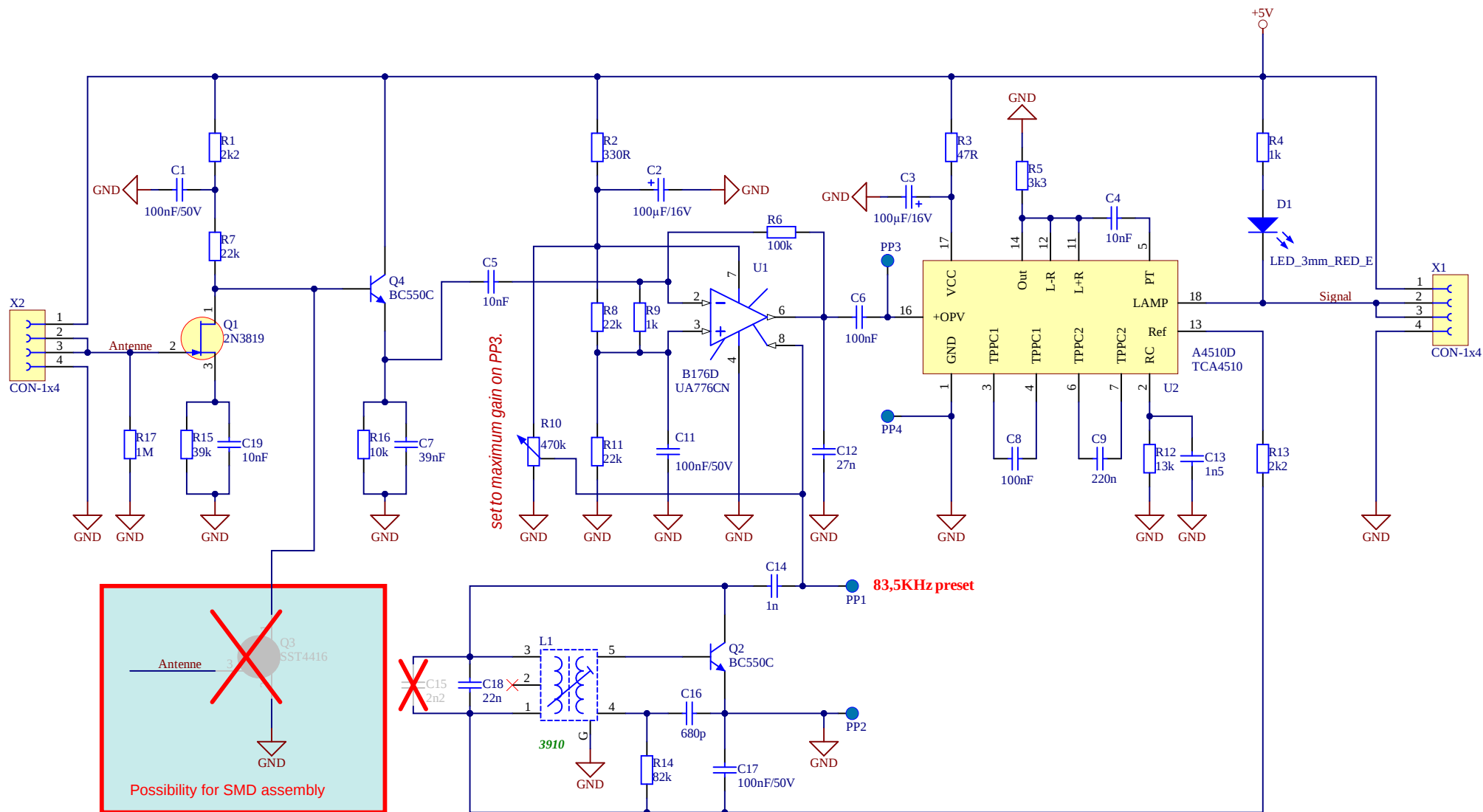


A

B

C

D



LP1

Leiterplatte

LP-DCF-77 A4510D

Title DCF-77 A4510D V0.4a

Size: A4

Description: DCF77 FA

Date: 11.09.2025

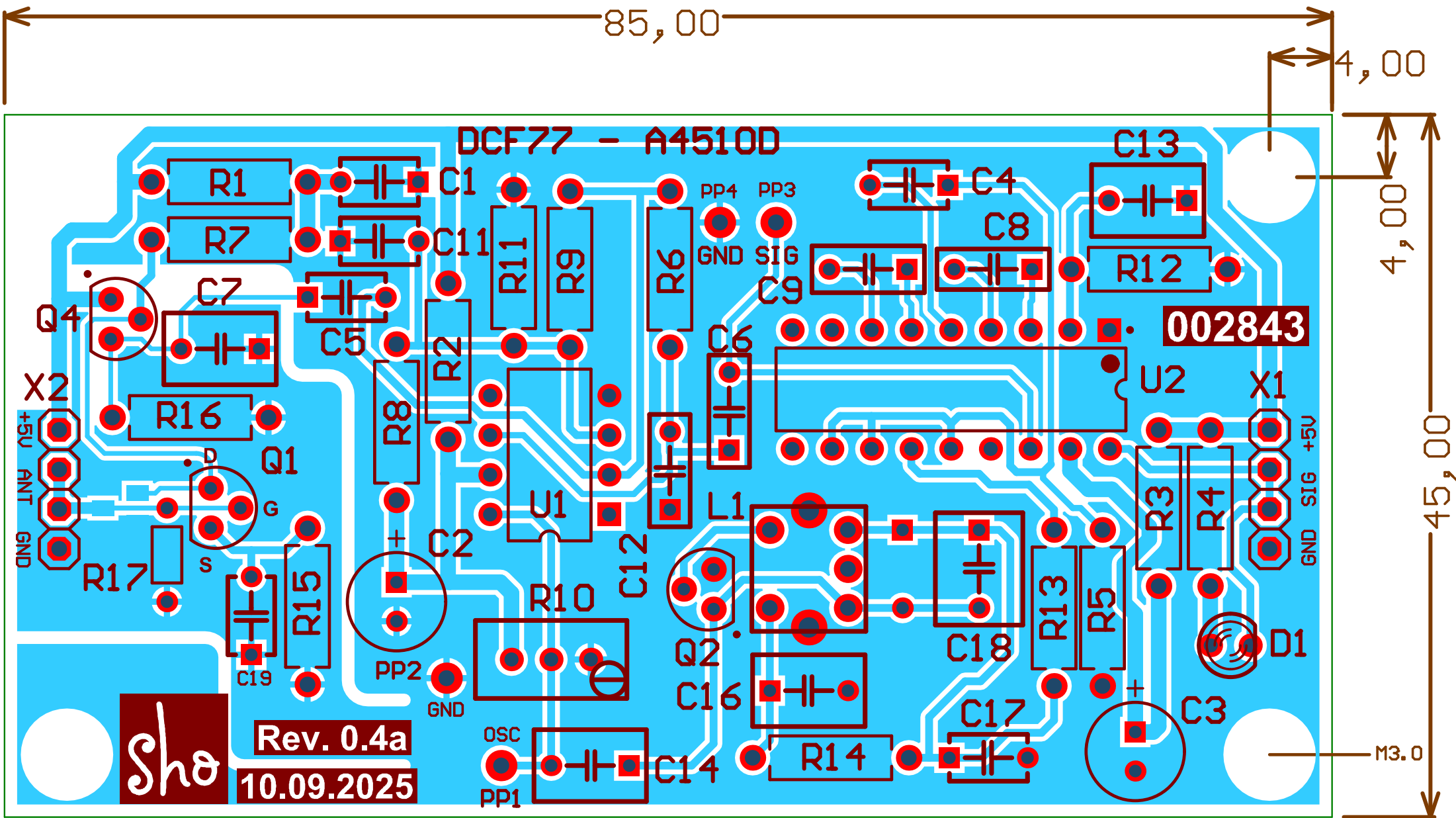
Time: 10:53:56

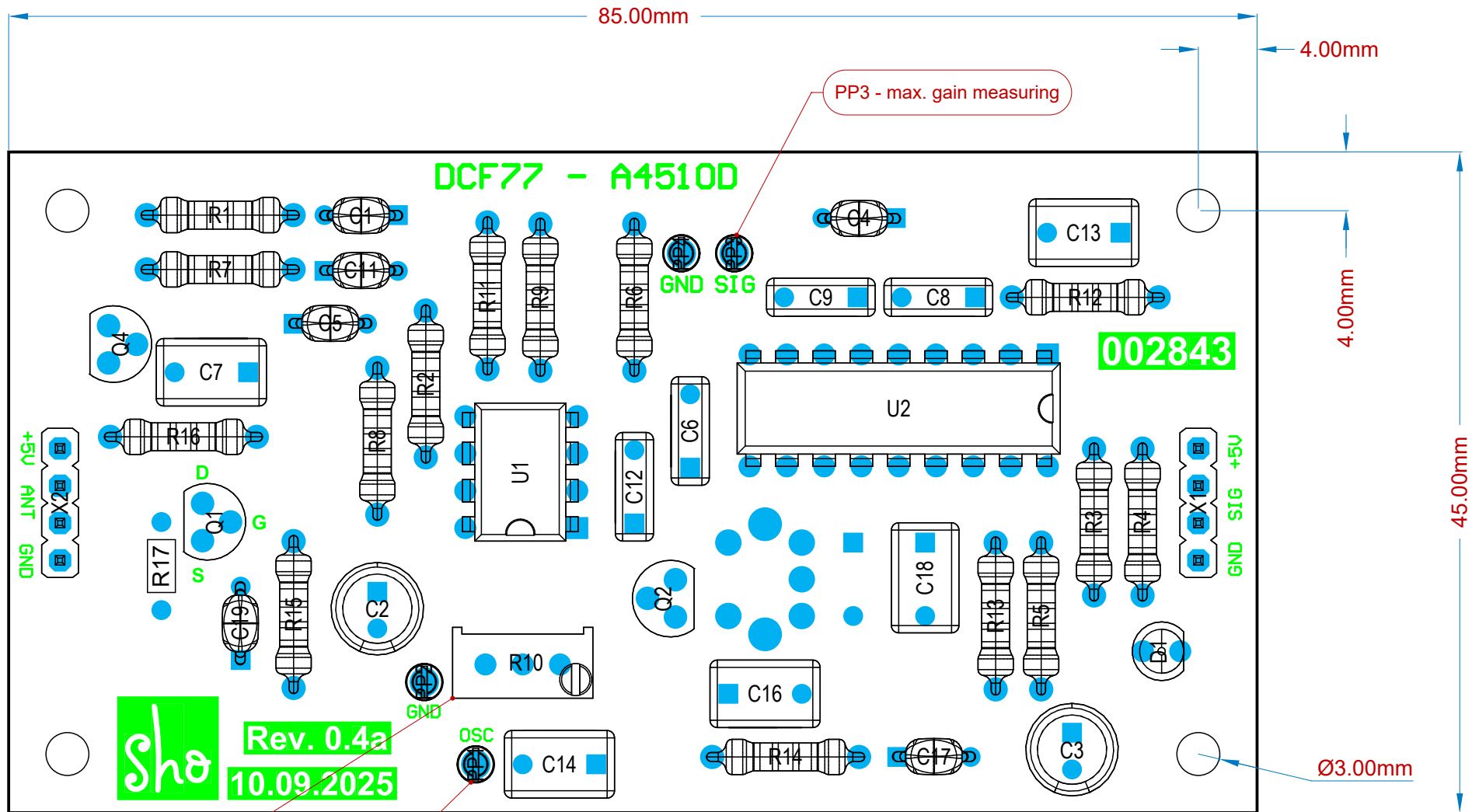
Sheet 1 of 1

File: DCF_77_Sheet1-4a.SchDoc

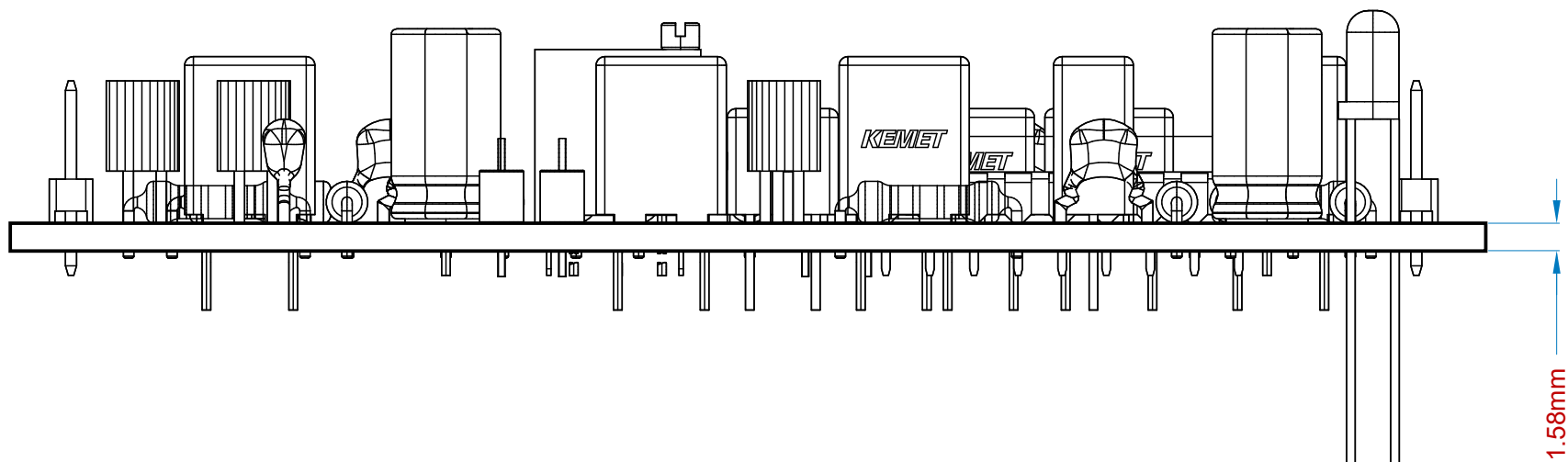
S.Hofmann
info@shotech.de
www.shotech.de
Revision: 0.4

Sho





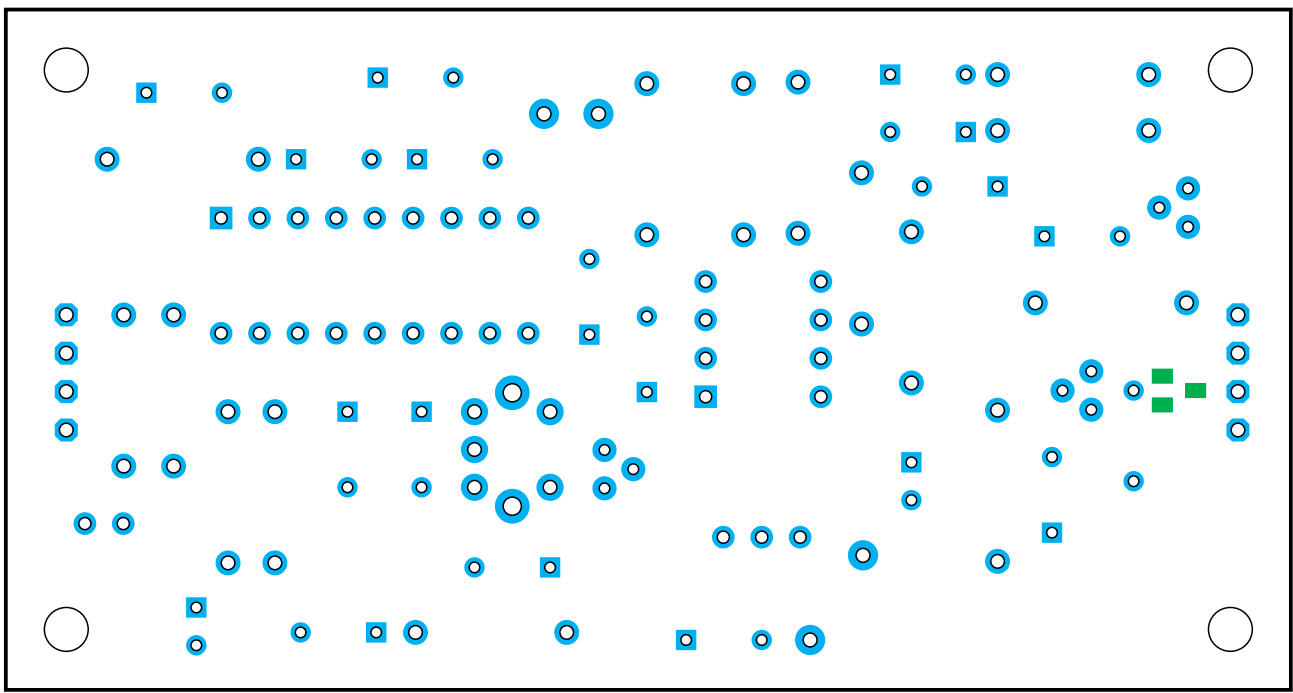
set to maximum gain on PP3 (SIG)
83.5KHz measuring



- adjustment !
1. preset 83,5 KHz on L1
 2. set maximum gain with R1 (measurement on PP1)
 3. optimal alignment of the ferrite antenna
 4. Fine adjustment of L1 until PLL locks (High to Low clock on the LED)

Layer Stack Legend					
	Material	Layer	Thickness	Dielectric Material	Type
		Top Overlay			Legend
	Surface Material	Top Solder	0.01mm	Solder Resist	Solder Mask
	Copper	Top Layer	0.04mm		Signal
			1.51mm	FR-4	Dielectric
	Copper	Bottom Layer	0.04mm		Signal
	Surface Material	Bottom Solder	0.01mm	Solder Resist	Solder Mask
		Bottom Overlay			Legend
Total thickness: 1.60mm					
					GTO
					GTS
					GTL
					GBL
					GBS
					GBO

Bill Of Materials			
Line #	Designator	Comment	Quantity
1	C1, C11, C17	100nF/50V	3
2	C2, C3	100µF/16V	2
3	C4, C5, C19	10nF	3
4	C6, C8	100nF	2
5	C7	39nF	1
6	C9	220n	1
7	C12	27n	1
8	C13	1n5	1
9	C14	1n	1
10	C16	680p	1
11	C18	22n	1
12	D1	LED_3mm_RED_E	1
13	L1	3910	1
14	PP1, PP2, PP3, PP4	Prüfpunkt	4
15	Q1	2N3819	1
16	Q2, Q4	BC550C	2
17	R1, R13	2k2	2
18	R2	330R	1
19	R3	47R	1
20	R4, R9	1k	2
21	R5	3k3	1
22	R6	100k	1
23	R7, R8, R11	22k	3
24	R10	470k	1
25	R12	13k	1
26	R14	82k	1
27	R15	39k	1
28	R16	10k	1
29	R17	1M	1
30	U1	UA776CN	1
31	U2	A4510D	1
32	X1, X2	CON-1x4	2



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				DRAWN	11.09.2025	TITLE	
				CHECKED		DCF77 A4510D - V3	
				ENG APPR.			
NEXT ASSY		USED ON		MFG APPR.		Q.A.	
APPLICATION				COMMENTS:		SIZE	DWG. NO.
						SCALE: 1:1	WEIGHT: SHEET 1 OF 1



Bearbeiter: S. Hofmann
Tel: 040 /
Fax: 040 / 76906856
Email: shop@shotech.de

Bill of Materials

Datum:	11. September 2025
Zeit:	10:54:51
Variant:	Variant of DCF-77-A4510D_2-3910
Bezeichnung:	DCF-77 A4510D V0.4a
Revision:	0.4
Description:	DCF77 FA

Quantity	Designator	Footprint	Bemerkung	Value	MFT	Order-Code	Second-source	shotech
3	C1, C11, C17	CAP_Radial_5MM	X7R 5mm LS	100nF/50V	Vishay / BC Components	K104K15X7RF53H5		1347
2	C2, C3	CAPPR5-6.3x11	Subminiatur-Elko, radial, 100 µF, 16 V, RM 2,5, 85°C, 1000h	100µF/16V	REC	Artikel-Nr.: SM 100/16RAD	Multcomp	1740
3	C4, C5, C19	CAP_Radial_5MM	DC-Folienkondensator, 10000 pF, 100 V, 5% RM5	10nF	KEMET	R82EC2100Z350J		1744
2	C6, C8	CAP_Radial_5MM_7k2_2k5	Folienkondensator, 100nF, 63V, RM5, 10%	100nF	KEMET	R82DC3100AA50K		1682
1	C7	CAP_Radial_5MM_7k2_4k5	Folienkondensatoren .039uF 5% 100volts	39nF	EPCOS / TDK	B32529C1393J189		1736
1	C9	CAP_Radial_5MM_7k2_3k0	Folienkondensator, 220nF, 63V, RM5, 5%	220n	WIMA	MKS2C032201B00JSSD		
1	C12	CAP_Radial_5MM_7k2_2k5	Folienkondensator, 27nF, 63V, RM5, 5%	27n	KEMET	8		
1	C13	CAP_Radial_5MM_7k2_4k5	Folienkondensator, 1,5nF, 100V, RM5, 2,5%	1n5	KEMET	R82EC1150DQ50J	160V / RM5	
1	C14	CAP_Radial_5MM_7k2_4k5	Folienkondensator, 1,0nF, 100V, RM5, 5%	1n	KEMET	R82EC1100DQ50J		2458
1	C16	CAP_Radial_5MM_7k2_4k5	Folienkondensator, 680pF, 100V, RM5, 2,5%	680p	WIMA	FKP2D006801D00HSSD	KT1808168164 / Roederstein	1743
1	C18	CAP_Radial_5MM_7k2_5k5	Folienkondensator, 22nF, 63V, RM5, 5%	22n	WIMA	MKS2C022201A00JSSD	FKP2C022201J00J / WIMA	1742
1	D1	LED3MM	LED diffus rot 80mcd 45° 3mm	LED 3mm_RED	Everlight	204-10SURD/S530-A3		1321
1	L1	DDR-Minifilter	Minifilter 3910, 180µH	3910	Hochfrequenzwerk Meuselwitz	Minifilter 3910	3911 mit Änderung des Cap.	1731
1	LP1		DCF77 A4510D PCB V4a	LP-DCF-77 A4510D	shotech	DCF77 A4510D PCB V4a		2843
4	PP1, PP2, PP3, PP4	VERO_Testpoint_Blue	Prüfpunkt					
1	Q1	SC_TO-92	JFET N-CH 25V TO92	2N3819	Central Semiconductor Corp	2N3819 PBFREE		
2	Q2, Q4	SC_TO-92	Hole TO-92-3	BC550C	ON Semiconductor	BC550CBU		1883
2	R1, R13	RES10-7.8X2.8 - 2k2	WIDERSTAND, 207, axial, 1%	2k2	frei	RMGK002.2		1238
1	R2	RES10-7.8X2.8 - 330R	WIDERSTAND, 207, axial, 1%	330R				1588
1	R3	RES10-7.8X2.8 - 47R	WIDERSTAND, 207, axial, 1%	47R				1735
2	R4, R9	RES10-7.8X2.8 - 1k	Metallsch. 0207 1/4W 1%	1k	frei	RMGK001		1235
1	R5	RES10-7.8X2.8 - 3k3	WIDERSTAND, 207, axial, 1%	3k3				1589
1	R6	RES10-7.8X2.8 - 100k	WIDERSTAND, 207, axial, 1%	100k				1610
3	R7, R8, R11	RES10-7.8X2.8 - 22k	WIDERSTAND, 207, axial, 1%	22k				1672
1	R10	RFT 513_59	470k Spindeltrimmer	470k	RFT	RFT 513.59, 470K	3296-Suntan, 500k	1746
1	R12	RES10-7.8X2.8 - 13k	WIDERSTAND, 207, axial, 1%	13k				1733
1	R14	RES10-7.8X2.8 - 82k	WIDERSTAND, 207, axial, 1%	82k				1734
1	R15	RES10-7.8X2.8 - 39k	WIDERSTAND, 207, 1%	39k				1730
1	R16	RES10-7.8X2.8 - 10k	WIDERSTAND, 207, axial, 1%	10k	frei	RMGK010		1233
1	R17	RES6.5-3.4X1.9	WIDERSTAND, 204, 1%	1M				1251
1	U1	P008	Programmable Low-Power Single Operational Amplifier	UA776CN	ST-Microelectronic	UA776CN	B176D	1293
1	U2	DIP-18/D22.4	Stereodecoder I2L Bipolartechnik DIP-18	A4510D	RFT	A4510D	TCA4510	2760
2	X1, X2	1X4						