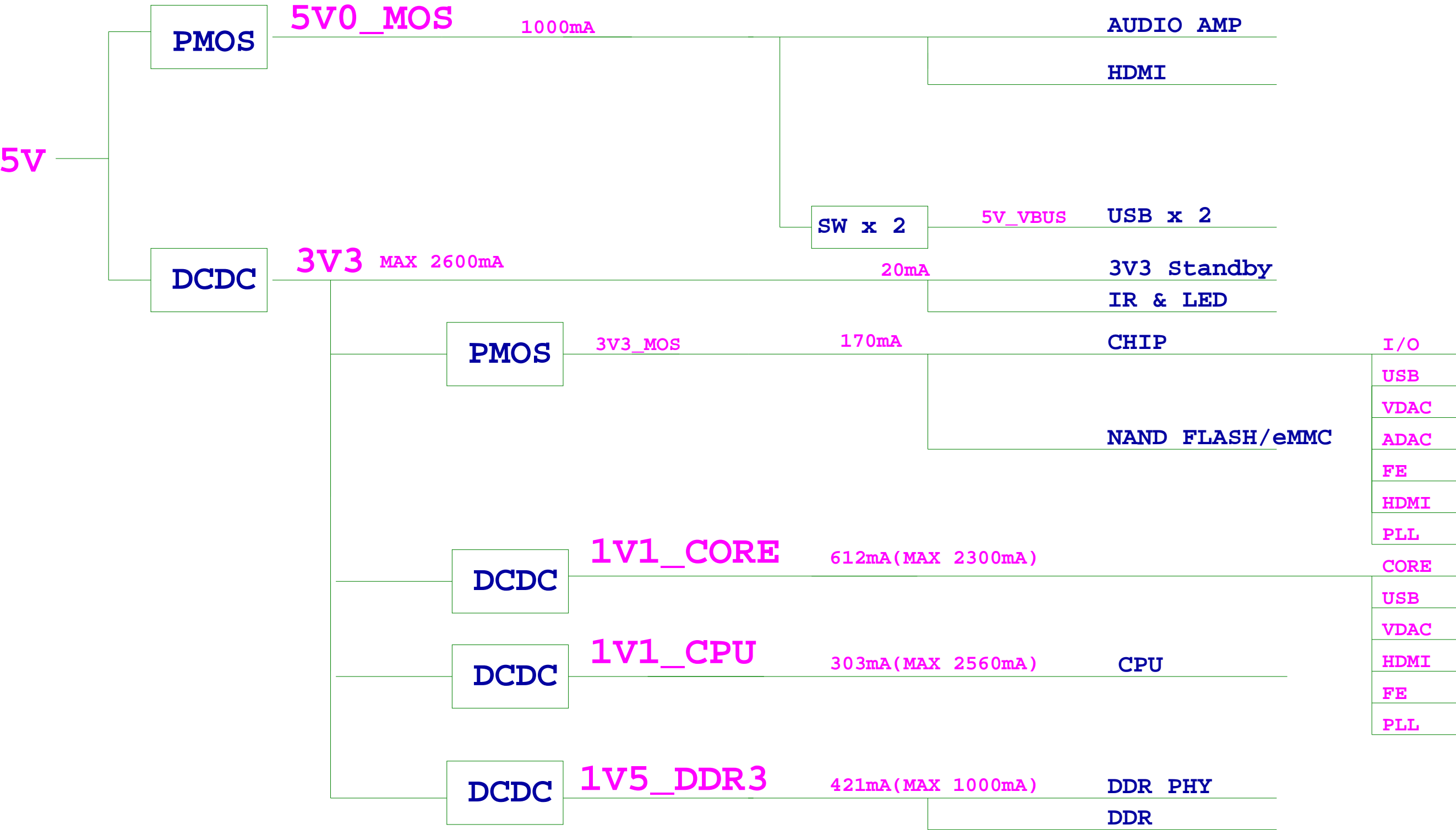
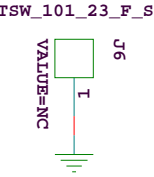
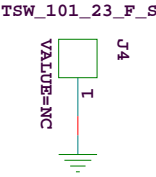
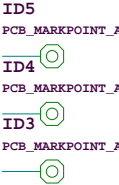
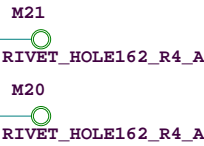
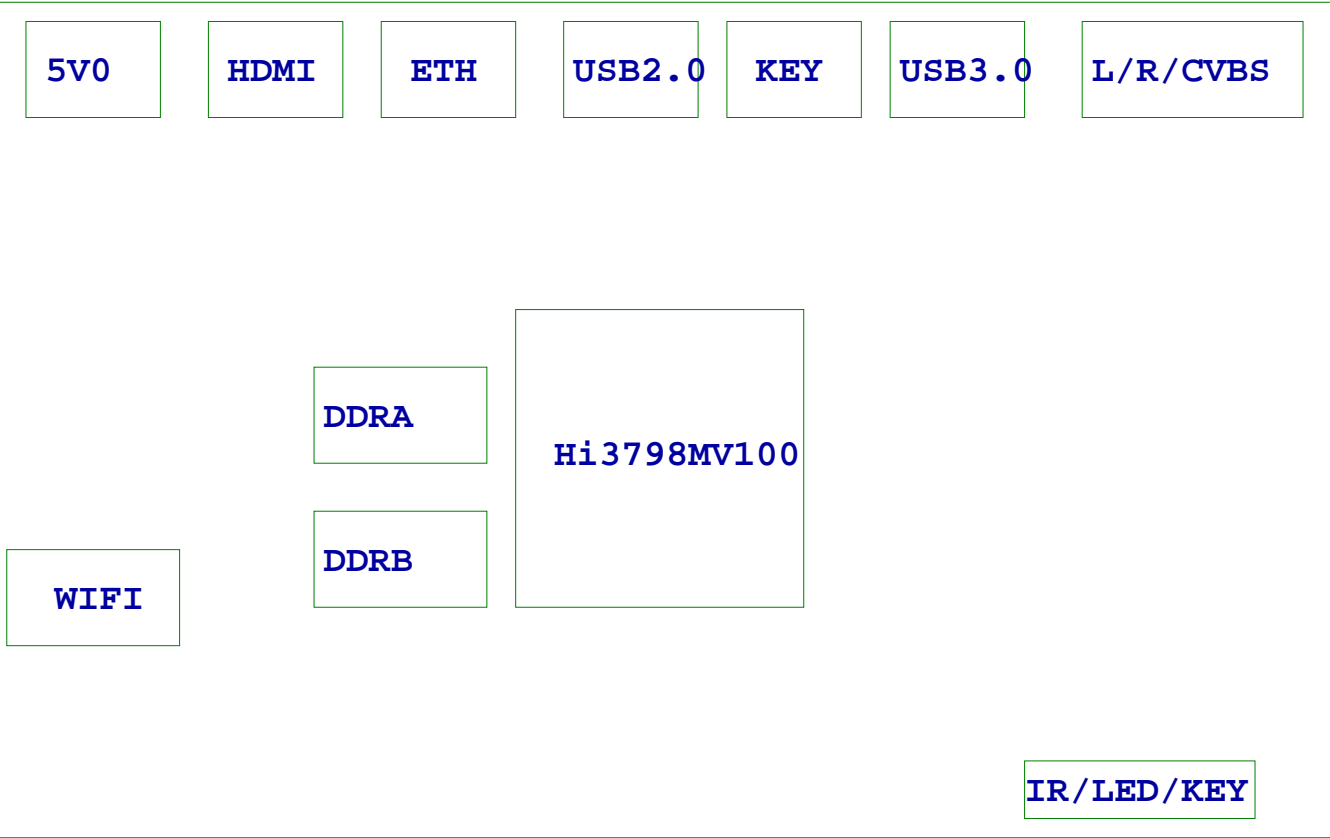


Power Tree



The type and specification of the components refer to the BOM					
				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 2 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

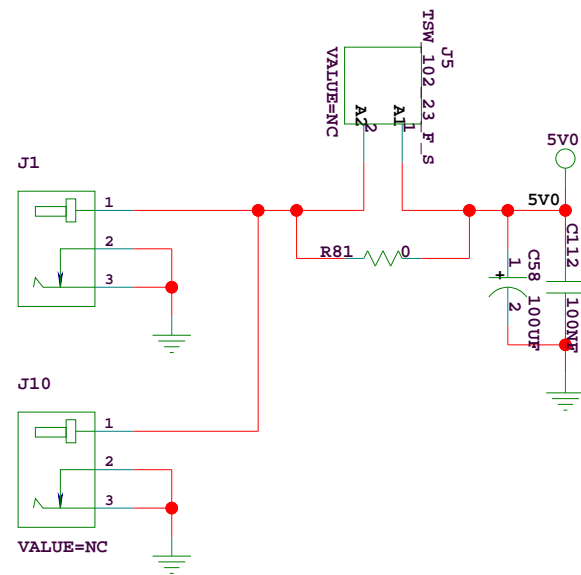
Block Diagram



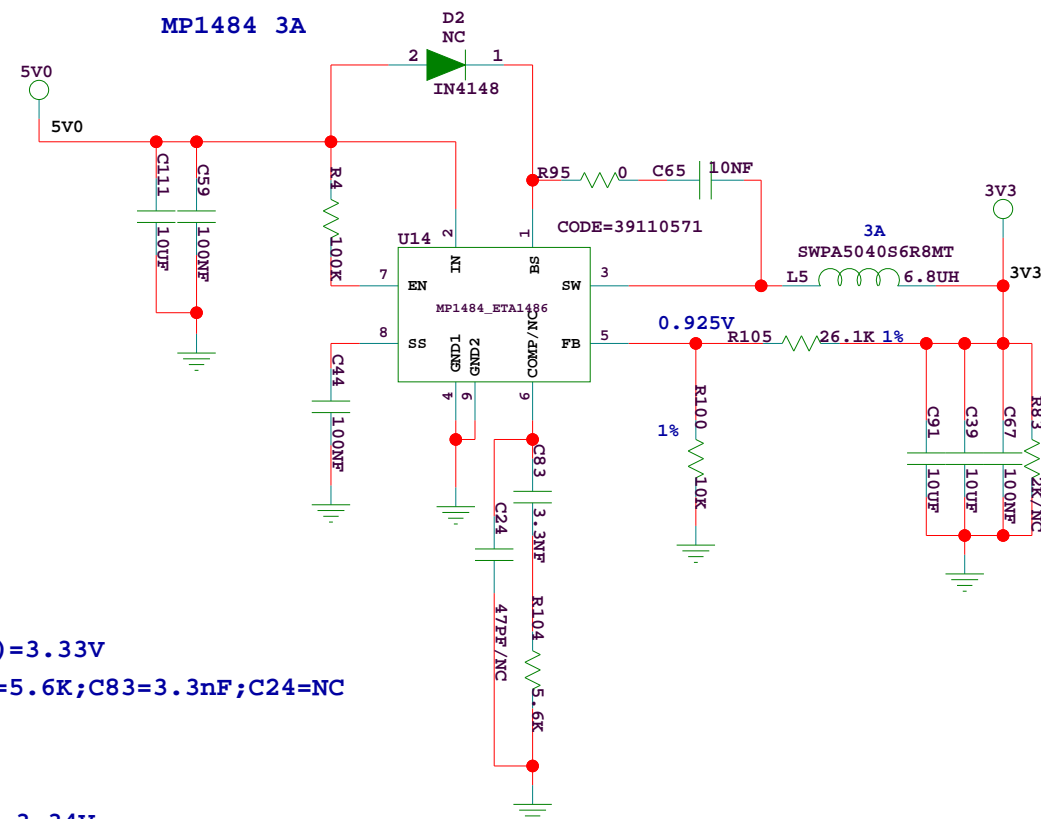
The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 3 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

5V PLUG-IN



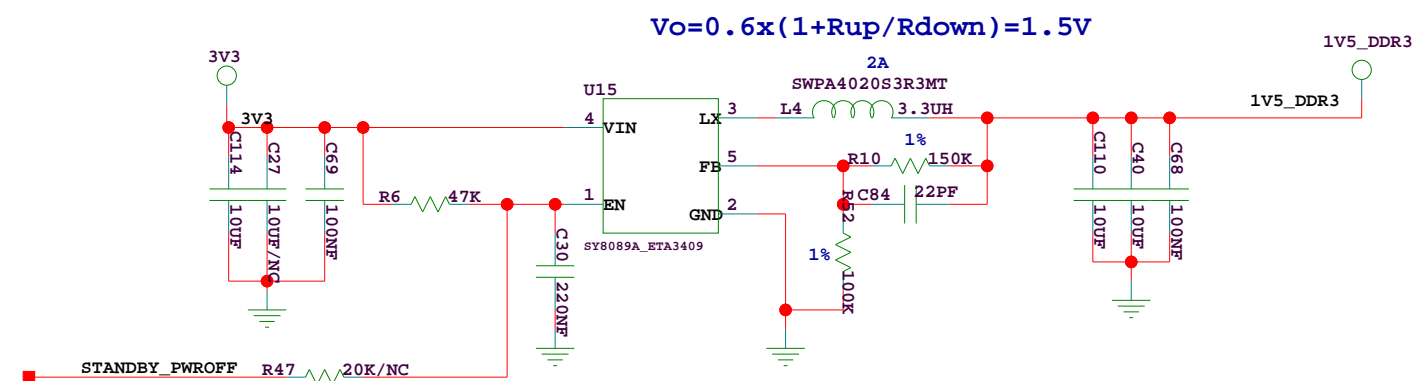
3.3V POWER



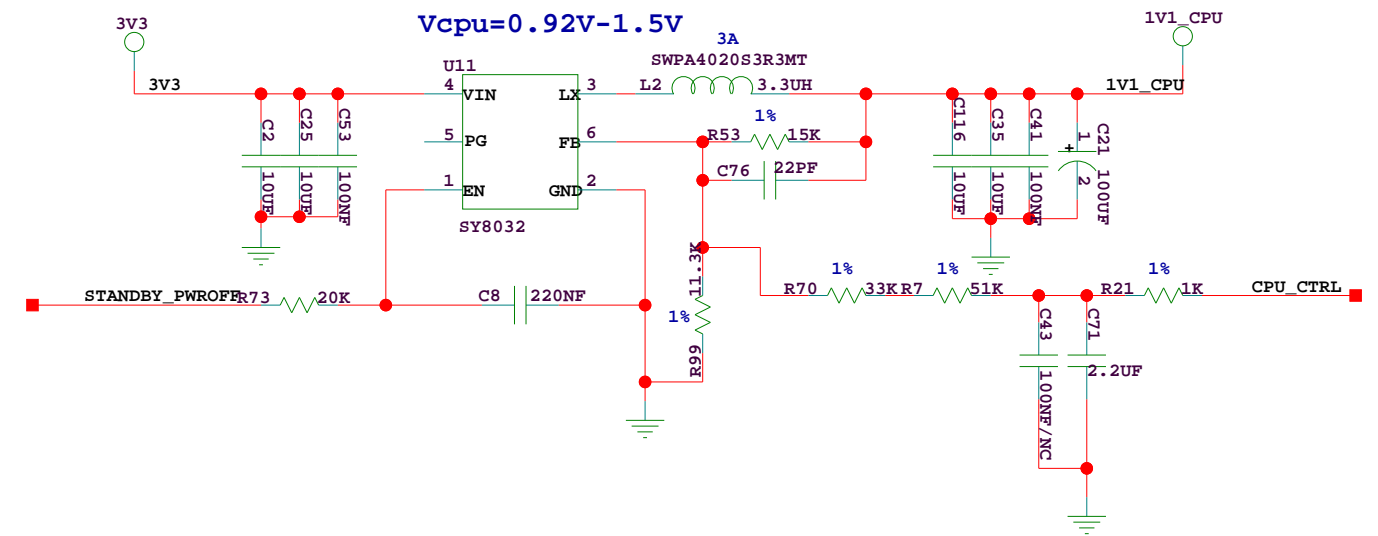
ETA1486 4A
 $V_{OUT}=0.923 \times (1+26.1K/10K)=3.33V$
 C44=100nF;C65=10nF;R104=5.6K;C83=3.3nF;C24=NC
 R105=26.1K;R100=10K

MP1484 3A
 $V_{OUT} = 0.925 * (1 + 26.1K/10K) = 3.34V$
 C44=100nF;C65=10nF;R104=5.6K;C83=3.3nF;C24=NC;R105=26.1K;R100=10K

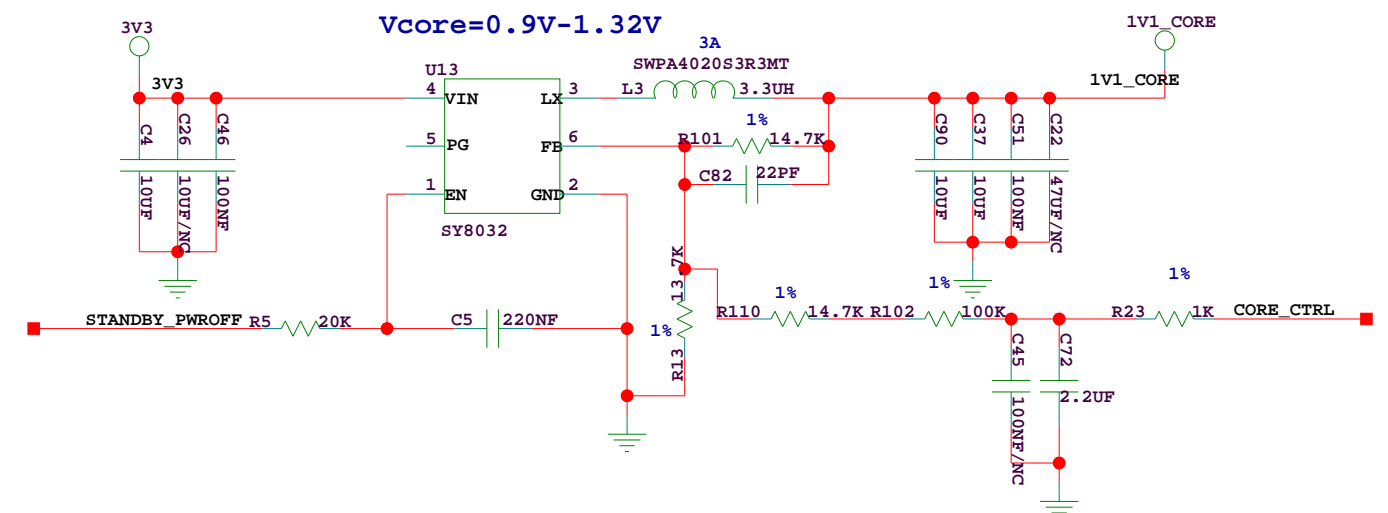
DDR POWER



CPU POWER



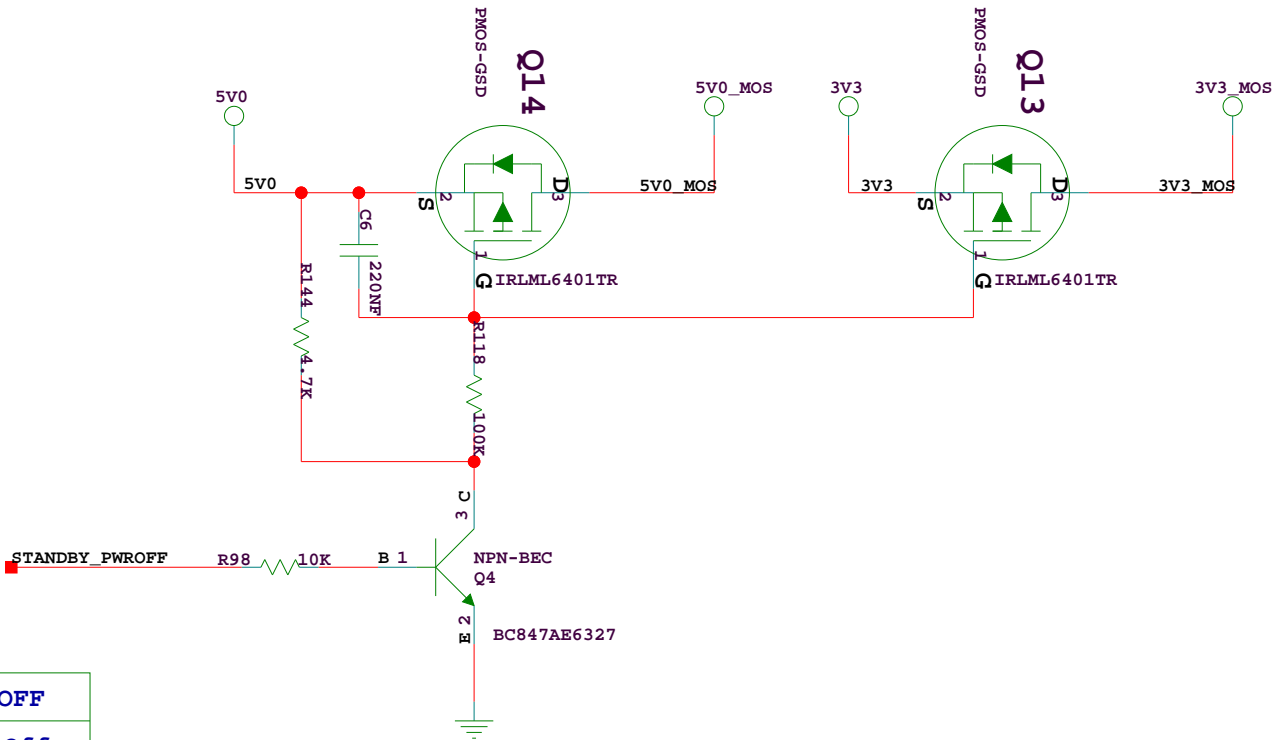
CORE POWER



The type and specification of the components refer to the BOM

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				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET	4 OF 19
		A	03030001	HUAWEI TECH CO.,LTD.	

Power Ctrl

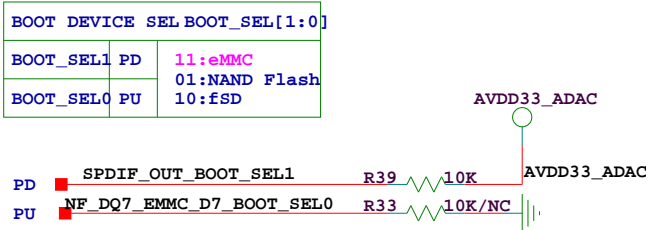
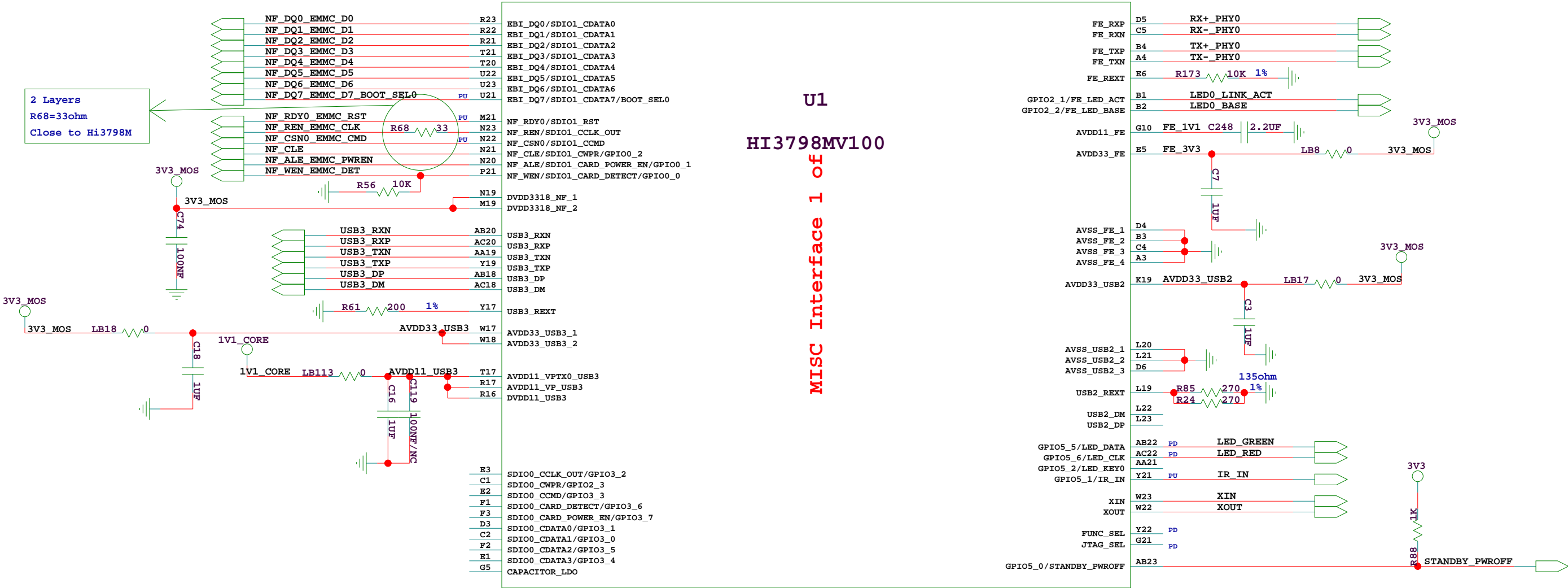


STANDBY_PWROFF	
0	Power Off
1	Power On

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 5 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

Unit 1 of Hi3798MV100(NAND/USB3.0/IR/SDIO/XTAL/FE)



** FE PHY Design guideline **

A.routing

- 1.Route as 100 Ohm differential impedance.
- 2.Differential pairs should be routed on TOP layer only.
- 3.Differential pairs should be separated from other traces by GND .

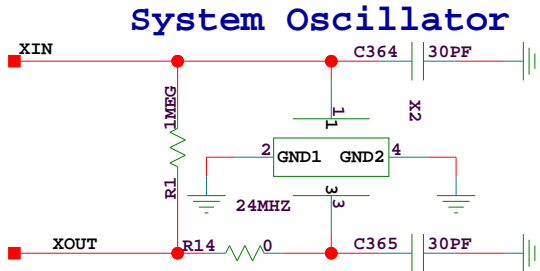
B.trace length

- 1.The length for the differential pairs should be less than 5 inches.
- 2.Match trace length of RX and TX differential pairs, 10 mils max within a pair.

C.component selection

- 1.REXT resistor should be 10K ohm +/-1%.
- 2.ESD components are suggested for ports protection, Put between Hi398MV100 and transformer.

U1
HI3798MV100
MISC Interface 1 of



The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 6 OF 19	
		A	03030001	HUAWAI TECH CO.,LTD.	

Unit 2 of Hi3798MV100(JTAG/USB2.0/HDMI TX/DAC/I2S/SPI/UART)

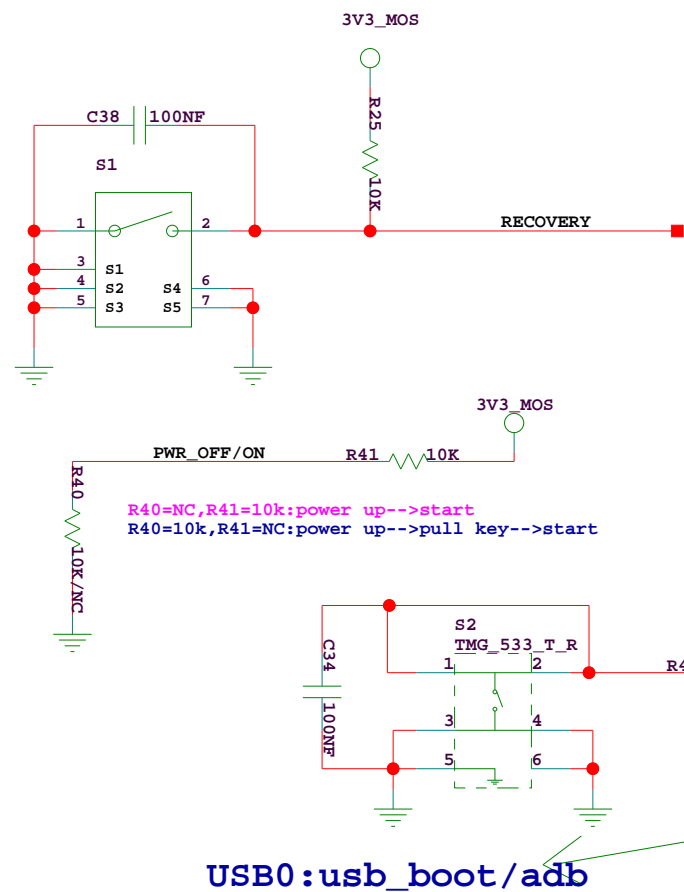
**** Audio & Video Design guideline ****

A. VIDEO

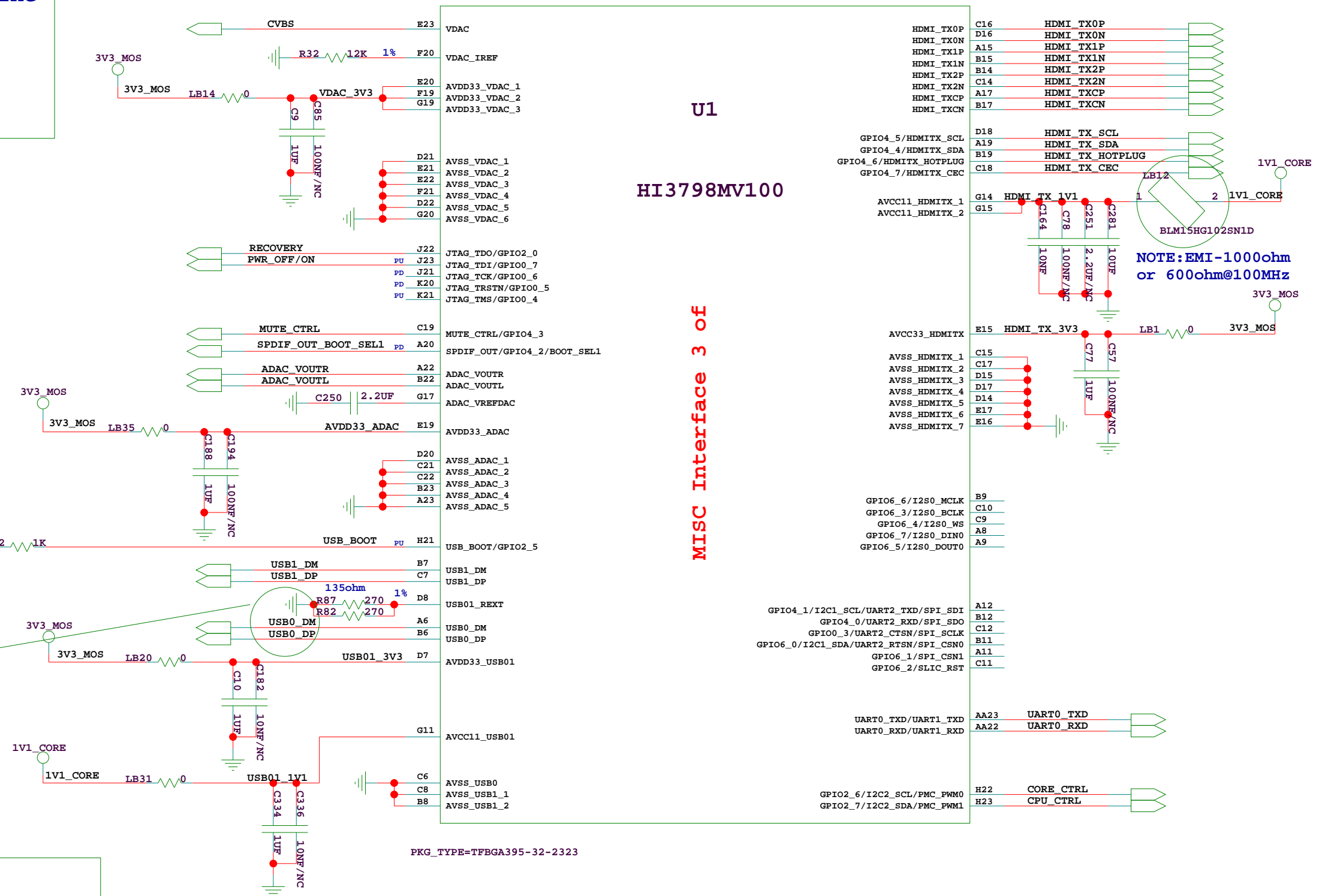
- 1.VIDEO REXT resistor should be 12K +/-1% precision.
- 2.REXT/COMP should be traced as short as possible, and isolated from all other traces.

B. AUDIO

- 1.VREF should be traced as short as possible, and isolated from all other traces.



USB0:usb_boot/adb



**** USB Design guideline ****

A.routing

- 1.Route as 90 Ohm differential impedance.
- 2.Differential pairs should be routed on TOP layer only.
- 3.Differential pairs should be separated from other traces by GND .

B.trace length

- 1.The length for the differential pairs should be less than 5 inches.
- 2.Match trace length of DP and DM differential pairs, 10 mils max within a pair.

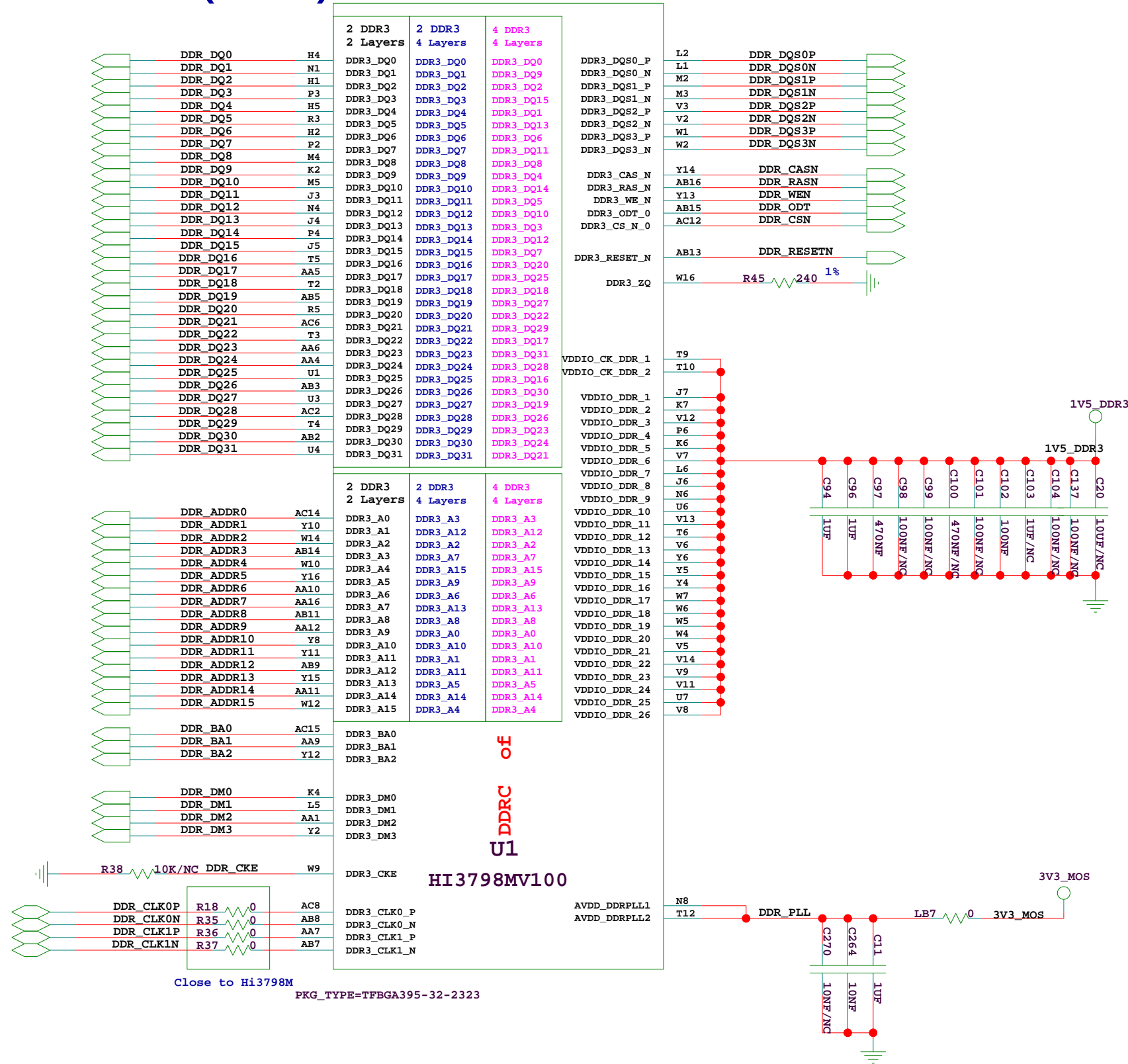
C.component selection

1. USB2.0 REXT resistor should be 135 ohm $\pm 1\%$ and USB3.0 200 ohm $\pm 1\%$.
2. ESD components are suggested for ports protection.
3. Equivalent capacitance of ESD component should be $< 1.5\text{pF}$.

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 7 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

Unit 3 of Hi3798MV100(DDR)



Close to Hi3798M
PKG_TYPE=TFBGA395-32-2323

** DDR Design guideline **

A.general suggestion

- 1.Hi3798MV100 supports up to 2GB DDR3.
- 2.DDR chip and DDR controller both need at least one 10uF decoupling ceramic capacitor.
- 3.The circuit of DDR_VREF_CA and DDR_VREF_DQ must be independent
4. 3V3 DDRPLL is needed.

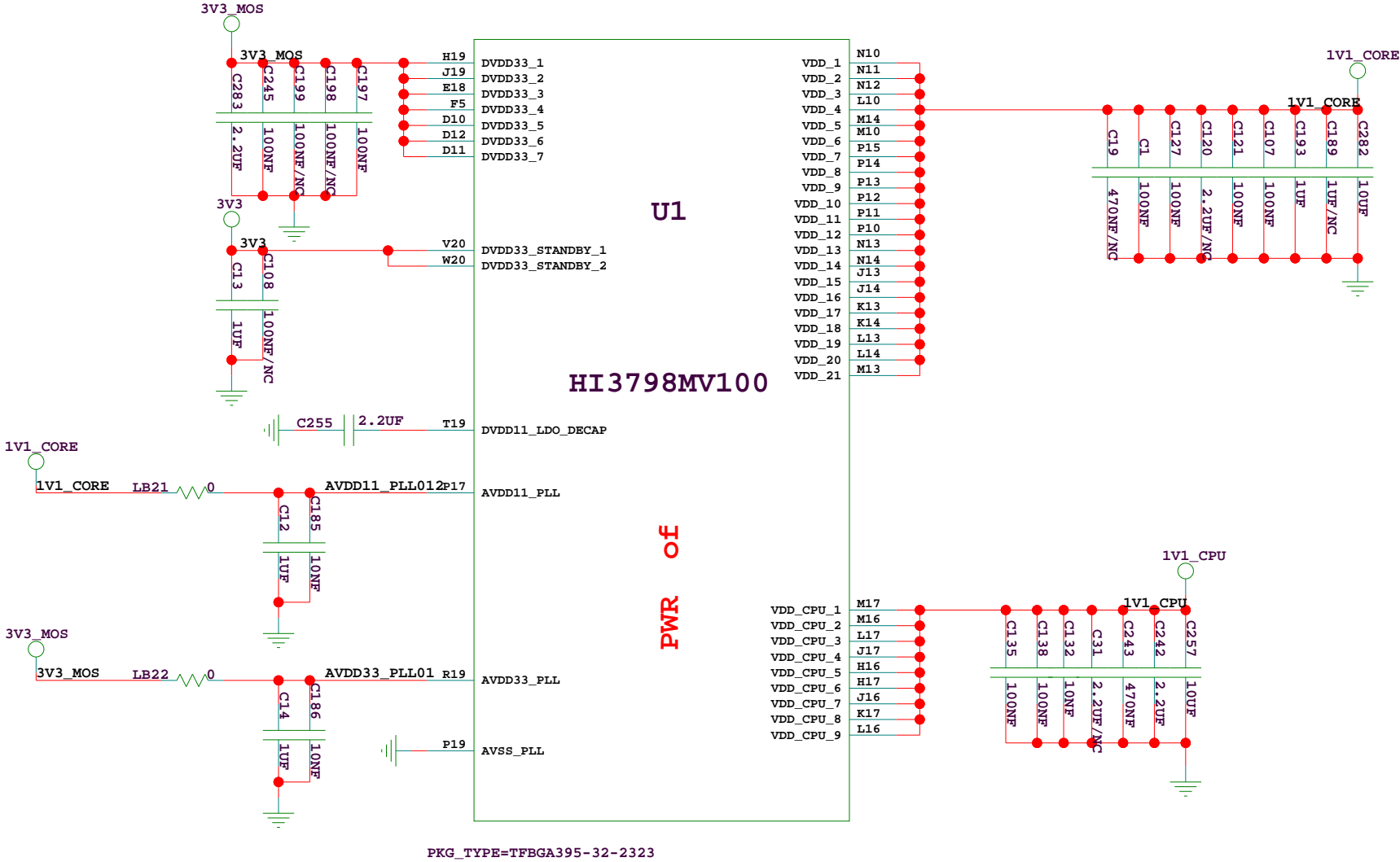
B.Layout suggestion

1. Please copy hisilicon demo board completely

The type and specification of the components refer to the BOM

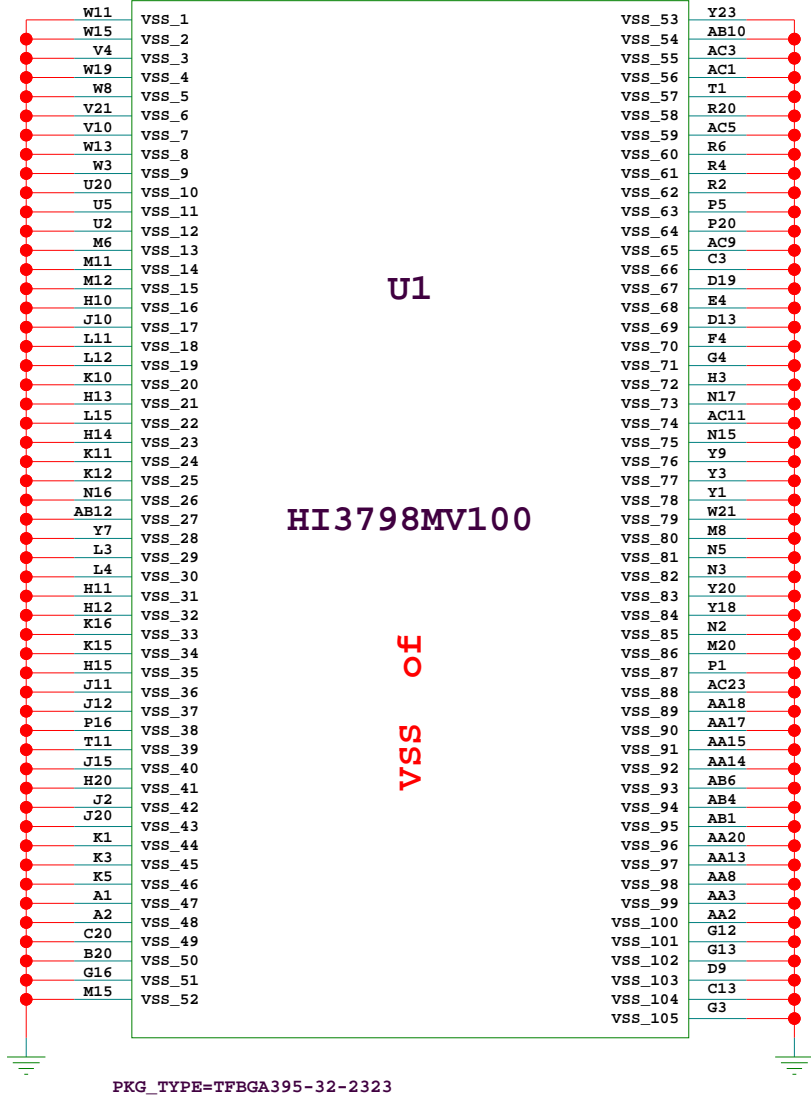
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REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 8 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

Unit 4 of Hi3798MV100(POWER)



The type and specification of the components refer to the BOM					
				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
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		VER	PART_NUMBER	SHEET 9 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

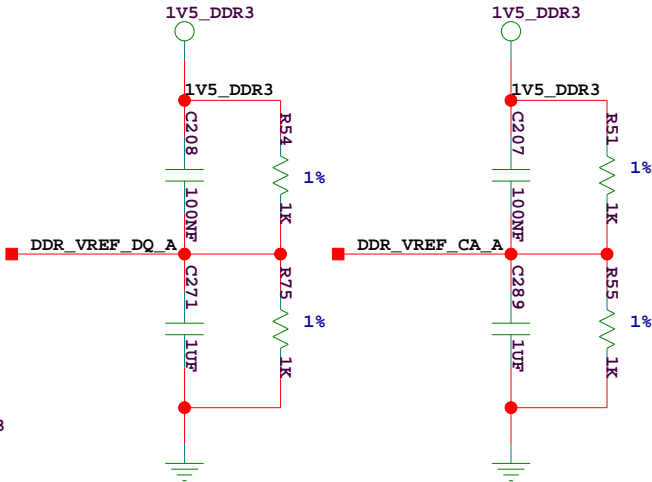
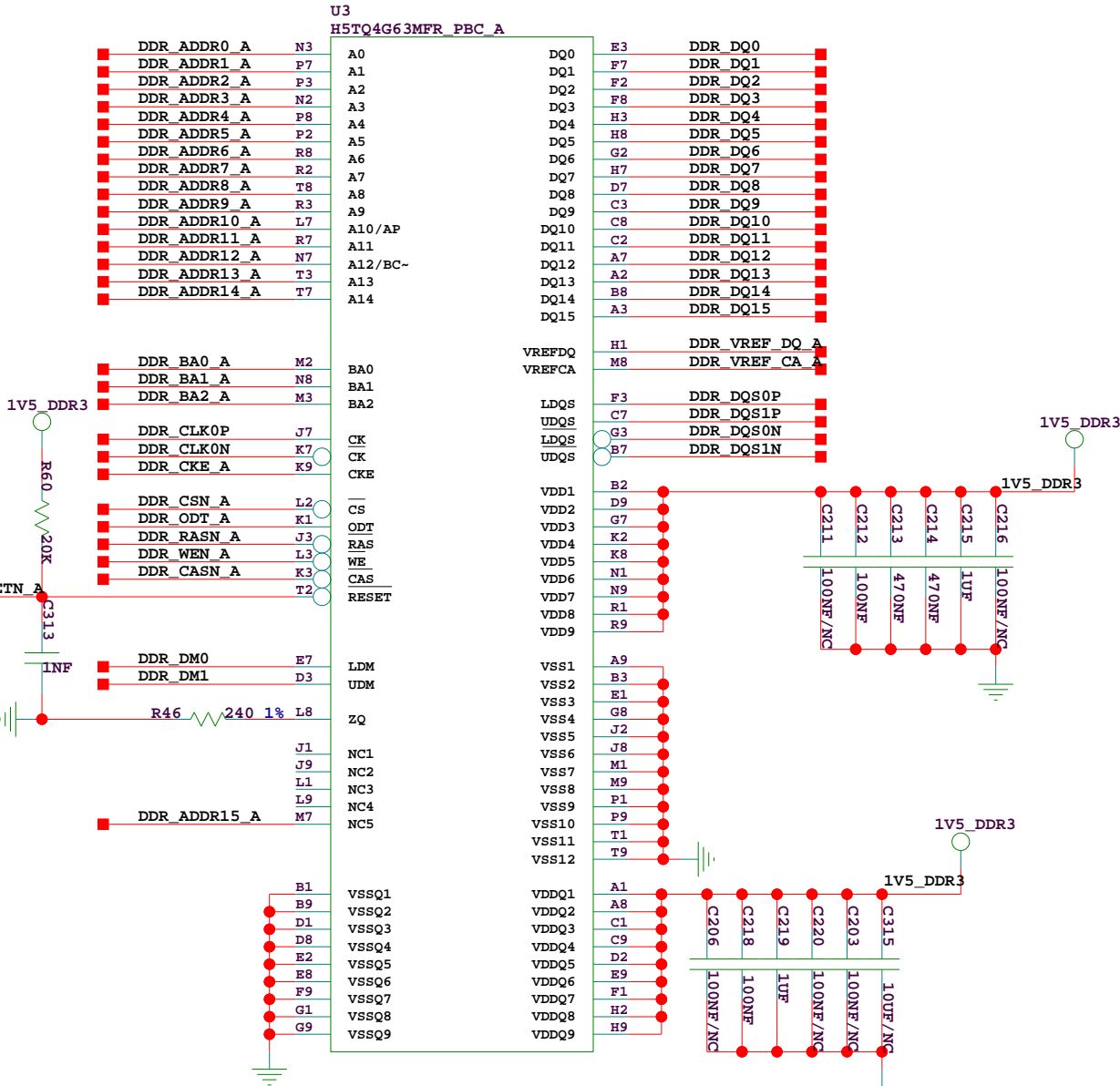
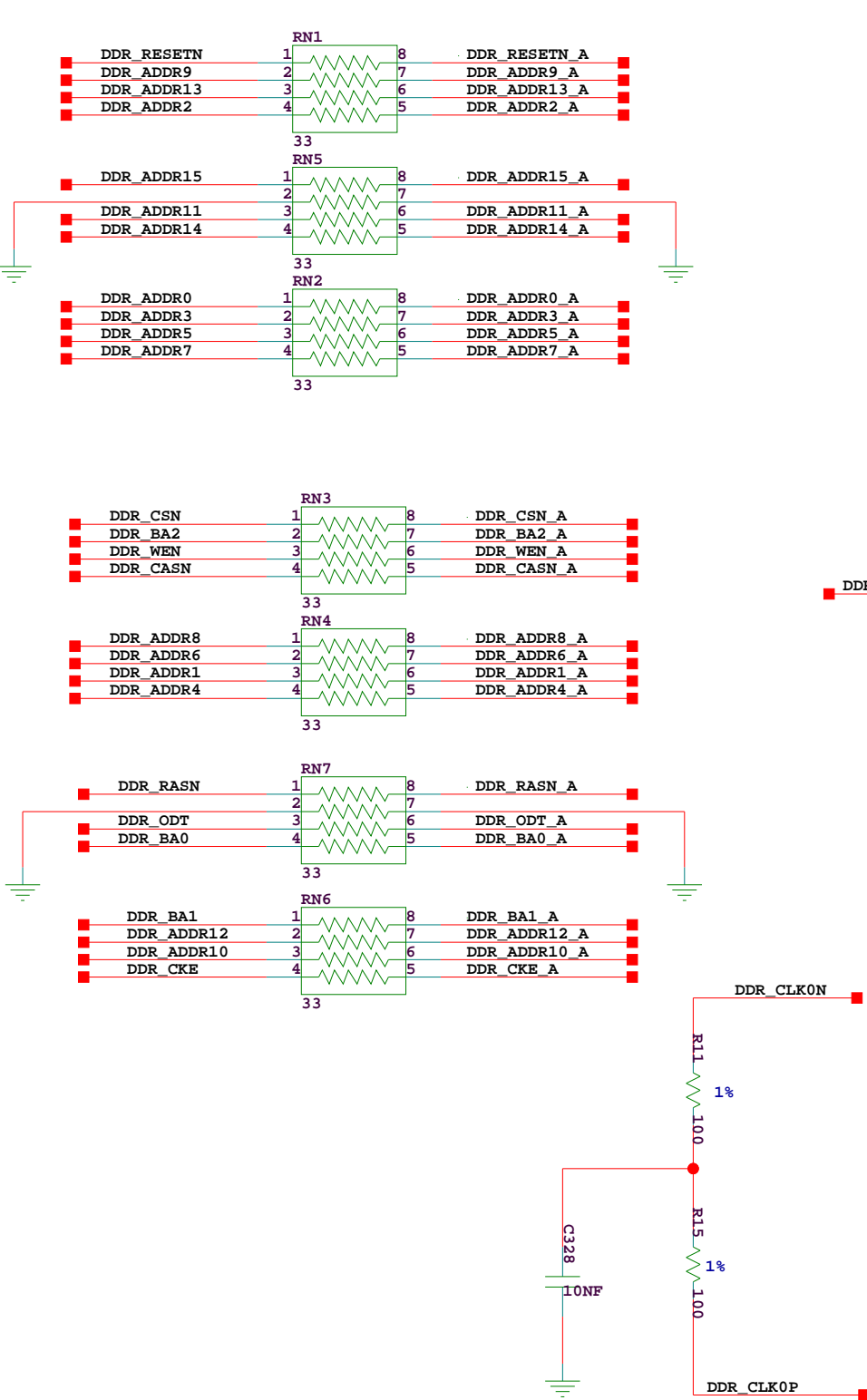
Unit 5 of Hi3798MV100(VSS)



The type and specification of the components refer to the BOM

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				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 10 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

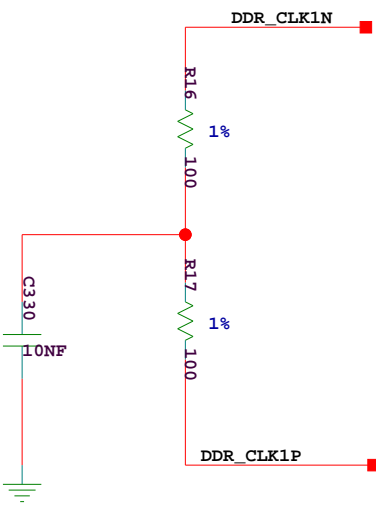
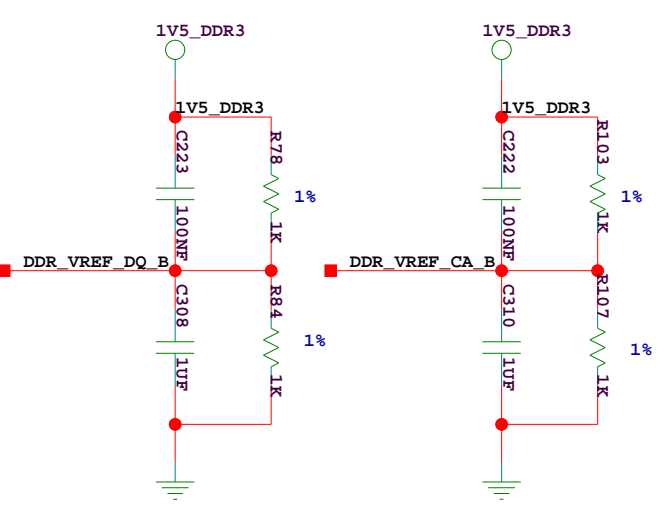
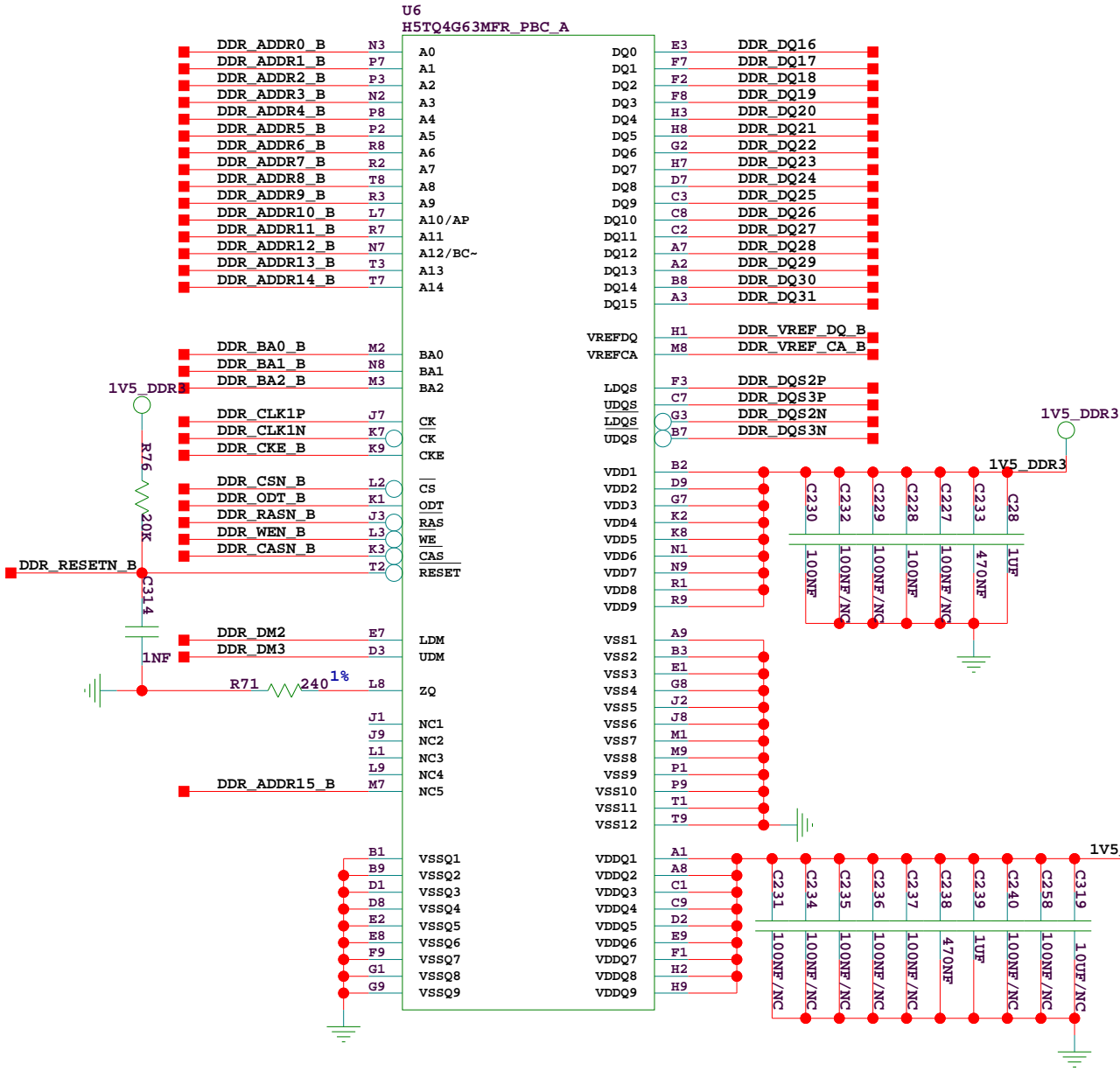
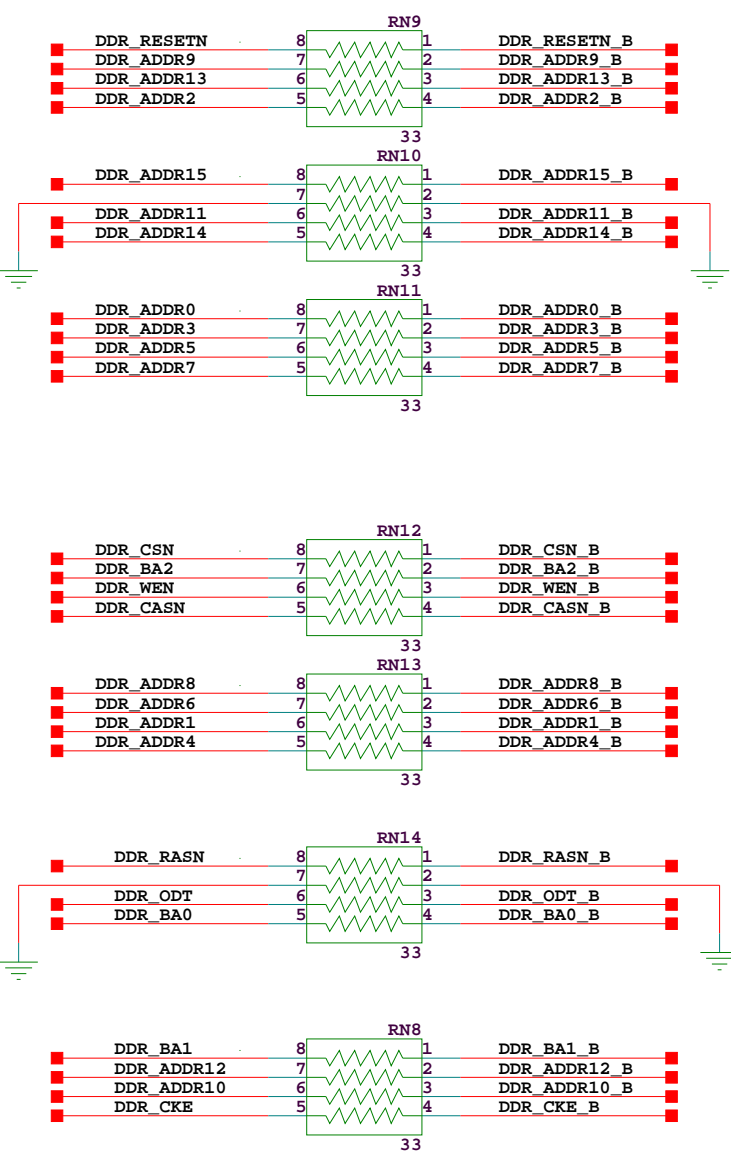
DDRA



The type and specification of the components refer to the BOM

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				ECA NO	DATE
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REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 11 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

DDR B

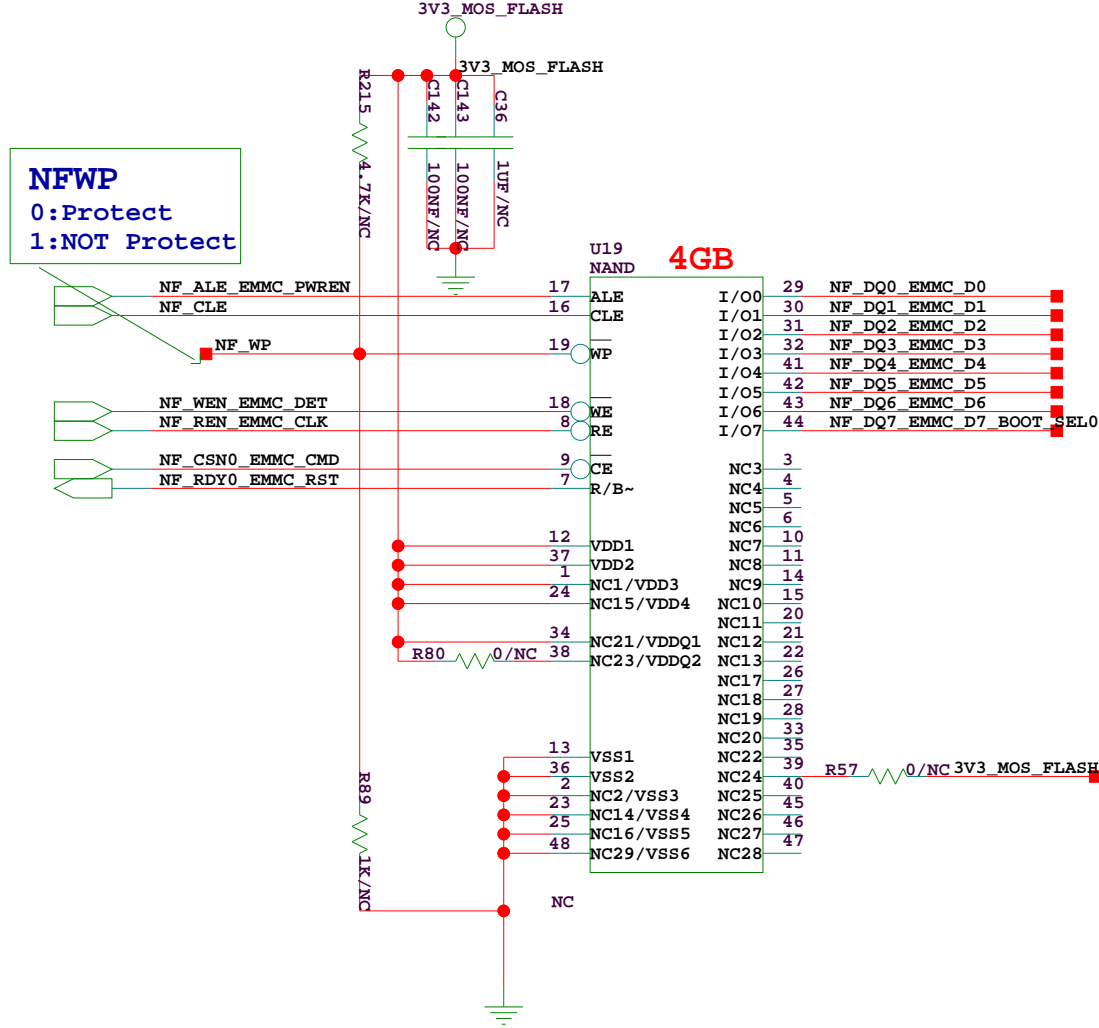


The type and specification of the components refer to the BOM

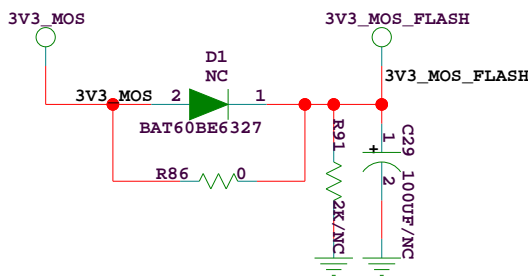
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		VER	PART_NUMBER	SHEET 12 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

NAND FLASH/EMMC

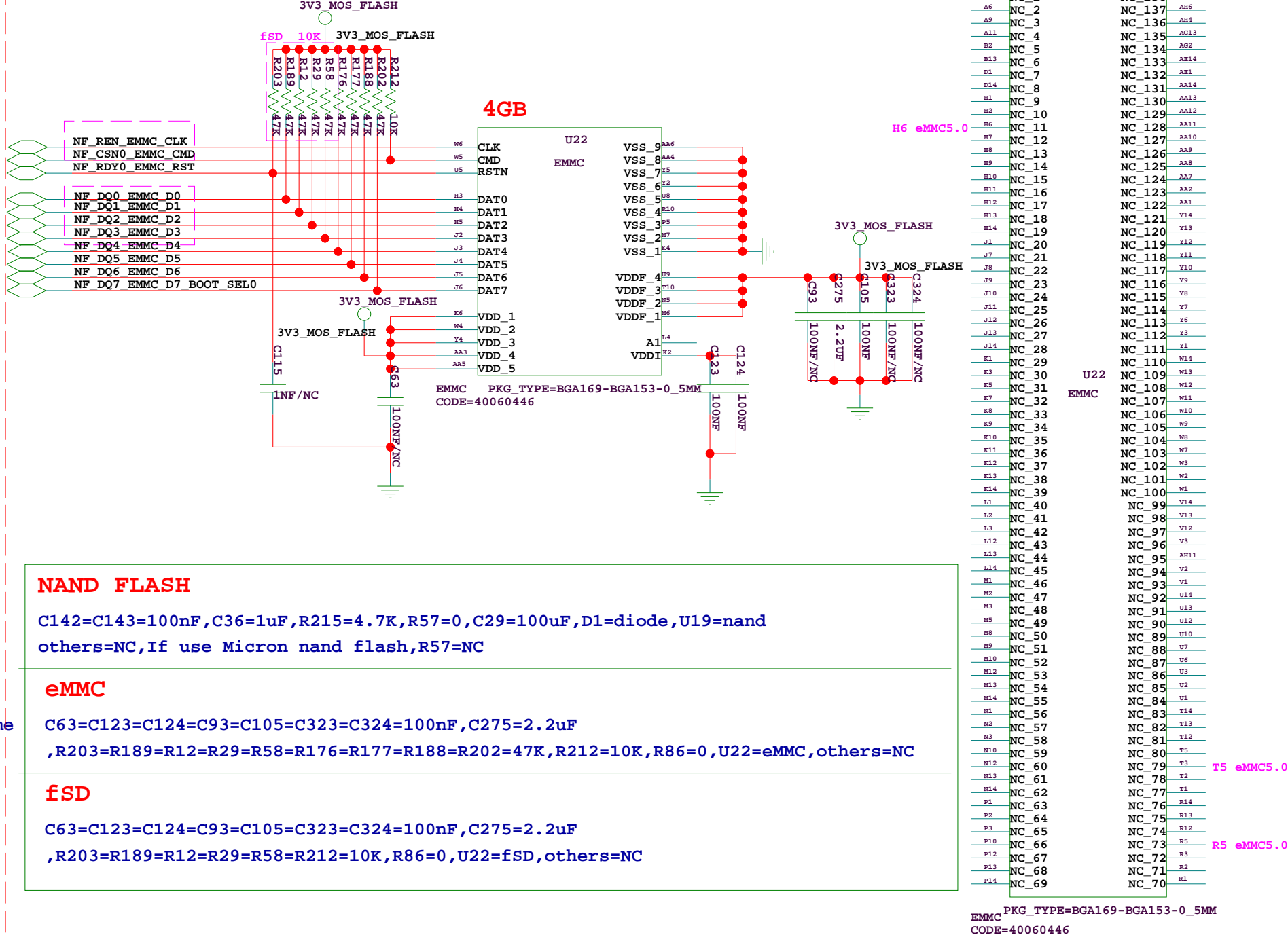
NAND FLASH



Pay attention to pin38&pin39,these pins are NC for the MLC NAND of some brands(such as Micron),but it should be connected to the VCC of others(such as Toshiba and Hynix).
Pls refer to the corresponding datasheet for detail.



eMMC/fSD



NAND FLASH

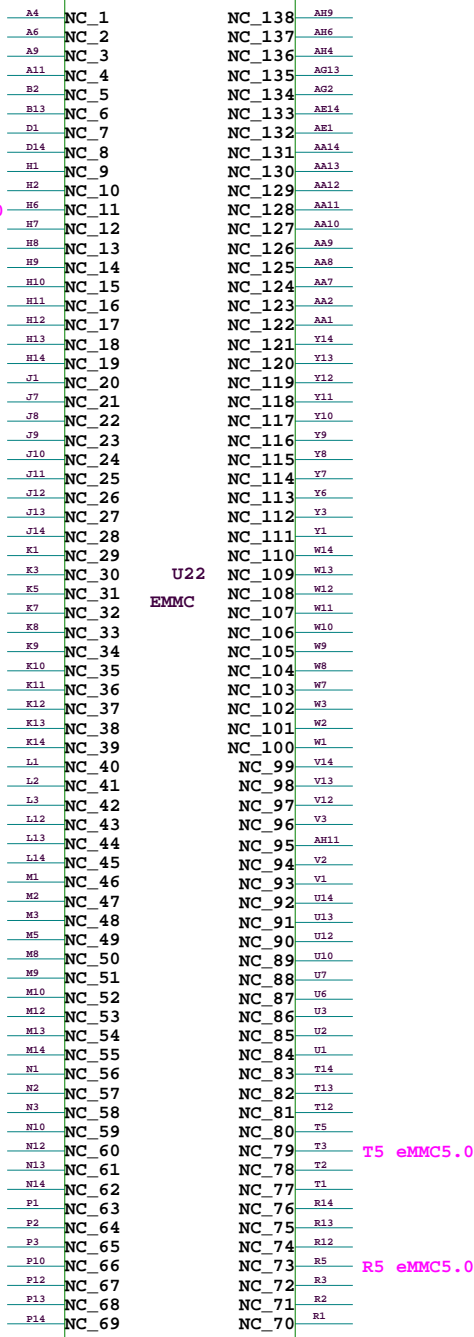
C142=C143=100nF,C36=1uF,R215=4.7K,R57=0,C29=100uF,D1=diode,U19=nand
others=NC,If use Micron nand flash,R57=NC

eMMC

C63=C123=C124=C93=C105=C323=C324=100nF,C275=2.2uF
,R203=R189=R12=R29=R58=R176=R177=R188=R202=47K,R212=10K,R86=0,U22=eMMC,others=NC

fSD

C63=C123=C124=C93=C105=C323=C324=100nF,C275=2.2uF
,R203=R189=R12=R29=R58=R212=10K,R86=0,U22=fSD,others=NC



EMMC PKG_TYPE=BGA169-BGA153-0_5MM
CODE=40060446

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 13 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

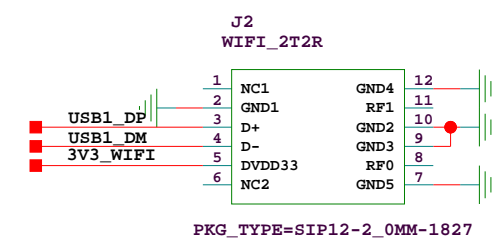
A

B

USB0:usb_boot/adb

C

D



The type and specification of the components refer to the BOM

D

A

B

C

D

LED/IR

LED

IR

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 15 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

1

2

3

4

5

6

A

B

C

D

LED/IR

LED

IR

3V3

3V3

R2

330

C

E

NPN-BEC

Q1

BC847AE6327

2

E

3V3

R34

330

C

E

NPN-BEC

Q2

BC847AE6327

2

E

LED1

LED_GREEN

R3

4.7K

R22

1K

B

1

R77

4.7K/NC

LED_RED

R65

4.7K/NC

R31

1K

B

1

R49

4.7K

LED_GREEN_1

LED_RED_1

R140

10K

50

8.1R

3V3_IR

C47

100F

100NF/NC

J3

P2500J_05

VALUE=NC

A1

LED_GREEN_1

A2

3V3_IR

A3

IR_IN

A4

LED_RED_1

A5

D3

1

OUT

2

GND

3

VCC

IR

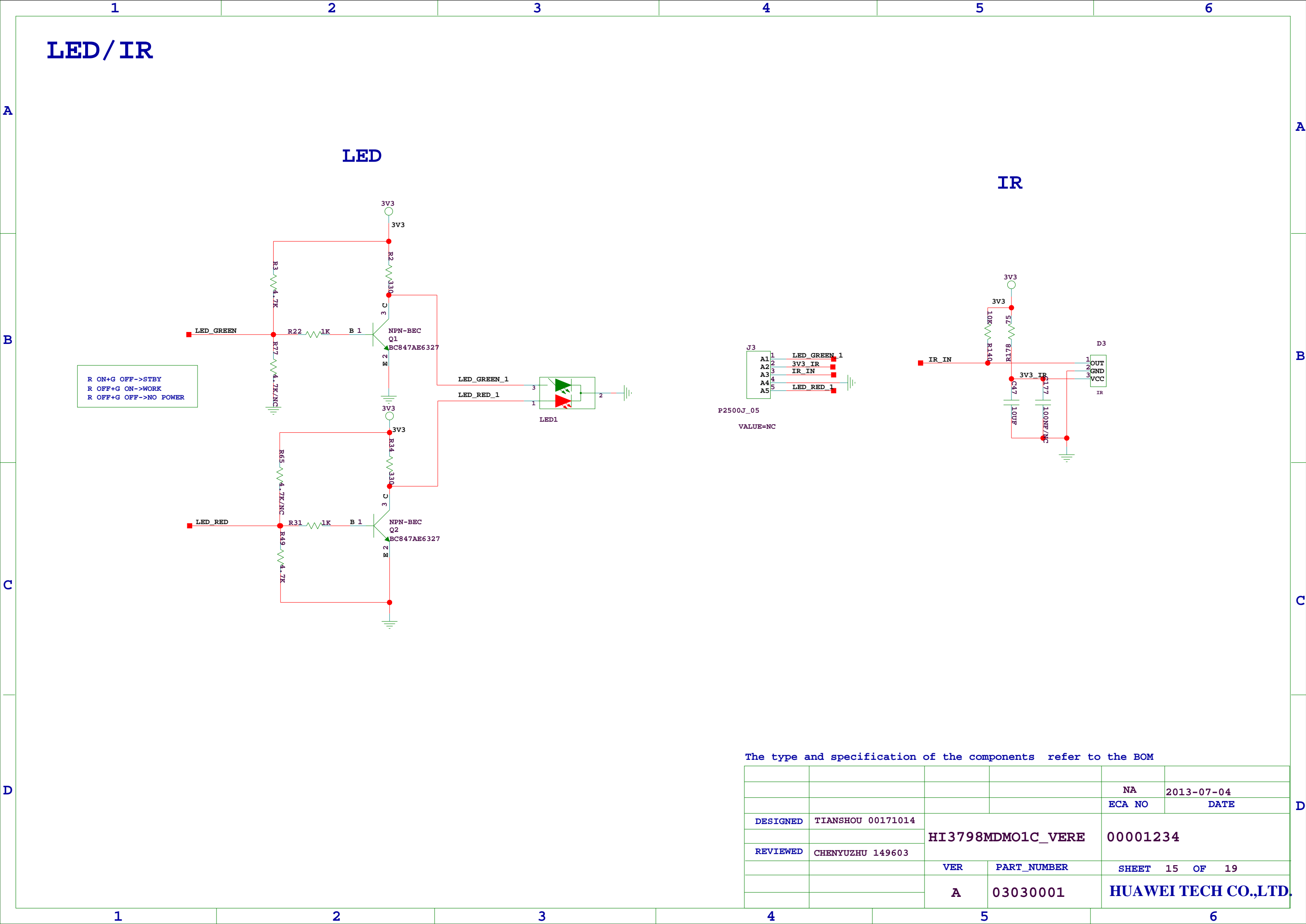
R ON+G OFF->STBY

R OFF+G ON->WORK

R OFF+G OFF->NO POWER

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 15 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	



1

2

3

4

5

6

A

B

C

D

LED/IR

LED

IR

3V3

3V3

R2

330

C

E

NPN-BEC

Q1

BC847AE6327

2

E

3V3

R34

330

C

E

NPN-BEC

Q2

BC847AE6327

2

E

LED1

LED_GREEN

R3

4.7K

R22

1K

B

1

R77

4.7K/NC

LED_RED

R31

1K

B

1

R49

4.7K

LED_GREEN_1

LED_RED_1

R140

10K

50

821R

C47

100F

100NF/NC

J3

P2500J_05

VALUE=NC

A1

LED_GREEN_1

A2

3V3_IR

A3

IR_IN

A4

LED_RED_1

A5

D3

1

OUT

2

GND

3

VCC

IR

R ON+G OFF->STBY

R OFF+G ON->WORK

R OFF+G OFF->NO POWER

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
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		VER	PART_NUMBER	SHEET 15 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

1

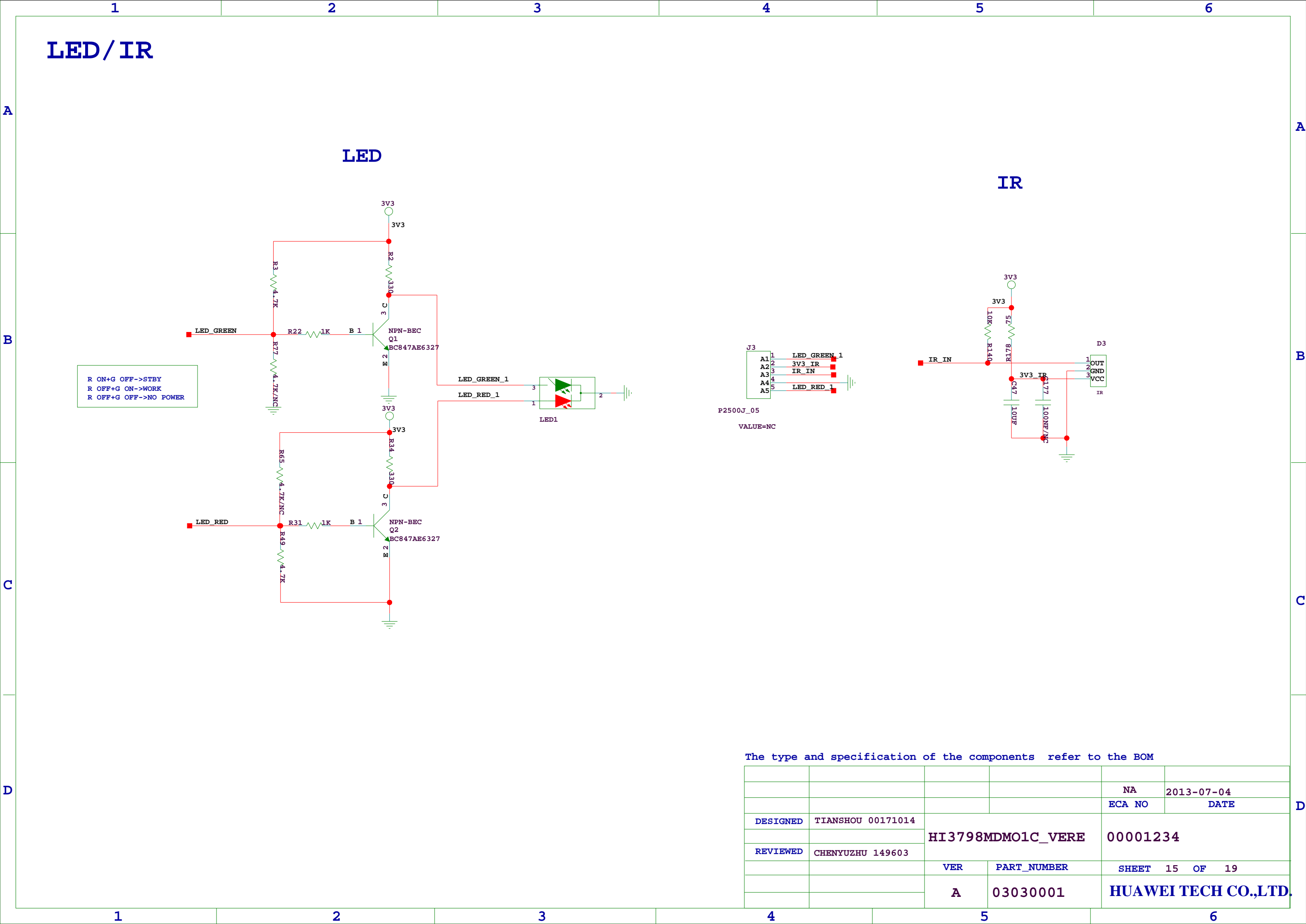
2

3

4

5

6



1

2

3

4

5

6

A

B

C

D

LED/IR

LED

IR

3V3

3V3

R2

330

C

E

NPN-BEC

Q1

BC847AE6327

2

E

3V3

R34

330

C

E

NPN-BEC

Q2

BC847AE6327

2

E

LED1

LED_GREEN

R3

4.7K

R22

1K

B

1

R77

4.7K/NC

LED_RED

R31

1K

B

1

R49

4.7K

LED_GREEN_1

LED_RED_1

R140

10K

50

821R

C47

100F

100NF/NC

J3

P2500J_05

VALUE=NC

A1

LED_GREEN_1

A2

3V3_IR

A3

IR_IN

A4

LED_RED_1

A5

D3

1

OUT

2

GND

3

VCC

IR

R ON+G OFF->STBY

R OFF+G ON->WORK

R OFF+G OFF->NO POWER

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 15 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

1

2

3

4

5

6

1

2

3

4

5

6

A

B

C

D

LED/IR

LED

IR

3V3

3V3

R2

330

C

E

NPN-BEC

Q1

BC847AE6327

2

E

3V3

R34

330

C

E

NPN-BEC

Q2

BC847AE6327

2

E

LED1

LED_GREEN

R3

4.7K

R22

1K

B

1

R77

4.7K/NC

LED_RED

R31

1K

B

1

R49

4.7K

LED_GREEN_1

LED_RED_1

R140

10K

50

821R

C47

100F

100NF/NC

J3

P2500J_05

VALUE=NC

A1

LED_GREEN_1

A2

3V3_IR

A3

IR_IN

A4

LED_RED_1

A5

D3

1

OUT

2

GND

3

VCC

IR

R ON+G OFF->STBY

R OFF+G ON->WORK

R OFF+G OFF->NO POWER

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 15 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

1

2

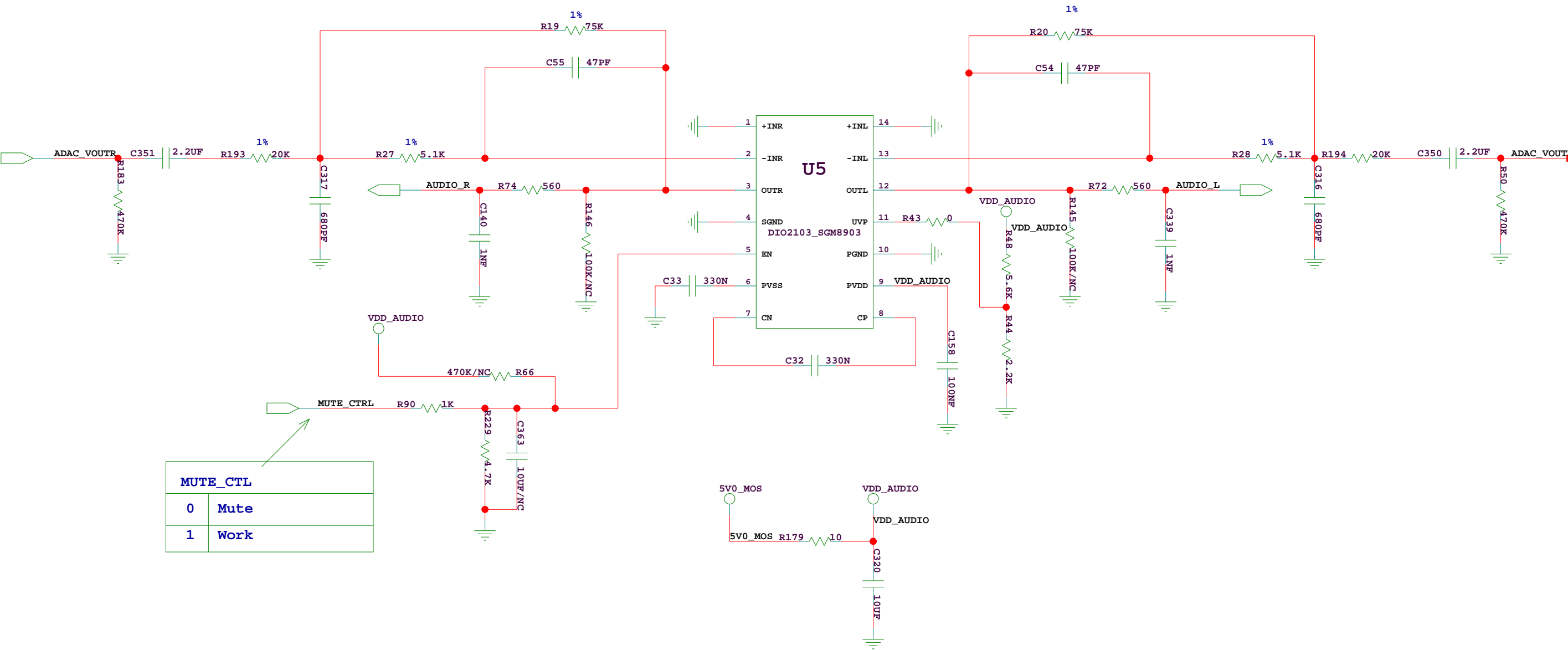
3

4

5

6

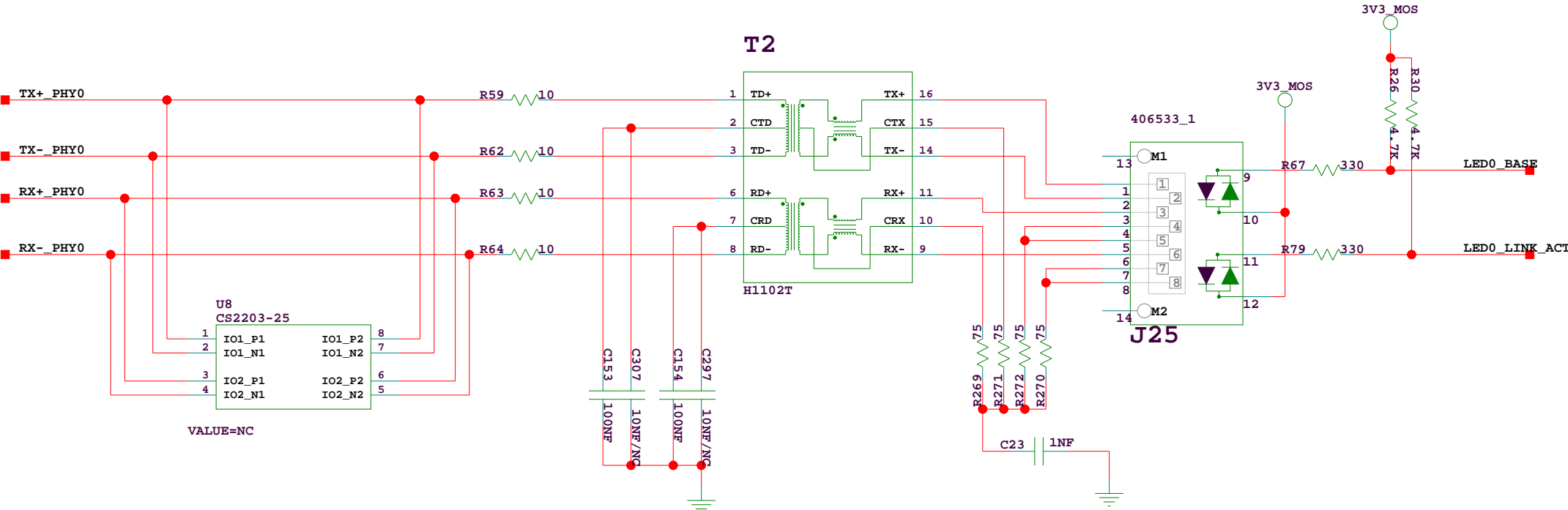
Audio Output



The type and specification of the components refer to the BOM

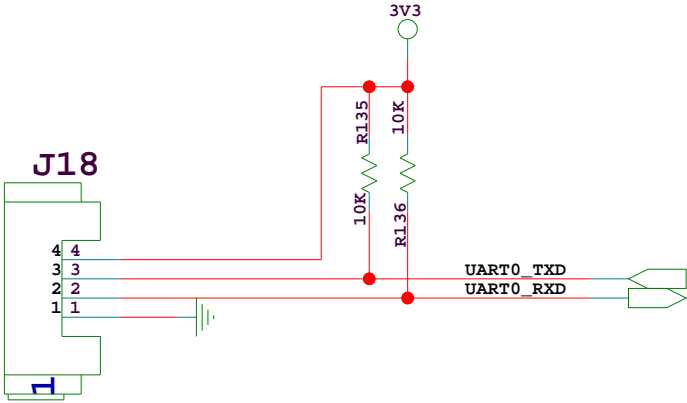
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REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 16 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

FE PHY/UART



Put C153 and C154 close to T2

UART

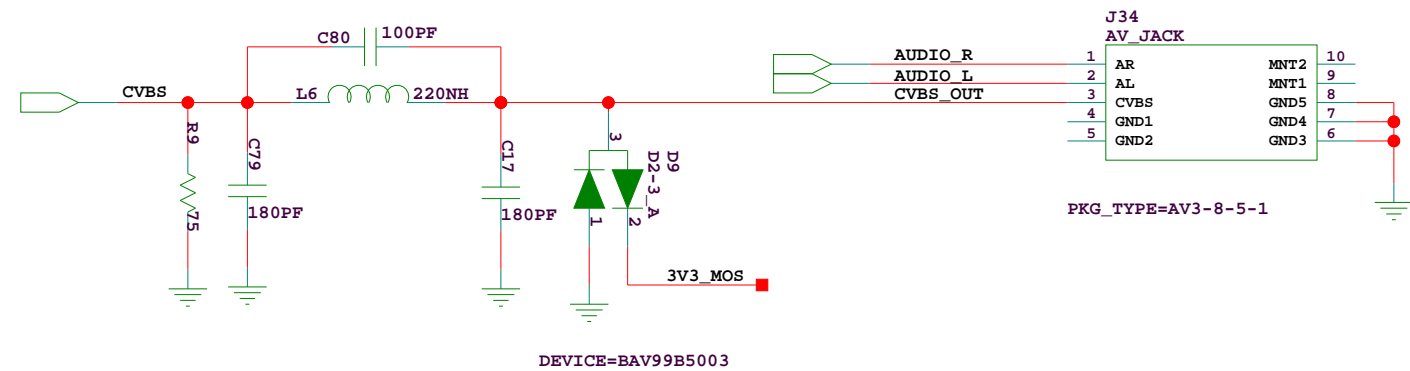


SDW12501_4A_HW

The type and specification of the components refer to the BOM

				NA	2013-05-15
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 17 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

VDAC OUTPUT



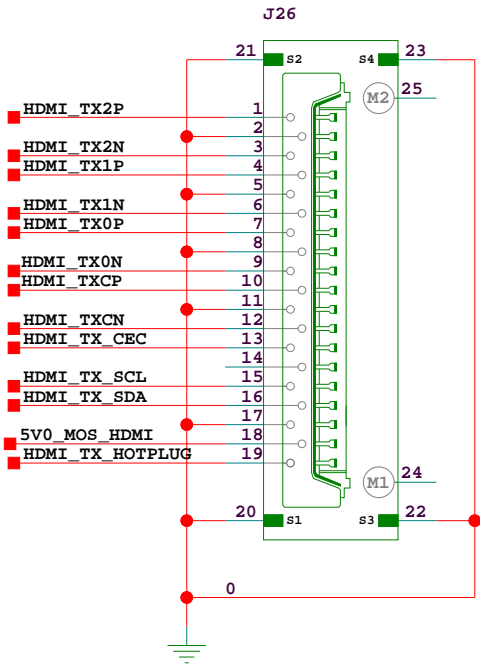
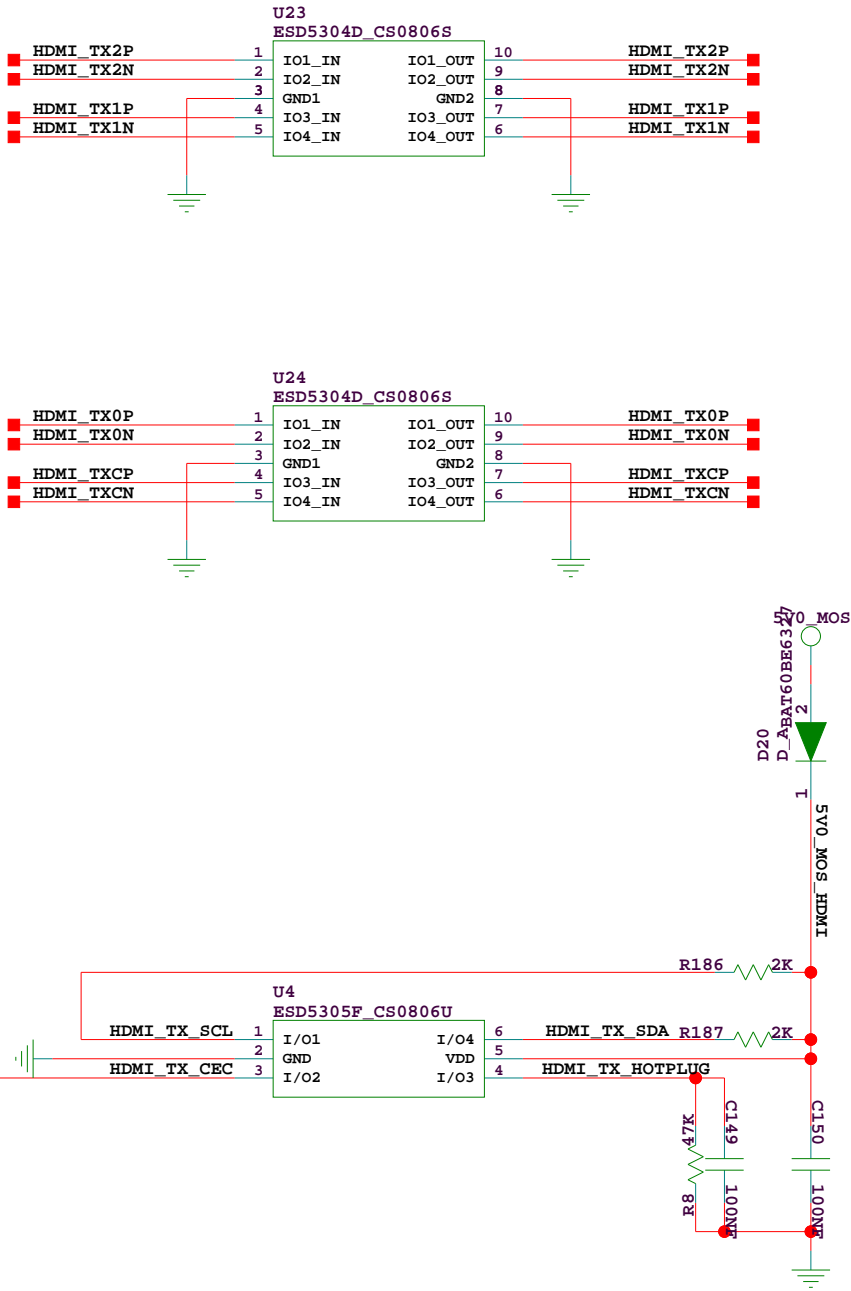
The type and specification of the components refer to the BOM

				NA	2013.1.4
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 18 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	

** Design guideline **

- 1.All channel traces should be separated from other traces by GND.
- 2.ESD components are suggested for ports protection, default BAV99.

HDMI TX



** HDMI Design guideline **

A.routing

- 1.Route as 100 Ohm differential impedance.
- 2.Differential pairs should be routed on TOP layer only.
- 3.Differential pairs should be separated from other traces by GND .

B.trace length

- 1.The length for the differential pairs should be less than 5 inches.
- 2.Match trace length of differential pairs, 5 mils max within a pair.

C.component selection

- 1.ESD components are suggested for ports protection.
- 2.All equivalent capacitance of ESD components should be < 0.8pF.

The type and specification of the components refer to the BOM

				NA	2013-07-04
				ECA NO	DATE
DESIGNED	TIANSHOU 00171014	HI3798MDMO1C_VERE		00001234	
REVIEWED	CHENYUZHU 149603				
		VER	PART_NUMBER	SHEET 19 OF 19	
		A	03030001	HUAWEI TECH CO.,LTD.	