Componenta	Footprint	Power rating[mW]	Valoare	Producator	Pret unitar[Lei]	Pret total [Lei]	Componenta aleasa
D2,D3	SOD-323FL	200	PN-Diode	ONSEMI	1.38	6.9	**1N4148WS – 200mW**
T1	SOT-23	250	PNP	MULTICOMP PRO	0.56	2.8	BC857 – 250mW
R16	0805	125	30k	PANASONIC	0.5	5	ERJ6ENF3002V – 30kohm-125mW
R15	0805	125	100	MULTICOMP PRO	1.65	16.5	MCTC0525B1000T5G - SMD 100 ohm, ± 0.1% 125mW
Z1	3V	125	3.0V	NEXPERIA	1.18	5.75	BZX84-B3V0,215 – Zener 3 V, 250 mW
R1	0805	500	3.3k	VISHAY	1.55	15.5	CRCW08053K30FKEAHP -3.3kohmi 500mW
R2	0805	125	2k	MULTICOMP PRO	0.05	0.5	MCWR08X2001FTL - 2 kohm, ± 1% 125mW
R3	0805	125	2k	MULTICOMP PRO			MCWR08X2001FTL - 2 kohm, ± 1% 125mW
R4	0805	125	300	MULTICOMP PRO	0.05	0.5	MCWR08X3000FTL – 300ohmi 125mW

R8	0805	500	174	PANASONIC	0.4	4	ERJP06F1740V - P 174 ohm, ± 1% 500mW
R6	0805	500	174	PANASONIC			ERJP06F1740V - P 174 ohm, ± 1% 500mW
T2	SOT-23	250	NPN	MULTICOMP PRO	0.65	7.15	BC847C – NPN- 250mW
T3	SOT-23	250	NPN	MULTICOMP PRO			BC847C – NPN- 250mW
T4	SOT-23	250	NPN	MULTICOMP PRO			BC847C – NPN- 250mW
T5	SOT-23	250	NPN	MULTICOMP PRO			BC847C – NPN- 250mW
T6	SOT-23	250	NPN	MULTICOMP PRO			BC847C – NPN- 250mW
T7	SOT-23	250	NPN	MULTICOMP PRO			BC847C – NPN- 250mW
T8	SOT-23	250	NPN	MULTICOMP PRO			BC847C – NPN- 250mW
T13	SOT-23	250	NPN	MULTICOMP PRO			BC847C – NPN- 250mW
D1	SOD-323FL	200	PN-Diode	ONSEMI	1.38	0	**1N4148WS – 200mW**

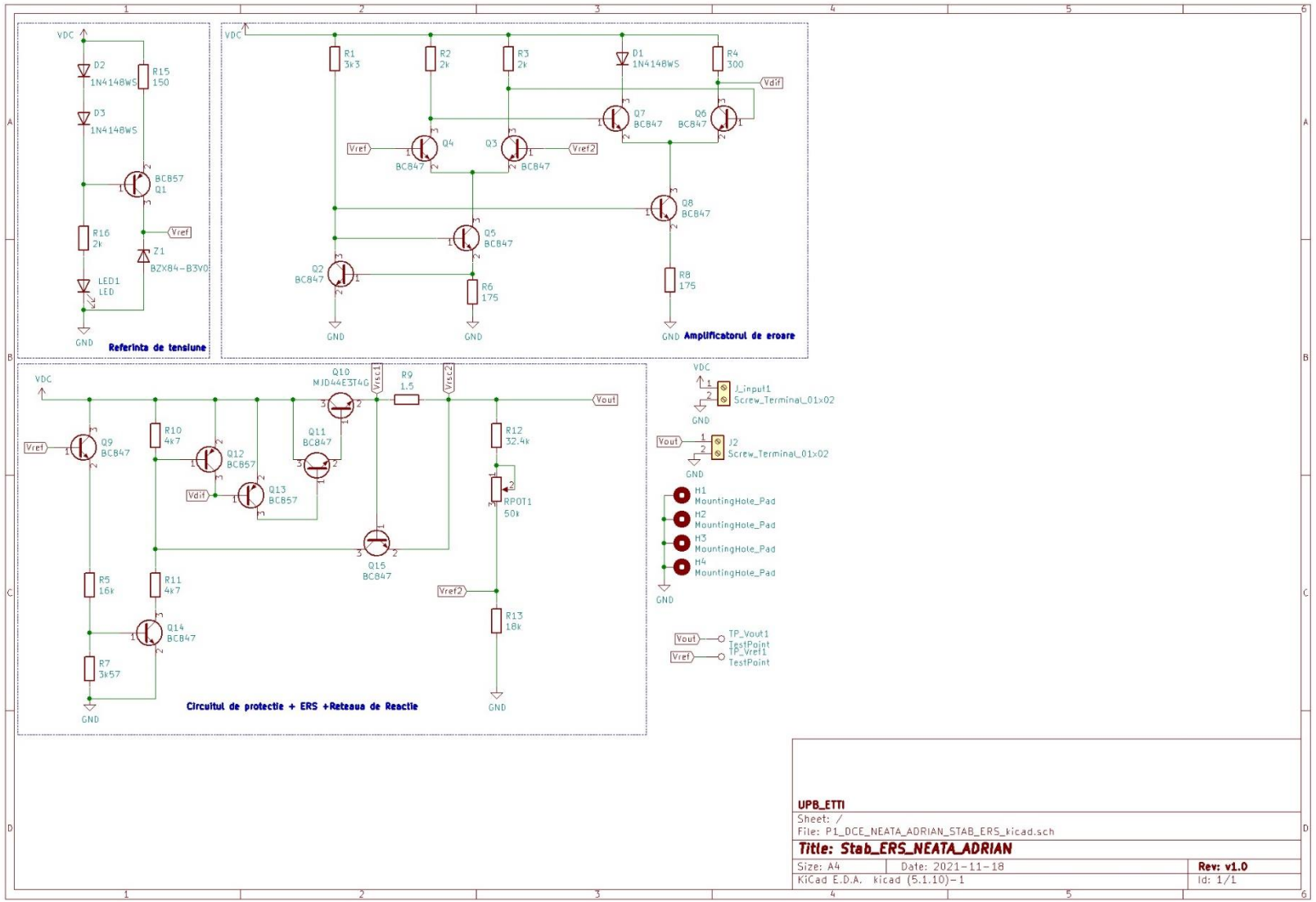
T10	TO-252 (DPAK)	200	NPN-Power	ONSEMI	**4,85**	24.25	MJD44E3T4G -BJT NPN 20W SMD
P1	:Potentiometer_ Vishay_TS53YL_ Vertical	250	50k	VISHAY	7.58	7.58	TS53YL503MR10 VISHAY - Potențiometru: de montare | singură tură; 50kΩ;
R12	0805	100	32.4k	Holsworthy-TE connectivity	2.76	27.6	1676305-3 -r, 32.4 kohm, ± 0.1% (farnell.com)
R13	0805	100	18k	WALSIN	0.68	6.8	WF08U1802BTL - Walsin - SMD Chip Resistor, 18 kohm, ± 0.1% (farnell.com)
R10	0805	125	4.7k	MULTICOMP PRO	0.05	0.5	MCWR08X4701FTL - Multicomp Pro - SMD Chip Resistor, 4.7 kohm, ± 1% (farnell.com) 125mW Thick Film
R11	0805	125	4.7k				MCWR08X4701FTL - Multicomp Pro - SMD Chip Resistor, 4.7 kohm, ± 1% (farnell.com) 125mW Thick Film

R5	0805	125	16k	PANASONIC	1.85	18.5	ERA6AEB163V - Panasonic - SMD Chip Resistor, 16 kohm, ± 0.1% (farnell.com)Thin Film
R7	0805	100	3.57k	TT ELECTRONICS	1.76	1.76	PCF0805R-3K57BT1 - Tt Electronics / Welwyn - SMD Chip Resistor, 3.57 kohm, ± 0.1% 100mW Thin Film
R9	0805	500	1.5		0.43	4.30	ERJUP6J1R5V - Panasonic - SMD Chip Resistor, 1.5 ohm, ± 5% (farnell.com) Thick Film
T9	SOT-23	250	NPN	MULTICOMP PRO	0.65	0	BC847C – NPN-250mW
T11	SOT-23	250	NPN	MULTICOMP PRO	0.65	0	BC847C – NPN-250mW
T12	SOT-23	250	PNP	MULTICOMP PRO	0.56	0	BC857 – 250mW
T13	SOT-23	250	PNP	MULTICOMP PRO	0.56	0	BC857 – 250mW
T1	SOT-23	250	NPN	MULTICOMP PRO	0.65	0	BC847C – NPN-250mW

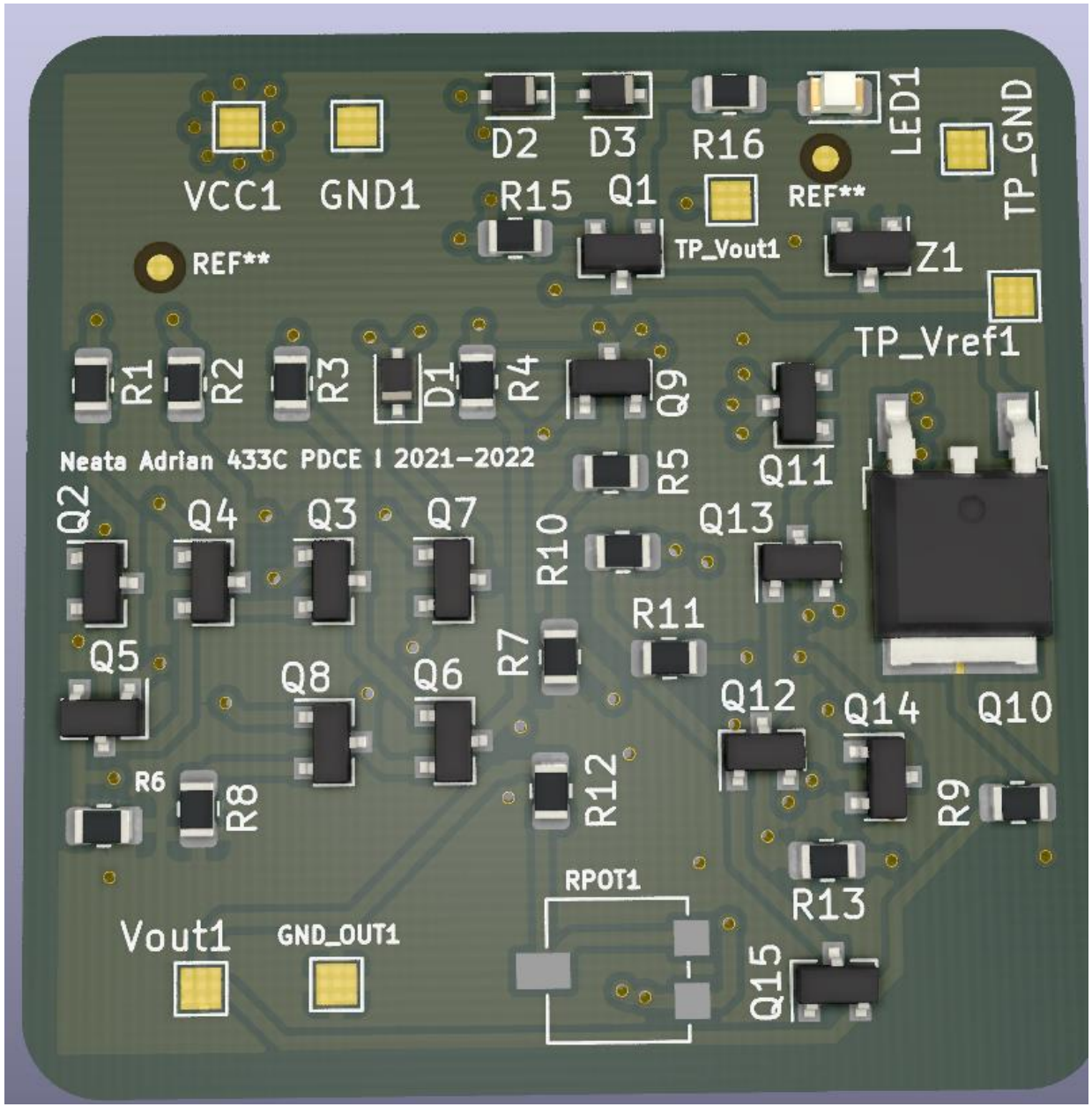
T15	SOT-23	250	NPN	MULTICOMP PRO	0.65	0	BC847C – NPN-250mW
LED1	0805	62.5mW	20mA,2.2V	KINGBRIGHT	0.95	4.75	KPHCM-2012SGC-T - Kingbright - LED, Low Power, Green (farnell.com)

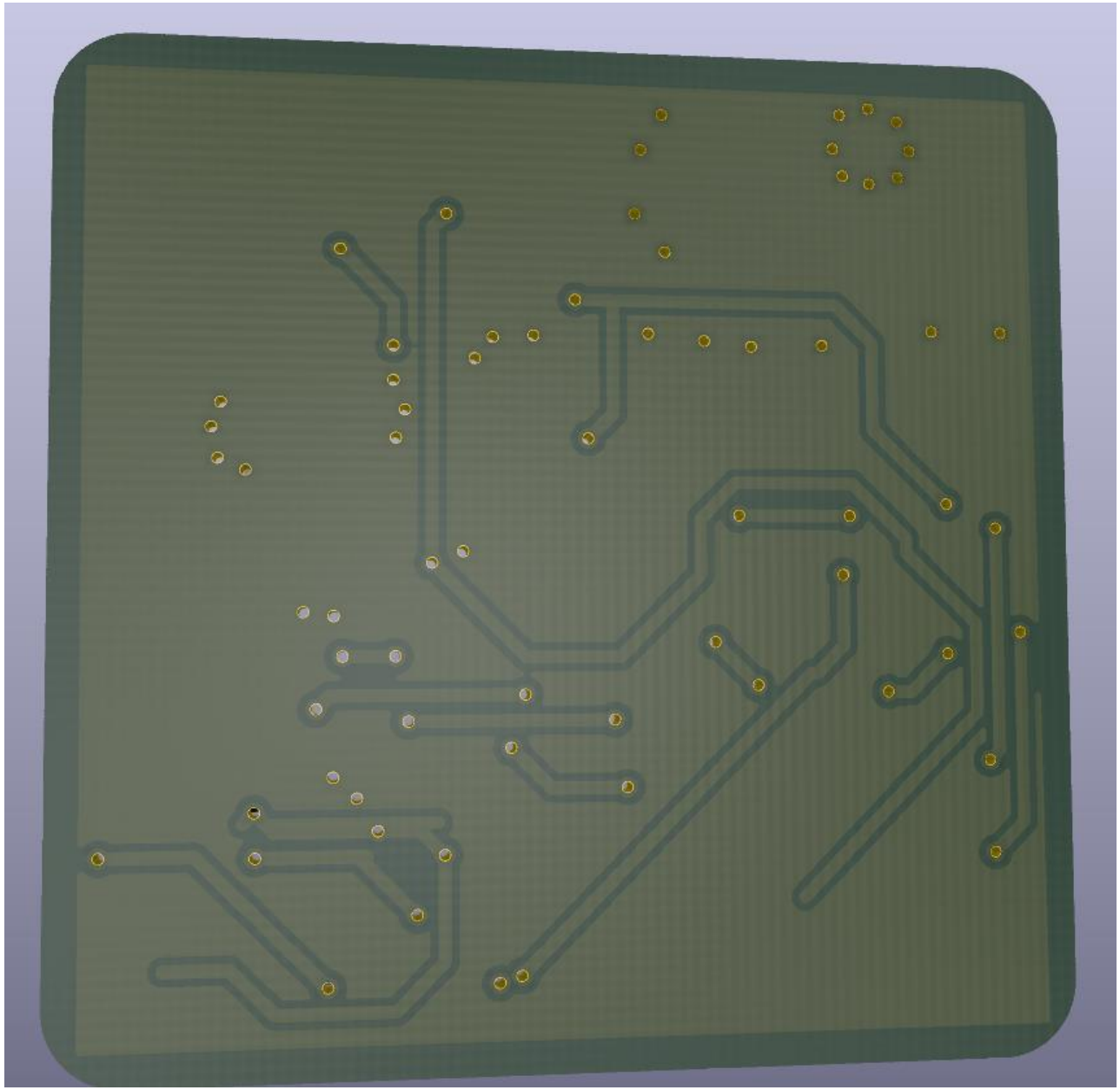
Cerinte tehnologice:

Schematic:

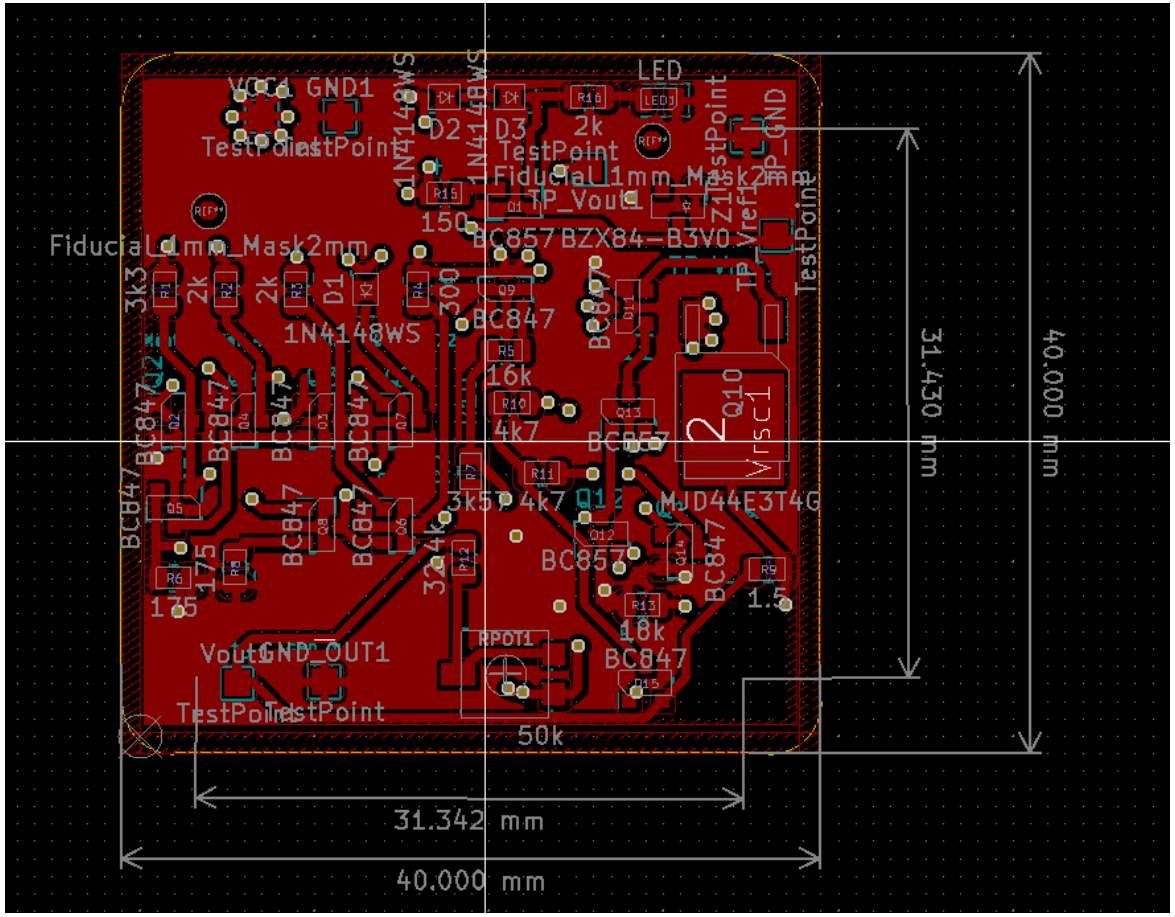


PCB-ul fizic in 3D view:

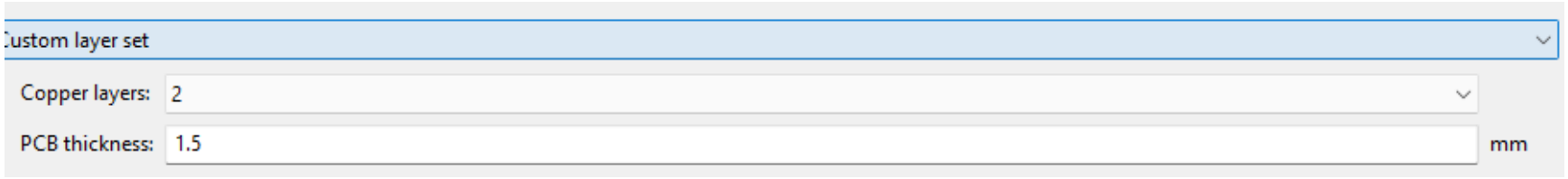

VCC1
GND1
D2
D3
R16
LED1
TP_GND
R15
Q1
REF**
TP_Vout1
Z1
REF**
TP_Vref1
R1
R2
R3
D1
R4
Q9
Neata Adrian 433C PDCE I 2021-2022
R5
Q11
Q2
Q4
Q3
Q7
R10
Q13
R11
Q5
Q8
Q6
R7
Q12
Q14
Q10
R6
R8
R12
R9
RPOT1
R13
Vout1
GND_OUT1
Q15



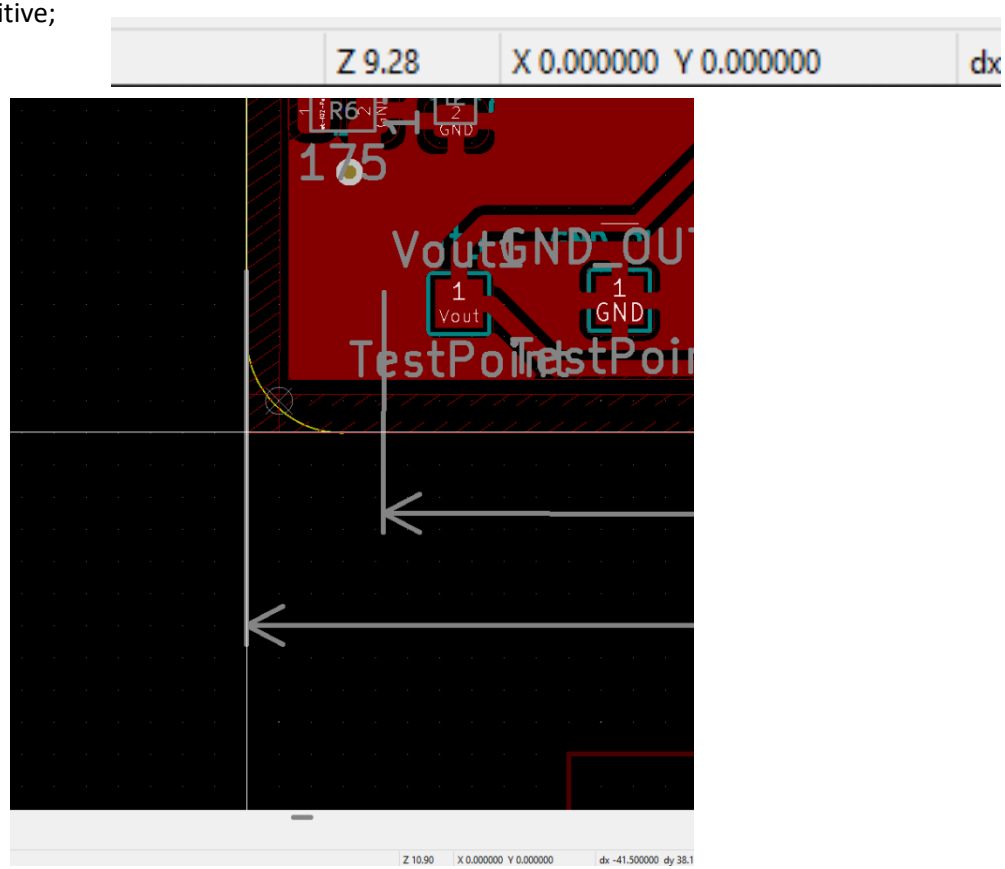
Dimensiunile PCB: 40mm x 40mm;



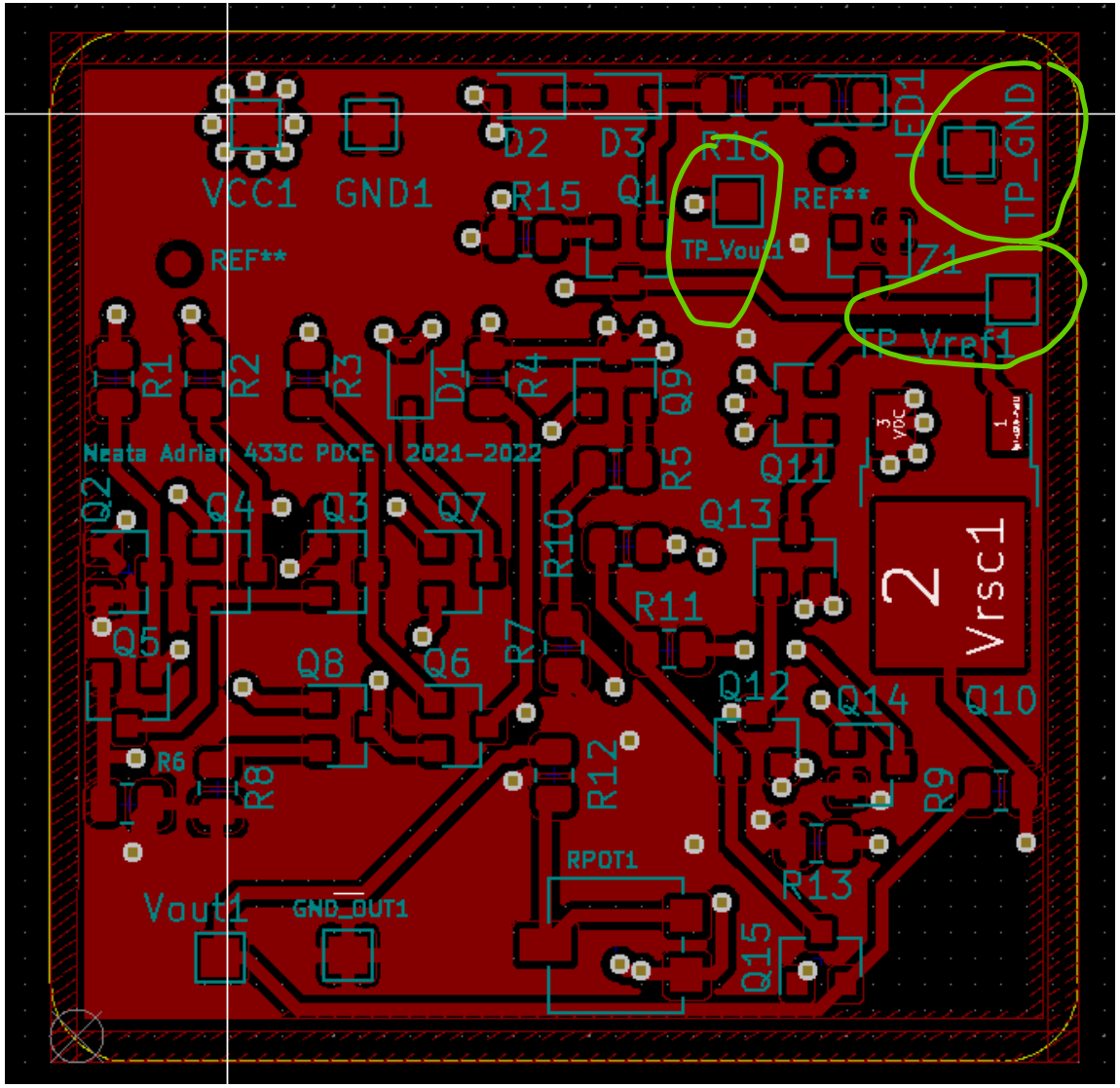
Material FR4, dublu strat/ grosimea foliei de cupru 18 µm, grosimea plăcii 1,5 mm;



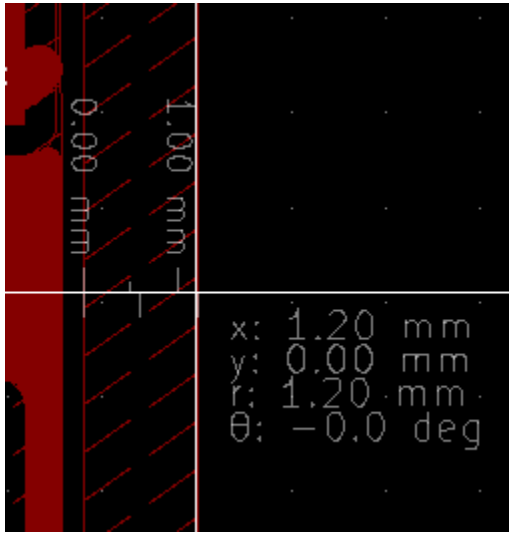
Originea (punctul de coordonate (0,0)) va fi plasat în colţul din stânga-jos al plăcii de cablaj imprimat, astfel toate elementele proiectului vor avea coordonate pozitive;



Puncte de test: pătrate, maxim 5 – justificate de planul de testare;

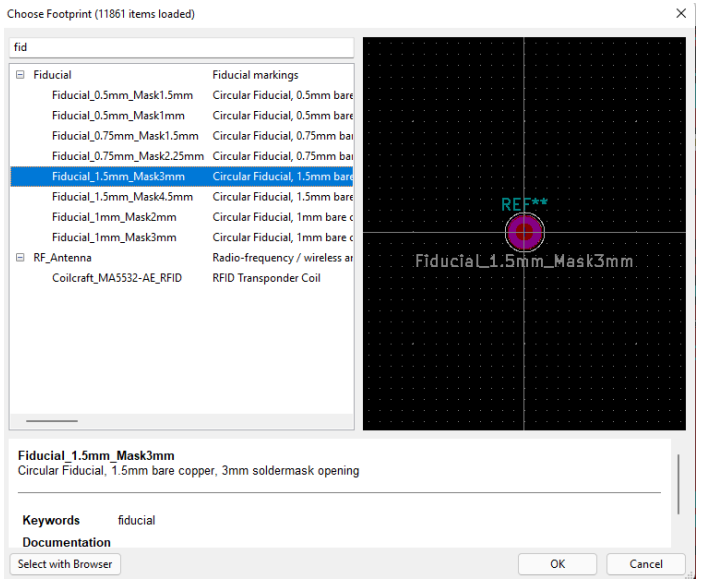


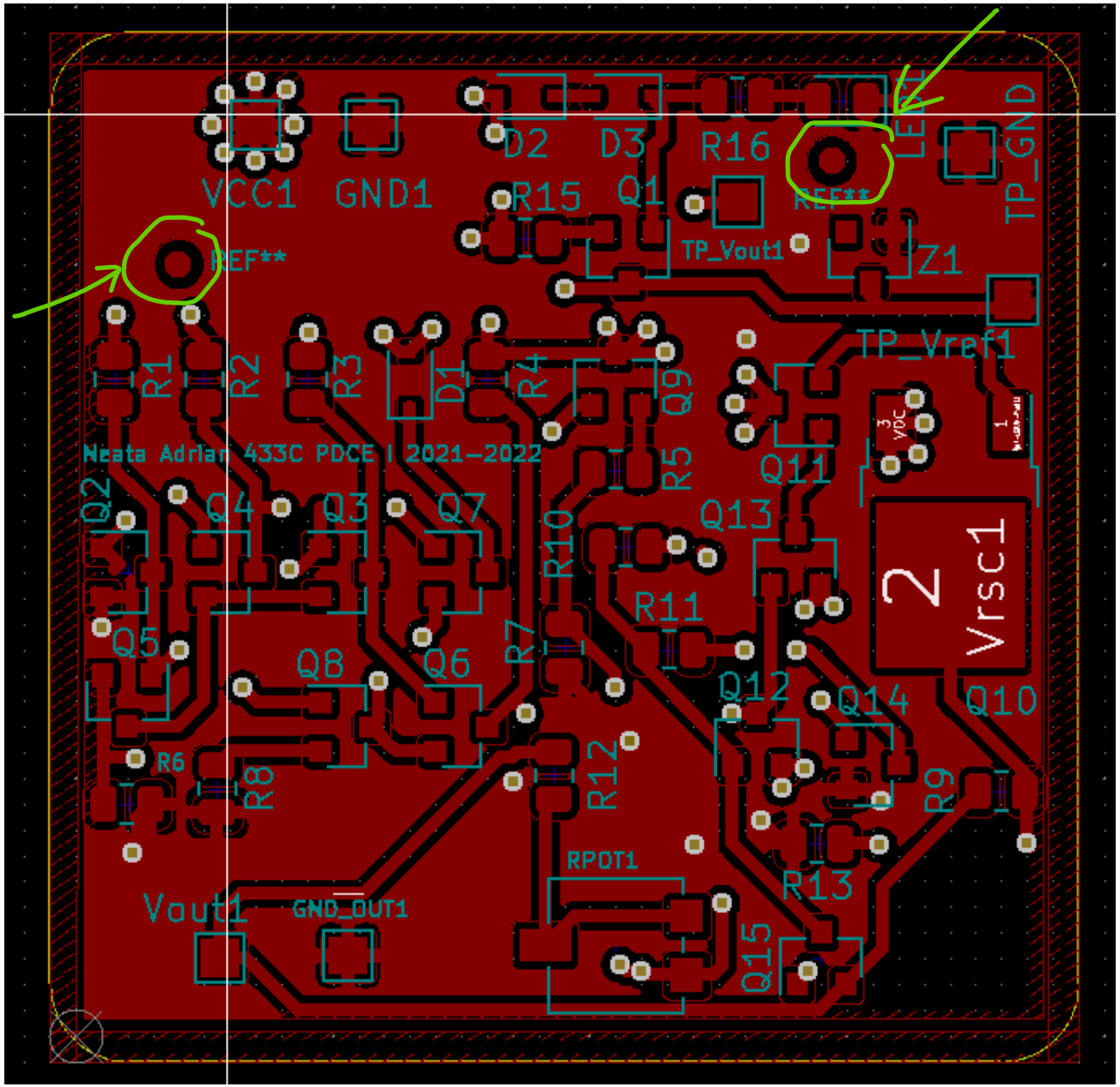
Față de marginea plăcii, se va păstra o gardare („clearance”) de 1,2 mm; aici nu vor fi plasate componente, trasee, texte, etc.;



S-au introdus keep-out areas la marginea placii, avand lungime de 1.2mm

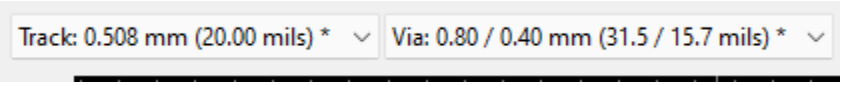
Placa va fi prevăzută cu 2 markeri fiduciali globali pe layerul TOP, la distanța de 200 mil față de marginea plăcii, plasați convenabil; acești markeri vor exista și pe layerul Solder Paste Top (suprapuși peste cei de pe TOP); vor fi utilizați în momentul alinierii șablonului cu placa. Marcajul fiducial va fi un cerc de diametru minim 1mm pe layerul respectiv, aflat într-un spațiu circular de diametru minim dublu față de cercul interior, în care nu se va afla nimic pe nici un layer;



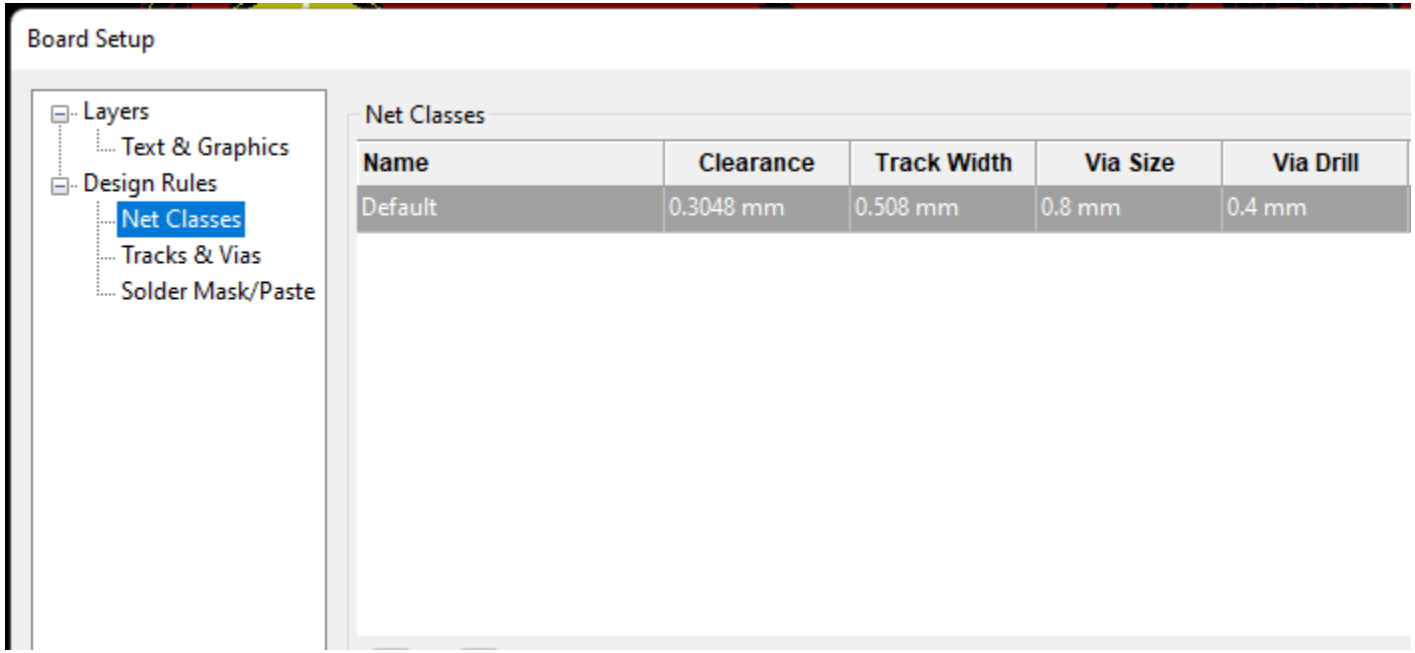

VCC1
GND1
D2
D3
R16
R15
Q1
REF**
TP_GND
TP_Vout1
Z1
TP_Vref1
R1
R2
R3
D1
R4
Q9
Neata Adrian 433C PDCE | 2021-2022
Q2
Q4
Q3
Q7
R5
Q11
Q13
R10
R11
Q5
Q8
Q6
R7
Q12
Q14
Q10
R6
R8
R12
R9
RPOT1
R13
Vout1
GND_OUT1
Q15
2
Vrsc1

Curent de sute de mA - 20 mil;

Găurile de trecere pentru semnale (vias-uri) vor avea diametrul de 0,4 mm.

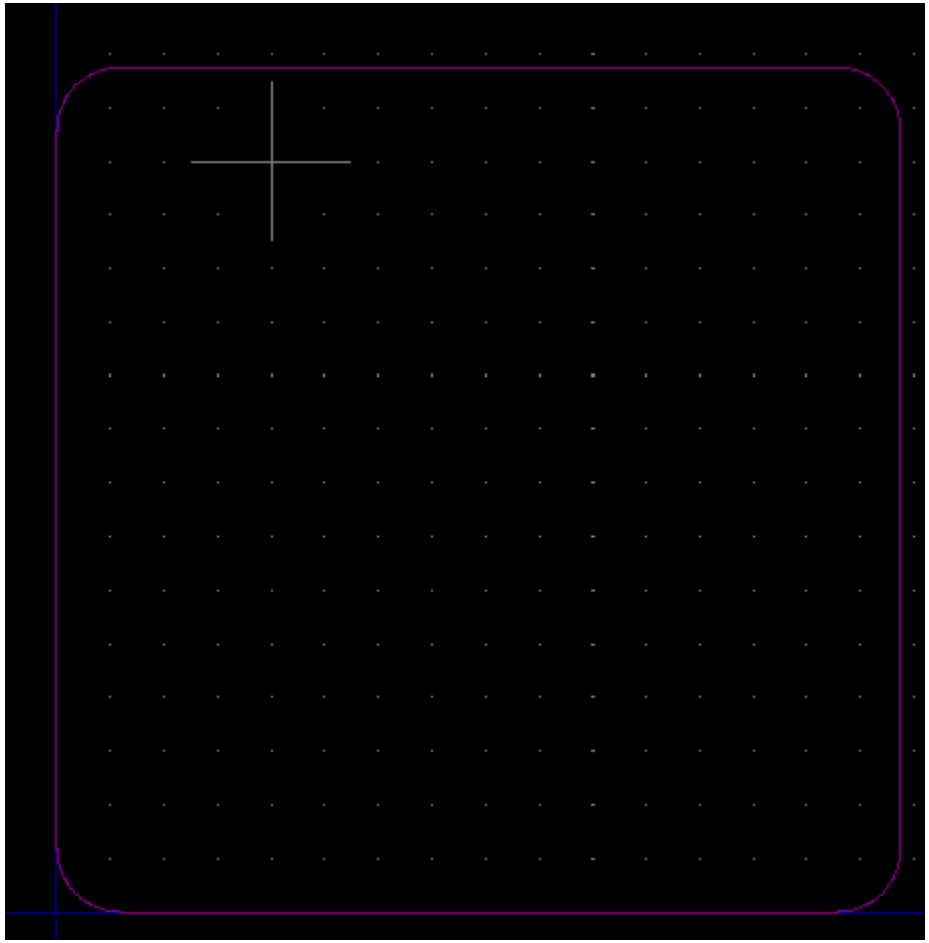


Spaţierea, în toate cazurile, va fi de 12 mil.

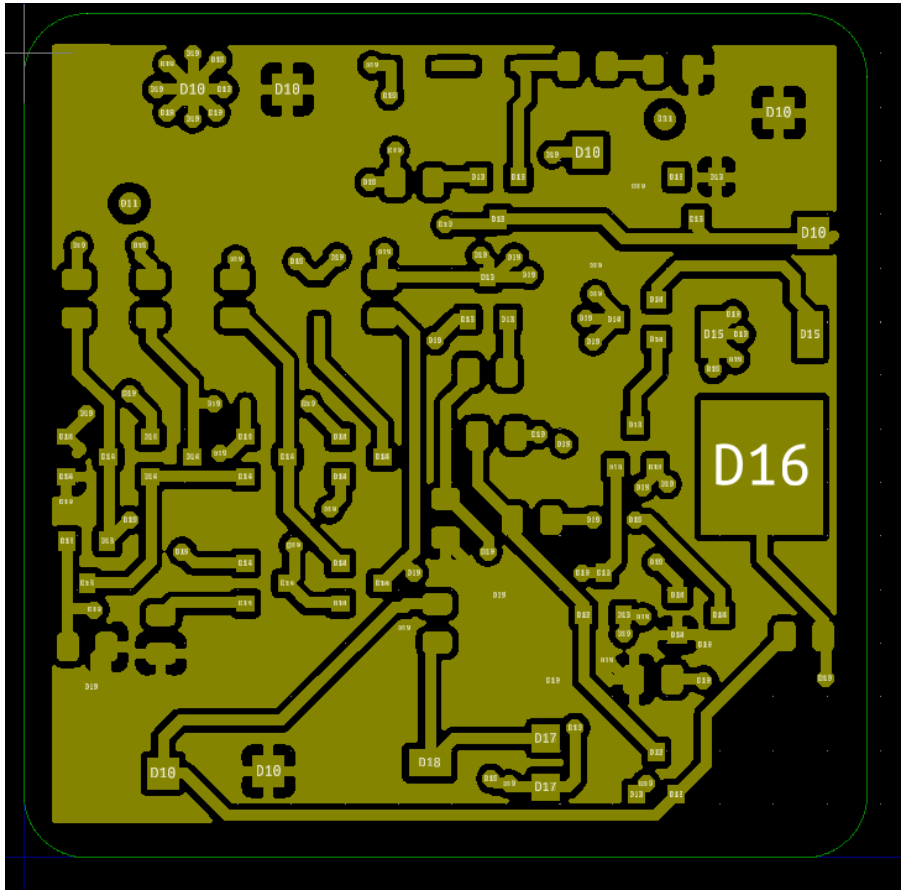


Fisierele Gerber:

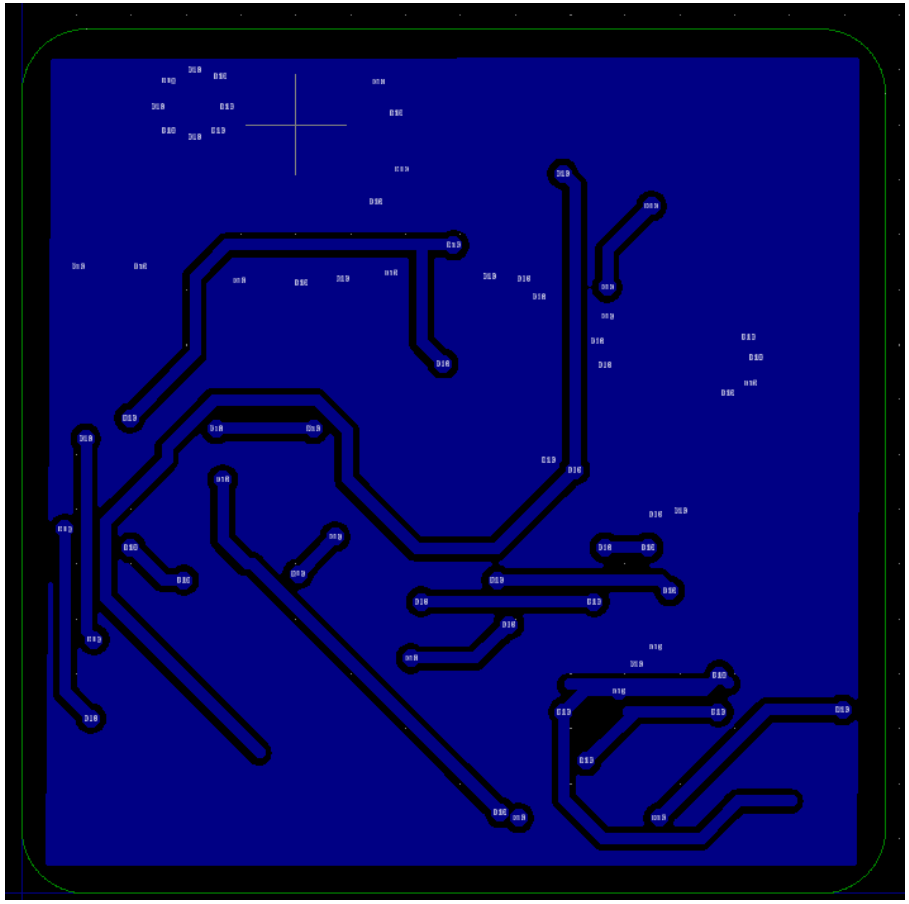
Conturul plăcii (board outline);



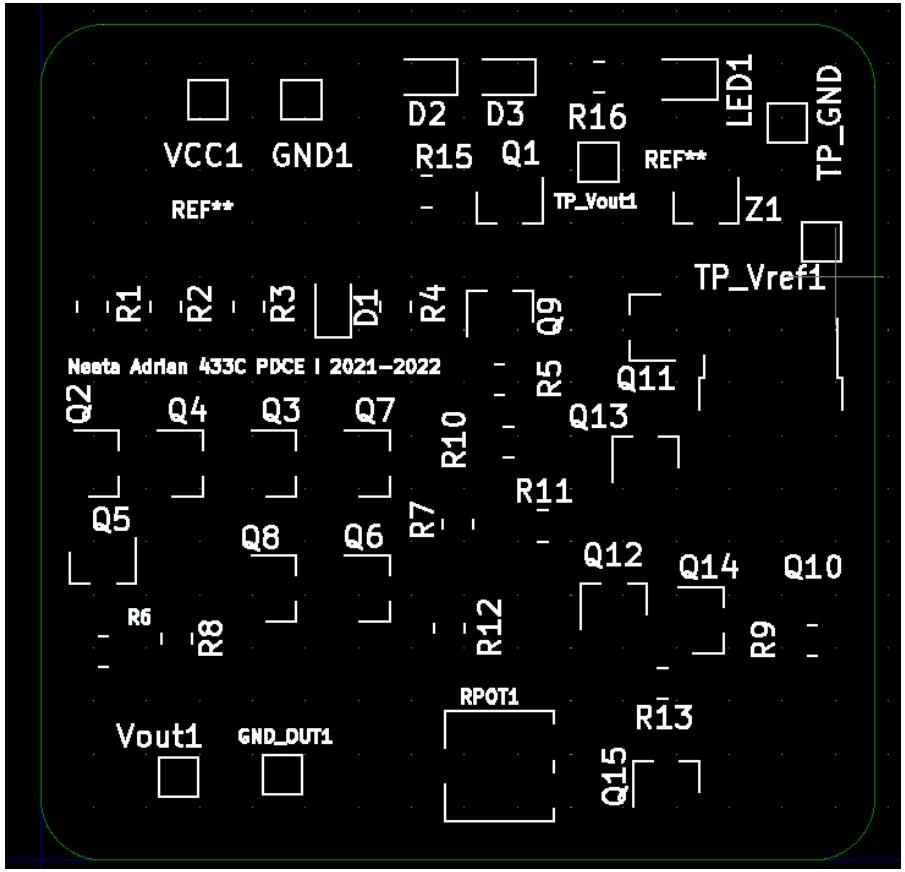
Layer electric TOP;



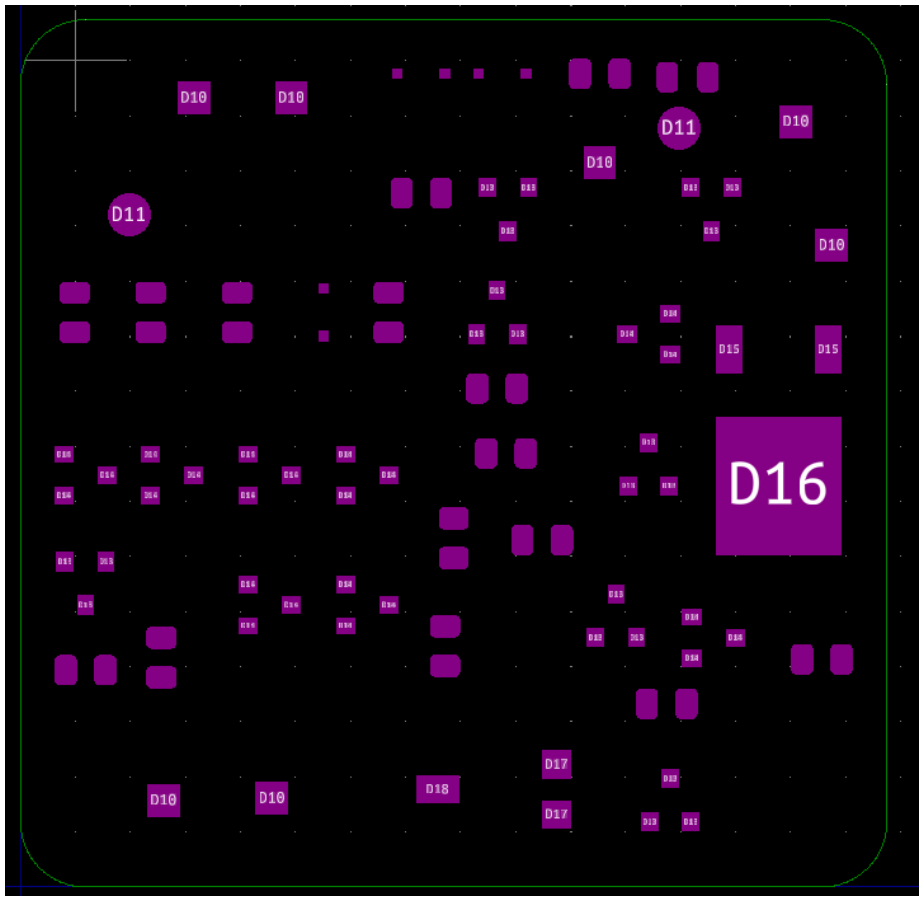
Layer electric BOTTOM;



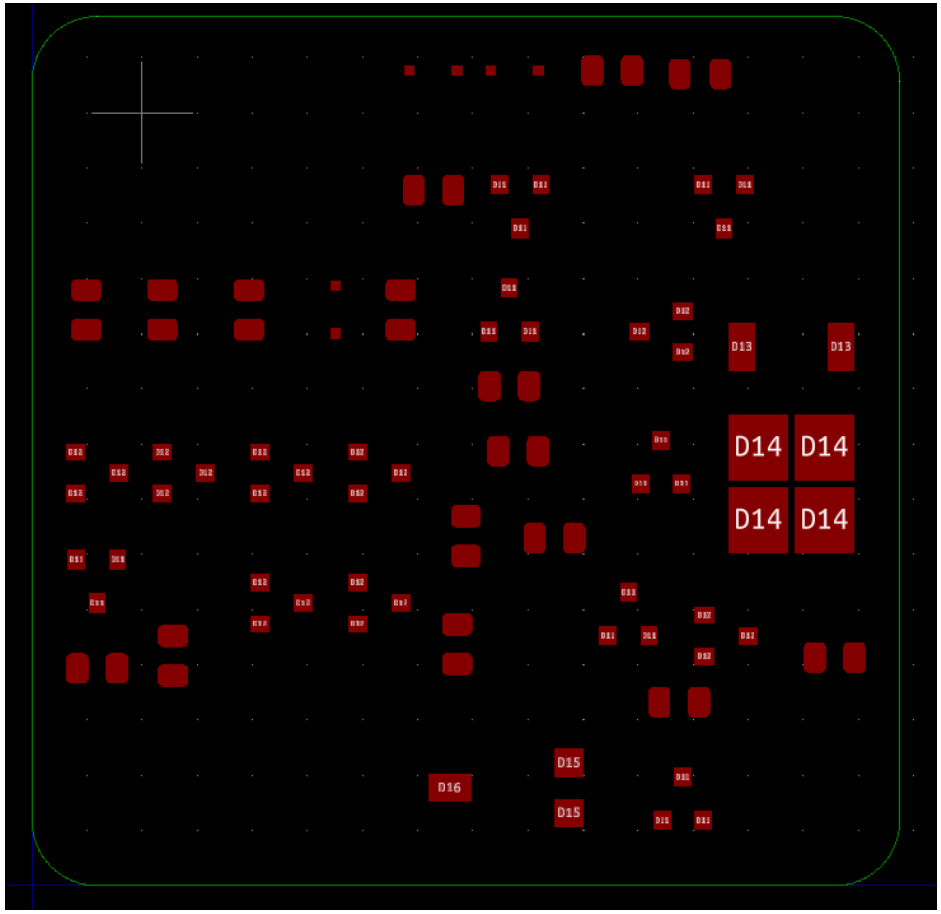
Layer neelectric Mască de inscripţionare (Silk Screen Top);



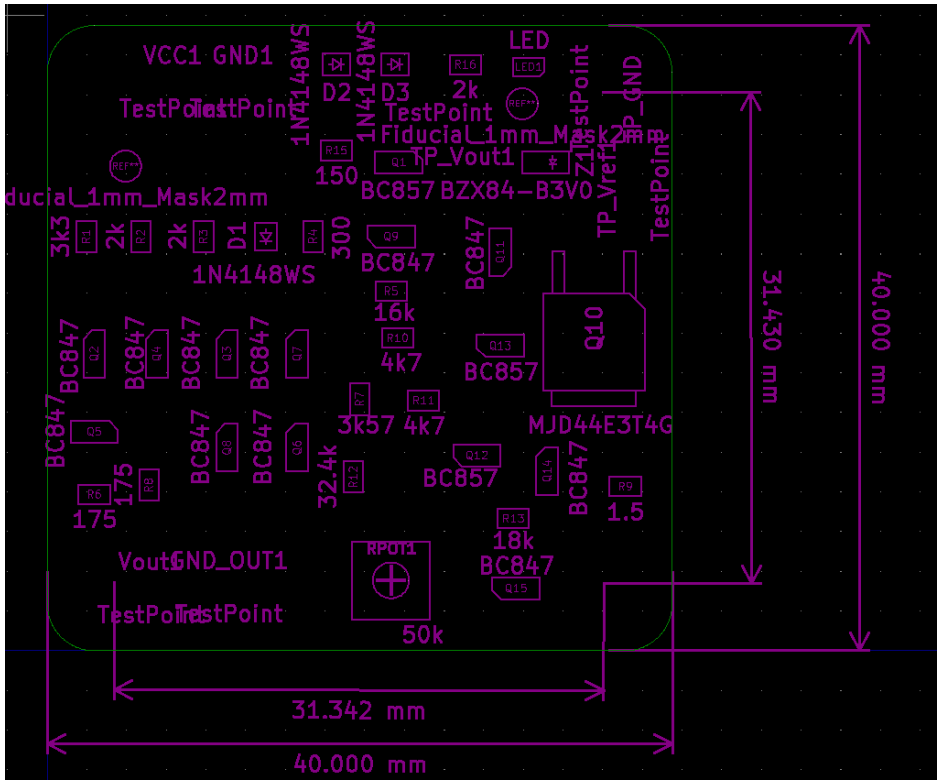
Layer neelectric Mască de protecţie (Solder Mask Top și Bottom);



Layer neelectric Şablon (Solder Paste Top);



Fabrication



Drill map: