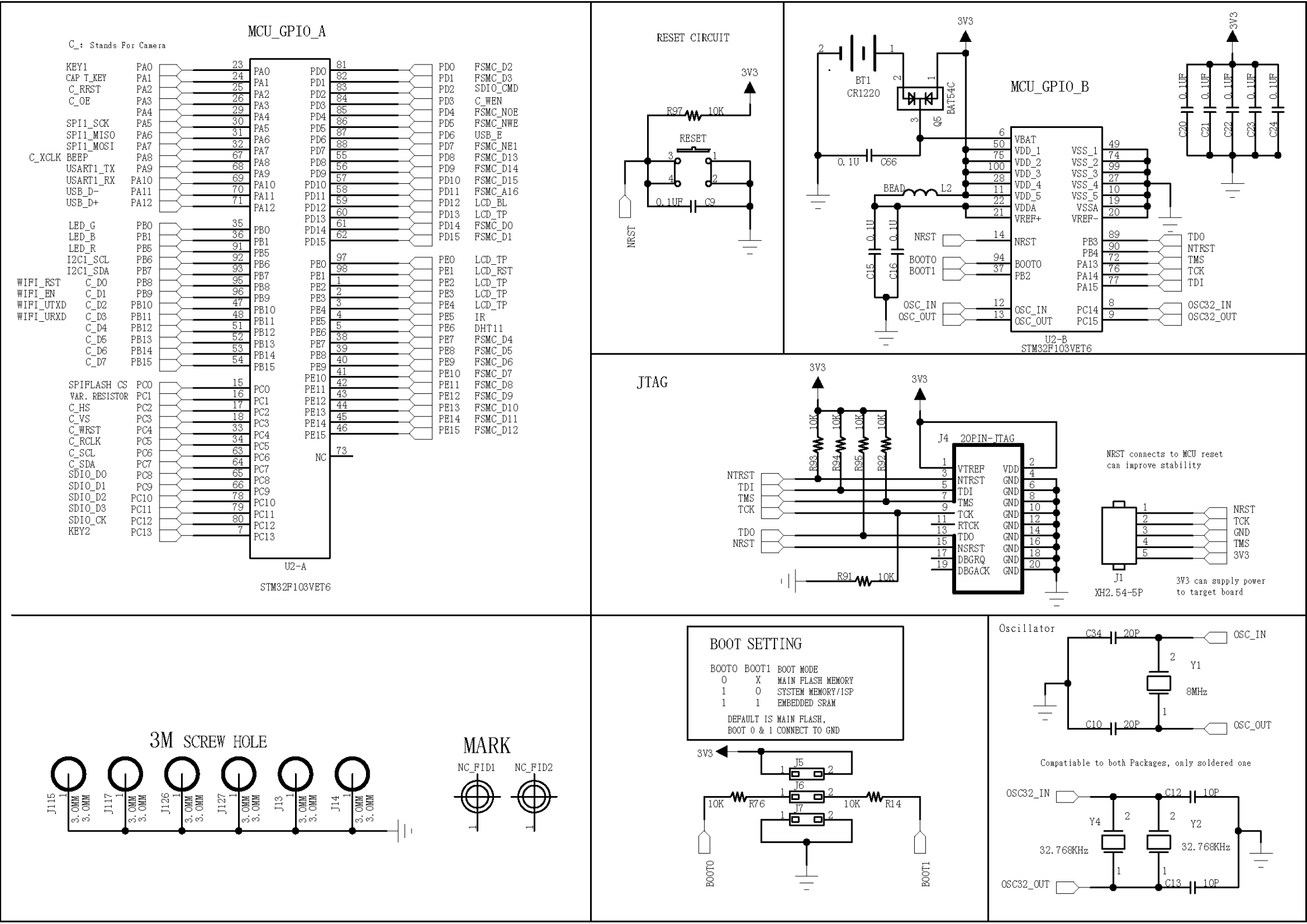
Last Update 15-Apr-2020

Port	Color Code
A	
B	
C	
D	
E	

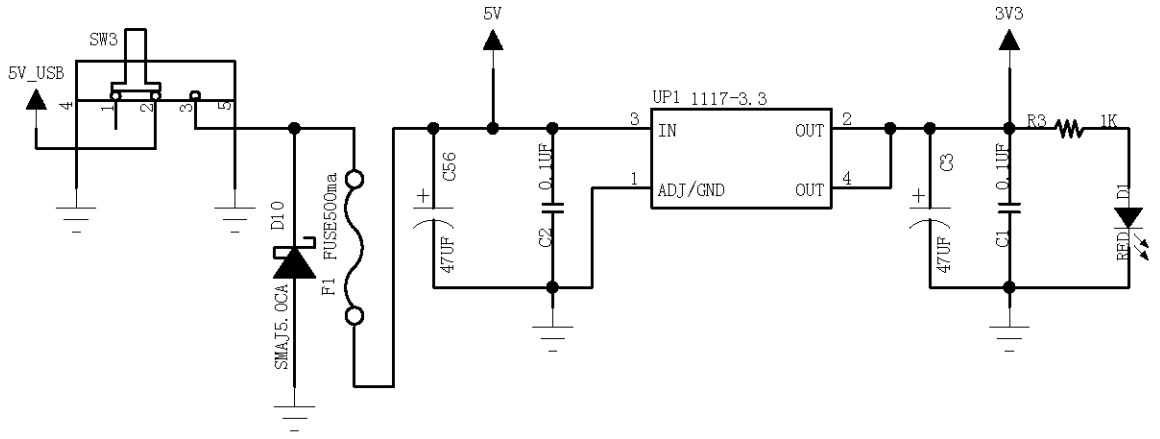
Function	Device	Port	Pin	Hardware Config
Button	KEY1	A	0	External Pulled Low
	KEY2	C	13	External Pulled Low
TFT	LCD Display	D	14	LCD data bus 0
		D	15	LCD data bus 1
		D	0	LCD data bus 2
		D	1	LCD data bus 3
		D	7	LCD data bus 4
		D	8	LCD data bus 5
		D	9	LCD data bus 6
		E	10	LCD data bus 7
		E	11	LCD 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	5	active low
	LED G	B	0	active low
	LED B	B	1	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	-

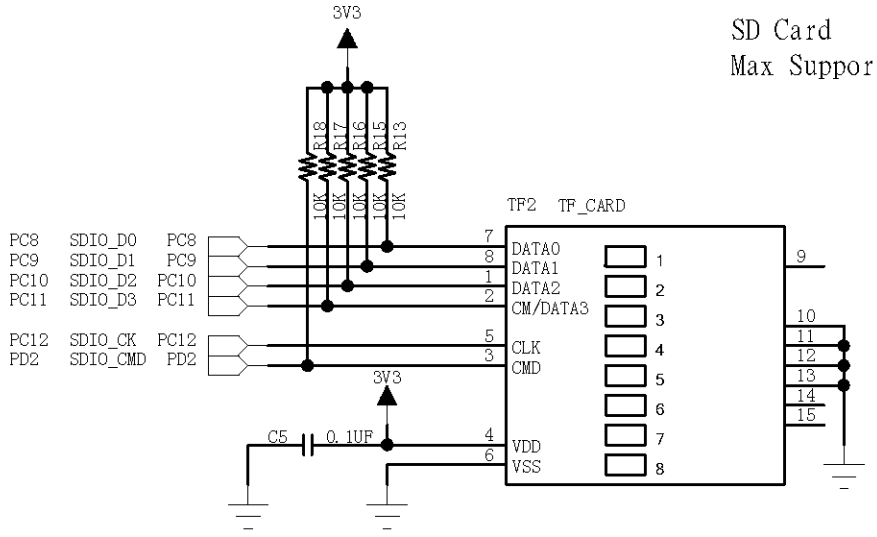
Function	Device	Port	Pin	Hardware Config
Camera	Camera data bus 0	B	8	-
	Camera data bus 1	B	9	-
	Camera data bus 2	B	10	-
	Camera data bus 3	B	11	-
	Camera data bus 4	B	12	-
	Camera data bus 5	B	13	-
	Camera data bus 6	B	14	-
	Camera data bus 7	B	15	-
	Camera control SCL	C	6	Open Drain
	Camera control 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	-
IR	IR Data	E	5	Pull Up Resistor
DHT11	DHT11 Data	E	6	Pull Up Resistor


MCU_GPIO_A
C_: Stands For Camera
KEY1 PA0 23
CAP T_KEY PA1 24
C_RRST PA2 25
C_OE PA3 26
PA4 29
SPI1_SCK PA5 30
SPI1_MISO PA6 31
SPI1_MOSI PA7 32
C_XCLK BEEP PA8 67
USART1_TX PA9 68
USART1_RX PA10 69
USB_D- PA11 70
USB_D+ PA12 71
LED_G PB0 35
LED_B PB1 36
LED_R PB5 91
I2C1_SCL PB6 92
I2C1_SDA PB7 93
WIFI_RST C_D0 PB8 95
WIFI_EN C_D1 PB9 96
WIFI_UTXD C_D2 PB10 47
WIFI_URXD C_D3 PB11 48
C_D4 PB12 51
C_D5 PB13 52
C_D6 PB14 53
C_D7 PB15 54
SPIFLASH CS PC0 15
VAR. RESISTOR PC1 16
C_HS PC2 17
C_VS PC3 18
C_WRST PC4 33
C_RCLK PC5 34
C_SCL PC6 63
C_SDA PC7 64
SDIO_D0 PC8 65
SDIO_D1 PC9 66
SDIO_D2 PC10 78
SDIO_D3 PC11 79
SDIO_CK PC12 80
KEY2 PC13 7
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7 PA8 PA9 PA10 PA11 PA12
PB0 PB1 PB5 PB6 PB7 PB8 PB9 PB10 PB11 PB12 PB13 PB14 PB15
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7 PC8 PC9 PC10 PC11 PC12 PC13
PD0 81 PD0 FSMC_D2
PD1 82 PD1 FSMC_D3
PD2 83 PD2 SDIO_CMD
PD3 84 PD3 C_WEN
PD4 85 PD4 FSMC_NOE
PD5 86 PD5 FSMC_NWE
PD6 87 PD6 USB_E
PD7 88 PD7 FSMC_NE1
PD8 55 PD8 FSMC_D13
PD9 56 PD9 FSMC_D14
PD10 57 PD10 FSMC_D15
PD11 58 PD11 FSMC_A16
PD12 59 PD12 LCD_BL
PD13 60 PD13 LCD_TP
PD14 61 PD14 FSMC_D0
PD15 62 PD15 FSMC_D1
PE0 97 PE0 LCD_TP
PE1 98 PE1 LCD_RST
PE2 1 PE2 LCD_TP
PE3 2 PE3 LCD_TP
PE4 3 PE4 LCD_TP
PE5 4 PE5 IR
PE6 5 PE6 DHT11
PE7 38 PE7 FSMC_D4
PE8 39 PE8 FSMC_D5
PE9 40 PE9 FSMC_D6
PE10 41 PE10 FSMC_D7
PE11 42 PE11 FSMC_D8
PE12 43 PE12 FSMC_D9
PE13 44 PE13 FSMC_D10
PE14 45 PE14 FSMC_D11
PE15 46 PE15 FSMC_D12
NC 73
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 14
BOOT0 94
BOOT1 37
PB2
OSC_IN 12
OSC_OUT 13
VBAT 6
VDD_1 50
VDD_2 75
VDD_3 100
VDD_4 28
VDD_5 11
VDDA 22
VREF+ 21
VSS_1 49
VSS_2 74
VSS_3 99
VSS_4 27
VSS_5 10
VSSA 19
VREF- 20
PB3 89 TDO
PB4 90 NTRST
PA13 72 TMS
PA14 76 TCK
PA15 77 TDI
PC14 8 OSC32_IN
PC15 9 OSC32_OUT
0.1UF C20
0.1UF C21
0.1UF C22
0.1UF C23
0.1UF C24
U2-B
STM32F103VET6
JTAG
3V3
R93 10K
R94 10K
R95 10K
R92 10K
J4 20PIN-JTAG
NTRST
TDI
TMS
TCK
TDO
NRST
R91 10K
VTREF VDD
NTRST GND
TDI GND
TMS GND
TCK GND
RTCK GND
TDO GND
NSRST GND
DBGRQ GND
DBGACK GND
NRST connects to MCU reset
can improve stability
NRST
TCK
GND
TMS
3V3
J1
XH2.54-5P
3V3 can supply power
to target board
3M SCREW HOLE
J115 3.0MM 3.0MM
J117 3.0MM 3.0MM
J126 3.0MM 3.0MM
J127 3.0MM 3.0MM
J13 3.0MM 3.0MM
J14 3.0MM 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
3V3
J5
J6
J7
10K R76
10K R14
BOOT0
BOOT1
Oscillator
C34 20P
OSC_IN
Y1
8MHz
C10 20P
OSC_OUT
Compatiable to both Packages, only soldered one
OSC32_IN
C12 10P
Y4
32.768KHz
Y2
32.768KHz
OSC32_OUT
C13 10P

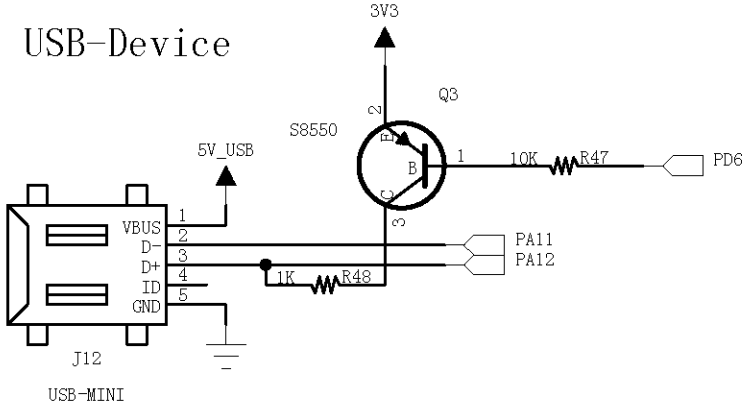
POWER CIRCUIT
USB-5V Supply Power



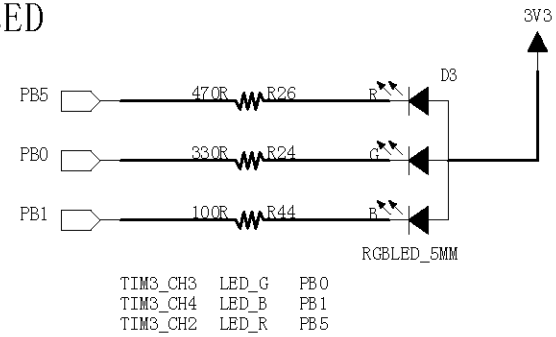
SD Card
Max Support 32GB



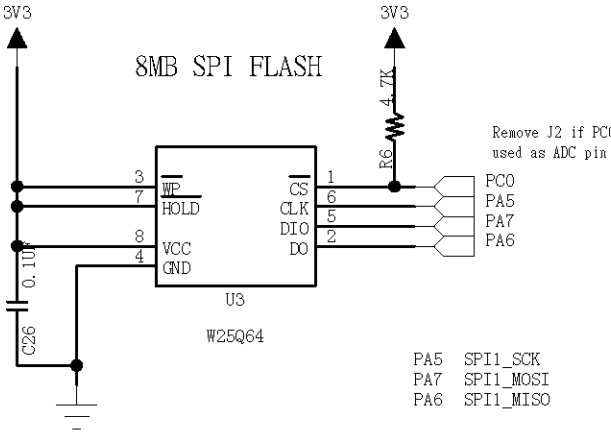
USB-Device

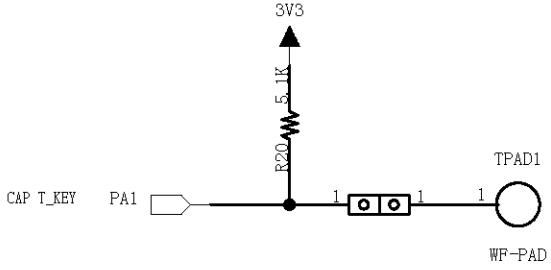


LED



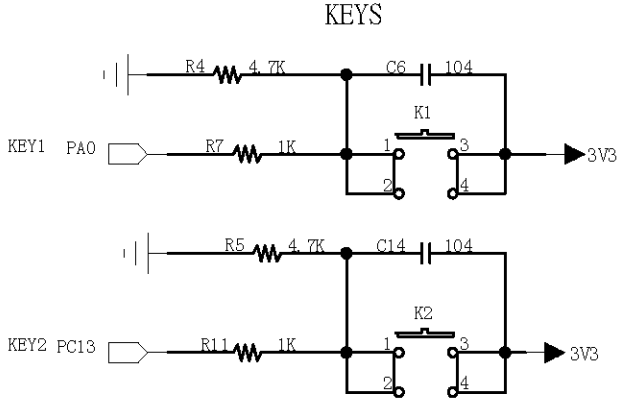
8MB SPI FLASH



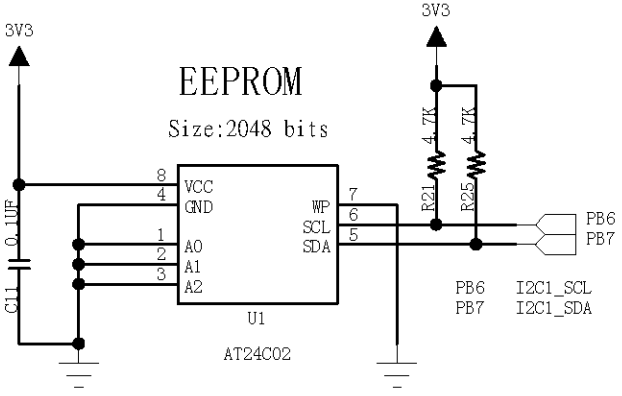


CAP T_KEY
PROGRAMMING USING ADC

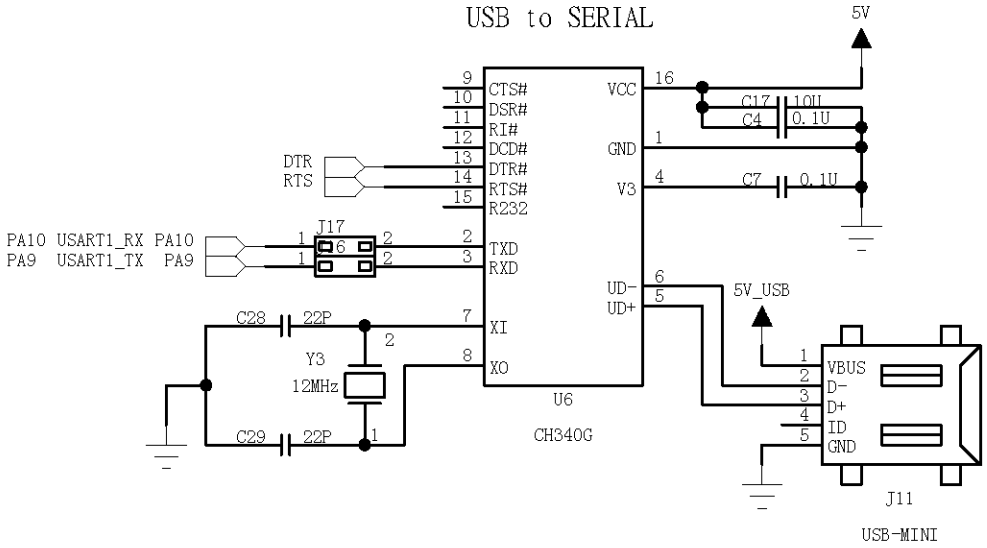
KEYS



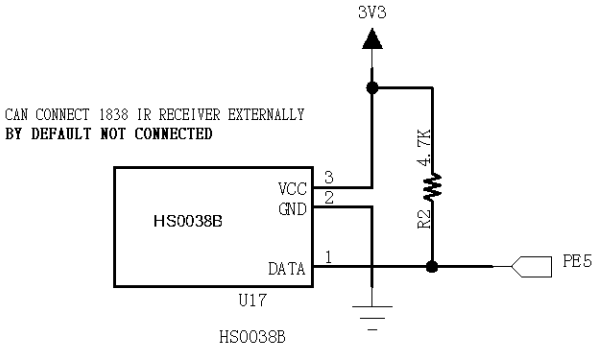
EEPROM
Size:2048 bits



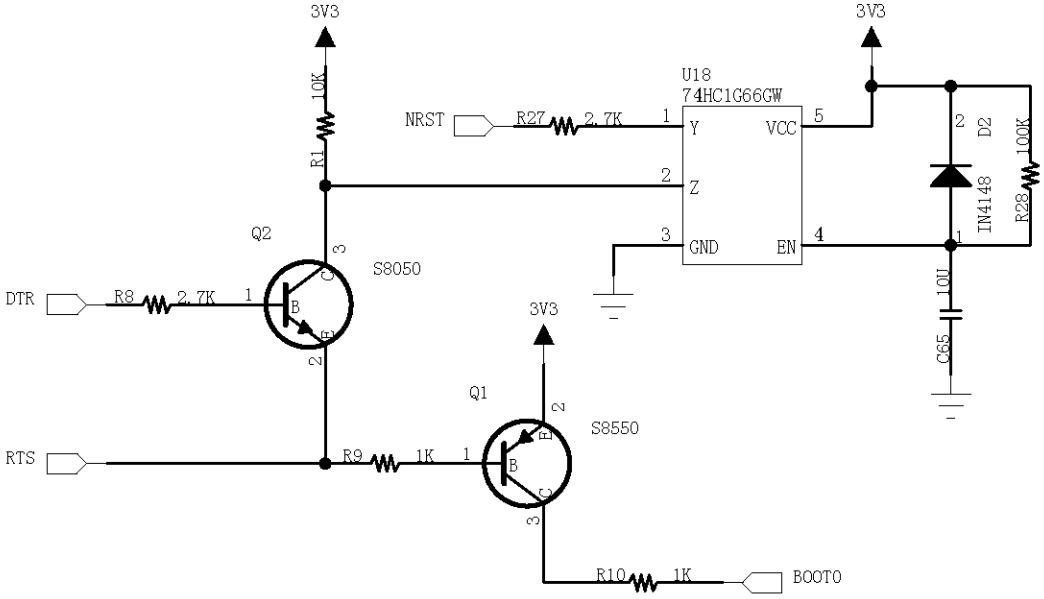
USB to SERIAL



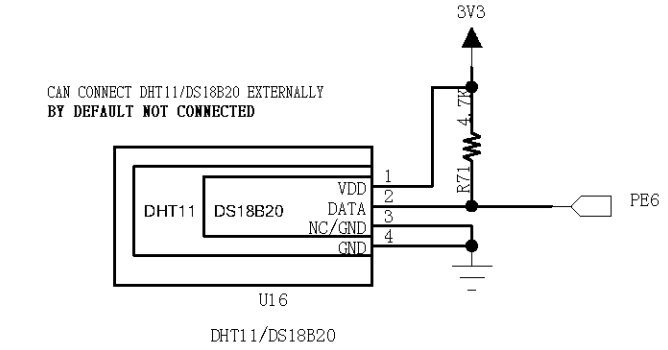
IR CONNECTOR

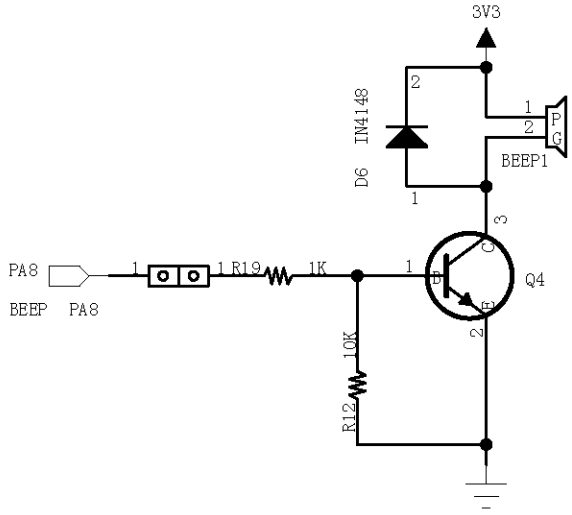


ISP ONE KEY DOWNLOAD CIRCUIT



DHT11/DS18B20 CONNECTOR

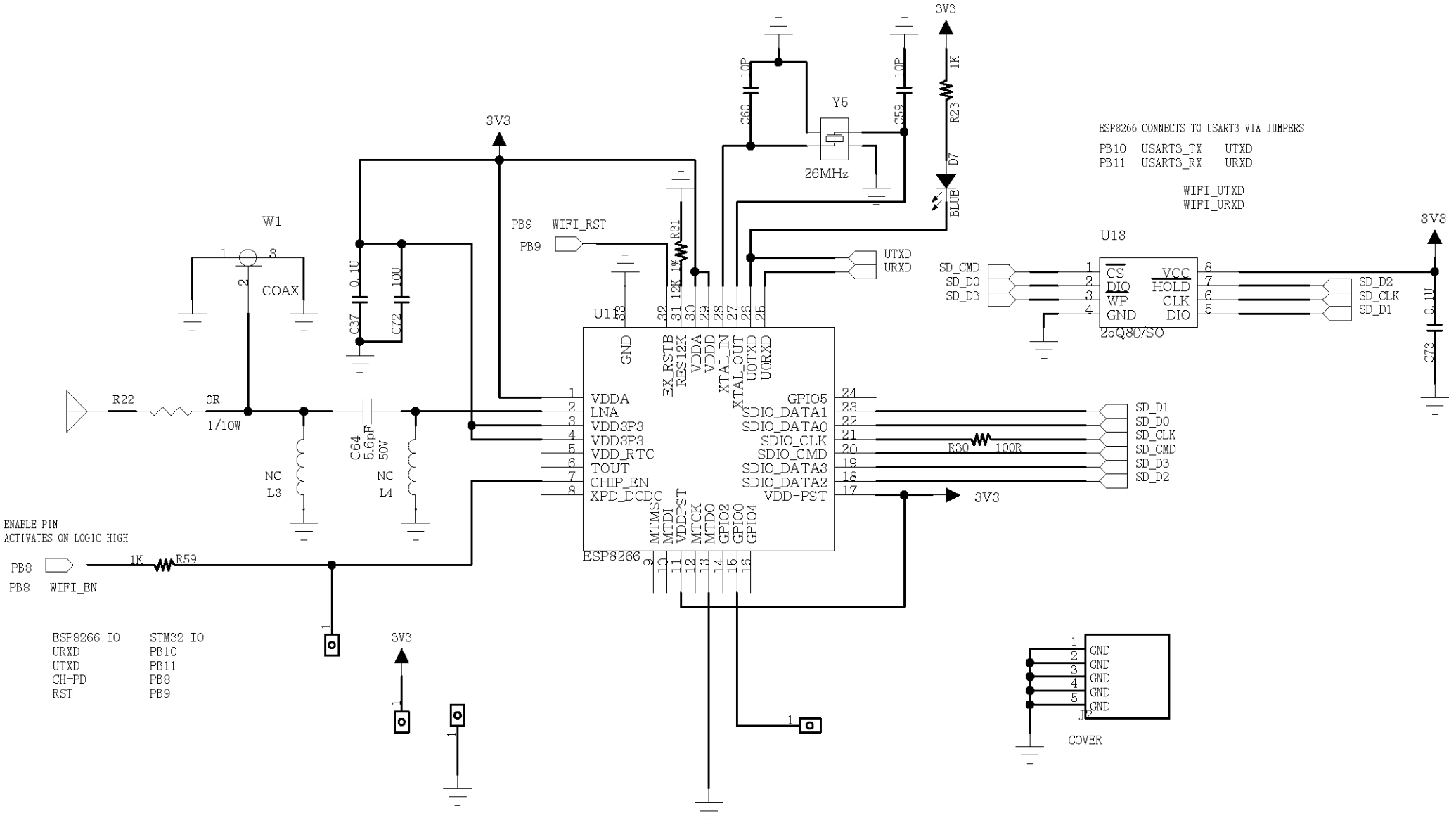




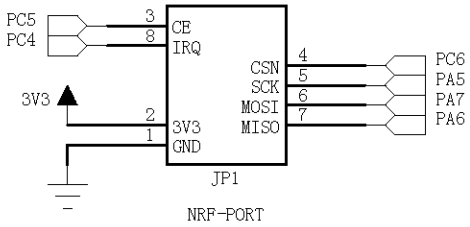
WIFI ESP8266

Note

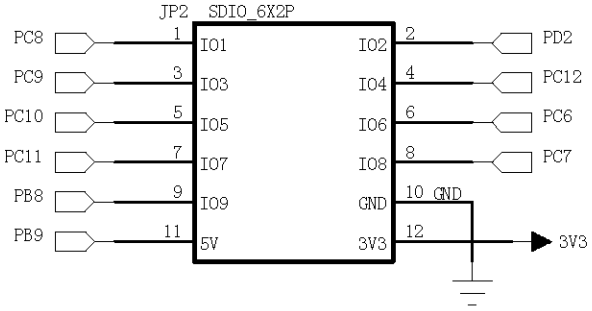
1. ESP8266 is designed for transferring small amount of data (e.g. less than 200 bytes)
2. The board is tested at a distance of 10-meter



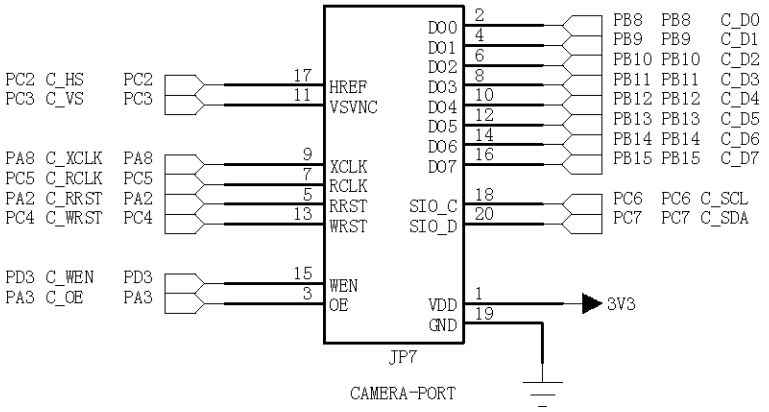
NRF24L01



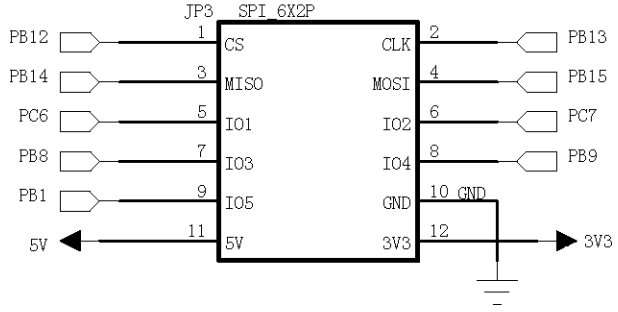
SDIO



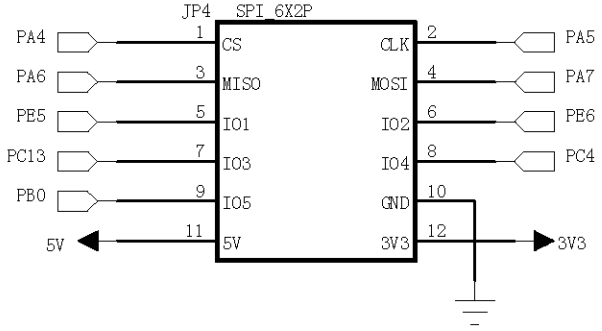
CAMERA



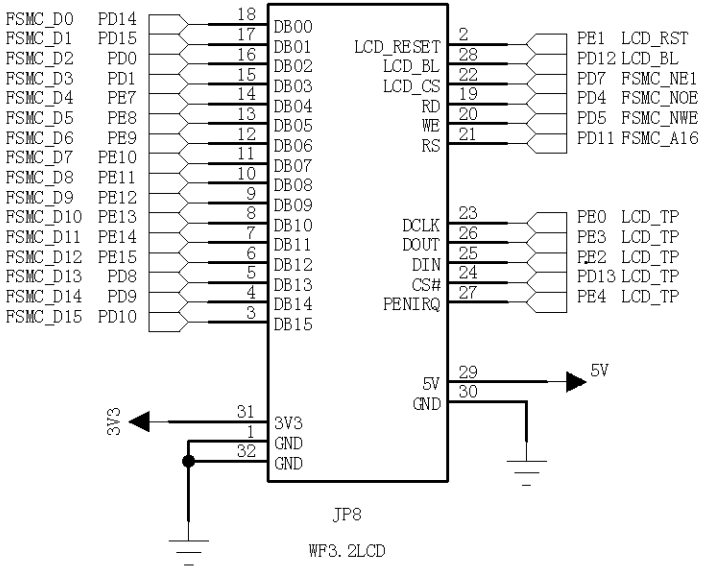
SPI2/I2S



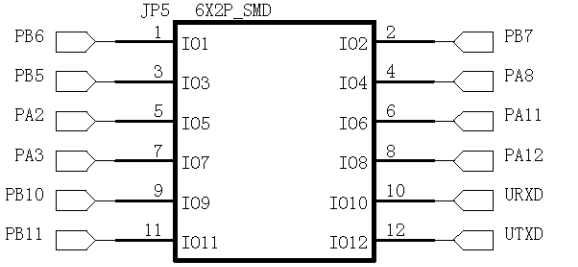
SPI1



LCD CONNECTOR

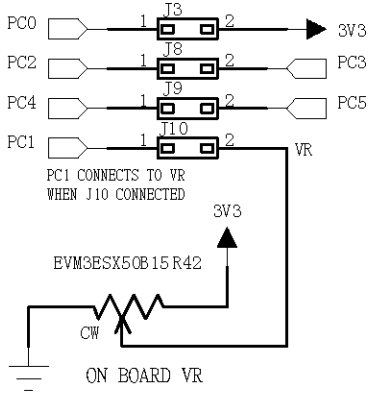


I2C1/2-USART2/3

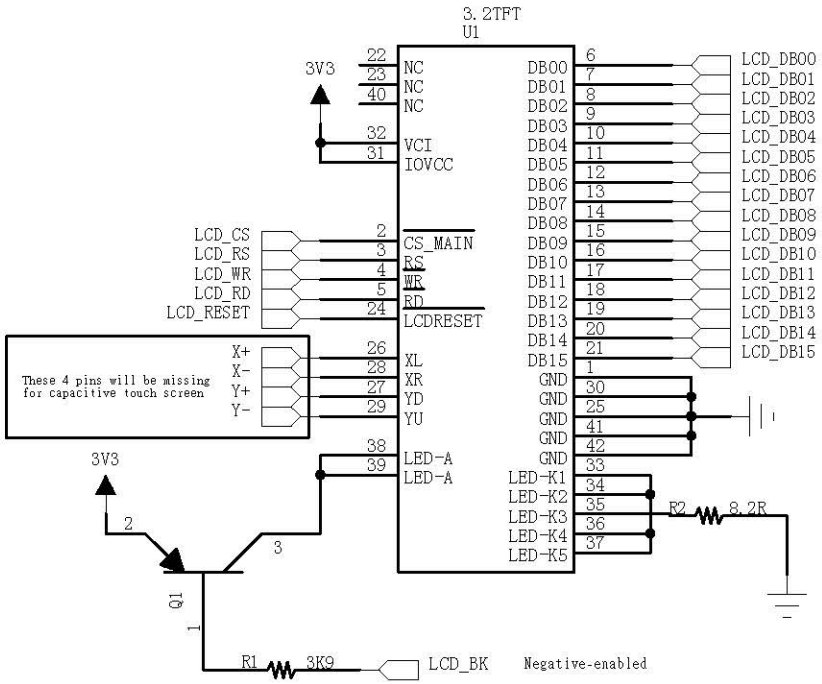


URXD UTXD for ESP8266
PB10: USART3_TXD
PB11: USART3_RXD
BY DEFAULT 9 10 11 12 CONNECTED BY JUMPERS

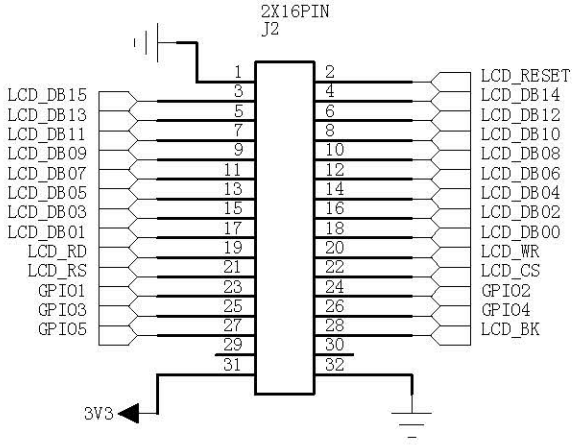
ADC



3.2 inch TFT

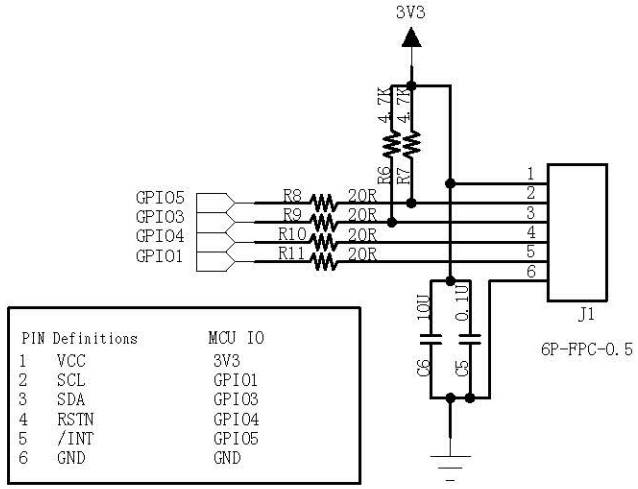


2X16PIN Connector



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