R1 10K BSH201
R18 10K BSH201
R19 10K BSH201
D11 DISP1 D21 DISP2 D31 DISP3

VCC

P1 039300060
LIN
1 2
3 4
5 6
AN_OUT2
AN_OUT1
AGND
GND

FP1 MURATA FILTER DSS9
D1 D Schottky
HTR+
D2 D Zener
C3 100uF
C5 220nF
GND
U1 MIC29300 IN OUT GND
C6 220nF
C4 10uF
VCC
GND

DS1 BC56-12SRWA
2a 11 a
2b 7 b
2c 4 c
2d 2 d
2e 1 e
2f 10 f
2g 5 g
2dp 3 DP
D1 12 D1
D2 9 D2
D3 8 D3
NC 6 NC

P4 Header 6X2
D1 12 11 2e
2a 10 9 2d
2f 8 7 2dp
D2 6 5 2c
D3 4 3 2g
2b 2 1
GND2

P5 Header 6X2
D11 12 11 2e1
2a1 10 9 2d1
2f1 8 7 2dp1
D21 6 5 2c1
D31 4 3 2g1
2b1 2 1
GND

U2 SCT2210CSAG
GND 1 VDD 24
SDI 2 REXT 23
CLK 3 SDO 22
LA 4 OE 21
OUT0 5 OUT15 20 2b1
OUT1 6 OUT14 19 2g1
OUT2 7 OUT13 18 2c1
OUT3 8 OUT12 17 2f1
OUT4 9 OUT11 16 2dp1
OUT5 10 OUT10 15 2a1
OUT6 11 OUT9 14 2d1
OUT7 12 OUT8 13 2e1
MOSI SCLK CS3
R2 1K
C1 10uF C2 100nF VCC GND
PWM

U3 MCP4922-E/SL
MOSI 5 SDI VOUTA 14 R3 1K AN_OUT1
CS2 3 CS VOUTB 10 R4 1K AN_OUT2
SCLK 4 SCK
8 LDAC
9 SHDN NC 2
13 VREFA NC 6
11 VREFB NC 7
1 VDD VSS 12
AGND
C7 220nF C8 220nF
VCC Inductor L1 10mH
C10 220nF C9 10uF
GND AGND GND

VCC HTR+
R21 10K R22 10K R23 10K
C22 100nF
HTR+
GND
U6 TJA1020 8804583 TJA1020T/CM.118
RxD 1 RXD INH 8
LIN_EN 2 EN VSUP 7
3 WAKE LIN 6 LIN
TxD 4 TXD GND 5
GND

U5 CJ125
R6 31.6K 10 RM UB 1
C12 100nF 11 CM VCC 17
RST 8 RESET2
R7 301 9 RS SS 16 CS1
R8 10K 2 UN MOSI 15 MOSI
C14 2.2nF R9 100K MISO 14 MISO
GND C15 2.2nF SCK 13 SCLK
20 UP UR 12 R10 1K PUMP_I
R11 4.7K 19 US UA 21 R12 1K NERST_R
R13 470K 18 VM RF 23
4 IA C16 33nF C17 33nF
R15 61.9 R14 100K
IP 3 IP CF 22
DIAHD 7 R17 10K C18 100nF
Q4 HTR_PWM AUIRLR2703TR DIAHG 6
GND OSZ 5
GND 24
HTR+ C11 220nF GND
L2 Inductor 100nH 220nF VCC

P3 039300060
VM 1 2 IA
UN 3 4 IP
HTR+ 5 6 HTR-

U4 MKE04P24
RESET 1 PTA5 PTA0 20 SWD_CLK
SWD_IO 2 PTA4 PTA1 19 HTR_PWM
VCC 3 VDD PTA2 18 RxD
4 VSS PTA3 17 TxD
DISP1 5 PTB7 PTB0 16 PUMP_I
DISP2 6 PTB6 PTB1 15
DISP3 7 PTB5 PTB2 14 SCLK
MISO 8 PTB4 PTB3 13 MOSI
PWM 9 PTC3 PTC0 12 CS1
CS2 10 PTC2 PTC1 11 NERST_R
C21 220nF C20 10uF C19 220nF
GND GND R20 0R CS3

P2 Header 3X2
R5 10K VCC
RESET
C13 220nF
GND
6 5 SWD_CLK
4 3 RESET
2 1 SWD_IO

Title
Size A3
Number
Revision
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Sheet of
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Drawn By:

frezowanie

C20 C21 R5
C19
U4
P2

GND IO RST
VCC CLK

GND

HTR_PWM

C1
C17
R10
NERST_R

U2

C2
R2
R20
PUMP_I

U3
C16
R12
C10
L2
C9
C13
R9
R11

C18
R14
L1
U6
U5
R4   R3
R22
R21
VCC
Q7
C4
C6
R23
U1
C22
R7
R6
C12
C3
R13
R16
C11
C15
IA
R15
VM
R24
GND
C5
UN
C23
P1
P3

D1

FP1
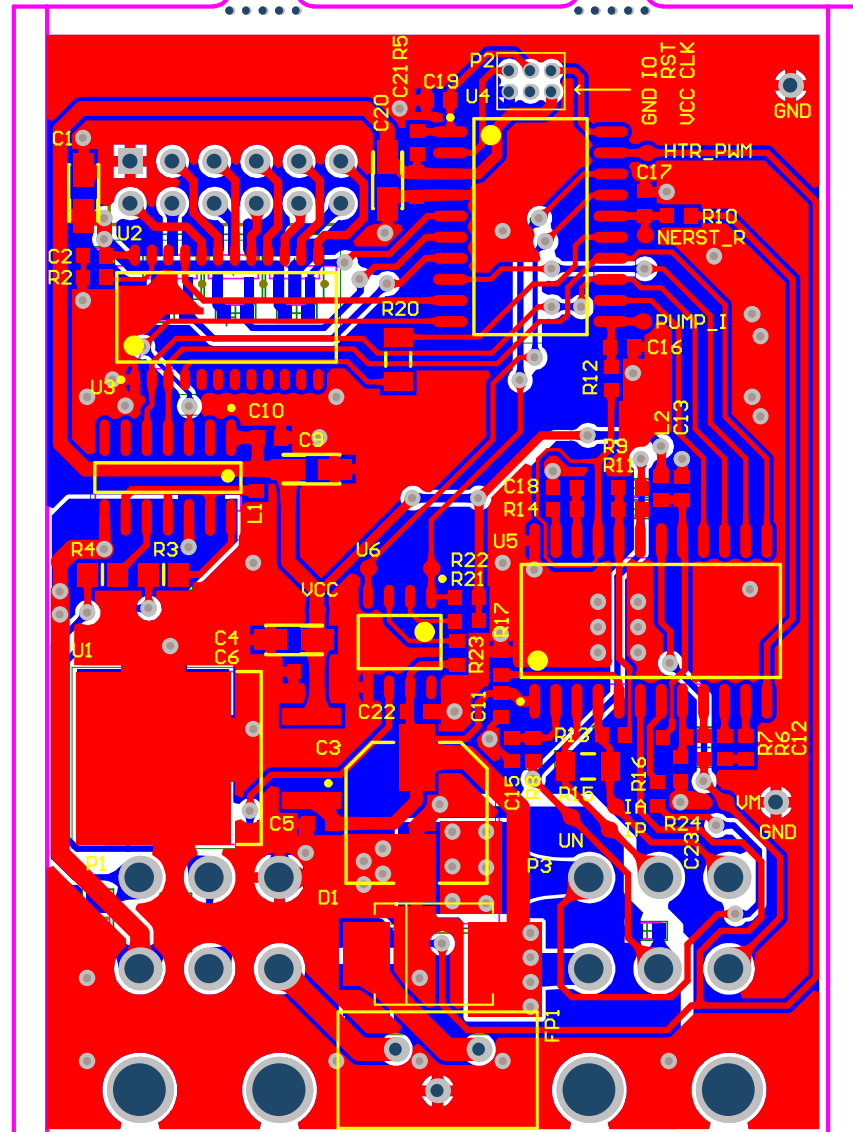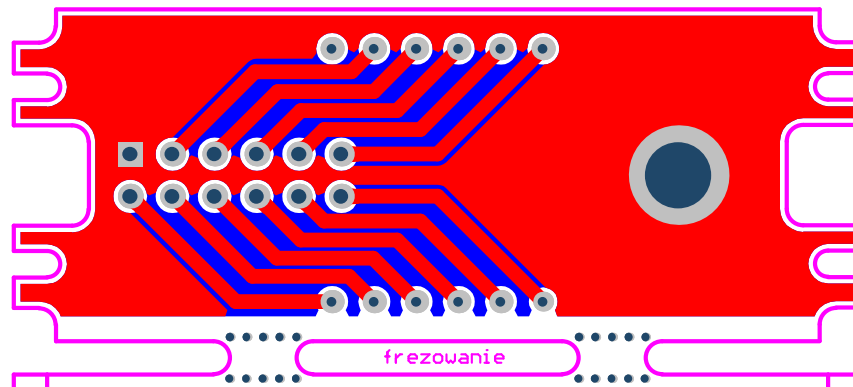
Comment	Description	Designator	Footprint	LibRef	Quantity	Value
194D105X0015B2	Midget Conformal Coated Solid Tantalum Chip Capacitor: 1.0uF, 20% Tolerance, 15 WVDC @ +85°C, Surge = 20V	C1, C4, C9, C20	3216	194D105X0015B2	4	10uF
Cap Semi	Capacitor (Semiconductor SIM Model)	C2, C12, C18, C22	CAP0603[1608]	Cap Semi	4	100nF
Cap Pol1	Polarized Capacitor (Radial)	C3	CAPAE8983X100N	Cap Pol1	1	100uF
Cap Semi	Capacitor (Semiconductor SIM Model)	C5, C6, C10, C11, C13, C19, C21, C23	CAP0603[1608]	Cap Semi	8	220nF
Cap Semi	Capacitor (Semiconductor SIM Model)	C7, C8	6-0805_N	Cap Semi	2	220nF
Cap Semi	Capacitor (Semiconductor SIM Model)	C14, C15	CAP0603[1608]	Cap Semi	2	2.2nF
Cap Semi	Capacitor (Semiconductor SIM Model)	C16, C17	CAP0603[1608]	Cap Semi	2	33nF
D Schottky	Schottky Diode	D1	DIODE_SMC	D Schottky	1	
D Zener	Zener Diode	D2	DIODE_SMC	D Zener	1	
BC56-12SRWA	Red , 3 Digit 7 Segment Display, 0.8" Height	DS1	BC56-12	LED 3 Digits	1	
MURATA FILTER DSS9		FP1	dss9n	MURATA FILTER DSS9	1	
Inductor	Inductor	L1, L2	1608[0603]	Inductor	2	10mH
039300060	6 -Pin Right Angle, Dual Row With Flanges, 4.20mm Pitch	P1, P3	5569-6	039300060	2	
Header 3X2	Header, 3-Pin, Dual row	P2	HDR2x3x127	Header 3X2	1	
Header 6X2	Header, 6-Pin, Dual row	P4, P5	HDR2X6	Header 6X2	2	
BSH201	P-channel Enhancement Mode MOSFET	Q1, Q2, Q3	SOT23_N	BSH201	3	
AUIRLR2703TR	HEXFET Power MOSFET	Q4	TO-252AA_N	IRLR8503	1	
Res2	Resistor	R1, R2, R10, R12, R18, R19	RES0603[1608]	Res2	6	1K
Res2	Resistor	R3, R4	6-0805_N	Res2	2	1K
Res2	Resistor	R5, R8, R17, R21, R22, R23, R24	RES0603[1608]	Res2	7	10K
Res2	Resistor	R6	RES0603[1608]	Res2	1	31.6K
Res2	Resistor	R7	RES0603[1608]	Res2	1	301
Res2	Resistor	R9, R14	RES0603[1608]	Res2	2	100K
Res2	Resistor	R11	RES0603[1608]	Res2	1	4.7K
Res2	Resistor	R13	RES0603[1608]	Res2	1	470K
Res2	Resistor	R15	c1206	Res2	1	61.9
Res2	Resistor	R16	RES0603[1608]	Res2	1	6.8K
Res2	Resistor	R20	c1206	Res2	1	0R
MIC29300	Positive Voltage Regulator, 3-Pin D2PAK, Tape and Reel	U1	TO-263_N	L7805ACD2T-TR	1	
SCT2210CSAG	16-Bit Led Driver with SPI Interface, 24-Pin SSOP, –40 to 85°C	U2	SOP100P790X220-24N	SCT2210	1	
MCP4922-E/SL	12-Bit DAC with SPI Interface, 14-Pin SOIC 150mil, Extended Temperature	U3	SOIC-SL14_N	MCP4922-E/SL	1	
MKE04P24	32-Bit ARM M0+, 16-Pin TSSOP, -40° to 125°	U4	SOP127P600-8N	MKE04P24M	1	
CJ125	Lambda Probe Interface, 24-Pin SOIC, -40 to 125°C	U5	SOIC127P1030X265-24M	CJ125	1	
TJA1020	LIN Bus Transreciever	U6	SOIC127P600X173-8N	TJA1020	1	