MCU主控芯片电路

O/HT. RO4. 03O·2O16

U1

1 VBAT		VDD_3 64	3V3
PC13-TAMPER-RTC		VSS_ 63	DGND
PC14-OSC32_IN		PB9 62	E22_M0
PC15-OSC32_OUT		PB8 61	E22_M1
OSC_IN — PD0 OSC_IN		BOOT0 60	BOOT0
OSC_OUT 6 PD1 OSC_OUT		PB7 59	E22_RX
RESET NRST		PB6 58	E22_TX
PC0		PB5 57	E22_AUX
PC1		PB4 56	SOC1
PC2		PB3 55	SOC0
DGND PC3		PD2 54	
3V3 13 VSSA		PC12 53	DEBUG_RX
VDDA		PC11 52	DEBUG_TX
ADC_VOLT PA0-WKUP		PC10 51	
MCU_LED PA1		PA15 49	SWCLK
PA2		PA14 48	3V3
DGND 18 VSS_4		VDD_2 47	DGND
3V3 19 VDD_4		VSS_2	SWDIO
ADC_O2 PA3		PA13	
ADC_CO PA4		PA12	CHECK_POWER
ADC_H2S PA5		PA11	
ADC_LEL PA6		PA10	
PA7		PA9	
PC4		PA8	
PC5		PC9	
PB0		PC8	
PB1		PC7	
BEEP PB2		PC6	
DGND PB10		PB15	
3V3 32 PB11		PB14	
VSS_1		PB13	
VDD_1		PB12	

STM32F105RCT6

MCU滤波电容

3V3   3V3
C1 C2 C3 C4 C5 C6
100nF/25V/5% 100nF/25V/5%   100nF/25V/5%
DGND   DGND
100nF/25V/5%

BOOT电路
BOOT0 R1 10K/5% DGND

MCU LED状态指示灯
3V3
R2 10K/5%
C7 100nF/25V/5%   HL1 LED蓝灯
MCU_LED   3V3

高速晶振电路
OSC_IN R7 1M/1% OSC_OUT
G1
C9 20pF/25V/1%   C10 20pF/25V/1%
16MHz
DGND

复位电路
3V3
R3 10K/5%   VD7 1N4148
RESET
C8 100nF/25V/5%
DGND

ST-LINK SWD编程口
JP1
JP1   SWCLK R4 1K/5% RESET
1   R5 10K/5%
SWDIO R6 10K/5% 3V3
SWD

USB接口和USB转TTL串口接口

+5V C11
10uF/5%   DGND
JP2
VBUS
D-   USBD-
D+   USBD+
ID
GND   DGND
MiniUSB-B

U2
USBD+ 1 UD+ V3 8
USBD- 2 UD- RXD 7 DEBUG_TX
GND TXD 6 DEBUG_RX
RTS# VCC 5 +5V
CH340N
DGND
C12 100nF/25V/5%
DGND
C13 100nF/25V/5%
DGND

M1
10 GND M0 E22_M0
9 GND M1 E22_M1
8 GND RXD E22_RX
TXD E22_TX
AUX E22_AUX
VCC 3V3
DGND GND
E22-400T22D
C30 100nF/25V/5%
DGND

JP4
1
2 BEEP
3
4
5
6 ADC_LEL
7 ADC_H2S
8 ADC_CO
9 ADC_O2
10
11 DGND
12 3V3
FPC-12P

3V3
R22 1K/5%
CHECK_POWER
+5V R21 10K/5%
V1 S8050
DGND

3V3 R16 10K/5% HL4
1 SOC0
2
3 SOC1
LED红绿双色

+5V
C15 100nF/25V/5%
DGND
HL3 LED红绿双色
R8 1K/5% R9 1K/5%

U3
8 VCC BAT 5 BATT+
CE
7 CHRG TEMP
6 STDBY PROG
GND
TP4056
C16 10uF/25V/5%
R10 1K5/5%
DGND

JP3
BATT+
BATT_OUT
XH2.54-2P DGND

K2
K1
COM
K2
SK-12D07开关

电池电压测量
BATT_OUT
R19 10M/1%
ADC_VOLT
R20 10M/1%   C14 100nF/25V/5%
DGND

负载供电电路
BATT_OUT
C17 100nF/25V/5%
DGND
U4
1 IN OUT 5
GND
EN BP/FB 4
TPS73033DBVR
C18 10nF/25V/5%
DGND
C25 2.2uF/25V/5% C26 100nF/25V/5%
3V3
R12 2K/5%
C27 100nF/25V/5% HL2 LED蓝灯
DGND

HGD_MCU(v0.2)
广德新衍工作室
20200901
2020-YF01.01

Comment	Description	Designator	Footprint	Quantity
100nF/25V/5%	电容, 电容, 电容, 电容, 电容, 电容, 电容, 电容, 电容, 电容, [NoValue], 电容, [NoValue], 电容, 电容, 电容	C1, C2, C3, C4, C5, C6, C7, C8, C12, C13, C14, C15, C17, C26, C27, C30	C0603	16
20pF/25V/1%	电容	C9, C10	C0603	2
10uF/25V/5%	钽电容	C11, C16	C1206-1	2
10nF/25V/5%	电容	C18	C0603	1
2.2uF/25V/5%	钽电容	C25	C1206-1	1
16MHz	两对电极压电晶体	G1	OSC5032	1
LED蓝灯	发光二极管	HL1, HL2	LED0603	2
LED红绿双色	LED2_Common_Anode：双色LED，共阳极	HL3, HL4	LED2_Common_Anode	2
SWD	XH2.54-5P直插插针	JP1	XH2.54-5AW	1
MiniUSB-B	MiniUSB-B母头插座	JP2	MiniUSB-B	1
XH2.54-2P	XH2.54-2P弯针插座	JP3	XH2.54-2AW	1
FPC-12P	FPC-12P	JP4	FPC-1.0MM-12P-W	1
SK-12D07开关	SK-12D07：3脚2档小型拨动开关	K2	SK-12D07	1
E22-400T22D	E22-400T22D LoRa模块	M1	E22-400T22D	1
10K/5%	电阻	R1, R2, R3, R5, R6, R16, R21	R0603	7
1K/5%	电阻	R4, R8, R9, R22	R0603	4
1M/1%	电阻	R7	R0603	1
1K5/5%	电阻	R10	R0603	1
2K/5%	电阻	R12	R0603	1
10M/1%	电阻	R19, R20	R0603	2
STM32F105RCT6	STM32F105RCT6	U1	LQFP64_STM32F105R	1
CH340N	CH340N	U2	CH340N_SOP8	1
TP4056	TP4056	U3	TP4056_SOP8_SOP127P600X175-8N	1
TPS73033DBVR	SGM2019：Low Power, Low Dropout, RF Linear Regulators	U4	SGM2019_SOT23-5_95P280X125-5N	1
S8050	NPN三极管	V1	SOT-23	1
1N4148	开关二极管	VD7	LL-34	1