

Comment	Description	Desig	Location	Footprint	Order	Alternate Source(s)
See Notes	LDO VOLT REG, 3.3V, TO-252	U5	POWER: 1.5cm right of J2	TO-252	FN 108-7183RL	Mouser 512-KA78RM33RTE or 511-LF33CDT-TR or 863-NCP5501DT33RKG - These are LOW DROPOUT versions!
TLV2464CD	Low Power, Rail-To-Rail OpAmp	U19	QUAD: Near the top	SO-14	FN 845-5171	Mouser 595-TLV2464CDR or 595-TLV2464AIDR
SN74LVC2G17	Dual Schmitt Trigger Buffer	U12	LO: Right edge	SOT25-6	FN 128-7569	Mouser 595-SN74LVC2G17DCKR or 595-SN74LVC2G17DCKG4
SN74LVC2G17	Dual Schmitt Trigger Buffer	U13	LO: Right edge	SOT25-6	FN 128-7569	Mouser 595-SN74LVC2G17DCKR or 595-SN74LVC2G17DCKG4
SN74LS145D	BCD DECODER/DRIVER	U14	LPF: 1cm to the left of the large hole	SO-16	FN 959-2300	Mouser 595-SN74LS145DR or 595-SN74LS145D
SN74CBT3253C	Dual 4:1 Demux/Analog Switch	U1	BPF: Along the bottom edge	SO-16	FN 175-0447	Mouser 595-SN74CBT3253CD or 595-SN74CBT3253D
SN74CBT3253C	Dual 4:1 Demux/Analog Switch	U15	RX mixer: In the middle	SO-16	FN 175-0447	Mouser 595-SN74CBT3253CD or 595-SN74CBT3253D
SN74CBT3253C	Dual 4:1 Demux/Analog Switch	U17	TX mixer: In the middle	SO-16	FN 175-0447	Mouser 595-SN74CBT3253CD or 595-SN74CBT3253D
SN74CBT3253C	Dual 4:1 Demux/Analog Switch	U2	BPF: Just below the top edge	SO-16	FN 175-0447	Mouser 595-SN74CBT3253CD or 595-SN74CBT3253D
SI570	I2C programmable XO	U8	LO: Near the upper-left corner	SI570	DK 336-2518-ND	Digi-Key 336-2518-ND See notes for alternate sources.
RD16HHF1	Silicon RF Power MOS FET	Q5	PA: Upper-right corner	TO-220RF	EB 121171160336	Ebay, kitsandparts.com or other source
RD16HHF1	Silicon RF Power MOS FET	Q6	PA: Upper-right corner	TO-220RF	EB 121171160336	Ebay, kitsandparts.com or other source
PMEG6010CEH	DIODE, SCHOTTKY, 1A, 60V, SOD-123F	D1	Power: 0.5cm below and right of J1	SOD87	FN 151-0694	Equivalents: Comchip CDBMT2100-HF (2 amp) Mouser 750-CDBMT2100-HF or Rohm RB160M-60 (1 amp) Mouser 755-RB160M-60TR
PMEG6010CEH	DIODE, SCHOTTKY, 1A, 60V, SOD-123F	D5	SWR: Upper-left half	SOD87	FN 151-0694	Equivalent: Rohm RB160M-60 Mouser 755-RB160M-60TR
PMEG6010CEH	DIODE, SCHOTTKY, 1A, 60V, SOD-123F	D6	SWR: Lower-left half	SOD87	FN 151-0694	Equivalent: Rohm RB160M-60 Mouser 755-RB160M-60TR
PMBFJ112 See Notes	N-Channel JFET - Do not order - NOT NEEDED!	Q2	RX mixer: Lower-right corner	SOT-23	FN 134-9667	Mouser 771-PMBFJ112215 or 512-MMBFJ112 - Do not order - NOT NEEDED!
Paddles	Jack Socket,Thru-Hole	J2	Power: Left edge, second one down	MX-387GL_new	FN 126-7376	Note: PRO SIGNAL P/N: MX-387GL (Right Angle, 3.5mm) No known U.S. supplier other than Farnell via U.K.
OPA2350UA	High Speed, Single Supply OpAmp	U16	RX mixer: Near the left side, halfway up	SO-8	FN 110-1542	Mouser 595-OPA2350UA/2K5
NDS356AP	NDS356AP	Q1a	Power: Near J3, next to U6.	SOT-23	FN 984-6409	Mouser 512-NDS356AP
MCP9801	2-Wire High-Accuracy Temperature Sensor	U10	LO: Left and below center, just below Si570	SO-8	FN 143-9486	Mouser 579-MCP9801-M/SN
MC7805BTG	VOLTAGE REG, 40V, TO220-3	U4	Power: Upper-left corner - almost	TO-220	FN 121-1135	Mouser 833-MC7805CT-BP or 863-MC7805CTG or 821-TS7805CZ (Standard 7805 - You probably already have one)
MA4P7102F	MELF & HIPAX PIN Diode	D3	ANT Switch: Center	1072T	DK 1465-1236-1-ND	Mouser 937-MA4P7102F-1072-T
MA4P7102F	MELF & HIPAX PIN Diode	D4	ANT Switch: Right of center	1072T	DK 1465-1236-1-ND	Mouser 937-MA4P7102F-1072-T
LM2941CT	V REG ADJ +5/20V, 2941, TO-220-5	U3	Power: Upper-left corner - almost	TO-220-5	FN 948-9371	Mouser 926-LM2941CT/NOPB
LM2931CDG	100 mA, Adjustable Output, LDO Voltage Regulator w	U18	Bias: Middle of left edge	SO-8	FN 121-1100	Mouser 863-LM2931CDG
LM386M-1	Low Voltage Audio Power Amplifier	U20	Quad: Near bottom edge, right side	SO-8	FN 948-8324	Mouser 926-LM386M-1
LM386M-1	Low Voltage Audio Power Amplifier	U21	Quad: Near bottom edge, second from right	SO-8	FN 948-8324	Mouser 926-LM386M-1
LM386M-1	Low Voltage Audio Power Amplifier	U22	Quad: Near bottom edge, second from left	SO-8	FN 948-8324	Mouser 926-LM386M-1
LM386M-1	Low Voltage Audio Power Amplifier	U23	Quad: Near bottom edge, left side	SO-8	FN 948-8324	Mouser 926-LM386M-1
ISP817XSM	OPTOCOUPLER, SMDIP-4, TR O/P	U6	Power: 0.5cm right of J3	SMDIP-4	FN 168-3292	Equivalent: CEL PS2505L-1-A Mouser 551-PS2505L-1-A
Header 30	Header, 30-Pin	P1	Along top edge soldered to BOTTOM of board	HDR1X30	EB 290947876334	Mouser 517-929834-01-xx (header) and 517-929974-01-xx (plug) where "xx" is the number of pins. Note that Ebay part consists of both male/female plug/sockets and have 40 pins which are cut down to size. In the Mouser part numbers, specify the number of p
G6KU-2FY 3DC	Single-winding Latching Relay	K1	PA: Left of position of transformer T7	Omron_2FY	FN 118-1070	Mouser 653-G6KU-2F-YDC3, Digi-Key Z3030-ND
G6KU-2FY 3DC	Single-winding Latching Relay	K2	Top of board, just below ANT Switch section	Omron_2FY	FN 118-1070	Mouser 653-G6KU-2F-YDC3, Digi-Key Z3030-ND
G6KU-2FY 3DC	Single-winding Latching Relay	K3	Top of board, 3cm from lower-left corner	Omron_2FY	FN 118-1070	Mouser 653-G6KU-2F-YDC3, Digi-Key Z3030-ND
G6KU-2FY 3DC	Single-winding Latching Relay	K4	Top of board, 4.5cm from lower-left corner	Omron_2FY	FN 118-1070	Mouser 653-G6KU-2F-YDC3, Digi-Key Z3030-ND
Fuse	Fuse	F1	Power: Upper-left corner, just above J1	1206	FN 184-1065	Mouser 576-1206L300SLWR NOTE: Original is a one-time fuse, specified is a self-resetting device - SEE BELOW
FT50-43 10:1 ratio	SWR Bridge transformer	T2	PWR/SWR: Lower-Right corner	SWR_TR	EB 300771069431	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers

FT50-43 10:1 ratio	SWR Bridge transformer	T3	PWR/SWR: Just below P2	SWR_TR	EB 300771069431	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers
DXT3150	BIPOLAR, TRANSISTOR, NPN, SOT-89	Q3	PA driver: Center, below middle	SOT89L	FN 171-3880	Mouser 621-DXT3150-13
DXT3150	BIPOLAR, TRANSISTOR, NPN, SOT-89	Q4	PA Driver: Center, above middle	SOT89L	FN 171-3880	Mouser 621-DXT3150-13
CX2074NL	Wideband RF Transformer 1:4	T1	RX mixer: Right of center, near the top edge	SOP5	DK 553-1655-ND	Mouser 673-CX2074NL
CX2074NL	Wideband RF Transformer 1:4	T4	TX mixer: Upper-left corner	SOP5	DK 553-1655-ND	Mouser 673-CX2074NL
See Notes	Wideband RF Transformer	T5	PA driver: Lower-left corner	SOP5	See Notes	
BNC 13-60-2 DGZ	RF COAXIAL, BNC, JACK	P2	PWR/SWR: Top edge	BNC_RA CON	FN 171-2350	Equivalent: Amphenol 31-5431-10RFX Mouser 523-31-5431-10RFX
BN43-2402 1t choke	BN43-2402 1t choke	RFC8	PA: 1cm from upper-right corner of section	F_Bead	EB 300988432524	Alternate sources: kitsandparts.com or Amidon Associates. Wind with #24 AWG.
BN43-202 transformer	BN43-202 2:3 transformer - See Notes	T7	PA: Center, along lower edge	PA_TRM_4	EB 291023830340	Alternate sources: kitsandparts.com or Amidon Associates. See Notes.
BN43-202 transformer	BN43-202 bifilar transformer	T6	PA: Upper-left half	PA_TRM_b	EB 291023830340	Alternate sources: kitsandparts.com or Amidon Associates. Wind with #24 AWG
BFR93A - See Notes	TRANSISTOR, RF, NPN, 12V, 0.035MA,SOT-23	Q1	RX mixer: 1cm from right edge	SOT-23	FN 108-1300	Mouser 771-BFR93AW115, 726-BFR93AE6327
BAT54A	DIODE, SCHOTTKY, DUAL	D2	Power: 1cm right of J1	SOT-23	FN 108-1191	Mouser 511-BAT54AFILM
ACC	Jack Socket, Thru-Hole	J3	Power: third connector from top	MX-387GL_new	FN 126-7376	Note: PRO SIGNAL P/N: MX-387GL (Right Angle, 3.5mm) No known U.S. supplier other than Farnell via U.K.
820	Capacitor	C16	BPF: Second column, second down from top	0805	FN 174-0649	Mouser 77-VJ0805A821KXAPBC or 581-08055A821J or 810-C2012C0G1H821J
820	Capacitor	C8	BPF: Second column, third up	0805	FN 174-0649	Mouser 77-VJ0805A821KXAPBC or 581-08055A821J or 810-C2012C0G1H821J
680	Capacitor	C11	BPF: Far right column, fourth from bottom	0805	FN 228-0662	Mouser 77-VJ0805A681KXACBC or 77-VJ0805A681JXAAC or 77-VJ0805A681JXAMC or 80-C0805C681J5G or 80-C0805C681J5G
680	Capacitor	C50	LPF: Above and right of middle	0805	FN 228-0662	Mouser 77-VJ0805A681KXACBC or 77-VJ0805A681JXAAC or 77-VJ0805A681JXAMC or 80-C0805C681J5G or 80-C0805C681J5G
680	Capacitor	C54	LPF" Below and right of middle	0805	FN 228-0662	Mouser 77-VJ0805A681KXACBC or 77-VJ0805A681JXAAC or 77-VJ0805A681JXAMC or 80-C0805C681J5G or 80-C0805C681J5G
470	Capacitor	C45	LPF: Upper-right corner	0805	FN 141-4693	Mouser 77-VJ0805A471JXBCBC or 810-CGA4C2C0G2A471J or 80-C0805C471J1
470	Capacitor	C57	LPF: Bottom-right corner	0805	FN 141-4693	Mouser 77-VJ0805A471JXBCBC or 810-CGA4C2C0G2A471J or 80-C0805C471J1
470	Resistor	R74	PA Driver: 1cm from bottom-left corner	0805	FN 200-8377	Mouser 660-RK73H2ATTD4700F or 71-CRCW0805-470-E3 or 667-ERJ-6ENF4700V
470	Resistor	R76	PA Driver: 1cm from left edge, upper-middle	0805	FN 200-8377	Mouser 660-RK73H2ATTD4700F or 71-CRCW0805-470-E3 or 667-ERJ-6ENF4700V
390	Capacitor	C12	BPF: Second column, fourth from bottom	0805	FN 233-2701	Mouser 81-GRM215C2A391JA01D or 80-C0805C391J1G
390	Capacitor	C17	BPF: First column, second from top	0805	FN 233-2701	Mouser 81-GRM215C2A391JA01D or 80-C0805C391J1G
390	Capacitor	C51	LPF: Above and left of middle	0805	FN 233-2701	Mouser 81-GRM215C2A391JA01D or 80-C0805C391J1G
390	Capacitor	C55	LPF: Below and left of middle	0805	FN 233-2701	Mouser 81-GRM215C2A391JA01D or 80-C0805C391J1G
390	Capacitor	C70	RX mixer: 1.25cm from upper-left corner	0805	FN 233-2701	Mouser 81-GRM215C2A391JA01D or 80-C0805C391J1G
390	Capacitor	C74	RX mixer: 0.75 from left edge, middle	0805	FN 233-2701	Mouser 81-GRM215C2A391JA01D or 80-C0805C391J1G
390	Capacitor	C9	BPF: First column, third from bottom	0805	FN 233-2701	Mouser 81-GRM215C2A391JA01D or 80-C0805C391J1G
270	Capacitor	C46	LPF: Top edge, second from far right	0805	FN 233-2698	Mouser 581-08051A271J or 81-GRM215C2A271JA01D or 80-C0805C271J1G
270	Capacitor	C58	LPF: Bottom edge, second from far right	0805	FN 233-2698	Mouser 581-08051A271J or 81-GRM215C2A271JA01D or 80-C0805C271J1G
220	Capacitor	C52	LPF: Left edge, second from top	0805	FN 498-609	Mouser 77-VJ0805A221KXBPBC or 581-08051A221K or 810-CGA4C2C0G2A221J
220	Capacitor	C56	LPF: Left edge, second from bottom	0805	FN 498-609	Mouser 77-VJ0805A221KXBPBC or 581-08051A221K or 810-CGA4C2C0G2A221J
220	Resistor	R81	Bias: Top, center	0805	FN 933-2804	Mouser 71-CRCW0805-220-E3 or 660-RK73H2ATTD2200F or 667-ERJ-6ENF2200V
220	Resistor	R82	Bias: Upper-right corner	0805	FN 933-2804	Mouser 71-CRCW0805-220-E3 or 660-RK73H2ATTD2200F or 667-ERJ-6ENF2200V
180	Capacitor	C10	BPF: Second column, third from bottom	0805	FN 233-2756	Mouser 581-08051A181J or 77-VJ0805A181JXACBC or 80-C0805C181J5G
180	Capacitor	C13	BPF: Fourth column, fourth from bottom	0805	FN 233-2756	Mouser 581-08051A181J or 77-VJ0805A181JXACBC or 80-C0805C181J5G
180	Capacitor	C18	BPF: Third column, second from top	0805	FN 233-2756	Mouser 581-08051A181J or 77-VJ0805A181JXACBC or 80-C0805C181J5G

180	Capacitor	C47	LPF: Top edge, second from left	0805	FN 233-2756	Mouser 581-08051A181J or 77-VJ0805A181JXACBC or 80-C0805C181J5G
180	Capacitor	C59	LPF: Bottom edge, second from left	0805	FN 233-2756	Mouser 581-08051A181J or 77-VJ0805A181JXACBC or 80-C0805C181J5G
100uF	Electrolytic capacitor	C114	Quad (bottom of board): Far left	CAP_ALUM	FN 232-6111	Mouser 647-UWJ1C101MCL1 or 667-EEE-1CA101WP or 667-EEE-HA1C101WP
100uF	Electrolytic capacitor	C116	Quad (bottom of board): Second from left	CAP_ALUM	FN 232-6111	Mouser 647-UWJ1C101MCL1 or 667-EEE-1CA101WP or 667-EEE-HA1C101WP
100uF	Electrolytic capacitor	C118	Quad (bottom of board): Second from right	CAP_ALUM	FN 232-6111	Mouser 647-UWJ1C101MCL1 or 667-EEE-1CA101WP or 667-EEE-HA1C101WP
100uF	Electrolytic capacitor	C120	Quad (bottom of board): Far right	CAP_ALUM	FN 232-6111	Mouser 647-UWJ1C101MCL1 or 667-EEE-1CA101WP or 667-EEE-HA1C101WP
100uF	Electrolytic capacitor	C125	Quad (top of board) - bottom edge of board	CAP_ALUM	FN 232-6111	Mouser 647-UWJ1C101MCL1 or 667-EEE-1CA101WP or 667-EEE-HA1C101WP
100uF	Electrolytic capacitor	C27	Power: 1cm right of J1	CAP_ALUM	FN 969-5770	Mouser 667-EEE-FT1V101AP or 667-EEE-FT1E101AP
100nF	Capacitor	C1	BPF: Bottom edge, 0.25cm right of U1	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C100	PA: Top edge, center	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C101	Bias: Top, center	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C102	Bias: Bottom-left corner	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C103	Bias: Bottom, center	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C104	PA: Near upper-left corner	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C106	PA: Just below RFC8	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C121	Quad: Bottom edge, right, under U20	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C122	Quad: Bottom edge, middle-right, under U21	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C123	Quad: Bottom edge, middle-left, below U22	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C124	Quad: Bottom edge, middle-left, below U23	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C126	Quad: Just above center of U19	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C127	Quad: Just below center of U19	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C129	Quad: Left edge, off lower-left corner of U19	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C19	BPF: Fourth column, top	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C2	BPF: Bottom edge, left of U1	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C20	BPF: Second column, top	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C21	BPF: First column, top	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C22	BPF: Third column, top	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C23	BPF: Left edge, upper corner, left of U2	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C24	BPF: Left edge, upper corner, left of U2	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C25	BPF: Bottom edge, right of U1	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C26	BPF: Right edge, right of U2	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C3	BPF: Fourth column, bottom	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C34	LPF (top): Below U7	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C36	LO: Upper-right corner	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C37	LO: Top edge, right of center	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C4	BPF: Second column bottom	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C41	LO: Right of U10	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C42	LO: Upper-right corner of U11	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R

100nF	Capacitor	C43	LO: Right edge, 1cm from top	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C44	LO: Lower-right corner	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C5	BPF: Fourth column, bottom	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C6	BPF: Third column, bottom	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C61	LPF (Top): Right of U14	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C62	LPF (Top): Right of U14	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C63	LPF (Top): Right of U14	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C63a	LPF (Top): Below U14	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF - <i>See Notes</i>	Capacitor	C64	RX mixer: Lower-right corner, left of Q2	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C65	RX mixer: 1.5cm from right edge, below T1	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C66	RX mixer: 0.75 from lower-right corner	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C67	RX mixer: Below U15	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF <i>Do not install</i>	Capacitor See Notes!	C71	RX mixer: 0.5cm above and left of U16	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C72	RX mixer: Below U16	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF <i>Do not install</i>	Capacitor See Notes!	C73	RX mixer: Left edge, directly left of U16	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C75	RX mixer: Left edge, 1.25cm above bottom edge	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C77	RX mixer: Off lower-left edge of U16	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C79	ANT Switch: Center	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C80	ANT Switch: Right edge, below center	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF - <i>See notes</i>	Capacitor	C81	ANT Switch: Top, right of center, between diodes	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF - <i>See notes</i>	Capacitor	C82	SWR: Center, upper middle	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF - <i>See notes</i>	Capacitor	C83	SWR: Left of center, lower edge,	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C88	TX mixer: Below U17	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C89	TX mixer: Lower-left corner	0805	FN 174-0673	Mouser 77-VJ0805V104MXBPBC or 843-0805J0500104KJT or 77-VJ0805V104MXBCBC or 80-C0805C104K5R
100nF	Capacitor	C91	PA Driver, 0.5cm from left edge, upper	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C92	PA Driver, left edge, upper	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C93	Bias: Upper-left corner	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C97	PA driver: Right edge, lower	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C98	PA driver: Right edge, upper	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C99	PA: Near upper-right corner,below Q5/Q6	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100K - <i>See notes</i>	Resistor	R58	SWR: Right of center	0805	FN 146-9860	Mouser 71-CRCW0805-100K-E3 or 660-RK73H2ATTD1003F or 603-AC0805FR-07100KL
100K - <i>See notes</i>	Resistor	R62	SWR: Bottom edge, right of center	0805	FN 146-9860	Mouser 71-CRCW0805-100K-E3 or 660-RK73H2ATTD1003F or 603-AC0805FR-07100KL
100	Capacitor	C107	Quad: Above upper-right corner of U19	0805	FN 233-2692	Mouser 77-VJ0805A101JXBMC or 80-C0805C101J1G or 77-VJ0805A101JXBCBC
100	Capacitor	C108	Quad: Above upper-left corner of U19	0805	FN 233-2692	Mouser 77-VJ0805A101JXBMC or 80-C0805C101J1G or 77-VJ0805A101JXBCBC
100	Capacitor	C48	LPF: Upper-left corner	0805	FN 233-2692	Mouser 77-VJ0805A101JXBMC or 80-C0805C101J1G or 77-VJ0805A101JXBCBC
100	Capacitor	C60	LPF: Lower-left corner	0805	FN 233-2692	Mouser 77-VJ0805A101JXBMC or 80-C0805C101J1G or 77-VJ0805A101JXBCBC
100	Resistor	R16	LO: Left edge,below center	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R17	LO: Lower left corner	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB

100	Resistor	R18	LO: Right of U8	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R19	LO: Above U11	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R22	LO: Above and right of U11	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R23	LO: Right of U11	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R24	LO: Right of U11	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R25	LO: Right of U11	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R35	RX mixer: Bottom ,1.75cm from right edge	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R41	RX mixer: Right of U15	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R42	RX mixer: Right of U15	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R43	RX mixer: Right of and above U16	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R44	RX mixer: Right of U16	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R46	RX mixer: Top edge, Above and left of U16	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R47	RX mixer: Top left corner	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R51	RX mixer: Below U15	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R52	RX mixer: Right of U15 (lower)	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R71	TX mixer: Left of U17 (lower)	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
100	Resistor	R72	TX mixer: Below U17	0805	FN 933-2375	Mouser 71-CRCW0805-100-E3 or 660-RK73H2ATTD1000F or 71-CRCW0805100RFKEB
82	Capacitor	C14	BPF: Third column, fourth from bottom	0805	FN 174-0656	Mouser 581-08051A820J or 80-C0805C820J1G or 81-GRM215C2A820JZ01D
74LVC1G17SE-7	SINGLE SCHMITT-TRIGGER BUFFER	U9	LO: Top edge, 1cm right of U8 (Si570)	SOT353-5	FN 189-3834	Mouser 621-74LVC1G17SE-7
74LCX74M	Low Voltage Dual D-Type Positive Edge-Triggered Flip-Flop	U11	LO: Bottom edge, center	SO-14	FN 101-3791	Equivalent: Mouser 512-74LCX74M
74HCT02	Quad 2-input NOR gate	U7	LPF (Top): Right edge	SO-14	FN 108-5298	Mouser 771-74HCT02DAUJ
56	Resistor	R77	PA driver: Bottom edge, left of Q3	0805	FN 157-6442	Mouser 71-CRCW080556R0FKEA or 660-RK73H2ATTD56R0F or 667-ERJ-6ENF56R0V
56	Resistor	R79	PA Driver: Bottom edge, right of Q3	0805	FN 157-6442	Mouser 71-CRCW080556R0FKEA or 660-RK73H2ATTD56R0F or 667-ERJ-6ENF56R0V
47uH	INDUCTOR, SIGNAL LINE, 47UH, 1005	RFC2	ANT Switch: Center (below left diode, D3)	0805	FN 166-9895	Mouser 667-ELJ-FC470JF
47uH - <i>See notes</i>	INDUCTOR, SIGNAL LINE, 47UH, 1005	RFC3	ANT Switch: Lower right, below D4	0805	FN 166-9895	Mouser 667-ELJ-FC470JF
47uH	INDUCTOR, SIGNAL LINE, 47UH, 1005	RFC5	PA driver: Right of center, right of Q3	0805	FN 166-9895	Mouser 667-ELJ-FC470JF
47uH	INDUCTOR, SIGNAL LINE, 47UH, 1005	RFC6	PA driver: Upper-right corner	0805	FN 166-9895	Mouser 667-ELJ-FC470JF
47uH	INDUCTOR, SIGNAL LINE, 47UH, 1005	RFC7	Bias: Center	0805	FN 166-9895	Mouser 667-ELJ-FC470JF
47uH	INDUCTOR, SIGNAL LINE, 47UH, 1005	RFC9	Quad: Left edge, above center (near U7)	0805	FN 166-9895	Mouser 667-ELJ-FC470JF
47nF	Capacitor	C94	PA driver: 0.5cm right of Q3	0805	FN 152-0303	Mouser 77-VJ0805Y473JXAPBC or 80-C0805C473K5R or 581-08055C473K
47nF	Capacitor	C95	PA Driver: 0.5cm right of Q4	0805	FN 152-0303	Mouser 77-VJ0805Y473JXAPBC or 80-C0805C473K5R or 581-08055C473K
47	Resistor	R57	SWR: Left of center, upper	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V
47	Resistor	R61	SWR: Left edge	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V
47	Resistor	R63	TX mixer: Lower-right corner	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V
47	Resistor	R64	TX mixer: Upper-right corner	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V
47	Resistor	R65	TX mixer: Right edge	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V
47	Resistor	R66	TX mixer: Right edge	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V
47	Resistor	R67	TX mixer: Left of U17 (lower)	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V

47	Resistor	R68	TX mixer: 0.5cm left of U17	0805	FN 173-8942	Mouser 660-RK73H2ATTD47R0F or 71-CRCW080547R0FKEB or 667-ERJ-6ENF47R0V
27	Resistor	R31	LPF (Top): Left of U14 - See Notes	1206	FN 205-7802	Mouser 71-CRCW080527R0FKEA or 660-RK73H2ATTD27R0F or 667-ERJ-6ENF27R0V
27	Resistor	R32	LPF (Top): Left of U14 - See Notes	1206	FN 205-7802	Mouser 71-CRCW080527R0FKEA or 660-RK73H2ATTD27R0F or 667-ERJ-6ENF27R0V
27	Resistor	R33	LPF (Top): Left of U14 - See Notes	1206	FN 205-7802	Mouser 71-CRCW080527R0FKEA or 660-RK73H2ATTD27R0F or 667-ERJ-6ENF27R0V
27	Resistor	R34	LPF (Top): Left of U14 - See Notes	1206	FN 205-7802	Mouser 71-CRCW080527R0FKEA or 660-RK73H2ATTD27R0F or 667-ERJ-6ENF27R0V
22uF	Tantalum Capacitor	C30	Power: Near top edge, below U3/U4	1206	FN 175-4186	Mouser 647-F931C226MBA or 74-593D226X9016B2TE3 ALTERNATE PART (33uF): Mouser 74-293D336X9016B2TE3
22nF	Capacitor	C68	RX mixer: Left of U15	CAP_B	FN 221-1120	Mouser 81-GRM215C1H223JA01L or 810-CGA4J2C0G1H223J or 810-C2012C0G1H223J
22nF	Capacitor	C69	RX mixer: Left of U15	CAP_B	FN 221-1120	Mouser 81-GRM215C1H223JA01L or 810-CGA4J2C0G1H223J or 810-C2012C0G1H223J
22nF	Capacitor	C84	TX mixer: Right of U17	CAP_B	FN 221-1120	Mouser 81-GRM215C1H223JA01L or 810-CGA4J2C0G1H223J or 810-C2012C0G1H223J
22nF	Capacitor	C85	TX mixer: Right of U17	CAP_B	FN 221-1120	Mouser 81-GRM215C1H223JA01L or 810-CGA4J2C0G1H223J or 810-C2012C0G1H223J
22nF	Capacitor	C86	TX mixer: Right of U17	CAP_B	FN 221-1120	Mouser 81-GRM215C1H223JA01L or 810-CGA4J2C0G1H223J or 810-C2012C0G1H223J
22nF	Capacitor	C87	TX mixer: Right of U17	CAP_B	FN 221-1120	Mouser 81-GRM215C1H223JA01L or 810-CGA4J2C0G1H223J or 810-C2012C0G1H223J
22K - <i>See notes</i>	Resistor	R54	ANT Switch: Center, bottom	0805	FN 146-9896	Mouser 71-CRCW0805-22K-E3 or 660-RK73H2ATTD2202F or 603-RC0805FR-0722KL
16/30HB	NEON LAMP, WIRE ENDED, T2	DS1	LPF: Left of P2 (Antenna connector)	SIP2	FN 113-9250	Mouser 696-GT-NE6S1325T or 696-GT-NE4H1125
15K	Resistor	R13	Power: Just below U5	0805	FN 165-2920	Mouser 71-CRCW0805-15K-E3 or 660-RK73H2ATTD1502F or 279-CRG0805F15K
15K	Resistor	R9	Power: Between J1 and U3	0805	FN 165-2920	Mouser 71-CRCW0805-15K-E3 or 660-RK73H2ATTD1502F or 279-CRG0805F15K
15K	Resistor	R92	Quad: Center, 1cm above U21	0805	FN 165-2920	Mouser 71-CRCW0805-15K-E3 or 660-RK73H2ATTD1502F or 279-CRG0805F15K
15K	Resistor	R94	Quad: Center, 1cm above U21	0805	FN 165-2920	Mouser 71-CRCW0805-15K-E3 or 660-RK73H2ATTD1502F or 279-CRG0805F15K
15K	Resistor	R96	Quad: Center, 1cm above U1/U22	0805	FN 165-2920	Mouser 71-CRCW0805-15K-E3 or 660-RK73H2ATTD1502F or 279-CRG0805F15K
15K	Resistor	R98	Quad: Center, 1cm above U22	0805	FN 165-2920	Mouser 71-CRCW0805-15K-E3 or 660-RK73H2ATTD1502F or 279-CRG0805F15K
12V Connector	Power Jack	J1	Power: Near upper-left corner	PowerJack	FN 188-9309	Digi-Key: CP-002AHPJCT-ND (CUI P/N: PJ-002AH-SMT-TR or Cliff Electronic Components P/N: FC68148S) (2.1mm x 5.5mm Coaxial Power Connector, SMD)
10uF	Tantalum Capacitor	C105	PA: Upper-right corner	1206 Elec_Cap	FN 233-3009	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C109	Quad: Center, 1cm below U19	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C110	Quad: Center, 1cm below U19	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C111	Quad: Center, 1cm below U19	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C112	Quad: Center, 1cm below U19	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C113	Quad: Right of U20	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C115	Quad: Right of U21	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C117	Quad: Right of U22	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C119	Quad: Right of U23	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C128	Quad: Right edge, left of U19	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C28	Power: Top edge, below U4	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C29	Power: Below U5	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C40	LO: Bottom edge, below U10	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C76	RX mixer, bottom-left corner	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10uF	Tantalum Capacitor	C90	TX mixer: Left edge, near bottom	1206 Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
10pF	Capacitor	C38	LO: Right of U8 (Si570)	0805	FN 233-2749	Mouser 80-C0805C100J5G or 581-08055A100J or 77-VJ0805A100JXAAC
10pF	Capacitor	C39	LO: Left edge, left of U8 (Si570)	0805	FN 233-2749	Mouser 80-C0805C100J5G or 581-08055A100J or 77-VJ0805A100JXAAC

10nF	Capacitor	C31	Power: Bottom-right corner	0805	FN 233-2713	Mouser 77-VJ0805Y103JXBAC or 581-08051C103J or 81-GRM21BR72A103JA01
10nF	Capacitor	C35	LO: Left edge, left of U8 (Si570)	0805	FN 233-2713	Mouser 77-VJ0805Y103JXBAC or 581-08051C103J or 81-GRM21BR72A103JA01
10k	Resistor	R84	Quad: Near top-left corner	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10k	Resistor	R85	Quad: Top left corner	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10k	Resistor	R86	Quad: Top right corner	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10k	Resistor	R87	Quad: Top edge, above U19, left	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10k	Resistor	R88	Quad: Right of U19	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10k	Resistor	R89	Quad: Left of U19	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10k	Resistor	R90	Quad: 0.5cm below U19, right	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10k	Resistor	R91	Quad: 0.5cm below U19, left	0805	FN 146-9856	Mouser 660-RK73H2ATTD1002F or 71-CRCW080510K0FKEB or 603-AC0805FR-0710KL
10	Resistor	R38	RX mixer: 1.5cm from lower-right corner	0805	FN 933-2421	Mouser 71-CRCW0805-10-E3 or 660-RK73H2ATTD10R0F or 603-AC0805FR-0710RL
10	Resistor	R39	RX mixer: 1cm from lower-right corner	0805	FN 933-2421	Mouser 71-CRCW0805-10-E3 or 660-RK73H2ATTD10R0F or 603-AC0805FR-0710RL
5.6K	Resistor	R12	Power: 0.5cm right of J1, below U3/U4	0805	FN 188-7301	Mouser 71-CRCW08055K60FKEA or 660-RK73H2ATTD5601F or 667-ERJ-6ENF5601V
4.7uH	INDUCTOR SMD	L5	PA driver: 0.5cm from right edge, below center	0805	FN 166-9896	Mouser 70-IMC1008ER4R7J or 652-CW252016-4R7J
4.7uH	INDUCTOR, SIGNAL LINE, 4.7UH, 1005	RFC1	RX mixer: 0.5cm from left edge, below U16	0805	FN 166-9896	Mouser 70-IMC1008ER4R7J or 652-CW252016-4R7J
4.7uH	INDUCTOR, SIGNAL LINE, 4.7UH, 1005	RFC4	TX mixer: 1cm right of lower-left corner	0805	FN 166-9896	Mouser 70-IMC1008ER4R7J or 652-CW252016-4R7J
4.7K	Resistor	R10	Power: 0.5cm right of J1, below U3/U4	0805	FN 200-8383	Mouser 71-CRCW0805-4.7K-E3 or 660-RK73H2ATTD4701F or 667-ERJ-6ENF4701V
4.7K	Resistor	R15a	Power: 1cm right of J3	0805	FN 200-8383	Mouser 71-CRCW0805-4.7K-E3 or 660-RK73H2ATTD4701F or 667-ERJ-6ENF4701V
4.7K	Resistor	R20	LO: Bottom edge, near lower-left corner	0805	FN 200-8383	Mouser 71-CRCW0805-4.7K-E3 or 660-RK73H2ATTD4701F or 667-ERJ-6ENF4701V
4.7K	Resistor	R21	LO: Left of U10	0805	FN 200-8383	Mouser 71-CRCW0805-4.7K-E3 or 660-RK73H2ATTD4701F or 667-ERJ-6ENF4701V
4.7K	Resistor	R36	RX mixer: 0.75 from right edge, above center	0805	FN 200-8383	Mouser 71-CRCW0805-4.7K-E3 or 660-RK73H2ATTD4701F or 667-ERJ-6ENF4701V
4.7	Resistor	R78	PA Driver: Bottom edge, right of Q3	0805	FN 205-7665	Mouser 660-RK73H2ATTD4R70F or 71-CRCW0805-4.7-E3 or 603-AC0805FR-074R7L
4.7	Resistor	R80	PA driver: Right of Q4	0805	FN 205-7665	Mouser 660-RK73H2ATTD4R70F or 71-CRCW0805-4.7-E3 or 603-AC0805FR-074R7L
3.9K	Resistor	R14	Power: 2cm right of J3	0805	FN 188-7296	Mouser 660-RK73H2ATTD3901F or 71-CRCW08053K90FKEA or 667-ERJ-6ENF3901V
3uH	T37-2 handwound inductor	L17	LPF: Right edge, center	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
2.4uH	T37-2 handwound inductor	L13	LPF: Top-right corner	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
2.4uH	T37-2 handwound inductor	L21	LPF: Bottom-right corner	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
2.2uH	INDUCTOR SMD	L1	BPF: Fourth column, second from bottom	0805	FN 166-9889	Mouser 70-IMC1008ER2R2J or 667-ELJ-PC2R2MF - NOTE: BOM calls for 0805 part, but Farnell part is 1005 size
2.2uH	INDUCTOR SMD	L6	BPF: Second column, fourth from top	0805	FN 166-9889	Mouser 70-IMC1008ER2R2J or 667-ELJ-PC2R2MF
2.2uH	INDUCTOR SMD	L9	BPF: Fourth column, third from top	0805	FN 166-9889	Mouser 70-IMC1008ER2R2J or 667-ELJ-PC2R2MF
2.2uF	Ceramic Capacitor	C96	Bias: Center	0805	FN 184-5751	Mouser 810-C2012X5R1H225K or 810-C2012X5R1H225M or 963-UMK212BB7225KG-T
2.2k	Resistor	R100	Quad: 0.5cm left of U19	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R101	Quad: 1cm left of U19	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R45	RX mixer: Above U16	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R48	RX mixer: Left and above U16	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R69	TX mixer: Left edge, center	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R70	RX mixer: 1cm left of U17	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R73	PA driver: Left of Q3	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V

2.2k	Resistor	R75	PA driver: Left of Q4	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R83	Bias: Below U18	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R93	Quad: Above U21	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R95	Quad: Above U21/U22	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R97	Quad: Above U22	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2k	Resistor	R99	Quad: Above U23	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
1.7uH	T37-2 handwound inductor	L18	LPF: Center, right	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
1.5nF	Capacitor	C15	BPF: Fourth column, second from top	0805	FN 221-0934	Mouser 810-C2012C0G2A152J or 77-VJ0805A152JXBAT or 810-CGA4C2C0G2A152J
1.5nF	Capacitor	C7	BPF: Fourth column third from bottom	0805	FN 221-0934	Mouser 810-C2012C0G2A152J or 77-VJ0805A152JXBAT or 810-CGA4C2C0G2A152J
1.5K	Resistor	R37	RX mixer: 0.5cm from right edge, upper	0805	FN 188-7285	Mouser 660-RK73H2ATTD1501F or 71-CRCW0805-1.5K-E3 or 279-CRG0805F1K5
1.4uH	T37-2 handwound inductor	L14	LPF: Top row, second from right	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
1.4uH	T37-2 handwound inductor	L22	LPF: Bottom row, second from right	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
1.2nF	Capacitor	C49	LPF: Right edge, second from top	0805	FN 221-0933	Mouser 810-CGA4C2C0G2A122J or 77-VJ0805A122JXBAC or 810-C2012C0G2E122J
1.2nF	Capacitor	C53	LPF: Right edge, second from bottom	0805	FN 221-0933	Mouser 810-CGA4C2C0G2A122J or 77-VJ0805A122JXBAC or 810-C2012C0G2E122J
1uH	INDUCTOR SMD	L10	BPF: Second column, third from top	0805	FN 166-9882	Mouser 652-CW252016-1R0J or 810-NLCV25T-1R0M-PFR Note: BOM notes 0805 part, but Farnell part is 1005 size
1uH	INDUCTOR SMD	L2	BPF: Second column, second from bottom	0805	FN 166-9882	Mouser 652-CW252016-1R0J or 810-NLCV25T-1R0M-PFR
1uH	INDUCTOR SMD	L7	BPF: First column, fourth row from top	0805	FN 166-9882	Mouser 652-CW252016-1R0J or 810-NLCV25T-1R0M-PFR
1nF	Capacitor	C32	Quad: 0.75cm right of U19	0805	FN 185-6408	Mouser 77-VJ0805Y102MXBPBC or 77-VJ0805Y102JXXPBC or 581-08055C102K or 77-VJ0805Y102JXJPBC
1nF	Capacitor	C33	Quad: 1cm right of U19	0805	FN 185-6408	Mouser 77-VJ0805Y102MXBPBC or 77-VJ0805Y102JXXPBC or 581-08055C102K or 77-VJ0805Y102JXJPBC
1nF	Capacitor	C33a	Quad: Right edge, 2.75cm right of U7	0805	FN 185-6408	Mouser 77-VJ0805Y102MXBPBC or 77-VJ0805Y102JXXPBC or 581-08055C102K or 77-VJ0805Y102JXJPBC
1nF	Capacitor	C33b	Quad: Right edge, above U20	0805	FN 185-6408	Mouser 77-VJ0805Y102MXBPBC or 77-VJ0805Y102JXXPBC or 581-08055C102K or 77-VJ0805Y102JXJPBC
1nF	Capacitor	C78	ANT Switch: Left edge	0805	FN 183-3849	Mouser 77-VJ0805Y102MXBPBC or 77-VJ0805Y102JXXPBC or 581-08055C102K or 77-VJ0805Y102JXJPBC
1K	Resistor	R11	Power: 0.5cm right of J1, below U3/U4	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
1K	Resistor	R15	Power: 1cm right of J3	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
1K - See notes	Resistor - Do not install, see notes	R40	RX mixer: Rupper-right corner	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
1K	Resistor	R49	RX mixer: 0.5cm below and left of U16	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
1K	Resistor	R50	RX mixer: 0.75cm below and left of U16	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
1K - See Notes	Resistor	R53	ANT Switch: Lower right corner	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
1K - See notes	Resistor	R59	SWR: Upper right center	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
1K - See notes	Resistor	R60	SWR: Bottom edge, center	0805	FN 157-6459	Mouser 71-CRCW0805-1.0K-E3 or 660-RK73H2ATTD1001F or 603-AC0805FR-071KL
0.78uH	T37-2 handwound inductor	L19	LPF: Center, left	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
0.68uH	INDUCTOR SMD	L8	BPF: Third column, fourth from top	0805	FN 166-9915	Mouser 810-NLHV25T-R68J-PF or 652-CW252016-R68J
0.58uH	T37-2 handwound inductor	L15	LPF: Top, lof center	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
0.58uH	T37-2 handwound inductor	L23	LPF: Bottom, left of center	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
0.47uH	INDUCTOR SMD	L11	BPF: First column, third from top	0805	FN 166-9913	Mouser 70-IMC1008ERR47J or 652-CW252016-R47J or 810-NLHV25T-R47J-PF Note: BOM notes 0805 part but Farnell part is 1005 size
0.47uH	INDUCTOR SMD	L3	BPF: First column, second from bottom	0805	FN 166-9913	Mouser 70-IMC1008ERR47J or 652-CW252016-R47J or 810-NLHV25T-R47J-PF
0.33uH	INDUCTOR SMD	L12	BPF: Third column, third from top	0805	FN 166-9911	Mouser 70-IMC1008ERR33J or 652-CW252016-R33J or 810-NLCV25T-R33M-PFR Note: BOM notes 0805 part but Farnell part is 1005 size
0.33uH	INDUCTOR SMD	L4	BPF: Third column, second from bottom	0805	FN 166-9911	Mouser 70-IMC1008ERR33J or 652-CW252016-R33J or 810-NLCV25T-R33M-PFR

0.32uH	T37-2 handwound inductor	L20	LPF: Left, center	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
0.26uH	T37-2 handwound inductor	L16	LPF: Upper-left corner	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
0.26uH	T37-2 handwound inductor	L24	LPF: Bottom-left corner	LPF_IND	EB 400348182316	Alternate sources: kitsandparts.com, Amidon Associates or Palomar Engineers. Wind with #28 AWG. Refer to schematic for number of turns.
0	Resistor	R1	BPF: 0.5cm left of U1	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R2	BPF: 0.5cm left of U1	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R26	PA: Between K1 and T7	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R27	PA (Top): Left of K3	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R28	LPF (Top): Top edge, above U14	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R29	LPF (Top): Top edge, above U14	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R3	BPF: Near upper-left corner	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R30	LPF (Top): Top edge, above U14	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R4	BPF: Upper-left corner	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R5	BPF: Top edge, above and right of U2	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0 - <i>See notes</i>	Resistor	R55	SWR: Right edge, upper	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0 - <i>See notes</i>	Resistor	R56	SWR: Right edge, lower	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R6	BPF: Top edge, above U2	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R7	BPF: Top edge, above U2	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor	R8	BPF: Upper-right corner	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5

Parts noted on diagram as **OPTIONAL**, but not on parts list above

100nF	Capacitor	C1a	BPF Optional	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C1b	BPF Optional	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C2a	BPF Optional	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C2b	BPF Optional	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C2c	BPF Optional	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100nF	Capacitor	C2d	BPF Optional	0805	FN 190-7331	Mouser 77-VJ0805V104MXBPBC or 77-VJ0805V104MXBCBC
100K	Resistor	R3a	BPF Optional	0805	FN 146-9860	Mouser 71-CRCW0805-100K-E3 or 660-RK73H2ATTD1003F or 603-AC0805FR-07100KL
100K	Resistor	R3b	BPF Optional	0805	FN 146-9860	Mouser 71-CRCW0805-100K-E3 or 660-RK73H2ATTD1003F or 603-AC0805FR-07100KL
100K	Resistor	R3c	BPF Optional	0805	FN 146-9860	Mouser 71-CRCW0805-100K-E3 or 660-RK73H2ATTD1003F or 603-AC0805FR-07100KL
100K	Resistor	R3d	BPF Optional	0805	FN 146-9860	Mouser 71-CRCW0805-100K-E3 or 660-RK73H2ATTD1003F or 603-AC0805FR-07100KL

Testing indicates that somewhat better IMD (intermodulation distortion) performance will occur when switches are biased than not biased - particularly at large signal levels so it is recommended that the above components are installed.

Note that without test equipment and under less than very demanding "strong signal" conditions it will likely be difficult to detect degradation if these components are *not* installed.

For an article that extensively covers the use of analog switches of the sort used in the mCHF transceiver for both mixing and signal switching, refer to this article: www.xs4all.nl/~martin/pa3ake/hmode/

Notes and Modifications:

Information about T2 and T3:

For detailed drawings on how to wind these transformers please refer to the KA7OEI folder in the "FILES" section on the mCHF Yahoo Group and look at the file named "mCHF_board_modifications" with the most recent date.

Information about T5:

The original specification for transformer T5 was as follows:

CX2074NL	Wideband RF Transformer 1:4	T5	PA driver: Lower-left corner	SOP5	DK 553-1655-ND	Mouser 673-CX2074NL
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It has been observed that this transformer's impedance transformation (1:4CT) does not provide a particularly good match to the PA driver input (Q3/Q4) and a more appropriate part is as follows:

CX2147	Wideband RF Transformer 1:1	T5	PA driver: Lower-left corner	SOP5	DK 553-1655-ND	(DK = Digi-Key)
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The above transformer (1:1CT), although a better match, is still not ideal and is has apparently been discontinued by the manufacturer. Fortunately, one can easily construct a suitable transformer using the same core as used for RFC8 and some small-diameter wire (#30-#34 AWG). For convenience, the information for this core is below:

BN43-2402	BN43-2402 1t choke	T5	PA driver: Lower-left corner		EB 300988432524	Alternate sources: kitsandparts.com or Amidon Associates. Wind with #30-#34 AWG.
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This transformer is wound with a center-tapped secondary and a 4:1 ratio and provides a reasonably good impedance match to the input of the PA driver circuit while offering a good match for the bandpass filter network.

For detailed drawings on how to wind this transformer please refer to the KA7OEI folder in the "FILES" section on the mCHF Yahoo Group and look at the file named "mCHF_board_modifications" with the most recent date.

Information about T7:

Testing has been performed and an alternate design for the RF output transformer has been devised that will allow the mCHF to operate at a "solid" 5 watts of output on 10 meters (*possibly more*). This transformer uses

two of the ferrite cores called out for T7 in the above parts list, namely the BN43-202, and information on this part is included below:

BN43-202 transformer	BN43-202 2:3 transformer <i>using TWO cores</i>	T7	PA: Center, along lower edge	PA_TRM_4	EB 291023830340	Alternate sources: kitsandparts.com or Amidon Associates.
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For detailed drawings on how to wind this transformer please refer to the KA7OEI folder in the "FILES" section on the mCHF Yahoo Group and look at the file named "mCHF_board_modifications" with the most recent date.

Removal of Q2, the attenuator resistor - A highly recommended modification:

Do not order or install **Q2**, the PMBFJ112 "attenuator" transistor as its function has been made obsolete by recent versions of firmware. Do not install **R40** install, either. It is also not necessary to use capacitor **C64** which may be substituted with a "zero" ohm resistor of the type below *or* a simple piece of wire:

0	Zero-ohm Resistor - Used in lieu of C64	C64	RX mixer: Lower-right corner, left of Q2	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
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Modification to the PA Bias - A recommended modification:

2.2k	Resistor	R83b	Bias: Upper-left corner	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
22uF (<i>option 1</i>)	Tantalum Capacitor	C96a	Bias: Upper-left corner	1206	FN 175-4186	Mouser 647-F931C226MBA or 74-593D226X9016B2TE3 ALTERNATE PART (33uF): Mouser 74-293D336X9016B2TE3
100uF (<i>option 2</i>)	Electrolytic capacitor	C96a	Bias: Upper-left corner	CAP_ALUM	FN 232-6111	Mouser 647-UWJ1C101MCL1 or 667-EEE-1CA101WP or 667-EEE-HA1C101WP

Resistor R83b is placed in parallel with capacitor C96 to provide a minimum loading current for U18, the LM2931. Without this minimum current the bias voltage on the FET PA finals may higher than that of the intended bias settings, or it may vary

with temperature, humidity, or due to dust on the circuit board. See the "Modification File" for more details.

Capacitor C96a is required to maintain stability of U18 under all operating conditions. Two options are given: One may use either the 22uF tantalum capacitor *or* a 100uF electrolytic capacitor.

Please note that the *minimum* value for an electrolytic capacitor recommended by the manufacturer of U18 is 100uF! If an electrolytic with a lower value than this is used, instability may result.

Comment: If a 22uF tantalum is available, it is possible to install it in the physical location of C96 instead of the original 2.2uF capacitor, although there is absolutely nothing wrong with having both the 22uF and 2.2uF capacitors in parallel with each other. *If you choose to use an electrolytic capacitor for C96a it is recommended that you retain the original 2.2uF capacitor.*

Additional bypassing on the PA Power supply line - A recommended modification:

10uF	Tantalum Capacitor	C106a	PA: Upper-right corner	1206_Elec_Cap	FN 143-2339	Mouser 647-F931C106MAA or 647-F931C106KAA or 74-TP3A106K016C1700A
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This modification suppresses LF/MF (30kHz-1000kHz) oscillations that can occur on the power supply lead at C106, particularly during high drain current and/or high PA bias settings. This can cause instability and spurious RF outputs which, in addition to QRM and potential out-of-band radiation, could cause damage to the output transistors and lead to unreliable operation. The value of this capacitor is not critical and it could be any tantalum or ceramic capacitor of 4.7uF to 22uF with a rating of at least 16 volts. This part may be leaded or surface-mount, but an ordinary electrolytic capacitor will probably **not** be suitable. See the "Modification File" for additional details.

Modification to extend low frequency receiver response - A recommended modification:

0	Resistor (in lieu of original capacitor)	C71	RX mixer: 0.5cm above and left of U16	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5
0	Resistor (in lieu of original capacitor)	C73	RX mixer: Left edge, directly left of U16	0805	FN 933-3681	Mouser 660-RK73Z2ATTD or 71-CRCW0805-0-E3 or 594-MCU08050Z0000ZP5

This modification replaces 100nF resistors C71 and C73 with Zero Ohm "resistors" (jumpers) or pieces of wire. This eliminates a low-frequency roll-off in the receive audio path as well as a potential source of phase/amplitude imbalance.

Note that the DC blocking on the RX I/Q lines are still provided for by C26 and C31 on the UI board.

Modification to improve operation of power and VSWR metering - A required modification for firmware 0.0.0.215, 0.0.219.x and newer:

4.7uH	INDUCTOR, SIGNAL LINE, 4.7UH	R55	SWR: Right edge, upper	0805	FN 166-9896	Mouser 70-IMC1008ER4R7J or 652-CW252016-4R7J
4.7uH	INDUCTOR, SIGNAL LINE, 4.7UH	R56	SWR: Right edge, lower	0805	FN 166-9896	Mouser 70-IMC1008ER4R7J or 652-CW252016-4R7J
2.2K	Resistor	R58	SWR: Right of center	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2K	Resistor	R62	SWR: Bottom edge, right of center	0805	FN 188-7289	Mouser 71-CRCW0805-2.2K-E3 or 660-RK73H2ATTD2201F or 667-ERJ-6ENF2201V
2.2uF	Capacitor	C82	SWR: Center, upper middle	0805	FN 184-5751	Mouser 810-C2012X5R1H225K or 810-C2012X5R1H225M or 963-UMK212BB7225KG-T
2.2uF	Capacitor	C83	SWR: Left of center, lower edge,	0805	FN 184-5751	Mouser 810-C2012X5R1H225K or 810-C2012X5R1H225M or 963-UMK212BB7225KG-T

This modification minimizes a spurious DC offset present on the A/D inputs related to the measurement of forward and reflected power making possible more accurate RF power measurements over a wider range of power levels.

Note that the above modification indicates the replacement of the original "zero ohm" resistors are R55 and R56 with inductors. If 4.7 uH inductors are not available, 47uH inductors of the type used for RFC2 (above) will work fine, as would any inductor value >=4.7uH.

Please note that firmware version 0.0.0.215, 0.0.219.x and newer require the above parts changes in order to accurately read the RF power: If the above are not changed, the transceiver will work, but the power readings will be incorrect

and the DC offset will result in the power meter always reading a small amount of RF power even when none is present.

Modification to increase PIN diode current to reduce receive signal path loss:

220	Resistor	R53	ANT Switch: Lower right corner	0805	FN 933-2804	Mouser 71-CRCW0805-220-E3 or 660-RK73H2ATTD2200F or 667-ERJ-6ENF2200V
3.9K	Resistor	R54	ANT Switch: Center, bottom	0805	FN 188-7296	Mouser 660-RK73H2ATTD3901F or 71-CRCW08053K90FKEA or 667-ERJ-6ENF3901V

This modification increases the current in PIN diode D3 from 0.2mA to 1mA, decreasing its equivalent series resistance from around 30 ohms to around 7 ohms, minimizing a potential source of attenuation in the receive signal path.

Modification to prevent overload by nearby AM (Mediumwave/Longwave) broadcast Band stations:

2.2uH	INDUCTOR SMD	RFC3	ANT Switch: Lower right, below D4	0805	FN 166-9889	Mouser 70-IMC1008ER2R2J or 667-ELJ-PC2R2MF
4.7uH	INDUCTOR, SIGNAL LINE, 4.7UH	RFC3	ANT Switch: Lower right, below D4	0805	FN 166-9896	Mouser 70-IMC1008ER4R7J or 652-CW252016-4R7J
1nF	Capacitor	C81	ANT Switch: Top, right of center, between diodes	0805	FN 183-3849	Mouser 77-VJ0805Y102MXPBPC or 77-VJ0805Y102JXXPBC or 581-08055C102K or 77-VJ0805Y102JXJPBC

This modification performs the function of a high-pass filter to remove the frequencies of the AM Broadcast Band (e.g. Mediumwave) from the front end of the transceiver before they reach filter switch U1 and the mixer where, if they are strong enough, can cause intermodulation distortion and objectionable mixing products. If you **do not** plan to listen on 160 meters, use the 2.2uH inductor. If you **do** plan to listen on 160 meters, use the 4.7uH inductor, but note that rejection of Mediumwave signals will be reduced. Note that even with a 2.2uH inductor, 160 meter listening will still be possible, but signals will be reduced by about 10dB at 1.8 MHz, but if a reasonable antenna is used this amount of loss will not be noticed due to the normally-high atmospheric noise and signal levels on this band.

IMPORTANT NOTE: The referenced Mouser part numbers in Column G are believed to be correct, but should be double-checked before ordering!

Amidon Associates: <http://www.amidoncorp.com> - Minimum Order = \$20, but you'd probably exceed this if you ordered all binocular/toroid cores from them.

Palomar Engineers: <http://palomar-engineers.com> (They do not have binocular cores for RFC8/T6/T7)

Kits and Parts: <http://www.kitsandparts.com> (They have both iron core and ferrite toroids, binocular core ferrites and Q5/Q6, the RF16HFF1 RF output transistors.)

ERRATA and misc. parts notes:

- Note that F1 (Fuse) part specified is not a "one-time" fuse, but a self-resetting thermal fuse of the same size. See note in "updates" about alternate part for D1, below.
- In Parts list, note that there is an alternative for D1, the reverse-polarity protection diode, which has a 2 amp rating instead of a 1 amp rating. Note that this device is suitable ONLY for reverse-polarity protection at D1, but NOT as a replacement f
- In original BOM, the part called for U5 (UA78M33CKVURG3) may not function properly due to inadequate dropout voltage rating. The parts suggested above are drop-in replacements with suitable dropout voltage ratings.
- RFC, RFC6, RFC7, RFC9 in original BOM showed 4.7uH, but RF board schematic showed the correct 47uH value. Using 4.7uH may cause lower than expected TX output power and other performance issues.
- The Mouser parts called for the 22nF NPO capacitors (C68, C69, C84, C85, C86, C87) may have smaller footprint than the board. Take care when soldering to avoid shorting to adjacent traces and/or ground plane!
- This parts list calls for 1/8 (0805) for the 27 ohm resistors (R31, R32, R33, R34) used in series with the relay coils instead of the suggested 1206 1/4 watt parts. The low duty cycle of operation to pulse these relay coils should cause no problem, but take care when soldering to the board as the footprint is for the 1206-sized part. If you do not feel comfortable with this under-rating, you should consider obtaining the larger-sized part, instead.
- **Note:** Versions of this file prior to 20141116 incorrectly called for a Mouser part number that referenced the BFR93AR. This parts has reversed Base/Emitter leads requiring that all three leads be folded backwards over the body before soldering.
- Q2 should NOT be ordered or installed as newer firmware makes the use of this part obsolete: See modifications, above for more information.
- The Si570 may also be obtained from: <http://csg.neostrada.pl/rdzenie/cores-pl.pdf> and <http://www.sdr-kits.net/>
- Components **R39** and **C66** are shown as **OPTIONAL** on the diagram: It is recommended that they be installed as the S-meter calibration is done with those components in place.

Location information notes:

- All components on bottom side of board (e.g. that with toroids, RF connector) unless otherwise noted
- The section in which the component is located is always noted first (e.g. "QUAD:", "POWER:", "RX Mixer:", etc.) followed by a description of where it is within that section.
- In the BPF section, the columns are referenced starting from the left side and refer to 4 (wide) by 8 (tall) array of capacitors and inductors
- For location information: When referenced to a component, it is measured to the noted edge of the component. Example: 1cm right of J4 is 1cm from the **right edge** of J4; 1.5cm below U4 is 1.5cm below the **bottom edge** of U4

UPDATE Info:

Updated 20140815: Added Mouser part numbers for pushbuttons and headers/sockets, alternate source info for ferrite/iron core baluns/toroids.

Updated 20140816: Added info about "kitsandparts.com", other minor annotations/corrections

Updated 20140817: Errata about U5; added U.S. AWG wire size info about L13-L24, T2, T3, T6, T7, RFC8; Corrected parts info for RFC5, RFC6, RFC7 and RFC9 (e.g. from 4.7uH to 47uH)

Updated 20140819: Added alternative part for D1, a reverse-polarity protection diode, which is a higher-current device in the same footprint, updated designations for tantalum vs electrolytic capacitors.

Updated 20140903: Added location information for parts - not completed.

Updated 20140904: Completed location information; Minor corrections

Updated 20140917: Information on Q1 (base-emitter positions) and Q2 (not to install) added.

Updated 20140925: Additional information on Q1 (e.g. the use of a BFR93R).

Updated 20141021: Added information about modification of the PA Bias and the additional bypassing of the RF Power amplifier supply line.

Updated 20141024: Minor formatting changes, updates and corrections

Updated 20141108: Included modification for R71/R73.

Updated 20141113: Included modification of R53/R54 and added notes about alternate sources of U8, the Si570 and the modification to include a Mediumwave-blocking high-pass filter.

Updated 20141115: Updated modification information for Q2/C64

Updated 20141119: Corrected location for Q1a, Additional notation for R40, Clean-up and improvement of consistency.

Updated 20141214: Corrected values of L15, L16, L19, L20, L23 and L24 to match Rev. 0.3 schematic

Updated 20150121: Added Digi-Key available alternate for DC power jack, J1.

Updated 20150227: Added note about R39 and C66.

Updated 20150311: Minor edits and corrections.

Updated 20150316: Note and article reference added about components used to bias bandpass filter switches.

Updated 20150414: Farnell part number for 10uF capacitor updated

Updated 20150622: Included further modifications to PA bias (adding more capacitance) and parts changes related to RF power metering and other minor corrections.

Updated 20150827: Included information about T5, T7 and added more information about the modifications involving C96(a) and reference to winding information for T2/T3.