

	.....	1
	.....	1
	
1-1	.....
1-1	.....
1-	.....
1-	.....
1-	.....
1-	.....	11
1-	.....	1
1-	.....	1
1-	.....	1
1-	.....	1
1-10	.....	1
1-11	.....
1-1	.....
1-1	.....
1-1	.....
1-1	.....
1-1	.....	0
1-1	.....
1-1	.....
	
	
-1	.....
-1	.....
-	.....	0
-	.....	1
-	
-	
-	
-	
-	.....	1
-10	.....
-11	.....
-1	.....
-1	.....
-1	.....	1
-1	.....
-1	.....
-1	.....
-1	.....
	.....	0

[2014] 55

- 1.
- 2.
- 3.
- 4.

--

--

		1-1	1	1-1	1-1
		-1	1	-1	-1
		-1	1	-1	-1

1

I/O

C

/

Kei I C

2

1

/ /

Kei I C

MCU

/ /

2

6S (

)

/

3

120

4

20		10	0	
				1
				2
		10		3
				4
			5	

10

5

30

1



2

PCB

E

3

1

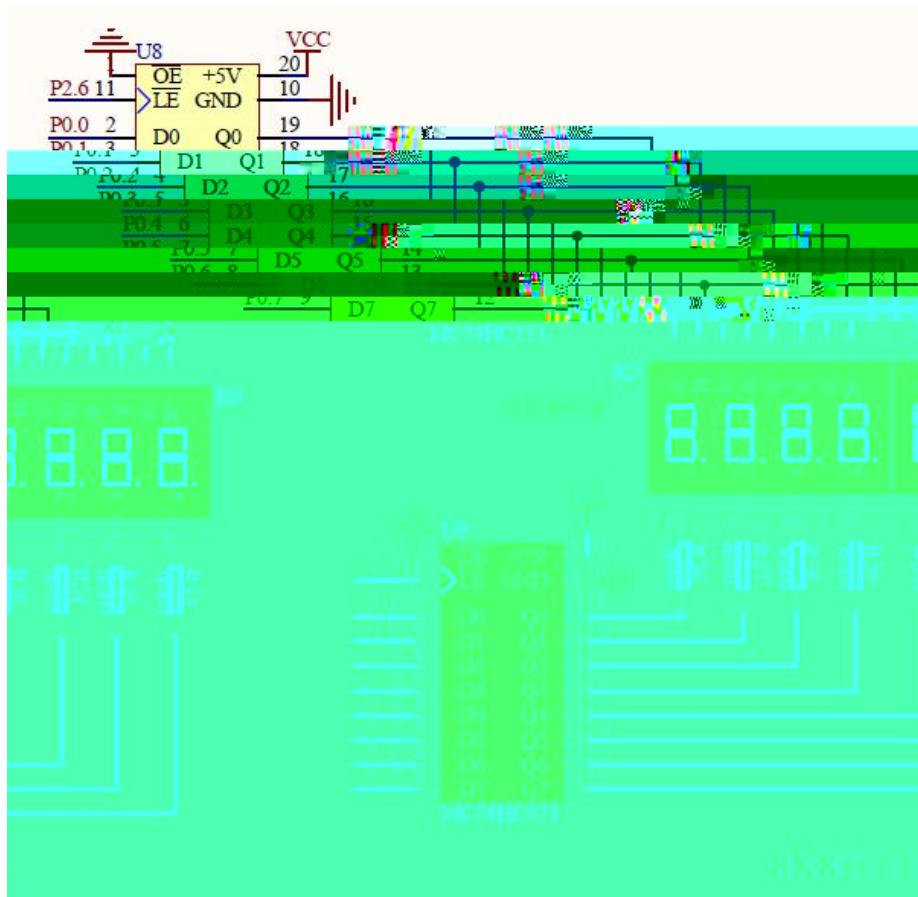


2

PCB
E

3

1

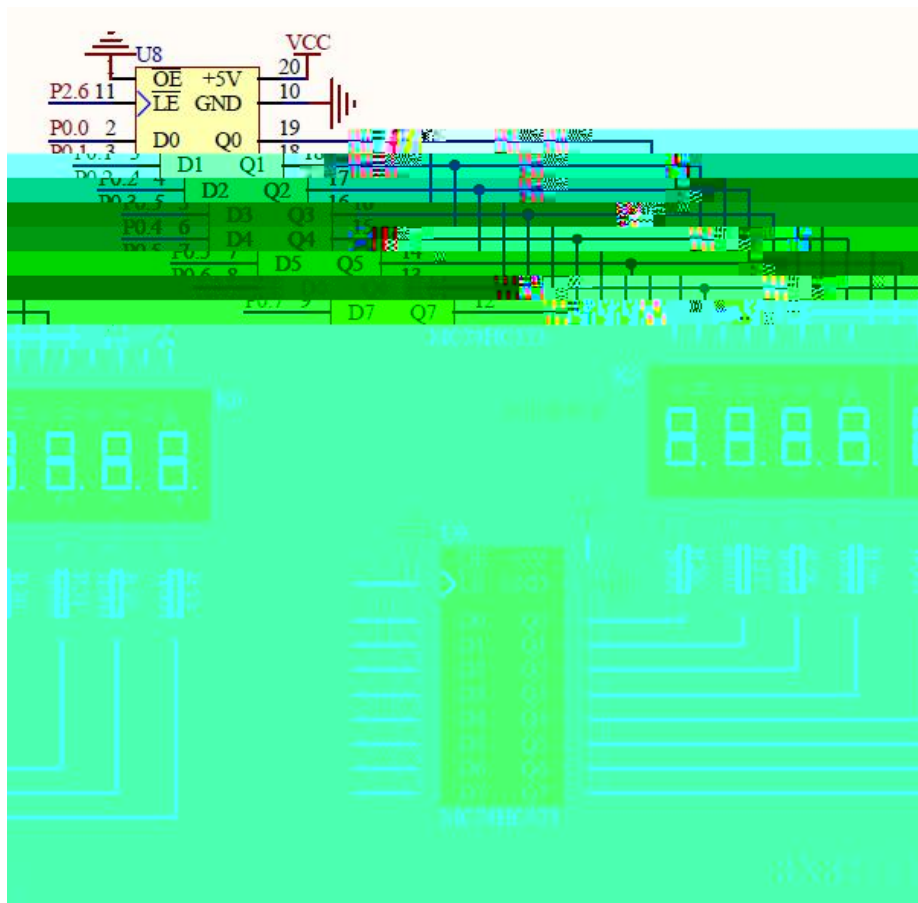


2

PCB
E

3

1



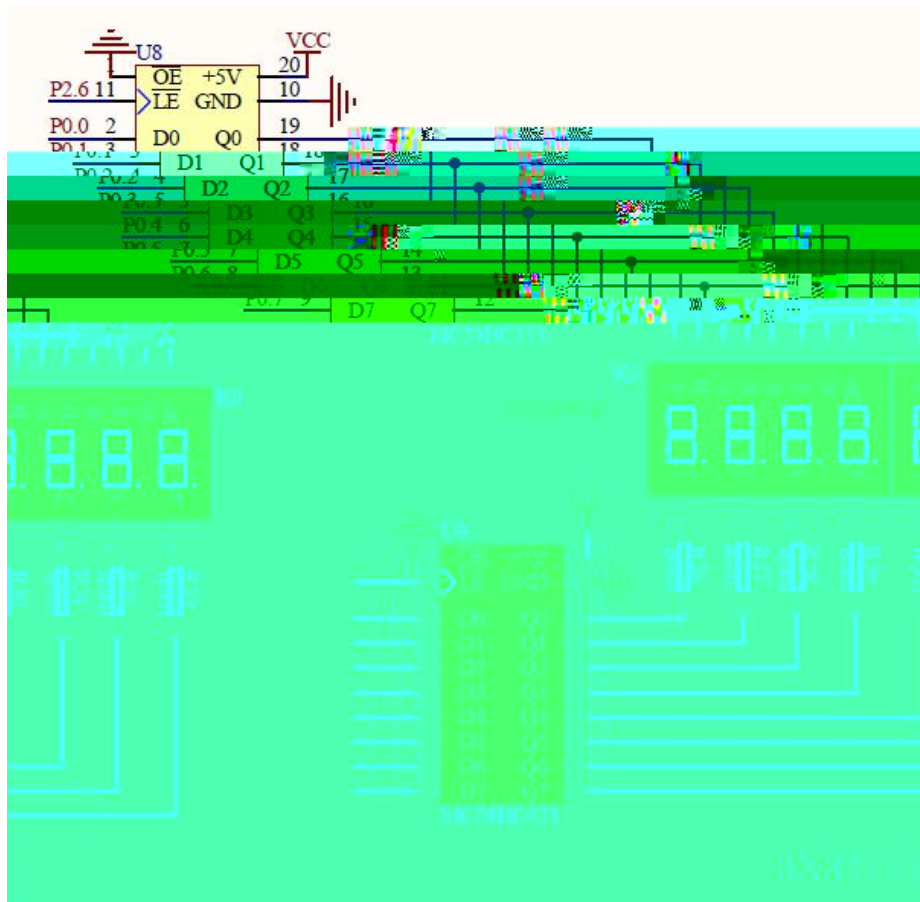
2

PCB

E

3

1



2

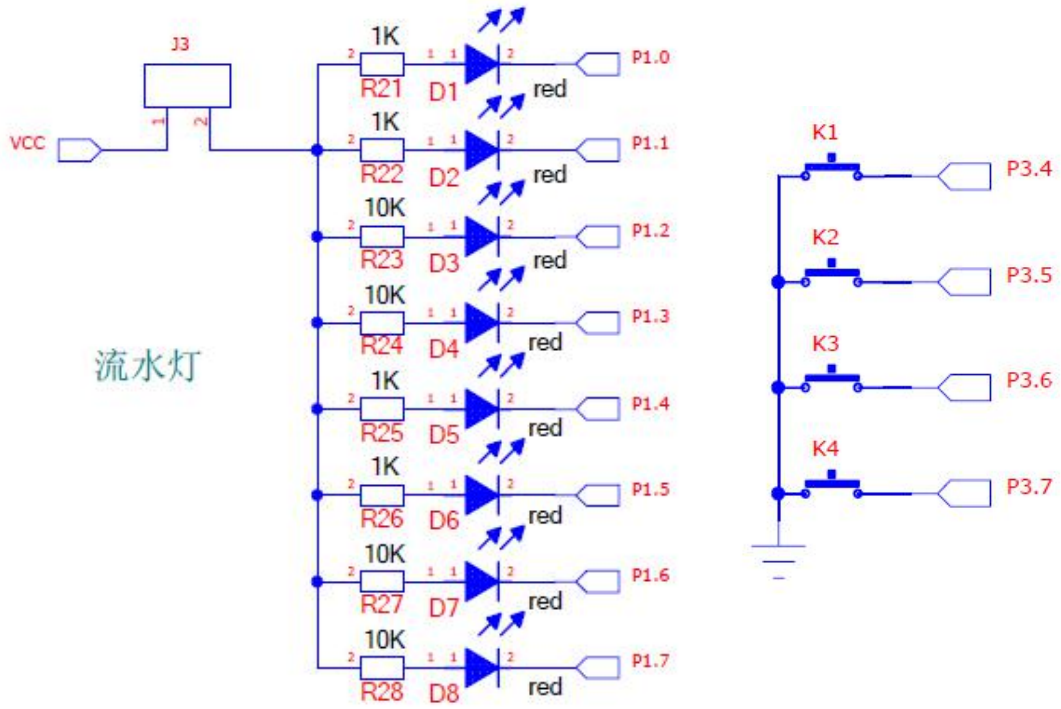
PCB

E

3

1

K1 D1 D2 D3 D4 K2 D5 D6 D7 D8 K3 8
 K4 8



2

PCB
E

3

1

K1 8



2

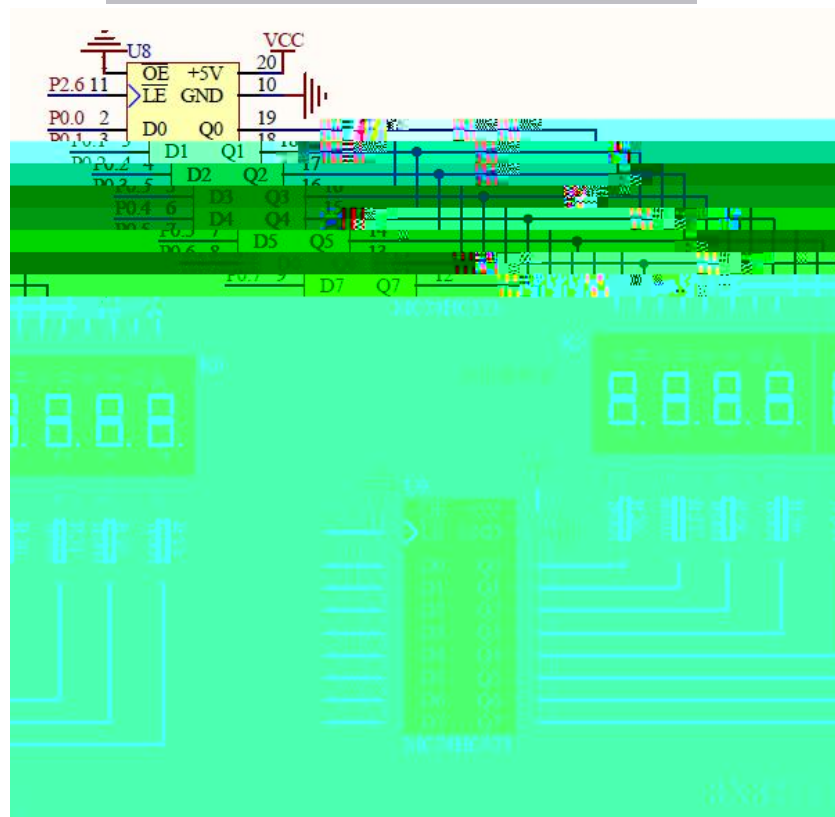
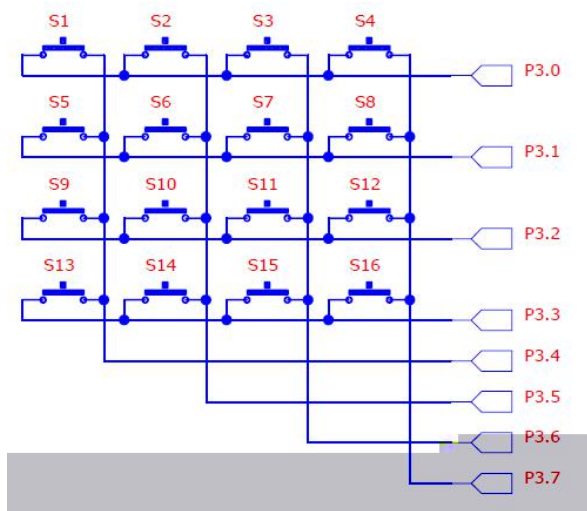
PCB
E

3

1

S1-S16

O-F



2

PCB

E

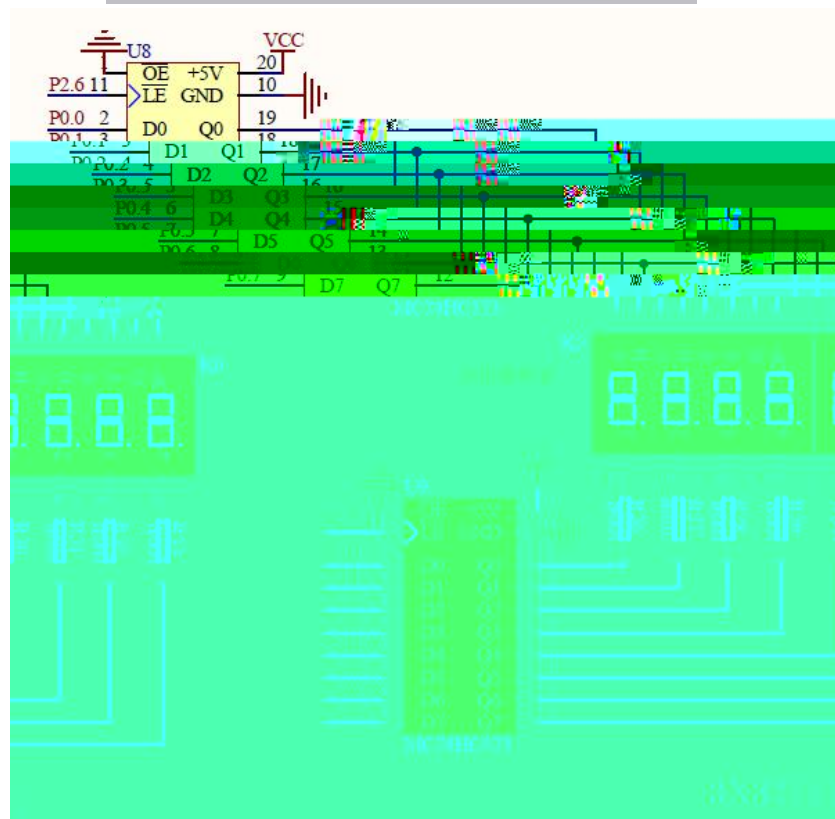
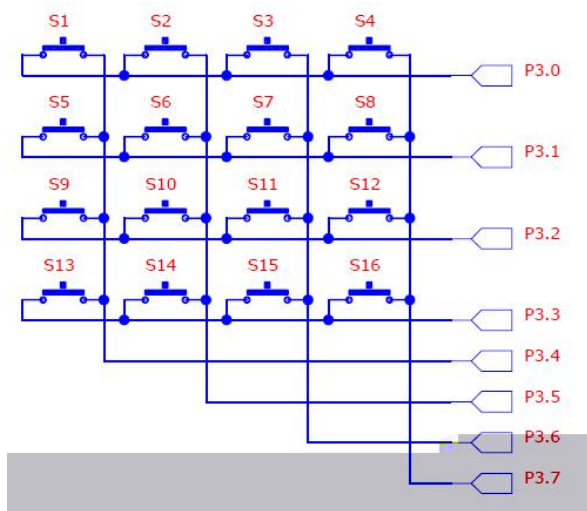
3

1

P3.2

1

9 0



2

PCB

E

3

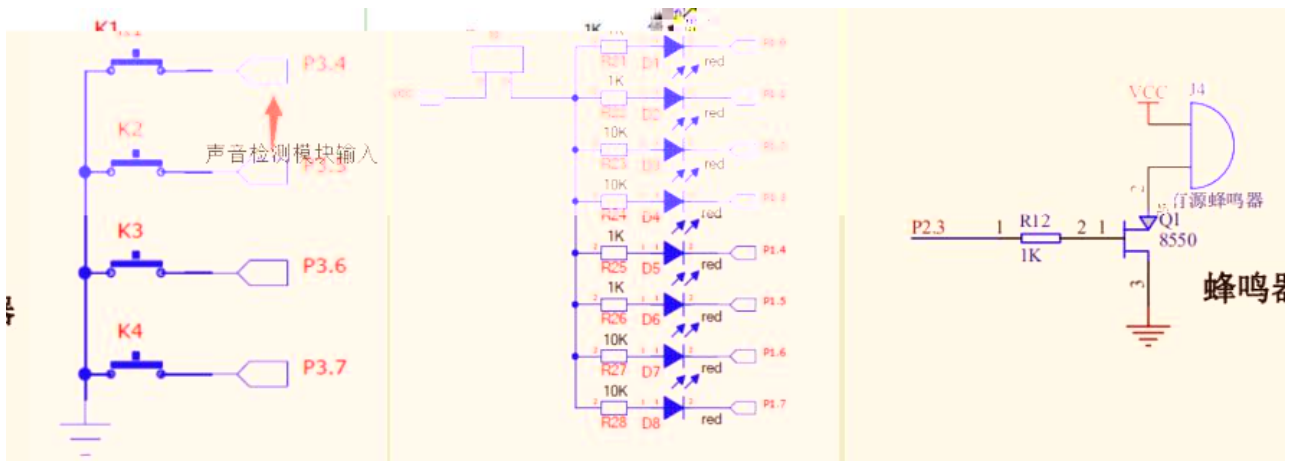
1

P3.4

1

P3.4

D1



1

2

PCB
E

3

1

P3.7

1

P3.7



1

2

PCB
E

3

1

1

K1

D1

K2

D2



1

2

PCB

E

3

1

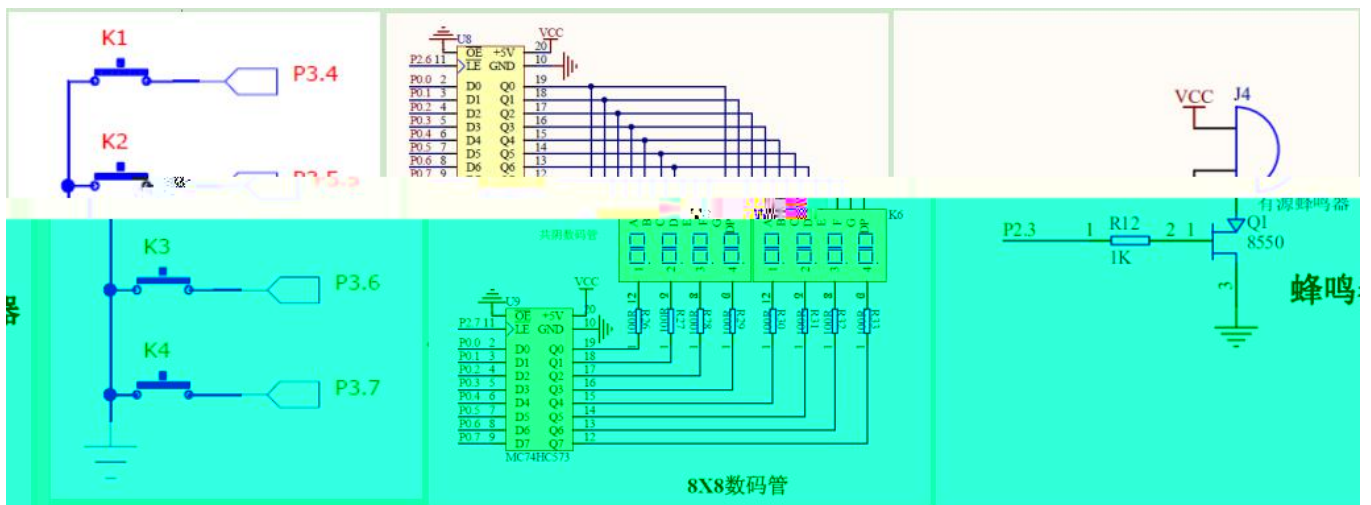
1

K1

K2 K3 K4

K1

" 1"



2

PCB

E

3

1

2



2

PCB

E

3

1

1

P3.6

P3.6



1

2

PCB

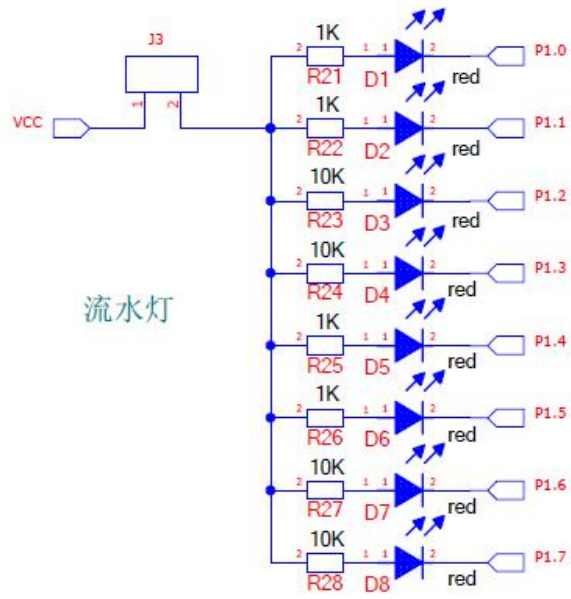
E

3

0

1

0.5S 0.5S



2

PCB

E

3

1

K1

D1-D4

K2

D5-D8



2

PCB

E

3

1

/ /

1

/ /

/ /

()

/

1 0

20		10			0
		10	1		
		10	2		
			3		

			4	
			5	
30		10		
		5		
		5		
		10		
50		5		
		5	1 2	PCB
		10		
		15	1 2 3	
		15		

5

18

1



2

3

1



2

3

1



2

3

1



2

3

1



2



3

1

1	VBAT	VDD	64
2	PC13/ANT1	VSS	63
3	PC14/OSC32	PB9/TIM4_CH4/SDIO_D5	62
4	PC15/OSC32	PB8/TIM4_CH3/SDIO_D4	61
5	PD0/OSCIN	BOOT0	60
6	PD1/OSCOU	PB7/I2C1_SDA/TIM4_CH2	59
7	NRST	PB6/I2C1_SCL/TIM4_CH1	58
8	PC0/ADC10	PB5/I2C1_SMBA/SPI3_MOSI/I2S3_SD	57
9	PC1/ADC11	PB4/JNTRST/SPI3_MISO	56
10	PC2/ADC12	PB3/JTDO/SPI3_SCK/I2S3_CK	55
11	PC3/ADC13	PD2/U5_RX/TIM3_ETR/SDIO_CMD	54
12	VSSA	PC12/U5_TX/SDIO_CK	53
13	VDDA	PC11/U4_RX/SDIO_D3	52
14	PA0/WKUP/ADC0/TIM2_CH1_ETR/TIM5_CH1/TIM8_ETR	PC10/U4_TX/SDIO_D2	51
15	PA1/ADC1/TIM2_CH2/TIM5_CH2	PA15/JTDO/SPI3_NSS/I2S3_WS	50
16	PA2/U2_TX/ADC2/TIM2_CH3/TIM5_CH3	PA14/JTCK/SWCLK	49
17	PA3/U2_RX/ADC3/TIM2_CH4/TIM5_CH4	vpp	48
18	VSS	VSS	47
19	VDD	PA13/TIM5_SWK	46
20	PA4/SPI1_NSS/ADC0/DA01	PA12/CAN_TX/USBT1811_ETP	45
21	PA5/SPI1_SCK/ADC0/DA02	PA11/CAN_RX/USBT1811_CK	44
22	PA6/SPI1_MISO/ADC0/TIM2_CH1/TIM8_BKIN	PA10/U1_RX/TIM1_CH2	43
23	PA7/SPI1_MOSI/ADC0/TIM2_CH2/TIM8_CHN	PA9/U1_TX/TIM1_CH1	42
24	PC4/ADC14	PA8/TIM1_CH1/ADC0	41
25	PC5/ADC15	PB9/TIM5_CH4/SDIO_D1	40
26	PB6/ADC0/TIM2_CH2/TIM8_CHN	PC8/TIM5_CH3/SDIO_D1	39
27	PB7/ADC0/TIM2_CH3/TIM8_CHN	PC7/US5_MCK/TIM5_CH2/SDIO_D1	38
28	PB8/BOOT1	PC6/US5_MCK/TIM5_CH1/SDIO_D1	37
29	PB9/U5_TX/IC2_02	PS13/SPI2_NSS/I2S2_SD/TIM7_CHN	36
30	PB10/U5_RX/IC2_1FA	PS14/SPI2_MOSI/TIM7_CH2N	35
31	VSS	PS15/SPI2_SCK/I2S2_CK/TIM7_CH1N	34
32	VDD	PS12/SPI2_NSS/I2S2_WS/I2C1_SMBA/TIM7_BKIN	33

2

3

1



2

3

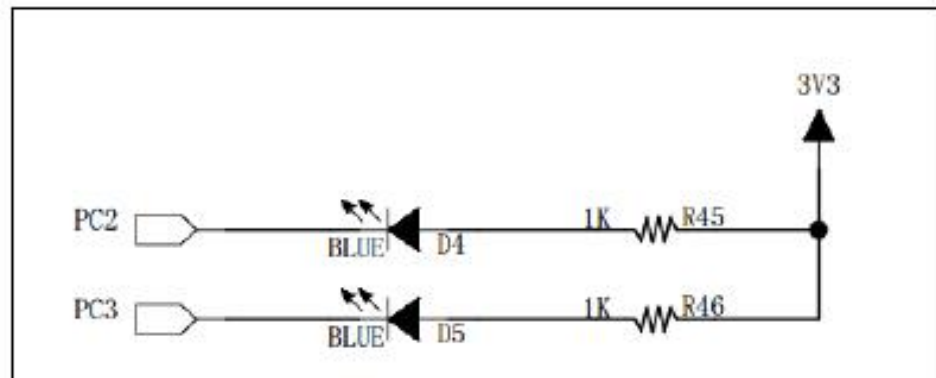
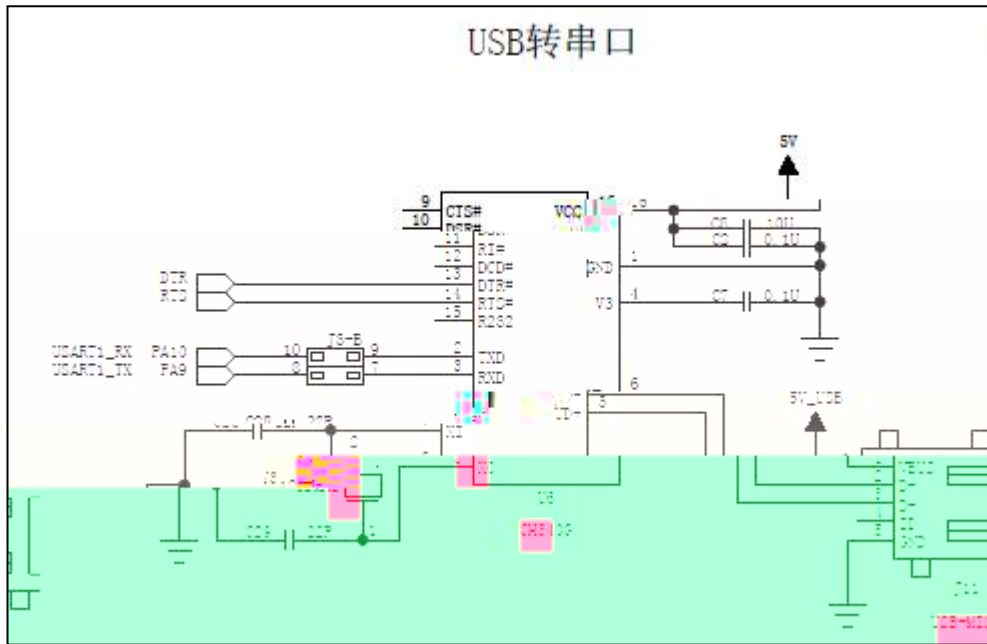
1

1	VBAT	VDD	64
2	PC13/ANT1	VSS	63
3	PC14/OSC32	PB9/TIM4_CH4/SDIO_D5	62
4	PC15/OSC32	PB8/TIM4_CH3/SDIO_D4	61
5	PD0/OSCIN	BOOT0	60
6	PD1/OSCOUT	PB7/I2C1_SDA/TIM4_CH2	59
7	NRST	PB6/I2C1_SCL/TIM4_CH1	58
8	PC0/ADC10	PB5/I2C1_SMBA/SPI3_MOSI/I2S3_SD	57
9	PC1/ADC11	PB4/JNTRST/SPI3_MISO	56
10	PC2/ADC12	PB3/JTDO/SPI3_SCK/I2S3_CK	55
11	PC3/ADC13	PD2/U5_RX/TIM3_ETR/SDIO_CMD	54
12	VSSA	PC12/U5_TX/SDIO_CK	53
13	VDDA	PC11/U4_RX/SDIO_D3	52
14	PA0/WKUP/ADC0/TIM2_CH1_ETR/TIM5_CH1/TIM8_ETR	PC10/U4_TX/SDIO_D2	51
15	PA1/ADC1/TIM2_CH2/TIM5_CH2	PA15/JTDI/SPI3_NSS/I2S3_WS	50
16	PA2/U2_TX/ADC2/TIM2_CH3/TIM5_CH3	PA14/JTCK/SWCLK	49
17	PA3/U2_RX/ADC3/TIM2_CH4/TIM5_CH4	vpp	48
18	VSS	VSS	47
19	VLD	PA13/JTMS/SWDIO	46
20	PA1/SPI1_NSS/ADC1/DAC1	PA12/CAN_TX/LSSDP1/ETR	45
21	PA2/SPI1_SCK/ADC2/DAC2	PA11/CAN_RX/LSSDM/TIM1_CH2	44
22	PA3/SPI1_MISO/ADC3/TIM2_CH1/TIM8_BKIN	PA10/U1_RX/TIM1_CH3	43
23	PA4/SPI1_MOSI/ADC4/TIM2_CH2/TIM8_CH1N	PA9/U1_TX/TIM1_CH2	42
24	PC4/ADC14	PA8/TIM1_CH1/MCO	41
25	PC5/ADC15	PC7/TIM8_CH4/SPI2_S1	40
26	PB5/ADC8/TIM3_CH2/TIM8_CH2N	PC6/TIM8_CH3/SPI2_S2	39
27	PB7/ADC8/TIM3_CH4/TIM8_CH2N	PC5/I2S2_MCK/TIM8_CH3/SPI2_S3	38
28	PB2/BOOT1	PC4/I2S2_MCK/TIM8_CH3/SPI2_S4	37
29	PB10/U3_TX/I2C1_SCL	PS13/SPI2_MOSI/I2S2_SCK/TIM1_CH1N	36
30	PB11/U3_RX/I2C1_SDA	PB14/SPI2_MISO/TIM1_CH2N	35
31	VSS	PB13/SPI2_SCK/I2S2_CK/TIM1_CH1N	34
32	VLD	PS12/SPI2_NSS/I2S2_WS/I2C2_SMBA/TIM1_BKIN	33

2

3

1

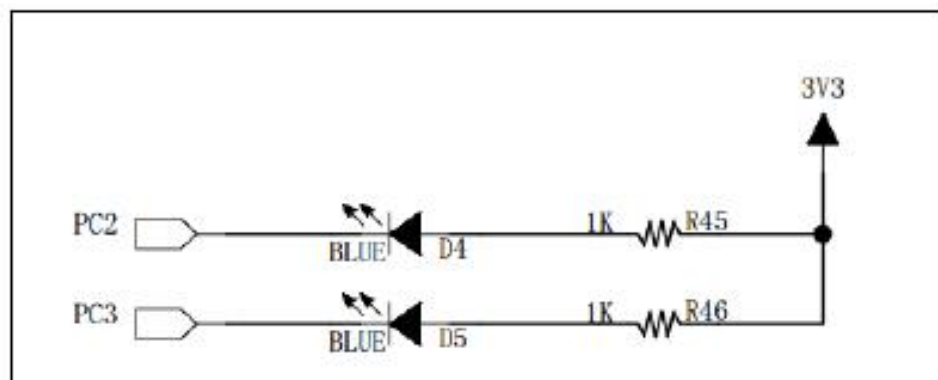
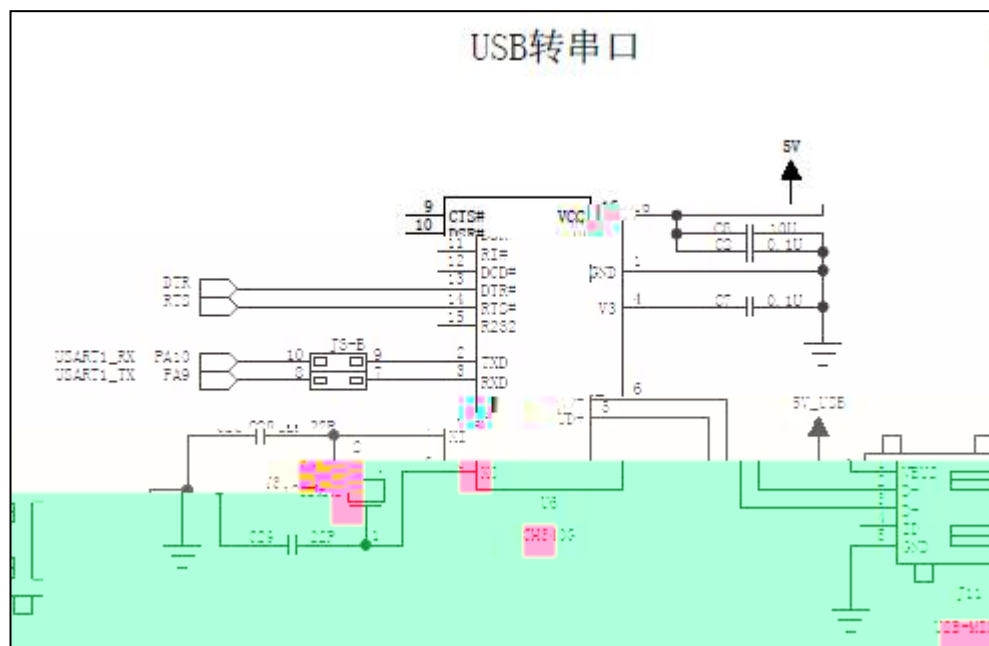


2

3

-

1



2

3

-

THE UNIVERSITY OF

THE STATE OF

NEW YORK

1

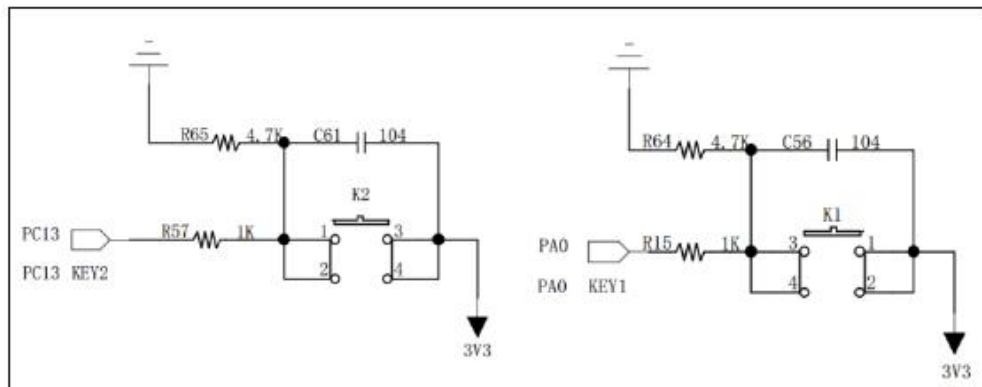
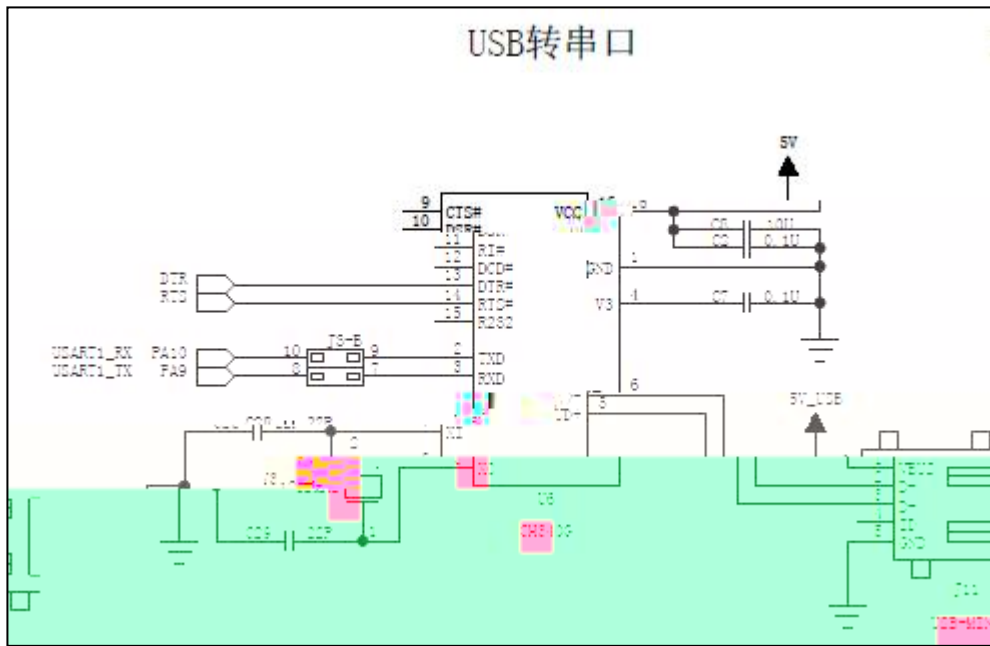


2

3

-

1

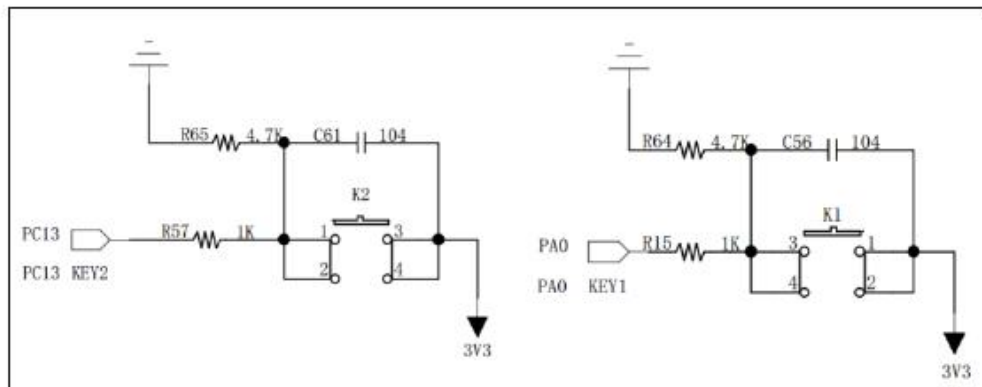
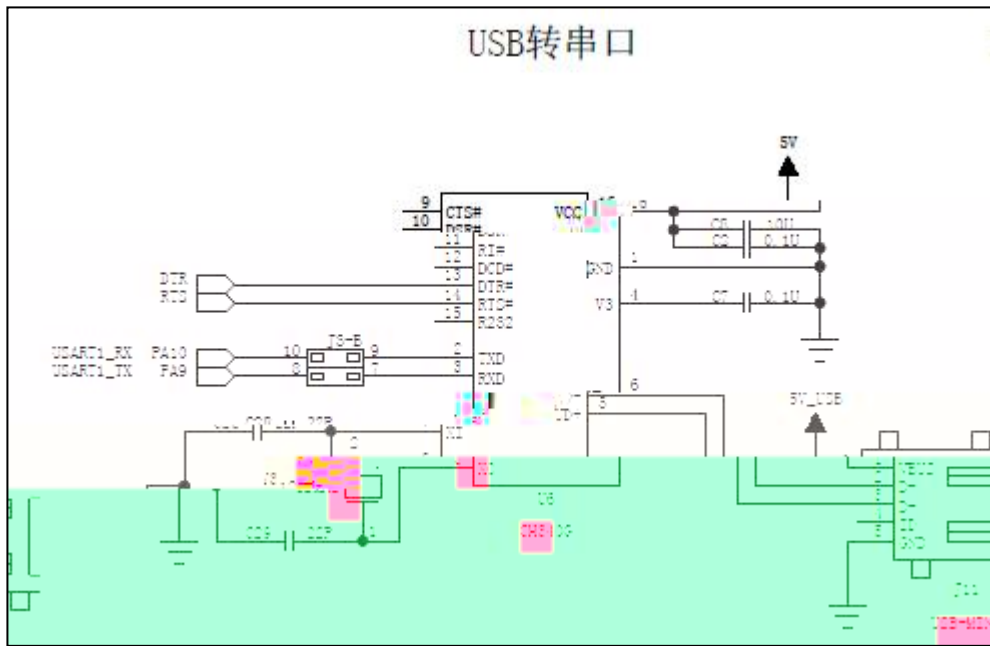


2

3

-

1



2

3

-



2

3

-

1



2

3

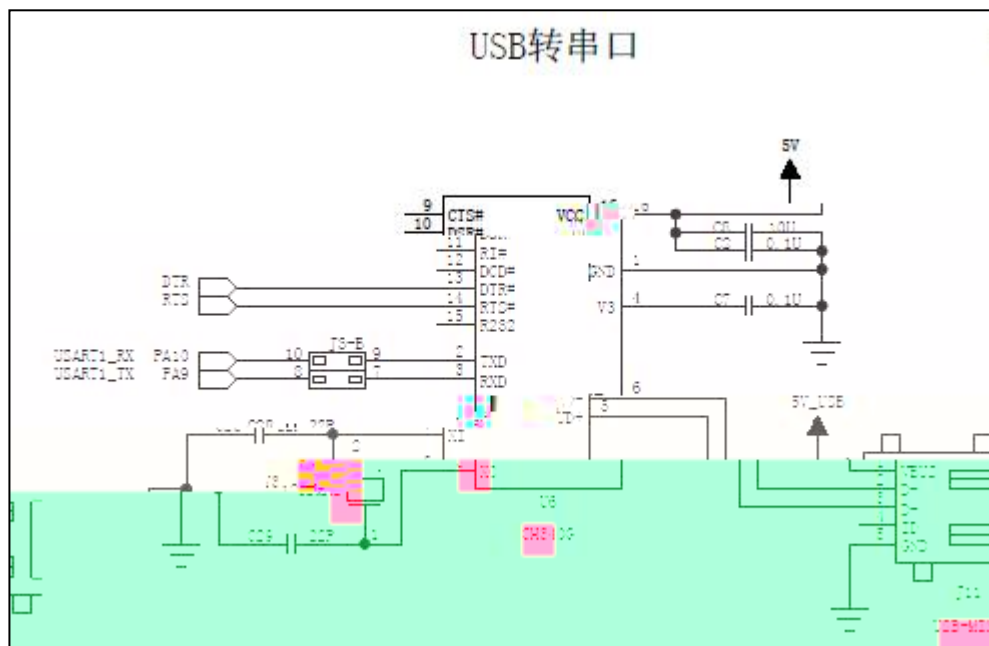


2

3

-

1



2

3

-

1

1

/ /

.0

/ /

()

/

1 0

20		10			0	
			6			
			7			
		10	8			
			9			

			10	
30				
		10		
		10		
50				
		10		

5

18

1
2

20sp

RGB #FF0000



3 :

2
1



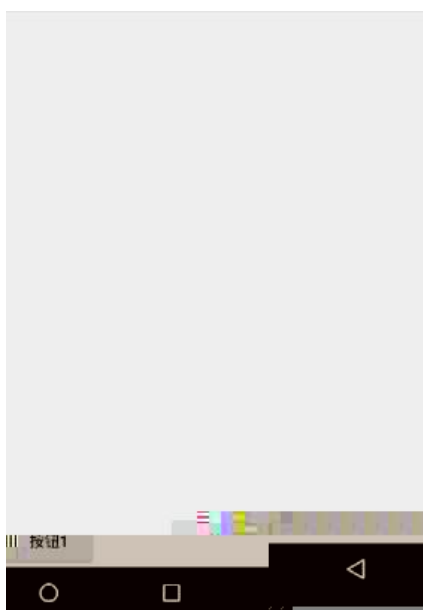
3 :

1

2

1

2



3

:

TextView

2

1



3

1

2



3

2

1

2



3

1

1 1 1 1

2

1

2

1 1 1 1



3

1

2

1



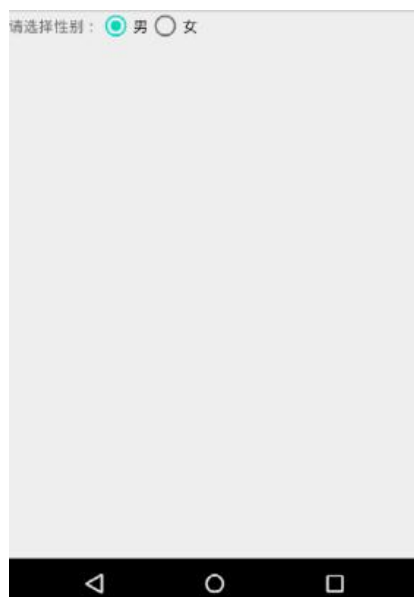
3

1

2

1

2



3

1

2

1

2



3

1

2

1



3

1

LED

2

1

2

3

TextView LED



3

1

LED

2

1

2

3

TextView LED



3

1

LED

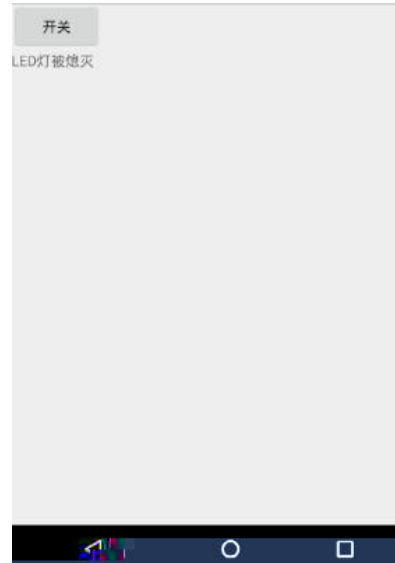
2

1

2

3

TextView LED



3

1

LED

2

1

2

3

4

TextVi ew



3

1

LED

2

1

2

3

4

ImageView

30dp*30dp



3

1

2

1

2



3

1

2

1

2



3