MCU 1 core and 2MB ext. RAM

J1
USB_C_Receptacle_USB2.0

VBUS — A4 — VBUS
CC1 — A5 — R6 5.1k — GND
CC2 — B5 — R7 5.1k — GND
D- — A7
D- — B7 — USB_D-
D+ — A6 — TPS_WAKEUP
D+ — B6 — IO26 is the CS pin of PSRAM

SHIELD
SBU1 — A8
SBU2 — B8

S1   A1
GND   GND

PWR_FLAG
GND

U2
ESP32-S2-WROVER

IO18 — 22 — EP_CKH
IO17 — 20 — IO17
IO16 — 19 — TPS_PWRUP
IO15 — 18 — EP_STV
IO14 — 17 — EP_MODE
IO13 — 16 — EP_OE
IO12 — 15 — EP_LE
IO11 — 14 — TPS_nINT
IO10 — 13 — TPS_VCOM_CTRL
IO9 — 12 — SDA
IO8 — 11 — SCL
IO7 — 10 — EP_STH
IO6 — 9 — IO06
IO5 — 8 — IO05
IO4 — 7 — IO04
IO3 — 6 — IO03
IO2 — 5 — IO02
IO1 — 4 — IO01

IO21 — 23
IO26 — 25 — EP_D0
IO33 — 27 — EP_D1
IO34 — 28 — EP_D2
IO35 — 29 — EP_D3
IO36 — 30 — EP_D4
IO37 — 31 — EP_D5
IO38 — 32 — EP_D6
IO39 — 33 — EP_D7
IO40 — 34 — EP_CKV
IO41 — 35
IO42 — 36
TXD0 — 37 — TX
RXD0 — 38 — RX
IO45 — 39
IO46 — 40 — TPS_PWR_GOOD
EN — 41 — ENABLE

3V3   GND

+3.3V — R8 10K — GND
+3.3V — R12 10K
R10 2K2
R9 2K2
R1 10K — BOOT_MODE / ENABLE

+3.3V — R11 10K

VIN to 3.3v LDO
U1 MCP1700-3302E_SOT23
VIN — VI — VO — +3.3V
GND
C16 10uF
C17 10uF
C15 C_Polarized 100uF
GND   GND   GND

P1 CONN_02X13
+3.3V 2 1 IO45
IO01 4 3 IO17
IO02 6 5 IO42
IO03 8 7 IO06
IO04 10 9
IO05 12 11
SCL 14 13
SDA 16 15
18 17
DTR 20 19
RTS 22 21
RX 24 23
TX 26 25
GND

BOOT Mode

BOOT_MODE
SW2 BOOT
C14 0.1u
GND

R13 10K — Q1 MMBT3904
DTR
R14 10K — Q2 MMBT3904
RTS

SW1 RESET
C13 0.1u
GND
ENABLE
GND

Battery Jack
J2 Jack-DC
BAT+   GND

Battery charging

U7 TPS2113APWR
VBUS — IN1 8 — OUT 7 — VIN
BAT+ — IN2 6 — STAT 1
VSNS 3 — EN_N 2
ILIM 4 — GND 5
C2 100nF
C3 100nF
R4 400
GND   GND

D8 GRE D9 RED
R2 2K2 R3 2K2

U11 TP4056
VCC — BAT
CE — BAT+
PP — C22 100nF
CHRG
STDBY — TEMP PROG
GND
R5 6.8K
GND

EPD PMIC power lines

EPD_VDD — C19 10uF — GND
VIN — SW_VIN

U3 QFN50P700X700X100-49N

1 VREF
2 NINT — TPS_nINT
3 VNEG
4 VNEG_IN — VNEG_IN
5 WAKEUP — TPS_WAKEUP
6 DGND
7 INT_LDO
8 AGND1
9 VNEG_DIS — -15V
10 VIN
11 NC
12 VCOM_CTRL — TPS_VCOM_CTRL
13 NC
14 VCOM_DIS
15 VCOM — EP_VCOM
16 VCOM_PWR — VNEG_IN
17 SCL — SCL
18 SDA — SDA
19 VPOS_DIS — 15V
20 NC
21 PWRUP — TPS_PWRUP
22 PBKG — VNEG_IN
23 PWR_GOOD — TPS_PWR_GOOD
24 VIN_P — SW_VIN

49 EPAD
48 AGND2
47 TS
46 V3P3 — EPD_VDD
45 VIN3P3 — +3.3V
44 VPOS
43 VPOS_IN
42 VB
41 PGND1
40 VB_SW — SW_VIN
39 NC
38 NC
37 VDDH_IN
36 VDDH_DRV
35 VDDH_DIS — +22V
34 VDDH_D
33 VDDH_FB
32 PGND2
31 VEE_FB
30 VEE_D
29 VEE_DIS — -20V
28 VEE_DRV
27 VEE_IN
26 VN — VNEG_IN
25 VN_SW

R15 43k — TH1 10k/3380K — C31 4.7uF — 15V — TP3 TestPoint — EPD_VDD
C26 4.7uF C28 4.7uF C32 10uF
D4 L2 2.2uH
PWR_FLAG +22V
D5 D6 R23 1M C33 2.2uF
C25 10nF
C29 100nF R24 47.5k
C30 100nF
C20 10nF
C24 4.7uF
L1 4.7uH D1
D2
R19 1M R20 52.3k
C27 2.2uF
PWR_FLAG -20V

C8 4.7uF C11 4.7uF GND
C1 4.7uF
C4 4.7uF
C9 22uF
C6 10uF
C7 4.7uF
C5 4.7uF
C10 22uF C12 10uF

-15V
SW_VIN
TPS_VCOM_CTRL
EP_VCOM
SCL SDA 15V
SW_VIN
GND

U6 ED060XC5

1 VNEG — -15V
2 VEE — -20V
3 VSS
4 NC
5 NC
6 VDD — EPD_VDD
7 VSS
8 XCL — EP_CKH
9 VSS
10 XLE — EP_LE
11 XOE — EP_OE
12 XSTL — EP_STH
13 D0 — EP_D0
14 D1 — EP_D1
15 D2 — EP_D2
16 D3 — EP_D3
17 D4 — EP_D4
18 D5 — EP_D5
19 D6 — EP_D6
20 D7 — EP_D7
21 VCOM — EP_VCOM
22 NC
23 NC
24 NC
25 NC
26 VSS
27 MODE1 — EP_MODE
28 CKV — EP_CKV
29 SPV — EP_STV
30 NC
31 BORDER
32 VSS
33 VPOS — 15V
34 VGG — +22V
GND

TP1 +22V — R26 47k — C3 1uF/50V — GND
TP3 -20V — C28 R28 47k — C30 1uF/50V — GND
TP2 -15V — R27 47k — C35 1uF/25V — GND
TP4 +15V — R29 47k — C37 1uF/25V — GND
TP5 EP_VCOM — R30 100k — C36 1uF/25V — GND

Close to EPD connector

H1 MountingHole   H3 MountingHole
H2 MountingHole   H4 MountingHole