STM32F407VET6 Schematic

U1 — STM32F407VET6

Title block:
- Title:
- Size: A3
- Number:
- Revision:
- Date: 2018/2/1
- File: D:\-My Project\..\STM32F407VET6.SchDoc
- Sheet of
- Drawn By:

Connectors / components (partial labels):
- TF1: DAT2, CD/DAT3, CMD, VDD, CLK, VSS, DAT0, DAT1, DET
- U2 W25Qxx: CS, DO, WP, GND, VCC, HOLD, CLK, DI
- U3 BAT54C
- Y1 8MHz, Y2 32.768MHz
- BAT1 CR1220+3V
- D1 PC13-LED
- S1 REST

Power nets: D3.3V, DGND

Net labels (left side):
PC10-2DAT, PC11-3DAT, PD2-CMD, PC12-CLK, PC8-0DAT, PC9-1DAT
SWCLK, PA15-HP, PC10-2DAT, PC11-3DAT
PD0-HP, PD1-HP, PD2-CMD, PD3-HP, PD4-HP, PD5-HP, PD6-HP, PD7-HP
PB3-SCK, PB4-MISO, PB5-MOSI, PB6-SCLK, PB7-SDIN
BOOT0-HP, PB8-HP, PB9-HP, PE0-HP, PE1-HP

OSC_IN, OSC_OUT, OSC32_IN, OSC32_OUT
VBAT, NRST

Headers: P1 SWD (SWDIO, SWCLK), P2, P3, P4, P5, P6 BOOT

Resistors: R1–R16 10K, R7 10K, R8 1M, R9 10K, R10 10K, R11 10K, R12 10K, R13 0R, R14 0R, R15 0R, R16 10K

Capacitors: C1 10uF, C2 100nF, C3 100nF, C4 100nF, C5 22pF, C6 22pF, C7 22pF, C8 22pF, C9 100nF, C10 10uF, C11 100pF, C12 100nF, C13 100pF, C14 10uF, C15 100nF, C16 100nF, C17 100nF

VREF+, VDDA, VSSA, VDD, VSS, VCAP_1, VCAP_2

USB1
VCC 1
D- 2 R18 F1 2A 5V
D+ 3 R19 22R USBDM-D-
ID 4 22R USBDP-D+
GND 5 R20 D3.3V
USB Micro 1.5K
GND

5V U4 D3.3V
C18 3 IN OUT 2
330uF C20 1 GND OUT C19 C21
100nF 100nF 100nF
GND LM1117M3-3.3
DGND DGND

R17
0R
GND DGND

5V
R21
510R

D2

5V P7 D3.3V P8
1 2 1 2
3 4 3 4
5 6 5 6
C26 5V C27 3.3V
100nF GND 100nF DGND
GND DGND

5V U5 A3.3V
C22 3 IN OUT 2
330uF C24 1 GND OUT C23 C25
100nF 100nF 100nF
GND LM1117M3-3.3
AGND AGND

R22
0R
GND AGND

C28 C29
220pF 220pF
R25 AGND R26 AGND
47K 47K
R29 MICBIAS R30 MICBIAS
680R 680R
C33 C34
MIC-LIP MIC-RIP
1uF 1uF
MIC1 AJ-MIC
1 AJ-AGND
2
C38 C39
MIC-LIN MIC-RIN
1uF 1uF
R37 R38
0R 0R
AGND AGND

C30 5V DGND D3.3V
100nF ROUT2-HP R23 R24
C31 OUT3-OUT3/4HP 10K 4.7K
10uF OUT4-OUT3/4HP PB7-SDIN
LOUT2-HP 25 AUXR-AUX IN
C35 AUXL-AUX IN
SPKGND ROUT2 OUT3 OUT4 AUXR AUXL MODE SDIN
24 23 22 21 20 19 18 17
U7
LOUT2 26 SCLK 16 PB6-SCLK
SPKVDD 27 CSB/GPIO1 15 CSB-HP
VMID 28 DBCDD 14
A3.3V AGND DCVDD 13
ROUT1-AJ 29 ROUT1 DGND 12
LOUT1-AJ 30 LOUT1 MCLK 11 PC6-MCLK
31 AVDD DACDAT 10 PC3-DACDAT
MICBIAS 32 MICBIAS ADCDAT 9 PC2-ADCDAT
LIP LIN L2/GPIO2 RIP RIN R2/GPIO3 LRC BCLK
1 2 3 4 5 6 7 8
WM8978
MIC-LIP MIC-LIN L2-HP MIC-RIP R2-HP PB12-LRC PB13-BCLK
C40 C41 C42
100nF 10uF 10uF
AGND AGND

D3.3V
R28
4.7K
D3.3V
C36 C37
10uF 100nF
DGND

ESP-R R27
1K
C32 RT-D3.3V
100pF PA1-EN R31
10K
R32
10K
RT-D3.3V

U6 ESP8266-12F
1 REST TXD 22 PA3-TX P9
2 ADC RXD 21 PA2-RX 1
3 CH_PD GPIO5 20 R33 10K 2
4 GPIO16 GPIO4 19 3
5 GPIO14 GPIO0 18 R34 10K ESP-D 4
6 GPIO12 GPIO2 17 R35 10K RT-D3.3V UART
7 GPIO13 GPIO15 16 R36 1K
8 VCC GND 15 DGND
CS0 MISO GPIO9 GPIO10 MOSI SCLK
9 10 11 12 13 14
DGND

RT-D3.3V P9 RT-D3.3V

D3.3V P10
1
RT-D3.3V 2

P11
ESP-R 1
2
3
ESP-D 4
DGND KEY

P12
L2-HP 1
R2-HP 2
GPIO

P13
AUXL-AUX IN 1
AUXR-AUX IN 2
AUX IN

PJ1
MIC AJ-MIC
MIC-C MIC-AJ-MIC-C
A3.3V
R C43 ROUT1-AJ
R-C 220uF
R39
L-C 10K
L CSB-HP C44 LOUT1-AJ
AGND-C MIC-AJ-AGND 220uF
AGND AJ-AGND
Audio Jack PJ-393

MIC2
1 MIC-AJ-MIC-C
2 MIC-AJ-AGND

LS1
LOUT2-HP
ROUT2-HP
扬声器

P14
OUT3-OUT3/4HP 1
OUT4-OUT3/4HP 2
OUT3/4

LOGO
LOGO

Title

Size A4
Number
Revision
Date: 2018/2/1
Sheet of
File: D:\-My Project\..\CSASR.SchDoc
Drawn By:

97 (mm)

E0 B8 D6 D4 D1 A15   A1 0A8D1 5D13D11 D9 B1
E1 B9 D7 D5 D3 D0   A9 C7 D1 4D1 2D10D8 B14

R1
R2
R3
R4
R5
R6

U1

60 (mm)

R7
U2

R16 D1
Y2

E2 E3 E4 E5 E6 C0 A0

R8

C13   R11

REST   3.3V   C19   U4   C18

A5 A7 C5 E7 E9 E1 E13 D15 B1
A4 A6 C4 B4 E8 E10 B12 B13

U6

3.3V GND

BOOT

| BOOT1 | X | 0 | 1 | 1 |
| BOOT0 | 0 | 1 | 1 |

R17

5V

DIO D3 RX3 3.3V

R22

C44
C39
R38

MIC2

C12
C40
C11
R25
R24

U7

C36
C37
C38
C33
R29
R26
C28

MIC1
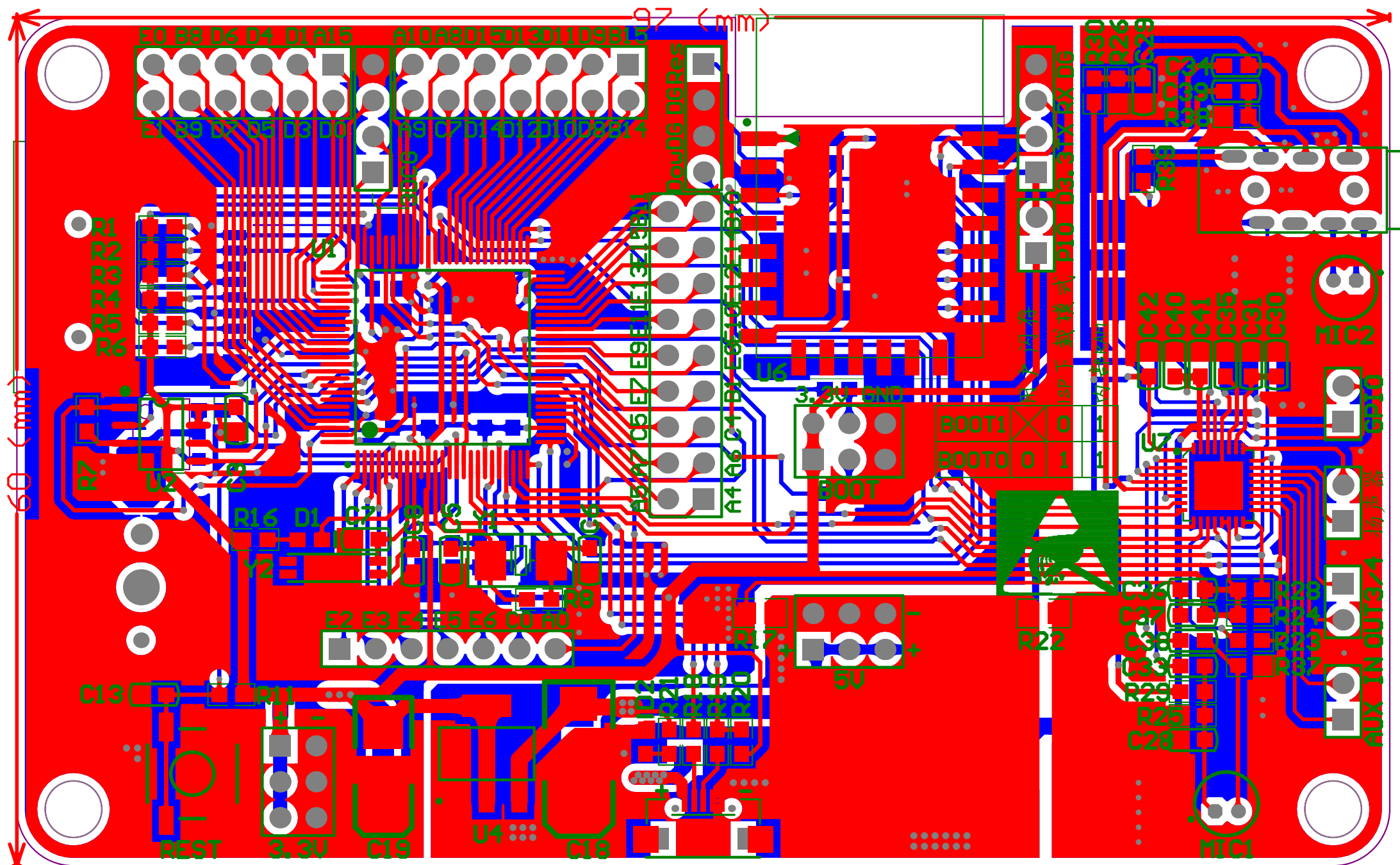
Comment	Description	Designator	Footprint	LibRef	Quantity
CR1220+3V	CR1220-3V 纽扣电池	BAT1	Battery CR1220 座带电池	BATTERY-CR	1
10uF	Capacitor	C1, C10, C14, C31, C35, C36, C41, C42	C-RAD-0603	Cap	8
100nF	Capacitor	C2, C3, C4, C9, C12, C15, C16, C17, C26, C27, C30, C37, C40	C-RAD-0603	Cap	13
22pF	Capacitor	C5, C6, C7, C8	C-RAD-0603	Cap	4
100pF	Capacitor	C11, C13, C32	C-RAD-0603	Cap	3
330uF	tantalum capacitor	C18, C22	CD D(7343-31)	Cap(tantalum)	2
100uF	tantalum capacitor	C19, C23	CD C(6032-28)	Cap(tantalum)	2
100nF	Capacitor	C20, C21, C24, C25	C-RAD-0805	Cap	4
220pF	Capacitor	C28, C29	C-RAD-0603	Cap	2
1uF	Capacitor	C33, C34, C38, C39	C-RAD-0603	Cap	4
220uF	tantalum capacitor	C43, C44	CD C(6032-28)	Cap(tantalum)	2
LED-蓝	发光二极管	D1	LED-0603	LED	1
LED-红	发光二极管	D2	LED-0603	LED	1
Fuse	保险丝	F1	Fu 1206	Fuse	1
LOGO	LOGO	LOGO	LOGO-L H2.8mm	LOGO	1
LOGO	LOGO	LOGO1	LOGO-THAND	LOGO	1
扬声器	扬声器	LS1	HDR1X2	Speak	1
MIC		MIC1, MIC2	MIC	MIC	2
SWD	Header, 1x4-Pin	P1	HDR1X4	Header 1x4	1
Header 2x6	Header, 2x6-Pin	P2	HDR2X6	Header 2x6	1
Header 2x7	Header, 2x7-Pin	P3	HDR2X7	Header 2x7	1
Header 2x9	Header, 2x9-Pin	P4	HDR2X9	Header 2x9	1
Header 1x7	Header, 1x7-Pin	P5	HDR1X7	Header 1x7	1
BOOT	Header, 2x3-Pin	P6	HDR2X3	Header 2x3	1
5V	Header, 2x3-Pin	P7	HDR2X3	Header 2x3	1
3.3V	Header, 2x3-Pin	P8	HDR2X3	Header 2x3	1
UART	Header, 1x4-Pin	P9	HDR1X4	Header 1x4	1
D3.3	Header, 1x2-Pin	P10	HDR1X2	Header 1x2	1
KEY	Header, 1x4-Pin	P11	HDR1X4	Header 1x4	1
GPIO	Header, 1x2-Pin	P12	HDR1X2	Header 1x2	1
AUX IN	Header, 1x2-Pin	P13	HDR1X2	Header 1x2	1
OUT3/4	Header, 1x2-Pin	P14	HDR1X2	Header 1x2	1
Audio Jack PJ-393	Audio Jack 8P	PJ1	Audio Jack-PJ-393	Audio Jack 8P-PJ-393	1
10K	Resistor	R1, R2, R3, R4, R5, R6, R7, R9, R10, R11, R12, R16, R23, R31, R32, R33, R34, R35, R39	Res-0603 (1/10W)	Res	19
1M	Resistor	R8	Res-0603 (1/10W)	Res	1
0R	Resistor	R13, R14, R15, R37, R38	Res-0603 (1/10W)	Res	5
0R	Resistor	R17, R22	Res-0805 (1/8W)	Res	2
22R	Resistor	R18, R19	Res-0603 (1/10W)	Res	2
1.5K	Resistor	R20	Res-0603 (1/10W)	Res	1
510R	Resistor	R21	Res-0603 (1/10W)	Res	1
4.7K	Resistor	R24, R28	Res-0603 (1/10W)	Res	2
47K	Resistor	R25, R26	Res-0603 (1/10W)	Res	2
1K	Resistor	R27, R36	Res-0603 (1/10W)	Res	2
680R	Resistor	R29, R30	Res-0603 (1/10W)	Res	2
REST	6x6 轻触开关	S1	SW_PB4_A1	SW PB 6x6	1
Micro SD Card - SD Mode	SD Mode	TF1	Micro SD Card-M 带TF卡-SMD	Micro SD Card - SD Mode	1
STM32F407VET6	STM32F407VET6-LQFP100	U1	LQFP100	STM32F407VET6	1
W25Qxx	外置Flash	U2	SOP8_N	W25Qxx	1
BAT54C	正向电压为320mV的半导体二极管;肖特基电流:0.2A,电压:30V	U3	BAT54C SOT-23	BAT54C	1
LM1117M3-3.3	3.3V稳压芯片	U4, U5	LM1117M3-3.3-SOP223	LM1117M3-3.3	2
ESP8266-12F		U6	ESP8266-12F	ESP8266-ESP-12F	1
WM8978	立体声多媒体数字信号编译码器	U7	WM8978	WM8978	1
USB Micro	Micro USB接口	USB1	USB_MICRO_2	USB Micro	1