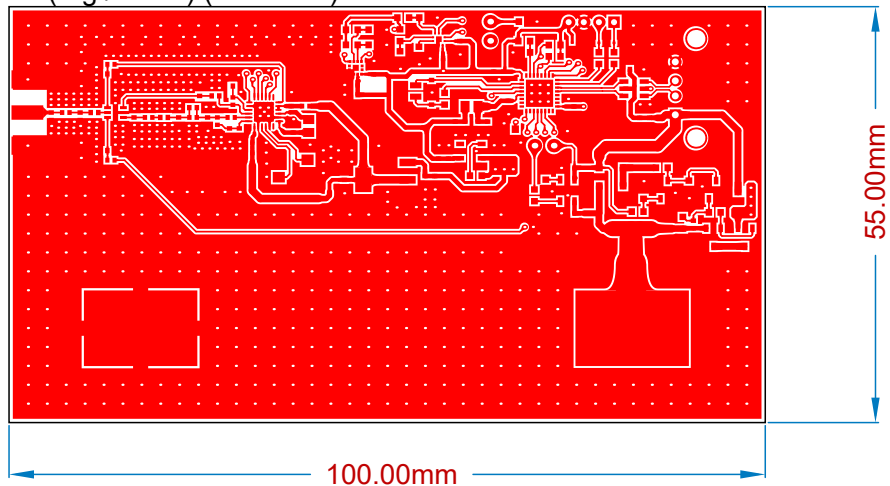
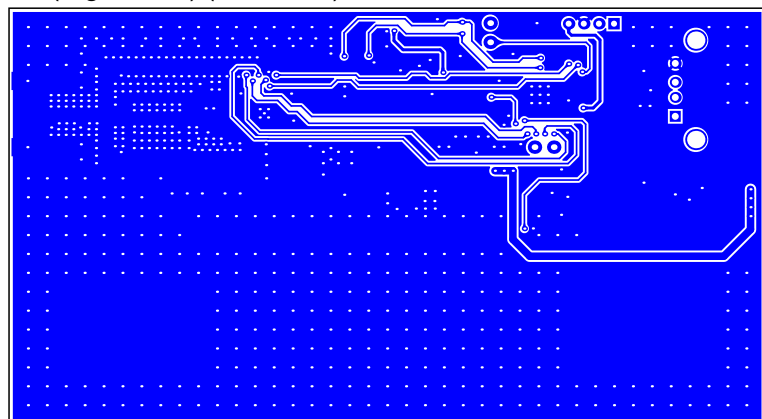


Widok warstw oraz wymiary PCB

L1 (Sig / PWR) (Scale 1:1)



L4 (Sig / PWR) (Scale 1:1)



Autor: Ernest Rychlicki

Numer projektu: LoRaloT

Wykonanie: V1

Data: 13.12.2023

Uproszczony BOM

Bill Of Materials

Line #	Designator	Comment	Quantity
1	C300, C400, C409, C412, C502, C505, C507, C510	1u	8
2	C301, C304, C305, C317, C401, C402, C406, C407, C413, C503, C504, C506, C508, C509, C600, C601, C602, C604	100n	18
3	C302, C314	470n	2
4	C303	47p	1
5	C306, C312, C313, C404, C405	3p3	5
6	C307, C308	39p	2
7	C309, C310	5p6	2
8	C311	2p2	1
9	C315, C316	2p4	2
10	C318	1p8	1
11	C403	100n	1
12	C408, C500, C501, C603	10u	4
13	C410, C411	47n	2
14	D500, D501, D502	B130LAW-7-F	3
15	J400	USB A	1
16	J401	ZL303-04P	1
17	L300, L301	47n	2
18	L302	2n5	1
19	L303	4n7	1
20	L304	9n1	1
21	L305, L400	15u	2
22	L306	15n	1
23	LED400, LED500	WP7113ID	2
24	Q500, Q503	BC850C	2
25	Q501, Q502	MMFTP3334K-AQ	2
26	R300, R302	10k	2
27	R301	0R	1
28	R400, R401, R402, R501, R503, R506	4k7	6
29	R404	10M	1
30	R405, R502	10k	2

Bill Of Materials

[illegible]

Autor: Ernest Rychlicki

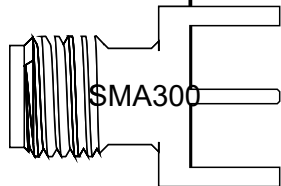
Numer projektu: LoRaloT.P

Wykonanie: V1

Data: 13.12.2023

Przekreślone elementy są nie montowane

ANT



SMA300



Y300

U300

U501

B500

(LED400)

LED500

SWD

J400

E.R. V1I0

Data: 13.12.2023

Przekreślone elementy są nie montowane

The image shows a detailed PCB layout for a USB-A module. The layout is oriented horizontally, with the USB A connector on the right side. The components are distributed across the board, with a large LiOn18650 battery at the bottom. The top edge features a USB A connector and various passive components like resistors and capacitors. The bottom edge is dominated by the large LiOn18650 battery. The right side contains the USB A connector and associated control logic, including a USB IC and several transistors. The center area contains a microcontroller (MC3204-3.3V) and various passive components. The left side contains a 32MHz crystal and various passive components. The layout is color-coded, with different colors used for different types of components: blue for the battery, green for the USB A connector, yellow for the microcontroller, and red for the USB IC and transistors. The components are labeled with their respective part numbers and values, such as 10k, 100k, 100n, 10u, 15u, 150n, 150p, 150f, 150m, 150d, 150s, 150l, 150t, 150b, 150c, 150e, 150f, 150g, 150h, 150i, 150j, 150k, 150l, 150m, 150n, 150o, 150p, 150q, 150r, 150s, 150t, 150u, 150v, 150w, 150x, 150y, 150z, 150aa, 150ab, 150ac, 150ad, 150ae, 150af, 150ag, 150ah, 150ai, 150aj, 150ak, 150al, 150am, 150an, 150ao, 150ap, 150aq, 150ar, 150as, 150at, 150au, 150av, 150aw, 150ax, 150ay, 150az, 150ba, 150bb, 150bc, 150bd, 150be, 150bf, 150bg, 150bh, 150bi, 150bj, 150bk, 150bl, 150bm, 150bn, 150bo, 150bp, 150bq, 150br, 150bs, 150bt, 150bu, 150bv, 150bw, 150bx, 150by, 150bz, 150ca, 150cb, 150cc, 150cd, 150ce, 150cf, 150cg, 150ch, 150ci, 150cj, 150ck, 150cl, 150cm, 150cn, 150co, 150cp, 150cq, 150cr, 150cs, 150ct, 150cu, 150cv, 150cw, 150cx, 150cy, 150cz, 150da, 150db, 150dc, 150dd, 150de, 150df, 150dg, 150dh, 150di, 150dj, 150dk, 150dl, 150dm, 150dn, 150do, 150dp, 150dq, 150dr, 150ds, 150dt, 150du, 150dv, 150dw, 150dx, 150dy, 150dz, 150ea, 150eb, 150ec, 150ed, 150ee, 150ef, 150eg, 150eh, 150ei, 150ej, 150ek, 150el, 150em, 150en, 150eo, 150ep, 150eq, 150er, 150es, 150et, 150eu, 150ev, 150ew, 150ex, 150ey, 150ez, 150fa, 150fb, 150fc, 150fd, 150fe, 150ff, 150fg, 150fh, 150fi, 150fj, 150fk, 150fl, 150fm, 150fn, 150fo, 150fp, 150fq, 150fr, 150fs, 150ft, 150fu, 150fv, 150fw, 150fx, 150fy, 150fz, 150ga, 150gb, 150gc, 150gd, 150ge, 150gf, 150gg, 150gh, 150gi, 150gj, 150gk, 150gl, 150gm, 150gn, 150go, 150gp, 150gq, 150gr, 150gs, 150gt, 150gu, 150gv, 150gw, 150gx, 150gy, 150gz, 150ha, 150hb, 150hc, 150hd, 150he, 150hf, 150hg, 150hh, 150hi, 150hj, 150hk, 150hl, 150hm, 150hn, 150ho, 150hp, 150hq, 150hr, 150hs, 150ht, 150hu, 150hv, 150hw, 150hx, 150hy, 150hz, 150ia, 150ib, 150ic, 150id, 150ie, 150if, 150ig, 150ih, 150ii, 150ij, 150ik, 150il, 150im, 150in, 150io, 150ip, 150iq, 150ir, 150is, 150it, 150iu, 150iv, 150iw, 150ix, 150iy, 150iz, 150ja, 150jb, 150jc, 150jd, 150je, 150jf, 150jg, 150jh, 150ji, 150jj, 150jk, 150jl, 150jm, 150jn, 150jo, 150jp, 150jq, 150jr, 150js, 150jt, 150ju, 150jv, 150jw, 150jx, 150jy, 150jz, 150ka, 150kb, 150kc, 150kd, 150ke, 150kf, 150kg, 150kh, 150ki, 150kj, 150kl, 150km, 150kn, 150ko, 150kp, 150kq, 150kr, 150ks, 150kt, 150ku, 150kv, 150kw, 150kx, 150ky, 150kz, 150la, 150lb, 150lc, 150ld, 150le, 150lf, 150lg, 150lh, 150li, 150lj, 150lk, 150ll, 150lm, 150ln, 150lo, 150lp, 150lq, 150lr, 150ls, 150lt, 150lu, 150lv, 150lw, 150lx, 150ly, 150lz, 150ma, 150mb, 150mc, 150md, 150me, 150mf, 150mg, 150mh, 150mi, 150mj, 150mk, 150ml, 150mm, 150mn, 150mo, 150mp, 150mq, 150mr, 150ms, 150mt, 150mu, 150mv, 150mw, 150mx, 150my, 150mz, 150na, 150nb, 150nc, 150nd, 150ne, 150nf, 150ng, 150nh, 150ni, 150nj, 150nk, 150nl, 150nm, 150nn, 150no, 150np, 150nq, 150nr, 150ns, 150nt, 150nu, 150nv, 150nw, 150nx, 150ny, 150nz, 150oa, 150ob, 150oc, 150od, 150oe, 150of, 150og, 150oh, 150oi, 150oj, 150ok, 150ol, 150om, 150on, 150oo, 150op, 150oq, 150or, 150os, 150ot, 150ou, 150ov, 150ow, 150ox, 150oy, 150oz, 150pa, 150pb, 150pc, 150pd, 150pe, 150pf, 150pg, 150ph, 150pi, 150pj, 150pk, 150pl, 150pm, 150pn, 150po, 150pp, 150pq, 150pr, 150ps, 150pt, 150pu, 150pv, 150pw, 150px, 150py, 150pz, 150qa, 150qb, 150qc, 150qd, 150qe, 150qf, 150qg, 150qh, 150qi, 150qj, 150qk, 150ql, 150qm, 150qn, 150qo, 150qp, 150qq, 150qr, 150qs, 150qt, 150qu, 150qv, 150qw, 150qx, 150qy, 150qz, 150ra, 150rb, 150rc, 150rd, 150re, 150rf, 150rg, 150rh, 150ri, 150rj, 150rk, 150rl, 150rm, 150rn, 150ro, 150rp, 150rq, 150rr, 150rs, 150rt, 150ru, 150rv, 150rw, 150rx, 150ry, 150rz, 150sa, 150sb, 150sc, 150sd, 150se, 150sf, 150sg, 150sh, 150si, 150sj, 150sk, 150sl, 150sm, 150sn, 150so, 150sp, 150sq, 150sr, 150ss, 150st, 150su, 150sv, 150sw, 150sx, 150sy, 150sz, 150ta, 150tb, 150tc, 150td, 150te, 150tf, 150tg, 150th, 150ti, 150tj, 150tk, 150tl, 150tm, 150tn, 150to, 150tp, 150tq, 150tr, 150ts, 150tt, 150tu, 150tv, 150tw, 150tx, 150ty, 150tz, 150ua, 150ub, 150uc, 150ud, 150ue, 150uf, 150ug, 150uh, 150ui, 150uj, 150uk, 150ul, 150um, 150un, 150uo, 150up, 150uq, 150ur, 150us, 150ut, 150uu, 150uv, 150uw, 150ux, 150uy, 150uz, 150va, 150vb, 150vc, 150vd, 150ve, 150vf, 150vg, 150vh, 150vi, 150vj, 150vk, 150vl, 150vm, 150vn, 150vo, 150vp, 150vq, 150vr, 150vs, 150vt, 150vu, 150vv, 150vw, 150vx, 150vy, 150vz, 150wa, 150wb, 150wc, 150wd, 150we, 150wf, 150wg, 150wh, 150wi, 150wj, 150wk, 150wl, 150wm, 150wn, 150wo, 150wp, 150wq, 150wr, 150ws, 150wt, 150wu, 150wv, 150ww, 150wx, 150wy, 150wz, 150xa, 150xb, 150

Data: 13.12.2023

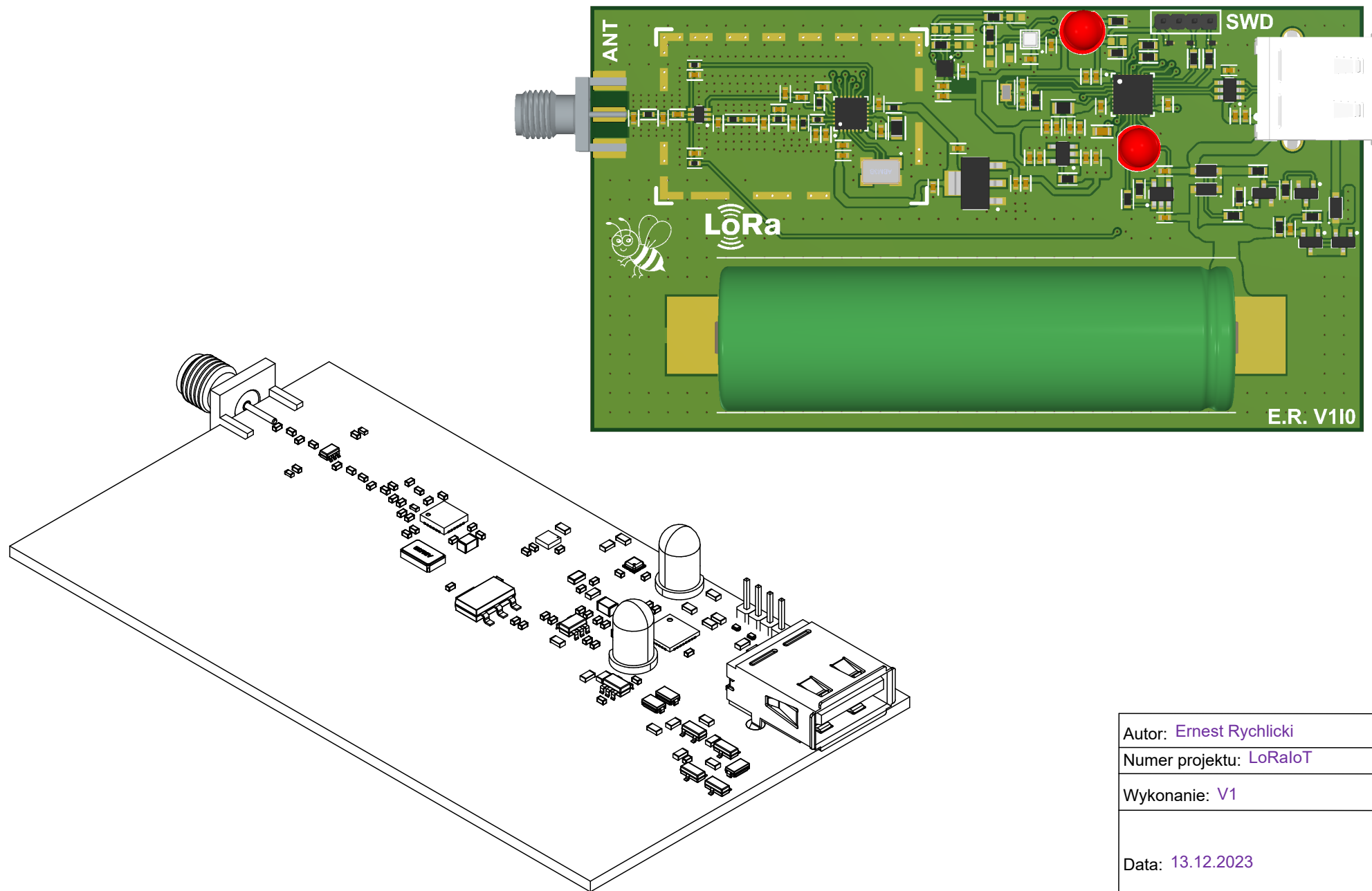
A

B

C

D

Widok 3D PCB oraz rzut izometryczny



Autor: Ernest Rychlicki

Numer projektu: LoRaIoT

Wykonanie: V1

Data: 13.12.2023

Stackup PCB

Layer Stack Legend

Material	Layer	Thickness	Dielectric Material	Type	Gerber
	Top Overlay			Legend	GTO
Surface Material	Top Solder	0.03mm	SM-001	Solder Mask	GTS
PbSn	Top Surface Finish	0.02mm		Surface Finish	
CF-004	L1 (Sig / PWR)	0.02mm		Signal	GTL
Prepreg		0.07mm	PP-005	Dielectric	
Prepreg		0.07mm	PP-005	Dielectric	
CF-004	L2 (GND)	0.04mm		Signal	G1
Core		1.20mm	Core-039	Dielectric	
CF-004	L3 (GND)	0.04mm		Signal	G2
Prepreg		0.07mm	PP-005	Dielectric	
Prepreg		0.07mm	PP-005	Dielectric	
CF-004	L4 (Sig / PWR)	0.02mm		Signal	GBL
PbSn	Bottom Surface Finish	0.02mm		Surface Finish	
Surface Material	Bottom Solder	0.03mm	SM-001	Solder Mask	GBS
	Bottom Overlay			Legend	GBO
Total thickness: 1.67mm					

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