ESP32-S3 EINK Touch & Buttons Multipurpose Board

Mounting w/ wall switch
H1 MountingSwitch
H2 MountingSwitch
H3 MountingSwitch
H4 MountingSwitch
H5 MountingSwitch

Testpoints:
TP1 EPD VCOM
TP2 CLK RV3028
TP3 INT RV3028
TP4 EPD PREVGL
TP5 EPD PREVGH
TP6 TPL DNE
TP7 SHOT RV3028
TP8 RFM CS
TP9 JTAG/Done
TP10 RFM ANT
TP11 TPL SHOT
TP12 GYRO INT2
TP13 GYRO INT1
TP14 TOUCH RES
TP15 BAT CHRG

J1 AFC24-S24FIC-00 — C262292
Q1 Si1308
JP1 RESE
L1 10uH
C12 4.7uF 50V_US
C11 4.7uF 50V_US
C10 4.7uF 50V_US
C9 4.7uF 50V_US
D2 MBR0530
D1 MBR0530
D3
TP1 VCOM
TP4
TP5

U1
C16 C_Polarized 100uF
R4 10K ENABLE
R16 N.C.
TP7
IO46 = Strapping PIN 0 = Download 1 = JTAG
IO45 = Strapping PIN verändert RAM Spannung
35,36,37 used by PSRAM
IO_0 BOOTMODE

EXT. IO + POWER IN
JP6 JP6 abhängig von ext Netzteil einstellen
JP2 must be open if ext Netzteil and USB

USB C - Conn
U3

BAT Charger
U4 TP4065
Battery Connector JST 1.25 J11
Q3 Si2301
D14 MBR0530
10k = 110mA
2.32k = 500mA

Flash Connector
shop.m5stack.com/products/esp32-downloader-kit
KNX Nano BCU
mikrocontroller.net/topic/505875

VBUS to 3.3V LDO
U2 RT9013
JP2 for disabling 3.3V Supply by LDO for USB Debug if Programmer is connected Then solder R20 to disable TPL5110

RV3032-C7 Real time clock via I2C
U9 RV3032
INT Active Low

Low Power Sleeper
U6 TPL5110
Q2 Si2301

6 FPC Touch I2C connector
EINK Touch Screen Connector
TochConn

USB-DEBUG signals
J3 J3 can be used for ext. DAC if no Buttons needed
Reserve Pins for Debugging Buttons
J8

Buttons

Light Sensor
LDR03

Microphone
Only possible if LoRa not connected

I2C Connector
Generic I²C Sensors

RGB LEDs
First Diode connected via Diode to VDD to be able to operate without level shifters
LED not possible if 3.3V direct connected

Air Q Sensor
U5 BME680

LoRa Radio RFM95
U7 RFM95W-868S2

Gyro+Accel
U8 LSM6DSL
JP3 INT Active HIGH

TODO:
- RV_3028 INT ist verbunden mit LORA RFM MISO. Kein gleichzeitiger Betrieb
- USB ESD Diodes
- SK6812 gleichzeitig input für KNX?
- Done Pin TPL5110 nicht an ESP32 IO3 verbunden

I²C Address
- 0x52 RV3028
- 0xD4/D6 LSM6DSL
- 0x77 BME680

Jumper:
- JP2 = OPEN! if USB Connected & 3.3V Prog
- JP3 = GYRO INT Emergency CUT
- JP4 = MAINS Mode / No TPL5110 Mode
- JP5 = RV3028 INT CUT for RFM95 OP
- JP6 = Switch of Input Power Supply Voltage
- JP5 = Solder for RFM95 OP & Cut JP5

IMPORTANT: If used as an ON / OFF switch
it should NOT be used in any case for machinery that is for medical use or industrial heavy load devices. This an experimental switch that should only be used in home appliances with no more than 200 Watts top consumption.

Sheet: /
File: S3-27-epaper-touch.kicad_sch

Title: ESP32-S3 EInk controller with touch

Size: A3	Date: 2023-03-07	**Rev: 1.0**
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