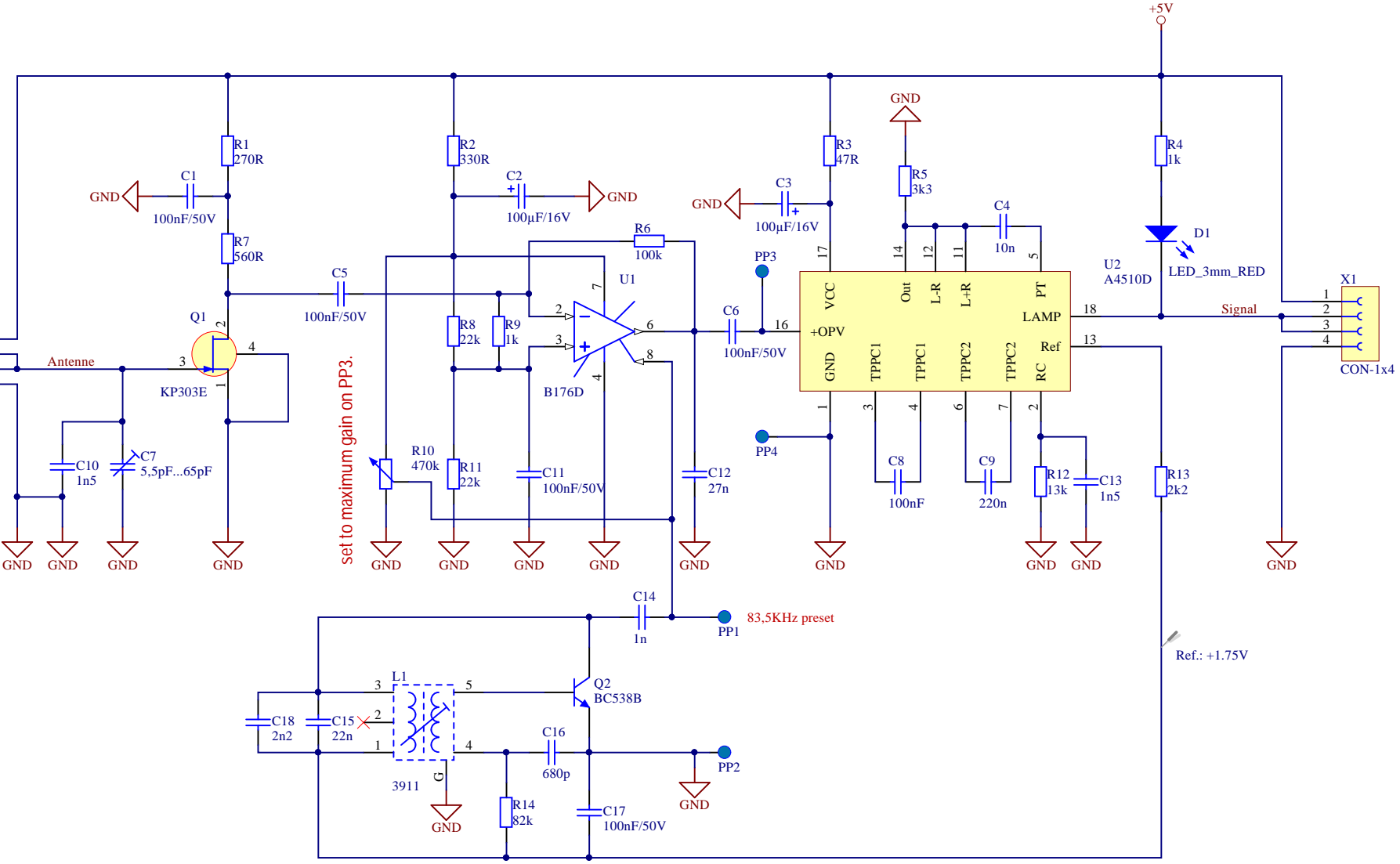
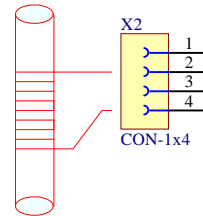


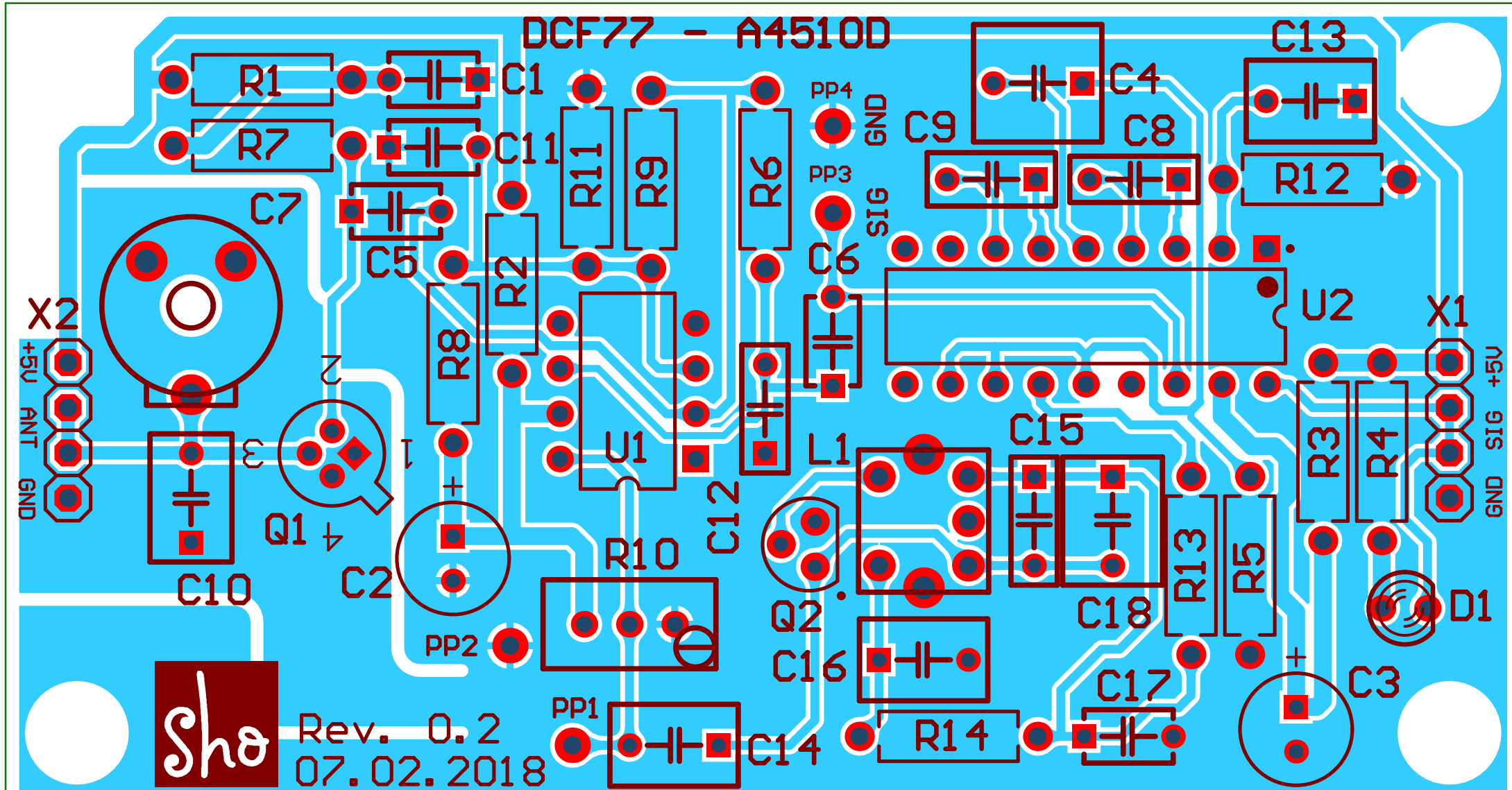
Info Antenna
8mm x 100mm Ferrit
250 turns 0,2mm



set to maximum gain on PP3.

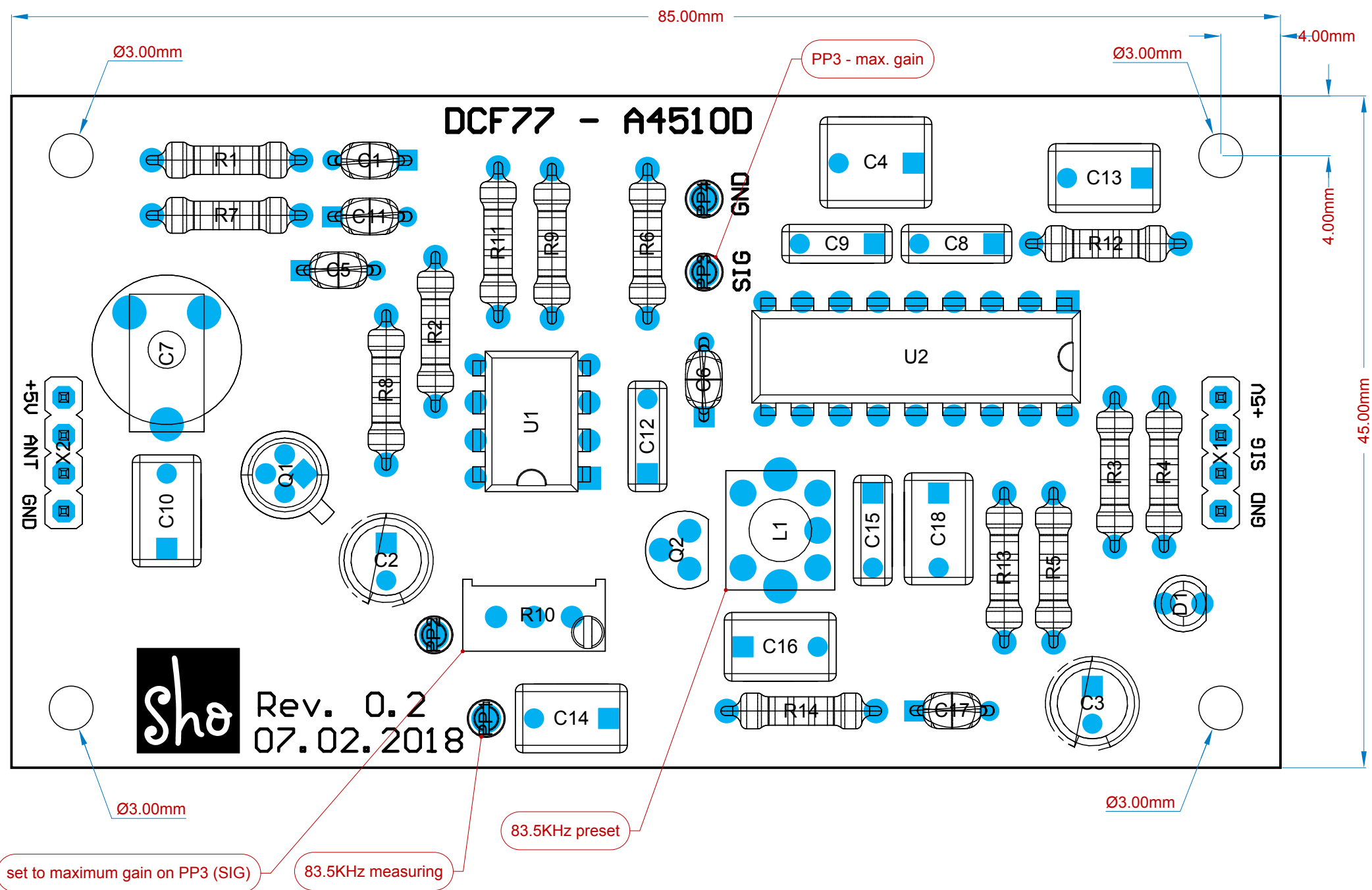
Title DCF-77 A4510D		S.Hofmann info@shotech.de www.shotech.de Revision: 0.3		
Size: A4	Description: DCF77 FA			
Date: 04.05.2021	Time: 19:49:40			Sheet 1 of 1
File: DCF_77_Sheet1.SchDoc				

DCF77 - A4510D

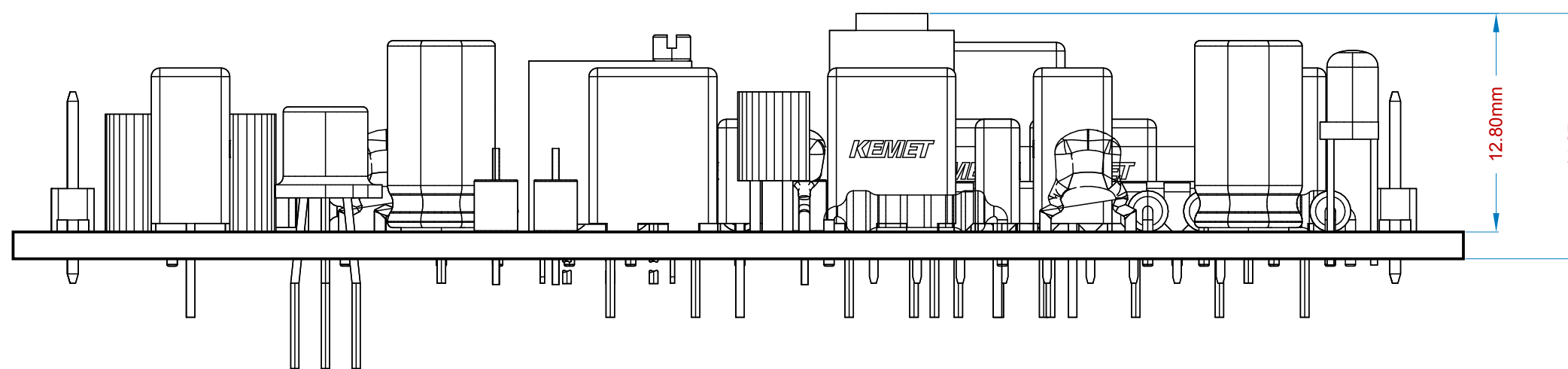


She

Rev. 0.2
07.02.2018



Item	Designator	Comment	Quantity
1	C1, C5, C6, C11, C17	100nF/50V	5
2	C10, C13	1n5	2
3	C12	27n	1
4	C14	1n	1
5	C15	22n	1
6	C16	680p	1
7	C18	2n2	1
8	C2, C3	100µF/16V	2
9	C4	10n	1
10	C7	5,5pF...65pF	1
11	C8	100nF	1
12	C9	220n	1
13	D1	LED_3mm_RED	1
14	L1	3911	1
15	PP1-PP4	Prüfpunkt	4
16	Q1	2N4416A	1
17	Q2	BC538B	1
18	R1	270R	1
19	R10	470k	1
20	R12	13k	1
21	R13	2k2	1
22	R14	82k	1
23	R2	330R	1
24	R3	47R	1
25	R4, R9	1k	2
26	R5	3k3	1
27	R6	100k	1
28	R7	560R	1
29	R8, R11	22k	2
30	U1	UA776CN	1
31	U2	A4510D	1
32	X1, X2	CON-1x4	2



- adjustment !
1. preset 83,5 KHz on L1
 2. set maximum gain with R1 (measurement on PP3)
 3. optimal alignment of the ferrite antenna
 4. Fine adjustment of L1 until PLL locks (High to Low clock on the LED)

Material	Layer	Thickness	Dielectric Material	Type	Gerber
	Top Paste			Paste Mask	GTP
	Top Overlay			Legend	GTO
Surface Material	Top Solder	0.01mm	Solder Resist	Solder Mask	GTS
Copper	Top Layer	0.04mm		Signal	GTL
		1.50mm	FR-4	Dielectric	
Copper	Bottom Layer	0.04mm		Signal	GBL
Surface Material	Bottom Solder	0.01mm	Solder Resist	Solder Mask	GBS
	Bottom Overlay			Legend	GBO
	Bottom Paste			Paste Mask	GBP

Total thickness: 1.59mm

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	shotech Steffen Hofmann	
DIMENSIONS ARE IN INCHES		DRAWN	04.05.2021	TITLE	
TOLERANCES:		CHECKED		DCF77 - A4510	
FRACTIONAL ±		ENG APPR.		SIZE DWG. NO.	
ANGULAR: MACH ± BEND ±		MFG APPR.		SCALE: 1:1 WEIGHT: SHEET 1 OF 1	
TWO PLACE DECIMAL ±		Q.A.			
THREE PLACE DECIMAL ±		COMMENTS:			
INTERPRET GEOMETRIC TOLERANCING PER:					
MATERIAL					
FINISH					
NEXT ASSY	USED ON	DO NOT SCALE DRAWING			
APPLICATION					



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

Bill of Materials

Datum:	4. Mai 2021
Zeit:	19:50:12
Variante:	None
Bezeichnung:	DCF-77 A4510D
Revision:	0.3

Quantity	Designator	Footprint	Bemerkung	Value	MFT	Order-Code	shotech
5	C1, C5, C6, C11, C17	CAP_Radial_5MM	Keramik-Vielschichtkondensator MLCC – bedrahtet 0.1uF 50volts 10% X7R 5mm LS	100nF/50V	Vishay / BC Components	K104K15X7RF53H5	
2	C2, C3	CAPPR5-6.3x11	Subminiatur-Elko, radial, 100 µF, 16 V, RM 2.5, 85°C, 1000h	100µF/16V		Artikel-Nr.: SM 100/16RAD	
1	C4	CAP_Radial_5MM_7k2_6k5	Folienkondensator, 10nF, 100V, RM5, 2,5%	10n	WIMA	FKP2D021001I00HSSD	
1	C7	BFC-808-Trim	Trimmer / Drehkondensatoren	5.5pF...65pF	Vishay	BFC280831659	
1	C8	CAP_Radial_5MM_7k2_2k5	Folienkondensator, 100nF, 63V, RM5, 10%	100nF	WIMA	MKS2C031001A00KSSD	
1	C9	CAP_Radial_5MM_7k2_3k0	Folienkondensator, 220nF, 63V, RM5, 5%	220n	WIMA	MKS2C032201B00JSSD	
2	C10, C13	CAP_Radial_5MM_7k2_4k5	Folienkondensator, 1,5nF, 100V, RM5, 2,5%	1n5	WIMA	FKP2D011501D00HSSD	
1	C12	CAP_Radial_5MM_7k2_2k5	Folienkondensator, 27nF, 63V, RM5, 5%	27n	KEMET	MMK5273J63J01L16.5TR18	
1	C14	CAP_Radial_5MM_7k2_4k5	Folienkondensator, 1,0nF, 100V, RM5, 2,5%	1n	WIMA	FKP2D011001D00HSSD	
1	C15	CAP_Radial_5MM_7k2_2k5	Folienkondensator, 22nF, 63V, RM5, 5%	22n	WIMA	MKS2C022201A00JSSD	
1	C16	CAP_Radial_5MM_7k2_4k5	Folienkondensator, 680pF, 100V, RM5, 2,5%	680p	WIMA	FKP2D006801D00HSSD	
1	C18	CAP_Radial_5MM_7k2_5k5	Folienkondensator, 2,2nF, 630V, RM5, 2,5%	2n2	WIMA	FKP2J012201G00HSSD	
1	D1	LED3MM - RED		LED_3mm	frei		
1	L1	DDR-Minifilter	Minifilter 3911, 160µH	3911	Hochfrequenzwerk Meuselwitz	Minifilter 3911	
4	PP1, PP2, PP3, PP4	VERO_Testpoint_Blue	Prüfpunkt				
1	Q1	TO-206AF	2N4416A Series 35 V 5 mA Through Hole N-Channel JFET - TO-206AF	2N4416A	Vishay/Central-Semiconductor	2N4416A	KP303E
1	Q2	SC_TO-92	Bipolar (BJT) Transistor NPN 30V 100mA 300MHz 500mW Through Hole TO-92-3	BC548BU	On-Semiconductor	BC548BU	
1	R1	RES10-7.8X2.8	WIDERSTAND, 207, axial, 1%	270R			
1	R2	RES10-7.8X2.8 - 330R	WIDERSTAND, 207, axial, 1%	330R			
1	R3	RES10-7.8X2.8 - 47R	WIDERSTAND, 207, axial, 1%	47R			
2	R4, R9	RES10-7.8X2.8 - 1k	Metallsch. 0207 1/4W 1%	1k	frei	RMGK001	001235
1	R5	RES10-7.8X2.8 - 3k3	WIDERSTAND, 207, axial, 1%	3k3			
1	R6	RES10-7.8X2.8 - 100k	WIDERSTAND, 207, axial, 1%	100k			
1	R7	RES10-7.8X2.8	WIDERSTAND, 207, axial, 10k, 1%	560R			
2	R8, R11	RES10-7.8X2.8 - 22k	WIDERSTAND, 207, axial, 1%	22k			
1	R10	RFT 513_59	470k Spindeltrimmer	470k	RFT	RFT 513.59, 470K	
1	R12	RES10-7.8X2.8 - 13k	WIDERSTAND, 207, axial, 1%	13k			
1	R13	RES10-7.8X2.8 - 2k2	WIDERSTAND, 207, axial, 1%	2k2	frei	RMGK002.2	001238
1	R14	RES10-7.8X2.8 - 82k	WIDERSTAND, 207, axial, 1%	82k			
1	U1	P008	Programmable Low-Power Single Operational Amplifier	UA776CN	ST-Microelectronic	UA776CN	
1	U2	DIP-18/D22.4	Stereodecoder I2L Bipolartechnik DIP-18	A4510D	RFT	A4510D	
2	X1, X2	1X4					