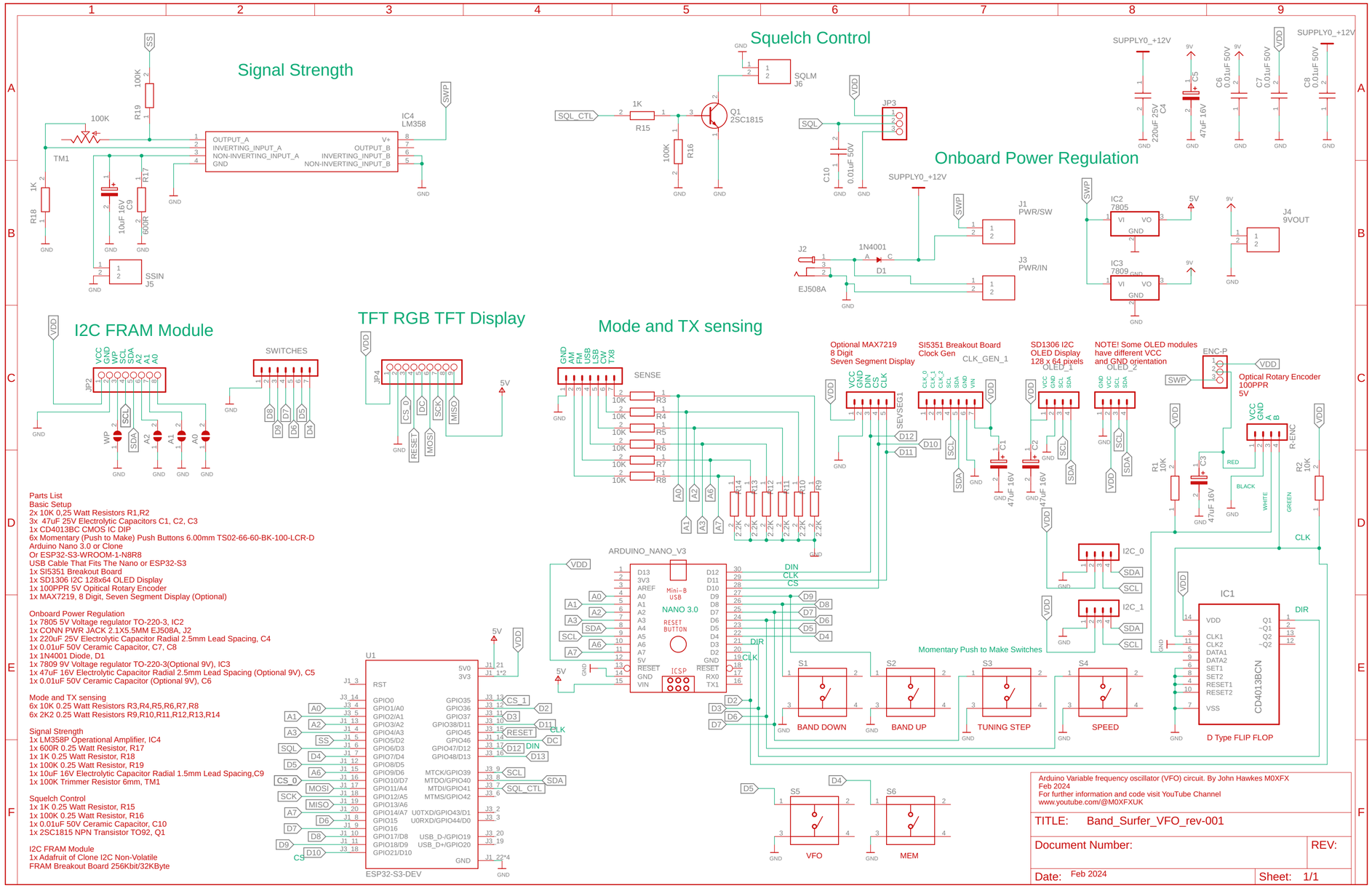
Signal Strength
Squelch Control
Onboard Power Regulation
I2C FRAM Module
TFT RGB TFT Display
Mode and TX sensing
IC4 LM358
Q1 2SC1815
IC2 7805
IC3 7809
J1 PWR/SW
J3 PWR/IN
J4 9VOUT
SSIN J5
SQLM J6
SQL_CTL
SUPPLY0_+12V
SWITCHES
SENSE
ARDUINO_NANO_V3
NANO 3.0
ESP32-S3-DEV
Optional MAX7219 8 Digit Seven Segment Display
SI5351 Breakout Board Clock Gen
CLK_GEN_1
SD1306 I2C OLED Display 128 x 64 pixels
OLED_1
NOTE! Some OLED modules have different VCC and GND orientation
OLED_2
ENC-P
Optical Rotary Encoder 100PPR 5V
R-ENC
I2C_0
I2C_1
IC1
CD4013BCN
D Type FLIP FLOP
Momentary Push to Make Switches
BAND DOWN
BAND UP
TUNING STEP
SPEED
VFO
MEM
Parts List
Basic Setup
2x 10K 0.25 Watt Resistors R1,R2
3x 47uF 25V Electrolytic Capacitors C1, C2, C3
1x CD4013BC CMOS IC DIP
6x Momentary (Push to Make) Push Buttons 6.00mm TS02-66-60-BK-100-LCR-D
Arduino Nano 3.0 or Clone
Or ESP32-S3-WROOM-1-N8R8
USB Cable That Fits The Nano or ESP32-S3
1x SI5351 Breakout Board
1x SD1306 I2C 128x64 OLED Display
1x 100PPR 5V Opitical Rotary Encoder
1x MAX7219, 8 Digit, Seven Segment Display (Optional)
Onboard Power Regulation
1x 7805 5V Voltage regulator TO-220-3, IC2
1x CONN PWR JACK 2.1X5.5MM EJ508A, J2
1x 220uF 25V Electrolytic Capacitor Radial 2.5mm Lead Spacing, C4
1x 0.01uF 50V Ceramic Capacitor, C7, C8
1x 1N4001 Diode, D1
1x 7809 9V Voltage regulator TO-220-3(Optional 9V), IC3
1x 47uF 16V Electrolytic Capacitor Radial 2.5mm Lead Spacing (Optional 9V), C5
1x 0.01uF 50V Ceramic Capacitor (Optional 9V), C6
Mode and TX sensing
6x 10K 0.25 Watt Resistors R3,R4,R5,R6,R7,R8
6x 2K2 0.25 Watt Resistors R9,R10,R11,R12,R13,R14
Signal Strength
1x LM358P Operational Amplifier, IC4
1x 600R 0.25 Watt Resistor, R17
1x 1K 0.25 Watt Resistor, R18
1x 100K 0.25 Watt Resistor, R19
1x 10uF 16V Electrolytic Capacitor Radial 1.5mm Lead Spacing,C9
1x 100K Trimmer Resistor 6mm, TM1
Squelch Control
1x 1K 0.25 Watt Resistor, R15
1x 100K 0.25 Watt Resistor, R16
1x 0.01uF 50V Ceramic Capacitor, C10
1x 2SC1815 NPN Transistor TO92, Q1
I2C FRAM Module
1x Adafruit of Clone I2C Non-Volatile FRAM Breakout Board 256Kbit/32KByte
Arduino Variable frequency oscillator (VFO) circuit. By John Hawkes M0XFX
Feb 2024
For further information and code visit YouTube Channel
www.youtube.com/@M0XFXUK
TITLE: Band_Surfer_VFO_rev-001
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