

| Reference   | Value                   | Footprint   | Qty |
|---|-------------------------|---|-----|
| C1,C2,C3,C4,C9,C10,C11,C15,C16,C18,C19,C20,C24,C25,C5,C6,C7,C12,C13,C14,C50,C52 | 100nF                   | Capacitor_SMD:C_0603_1608Metric                                       | 27  |
| C8  | 220nF                   | Capacitor_SMD:C_0603_1608Metric                                       | 8   |
| C17   | 470pF                   | Capacitor_SMD:C_0603_1608Metric                                       | 1   |
| C21   | 47uF                    | Capacitor_SMD:CP_Elec_8x6.5   | 1   |
| C22,C25,C29,C31,C33,C48   | 47uF                    | Capacitor_SMD:CP_Elec_5x5.3   | 1   |
| C23,C26   | 1uF                     | Capacitor_SMD:C_0603_1608Metric                                       | 6   |
| C27,C28   | 12pF                    | Capacitor_SMD:C_0603_1608Metric                                       | 2   |
| C32,C34,C53   | 20pF                    | Capacitor_SMD:C_0603_1608Metric                                       | 2   |
| C37   | 2.2uF                   | Capacitor_SMD:C_0603_1608Metric                                       | 3   |
| C43   | 47uF                    | Capacitor_SMD:CP_Elec_5x5.4   | 1   |
| C54   | 10uF                    | Capacitor_SMD:C_0603_1608Metric                                       | 1   |
| D1,D2,D3,D4,D7,D8,D9,D10,D31,D33,D35,D36  | 22nF                    | Capacitor_SMD:C_0603_1608Metric                                       | 1   |
| D5,D6,D11,D12,D32,D34   | LED                     | LED_SMD:LED_0603_1608Metric   | 12  |
| D13,D16,D25,D26,D29,D30,D40   | 1N4148WT                | Diode_SMD:D_0603_1608Metric   | 6   |
| D14   | 1N5819W                 | Diode_SMD:D_SOD-123   | 7   |
| D15   | SS16                    | Diode_SMD:D_SMA   | 1   |
| D17,D18,D19,D20,D21,D22,D23,D24,D27,D28,D37,D38,                                | D_TVS                   | Diode_SMD:D_SMA   | 1   |
| F1  | BAT54S                  | Package_TO_SOT_SMD:SOT-23   | 13  |
| F2  | 0.5A                    | Fuse:Fuse_1206_3216Metric   | 1   |
| J2  | 1206                    | Fuse:Fuse_1206_3216Metric   | 1   |
| J3  | STLink                  | Connector_PinHeader_2.54mm:PinHeader_1x04_P2.54mm_Vertical            | 1   |
| J5  | USB_C_Receptacle_USB2.0 | Connector_USB:USB_C_Receptacle_GCT_USB4105-xx-A_16P_TopMnt_Horizontal | 1   |
| J6,J7   | MSD-1-A                 | MSD_1_A:CUI MSD-1-A   | 1   |
| J9  | Conn_01x02              | Connector_PinHeader_2.54mm:PinHeader_1x02_P2.54mm_Vertical            | 2   |
| JP1   | S48B-ZROK-2A-R          | S48BZROK2AR   | 1   |
| JP2,JP3   | Ignition Voltage        | Jumper:SolderJumper-3_P1.3mm_Open_RoundedPad1.0x1.5mm                 | 1   |
| JP4,JP5   | HALL_VR                 | Jumper:SolderJumper-3_P1.3mm_Open_RoundedPad1.0x1.5mm                 | 2   |
| LED1,LED2,LED3  | PULLUP                  | Jumper:SolderJumper-2_P1.3mm_Open_RoundedPad1.0x1.5mm                 | 2   |
| P1  | RED                     | LED_SMD:LED_0603_1608Metric   | 3   |
| P2  | DRV8825                 | shield_footprint:DRV8825  | 1   |
| Q1,Q2,Q3,Q4,Q6,Q10,Q11,Q12  | Dual VR C               | Package_DIP:DIP-8_W7.62mm_Socket                                      | 1   |
| Q5,Q7,Q8,Q9,Q13   | Q_NMOS_GDS              | Package_TO_SOT_SMD:SOT-223-3_TabPin2                                  | 8   |
| Q14   | AO3400A                 | Package_TO_SOT_SMD:SOT-23   | 5   |
| R1,R2,R15,R16,R43,R91,R93,R96   | BC817                   | Package_TO_SOT_SMD:SOT-23   | 1   |
| R3,R4,R19,R20,R27,R33,R45,R59,R62,R63,R64,R84,R85,R                             | 100k                    | Resistor_SMD:R_0603_1608Metric  | 8   |
| R5,R6,R17,R18,R29,R37,R41,R42,R47,R49,R92,R94,R97,R                             | 10K                     | Resistor_SMD:R_0603_1608Metric  | 19  |
| R7,R8,R21,R22,R101,R102   | 1k                      | Resistor_SMD:R_0603_1608Metric  | 14  |
| R9,R10,R23,R24,R95,R98  | 0R                      | Resistor_SMD:R_0603_1608Metric  | 6   |
| R11,R12,R13,R25,R26,R28,R31,R32,R34,R38,R39,R40,R4                              | 2.4k                    | Resistor_SMD:R_0603_1608Metric  | 6   |
| R14,R67,R68,R69,R70,R75,R76,R77,R78   | 470R                    | Resistor_SMD:R_0603_1608Metric  | 26  |
| R30   | 910R                    | Resistor_SMD:R_0603_1608Metric  | 9   |
| R35,R36   | 3.9k                    | Resistor_SMD:R_0603_1608Metric  | 1   |
| R46,R60,R61,R89,R112  | 2.49k                   | Resistor_SMD:R_0603_1608Metric  | 2   |
| R50,R51,R57   | 100R                    | Resistor_SMD:R_0603_1608Metric  | 5   |
| R52,R53,R54,R55,R105,R106   | 220R                    | Resistor_SMD:R_0603_1608Metric  | 3   |
| R56,R86,R108  | 15R                     | Resistor_SMD:R_2512_6332Metric  | 6   |
| R58   | 2k7                     | Resistor_SMD:R_0603_1608Metric  | 3   |
| R79,R80   | 1M                      | Resistor_SMD:R_0603_1608Metric  | 1   |
| R81,R82,R111  | 5.1K                    | Resistor_SMD:R_0603_1608Metric  | 2   |
| R83   | 22R                     | Resistor_SMD:R_0603_1608Metric  | 3   |
| R114,R116   | 4.7K                    | Resistor_SMD:R_0603_1608Metric  | 1   |
| R115  | 68K                     | Resistor_SMD:R_0603_1608Metric  | 2   |
| SW1,SW2   | 5.1R                    | Resistor_SMD:R_0603_1608Metric  | 1   |
| TP1,TP2   | SW_Push                 | Button_Switch_SMD:SW_SPST_CK_RS282G05A3                               | 2   |
| U1  | TestPoint               | TestPoint:TestPoint_Pad_D1.0mm  | 2   |
| U2,U4,U10   | STM32F407VGTx           | Package_QFP:LQFP-100_14x14mm_P0.5mm                                   | 1   |
| U3  | TC4424A                 | TC4424AVOA:SOIC127P599X175-8N   | 3   |
| U5,U6   | AMS1117-3.3             | Package_TO_SOT_SMD:SOT-223-3_TabPin2                                  | 1   |
| U7  | MCP6004                 | MCP6004T_I_SL:SOIC127P600X175-14N                                     | 2   |
| U8  | MCP2551-I-SN            | Package_SO:SOIC-8_3.9x4.9mm_P1.27mm                                   | 1   |
| U9  | LM2940S-5.0             | Package_TO_SOT_SMD:TO-263-3_TabPin2                                   | 1   |
| Y1  | USBLC6-2SC6             | Package_TO_SOT_SMD:SOT-23-6   | 1   |
| Y2  | 8Mhz                    | Crystal:Crystal_SMD_5032-2Pin_5.0x3.2mm                               | 1   |
|   | 32.768KHz               | Crystal:Crystal_SMD_3215-2Pin_3.2x1.5mm                               | 1   |