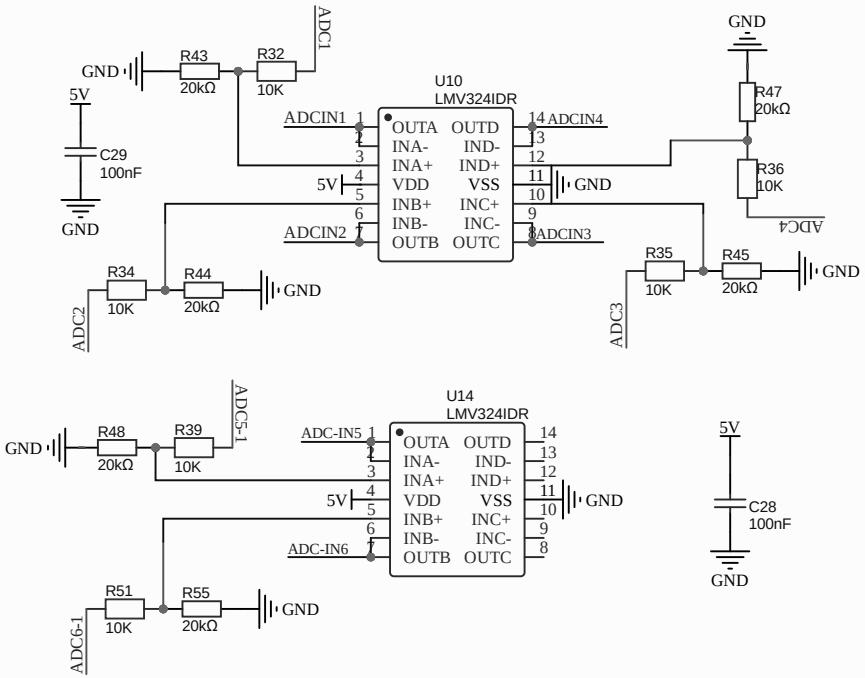


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| Date: 5/09/2025 | | Sheet of |
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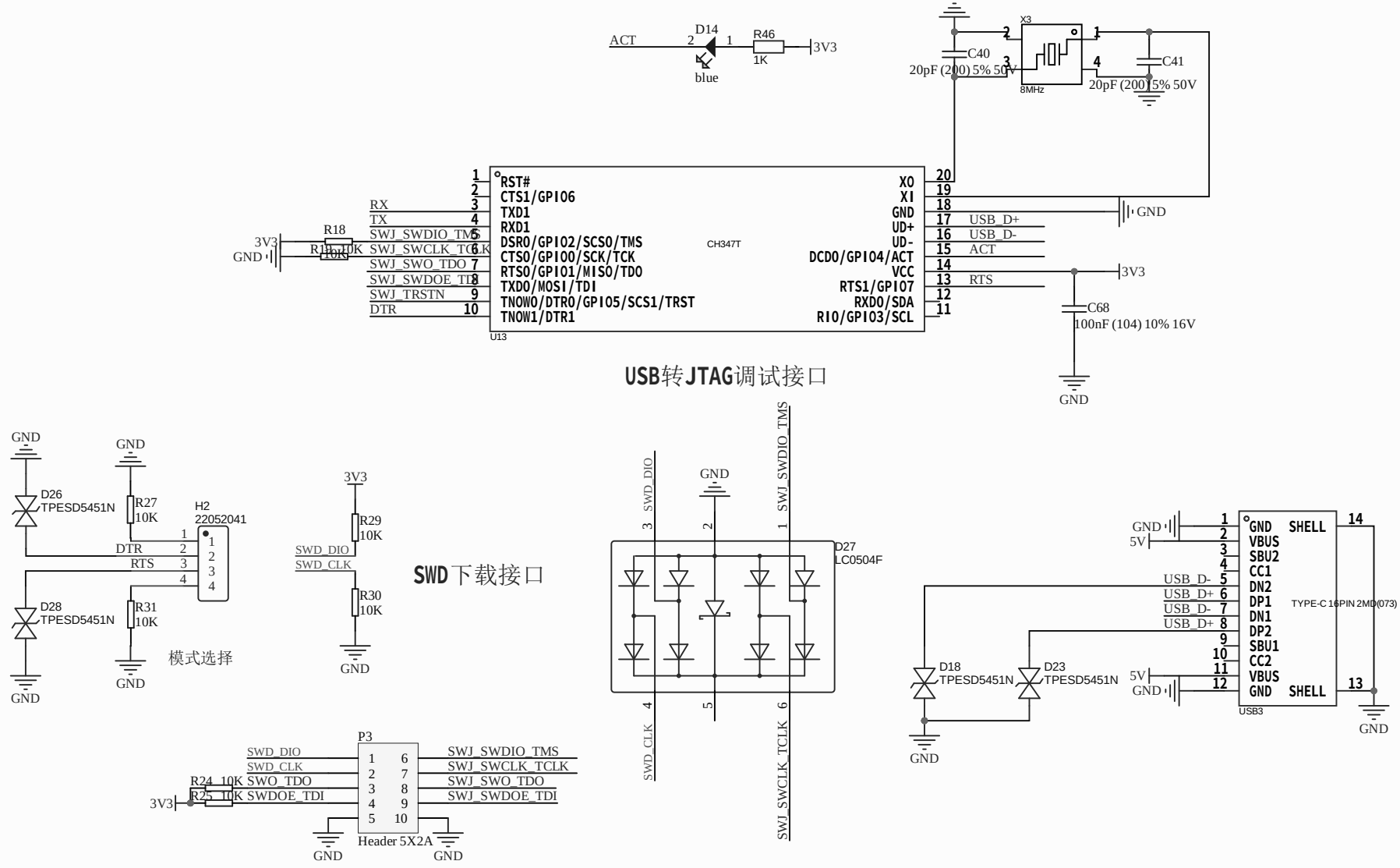


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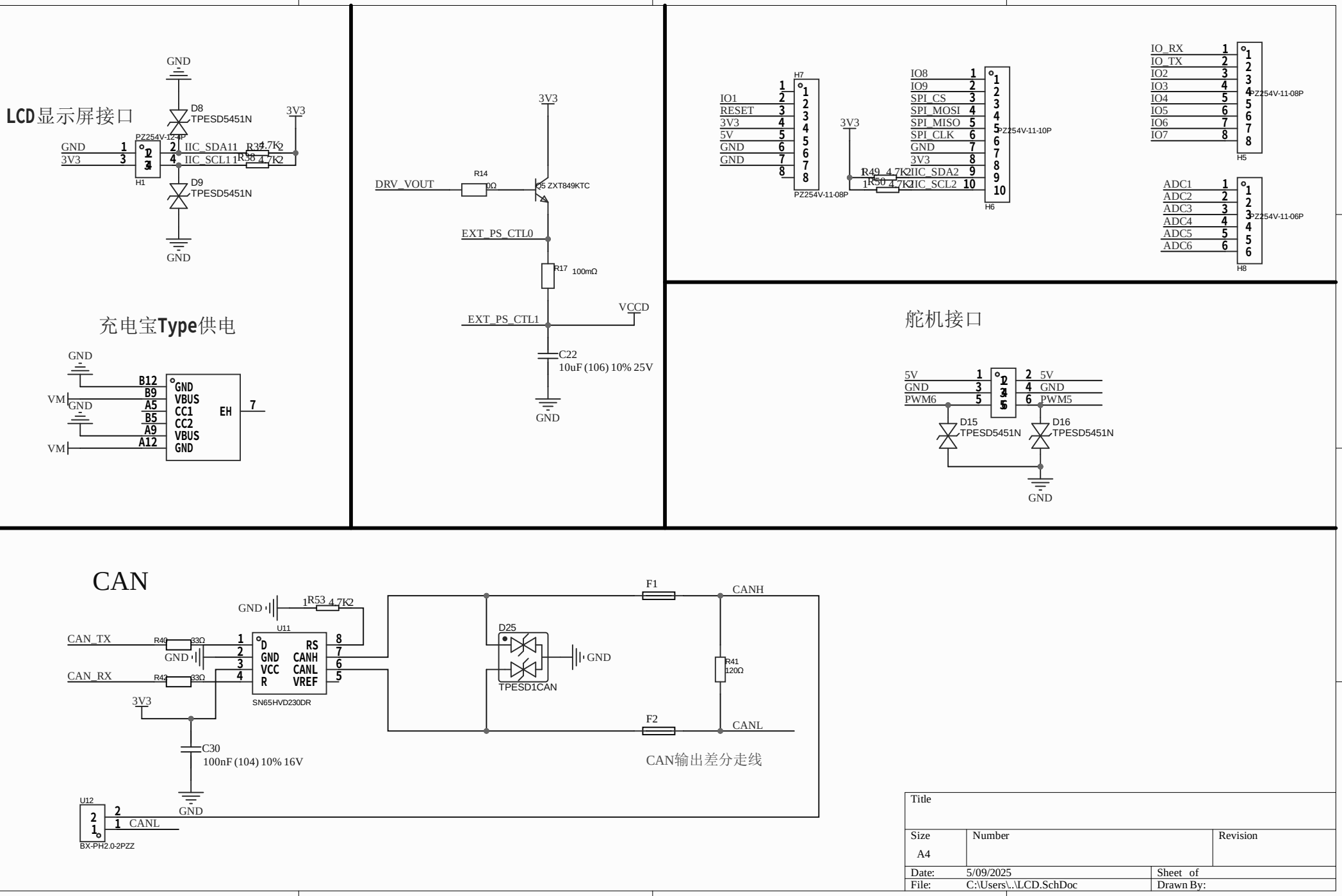
LCD显示屏接口
GND
3V3
D8
TPESD5451N
D9
TPESD5451N
PZ254V-12-4P
H1
IIC_SDA11
IIC_SCL11
R34 4.7K2
R35 4.7K2
充电宝Type供电
VM
B12
B9
A5
B5
A9
A12
GND
VBUS
CC1
CC2
VBUS
GND
EH
7
DRV_VOUT
R14
Q5 ZXT849KTC
EXT_PS_CTL0
R17 100mΩ
EXT_PS_CTL1
VCCD
C22
10uF (106) 10% 25V
H7
IO1
RESET
3V3
5V
GND
GND
PZ254V-11-08P
R49 4.7K2
R50 4.7K2
IIC_SDA2
IIC_SCL2
IO8
IO9
SPI_CS
SPI_MOSI
SPI_MISO
SPI_CLK
GND
3V3
PZ254V-11-10P
H6
IO_RX
IO_TX
IO2
IO3
IO4
IO5
IO6
IO7
PZ254V-11-08P
H5
ADC1
ADC2
ADC3
ADC4
ADC5
ADC6
PZ254V-11-06P
H8
舵机接口
5V
GND
PWM6
PWM5
D15
TPESD5451N
D16
TPESD5451N
CAN
R53 4.7K2
U11
CAN_TX
CAN_RX
R40 33Ω
R42 33Ω
D
GND
VCC
R
RS
CANH
CANL
VREF
SN65HVD230DR
D25
TPESD1CAN
F1
F2
CANH
CANL
R41 120Ω
C30
100nF (104) 10% 16V
CAN输出差分走线
U12
BX-PH2.0-2PZZ
Title
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A4
Number
Revision
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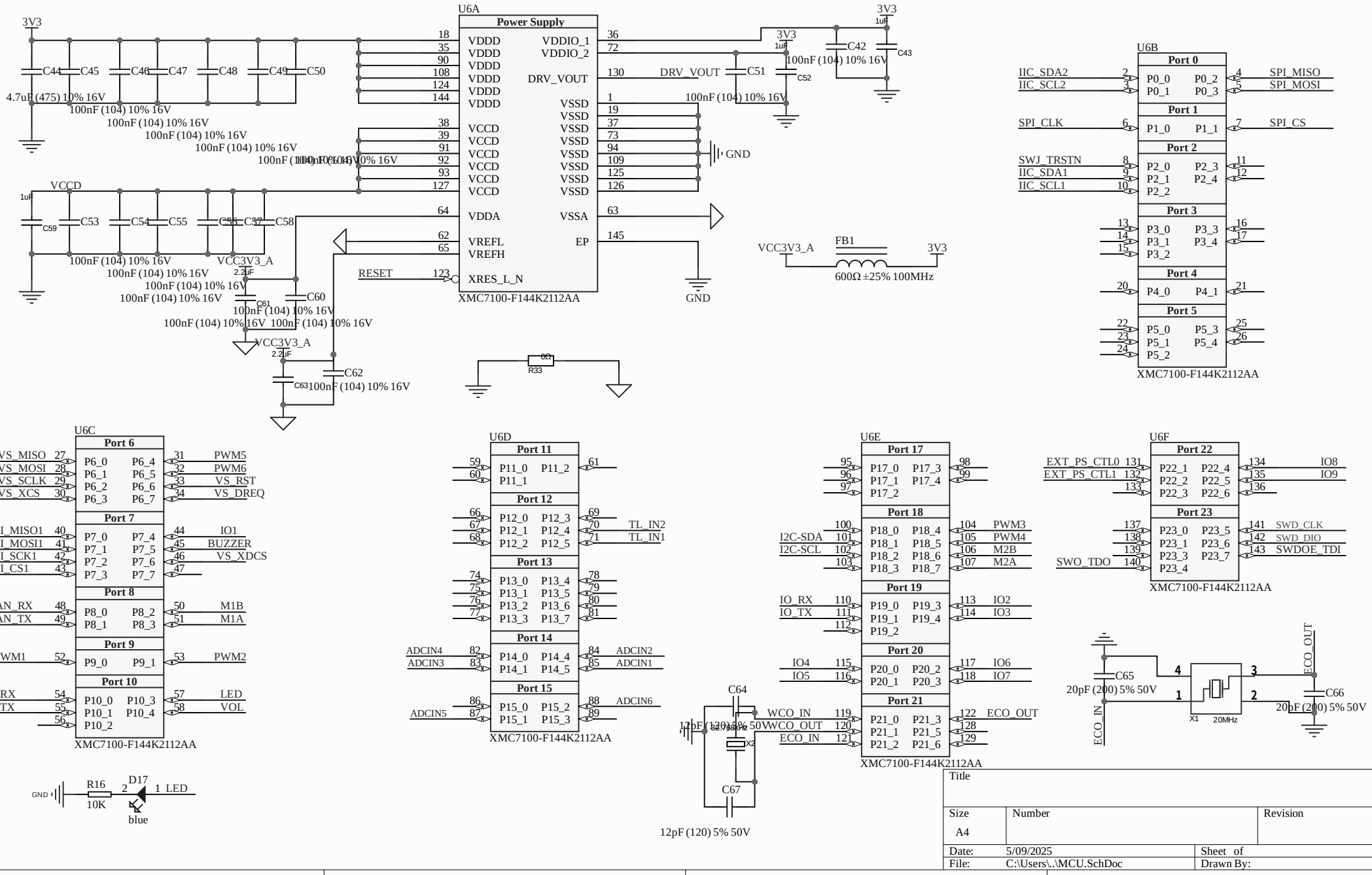
U6A
Power Supply
XMC7100-F144K2112AA
3V3
VCCD
VCC3V3_A
GND
DRV_VOUT
RESET
FB1
600Ω ±25% 100MHz
U6B
Port 0
Port 1
Port 2
Port 3
Port 4
Port 5
IIC_SDA2
IIC_SCL2
SPI_CLK
SWJ_TRSTN
IIC_SDA1
IIC_SCL1
SPI_MISO
SPI_MOSI
SPI_CS
U6C
Port 6
Port 7
Port 8
Port 9
Port 10
VS_MISO
VS_MOSI
VS_SCLK
VS_XCS
SPI_MISO1
SPI_MOSI1
SPI_SCK1
SPI_CS1
CAN_RX
CAN_TX
PWM1
RX
TX
PWM5
PWM6
VS_RST
VS_DREQ
IO1
BUZZER
VS_XDCS
M1B
M1A
PWM2
LED
VOL
U6D
Port 11
Port 12
Port 13
Port 14
Port 15
TL_IN2
TL_IN1
ADCIN4
ADCIN3
ADCIN2
ADCIN1
ADCIN6
ADCIN5
U6E
Port 17
Port 18
Port 19
Port 20
Port 21
I2C-SDA
I2C-SCL
IO_RX
IO_TX
IO4
IO5
WCO_IN
WCO_OUT
ECO_IN
ECO_OUT
PWM3
PWM4
M2B
M2A
IO2
IO3
IO6
IO7
U6F
Port 22
Port 23
EXT_PS_CTL0
EXT_PS_CTL1
SWO_TDO
IO8
IO9
SWD_CLK
SWD_DIO
SWDOE_TDI
X1
20MHz
X2
32.768kHz
R16
10K
D17
LED
blue
R33
0Ω
C65
C66
20pF (200) 5% 50V
C64
C67
12pF (120) 5% 50V
Title
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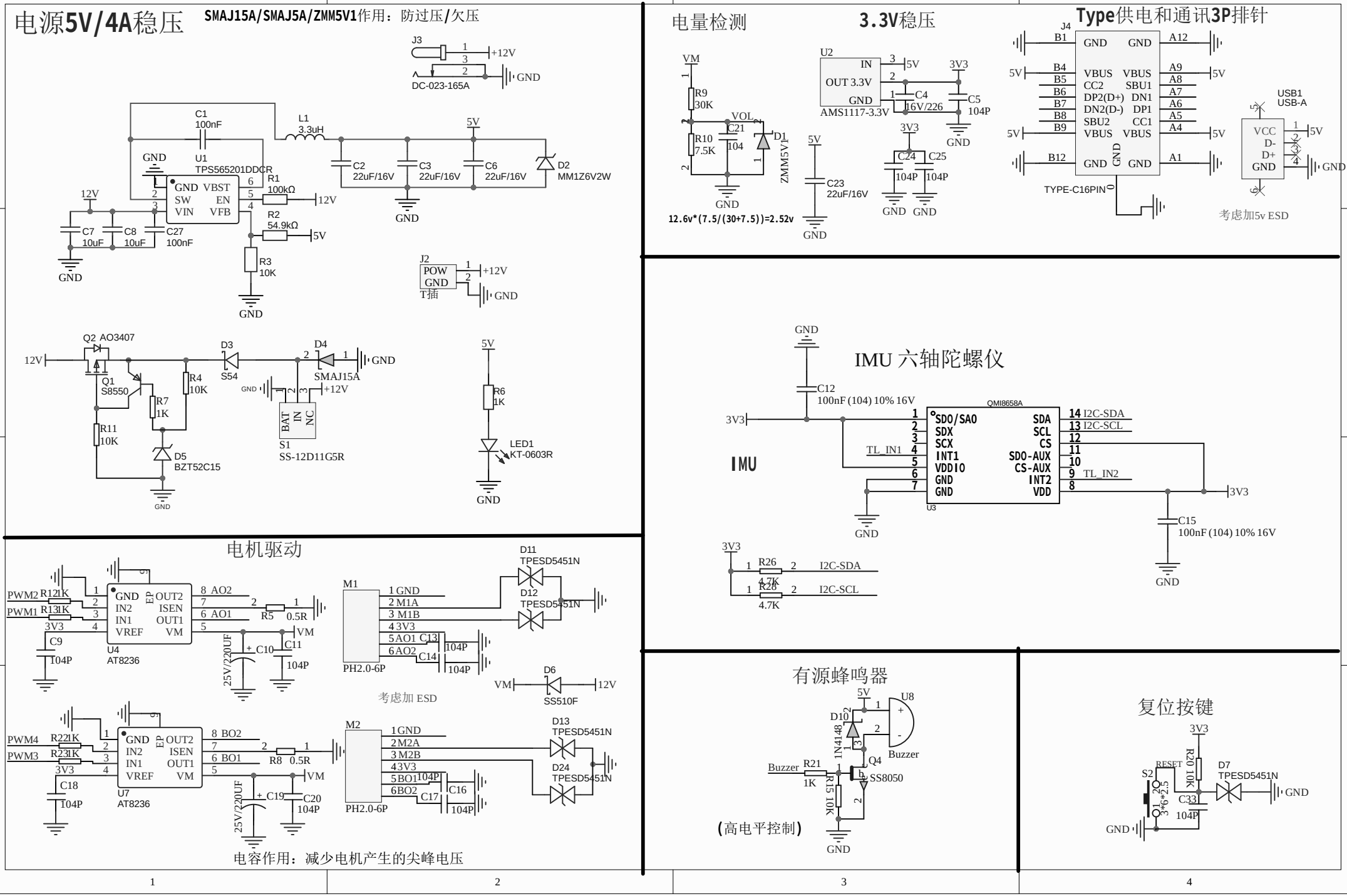
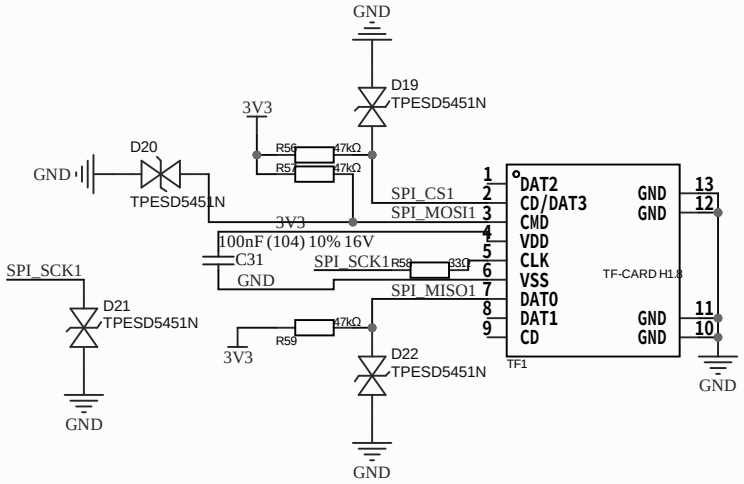

电源5V/4A稳压
SMAJ15A/SMAJ5A/ZMM5V1作用：防过压/欠压
J3
DC-023-165A
+12V
GND
C1
100nF
L1
3.3uH
U1
TPS565201DDCR
GND VBST
SW EN
VIN VFB
R1
100kΩ
R2
54.9kΩ
R3
10K
C2
22uF/16V
C3
22uF/16V
C6
22uF/16V
D2
MM1Z6V2W
C7
10uF
C8
10uF
C27
100nF
12V
5V
J2
POW
GND
T插
Q2 AO3407
Q1
S8550
R4
10K
R7
1K
R11
10K
D3
S54
D4
SMAJ15A
D5
BZT52C15
S1
SS-12D11G5R
BAT
IN
NC
R6
1K
LED1
KT-0603R
电量检测
VM
R9
30K
R10
7.5K
C21
104
VOL
D1
ZMM5V1
12.6v*(7.5/(30+7.5))=2.52v
3.3V稳压
U2
IN
OUT 3.3V
GND
AMS1117-3.3V
3V3
C4
16V/226
C5
104P
C23
22uF/16V
C24
104P
C25
104P
Type供电和通讯3P排针
J4
GND
VBUS
CC2
DP2(D+)
DN2(D-)
SBU2
CC1
DP1
SBU1
DN1
TYPE-C16PIN
USB1
USB-A
VCC
D-
D+
考虑加5v ESD
IMU 六轴陀螺仪
IMU
C12
100nF (104) 10% 16V
QMI8658A
SDO/SA0
SDX
SCX
INT1
VDDIO
GND
SDA
SCL
CS
SDO-AUX
CS-AUX
INT2
VDD
I2C-SDA
I2C-SCL
TL_IN1
TL_IN2
C15
100nF (104) 10% 16V
R26
4.7K
R28
4.7K
电机驱动
U4
AT8236
U7
AT8236
GND
IN2
IN1
VREF
EP
OUT2
ISEN
OUT1
VM
PWM2
PWM1
PWM4
PWM3
R12 1K
R13 1K
R22 1K
R23 1K
R5 0.5R
R8 0.5R
C9
104P
C18
104P
C10
25V/220UF
C11
104P
C19
25V/220UF
C20
104P
M1
M2
PH2.0-6P
1 GND
2 M1A
3 M1B
4 3V3
5 AO1
6 AO2
1 M2A
2 M2B
5 BO1
6 BO2
C13
104P
C14
104P
C16
104P
C17
104P
D11
TPESD5451N
D12
TPESD5451N
D13
TPESD5451N
D24
TPESD5451N
D6
SS510F
考虑加 ESD
电容作用：减少电机产生的尖峰电压
有源蜂鸣器
U8
D10
1N4148
Buzzer
R21
1K
R15 10K
Q4
SS8050
(高电平控制)
复位按键
RESET
S2
3*6*2.5
R20 10K
D7
TPESD5451N
C33
104P

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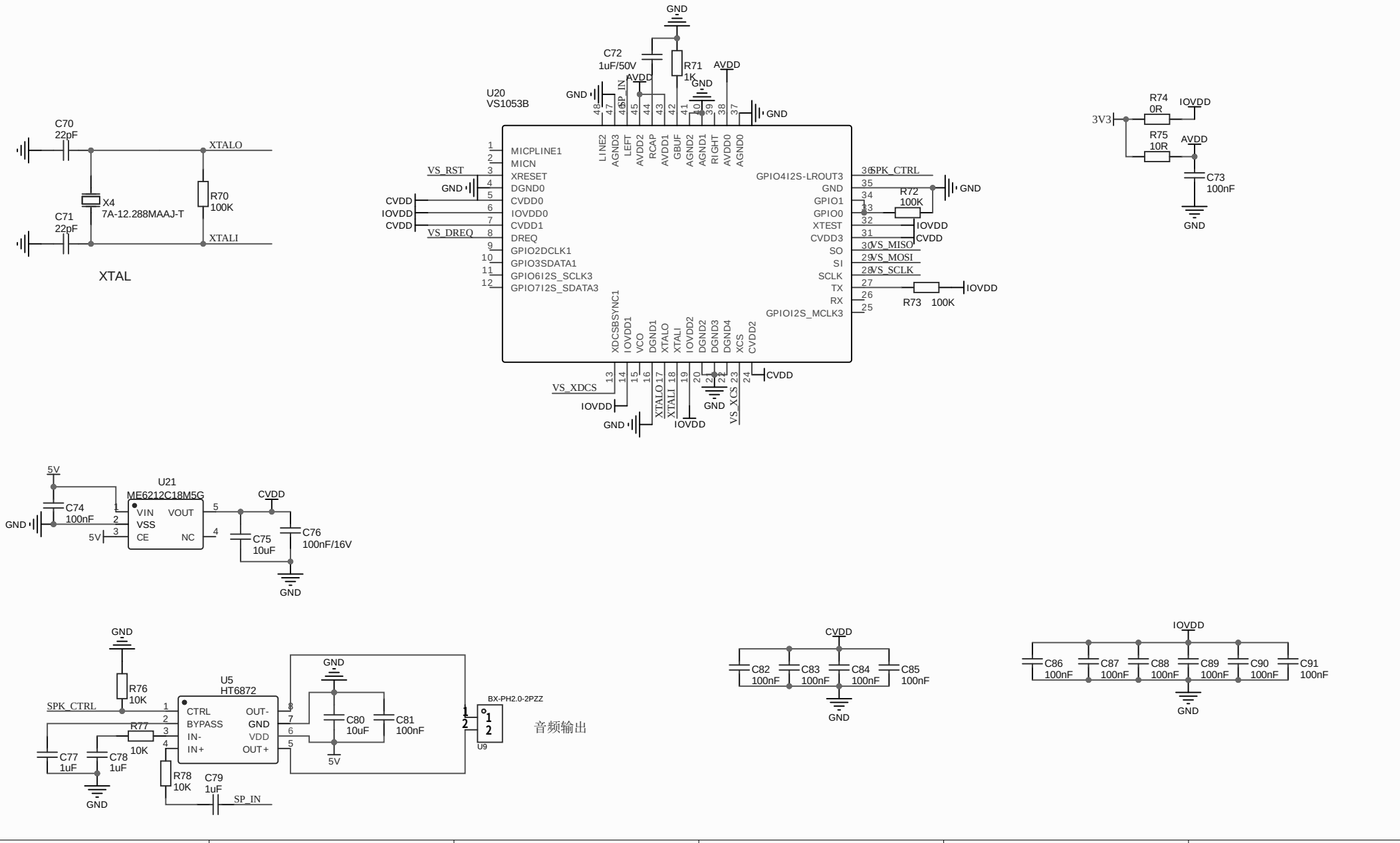
C70
22pF
XTALO
X4
7A-12.288MAAJ-T
R70
100K
C71
22pF
XTALI
XTAL
U20
VS1053B
C72
1uF/50V
R71
1K
AVDD
GND
SP_IN
MICPLINE1
MICN
XRESET
DGND0
CVDD0
IOVDD0
CVDD1
DREQ
GPIO2DCLK1
GPIO3SDATA1
GPIO6I2S_SCLK3
GPIO7I2S_SDATA3
LINE2
AGND3
LEFT
AVDD2
RCAP
AVDD1
GBUF
AGND2
AGND1
RIGHT
AVDD0
AGND0
GPIO4I2S-LROUT3
GND
GPIO1
GPIO0
XTEST
CVDD3
SO
SI
SCLK
TX
RX
GPIOI2S_MCLK3
XDCSBSYNC1
IOVDD1
VCO
DGND1
XTALO
XTALI
IOVDD2
DGND2
DGND3
DGND4
XCS
CVDD2
VS_RST
VS_DREQ
CVDD
IOVDD
VS_XDCS
VS_XCS
SPK_CTRL
R72
100K
VS_MISO
VS_MOSI
VS_SCLK
R73
100K
R74
0R
R75
10R
3V3
C73
100nF
U21
ME6212C18M5G
VIN
VSS
CE
VOUT
NC
C74
100nF
C75
10uF
C76
100nF/16V
5V
U5
HT6872
CTRL
BYPASS
IN-
IN+
OUT-
GND
VDD
OUT+
R76
10K
R77
10K
R78
10K
C77
1uF
C78
1uF
C79
1uF
C80
10uF
C81
100nF
BX-PH2.0-2PZZ
U9
音频输出
C82
100nF
C83
100nF
C84
100nF
C85
100nF
C86
100nF
C87
100nF
C88
100nF
C89
100nF
C90
100nF
C91
100nF

| Comment | Description | Designator | Footprint | LibRef | Quantity |
|---|---|---|---|---|---|
| 100nF | | C1, C27, C28, C29, C73, C74, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91 | C0603 | 100nF | 17 |
| 22uF/16V | | C2, C3, C8, C23 | C0603 | 22uF/16V | 4 |
| 10V/22R | | C4 | C0603 | C4R | 1 |
| 104P | | C5, C9, C11, C13, C14, C16, C17, C18, C20, C24, C25, C93 | C0603 | Cap | 12 |
| 10uF | | C7, C8, C75, C80 | C0603 | 10uF | 4 |
| 25V/220UF | | C10, C19 | CAS139_P | 220 贴片电解 | 2 |
| 100nF (104) 10% 16V | 贴片电容 | C12, C15, C30, C31, C42, C45, C46, C47, C48, C49, C50, C51, C53, C54, C55, C56, C57, C58, C59, C62, C69 | 0402_C | 0402 100nF (104) 10% 16V | 21 |
| 104 | | C21 | C0603 | Cap | 1 |
| 10uF (106) 10% 25V | 贴片电容 | C22 | 0805_C | 0805 10uF (106) 10% 25V | 1 |
| 20pF (200) 5% 50V | 贴片电容 | C40, C41, C65, C66 | 0402_C | 0402 20pF (200) 5% 50V | 4 |
| 1uF | | C43, C52, C59 | 0402_C | C1.05A105KDSN SMC | 3 |
| 4.7uF (475) 10% 16V | 贴片电容 | C44 | 0603_C | 0603 4.7uF (475) 10% 16V | 1 |
| 2.2uF | | C61, C63 | 0603_C | C1.0A225KDBN SMC | 2 |
| 12pF (120) 5% 50V | 贴片电容 | C64, C67 | 0402_C | 0402 12pF (120) 5% 50V | 2 |
| 22pF | | C70, C71 | C0603 | 22pF | 2 |
| 1uF/25V | | C72 | C0603 | 1uF/25V | 1 |
| 100nF/16V | | C76 | C0603 | 100nF/16V | 1 |
| 1uF | | C77, C78, C79 | C0603 | 1uF | 3 |
| 2.5MMSV1 | | D1 | 2.5MMSV1L-SA_L15-W1.5-RD | Diode | 1 |
| MM1Z6V2W | | D2 | MM1Z6V2SOD-123F_L2.7-W1.6-L318-RD | MM1Z6V2W | 1 |
| B54 | | D3 | SS54SMAF_L3.5-W2.6-L54.7-RD | SS510F | 1 |
| SMA15A | | D4 | SMA | Diode | 1 |
| BZT52C15 | | D5 | BAT52C15SOD-123_L2.7-W1.6-L3.7-RD | BZT52C5V6S-TP | 1 |
| SS510F | | D6 | SS45SMAF_L3.5-W2.6-L54.7-RD | SS510F | 1 |
| TPESD5451N | | D7, D8, D9, D11, D12, D13, D15, D16, D18, D19, D20, D21, D22, D23, D24, D26, D28 | DFN1006-2L-B | TPESD5451N | 17 |
| IN4148 | | D10 | Dio1206 | Diode | 1 |
| blue | | D14 | LED0603-RD | LED_BLU | 1 |
| blue | | D17 | LED0603-RD | LED_BLU | 1 |
| TPESD1CAN | | D25 | SOT-23-3_L2.9-W1.3-P1.90-L2.4-BR | TPESD1CAN | 1 |
| LC0504F | | D27 | DIO-DB0SOT-363_L2.0-W1.3-P0.65-L10.1-BR | LC0504F | 1 |
| R-SMD0805-055-15 | | F1, F2 | F0805 | R-SMD0805-055-15 | 2 |
| 600Ω ± 25% | 贴片磁珠 | FB1 | 0805C-GEN2BC-2 | 0805 600Ω ± 25% | 1 |
| 100MHz | | | | 100MHz | 1 |
| PZ254V-12-4P | | H1 | HDR-TH_4P-P2.54-V-M-R2-C2-12.54 | PZ254V-12-4P | 1 |
| 22052041 | | H2 | HDR-TH_6P-P2.54-V-M | 22052041 | 1 |
| PZ254V-12-6P | | H4 | HDR-TH_6P-P2.54-V-M-R2-C3-12.54 | PZ254V-12-6P_1 | 1 |
| PZ254V-11-08P | | H5, H7 | HDR-TH_8P-P2.54-V-M | PZ254V-11-08P | 2 |
| PZ254V-11-10P | | H6 | HDR-TH_10P-P2.54-V-M | PZ254V-11-10P | 1 |
| PZ254V-11-06P | | H8 | HDR-TH_6P-P2.54-V-M | PZ254V-11-06P | 1 |
| CIB | | J2 | CIB | CIB | 1 |
| DC-023-16SA | | J3 | DC-IN-TH.DC-023-16SA | DC-023-16SA | 1 |
| TYPE-C16PIN | | J4 | USB-C-SMD.TYPE-C16PIN | TYPE-C16PIN | 1 |
| 3.3uH | | L1 | INDUCTOR-SMD.L5.4-W5.2-H3.0-M | 3.3uH | 1 |
| KT-0603R | | LED1 | LED0603-RD | KT-0603R | 1 |
| KH1.4P | | M1, M2 | KH_贴带_4 | KH_4P | 2 |
| Header 3X2H | Header, 3-Pin, Dual row, Right Angle | P1, P2 | 2.54PHDR-TH_6P-P2.54-V-M-R2-C3-12.54 | Header 3X2H | 2 |
| Header 5X2A | Header, 5-Pin, Dual row | P3 | HDR-TH_10P-P2.54-V-M-R2-C5-12.54 | Header 5X2A | 1 |
| S8550 | | Q1 | SOT-23-3_L2.9-W1.3-P1.90-L2.4-BR | S8550_C2840873 | 1 |
| AO3407 | | Q2 | SOT-23-3_L2.9-W1.3-P1.90-L0.4-BR | AO3401 | 1 |
| S8050 | | Q4 | SOT-23-3 | S050 | 1 |
| DXT849KTC | | Q5 | TO-252-2_L6.6-W6.1-P4.57-LS9.8-BR-CW | DXT849KTC | 1 |
| 100kΩ | | R1 | R0603 | 100kΩ | 1 |
| 51.0kΩ | | R2 | R0603 | 51.0kΩ | 1 |
| 10K | | R3, R4, R11, R15, R16, R18, R19, R20, R24, R25, R27, R29, R30, R31, R32, R34, R35, R36, R39, R51, R76, R77, R78 | R0603 | 10K, Res | 23 |
| 0.5R | | R5, R8 | R2512 | 0.5 R | 2 |
| 1K | | R6, R7, R12, R13, R21, R22, R23, R46, R71 | R0603 | 1K, Res | 9 |
| 68K | | R9 | R0603 | Res | 1 |
| 4.3K | | R10 | R0603 | Res | 1 |
| 0Ω | | R14 | 0805_R | RC0805FR000 TS | 1 |
| 200mΩ | | R17 | R1206 | RL1206JR180TS | 1 |
| 4.7K | | R26, R28, R37, R38, R49, R50, R54, R53, R54 | R0603 | Res | 9 |
| 0Ω | 0R, 0402 | R33 | R0402 | 0402WGF0000TC | 1 |
| 33Ω | 33Ω电阻 | R40, R42, R58 | 0402_R | 0402WGF330JTC | 3 |
| 120Ω | | R41 | R0603 | 0603WAF1200TS | 1 |
| 20kΩ | | R43, R44, R45, R47, R48, R55 | R0603 | 20kΩ | 6 |
| 47kΩ | | R56, R57, R59 | 0402_R | 0402WGF4702TC | 3 |
| 100K | | R70, R72, R73 | R0603 | 100K | 3 |
| 0R | | R74 | R0603 | 0R | 1 |
| 10R | | R75 | R0603 | 10R | 1 |
| SS-12D11G5R | | S1 | SW-TH_5S-12D11G5R | SW Toggle | 1 |
| 3*6*2.5 | | S2 | TSW DIP-2*3*2.5_V | KEY 2P | 1 |
| TF-CARD H1.8 | TF 卡槽 | TF1 | TF-SMD_TF-CARD-H1.8 | TF-CARD H1.8 | 1 |
| TPS565201DDCR | | U1 | SOT-23-6_L2.9-W1.6-P0.95-LS3.0-BR | TPS565201DDCR | 1 |
| AMS1117-3.3/V | | U2 | SOT-223 | AMS1117 | 1 |
| QM8858A | 6轴陀螺仪 | U3 | LGA-14_L3.0-W2.5-P0.50-TL | QM8858A_C507282 | 1 |
| 8782/8 | | U4, U7 | ESOP-8 | 478226 | 2 |
| HT6872 | | U5 | SOP-8_L4.9-W3.9-P1.27-LS6.0-BL | HT6872 | 1 |
| XMC7100-T144K2112AA | 32-bit Automotive MCU Arm Cortex-M7 Microcontroller | U6 | QFP50P2200X22-100X100-1409N-4-V1 | XMC7100-T144K2112AA | 1 |
| Buzzer | | U8 | Buzzer 有源3V SMD | Buzzer | 1 |
| BX-PH2.0-2P22 | | U9, U12 | CONN-TH_2P-P2.00_BOSSE_BX-PH2.0-2P22-LR3.0-2P22 | BX-PH2.0-2P22 | 2 |
| LMV324IDR | | U10, U14 | SOIC-14_L8.7-W3.9-P1.27-LS6.0-BL | LMV324IDR_C52 47280 | 2 |
| SN65HVD230DR | CAN 收发芯片 | U11 | SOIC-8_L4.9-W3.9-P1.27-LS6.0-BL | SN65HVD230DR | 1 |
| CH347T | | U13 | TSSOP-20_L6.5-W4.4-P0.65-LS6.4-BL | CH347T | 1 |
| VS1053B | | U20 | LQFP-48_L7.0-W7.0-P0.50-LS9.0-BL | VS1053B | 1 |
| M68212C18MSG | | U21 | SOT-23-5_L3.0-W1.7-P0.95-LS2.8-BL | M68212C18MSG | 1 |
| USB-A | | USB1 | USB-A-TH_PJ-U3B-AF-03 | USB-A | 1 |
| TYPE-C 6P | | USB2 | TYPE-C-SMD.TYPE-C-6P | TYPE-C 6P | 1 |
| TYPE-C 16PIN 2MD(073) | | USB3 | USB-C-SMD.TYPE-C-16PIN-2MD-073 | TYPE-C 16PIN 2MD(073) | 1 |
| 20MHz | 20MHZ 4P 20pf 无源晶振 | X1 | CRYSTAL-SMD.4P-L3.2-W2.5-BL-2 | X322520MSB4SI | 1 |
| 32.768kHz | | X2 | OSC-SMD_L3.2-W1.5 | X3215327686GD2R | 1 |
| 8MHz | | X3 | CRYSTAL-SMD.4P-L3.2-W2.5-BL | X3225MSB4SI | 1 |
| 7A-12.288MAAJ-T | | X4 | OSC-SMD_L5.0-W3.2 | 7A-12.288MAAJ-T | 1 |