DANGER PINS

GPIO_3
GPIO_45
GPIO_46

U2
ESP32-S3-WROOM-1

ESP_BOOT 27
ESP_EN 3

GPIO0/BOOT
EN
GPIO1/TOUCH1/ADC1_CH0
GPIO2/TOUCH2/ADC1_CH1
GPIO3/TOUCH3/ADC1_CH2
GPIO4/TOUCH4/ADC1_CH3
GPIO5/TOUCH5/ADC1_CH4
GPIO6/TOUCH6/ADC1_CH5
GPIO7/TOUCH7/ADC1_CH6
GPIO8/TOUCH8/ADC1_CH7/SUBSPICS1
GPIO9/TOUCH9/ADC1_CH8/FSPIHD/SUBSPIHD
GPIO10/TOUCH10/ADC1_CH9/FSPICS0/FSPIIO4/SUBSPICS0
GPIO11/TOUCH11/ADC2_CH0/FSPID/FSPIIO5/SUBSPID
GPIO12/TOUCH12/ADC2_CH1/FSPICLK/FSPIIO6/SUBSPICLK
GPIO13/TOUCH13/ADC2_CH2/FSPIQ/FSPIIO7/SUBSPIQ
GPIO14/TOUCH14/ADC2_CH3/FSPIWP/FSPIDQS/SUBSPIWP
GPIO15/U0RTS/ADC2_CH4/XTAL_32K_P
GPIO16/U0CTS/ADC2_CH5/XTAL_32K_NH5
GPIO17/U1TXD/ADC2_CH6
GPIO18/U1RXD/ADC2_CH7/CLK_OUT3
GPIO20/U1CTS/ADC2_CH9/CLK_OUT1/USB_D+
GPIO19/U1RTS/ADC2_CH8/CLK_OUT2/USB_D-
U0TXD/GPIO43/CLK_OUT1
U0RXD/GPIO44/CLK_OUT2
GPIO21
GPIO45
GPIO46
GPIO48/SPICLK_N/SUBSPICLK_N_DIFF
GPIO47/SPICLK_P/SUBSPICLK_P_DIFF
SPIIO6/GPIO35/FSPID/SUBSPID
SPIIO7/GPIO36/FSPICLK/SUBSPICLK
SPIDQS/GPIO37/FSPIQ/SUBSPIQ
GPIO38/FSPIWP/SUBSPIWP
MTCK/GPIO39/CLK_OUT3/SUBSPICS1
MTDO/GPIO40/CLK_OUT2
MTDI/GPIO41/CLK_OUT1
MTMS/GPIO42
3V3
GND
ESP32-S3-WROOM-1

+3V3
C3 10u
C4 10u
C5 1u

BOOT & ENABLE BUTTONS

+3V3 R1 10k ESP_EN
C1 100n
SW1 MCU_RESET

+3V3 R6 10k ESP_BOOT
C2 100n
SW2 MCU_RESET

USB+ESC TVS + Indicator LEDs

+5V FB1 FerriteBead_Small
VBUS
J1 USB_C_Receptacle
U1 SRV05-4
R2 5k1 cc1
R3 5k1 cc2
D+ IO1 IO2 IO3 IO4 D-
VBUS CC1 CC2 D- D+ RX1- RX1+ TX1- TX1+ RX2- RX2+ TX2- TX2+ SBU1 SBU2 GND SHIELD
A4 A5 B5 A7 B7 A6 B6 B10 B11 A3 A2 A10 A11 B3 B2 A8 B8 A1 S1
+5V +3V3 +BATT
D2 D1 D8 reversed on purpose
R5 1k R4 1k R45 1k
C6 15p R7 1Meg

RF MODULE PIN SETUP

MODULE 1
AUDIO_ON1 GPIO_13
RX1 GPIO_10
TX1 GPIO_9
PTT1 GPIO_8
PD1 GPIO_17

MODULE 2
AUDIO_ON2 GPIO_4
RX2 GPIO_39
TX2 GPIO_38
PTT2 GPIO_37
PD2 GPIO_45

RF_TX_power_set GPIO_48
COMMON RF POWER SET PIN

EXTERNAL PTT PIN
PTT3 R24 10 GPIO_18

I2C

+3V3
J9 Conn_01x04
SCL SDA
R22 5k1 R23 5k1
SDA GPIO_36
SCL GPIO_35

MISCELANIOUS

H1 hole H2 hole H3 hole H4 hole
FID1 Fiducial
FID2 Fiducial
FID3 Fiducial

AUDIO

Audio_Codec
GPIO_47 R25 10 MCLK
GPIO_12 R26 27 WCLK
GPIO_21 R27 27 BCLK
GPIO_11 R28 27 DOUT
GPIO_14 R29 27 DIN
JACK_DETECT
I am out of pins...

SD card

J2 Micro_SD_Card_Det
+3V3
C14 10u C15 10u C8 1u
DATA_2 DATA_3 CMD CLK DATA_0 DATA_1 CARD_DETECT
DAT2 DAT3/CD CMD VDD CLK VSS DAT0 DAT1 DET_A DET_B SHIELD

+3V3
R14 10k R17 10k R18 10k R19 10k R20 10k R36 10k R40 10k
GPIO_42 R8 DATA_0
GPIO_41 R9 DATA_1
GPIO_1 R10 DATA_2
GPIO_2 R11 DATA_3
GPIO_43 R12 CMD
GPIO_44 R13 CLK
GPIO_40 R21 CARD_DETECT

POWER SUPPLY: BMS + CHARGEING + REGULATION

+5V
500mA @3.6V 1.8W
=> 400mA @5V 2W

RShunt (Ω)	IBAT (mA)
1	100
0.2	500
0.1	1000
0.067	1500
0.05	2000

R15 1k C9 10u
D3 buck_out
D4 D5
U4 TP5000
CS CHRG STDBY VREG RTRICK VIN VIN VIN LX LX LX VS BAT TS GND GND
L4 4u7 R16 0R1 R43 0R1 L1 4u7
C12 10u C13 1u C16 10u C17 1u C53 1u C11 10u C10 10u C58 10u C59 10u
+BATT BT2 BT1
TP2
Q2 AO3401A Q3 AO3401A
PWR_FLAG TP7
TP4 TP5 TP6 GNDPWR TP9 TP10 TP11
+3V3
U3 AMS1117-3.3 VI VO GND
C7 10u C57 10u
RAW_3v3
Q4 AO3401A
BATT_filtered R52 10k R53 10k
Q6 nMOS
C61 10u C62 10u
R46 10k
GPIO_16 R30 10k Q1 nMOS

POWER AMPLIFIER

AMP_L G0 AMP_R G1
R49 10 GPIO_7
R50 10 GPIO_6
R47 10 GPIO_5
R48 10 GPIO_15

Emergency UART programer

J10 Conn_01x04
GPIO_43 GPIO_44
GPIO_43 TP12
GPIO_44 TP13

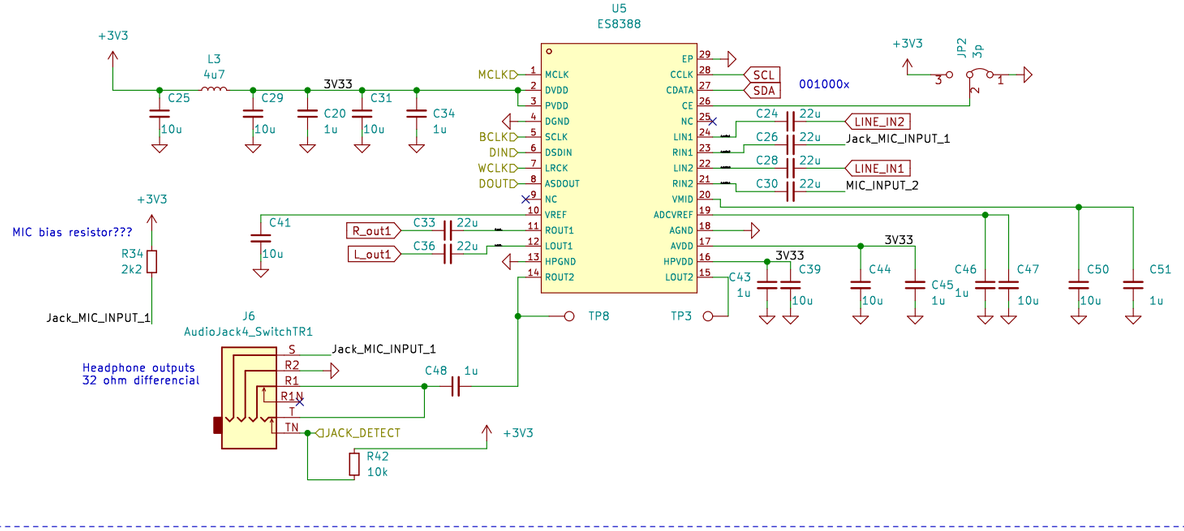
Reviewed by: Andreas Spiess
Author: Kecs Robert Alfred

Sheet: /
File: cross_band_handy_walkie_talkie_ES8388.kicad_sch

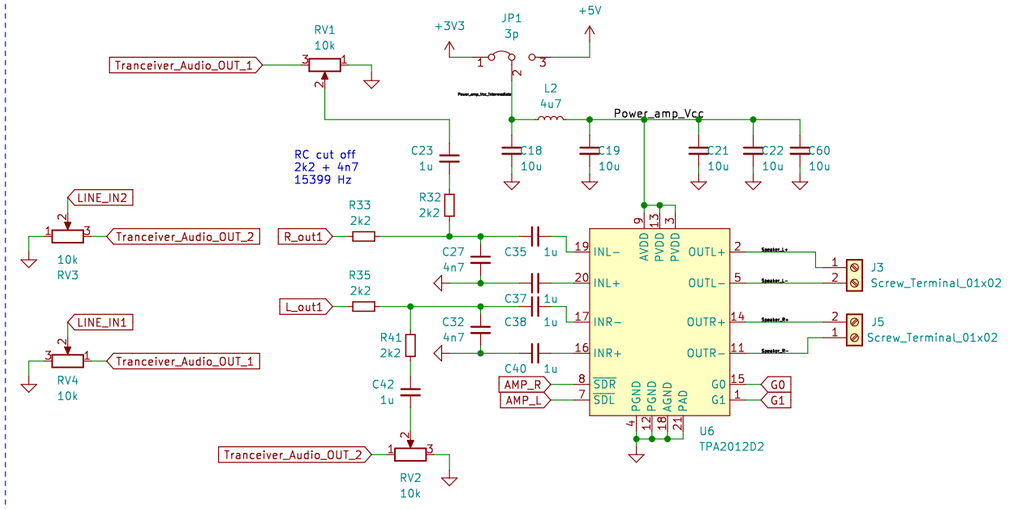
Title: Cross band handy walkie talkie V2

Size: A3	Date: 2023-03-19	**Rev: 1**
KiCad E.D.A. kicad (6.0.9)		Id: 1/2

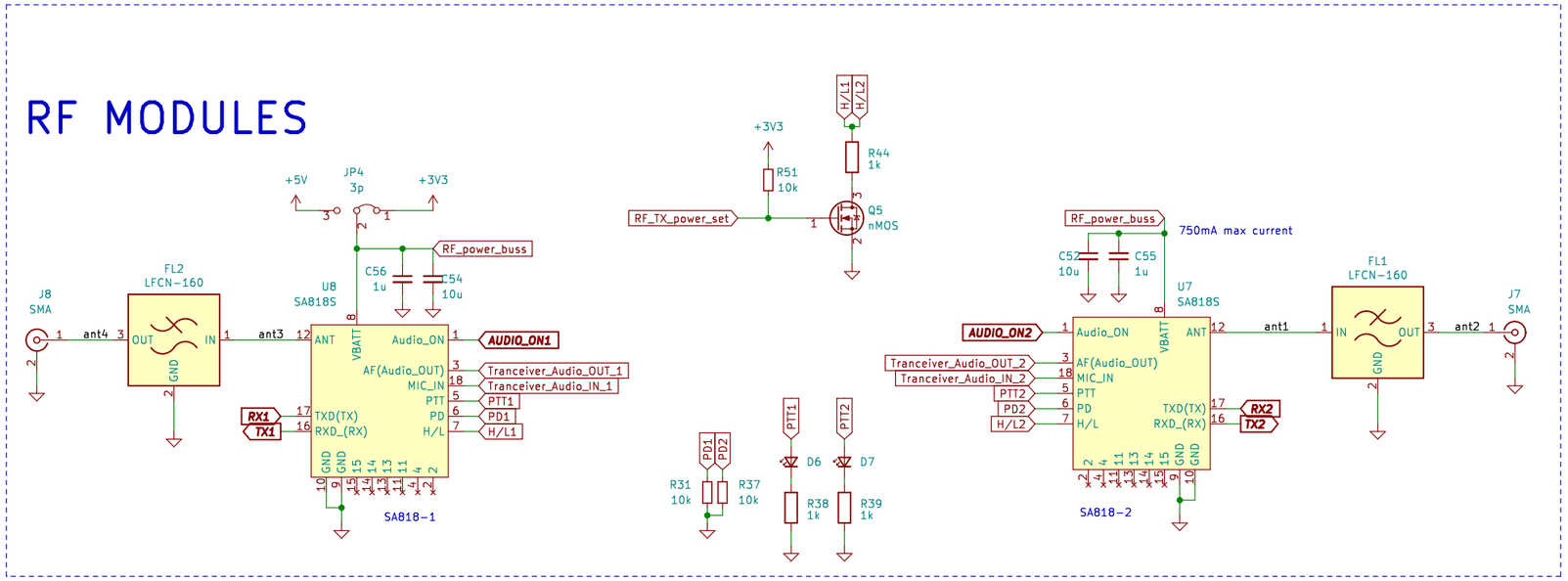
AUDIO CODEC



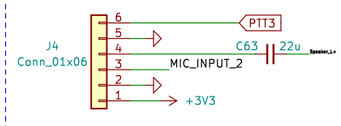
Audio POWER Amplifier



RF MODULES



AUDIO IO



Reviewed by: Andreas Spiess
Author: Kecs Robert Alfred

Sheet: /Audio_Codec/
File: Audio_Codec.kicad_sch

Title: Cross band handy walkie talkie V2

Size: A3	Date: 2023-03-19	Rev:
KiCad E.D.A. kicad (6.0.9)		Id: 2/2