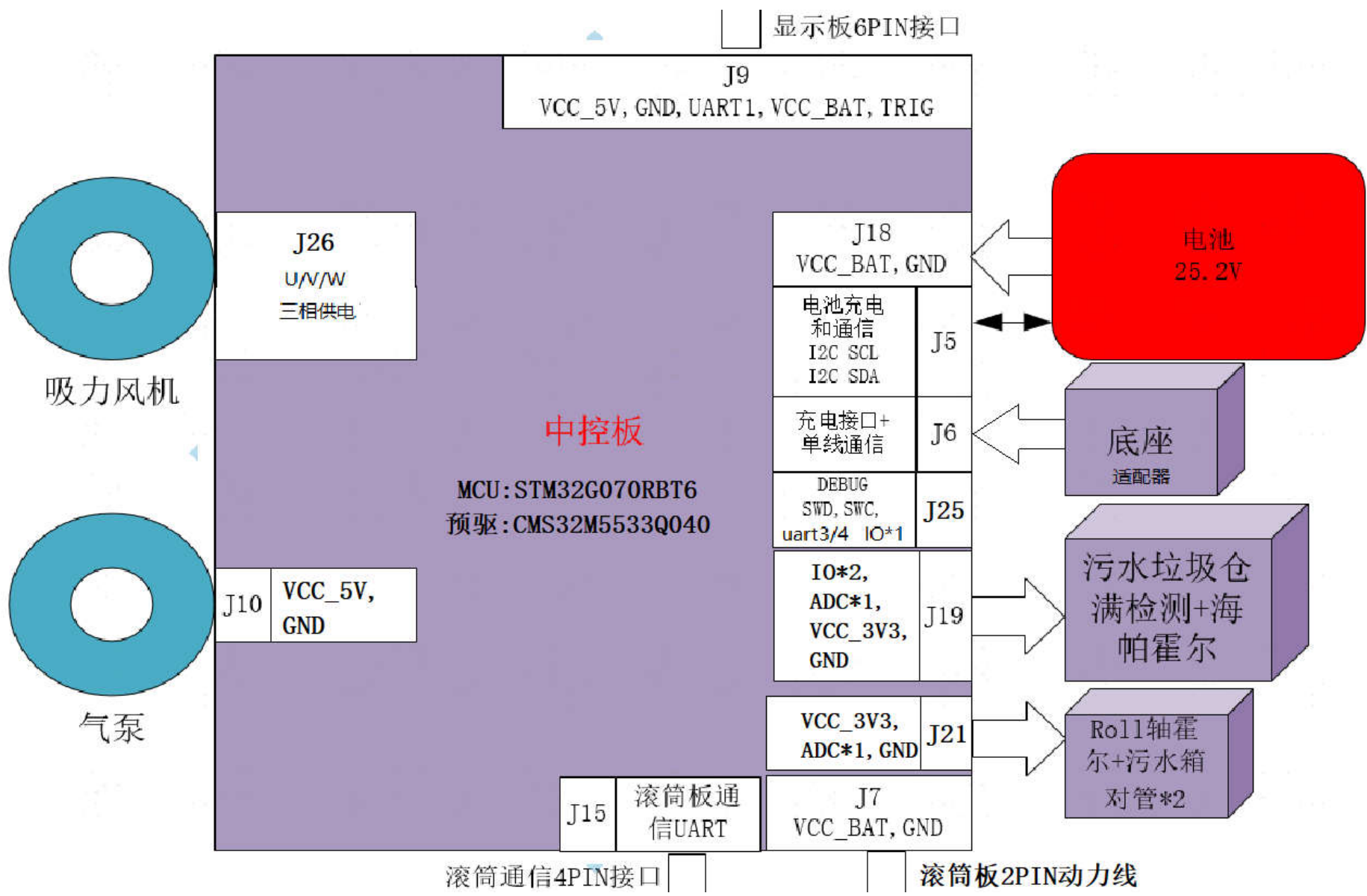
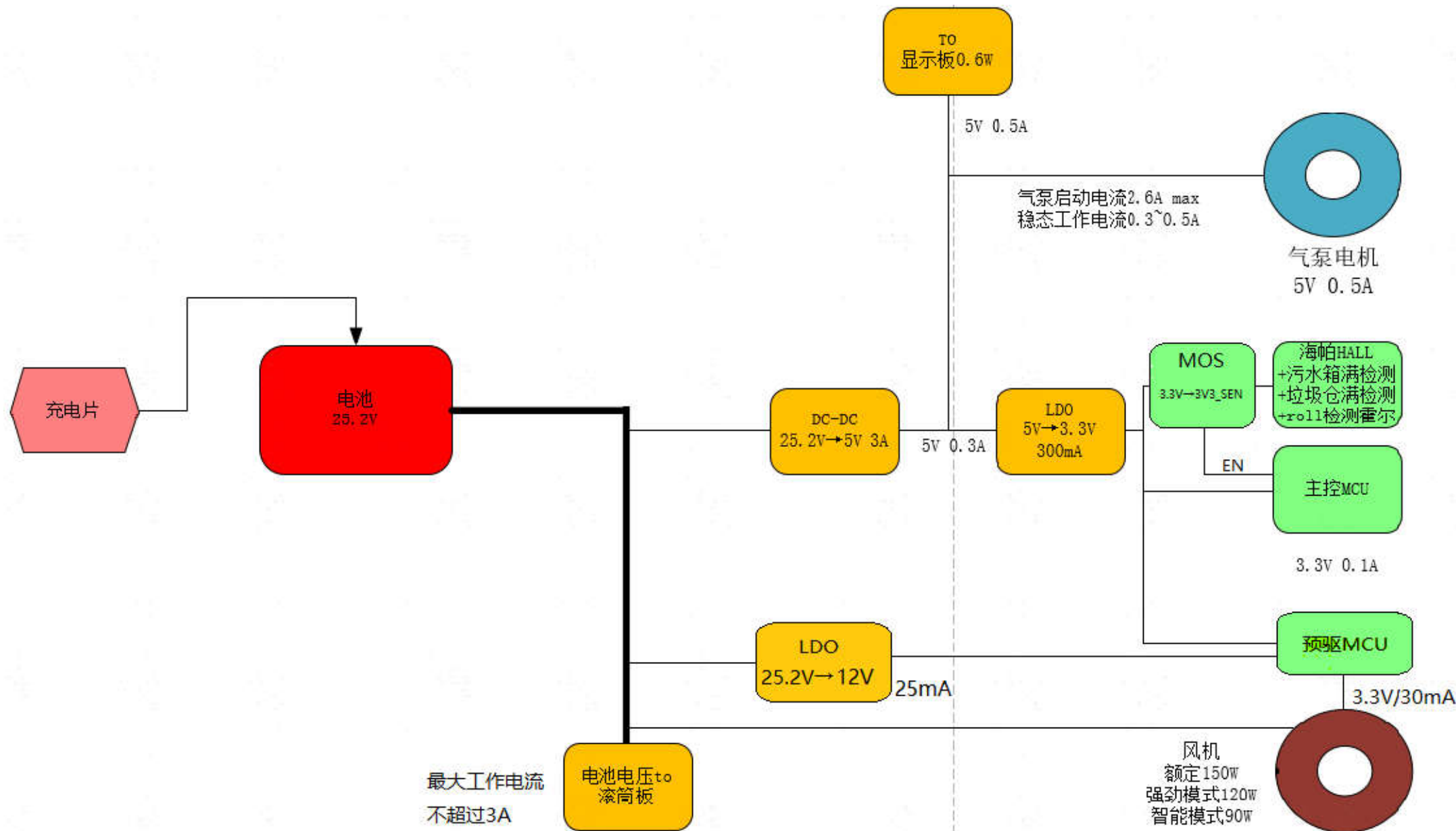
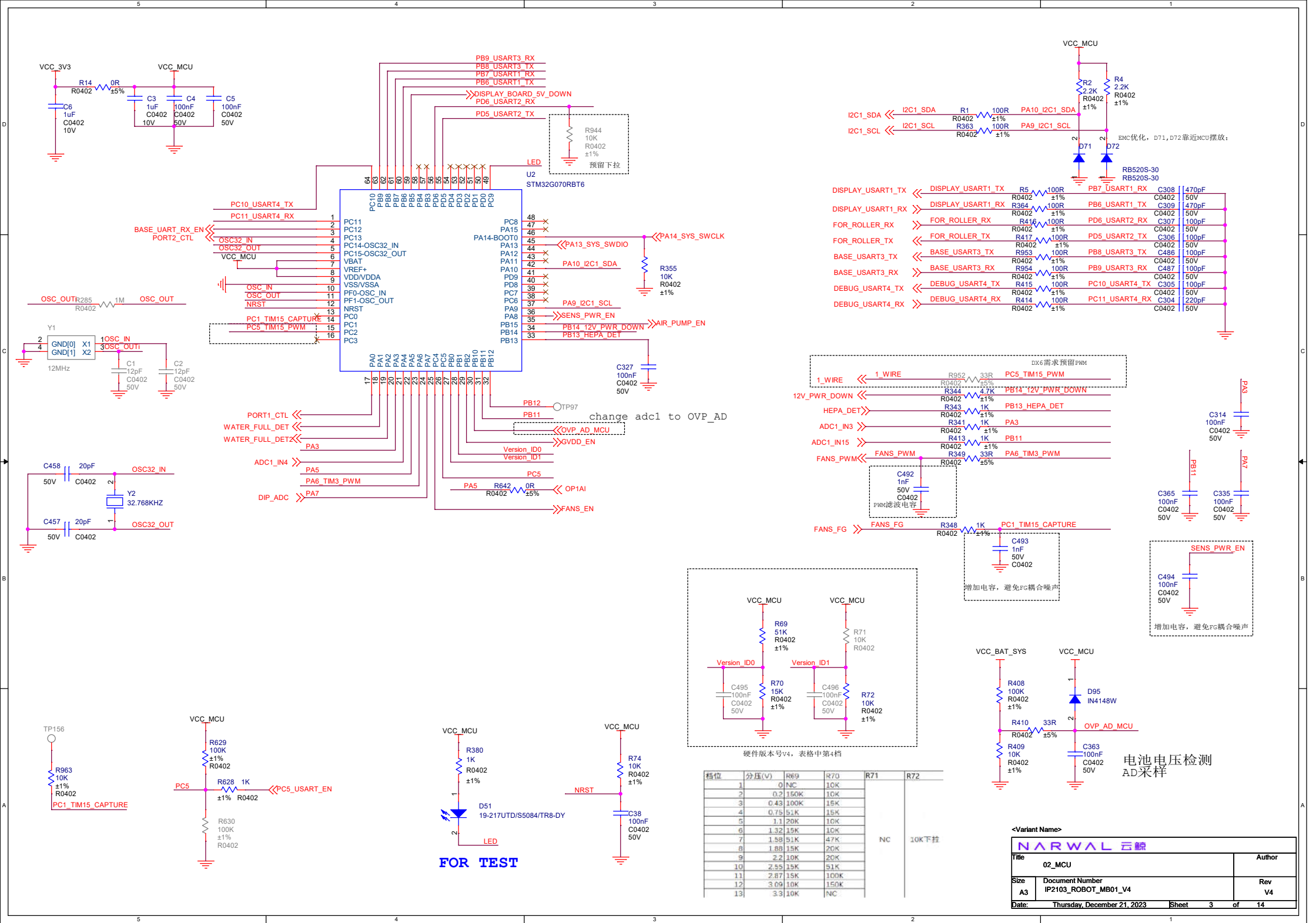






<Variant Name>

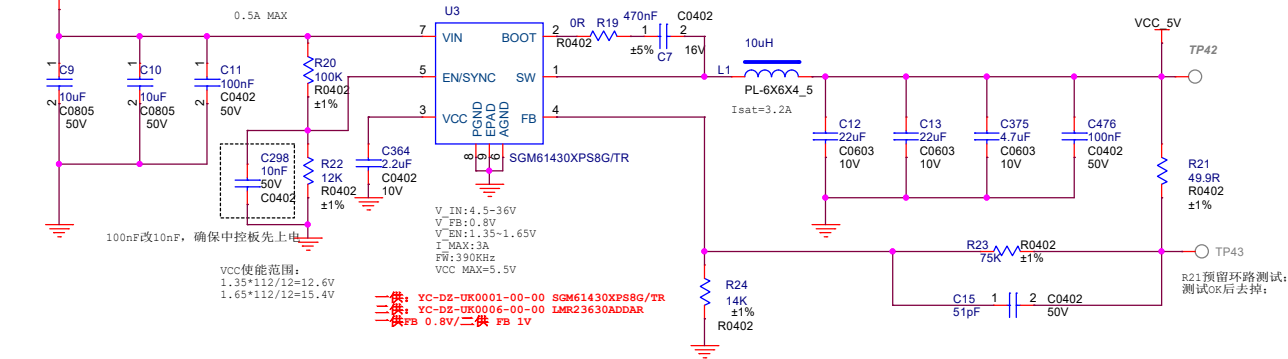
NARWAL 云鲸		
Title 01_POWER TREE		Author
Size A4	Document Number IP2103_ROBOT_MB01_V4	Rev V4
Date: Thursday, December 21, 2023	Sheet 2	of 14



BAT voltage : 16V~25.2V

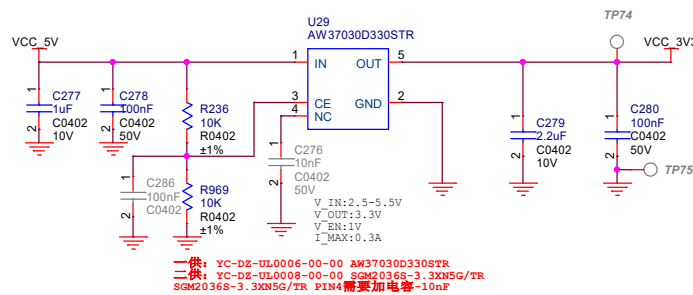
BOOT to SW :-0.3V to 5.5V
18-25.2V->5.0V
Vout=0.8*(1+75/14)=5.08V

5V 3Amax

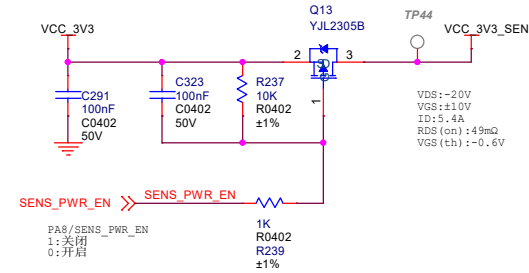


VCC使能范围:
1.35*112/12=12.6V
1.65*112/12=15.4V

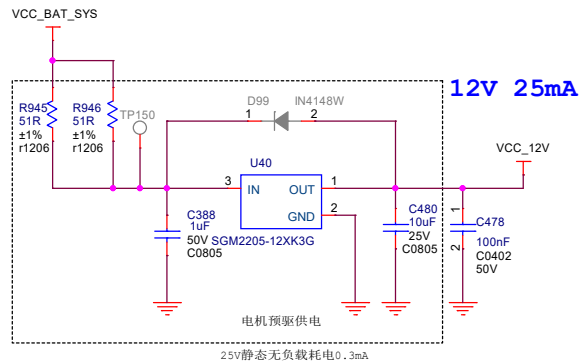
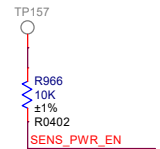
一供: YC-D2-UK0001-00-00 SGM61430XPS8G/TR
二供: YC-D2-UK0006-00-00 LMR23630ADDA
三供FB 0.8V/二供 FB 1V



一供: YC-D2-UL0006-00-00 AW37030D330STR
二供: YC-D2-UL0008-00-00 SGM2036S-3.3KN5G/TR
SGM2036S-3.3KN5G/TR PIN4需要加电容-10nF



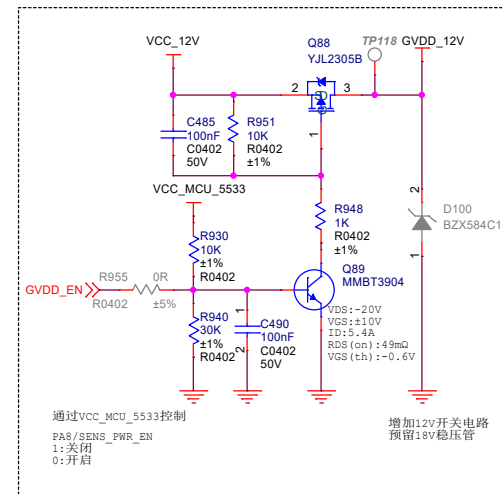
PA8/SENS_PWR_EN
1:关闭
0:开启



12V 25mA

电机预驱供电

25V静态无负载耗电0.3mA



通过VCC_MCU_5533控制
PA8/SENS_PWR_EN
1:关闭
0:开启

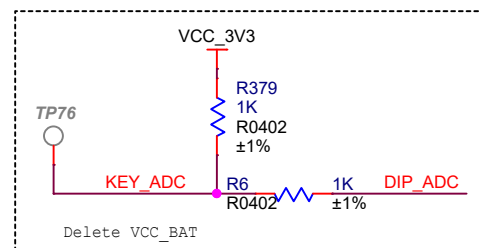
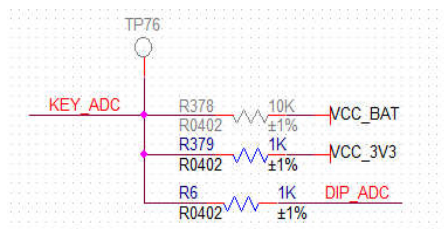
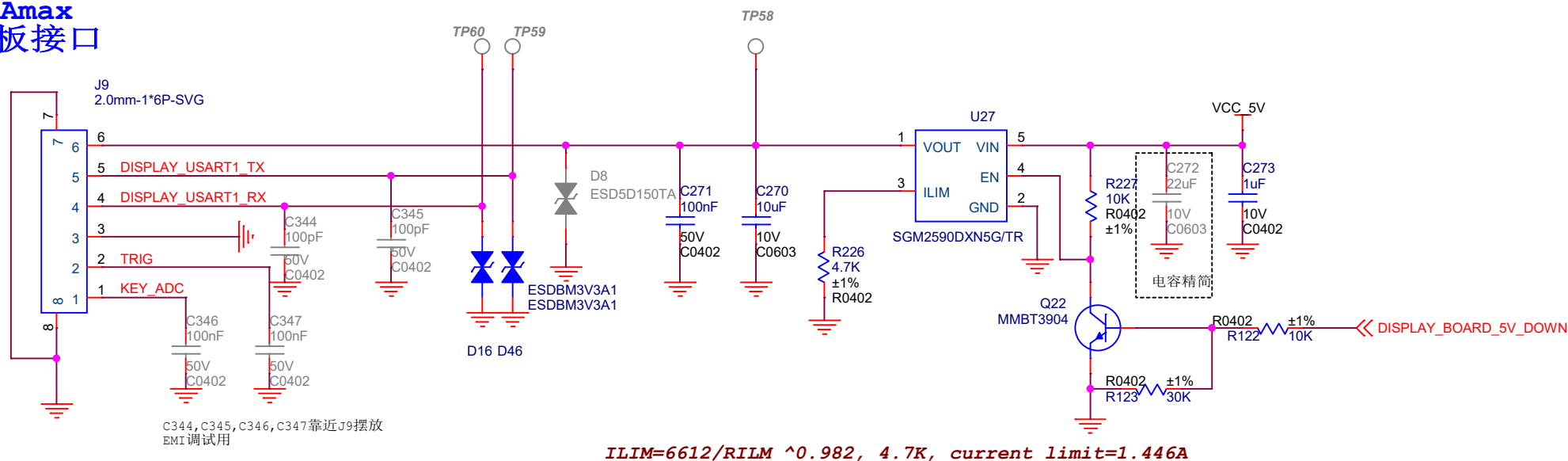
增加12V开关电路
预留16V稳压管

<Variant Name>

NARVAL 云鲸		
Title	03_POWER	Author
Size	Document Number	Rev
A3	IP2103_ROBOT_MB01_V4	V4
Date:	Thursday, December 21, 2023	Sheet 4 of 14

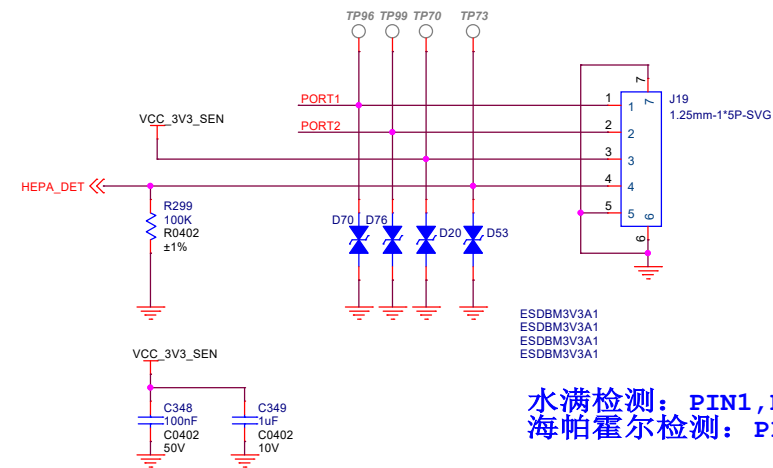
DISPLAY_USART1_TX << DISPLAY_USART1_TX
DISPLAY_USART1_RX << DISPLAY_USART1_RX
TRIG << TRIG
DIP_ADC << DIP_ADC

5V 1Amax 显示板接口

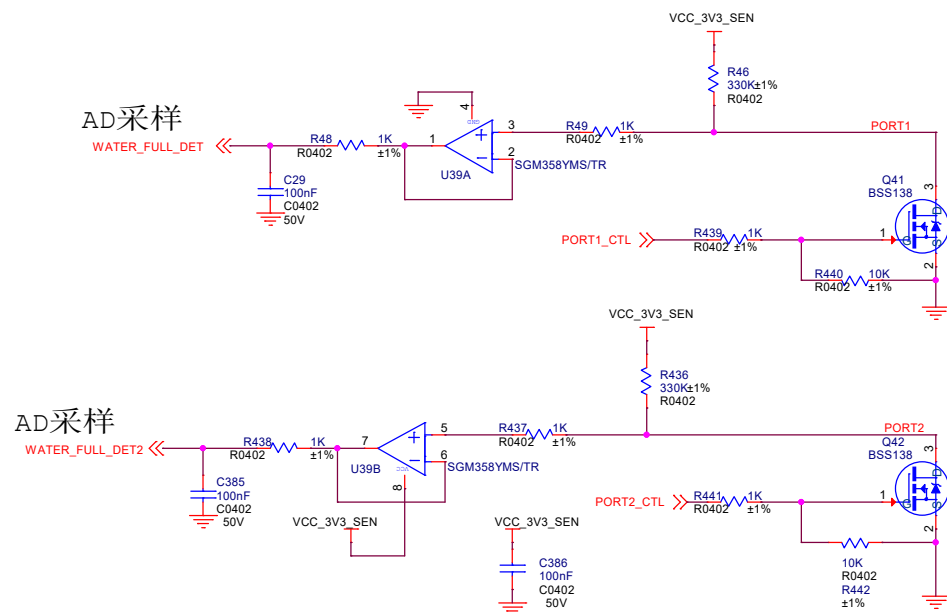


<Variant Name>

NARWAL 云鲸		
Title 04_DISPLAY_CONN		Author
Size A4	Document Number IP2103_ROBOT_MB01_V4	Rev V4
Date: Thursday, December 21, 2023		Sheet 5 of 14

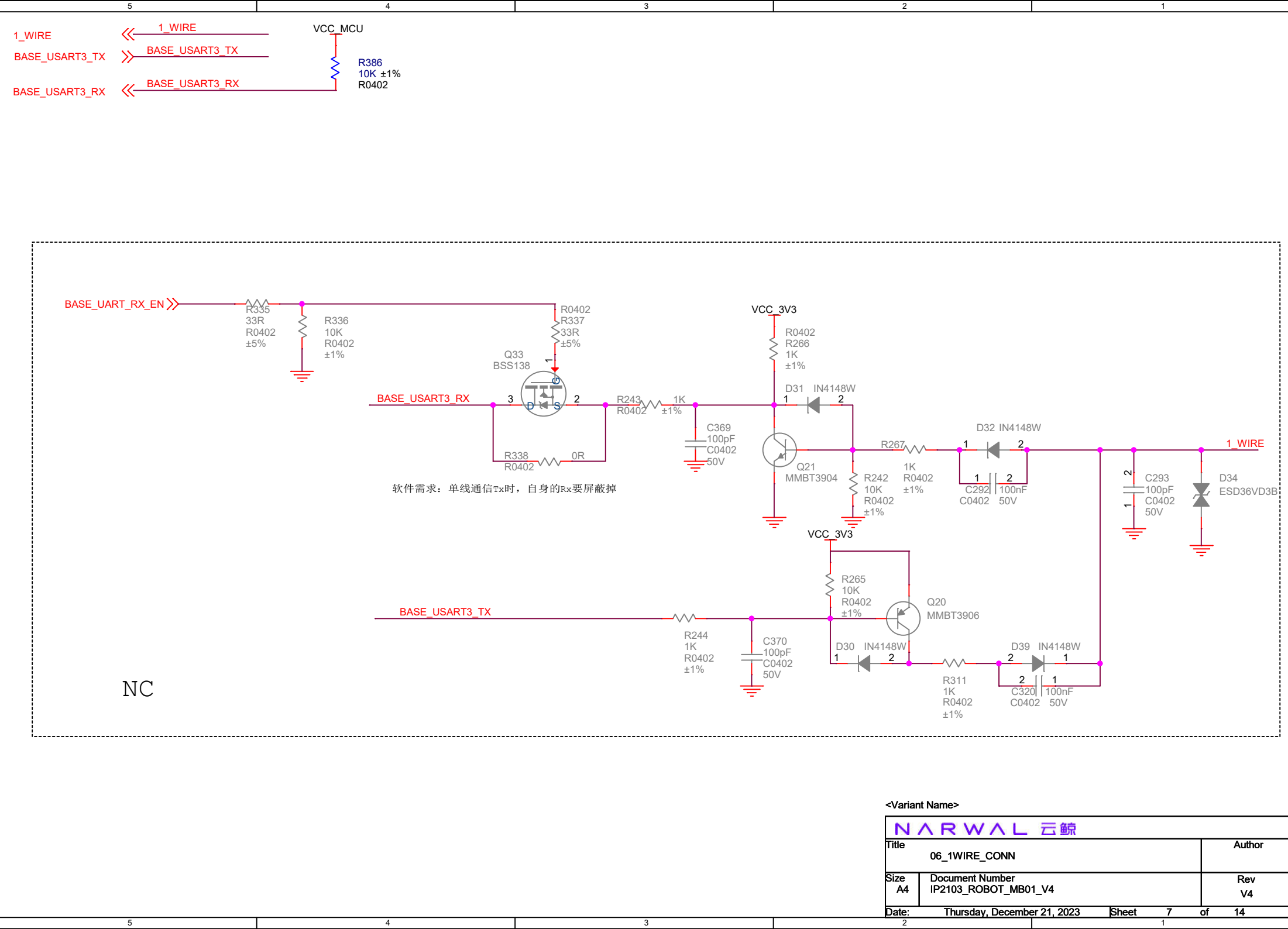


污水满检测PORT1 PORT2增加换向检测



<Variant Name>

NARWAL 云鲸		
Title		Author
05_WATER_AND_HALL_DET		
Size	Document Number	Rev
A3	IP2103_ROBOT_MB01_V4	V4
Date:	Thursday, December 21, 2023	Sheet 6 of 14

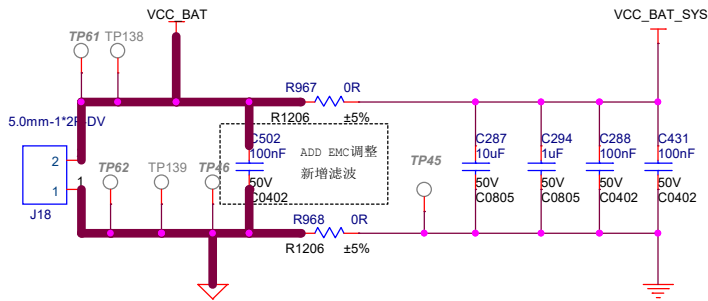


<Variant Name>

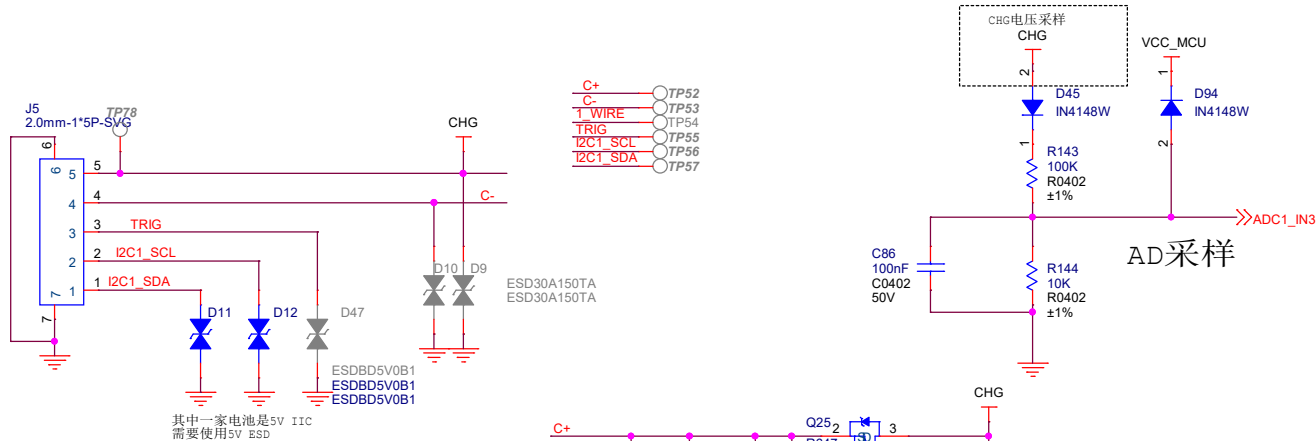
NARWAL 云鲸

Title		Author
06_1WIRE_CONN		
Size	Document Number	Rev
A4	IP2103_ROBOT_MB01_V4	V4
Date:	Thursday, December 21, 2023	Sheet 7 of 14

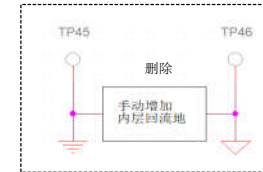
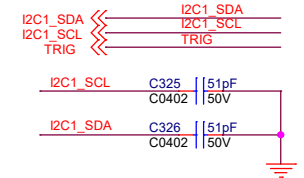
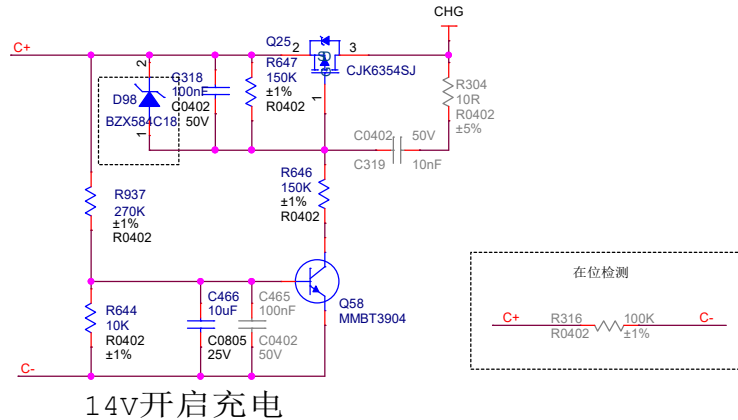
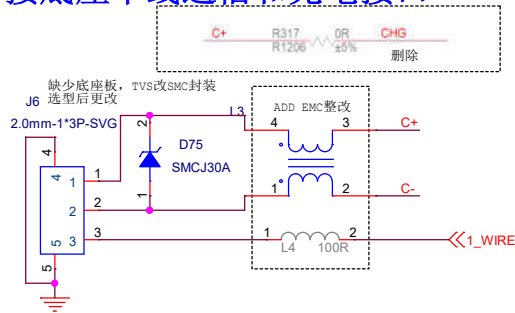
电池放电口



电池充电和I2C通信，与底座单线通信接口



接底座单线通信和充电接口



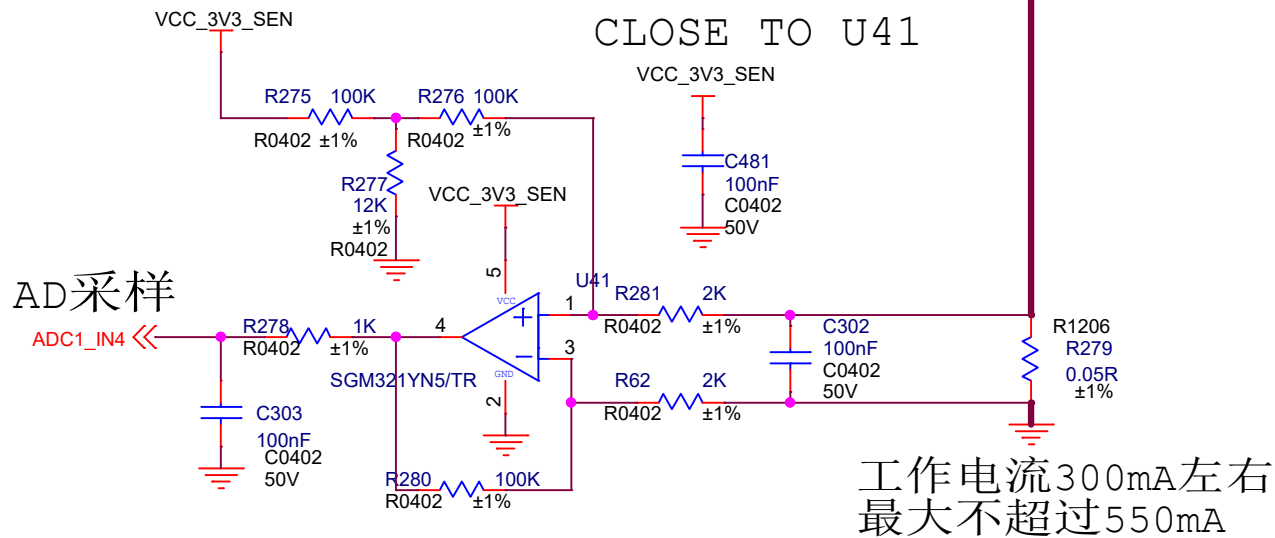
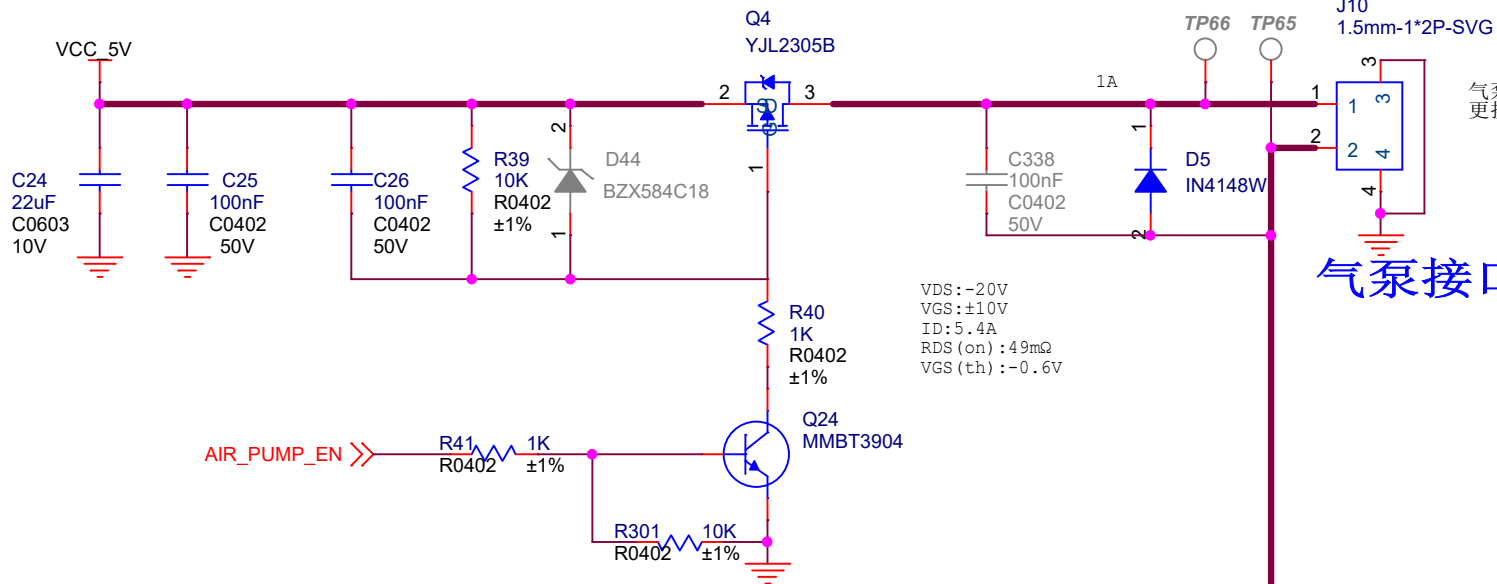
<Variant Name>

NARVAL 云鲸

Title		Author
07_BATTERY_CONN		
Size	Document Number	Rev
B	IP2103_ROBOT_MB01_V4	V4
Date:	Thursday, December 21, 2023	Sheet 8 of 14

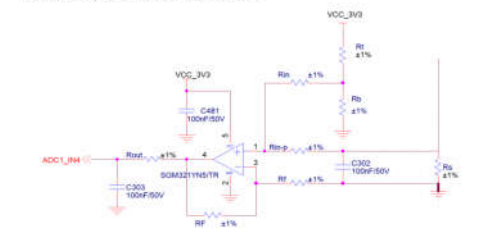


<Variant Name>		
NARWAL 云鲸		
Title	08_MOTOR1	Author
Size	Document Number	Rev
A3	IP2103_ROBOT_MB01_V4	V4
Date:	Thursday, December 21, 2023	Sheet 9 of 14



	值	min	max	单位	Max	Max	单位	备注
VCC	5.3	99	101	Vref	514.23	525.76	mV	电源1%误差
REF	1.2	11.88	12.12	ms	-5.6	5.6	mV	
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差
REF	1.2	1.58	2.02	ms	48.01	51.01	mV	电源1%误差

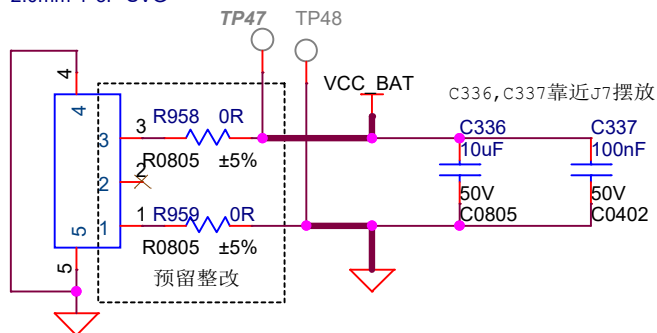
备注: REF与pin要保持同样阻值/REF与REF要保持同样阻值



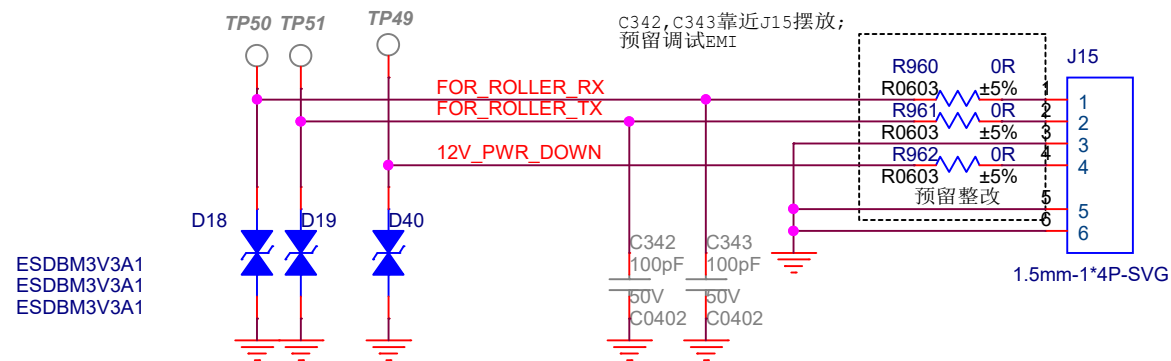
<Variant Name>

NARWAL 云鲸		
Title		Author
09_MOTOR2		
Size		Rev
A		V4
Date:		Sheet
Thursday, December 21, 2023		10 of 14

J7 2.0mm-1*3P-SVG



工作电流预留3A



FOR_ROLLER_RX << FOR_ROLLER_RX

FOR_ROLLER_TX >> FOR_ROLLER_TX

12V_PWR_DOWN >> 12V_PWR_DOWN

滚筒板接口

NARWAL 云鲸		
Title		Author
10_Roller_CONN		曾浴华
Size	Document Number	Rev
A	IP2103_ROBOT_MB01_V4	V4
Date:	Thursday, December 21, 2023	Sheet 11 of 14

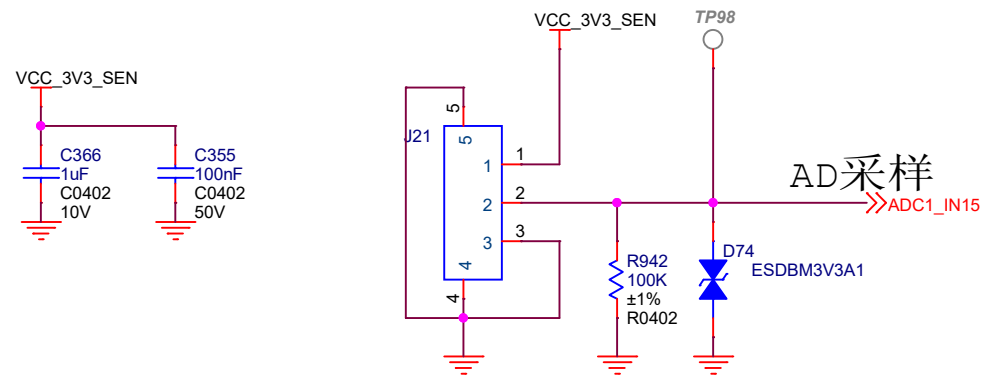
D

C

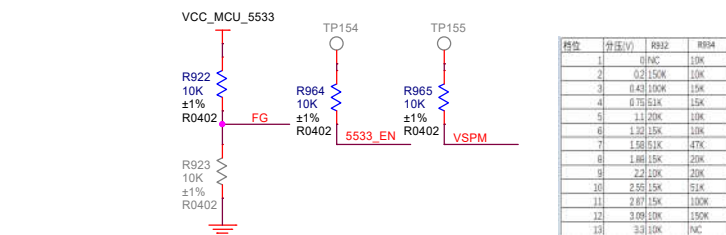
B

A

RO11轴检测霍尔



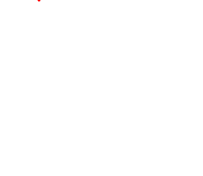
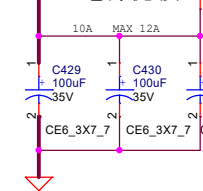
NARWAL 云鲸		
Title		Author
11_ROLL_HALL_SENSOR		曾浴华
Size	Document Number	Rev
A4	IP2103_ROBOT_MB01_V4	V4
Date:	Thursday, December 21, 2023	Sheet 12 of 14



最大通流13A

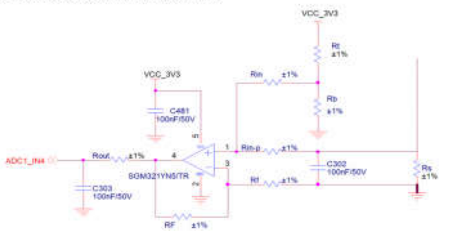
三相桥驱

电源滤波



值	min	max	项目	Min	Max	单位	备注
VCC	5.2	5.5	Vref	4.99±0.02	5.04±0.03	mV	电源1%误差
Rb	50	29.7	Voc	21.88	22.66	mV	
采样+	2.2	2.178	Gain	17.38	18.09		电路1%误差
Rf	39	38.41	VaryGain	-68.72	68.72		取最大增益
Rf	2.2	2.178	Voffset	0.01±0.01	0.01±0.01	mV	上电初始值为0
VCC	5.2	5.5	量程/电压	1000	1000	mV	
Ra/Rb	10	17.35	量程/电流精度	15.52	17.03	A	

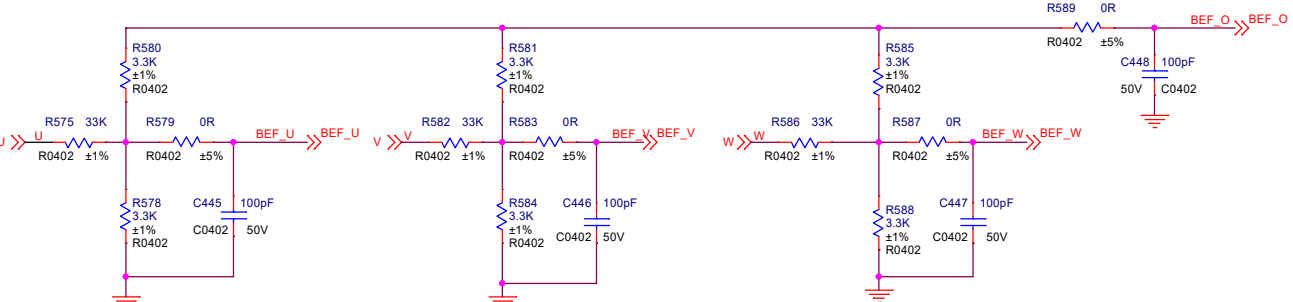
备注: Rf与Rb要保持同种阻值/Rb与Rf要保持同种阻值



三相反电动势检测电路

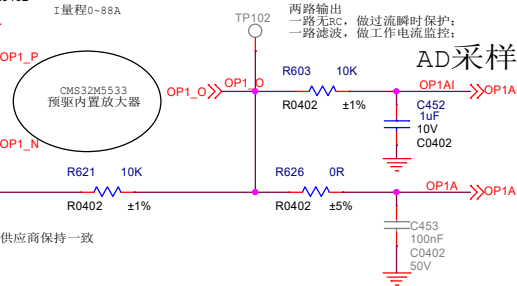
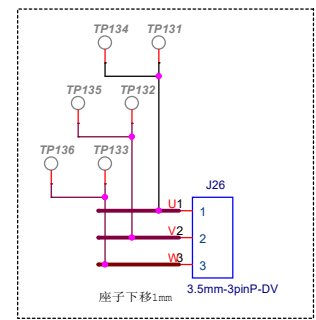
最大通流15A

反电动势过零检测 AD采样



电机母线电流采样
放大倍数=R621/R927=5倍
Vout=(0.005*I)*5+1.1
采样最高3.3V:
I量程0~88A

与供应商保持一致



Title			13_Vacumm Pump02			Author			曾洛华		
Size			Document Number			Rev			V4		
A3			IP2103_ROBOT_MB01_V4								
Date			Thursday, December 21, 2023			Sheet			14 of 14		