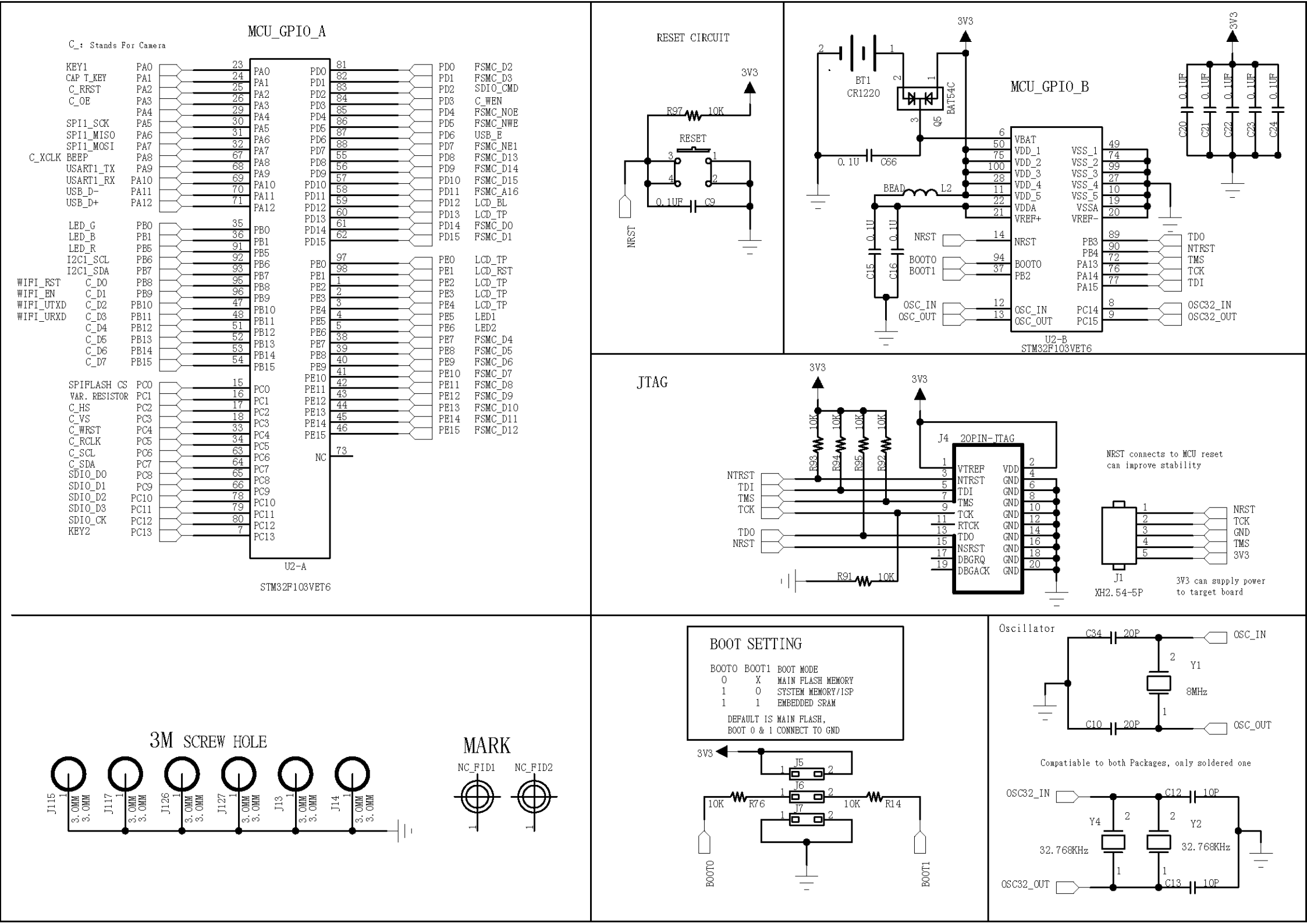
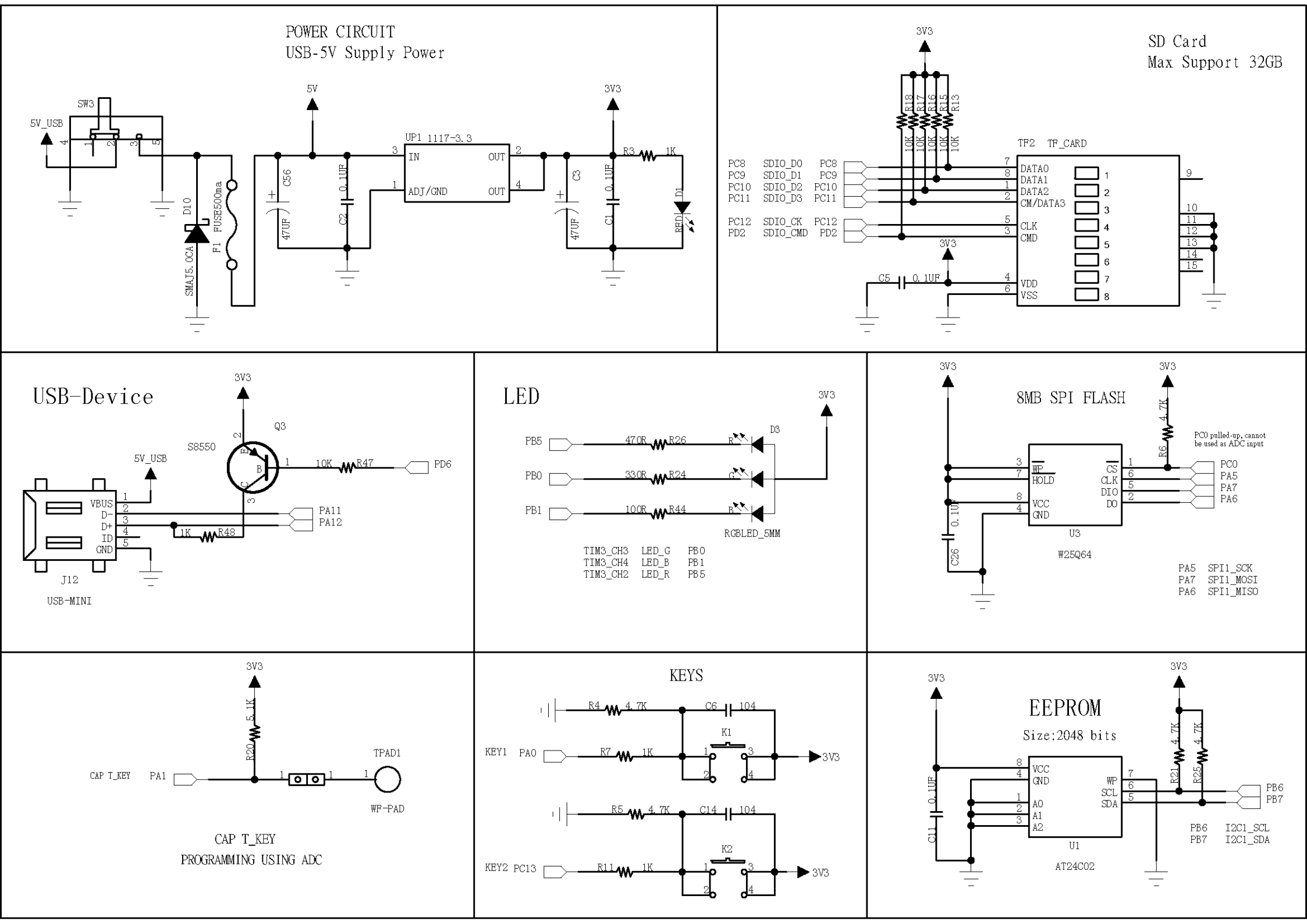
Port	Color Code
A	
B	
C	
D	
E	

Function	Device	Port	Pin	Hardware Config
Button	KEY1	A	0	External Pulled Low
	KEY2	C	13	External Pulled Low
TFT	LCD Display	D	14	LCD data bus 0
		D	15	LCD data bus 1
		D	0	LCD data bus 2
		D	1	LCD data bus 3
		D	7	LCD data bus 4
		D	8	LCD data bus 5
		D	9	LCD data bus 6
		E	10	LCD data bus 7
		E	11	LCD data bus 8
		E	12	LCD data bus 9
		E	13	LCD data bus 10
		E	14	LCD data bus 11
		E	15	LCD data bus 12
		D	8	LCD data bus 13
		D	9	LCD data bus 14
		D	10	LCD data bus 15
		E	1	LCD Reset
		D	12	LCD Backlight
		D	7	LCD ~Select
		D	4	LCD ~Output Enable
		D	5	LCD ~Write Enable
		D	11	LCD CMD or Data
	LCD Touch	E	0	LCD Touch CLK
		E	3	LCD Touch Dout
		E	2	LCD Touch Din
		D	13	LCD Touch Select
		E	4	LCD Touch IRQ

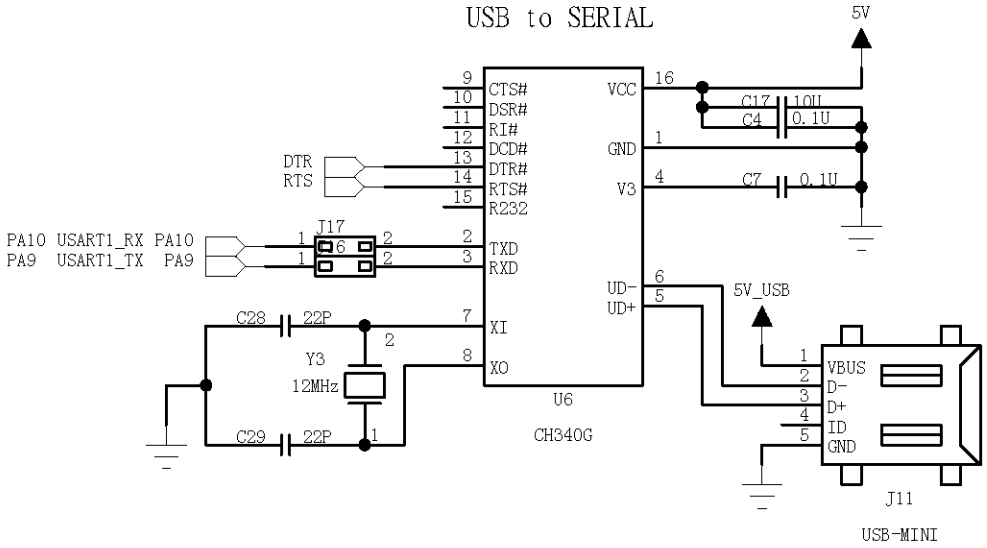
Function	Device	Port	Pin	Hardware Config
Color LED	LED R	B	0	active low
	LED G	B	1	active low
	LED B	B	5	active low
SDIO	SD D0	C	8	SD Card Data Bus 0
	SD D1	C	9	SD Card Data Bus 1
	SD D2	C	10	SD Card Data Bus 2
	SD D3	C	11	SD Card Data Bus 3
	SD CLK	C	12	SD Card Clock
	SD CMD	D	2	SD Card Command
USB	USB-	A	11	-
	USB+	A	12	-
UART	USART1_TX	A	9	-
	USART1_RX	A	10	-
Buzzer	Buzzer	A	8	-
IIC (EEPROM)	I2C1 SCL	B	6	Open Drain
	I2C1 SDA	B	7	Open Drain
8MB Flash	SPI Flash CS	C	0	Pull Up Resistor
	SPI Flash CLK	A	5	-
	SPI Flash MOSI	A	7	-
	SPI Flash MISO	A	6	-

Function	Device	Port	Pin	Hardware Config
Camera	Camera data bus 0	B	8	-
	Camera data bus 1	B	9	-
	Camera data bus 2	B	10	-
	Camera data bus 3	B	11	-
	Camera data bus 4	B	12	-
	Camera data bus 5	B	13	-
	Camera data bus 6	B	14	-
	Camera data bus 7	B	15	-
	Camera control SCL	C	6	Open Drain
	Camera control SDA	C	7	Open Drain
	Camera control HS	C	2	-
	Camera control VS	C	3	-
	Camera FIFO XCLK	A	8	-
	Camera FIFO RCLK	C	5	-
	Camera FIFO RRST	A	2	-
	Camera FIFO WRST	C	4	-
	Camera FIFO WEN	D	3	-
	Camera FIFO OEN	A	3	-

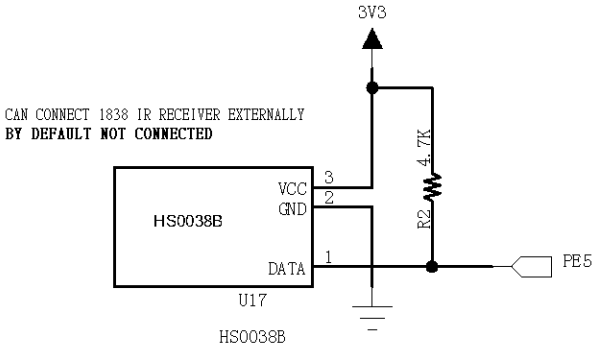

MCU_GPIO_A
C_: Stands For Camera
KEY1 PA0
CAP T_KEY PA1
C_RRST PA2
C_OE PA3
PA4
SPI1_SCK PA5
SPI1_MISO PA6
SPI1_MOSI PA7
C_XCLK BEEP PA8
USART1_TX PA9
USART1_RX PA10
USB_D- PA11
USB_D+ PA12
LED_G PB0
LED_B PB1
LED_R PB5
I2C1_SCL PB6
I2C1_SDA PB7
WIFI_RST C_D0 PB8
WIFI_EN C_D1 PB9
WIFI_UTXD C_D2 PB10
WIFI_URXD C_D3 PB11
C_D4 PB12
C_D5 PB13
C_D6 PB14
C_D7 PB15
SPIFLASH CS PC0
VAR. RESISTOR PC1
C_HS PC2
C_VS PC3
C_WRST PC4
C_RCLK PC5
C_SCL PC6
C_SDA PC7
SDIO_D0 PC8
SDIO_D1 PC9
SDIO_D2 PC10
SDIO_D3 PC11
SDIO_CK PC12
KEY2 PC13
PD0 FSMC_D2
PD1 FSMC_D3
PD2 SDIO_CMD
PD3 C_WEN
PD4 FSMC_NOE
PD5 FSMC_NWE
PD6 USB_E
PD7 FSMC_NE1
PD8 FSMC_D13
PD9 FSMC_D14
PD10 FSMC_D15
PD11 FSMC_A16
PD12 LCD_BL
PD13 LCD_TP
PD14 FSMC_D0
PD15 FSMC_D1
PE0 LCD_TP
PE1 LCD_RST
PE2 LCD_TP
PE3 LCD_TP
PE4 LCD_TP
PE5 LED1
PE6 LED2
PE7 FSMC_D4
PE8 FSMC_D5
PE9 FSMC_D6
PE10 FSMC_D7
PE11 FSMC_D8
PE12 FSMC_D9
PE13 FSMC_D10
PE14 FSMC_D11
PE15 FSMC_D12
NC
U2-A
STM32F103VET6
RESET CIRCUIT
3V3
R97 10K
RESET
0.1UF C9
NRST
MCU_GPIO_B
BT1 CR1220
BAT54C Q5
0.1U C66
BEAD L2
0.1U C15
0.1U C16
NRST
BOOT0
BOOT1
OSC_IN
OSC_OUT
VBAT
VDD_1
VDD_2
VDD_3
VDD_4
VDD_5
VDDA
VREF+
VSS_1
VSS_2
VSS_3
VSS_4
VSS_5
VSSA
VREF-
PB3
PB4
PA13
PA14
PA15
PC14
PC15
TDO
NTRST
TMS
TCK
TDI
OSC32_IN
OSC32_OUT
U2-B
STM32F103VET6
C20 0.1UF
C21 0.1UF
C22 0.1UF
C23 0.1UF
C24 0.1UF
JTAG
R93 10K
R94 10K
R95 10K
R92 10K
J4 20PIN-JTAG
VTREF
NTRST
TDI
TMS
TCK
RTCK
TDO
NSRST
DBGRQ
DBGACK
VDD
GND
R91 10K
NRST connects to MCU reset
can improve stability
J1
XH2.54-5P
3V3 can supply power
to target board
3M SCREW HOLE
J115 3.0MM
J117 3.0MM
J126 3.0MM
J127 3.0MM
J13 3.0MM
J14 3.0MM
MARK
NC_FID1
NC_FID2
BOOT SETTING
BOOT0 BOOT1 BOOT MODE
0 X MAIN FLASH MEMORY
1 0 SYSTEM MEMORY/ISP
1 1 EMBEDDED SRAM
DEFAULT IS MAIN FLASH,
BOOT 0 & 1 CONNECT TO GND
J5
J6
J7
10K R76
10K R14
BOOT0
BOOT1
Oscillator
C34 20P
C10 20P
Y1
8MHz
OSC_IN
OSC_OUT
Compatiable to both Packages, only soldered one
OSC32_IN
OSC32_OUT
Y4
32.768KHz
Y2
32.768KHz
C12 10P
C13 10P


POWER CIRCUIT
USB-5V Supply Power
SW3
5V_USB
D10
SMAJ5.0CA
F1 FUSB500ma
5V
C56
47UF
C2
0.1UF
UP1 1117-3.3
IN
OUT
ADJ/GND
OUT
3V3
C3
47UF
C1
0.1UF
R3
1K
D1
RED
SD Card
Max Support 32GB
3V3
R18
R17
R16
R15
R13
10K
TF2 TF_CARD
PC8 SDIO_D0 PC8
PC9 SDIO_D1 PC9
PC10 SDIO_D2 PC10
PC11 SDIO_D3 PC11
PC12 SDIO_CK PC12
PD2 SDIO_CMD PD2
DATA0
DATA1
DATA2
CM/DATA3
CLK
CMD
VDD
VSS
C5
0.1UF
USB-Device
3V3
Q3
S8550
5V_USB
10K
R47
PD6
VBUS
D-
D+
ID
GND
PA11
PA12
1K
R48
J12
USB-MINI
LED
3V3
PB5
470R
R26
D3
PB0
330R
R24
PB1
100R
R44
RGBLED_5MM
TIM3_CH3 LED_G PB0
TIM3_CH4 LED_B PB1
TIM3_CH2 LED_R PB5
8MB SPI FLASH
3V3
4.7K
R6
PC0 pulled-up, cannot be used as ADC input
WP
HOLD
VCC
GND
CS
CLK
DIO
DO
PC0
PA5
PA7
PA6
0.1UF
C26
U3
W25Q64
PA5 SPI1_SCK
PA7 SPI1_MOSI
PA6 SPI1_MISO
3V3
R20
5.1K
CAP T_KEY
PA1
TPAD1
WF-PAD
CAP T_KEY
PROGRAMMING USING ADC
KEYS
R4
4.7K
C6
104
K1
KEY1 PA0
R7
1K
3V3
R5
4.7K
C14
104
K2
KEY2 PC13
R11
1K
3V3
EEPROM
Size:2048 bits
3V3
VCC
GND
A0
A1
A2
WP
SCL
SDA
R21
4.7K
R25
4.7K
PB6
PB7
C11
0.1UF
U1
AT24C02
PB6 I2C1_SCL
PB7 I2C1_SDA

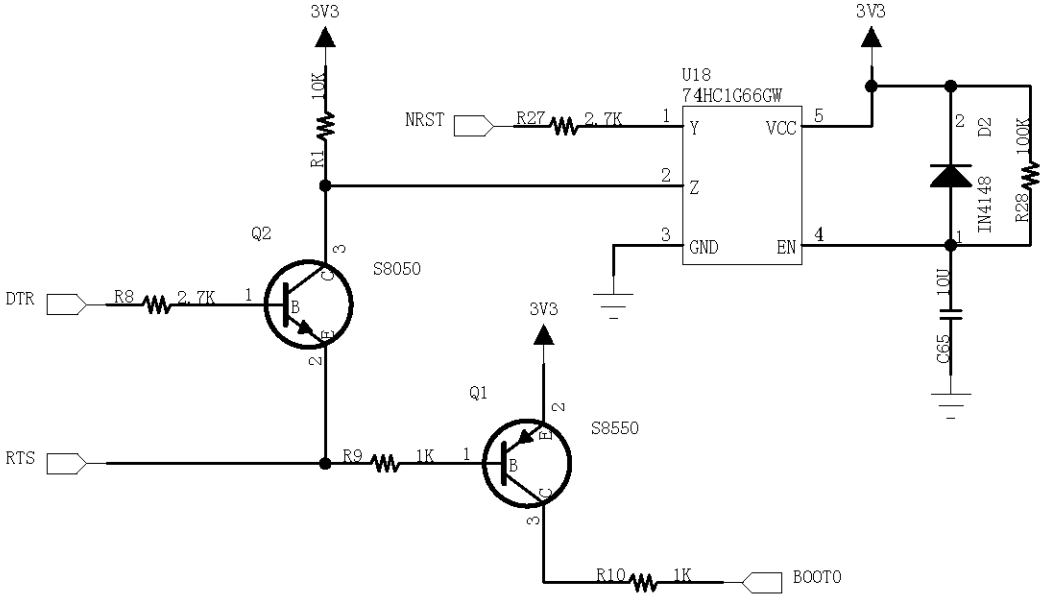
USB to SERIAL



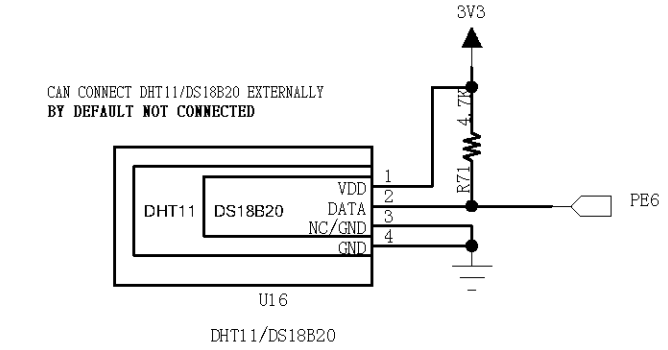
IR CONNECTOR

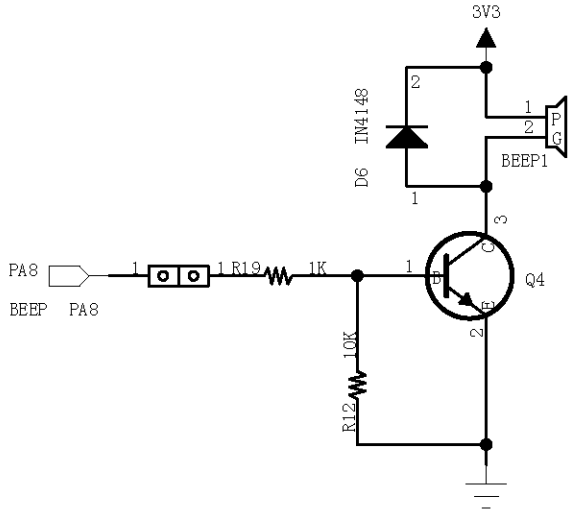


ISP ONE KEY DOWNLOAD CIRCUIT



DHT11/DS18B20 CONNECTOR

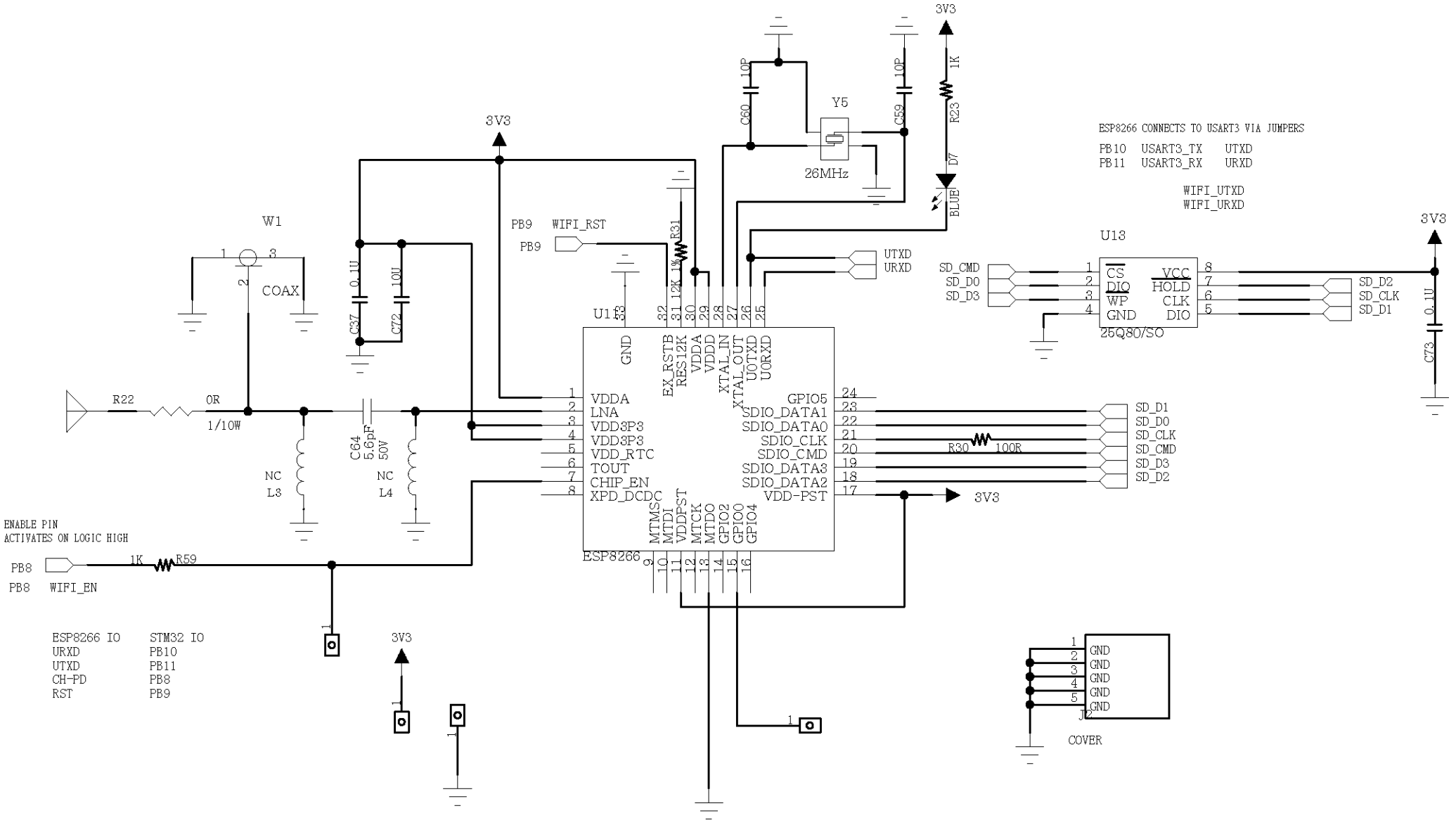




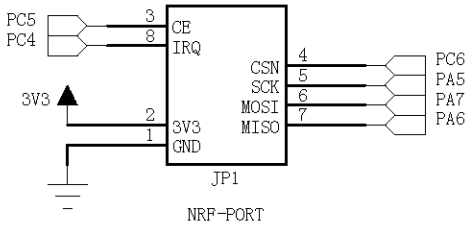
WIFI ESP8266

Note

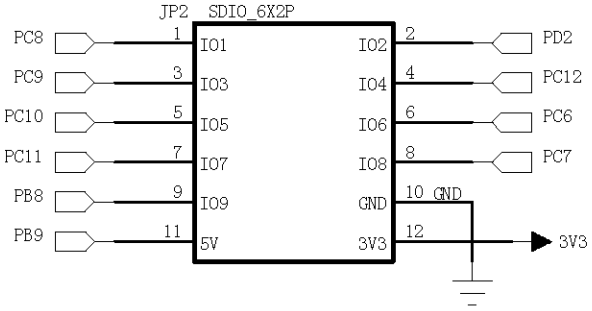
1. ESP8266 is designed for transferring small amount of data (e.g. less than 200 bytes)
2. The board is tested at a distance of 10-meter



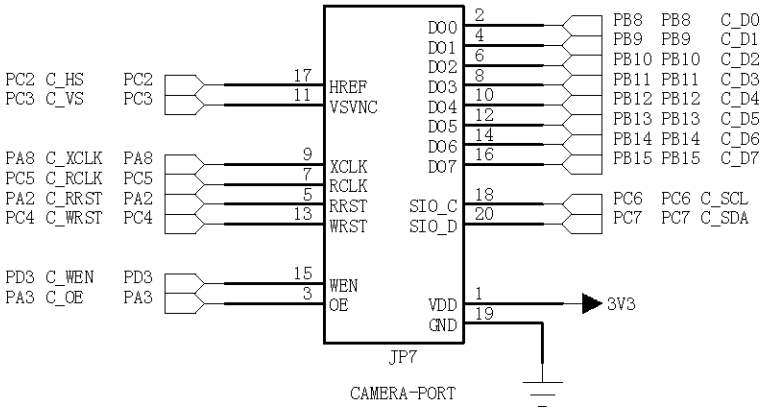
NRF24L01



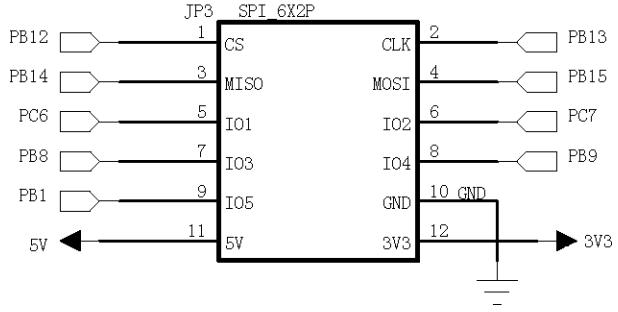
SDIO



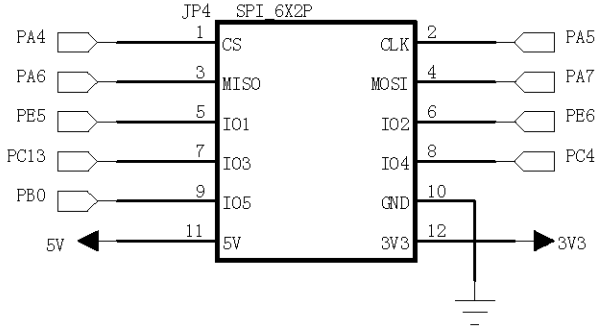
CAMERA



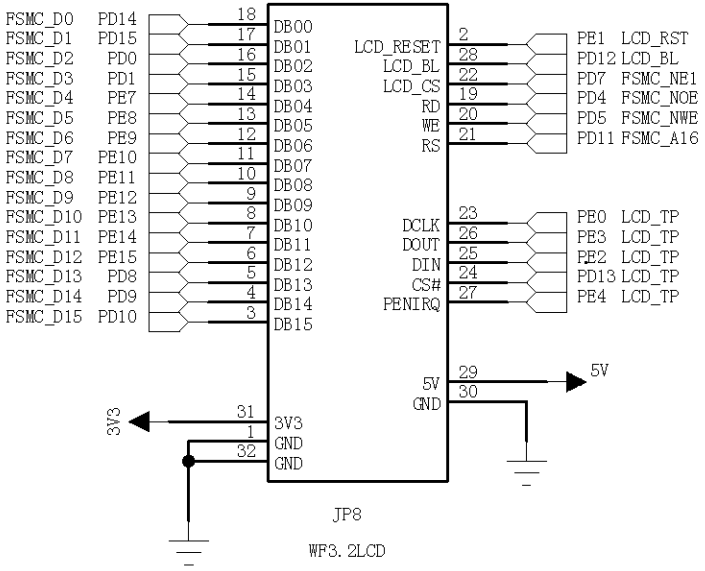
SPI2/I2S



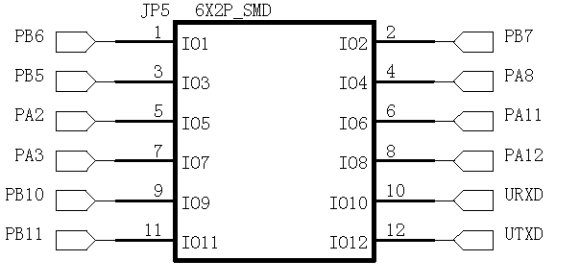
SPI1



LCD CONNECTOR

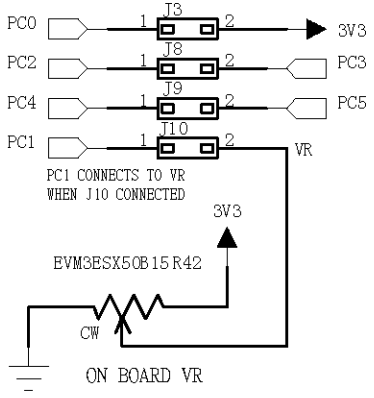


I2C1/2-USART2/3

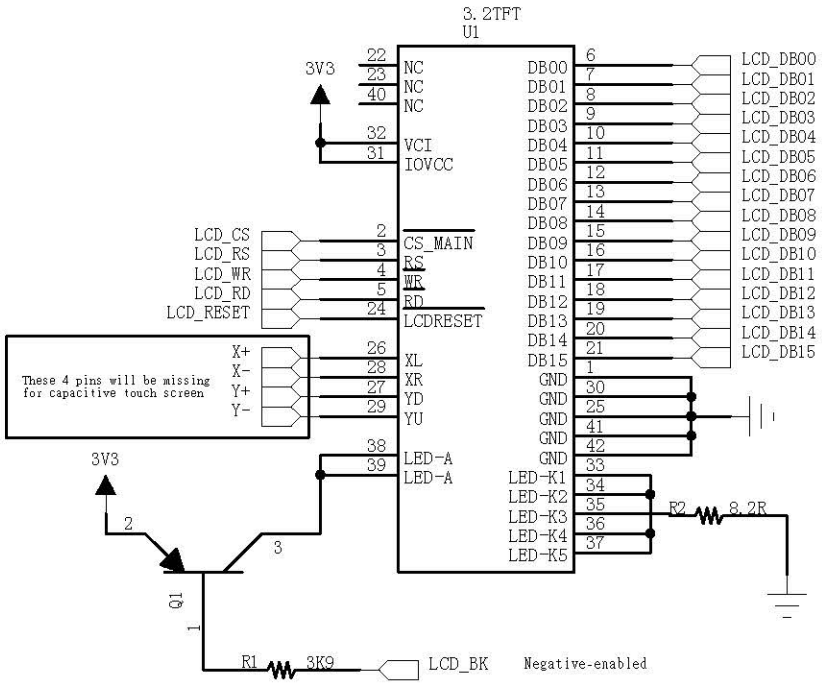


URXD UTXD for ESP8266
PB10: USART3_TXD
PB11: USART3_RXD
BY DEFAULT 9 10 11 12 CONNECTED BY JUMPERS

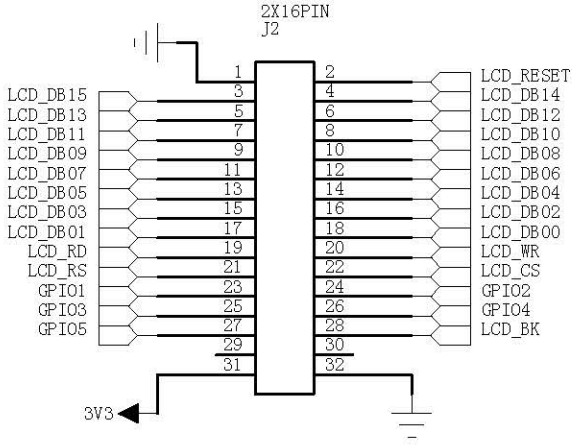
ADC



3.2 inch TFT

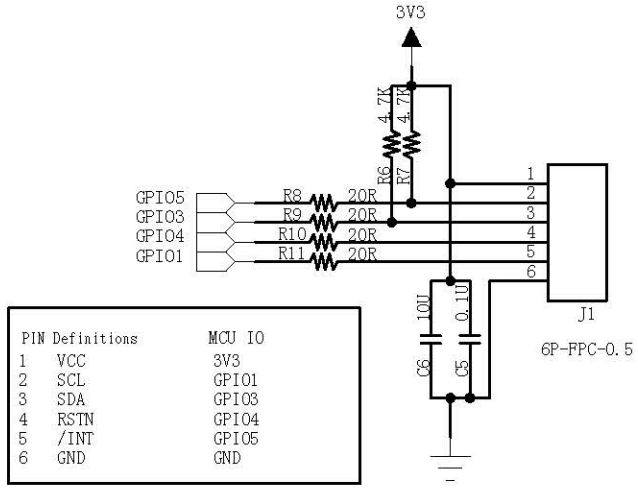


2X16PIN Connector



3.2 inch Capactive Touch Scren

No need to solder this part if resistive touch screen is used



Resistive Touch Screen Controller

No need to solder this part if capactive touch screen is used