Power Supply

LiPo Charger

D1 1N5819S4/SOD123

CHARGING1 LED/YELLOW/0603

R3 2.2k/R0402

U1 BL4054B-42TPRN(SOT23-5)

R1 10k/R0402

C1 22uF/6.3V/20%/X5R/C0603

R4 Rprog 2.2k/R0402

I(Bat) = 1000/Rprog = 455mA

Recommended LI-PO battery: https://www.olimex.com/Products/Power/BATTERY-LIPO1400mAh/

FET1 WPM2015-3/TR

D2 1N5819S4/SOD123

BAT1 3.7V LI-PO Battery Connector

DW02S

Voltage & Polarity!!!

C6 4.7uF/6.3V/C0603

U3 HX6211A332MR

C7 4.7uF/6.3V/C0603

+3.3V

+5V_USB

PWR_FLAG

VBAT

GND

Battery Measurement

BAT_PWR_E1 Opened

R2 470k/R0402

R5 470k/R0402

C9 100nF/10V/10%/X7R/C0402

External Power Sense

R15 220k/R0402

R16 470k/R0402

PWR_SENS_E1 Opened

BAT_SENS_E1 Opened

GPI39\SENSOR_VN

GPI35

For a soldering tool, visit: https://www.olimex.com/Products/Tools/Soldering/

USB to UART

USB-UART1 MISB-SWMM-5B-LF(USB_MICRO)

Recommended USB 2.0 Type A to USB2.0 micro cables: https://www.olimex.com/Products/Components/Cables/USB-CABLE-A-MICRO-1.8M/

U2 CH340X(MSOP-10)

C4 22uF/6.3V/20%/X5R/C0603

C5 100nF/10V/10%/X7R/C0402

R6 10k/R0402

R17 10k/R0402

R7 NA/R0402

R8 2.2k/R0402

R9 2.2k/R0402

R11 4.7k/R0402

R10 220R/R0402

Q2 BC817-40(SOT23)

Q3 BC817-40(SOT23)

D3 BAT54C(SOT23-3)

D4 1N5819S4/SOD123

D5 1N5819S4/SOD123

D6 1N5819S4/SOD123

Auto program			
DTR	RTS->EN	IO0	
1	1	1	1
0	0	1	1
1	0	0	1
0	1	1	0

GPIO3\U0RXD

GPIO1\U0TXD

ESP_EN

GPIO0

GPIO2

GND1

D_Com1

D_Com

ESP32-WROOM-32x-xxx MODULE

ESPRESSIF

U5

2	VDD33(3V3)	GPIO0/ADC2_CH1/TOUCH1/RTC_GPIO11/CLK_OUT1/EMAC_TX_CLK
1	GND	GPIO1/U0TXD/CLK_OUT3/EMAC_RXD2
15	GND	GPIO2/ADC2_CH2/TOUCH2/RTC_GPIO12/HSPIWP/HS2_DATA0/SD_DATA0
38	GND	GPIO3/U0RXD/CLK_OUT2
	GPIO4/ADC2_CH0/TOUCH0/RTC_GPIO10/HSPIHD/HS2_DATA1/SD_DATA1/EMAC_TX_ER	
		GPIO5/VSPICS0/HS1_DATA6/EMAC_RX_CLK
39	THERMAL_PAD	GPIO6/SD_CLK/SPICLK/HS1_CLK/U1CTS
		GPIO7/SD_DATA0/SPIQ/HS1_DATA0/U2RTS
3	EN	GPIO8/SD_DATA1/SPID/HS1_DATA1/U2CTS
		GPIO9/SD_DATA2/SPIHD/HS1_DATA2/U1RXD
32	NC	GPIO10/SD_DATA3/SPIWP/HS1_DATA3/U1TXD
		GPIO11/SD_CMD/SPICS0/HS1_CMD/U1RTS
	GPIO12/ADC2_CH5/TOUCH5/RTC_GPIO15/MTDI/HSPIQ/HS2_DATA2/SD_DATA2/EMAC_TXD3	
	GPIO13/ADC2_CH4/TOUCH4/RTC_GPIO14/MTCK/HSPID/HS2_DATA3/SD_DATA3/EMAC_RX_ER	
	GPIO14/ADC2_CH6/TOUCH6/RTC_GPIO16/MTMS/HSPICLK/HS2_CLK/SD_CLK/EMAC_TXD2	
	GPIO15/ADC2_CH3/TOUCH3/MTDO/HSPICS0/RTC_GPIO13/HS2_CMD/SD_CMD/EMAC_RXD3	
		NC(GPIO16/HS1_DATA4/U2RXD/EMAC_CLK_OUT)
		NC(GPIO17/HS1_DATA5/U2TXD/EMAC_CLK_OUT_180)
		GPIO18/VSPICLK/HS1_DATA7
		GPIO19/VSPIQ/U0CTS/EMAC_TXD0
		GPIO21/VSPIHD/EMAC_TX_EN
		GPIO22/VSPIWP/U0RTS/EMAC_TXD1
		GPIO23/VSPID/HS1_STROBE
	GPIO25/DAC_1/ADC2_CH8/RTC_GPIO6/EMAC_RXD0	
	GPIO26/DAC_2/ADC2_CH9/RTC_GPIO7/EMAC_RXD1	
	GPIO27/ADC2_CH7/TOUCH7/RTC_GPIO17/EMAC_RX_DV	
	GPIO32/XTAL_32K_P/ADC1_CH4/TOUCH9/RTC_GPIO9	
	GPIO33/XTAL_32K_N/ADC1_CH5/TOUCH8/RTC_GPIO8	
	GPIO34/ADC1_CH6/RTC_GPIO4	
	GPIO35/ADC1_CH7/RTC_GPIO5	
	GPIO36/SENSOR_VP/ADC_H/ADC1_CH0/RTC_GPIO0	
	GPIO39/SENSOR_VN/ADC1_CH3/ADC_H/RTC_GPIO3	

GPIO0 GPIO1\U0TXD GPIO2 GPIO3\U0RXD GPIO4 GPIO5 GPIO6\SD_CLK GPIO7\SD_DATA0 GPIO8\SD_DATA1 GPIO9\SD_DATA2 GPIO10\SD_DATA3 GPIO11\SD_CMD GPIO12 GPIO13 GPIO14 GPIO15 GPIO16 GPIO17 GPIO18 GPIO19 GPIO21 GPIO22 GPIO23 GPIO25 GPIO26 GPIO27 GPIO32 GPIO33 GPIO34 GPIO35 GPIO36\SENSOR_VP GPIO39\SENSOR_VN

ESP32-WROVER & ESP-WROOM-32 MODULEs

Note:
1. When ESP32-WROVER, take in mind that GPIO16<27> and GPIO17<28> are not connected!
2. GPIO6 to GPIO11 are connected to the SPI flash integrated on the module and are not recommended for other uses!

ESP32-WROOM-32D-4MB

R13 10k/R0402

C8 1uF/10V/10%/X5R/C0603

ESP_EN

Fiducials:

FID1 Fiducial

FID2 Fiducial

FID3 Fiducial

FID4 Fiducial

Internal Bootstrapping Resistors	
MTDI/GPIO12:	Pull-Down
GPIO0:	Pull-Up
GPIO2:	Pull-Down
GPIO4:	Pull-Down
MTDO/GPIO15:	Pull-Up
GPIO5:	Pull-Up

Extensions

J2

EXT1

+3.3V at Iout(max)=600mA, Power Out!

1	+3.3V	
2	ESP_EN	
3	GPI36\SENSOR_VP	
4	GPI39\SENSOR_VN	
5	GPI34	
6	GPI35	
7	GPIO32	
8	GPIO33	
9	GPIO25	
10	GPIO26	
11	GPIO27	
12	GPIO14	
13	GPIO12	
14	GND	
15	GPIO13	
16	GPIO9\SD_DATA2	
17	GPIO10\SD_DATA3	
18	GPIO11\SD_CMD	
19	+5V	

+5V Only!!! Power In/Out

HN1x19

J3

EXT2

1		
2	GPIO23	
3	GPIO22	
4	GPIO1\U0TXD	
5	GPIO3\U0RXD	
6	GPIO21	
7		GND
8	GPIO19	
9	GPIO18	
10	GPIO5	
11	GPIO17	
12	GPIO16	
13	GPIO4	
14	GPIO0	
15	GPIO2	
16	GPIO15	
17	GPIO8\SD_DATA1	
18	GPIO7\SD_DATA0	
19	GPIO6\SD_CLK	

HN1x19

Fully compatible to Espressif's ESP32-DevKitC connectors J2&J3!

Reset Button

ESP_EN

RST1 IT-1185AU2-160G-G-TR

Software Selectable Pins		
Interface	Signal	Pin
EMAC	EMAC_MDC_out EMAC_MDI_in EMAC_MDO_out EMAC_CRS_out EMAC_COL_out	Any GPIO
I2C	I2CEXT0_SCL_in I2CEXT0_SDA_in I2CEXT1_SCL_in I2CEXT1_SDA_in I2CEXT0_SCL_out I2CEXT0_SDA_out I2CEXT1_SCL_out I2CEXT1_SDA_out	Any GPIO
General Purpose SPI	HSPIQ_in/_out HSPID_in/_out HSPICLK_in/_out HSPI_CS0_in/_out HSPI_CS1_out HSPI_CS2_out VSPIQ_in/_out VSPID_in/_out VSPICLK_in/_out VSPI_CS0_in/_out VSPI_CS1_out VSPI_CS2_out	Any GPIO

For more information refer to esp_wroom_32_datasheet_en.pdf.

Bootstrapping Pins Settings					
Voltage of Internal LDO(VDD_SDIO)					
Pin	Default	3.3V	1.8V		
GPIO12/MTDI	Pull-Down	0	1		
Booting Mode					
Pin	Default	SPI Flash Boot	Download Boot		
GPIO0	Pull-Up	1	0		
GPIO2	Pull-Down	Don't-care	0		
Debugging Log on U0TXD During Booting					
Pin	Default	U0TXD Toggling	U0TXD Silent		
GPIO15/MTDO	Pull-Up	1	0		
Timing of SDIO Slave					
Pin	Default	Falling-edge:Output	Falling-edge:Input Rising-edge:Output	Rising-edge:Input Falling-edge:Output	Rising-edge:Input Rising-edge:Output
GPIO15/MTDO	Pull-Up	0	0	1	1
GPIO5	Pull-Up	0	1	0	1

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Sheet: /

File: ESP32-DevKit-Lipo_Rev_D.sch

Title: ESP32-DevKit-Lipo

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