RGB LED

T1 DTA143ZMT2L
+3V3
GPIO4
LED3
GPIO2 — DIN DOUT
DY-51515065/RGBC/6805-5T
GND

Pin Headers

J1
IO5 — 5 | 12 — GPIO5
IO8 — 8 | 11 — GPIO8
25 | 10 — GPIO25
26 | 9 — GPIO26
HSPIQ — 12 | 8 — GPIO12
HSPICS0 — 15 | 7 — GPIO15
HSPICLK — 14 | 6 — GPIO14
HSPID — 13 | 5 — GPIO13
3V3 — 4
5V — 3
G — 2 — USB
BAT — 1 — +BAT

DAC1
DAC2
POWER

J2
GND — 12 — G
EN — 11 — RST
GPIO22 — 10 — 22 — SCL
GPIO21 — 9 — 21 — SDA
SENS_VN — 8 — 39 — SENSOR_VN
SENS_CAPN — 7 — 38 — SENSOR_CAPN
SENS_CAPP — 6 — 37 — SENSOR_CAPP
SENS_VP — 5 — 36 — SENSOR_VP
GPIO33 — 4 — 33 — 32K_XN
GPIO32 — 3 — 32 — 32K_XP
GPIO20 — 2 — 20 — IO20
GPIO19 — 1 — 19 — IO19

I2C
HIGH SPEED ADC
32.768 kHz crystal oscillator I/O

USB TYPE C

USB1
918-418K2023S40001
GND, VBUS, CC2, DP2, DN2, SBU2, VBUS
VBUS, SBU1, DP1, DN1, SBU1, CC1, VBUS
TP_USB_VCC
VBUS1*2
D3 B0520LW
USB
R7 3.3k
from GPIO9
GPIO7
R8 2k
GND
R1 5.1k
R2 5.1k
GND

I2C_3V3

+3V3 +3V3
R16 3.3k
R17 3.3k
i2c_3v3
GPIO22, GPIO21
SCL, SDA, 3V3, GND
GND

Q1 MUN5214DW111G
DTR, RTS, EN
IO0, GPIO0
SW1 TS342A2P-WZ
DTR, RTS
+3V3
R15 10k
EN
C11 1uF 10V
GND
EN

3.3V voltage regulator

REG1 ME6211C33U4AG-N
VBUS — IN — OUT — +3V3
C5 1uF 10V
CE EXP
C6 1uF 10V
GND

1 cell 3.7-4.2V battery charging circuit

To detect when the BRCL4054CME is in charge mode,
force the digital output pin (GPIO27) high and
measure the voltage at the CHRG pin

+3V3
R18 820k
CHRG
R19 2k — GPIO27
+BAT
Q2 LP0404N3T5G
USB
R5 100k
CR1 B0520LW
VBUS
IC1 BRCL4054CME
VCC, PROG, CHRG, GND, BAT
C7 1uF 10V
R6 3.3k
GND

ONLY WHILE CHARGING
D1 GREEN
R10 1k
USB
CHRG
J7

X1 4V2
GND, GND
+BAT
R13 442k
batt_4V2
VDET_2
R14 160k
C10 100nF 16V
GND

C4 10uF 10V
GND

PROG pin resistor value:
10k = 100mA
5.0k = 200mA
3.3k = 300mA
2.0k = 500mA

CH340C — USB to UART

U2 CH340C
C8 10nF 50V
V3, VCC, TXD, RXD
USB
C9 16V 100nF
R232
UD+, UD-
D+, D-
CTS, DSR, RI, DCD, DTR, RTS
GND
CH340C_TX
CH340C_RX
DTR, RTS
TP_DTR, TP_RTS

+3V3
LED2 RED
R9 1k
TP_ONL
PWR LED DISABLE

R11 1k
CH340C_TX — RX_ESP32
CH340C_RX — TX_ESP32
R12 1k
TP_TX, TP_RX

ESP32-PICO-V3-02

U1 ESP32-PICO-V3-02
+3V3
C2 100nF 16V
C3 10uF 10V
ANT1 2065130001
NC NC FEED NC
50Ω track
EN
C1 1uF 10V
LNA_IN
VDDA, VDD3P3, VDD3P3_CPU, VDD3P3_RTC
SENSOR_VP, SENSOR_CAPP, SENSOR_CAPN, SENSOR_VN
IO0 — GPIO0 FOLOSIT
U0TXD — TX_ESP32 FOLOSIT
IO2 — GPIO2 FOLOSIT
U0RXD — RX_ESP32 FOLOSIT
IO4 — GPIO4 FOLOSIT
IO5 — GPIO5 FOLOSIT
SD_DATA_2, SD_DATA_3
MTDI — GPIO12 FOLOSIT
MTCK — GPIO13 FOLOSIT
MTMS — GPIO14 FOLOSIT
MTDO — GPIO15 FOLOSIT
NC
IO19 — GPIO19 FOLOSIT
IO21 — GPIO21 FOLOSIT
IO22 — GPIO22 FOLOSIT
NC
IO25 — GPIO25 FOLOSIT
IO26 — GPIO26 FOLOSIT
IO27 — GPIO27 FOLOSIT
32K_XP — GPIO32 FOLOSIT
32K_XN — GPIO33 FOLOSIT
VDET_1 — CHRG FOLOSIT
VDET_2 — VDET_2 FOLOSIT
VDD_SDIO
GPIO20 — IO20
GPIO23 to FOLOSIT
GPIO9 to FOLOSIT
GPIO7 — SD_DATA_0
GPIO8 — SD_DATA_1
GPIO18 to SD_CLK
SD_CMD
NC
GND

REV 0.0.2:

—testing different uart pins setup

REV 0.0.3:

—added test point for GPIO0
—added 100nF in parallel with R14 for better battery voltage level reading
—adjusted the position of pin labels for better visibility