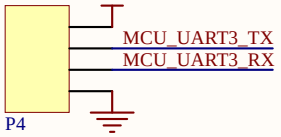
NOTE: the content in the RAM is not cleared.

MCU CONTROL

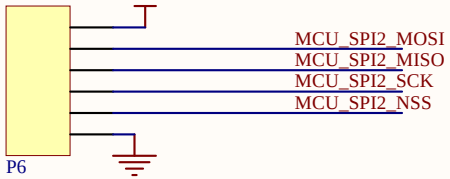
Title		
Size: A4	Number	Revision
Date: 21-Nov-18		Sheet of
File: D:\workspace\..\Page5_GPS.SchDoc		Drawn By:



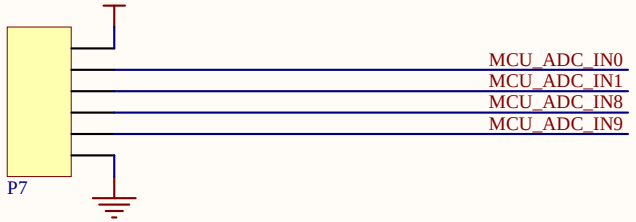
I2C COMMUNICATION



UART COMMUNICATION

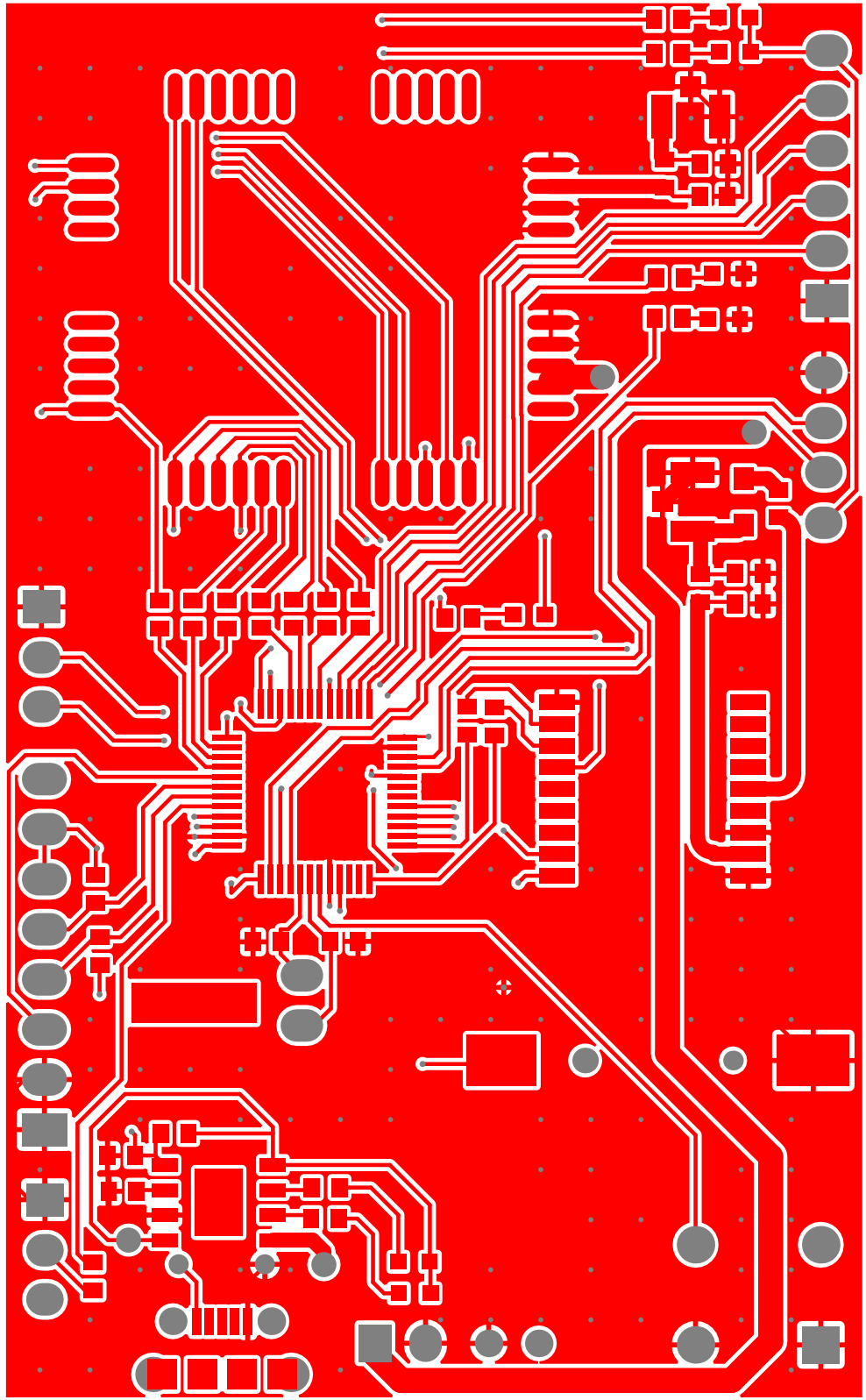


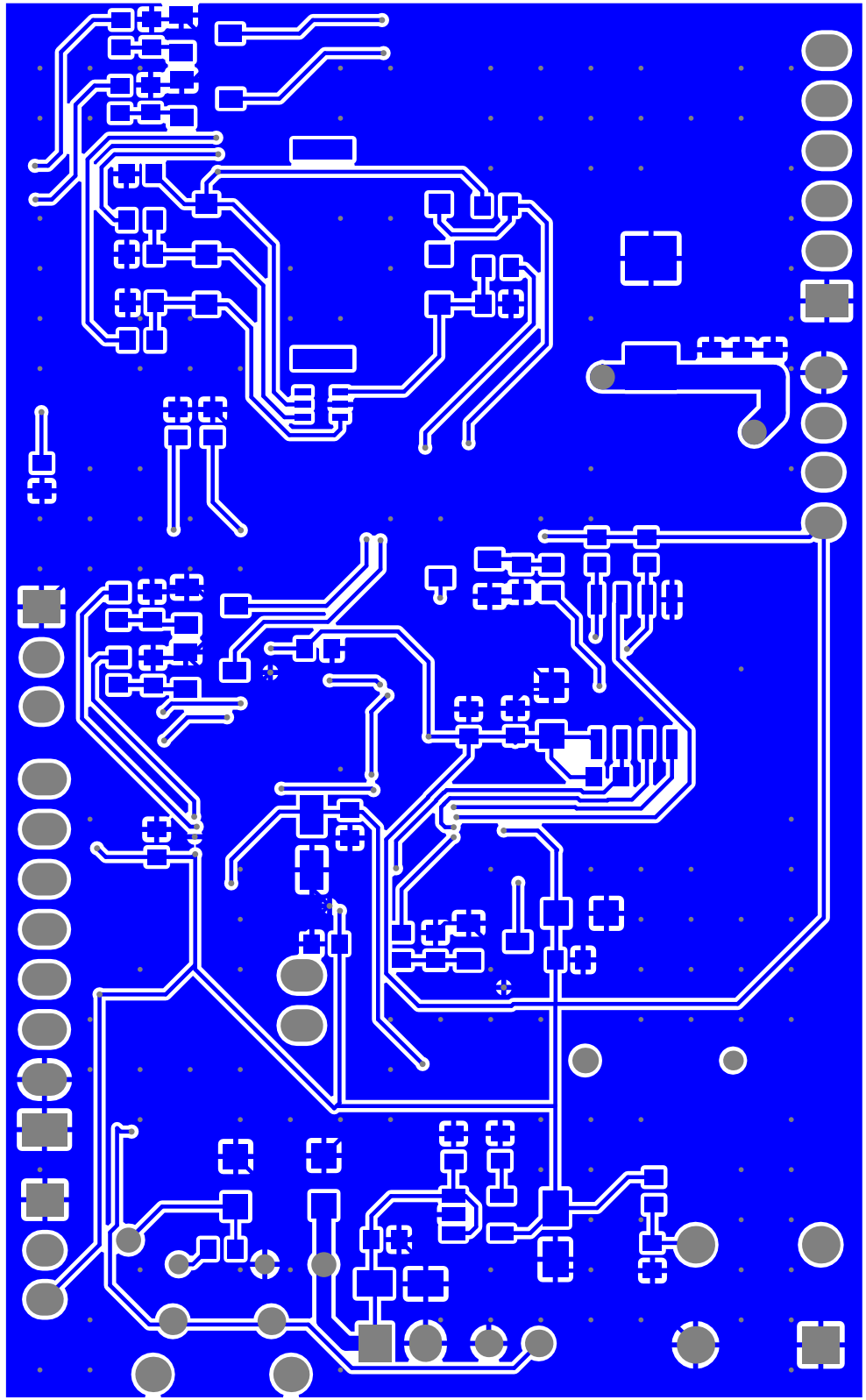
SPI COMMUNICATION



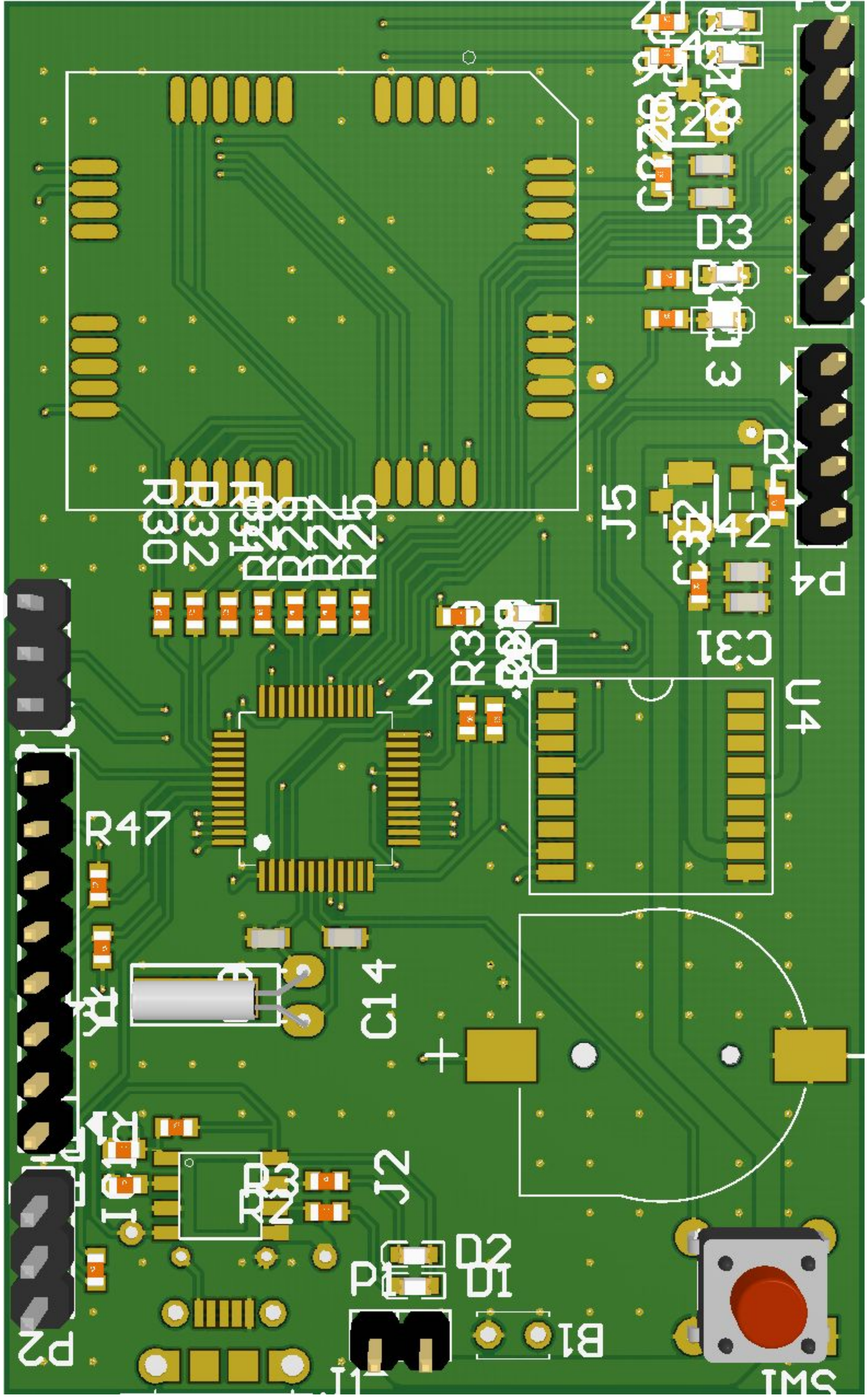
ADC PORT

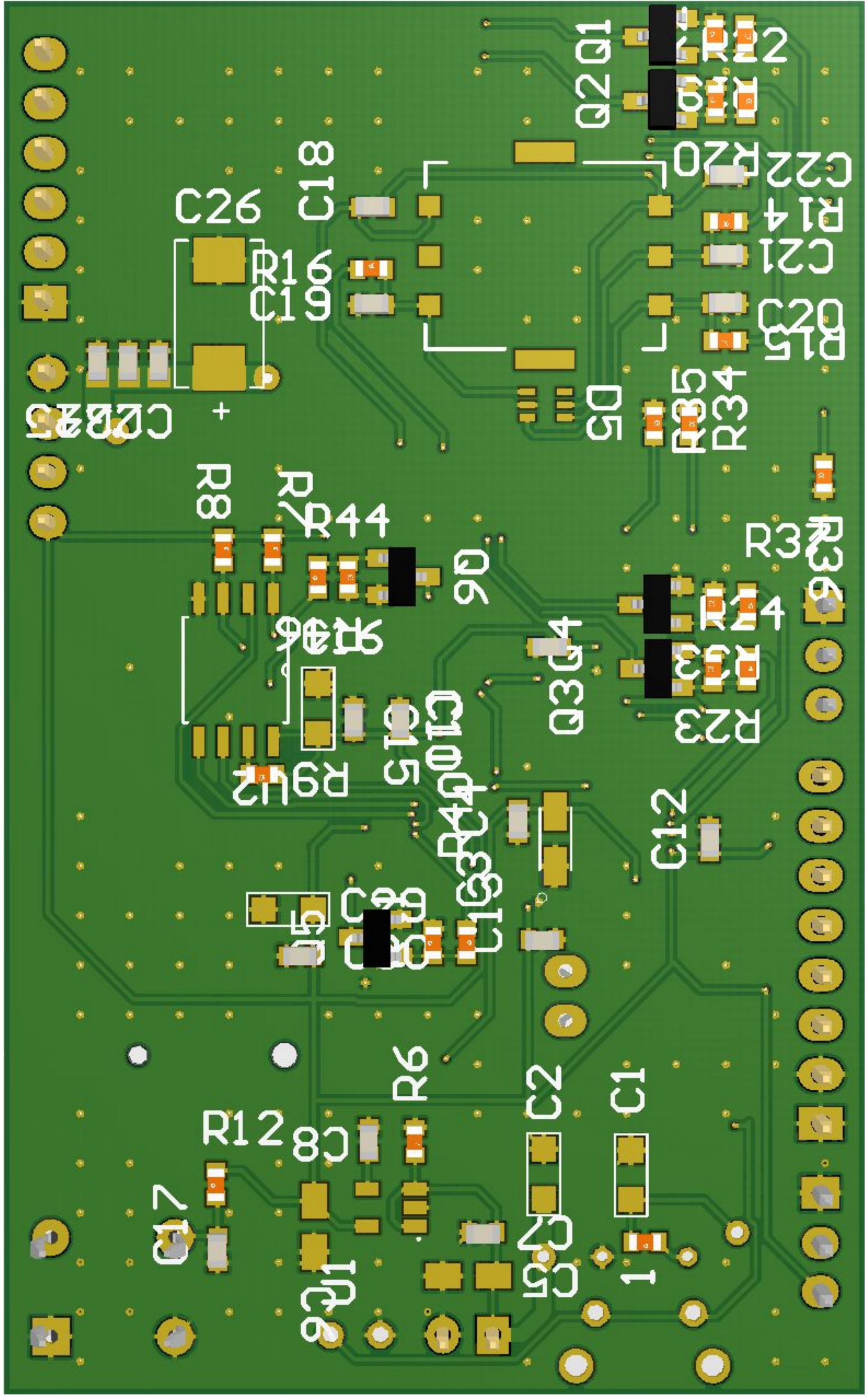
Title		
Size A	Number	Revision
Date: 21-Nov-18	Sheet of	
File: D:\workspace\..\Page6_Peripheral.SchDoc	Drawn By:	





Comment	Description	Designator	Footprint	LibRef	Quantity
RESISTOR SMD	Resistor	1, R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48	RES-SM-0603	RESISTOR SMD	49
STM32F103C8T6	Mainstream Performance line, ARM Cortex-M3 MCU with 64 Kbytes Flash, 72 MHz CPU, motor control, USB and CAN	2	LQFP48_7X7MM_0.5MMPP	STM32F103C8T6	1
103AT-2	NTC Thermistors 10kohm 1%	B1	103AT2	103AT-2	1
10uF	Cap Tant Solid 10uF 10V A CASE 10% _3.2 X 1.6 X 1.6mm_ SMD 3216-18 3 Ohm 125Â°C T/R	C1, C2, C16, C29	AVX-A_TANTALUM-SMD-10UF-10V-10%(AVX-A)(Primary)	TANTALUM-SMD-10UF-10V-10%(AVX-A)	4
4.7uF	Cap Tant Solid 4.7uF 16V A CASE 10% _3.2 X 1.6 X 1.6mm_ SMD 3216-18 4 Ohm 125Â°C T/R	C3	CAPMP3216X166_TAJA475K016RNJ(Primary)	TAJA475K016RNJ	1
Cap Non-Pol SMD	Capacitor	C4, C7, C8, C9, C10, C11, C12, C13, C14, C15, C17, C18, C19, C20, C21, C22, C23, C24, C25, C27, C28, C30, C31, C32	CAP-SM-0603	Cap Non-Pol SMD	24
1uF	Cap Tant Solid 1uF 16V A CASE 10% _3.2 X 1.6 X 1.6mm_ SMD 3216-18 11 Ohm 125C T/R	C5, C6	CAPMP3216X180N	TAJA105K016RNJ	2
100uF	Cap Tant Solid 100uF 10V D CASE 20% _7.3 X 4.3 X 2.9mm_ Inward L SMD 7343-31 0.9 Ohm 125C T/R	C26	CAPCP7343X310N	TAJD107M010R	1
LED SMD	LED	D1, D2, D3, D4, D6, D7, D8	LED_0603_Blue	LED SMD	7
SMF05C.TCT		D5	SC70-6	SMF05C.TCT	1
TP4056		IC1	SOP-8	TP4056	1
10118194-0001LF	Micro Usb, 2.0 Type b, Rcpt, Smt	J1	FRAMATOME_10118194-0001LF	10118194-0001LF	1
BC501SM-TR	Holder Coin Cell For Cr1220 Smd	J2	MPD_BC501SM-TR_BC501SM-TR(Primary)	BC501SM-TR	1
SIM HOLDER	Nano SIM Retainer, 6P, SMT, 1.35mm Profile, No Peg, Without switch, T&R	J3	GCT_SIM8050-6-0-14-00-X_REVF_SIM8050-6-0-14-00-X_REVF(Primary)	SIM8050-6-0-14-00-X_REVF	1
U.FL-R-SMT-1(10)	UFL SMT PCB receptable,DC-6GHz Hirose Straight 50 Surface Mount UFL Connector, Receptacle, Solder Termination Coaxial	J4, J5	U.FL-R-SMT-1(10)	U.FL-R-SMT-1(10)	2
47nH	Surface Mount High Frequency Inductor, MLZ Series, 4.7 H, 20%, 0805 [2012 Metric], 50 MHz	L1	INDC2012X87N	MLZ2012M4R7WT000	1
Header 2	Header, 2-Pin	P1	JP2	Header 2	1
Header 3	Header, 3-Pin	P2, P3	JP3	Header 3	2
Header 4	Header, 4-Pin	P4	JP4	Header 4	1
Header 7	Header, 7-Pin	P5	JP8	Header 7	1
Header 6	Header, 6-Pin	P6, P7	JP6	Header 6	2
C1815	NPN Bipolar Transistor	Q1, Q2, Q3, Q4, Q5, Q6	SOT23B	C1815	6
SW	Switch button 4 pin	SW1	Tact SW 4 pin	Tact SW - 4Pin	1
RT9193-33GB	RT9193 Series 300 mA 3.3 V Ultra-Low Noise Ultra-Fast CMOS LDO Regulator-SC-70-5	U1	SOT94P279X129-5N	RT9193-33GB	1
SST25VF040B-50-4I-S2AE-T	2.7V to 3.6V 4Mbit SPI Serial Flash, 8 SOIJ .208in T/R	U2	SOIC127P790X216-8N	SST25VF040B-50-4I-S2AE-T	1
M95	Quad-Band Gsm/Gprs Module	U3	XCVR_M95	M95	1
L70	Gps Module + Mt3339 + 9600bps	U4	MOD18	L70	1
XTAL	Crystal Oscillator	Y1	XTAL 32KN	XTAL	1


D3
R42
C31
U4
P4
J5
R30
R32
R47
C14
R3
R2
J2
D2
D1
P1
B1
P2
J1


C26
C18
R16
C19
R44
C12
R6
R12
C2
C1