Transmitter LPF ~(465MHz)

R5 50.00 Ω
L2 27.00 nH L4 30.00 nH L6 18.00 nH
C1 6.800 pF C3 12.00 pF C5 10.00 pF RL 50.00 Ω

LPF_IN
L7 27nH L8 30nH L9 18nH
C16 6.8pF C17 12pF C18 10pF
J1 TX
GND

VHF Receiver

VCC_3.3
R1 10k
U1 DRA818V
D2 US1M
MIC_IN — VBAT 8 — VCC
PTT 5 — RXD 16 — RXD_RX
PD 6 — TXD 17 — TXD_RX
SQ 1 — SQ
H/L 7 — AF_OUT 3 — AF_OUT
BPF_OUT — ANT 12 — GND 50 — GND

Receiver LNA

VCC_3.3
C14 100nF C13 100nF C12 100nF
GND
TP1 TestPoint
TP2 TestPoint
C1 1000pF
U3 PGA-103
L6 390nH
L1 2.2uH
J2 RX
D1 BAV99
C11 1000pF
GND
BPF_IN

UHF Transmitter

MORSE
GND
C15 3.3uF
RV1 10k
RV2 10k Volume adjustment of morse identification
Volume adjustment of repeater
AF_OUT
VCC_3.3
R2 10k PTT
U2 DRA818U
D3 US1M
MIC_IN — VBAT 18 — VCC
PTT 5 — RXD 16 — RXD_TX
PD 6 — TXD 17 — TXD_TX
10k R3 — SQ 1
H/L 7 — AF_OUT 3
JP1 Power
VCC_3.3 GND
LPF_IN — ANT 12 — GND 50 — GND

Receiver BPF (~130MHz to ~150MHz)

C9 10pF C6 2.7pF C7 2.2pF C8 2.7pF C10 10pF
BPF_IN
L2 100nH C2 3.3pF L3 100nH C3 9.1pF L4 100nH C4 9.1pF L5 100nH C5 3.3pF
BPF_OUT
C11
GND

MCU

C23 100nF C19 100nF C20 100nF C21 100nF C22 100nF
GND
VCC_3.3 VCC_3.3 VCC_3.3 VCC_3.3 VCC_3.3
VCC_3.3
R4 10k RST
C24 10uF
SW1 SW_Push
GND
R5 10k X_IN / X_OUT
GND

15pF C26 15pF C25
14pF C28 14pF C27
GND GND
RCC_OSC32_IN Y1 32.768KHz 12.5pF RCC_OSC32_OUT
X_IN Y2 8MHz 12pF X_OUT
GND

U4 STM32F103C8Tx
NRST 7
BOOT0 44
RCC_OSC_IN 5
RCC_OSC_OUT 6
PC13 2
RCC_OSC32_IN
RCC_OSC32_OUT
PB0 18 PB1 19 PB2 20 PB3 39 PB4 40 PB5 41 PB6 42 PB7 43 PB8 45 PB9 46
PB10 21 PB11 22 PB12 25 PB13 26 PB14 27 PB15 28
VBAT 1 VDD 24 VDD 36 VDD 48 VDDA 9
PA0 10 — MORSE
PA1 11
USART2_TX 12 — RXD_TX
USART2_RX 13 — TXD_TX
PA4 14 PA5 15 PA6 16 PA7 17 PA8 29
USART1_TX 30 — RXD_RX
USART1_RX 31 — TXD_RX
PA11 32 PA12 33
SYS_JTMS-SWDIO 34 — SYS_JTMS-SWDIO
SYS_JTCK-SWCLK 37 — SYS_JTCK-SWCLK
PA15 38
PTT SQ LED_TX LED_RX
VSS 23 VSSA 8 GND

J3 Conn_02x03_Counter_Clockwise
SYS_JTMS-SWDIO — VCC_IN
SYS_JTCK-SWCLK — GND
RST — VCC_3.3

D4 LED D5 LED D6 LED
GND
R6 1k R7 1k R8 1k
VCC_3.3 LED_TX LED_RX

Power supply

VCC_IN
JP2 Power_In
JP3 Power_In
C29 10uF C30 220nF
R9 100k
TP3 TestPoint
C31 1uF
GND

U5 LMR33630ADDA
VIN 2 — BOOT 7
EN 3 — SW 8
VCC 6 — FB 5
GND — PG 4
C32 0.1uF
L10 8uH
TestPoint TP3
R9 100k
R10 24.9k
C33 22uF C34 22uF C35 22uF C36 22uF
FB1 FerriteBead
VCC
GND PG

U6 AMS1117-3.3
VCC — VI — VO — VCC_3.3
C37 10uF C38 10uF
GND

U7 AMS1117-3.3
VI — VO
C39 10uF C40 10uF
VCC
GND

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