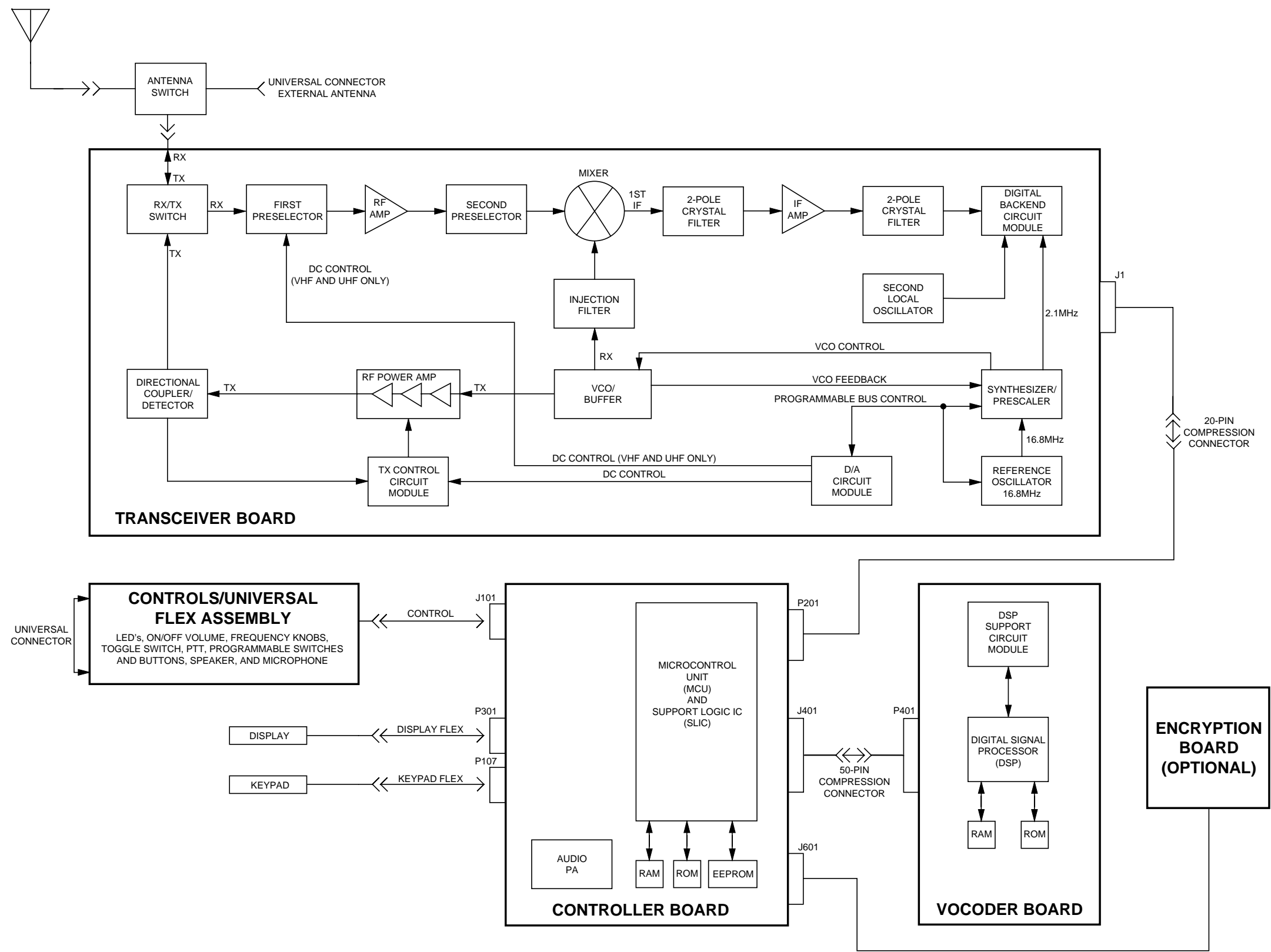


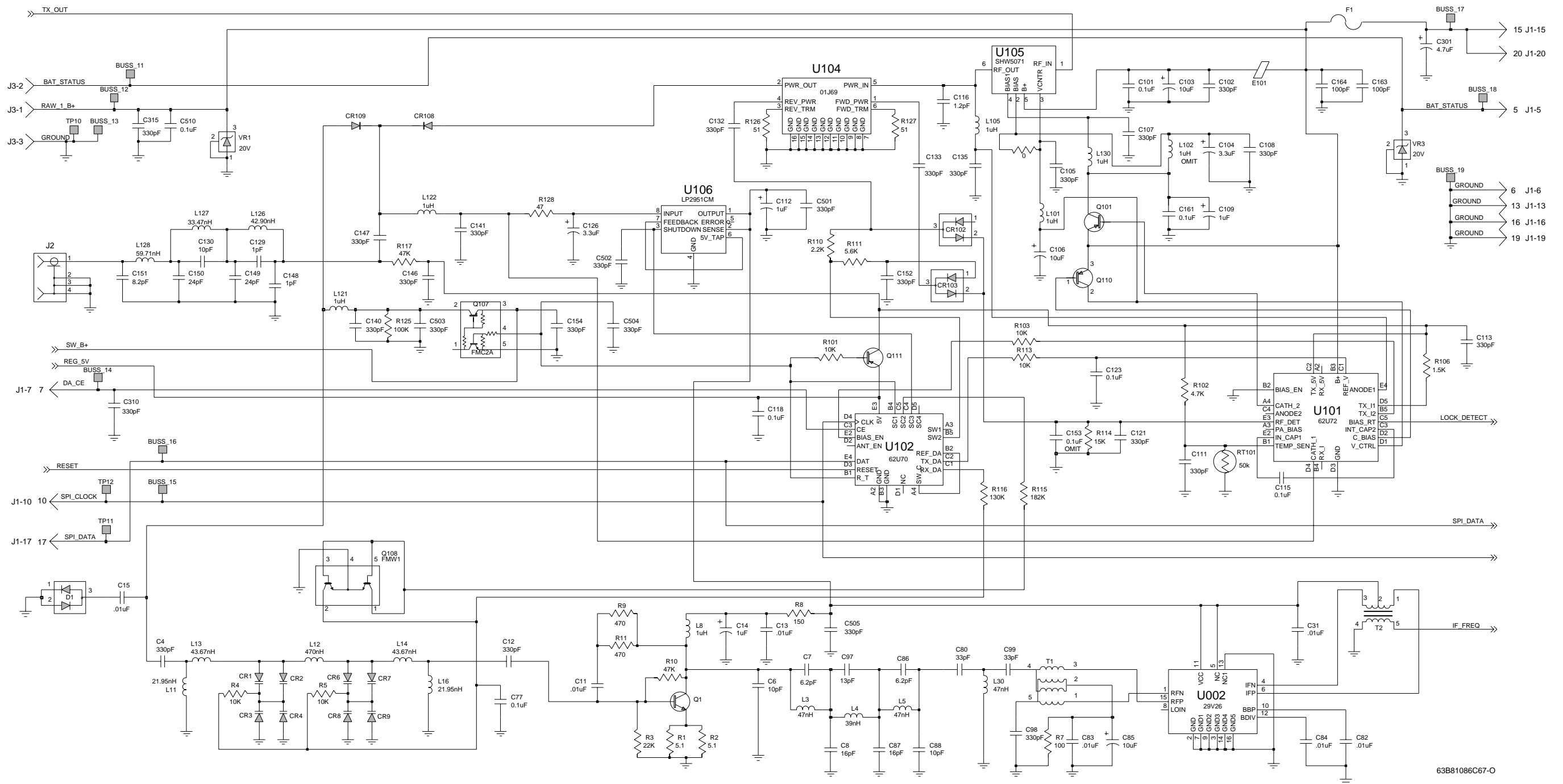
Interconnect Diagram, Schematics with
Parts Lists, Circuit Board Details,
Exploded Views with Parts Lists

13



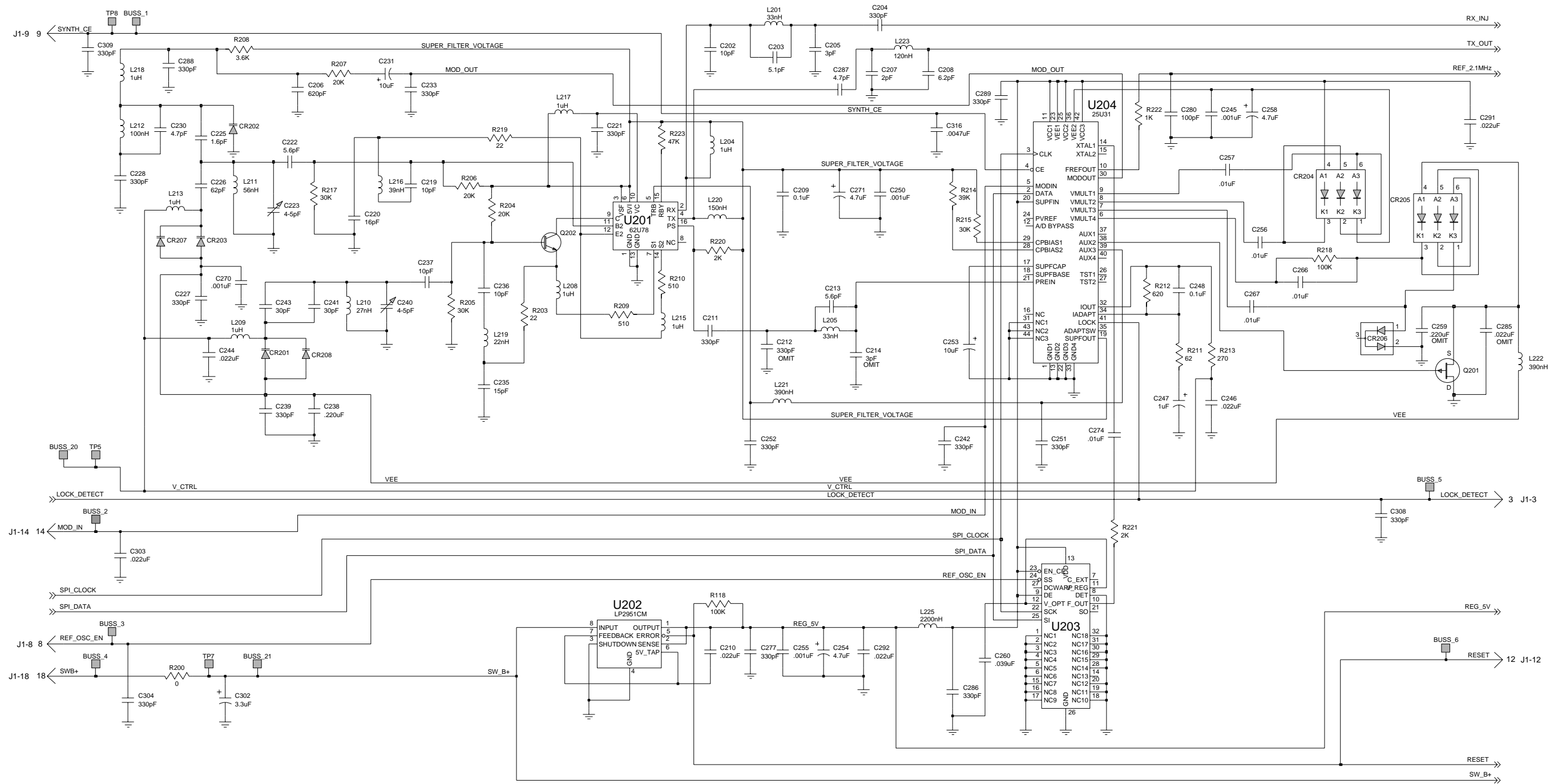
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Radio Interconnect Block Diagram



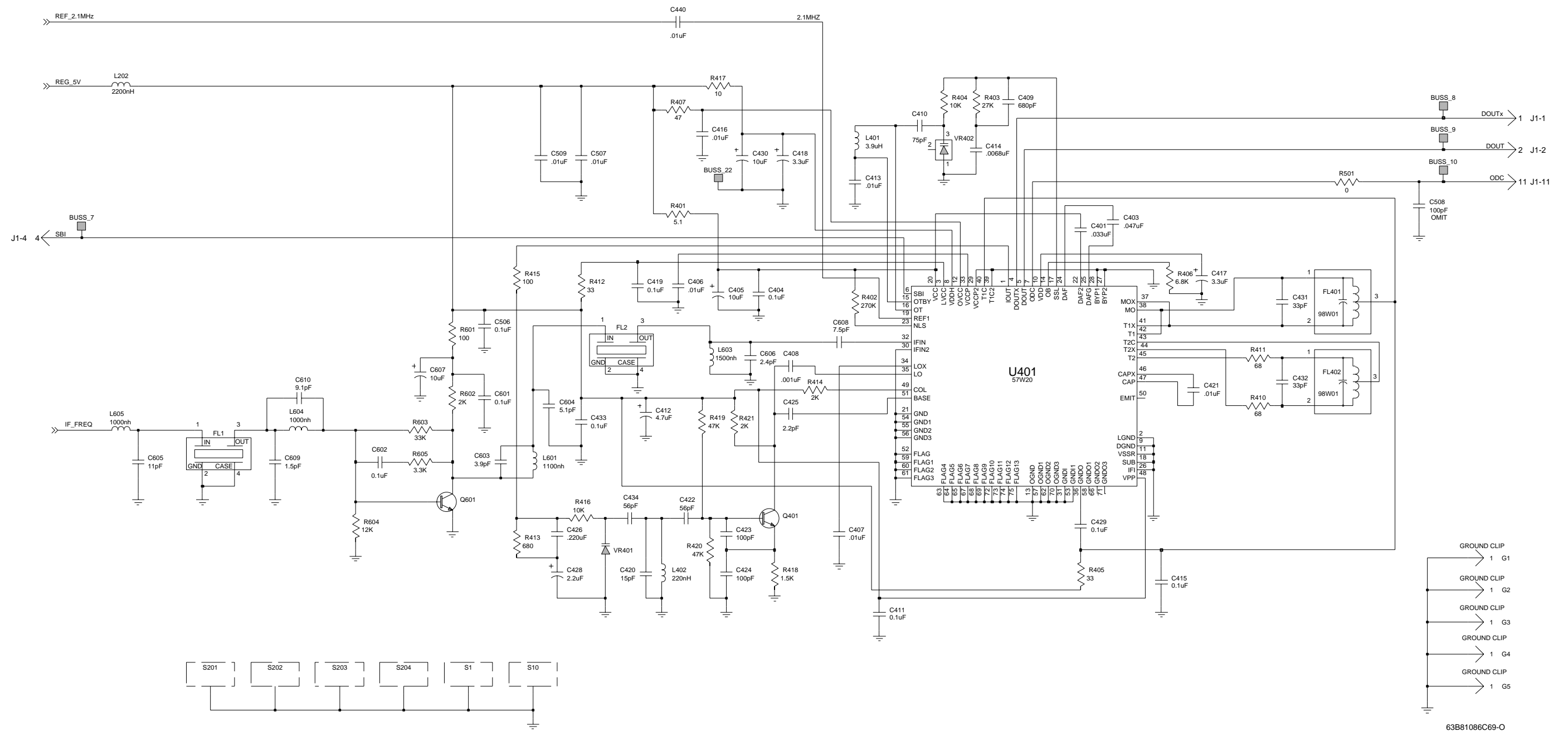
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NLD8898B/C/D VHF RF Board Schematic Diagram, Sheet 1 of 3



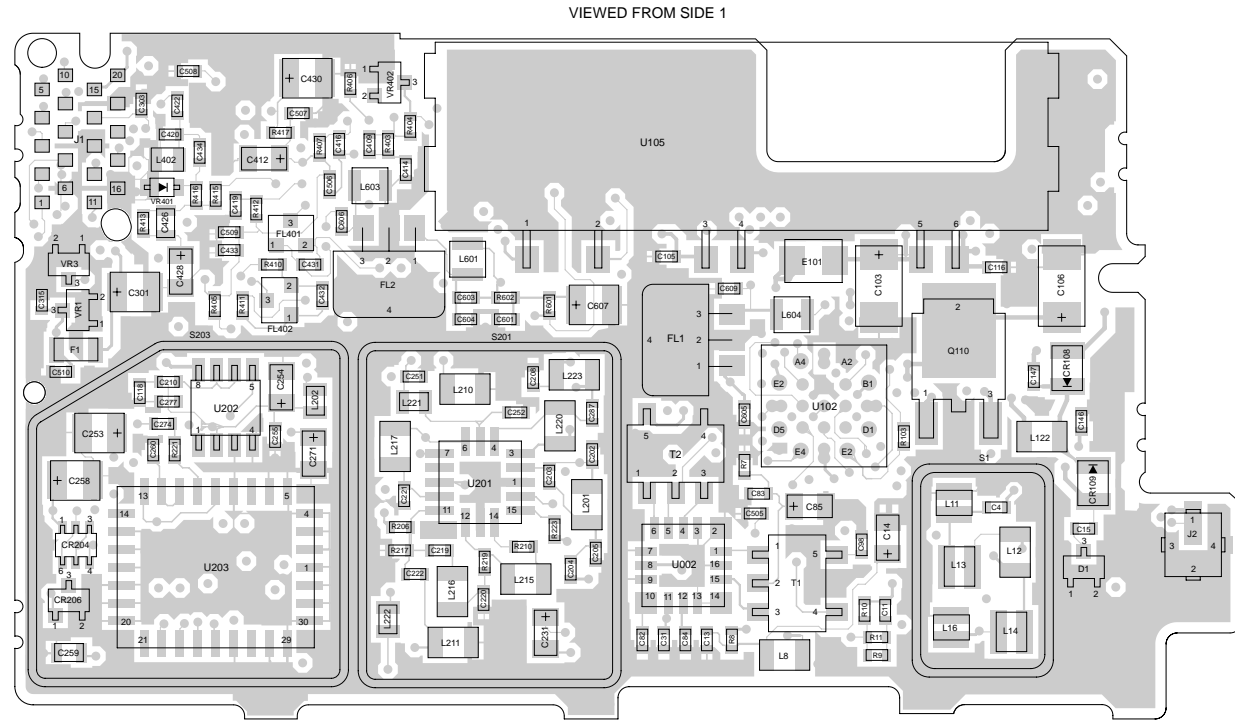
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NLD8898B/C/D VHF RF Board Schematic Diagram, Sheet 2 of 3

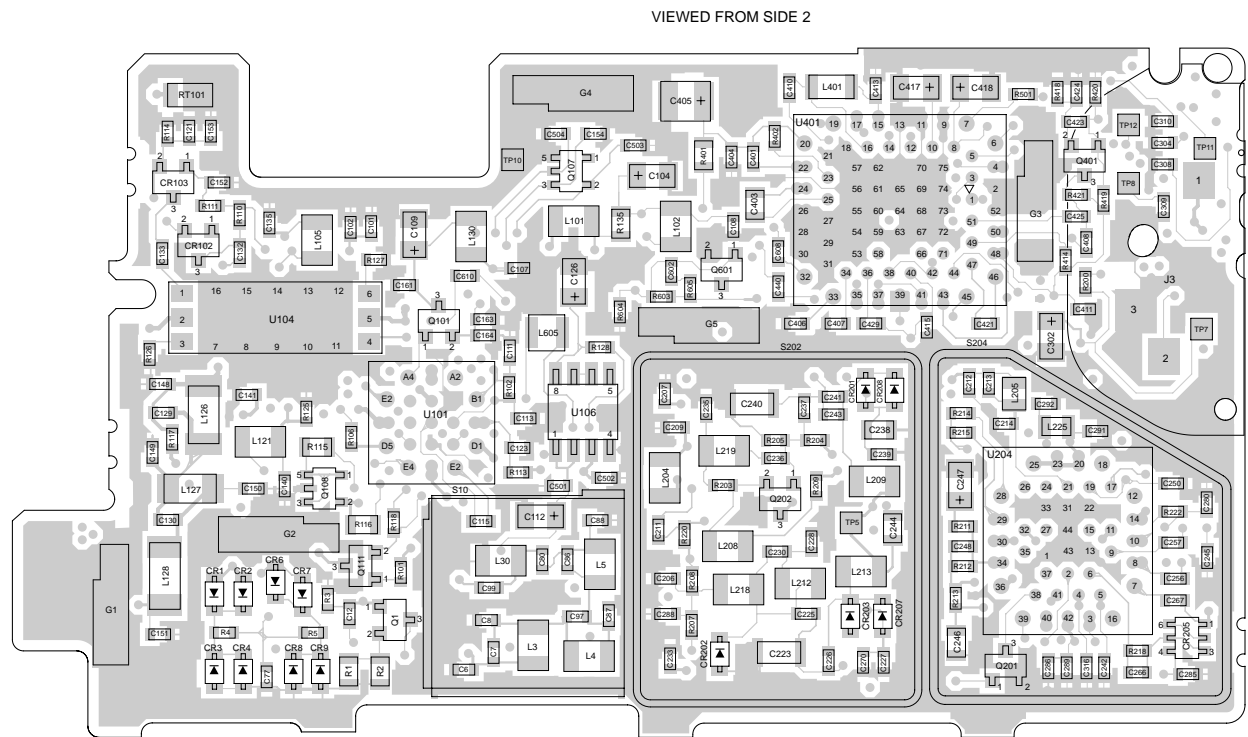


NLD8898B/C/D VHF RF Board Schematic Diagram, Sheet 3 of 3

NLD8898B/C/D VHF RF Board
Electrical Parts List



MAEPF-26061-O



MAEPF-26062-O

NLD8898B/C/D VHF RF Board Component Location Detail and Parts List

ITEM	MOTOROLA PART NUMBER	DESCRIPTION
		CAPACITOR, Fixed: unless otherwise stated
C4	2113931F13	330 pF
C6	2113930F27	10 pF
C7	2113930F22	6.2 pF
C8	2113930F32	16 pF
C11	2113931F49	10 nF
C12	2113931F13	330 pF
C13	2113931F49	10 nF
C14	2311049A07	1 μF
C15	2113931F49	10 nF
C31	2113931F49	10 nF
C77	2113932K15	0.1 μF
C80	2113930F39	33 pF
C82 thru 85	2113931F49	10 nF
C86	2113930F22	6.2 pF
C87	2113930F32	16 pF
C88	2113930F27	10 pF
C97	2113930F30	13 pF
C98	2113931F13	330 pF
C99	2113930F39	33 pF
C101	2113932K15	0.1 μF
C102	2113931F13	330 pF
C103	2311049J26	10 μF
C104	2311049A54	3.3 μF
C105	2113931F13	330 pF
C106	2311049J26	10 μF
C107, 108	2113931F13	330 pF
C109	2311049A07	1 μF
C111	2113931F13	330 pF
C112	2311049A07	1 μF
C113	2113931F13	330 pF
C115	2113932E20	0.1 μF
C116	2113930F05	1.2 pF
C118	2113932K15	0.1 μF
C121	2113931F13	330 pF
C123	2113932E20	0.1 μF
C126	2311049A54	3.3 μF
C129	2113930F03	1 pF
C130	2113930F27	10 pF
C132, 133	2113931F13	330 pF
C135	2113931F13	330 pF
C140, 141	2113931F13	330 pF
C146, 147	2113931F13	330 pF
C148	2113930F03	1 pF
C149, 150	2113930F36	24 pF
C151	2113930F25	8.2 pF
C152	2113931F13	330 pF
C153	2113932E20	Not Placed
C154	2113931F13	330 pF
C161	2113932K15	.1 μF
C163, 164	2113930F51	100 pF
C202	2113930F27	10 pF
C203	2113930F20	5.1 pF
C204	2113931F13	330 pF
C205	2113930F14	3.0 pF
C206	2113931F20	620 pF
C207	2113930F10	2.0 pF
C208	2113930F22	6.2 pF
C209	2113932K15	0.1 μF

C210	2113932E13	.022 μF
C211	2113931F13	330 pF
C212	2113931F13	Not Placed
C213	2113930F21	5.6 pF
C214	2113930F14	Not Placed
C219	2113930F27	10 pF
C220	2113930F32	16 pF
C221	2113931F13	330 pF
C222	2113930F24	7.5 pF
C223	2113906C02	??
C225	2113930F08	1.6 pF
C226	2113930F46	62 pF
C227, 228	2113931F13	330 pF
C230	2113930F19	4.7 pF
C231	2311049A60	10 μF
C233	2113931F13	330 pF
C235	2113930F31	15 pF
C236, 237	2113930F27	10 pF
C238	2113743A23	.22 μF
C239	2113931F13	330 pF
C240	2113906C02	??
C241	2113930F38	30 pF
C242	2113931F13	330 pF
C243	2113930F35	22 pF
C244	2109720D09	.022 μF
C245	2113931F25	1 nF
C246	2109720D09	.022 μF
C247	2311049A07	1 μF
C248	2113932K15	0.1 μF
C250	2113931F25	1 nF
C251, 252	2113931F13	330 pF
C253	2311049J23	10 μF
C254	2311049A56	4.7 μF
C255	2113931F25	1 nF
C256, 257	2113931F49	10 nF
C258	2311049J11	4.7 μF
C259	2113743A23	Not Placed
C260	2113932K05	.039 μF
C266, 267	2113931F49	10 nF
C270	2113931F25	1 nF
C271	2311049A56	4.7 μF
C274	2113931F49	10 nF
C277	2113931F13	330 pF
C280	2113930F51	100 pF
C285	2113932E13	Not Placed
C286	2113931F13	330 pF
C287	2113930F19	4.7 pF
C288, 289	2113931F13	330 pF
C291, 292	2113932E13	.022 μF
C301	2311049J11	4.7 μF
C302	2311049A54	3.3 μF
C303	2113932E13	.022 μF
C304	2113931F13	330 pF
C308 thru 310	2113931F13	330 pF
C315	2113931F13	330 pF
C316	2113931F41	4.7 nF
C401	2113932K03	.033 μF
C403	2113743A13	.047 μF
C404	2113932K15	.1 μF
C405	2311049J23	10 μF
C406, 407	2113931F49	10 nF
C408	2113931F25	1 nF
C409	2113931F21	680 pF
C410	2113930F48	75 pF
C411	2113932K15	.1 μF
C412	2311049A56	4.7 μF
C413	2113931F49	10 nF
C414	2113931F45	6.8 nF

C415	2113932K15	.1 µF
C416	2113931F49	10 nF
C417, 418	2311049A42	3.3 µF
C419	2113932K15	.1 µF
C420	2113930F31	15 pF
C421	2113931F49	10 nF
C422	2113930F45	56 pF
C423, 424	2113930F51	100 pF
C425	2113930F11	2.2 pF
C426	2113743A23	.22 µF
C428	2311049A40	2.2 µF
C429	2113932K15	.1 µF
C430	2311049J23	10 µF
C431, 432	2113930F39	33 pF
C433	2113932K15	.1 µF
C434	2113930F45	56 pF
C440	2113931F49	10 nF
C501 thru 505	2113931F13	330 pF
C506	2113932K15	0.1 µF
C507	2113931F49	10 nF
C508	2113930F51	Not Placed
C509	2113931F49	10 nF
C510	2113932K15	0.1 µF
C601, 602	2113932K15	0.1 µF
C603	2113930F17	3.9 pF
C604	2113930F20	5.1 pF
C605	2113930F28	11 pF
C606	2113930F12	2.4 pF
C607	2311049J23	10 µF
C608	2113930F24	7.5 pF
C609	2113930F07	1.5 pF
C610	2113930F26	9.1 pF
		DIODE: See Note 1.
CR1 thru 4	4862824C01	Varactor
CR6 thru 9	4862824C01	Varactor
CR102, 103	4805129M67	Dual
CR108	4802482J02	PIN
CR109	4805656W07	PIN
CR201 thru 203	4802245J29	Varactor
CR204, 205	4802233J09	Triple
CR206	4805129M06	Triple
CR207	4862824C03	Not Placed
CR208	4802245J29	Varactor
		DIODE: See Note 1.
D1	4880154K03	Dual Schottky
		CORE:
E101	2484657R01	Ferrite Bead
		FUSE:
F1	6505757V02	Fuse, 2A
		FILTER: See Note 2.
FL1, 2	4805245J32	45.15 MHz Crystal Filter
FL401, 402	9105398W01	450 kHz Filter
		Contact:.
		JACK:
J2	0905304Z01	RF Coax Connector
		COIL, RF:
		unless otherwise stated
L3	2462587T42	47 nH
L4	2462587T41	39 nH
L5	2462587T42	47 nH

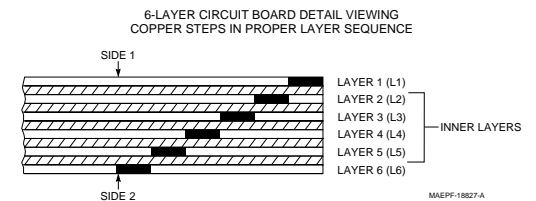
L8	2462587T30	1 µH
L11	2460591M12	21.95 nH
L12	2462587T23	470 nH
L13, 14	2460591N36	43.67 nH
L16	2460591M12	21.95 nH
L30	2462587T42	47 nH
L101, 102	2462587T30	1 µH
L105	2462587T30	1 µH
L121, 122	2462587T30	1 µH
L126	2460591H40	42.90 nH
L127	2460591G24	33.47 nH
L128	2460591K40	59.71 nH
L130	2462587T30	1 µH
L201	2462587T40	33 nH
L202	2462587Q20	2200 nH
L204	2462587T30	1 µH
L205	2462587V28	33 nH
L208, 209	2462587T30	1 µH
L210	2462587T39	27 nH
L211	2462587T12	56 nH
L212	2462587T15	100 nH
L213	2462587T30	1 µH
L215	2462587T30	1 µH
L216	2462587T41	39 nH
L217, 218	2462587T30	1 µH
L219	2462587T38	22 nH
L220	2462587T17	150 nH
L221, 222	2462587Q42	390 nH
L223	2462587T16	120 nH
L225	2462587Q20	2200 nH
L401	2462575A16	3900 nH
L402	2462587V38	220 nH
L601	2405452C61	1100 nH
L603	2405452C64	1500 nH
L604, 605	2405452C60	1000 nH
		TRANSISTOR: See Note 1.
Q1	4882022N70	NPN
Q101	4805128M16	PNP
Q107	4805921T02	Switching
Q108	4802245J10	Dual NPN
Q110	4813822A10	PNP
Q111	4805128M16	PNP
Q201	4802245J15	JFET, P-channel
Q202	4805218N55	NPN
Q401	4882022N70	NPN
Q601	4882022N70	NPN
		RESISTOR: Ω
R1, 2	0660079U18	5.1
R3	0662057A81	22K
R4, 5	0662057A73	10K
R7	0662057A25	100
R8	0662057A29	150
R9	0662057A41	470
R10	0662057A89	47K
R11	0662057A41	470
R101	0662057A73	10K
R102	0662057A65	4.7K
R103	0662057A73	10K
R106	0662057A53	1.5K
R110	0662057A57	2.2K
R111	0662057A67	5.6K
R113	0662057A73	10K
R114	0662057A77	15K
R115	0662057G27	182K
R116	0662057G19	130K
R117	0662057A89	47K

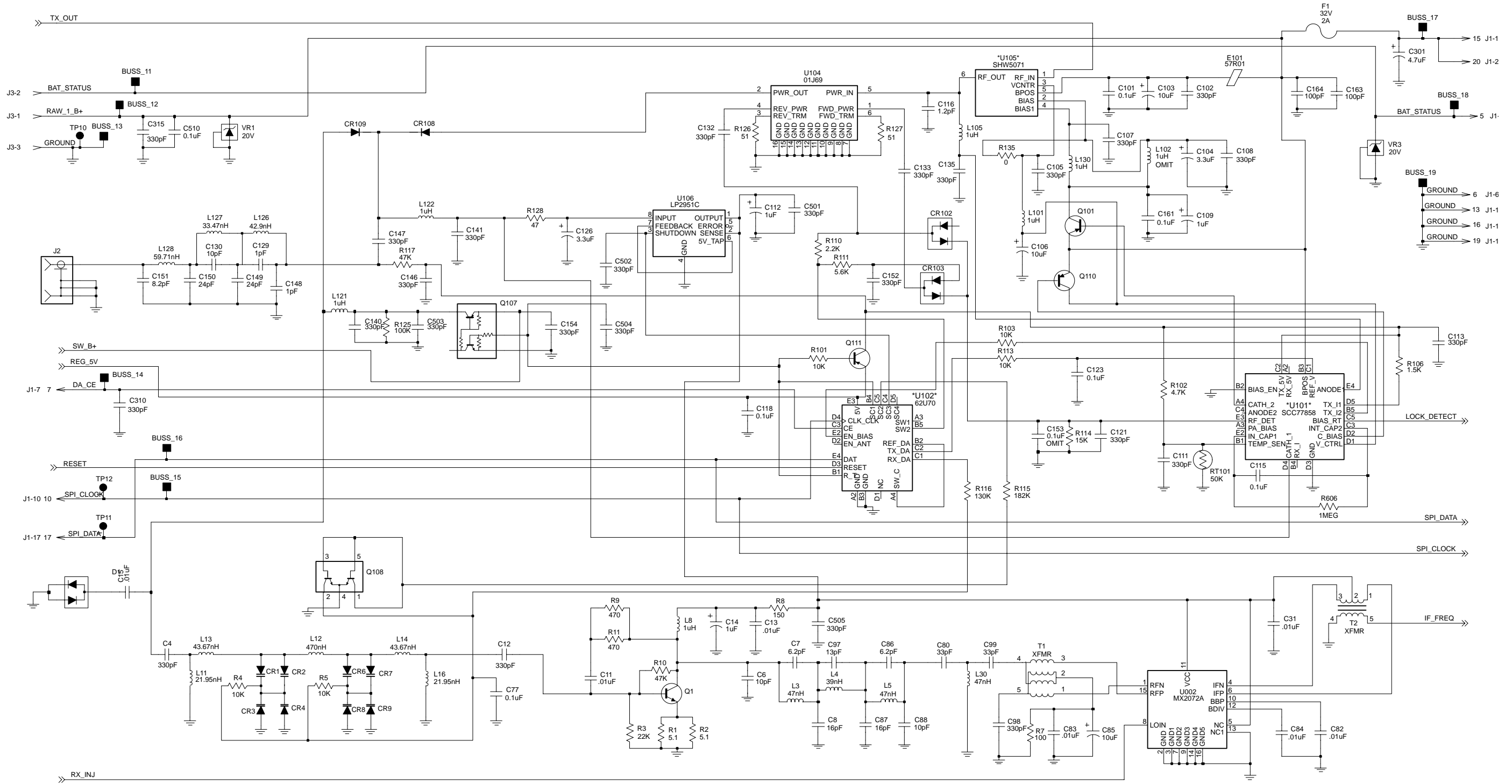
R118	0662057A97	100K
R125	0662057A97	100K
R126, 127	0662057A18	51
R128	0662057A17	47
R135	0662057C01	0 (Placed on NLD8898D only)
R200	0662057B47	0
R203	0662057A09	22
R204	0662057A80	20K
R205	0662057A84	30K
R206, 207	0662057A80	20K
R208	0662057A62	3.6K
R209, 210	0662057A42	510
R211	0662057A20	62
R212	0662057A44	620
R213	0662057A35	270
R214	0662057A87	39K
R215	0662057A84	30K
R217	0662057A84	30K
R218	0662057A97	100K
R219	0662057A09	22
R220, 221	0662057A56	2K
R222	0662057A49	1K
R223	0662057A89	47K
R401	0660079U18	5.1
R402	0662057B08	270K
R403	0662057A83	27K
R404	0662057A73	10K
R405	0662057A13	33
R406	0662057A69	6.8K
R407	0662057A17	47
R410, 411	0662057A21	68
R412	0662057A13	33
R413	0662057A45	680
R414	0662057A56	2K
R415	0662057A25	100
R416	0662057A73	10K
R417	0662057A01	10
R418	0662057A53	1.5K
R419, 420	0662057A89	47K
R421	0662057A56	2K
R501	0662057B47	0
R601	0662057A25	100
R602	0662057A56	2K
R603	0662057A85	33K
R604	0662057A75	12K
R605	0662057A61	3.3K
RT101	0605621T02	50K
		THERMISTOR:
		TRANSFORMER:
T1	2505515V08	4:1
T2	2505515V11	16:1
		INTEGRATED CIRCUIT
		MODULE: See Note 1.
U002	5105329V26	Mixer
U101	5105662U72	TX ALC
U102	5105662U70	D/A Converter
U104	5102001J69	Coupler
U105	5105625U90	RF Power Amp (NLD8898B/C)
	or 5105625U03	RF Power Amp (NLD8898D)
U106	5105469E71	5V Regulator
U201	5105662U78	VCO Buffer
U202	5105469E71	5V Regulator
U203	5105279V38	16.8 MHz Reference Oscillator

U204	5105457W73	Fractional-N Synthesizer
U401	5105457W20	ABACUS
		DIODE: See Note 1.
VR1	4813830A33	Zener, 20V
VR3	4813830A33	Zener, 20V
VR401	4862824C01	Varactor
VR402	4805129M58	Varactor
		MISCELLANEOUS:
G1 thru 5	3905643V01	Ground Contact
S1	2602661J01	Varactor Filter Shield
S10	2602815X01	Tuned Filter Shield
S201	2602657J01	VCO Shield
S202	2602674J02	VCO Back Shield
S203	2602658J01	Pendulum Shield
S204	2602675J01	Synthesizer Back Shield
	8405432Z01	PC Board (NLD8898B)
	or 8405432Z02	PC Board (NLD8898C)
	or 8405432Z03	PC Board (NLD8898D)

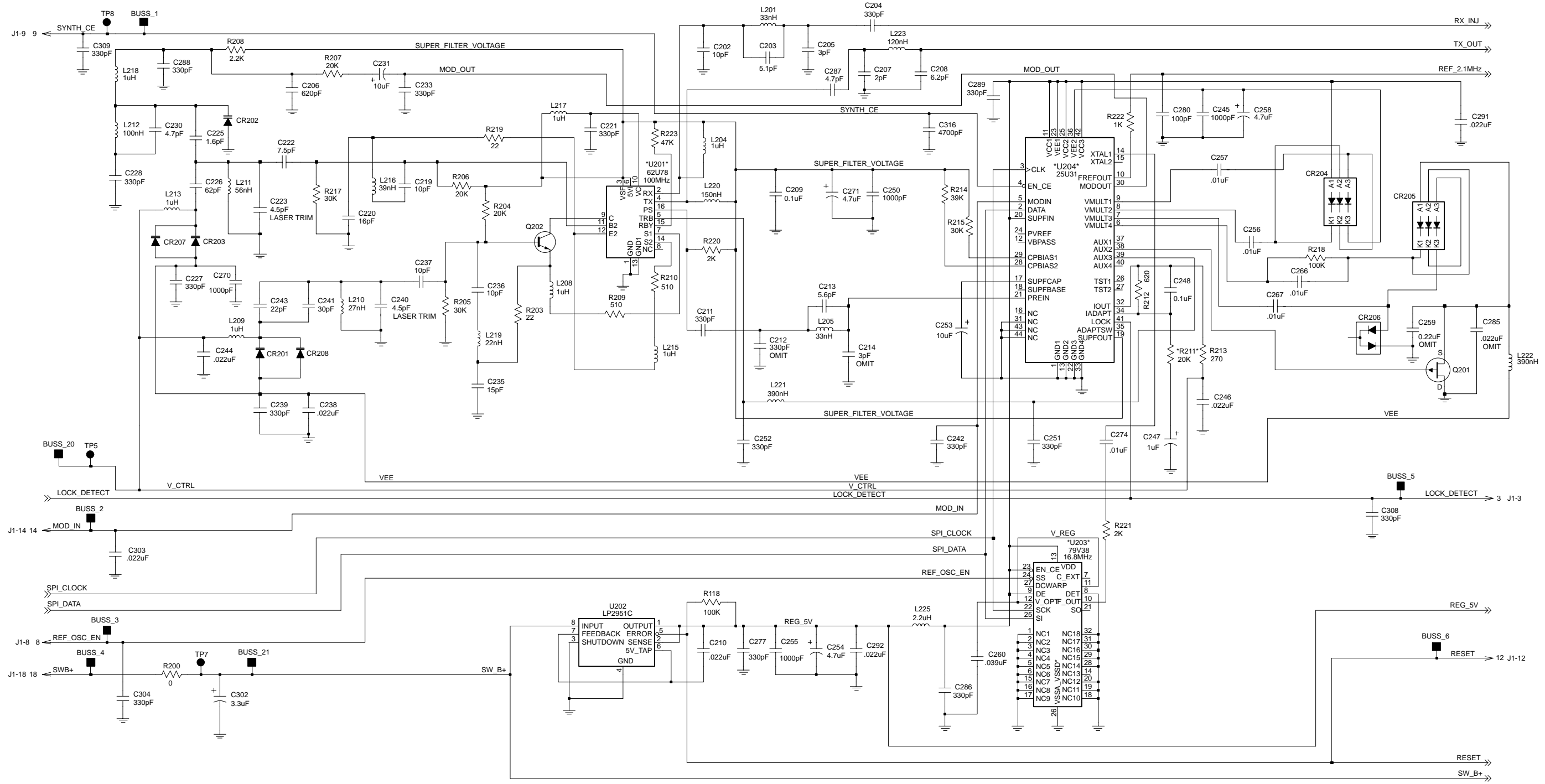
Notes:

- For optimum performance, order replacement diodes, transistors, and circuit modules by Motorola part number only.
- When ordering crystals, specify carrier frequency, crystal frequency, crystal type number, and Motorola part number.
- Part value notations:
 $p=10^{-12}$
 $n=10^{-9}$
 $\mu=10^{-6}$
 $m=10^{-3}$
 $k=10^3$
 $M=10^6$
- ITEM refers to the component reference designator. SIDE refers to the location of the component on the board; S1=Side 1, S2=Side 2.
- The NLD8898 RF Board Kits use a 6-layer printed circuit board.



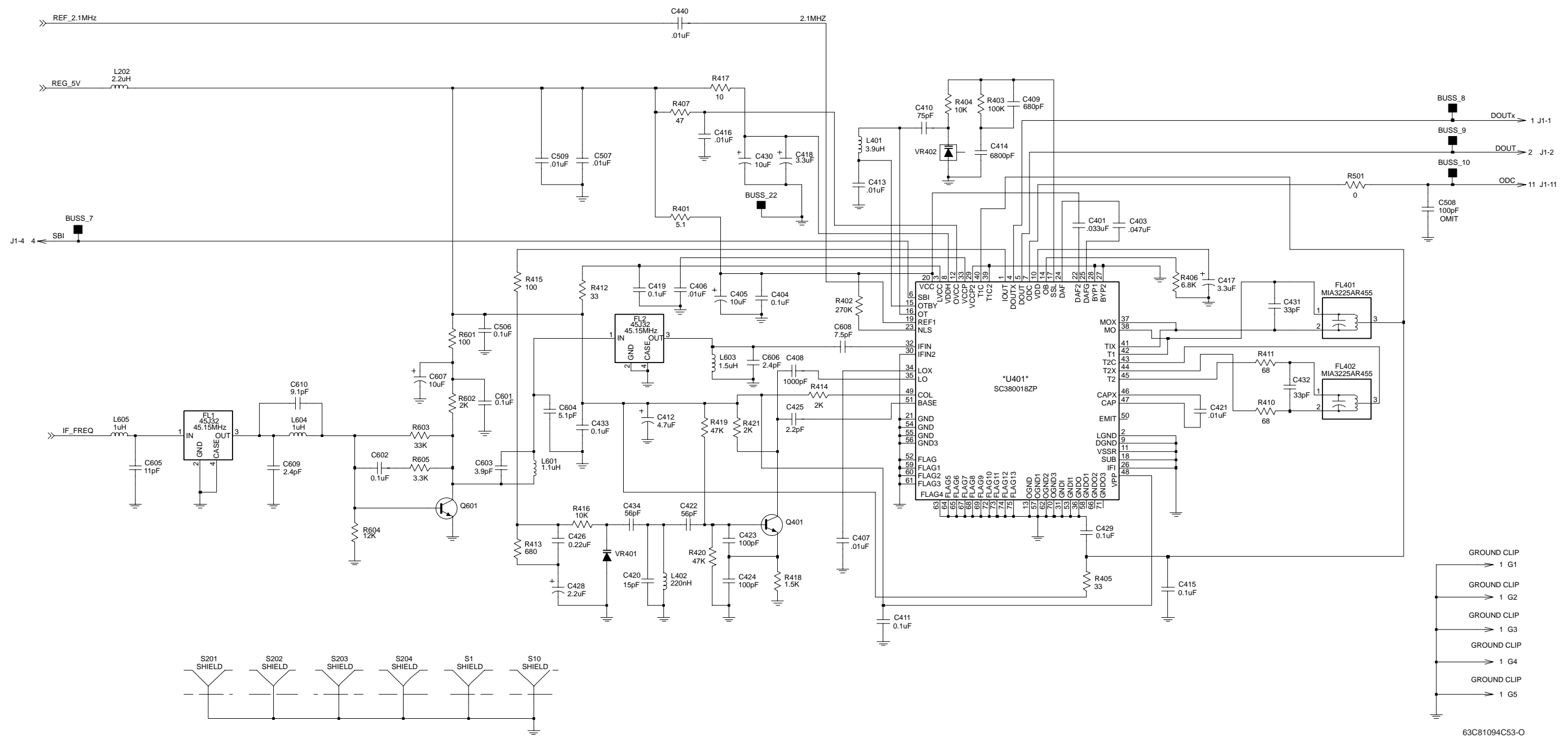


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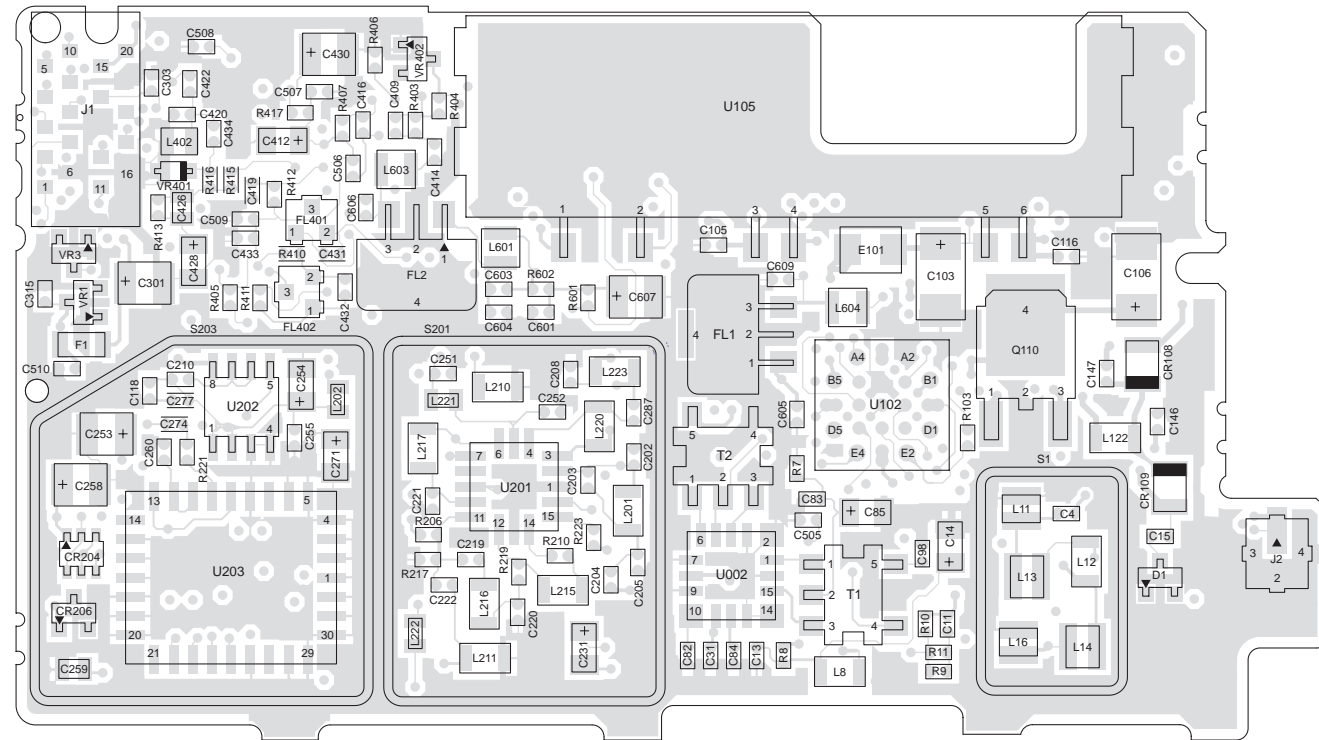
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NLD8898H VHF RF Board Schematic Diagram, Sheet 2 of 3



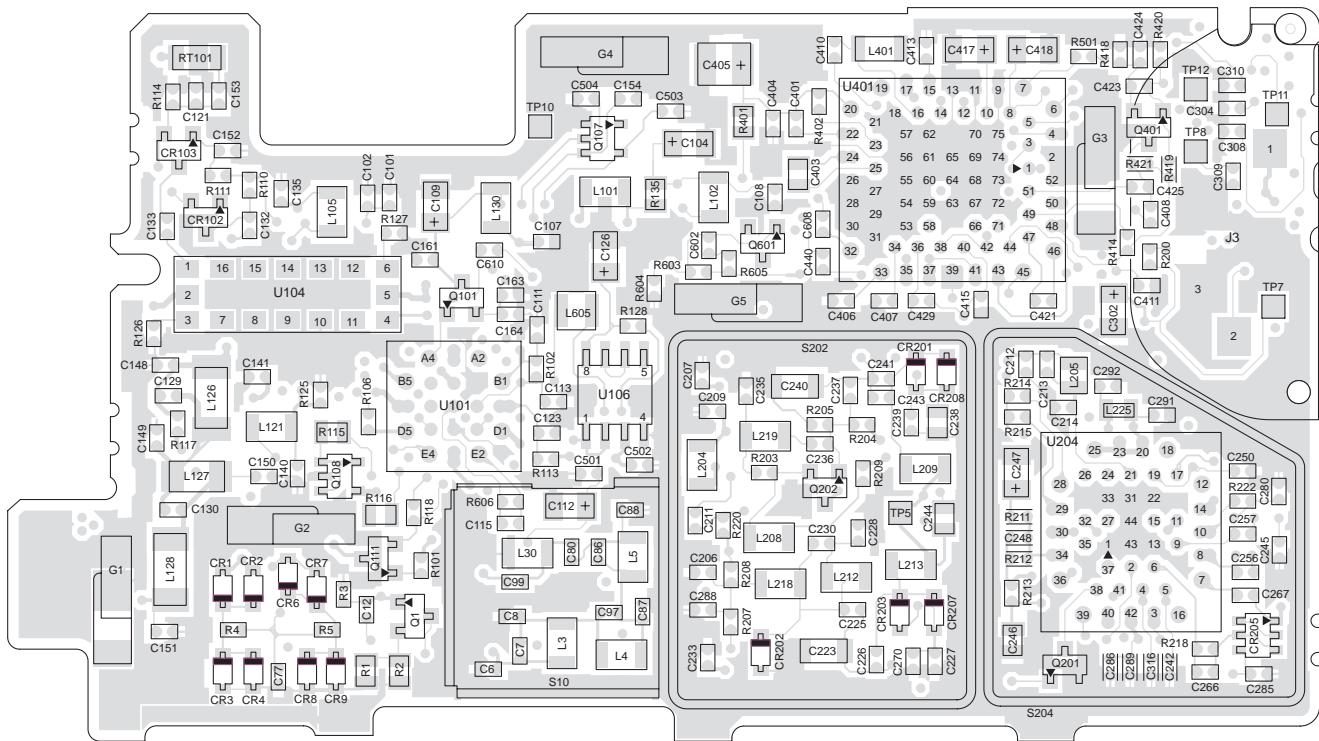
NLD8898H VHF RF Board Schematic Diagram, Sheet 3 of 3

VIEWED FROM SIDE 1



MAEPF-27125-O

VIEWED FROM SIDE 2



MAEPF-27126-O

NLD8898H VHF RF Board Component Location Detail and Parts List

NLD8898H2 VHF RF Board
Electrical Parts List

ITEM	MOTOROLA PART NUMBER	DESCRIPTION
		CAPACITOR, Fixed: pF ±5%; 50V unless otherwise stated
C4	2113931F13	330 pF
C6	2113930F27	10 pF
C7	2113930F22	6.2 pF 50V ±0.25 PF 50V
C8	2113930F32	16 pF
C11	2113931F49	10 nF
C12	2113931F13	330 pF
C13	2113931F49	10 nF
C14	2311049A07	1 µF
C15	2113931F49	10 nF
C31	2113931F49	10 nF
C77	2113932K15	0.1 µF +80/-20% 16V
C80	2113930F39	33 pF
C82 thru C84	2113931F49	10 nF
C85	2311049A60	10 µF
C86	2113930F22	6.2 pF 50V ±0.25 PF 50V
C87	2113930F32	16 pF
C88	2113930F27	10 pF
C97	2113930F30	13 pF
C98	2113931F13	330 pF
C99	2113930F39	33 pF
C101	2113932K15	0.1 µF +80/-20% 16V
C102	2113931F13	330 pF
C103	2311049J26	10 µF
C104	2311049A54	3.3 µF
C105	2113931F13	330 pF
C106	2311049J26	10 µF
C107, C108	2113931F13	330 pF
C109	2311049A07	1 µF
C111	2113931F13	330 pF
C112	2311049A07	1 µF
C113	2113931F13	330 pF
C115	2113932E20	0.1 µF 10% 16V
C116	2113930F05	1.2 pF 50V ±0.1 pF 50V
C118	2113932K15	0.1 µF +80/-20% 16V
C121	2113931F13	330 pF
C123	2113932E20	0.10 µF 10% 16V
C126	2311049A54	3.3 µF
C129	2113930F03	1 pF 50V ±0.1 pF 50V
C130	2113930F27	10 pF
C132, C133	2113931F13	330 pF
C135	2113931F13	330 pF
C140, C141	2113931F13	330 pF
C146, C147	2113931F13	330 pF
C148	2113930F03	1 pF 50V ±0.1 pF 50V
C149, C150	2113930F36	24 pF
C151	2113930F25	8.2 pF 50V ±0.25 pF 50V
C152	2113931F13	330 pF
C153	-----	Not Placed
C154	2113931F13	330 pF
C161	2113932K15	0.1 µF +80/-20% 16V
C163, C164	2113930F51	100 pF
C202	2113930F27	10 pF
C203	2113930F20	5.1 pF 50V ±0.25 pF 50V
C204	2113931F13	330 pF
C205	2113930F14	3 pF 50V ±0.25 pF 50V
C206	2113931F20	620 pF
C207	2113930F10	2 pF 50V ±0.25 pF 50V
C208	2113930F22	6.2 pF 50V ±0.25 pF 50V
C209	2113932K15	0.1 µF +80/-20% 16V
C210	2113932E07	.022 µF 10% 16V
C211	2113931F13	330 pF

C212	-----	Not Placed
C213	2113930F21	5.6 pF 50V ±0.25 pF 50V
C214	-----	Not Placed
C219	2113930F27	10 pF
C220	2113930F32	16 pF
C221	2113931F13	330 pF
C222	2113930F24	7.5 pF 50V ±0.25 pF 50V
C223	2113906C02	4.5 pF Laser Trimmed
C225	2113930F08	1.6 pF 50V ±0.1 pF 50V
C226	2113930F46	62 pF
C227, C228	2113931F13	330 pF
C230	2113930F19	4.7 pF 50V ±0.25 pF 50V
C231	2311049A60	10µF
C233	2113931F13	330 pF
C235	2113930F31	15 pF
C236, C237	2113930F27	10 pF
C238	2109720D09	.022 UF
C239	2113931F13	330 pF
C240	2113906C02	4.5 pF Laser Trimmed
C241	2113930F38	30 pF
C242	2113931F13	330 pF
C243	2113930F35	22 pF
C244	2109720D09	.022 UF
C245	2113931F25	1,000 PF 5% 50V
C246	2109720D09	.022 µF
C247	2311049A07	1 µF
C248	2113932K15	0.1 µF +80/-20% 16V
C250	2113931F25	1 nF
C251, C252	2113931F13	330 pF
C253	2311049J23	10 µF
C254	2311049A56	4.7 µF
C255	2113931F25	1 nF
C256, C257	2113931F49	10 nF
C258	2311049J11	4.7 µF
C259	-----	Not Placed
C260	2113932K05	.039 µF +80/-20% 16V
C266, C267	2113931F49	10 nF
C270	2113931F25	1 nF
C271	2311049A56	4.7 µF
C274	2113931F49	10 nF
C277	2113931F13	330 pF
C280	2113930F51	100 pF
C285	-----	Not Placed
C286	2113931F13	330 pF
C287	2113930F19	4.7 pF 50V ±0.25 pF 50V
C288, C289	2113931F13	330 pF
C291, C292	2113932E07	.022 µF 10% 16V
C301	2311049J11	4.7 µF
C302	2311049A54	3.3 µF
C303	2113932E07	.022 µF 10% 16V
C304	2113931F13	330 pF
C308 thru C310	2113931F13	330 pF
C315	2113931F13	330 pF
C316	2113931F41	4.7 nF
C401	2113932K03	.033 µF +80/-20% 16V
C403	2113743A13	.047 µF
C404	2113932K15	0.1 µF +80/-20% 16V
C405	2311049J23	10 µF
C406, C407	2113931F49	10 nF
C408	2113931F25	1 nF
C409	2113931F21	680 pF
C410	2113930F48	75 pF
C411	2113932K15	0.1 µF +80/-20% 16V
C412	2311049A56	4.7 µF
C413	2113931F49	10 nF
C414	2113931F45	6.8 nF
C415	2113932K15	0.1 µF +80/-20% 16V
C416	2113931F49	10 nF

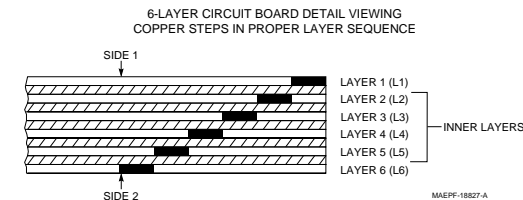
C417, C418	2311049A42	3.3 μ F
C419	2113932K15	0.1 μ F +80/-20% 16V
C420	2113930F31	15 pF
C421	2113931F49	10 nF
C422	2113930F45	56 pF
C423, C424	2113930F51	100 pF
C425	2113930F11	2.2 pF 50V \pm 0.25 pF 50V
C426	2113743A23	0.22 μ F
C428	2311049A40	2.2 μ F
C429	2113932K15	0.1 μ F +80/-20% 16V
C430	2311049J23	10 μ F
C431, C432	2113930F39	33 pF
C433	2113932K15	0.1 μ F +80/-20% 16V
C434	2113930F45	56 pF
C440	2113931F49	10 nF
C501 thru C505	2113931F13	330 pF
C506	2113932K15	0.1 μ F +80/-20% 16V
C507	2113931F49	10 nF
C508	-----	Not Placed
C509	2113931F49	10 nF
C510	2113932K15	0.1 μ F +80/-20% 16V
C601, C602	2113932K15	0.1 μ F +80/-20% 16V
C603	2113930F17	3.9 pF 50V \pm 0.25 pF 50V
C604	2113930F20	5.1 pF 50V \pm 0.25 pF 50V
C605	2113930F28	11 pF
C606	2113930F12	2.4 pF 50V \pm 0.25 pF 50V
C607	2311049J23	10 μ F
C608	2113930F24	7.5 pF 50V \pm 0.25 pF 50V
C609	2113930F12	2.4 pF 50V \pm 0.25 pF 50V
C610	2113930F26	9.1 pF 50V \pm 0.25 pF 50V
CR1 thru CR4	4862824C01	Varactor
CR6 thru CR9	4862824C01	Varactor
CR102, CR103	4805129M67	Dual
CR108, CR109	4802482J02	PIN
CR201	4802245J29	Varactor
CR202, CR203	4862824C03	Varactor
CR204, CR205	4802233J09	Triple
CR206	4805129M06	Dual
CR207	-----	Not Placed
CR208	4802245J29	Varactor
D1	4880154K03	DIODE: See Note 1 Schottky, Dual Mixer
E101	2484657R01	CORE: Bead, Inductor
F1	6505757V02	FUSE: Fuse, 2 Amp
FL1, FL2	4805245J32	FILTER: See Note 2. Crystal, Mono, 45.15 MHz
FL401, FL402	9105398W01	Surface Mount, 450kHz
J1	-----	JACK: Not Placed
J2	0905304Z01	RF Connector, Coaxial
J3	-----	Not Placed
L3	2462587T42	COIL RF: 47 nH
L4	2462587T41	39 nH
L5	2462587T42	47 nH
L8	2462587T30	1 μ H
L11	2460591M12	21.95 nH
L12	2462587T23	470 nH
L13, L14	2460591N36	43.67 nH
L16	2460591M12	21.95 nH
L30	2462587T42	47 nH
L101	2462587T30	1 μ H
L102	-----	Not Placed

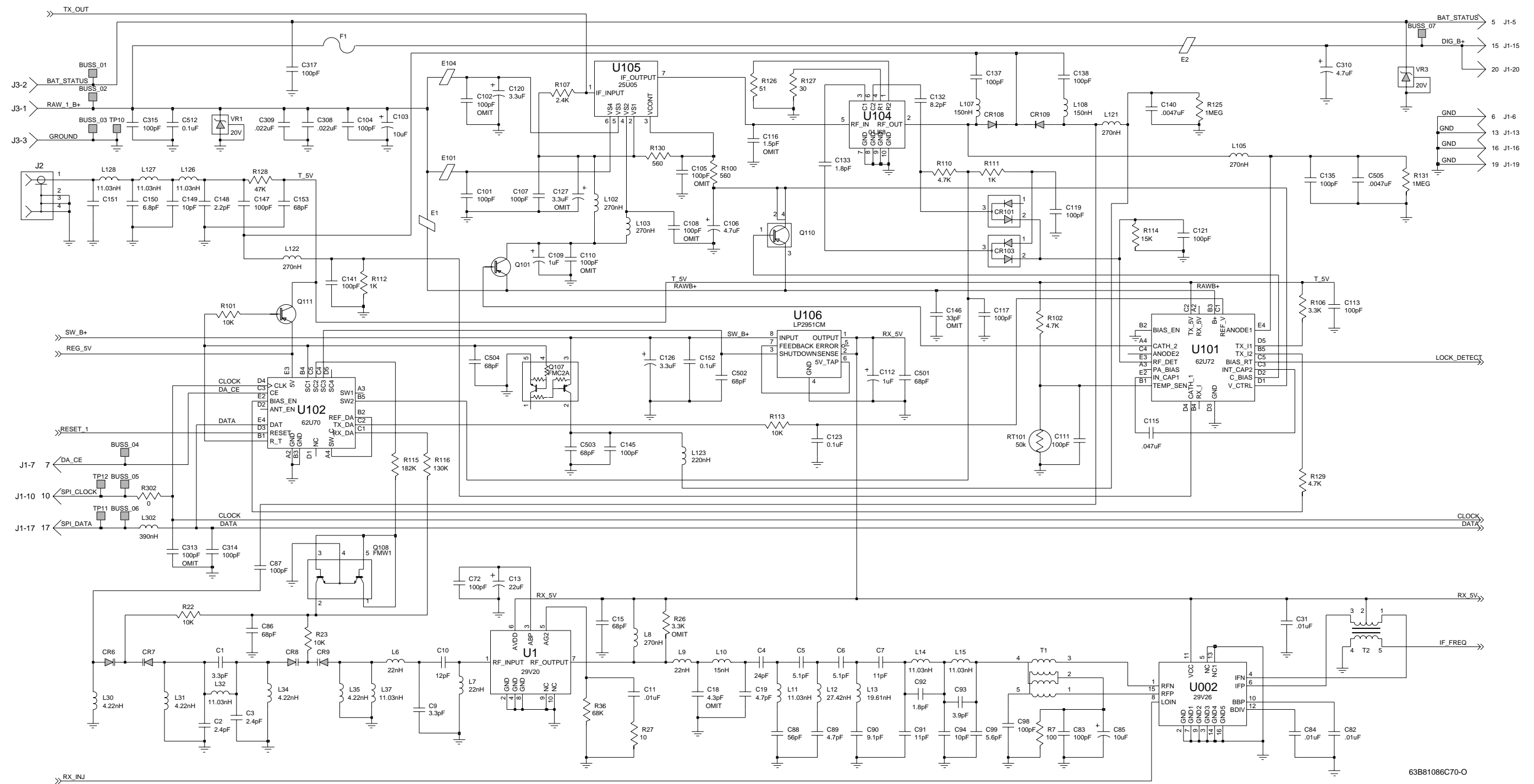
L105	2462587T30	1 μ H
L121	2462587T30	1 μ H
L122	2462587T30	1 μ H
L126	2460591H40	42.90 nH
L127	2460591G24	33.47 nH
L128	2460591K40	59.71 nH
L130	2462587T30	1 μ H
L201	2462587T40	33 nH
L202	2462587Q20	2.2 μ H
L204	2462587T30	1 μ H
L205	2462587V28	33 nH
L208, L209	2462587T30	1 μ H
L210	2462587T39	27 nH
L211	2462587T12	56 nH
L212	2462587T15	100 nH
L213	2462587T30	1 μ H
L215	2462587T30	1 μ H
L216	2462587T41	39 nH
L217, L218	2462587T30	1 nH
L219	2462587T38	22 nH
L220	2462587T17	150 nH
L221, L222	2462587Q42	390 nH
L223	2462587T16	120 nH
L225	2462587Q20	2.2 μ H
L401	2462575A16	3.9 μ H
L402	2462587V38	220 nH
L601	2405452C61	1.1 μ H
L603	2405452C64	1.5 μ H
L604, L605	2405452C60	1 μ H
Q001	4882022N70	TRANSISTOR: See Note 2. NPN
Q101	4805128M16	PNP
Q107	4805921T02	Switching
Q108	4802245J10	Dual NPN
Q110	4813822A10	PNP
Q111	4805128M16	PNP
Q201	4802245J15	JFET, P-Channel
Q202	4805218N55	NPN
Q401	4882022N70	NPN
Q601	4882022N70	NPN
R1, R2	0660079U18	RESISTOR, Fixed: Ω \pm 5%; 1/8W Unless otherwise stated
R3	0662057A81	5.1
R4, R5	0662057A73	22k
R7	0662057A25	10k
R8	0662057A29	100
R9	0662057A41	150
R010	0662057A89	470
R011	0662057A41	47k
R101	0662057A73	470
R102	0662057A65	10k
R103	0662057A73	4.7k
R106	0662057A53	10k
R110	0662057A57	1.5k
R111	0662057A67	2.2k
R113	0662057A73	5.6k
R114	0662057A73	10k
R115	0662057A77	15k
R116	0662057G27	182k 1%
R117	0662057G19	130k 1%
R118	0662057A89	47k
R125	0662057A97	100k
R126, R127	0662057A97	100k
R128	0662057A18	51
R135	0662057A17	47
R200	0662057C01	0
R203	0662057B47	0
R204	0662057A80	20k
R205	0662057A84	30k
R206, R207	0662057A80	20k
R208	0662057A57	2.2k
R209, R210	0662057A42	510
R211	0662057A20	62
R212	0662057A44	620
R213	0662057A35	270
R214	0662057A87	39k
R215	0662057A84	30k
R217	0662057A84	30k
R218	0662057A97	100k
R219	0662057A09	22
R220, R221	0662057A56	2k
R222	0662057A49	1k
R223	0662057A89	47k
R401	0660079U18	5.1
R402	0662057B08	270k
R403	0662057A97	100k
R404	0662057A73	10k
R405	0662057A13	33
R406	0662057A69	6.8k
R407	0662057A17	47
R410, R411	0662057A21	68
R412	0662057A13	33
R413	0662057A45	680
R414	0662057A56	2k
R415	0662057A25	100
R416	0662057A73	10k
R417	0662057A01	10
R418	0662057A53	1.5k
R419	0662057A89	47k
R420	0662057A89	47k
R421	0662057A56	47k
R501	0662057B47	2k
R601	0662057B47	0
R602	0662057A25	100
R603	0662057A56	2k
R604	0662057A85	33k
R605	0662057A75	12k
R606	0662057A61	3.3k
R606	0662057B22	1 MEG
RT101	0605621T02	THERMISTOR: 50k
T1	2505515V08	TRANSFORMER: 4:1
T2	2505515V11	16:1
U2	5105329V26	CIRCUIT MODULE: See Note 1. Mixer
U101	5105835U52	TX (ALC)
U102	5105835U51	D/A Converter
U104	5102001J69	Coupler, VHF
U105	5105385Y36	Power Amplifier, VHF
U106	5105469E65	5V Regulator
U201	5102227J37	VCO Buffer
U202	5105469E65	5V Regulator
U203	5105385Y43	16.8 MHz Reference Oscillator
U204	5105457W81	Fractional-N Synthesizer
U401	5105835U90	ABACUS
VR1	4813830A33	DIODE: See Note 1. Zener, 20V
VR3	4813830A33	Zener, 20V
VR401	4862824C01	Varactor
VR402	4805129M58	Varactor
G1 thru G5	3905643V01	MISCELLANEOUS: Contact, Antenna Ground
S1	2602661J01	Shield, Varactor Filter, VHF
S010	2602815X01	Shield, Fixed Tuned Filter
S201	2602657J01	Shield, VCO

S202	2602674J02	Shield, VCO Back
S203	2602658J01	Shield, Pendulum
S204	2602675J01	Shield, Synthesizer, Back

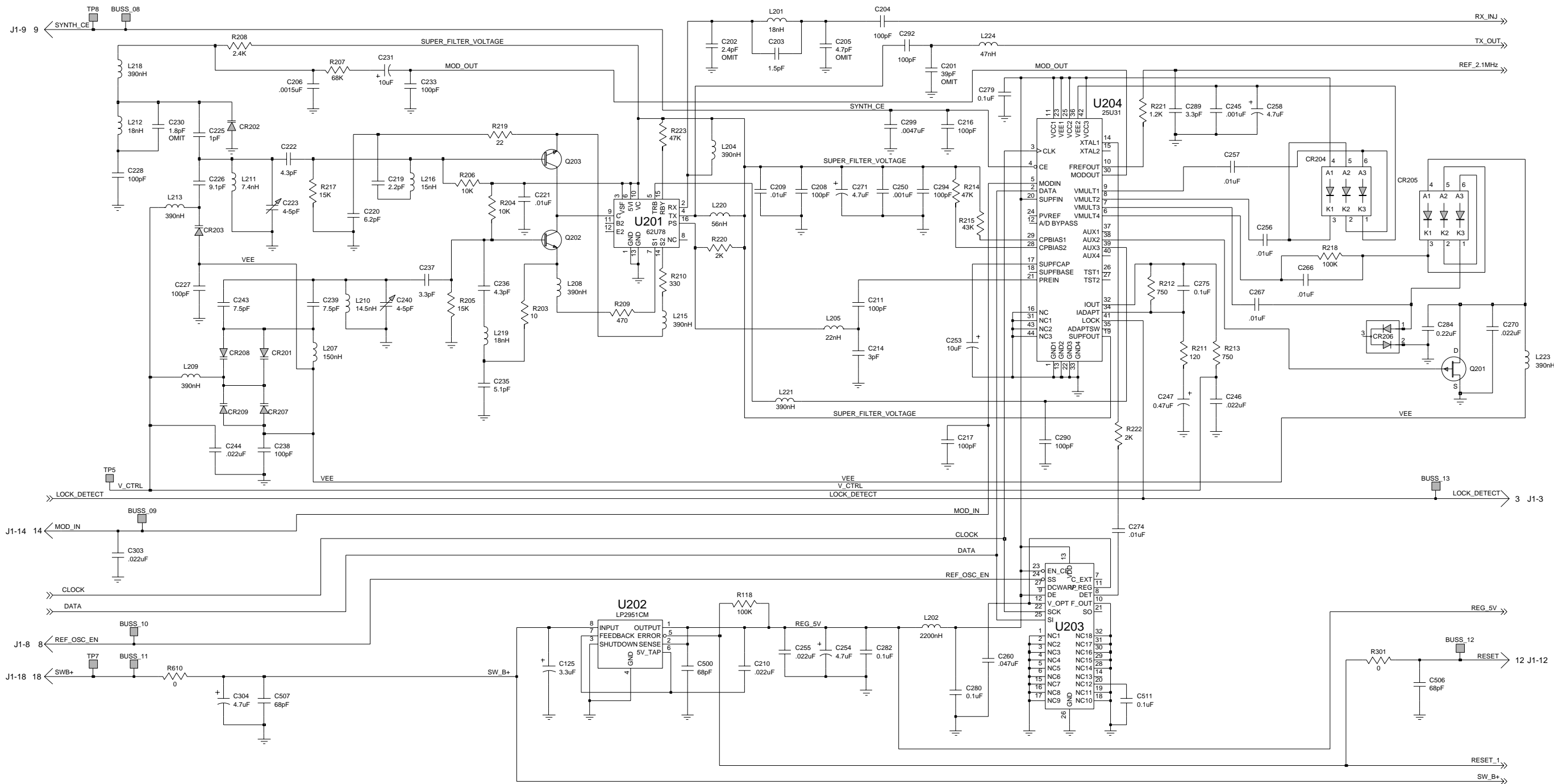
S202	2602674J02	Shield, VCO Back
S203	2602658J01	Shield, Pendulum
S204	2602675J01	Shield, Synthesizer, Back

- Notes:
- For optimum performance, order replacement diodes, transistors, and circuit modules by Motorola part number only.
 - When ordering crystals, specify carrier frequency, crystal frequency, crystal type number, and Motorola part number.
 - Part value notations:
 $p=10^{-12}$
 $n=10^{-9}$
 $\mu=10^{-6}$
 $m=10^{-3}$
 $k=10^3$
 $M=10^6$
 - ITEM refers to the component reference designator. SIDE refers to the location of the component on the board; S1=Side 1, S2=Side 2.
 - The NLD8898 RF Board Kits use a 6-layer printed circuit board.

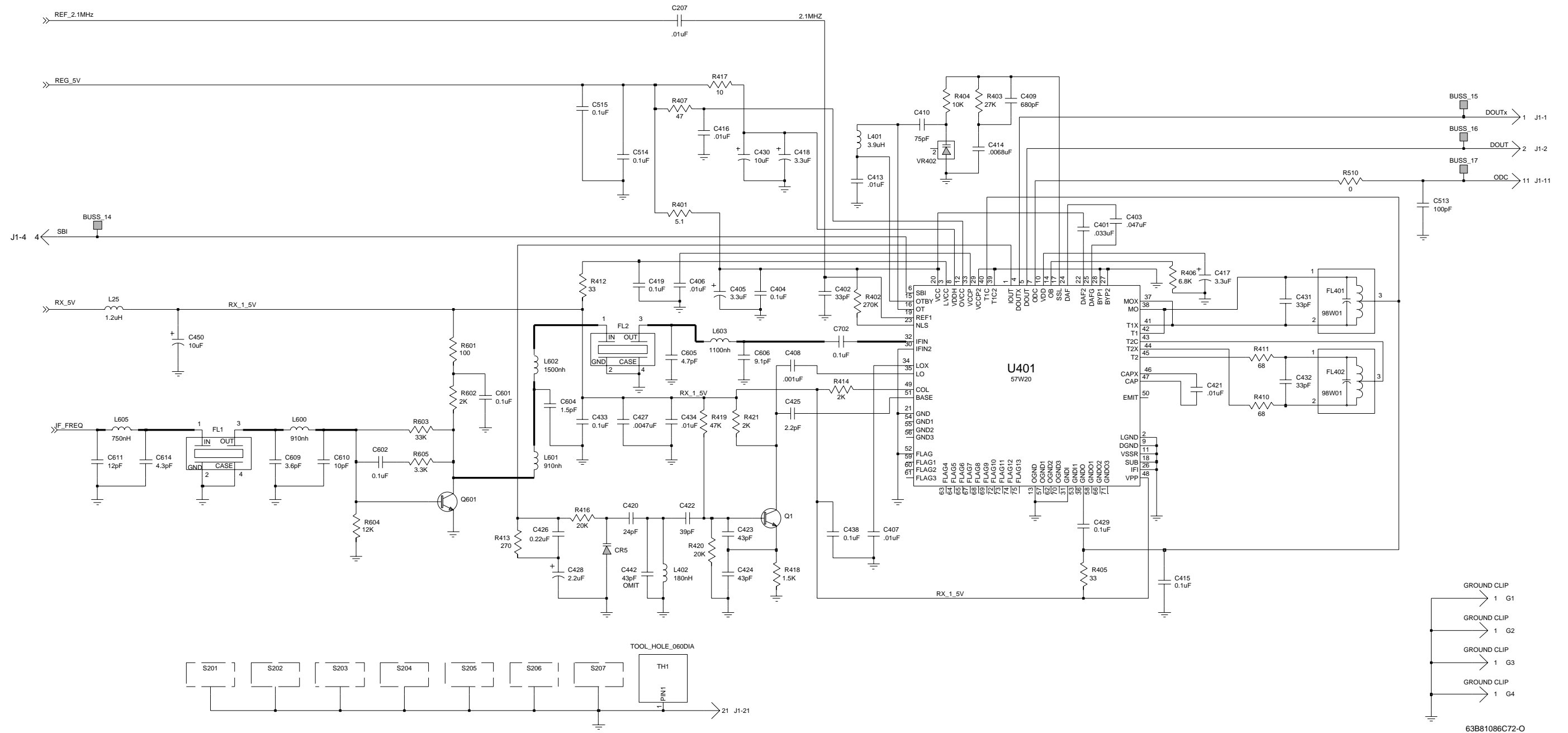




NLE4249A UHF Range 1 RF Board Schematic Diagram, Sheet 1 of 3

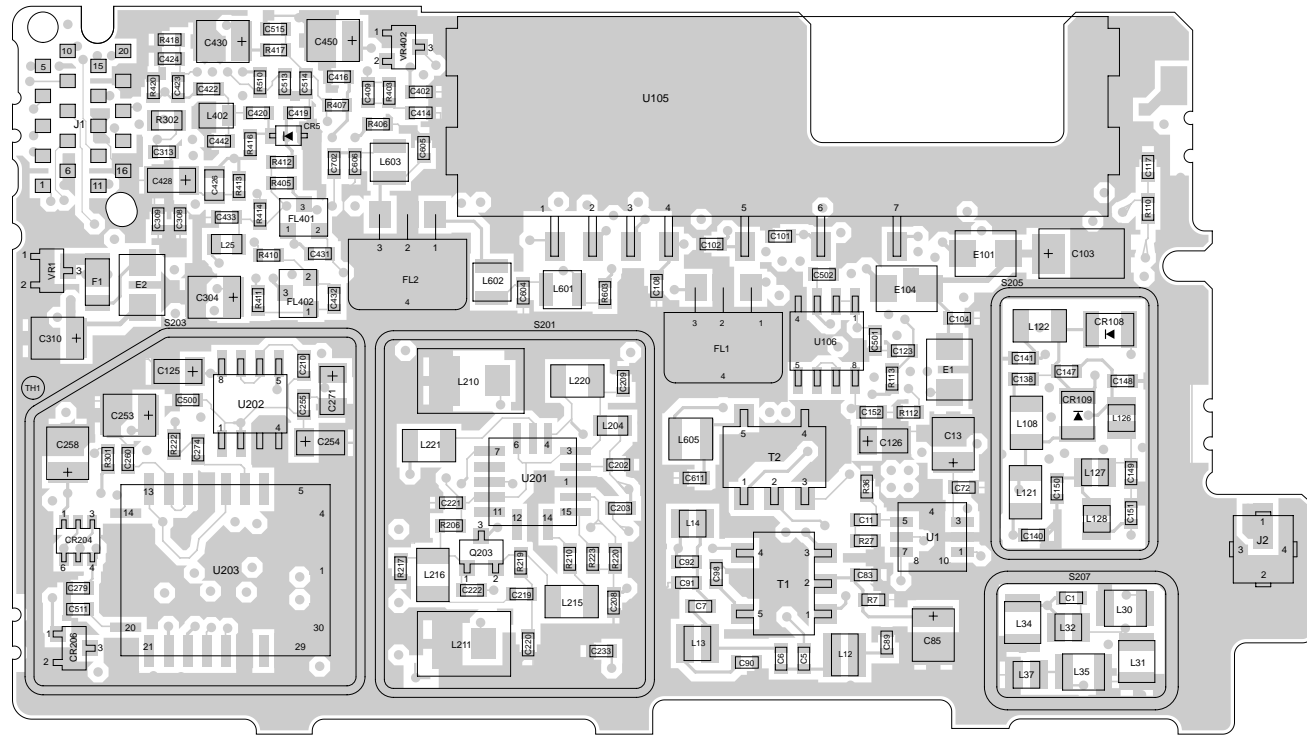


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NLE4249A UHF Range 1 RF Board Schematic Diagram, Sheet 3 of 3

VIEWED FROM SIDE 1



MAEPF-26063-O

VIEWED FROM SIDE 2



MAEPF-26064-O

NLE4249A UHF Range 1 RF Board Component Location Detail and Parts List

NLE4249A UHF Range 1 RF Board
Electrical Parts List

ITEM	MOTOROLA PART NUMBER	DESCRIPTION
		CAPACITOR, Fixed: unless otherwise stated
C1	2113930F19	4.7 pF
C2, 3	2113930F12	Not Placed
C4	2113930F31	15 pF
C5	2113930F23	6.8 pF
C6	2113930F20	5.1 pF
C7	2113930F27	10 pF
C9	2113930F05	1.2 pF
C10	2113930F03	1 pF
C11	2113931F49	10 nF
C13	2311049A66	22 μF
C15	2113930F47	68 pF
C18, 19	2113930F07	1.5 pF
C31	2113931F49	10 nF
C72	2113930F51	100 pF
C82	2113931F49	10 nF
C83	2113930F51	100 pF
C84	2113931F49	10 nF
C85	2311049J23	10 μF
C86	2113930F47	68 pF
C87	2113930F51	100 pF
C88	2113930F45	56 pF
C89	2113930F22	6.2 pF
C90	2113930F31	15 pF
C91	2113930F28	11 pF
C92	2113930F18	4.3 pF
C93	2113930F20	5.1 pF
C94	2113930F29	12 pF
C98	2113930F51	100 pF
C99	2113930F28	11 pF
C101	2113930F51	100 pF
C102	2113930F51	Not Placed
C103	2311049J26	10 μF
C104, 105	2113930F51	100 pF
C106	2311049A56	4.7 μF
C107	2113930F51	100 pF
C108	2113930F51	Not Placed
C109	2311049A07	1 μF
C110	2113930F51	Not Placed
C111	2113930F51	100 pF
C112	2311049A07	1 μF
C113	2113930F51	100 pF
C115	2113932K07	.047 μF
C116	2113930F07	Not Placed
C117	2113930F51	100 pF
C119	2113930F51	100 pF
C120	2311049A42	Not Placed
C121	2113930F51	100 pF
C123	2113932K15	.1 μF
C125, 126	2311049A54	3.3 μF
C127	2311049A54	Not Placed
C132	2113930F25	8.2 pF
C133	2113930F15	3.3 pF
C135	2113930F51	100 pF
C137, 138	2113930F51	100 pF
C140	2113931F41	CAP
C141	2113930F51	100 pF
C145	2113930F51	100 pF
C146	2113930F39	Not Placed
C147	2113930F51	100 pF
C148	2113930F16	3.6 pF

C149	2113930F35	22 pF
C150	2113930F32	16 pF
C151	2113930F14	3.0 pF
C152	2113932K15	.1 μF
C153	2113930F47	68 pF
C201	2113930F03	1 pF
C202	2113930F12	Not Placed
C203	2113930F07	1.5 pF
C204	2113930F51	100 pF
C205	2113930F19	Not Placed
C206	2113741F37	3.3 nF
C207	2113931F49	10 nF
C208	2113930F51	100 pF
C209	2113931F49	10 nF
C210	2113932E07	.022 μF
C211	2113930F51	100 pF
C214	2113930F20	5.1 pF
C216, 217	2113930F51	100 pF
C219	2113930F17	3.9 pF
C220	2113930F20	5.1 pF
C221	2113931F49	10 nF
C222	2113930F17	3.9 pF
C223	2113906C02	4 pF
C225	2113930F03	1 pF
C226	2113930F28	11 pF
C227, 228	2113930F51	100 pF
C230	2113930F09	Not Placed
C231	2311049A60	10 μF
C233	2113930F51	100 pF
C235	2113930F18	4.3 pF
C236	2113930F20	5.1 pF
C237	2113930F15	3.3 pF
C238	2113930F51	100 pF
C239	2113930F27	10 pF
C240	2113906C02	4 pF
C243	2113930F25	8.2 pF
C244	2109720D09	.022 μF
C245	2113931F25	1 nF
C246	2109720D09	.022 μF
C247	2311049A05	.47 μF
C250	2113931F25	1 nF
C253	2311049J23	10 μF
C254	2311049A56	4.7 μF
C255	2113932E07	.022 μF
C256, 257	2113931F49	10 nF
C258	2311049J11	4.7 μF
C260	2113932K07	.047 μF
C266, 267	2113931F49	10 nF
C270	2113932E07	.022 μF
C271	2311049A56	4.7 μF
C274	2113931F49	10 nF
C275	2113932K15	.1 μF
C279, 280	2113932K15	.1 μF
C282	2113932K15	.1 μF
C284	2113743A23	.22 μF
C289, 290	2113930F51	100 pF
C292	2113930F03	1 pF
C294	2113930F51	100 pF
C299	2113931F41	4.7 nF
C303	2113932E07	.022 μF
C304	2311049J11	4.7 μF
C308	2113932E07	.022 μF
C309	2113932E07	.022 μF
C310	2311049J11	4.7 μF
C313	2113930F51	Not Placed
C314, 315	2113930F51	100 pF
C317	2113930F51	100 pF
C401	2113932K03	.033 μF

C402	2113930F39	33 pF
C403	2113743A13	.047 μF
C404	2113932K15	.1 μF
C405	2311049A42	3.3 μF
C406, 407	2113931F49	10 nF
C408	2113931F25	1 nF
C409	2113931F21	680 pF
C410	2113930F48	75 pF
C413	2113931F49	10 nF
C414	2113931F45	6.8 nF
C415	2113932K15	.1 μF
C416	2113931F49	10 nF
C417, 418	2311049A42	3.3 μF
C419	2113932K15	.1 μF
C420	2113930F36	24 pF
C421	2113931F49	10 nF
C422	2113930F41	39 pF
C423, 424	2113930F42	43 pF
C425	2113930F11	2.2 pF
C426	2113743A23	.22 μF
C427	2113931F41	4.7 nF
C428	2311049A40	2.2 μF
C429	2113932K15	.1 μF
C430	2311049J23	10 μF
C431, 432	2113930F39	33 pF
C433	2113932K15	.1 μF
C434	2113931F49	10 nF
C438	2113932K15	.1 μF
C442	2113930F42	Not Placed
C450	2311049J23	10 μF
C500 thru 504	2113930F47	68 pF
C505	2113931F41	4.7 nF
C506, 507	2113930F47	68 pF
C511, 512	2113932K15	.1 μF
C513	2113930F51	100 pF
C514, 515	2113932K15	.1 μF
C601, 602	2113932K15	.1 μF
C604	2113930F10	2 pF
C605	2113930F17	3.9 pF
C606	2113930F27	10 pF
C609	2113930F18	4.3 pF
C610	2113930F33	18 pF
C611	2113930F34	20 pF
C614	2113930F14	3 pF
C702	2113932K15	.1 μF
CR5 thru 9	4862824C01	DIODE: See Note 1. Varactor
CR101	4805129M67	Dual
CR103	4805129M67	Dual
CR108, 109	4802482J02	PIN
CR201	4802245J29	Varactor
CR202	4862824C01	Varactor
CR203	4862824C03	Varactor
CR204, 205	4802233J09	Triple
CR206	4805129M06	Triple
CR207 thru 209	4802245J29	Varactor
E1, 2	2484657R01	CORE: Ferrite Bead
E101	2484657R01	Ferrite Bead
E104	2484657R01	NOT PLACED
F1	6505757V02	FUSE: 2 Amp
FL1, 2	4805245J33	FILTER: See Note 2. 73.35 MHz

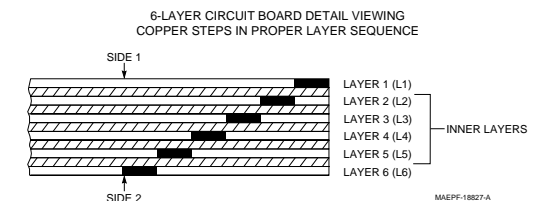
FL401, 402	9105398W01	450 kHz
J2	0905304Z01	JACK: Connector, RF Coax
L6	2462587T41	39 nH
L7	2462587T40	33 nH
L8	2462587T42	47 nH
L9	2462587T40	33 nH
L10	2462587T42	47 nH
L11	2460591B04	11.03 nH
L12	2460591M32	27.42 nH
L13	2460591B80	19.61 nH
L14, 15	2460591B04	11.03 nH
L25	2462587Q48	1200 nH
L30, 31	2460591B22	8.67 nH
L32	2460591B04	11.03 nH
L34, 35	2460591B22	8.67 nH
L37	2460591B04	11.03 nH
L102	2462587T20	Not Placed
L103	2462587T20	270 nH
L105	2462587T20	270 nH
L107, 108	2462587T17	150 nH
L121, 122	2462587T20	270 nH
L123	2462587V38	220 nH
L126 thru 128	2460591B04	11.03 nH
L201	2462587T38	22 nH
L202	2462587Q20	2200 nH
L204	2462587Q42	390 nH
L205	2462587V27	27 nH
L207	2462587V38	220 nH
L208, 209	2462587T22	390 nH
L210	2405619V01	18.1 nH
L211	2405619V05	12 nH
L212	2462587V26	22 nH
L213	2462587T15	100 nH
L215	2462587T22	390 nH
L216	2462587T05	15 nH
L218	2462587T22	390 nH
L219	2462587T37	18 nH
L220	2462587T39	27 nH
L221	2462587T22	390 nH
L223	2462587Q42	390 nH
L224	2462587T40	33 nH
L302	2462587Q42	390 nH
L401	2462575A16	3900 nH
L402	2462587V37	180 nH
L600, 601	2405452C59	910 nH
L602	2405452C64	1500 nH
L603	2405452C61	1100 nH
L605	2462587N65	750 nH
Q1	4805218N55	TRANSISTOR: See Note 1. NPN
Q101	4805128M16	PNP
Q107	4805921T02	Switching
Q108	4802245J10	Dual NPN
Q110	4802245J12	PNP
Q111	4805128M16	PNP
Q201	4802245J15	JFET P-channel
Q202, 203	4805218N55	NPN
Q601	4882022N70	NPN
R7	0662057A25	RESISTOR: Ω: 100
R22, 23	0662057A73	10K
R26	0662057A61	Not Placed
R27	0662057A01	10
R36	0662057A93	Not Placed

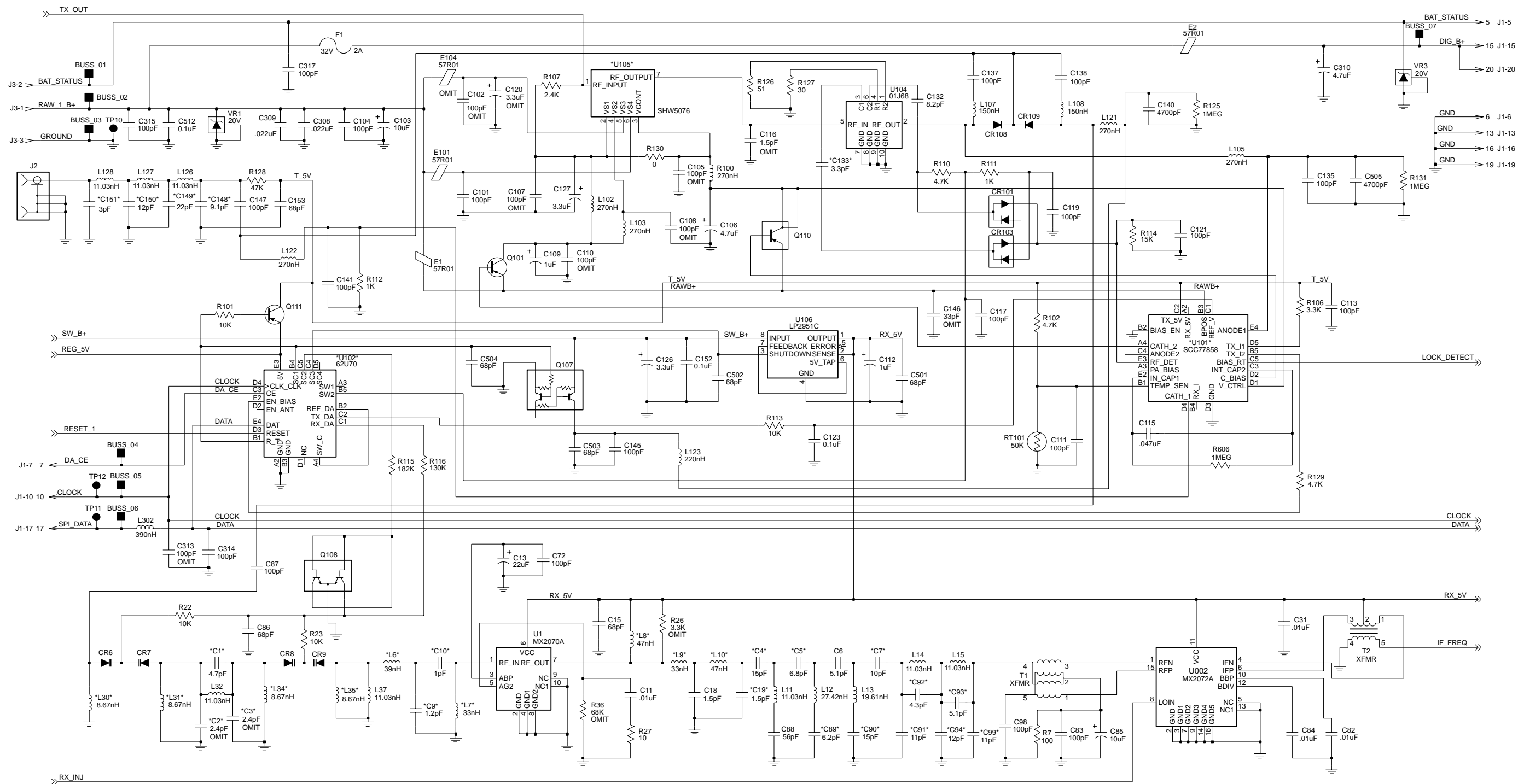
R100	0611077A68	560
R101	0662057A73	10K
R102	0662057A65	4.7K
R106	0662057A61	3.3K
R107	0662057A58	2.4K
R110	0662057A65	4.7K
R111, 112	0662057A49	1K
R113	0662057A73	10K
R114	0662057A77	15K
R115	0662057G27	182K
R116	0662057G19	130K
R118	0662057A97	100K
R125	0662057B22	1M
R126	0662057A18	51
R127	0662057A12	30
R128	0662057A89	47K
R129	0662057A65	4.7K
R130	0662057B47	0
R131	0662057B22	1M
R203	0662057A09	22
R204	0662057A73	10K
R205	0662057A77	15K
R206	0662057A73	10K
R207	0662057A93	68K
R208	0662057A56	2K
R209	0662057A41	470
R210	0662057A37	330
R211	0662057A27	120
R212	0662057A46	750
R213	0662057A46	750
R214	0662057A89	47K
R215	0662057A88	43K
R217	0662057A77	15K
R218	0662057A97	100K
R219	0662057A01	10
R220	0662057A56	2K
R221	0662057A51	1.2K
R222	0662057A56	2K
R223	0662057A89	47K
R301	0662057B47	0
R302	0662057C01	0
R401	0660079U18	5.1
R402	0662057B08	270K
R403	0662057A83	27K
R404	0662057A73	10K
R405	0662057A13	33
R406	0662057A69	6.8K
R407	0662057A17	47
R410, 411	0662057A21	68
R412	0662057A13	33
R413	0662057A35	270
R414	0662057A56	2K
R416	0662057A80	20K
R417	0662057A01	10
R418	0662057A53	1.5K
R419	0662057A89	47K
R420	0662057A80	20K
R421	0662057A56	2K
R510	0662057B47	0
R601	0662057A25	100
R602	0662057A56	2K
R603	0662057A85	33K
R604	0662057A75	12K
R605	0662057A61	3.3K
R610	0662057B47	0
RT501	0605621T02	THERMISTOR: 50k

T1	2505515V08	TRANSFORMER: 4:1
T2	2505515V11	16:1
U1	5105329V20	INTEGRATED CIRCUIT MODULE: See Note 1. RF Amplifier
U101	5105835U52	TX ALC
U102	5105835U51	D/A Converter
U104	5102001J68	Coupler
U105	5105385Y10	LDMOS RF PA
U106	5105469E71	5V Regulator
U2	5105329V26	Mixer
U201	5105662U78	VCO Buffer
U202	5105469E71	5V Regulator
U203	5102845C08	16.8 MHz Ref. Oscillator
U204	5105457W98	Frac-N Synthesizer
U401	5105457W20	ABACUS
VR1	4813830A33	DIODE: See Note 1. 20V
VR3	4813830A33	20V
VR402	4805129M58	VARACTOR
G1	3905643V01	MISCELLANEOUS: Ground Contact
G2	3905643V01	Ground Contact
G3	3905643V01	Ground Contact
G4	3905643V01	Ground Contact
S201	2602657J01	Shield, VCO
S202	2602674J02	Shield, VCO Back
S203	2602658J01	Shield, Pendulum
S204	2602675J01	Shield, Synthesizer
S205	2602660J01	Shield, Harmonic Filter
S206	2602686J01	Shield, Coil
S207	2605547X01	Shield, Varactor
	8405260Z02	UHF Range 1 PC Board

Notes:

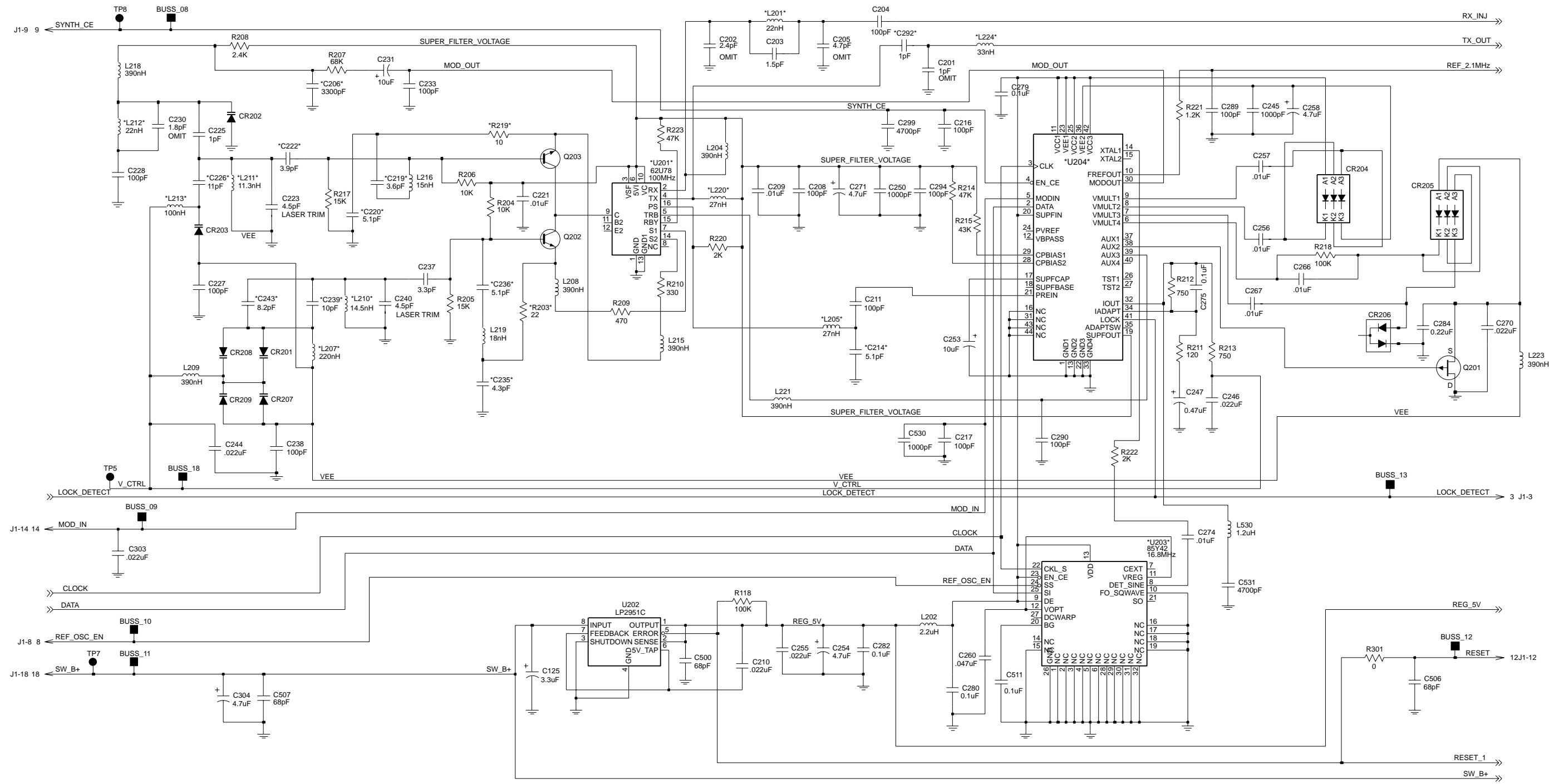
- For optimum performance, order replacement diodes, transistors, and circuit modules by Motorola part number only.
- When ordering crystals, specify carrier frequency, crystal frequency, crystal type number, and Motorola part number.
- Part value notations:
 $p=10^{-12}$
 $n=10^{-9}$
 $\mu=10^{-6}$
 $m=10^{-3}$
 $k=10^3$
 $M=10^6$
- ITEM refers to the component reference designator. SIDE refers to the location of the component on the board; S1=Side 1, S2=Side 2.
- The NLE4249 UHF RF Board uses a 6-layer printed circuit board.





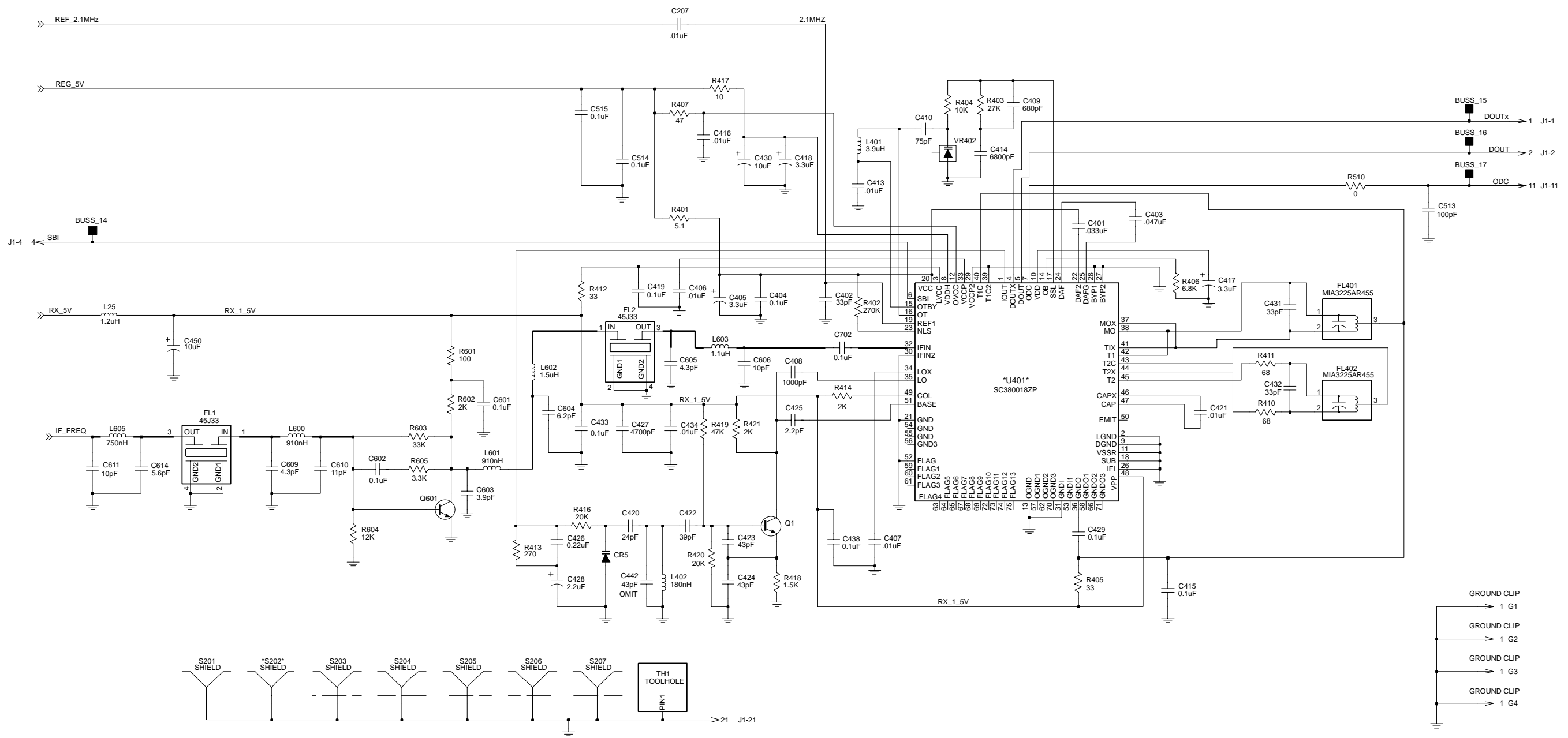
63C81094C54-0

NLE4249D, NLE4250E UHF Range 1 and 2 RF Board Schematic Diagram, Sheet 1 of 3



63C81094C55-0

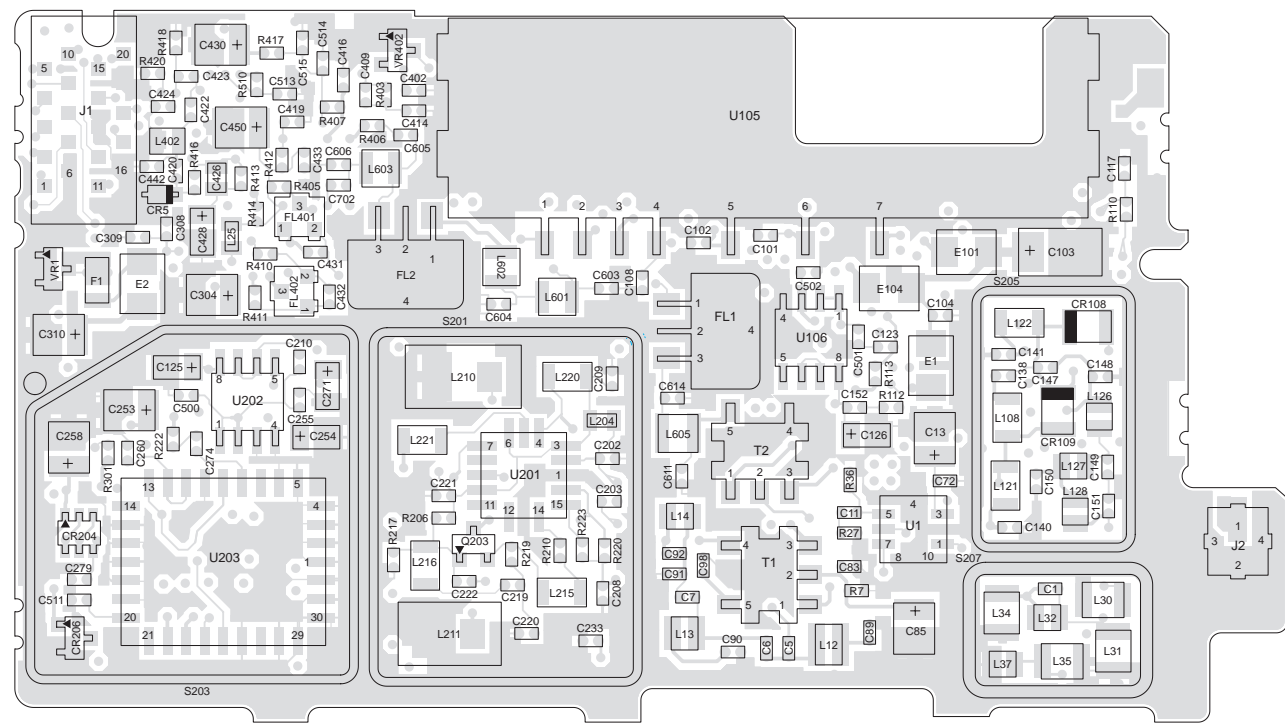
NLE4249D, NLE4250E UHF Range 1 and 2 RF Board Schematic Diagram, Sheet 2 of 3



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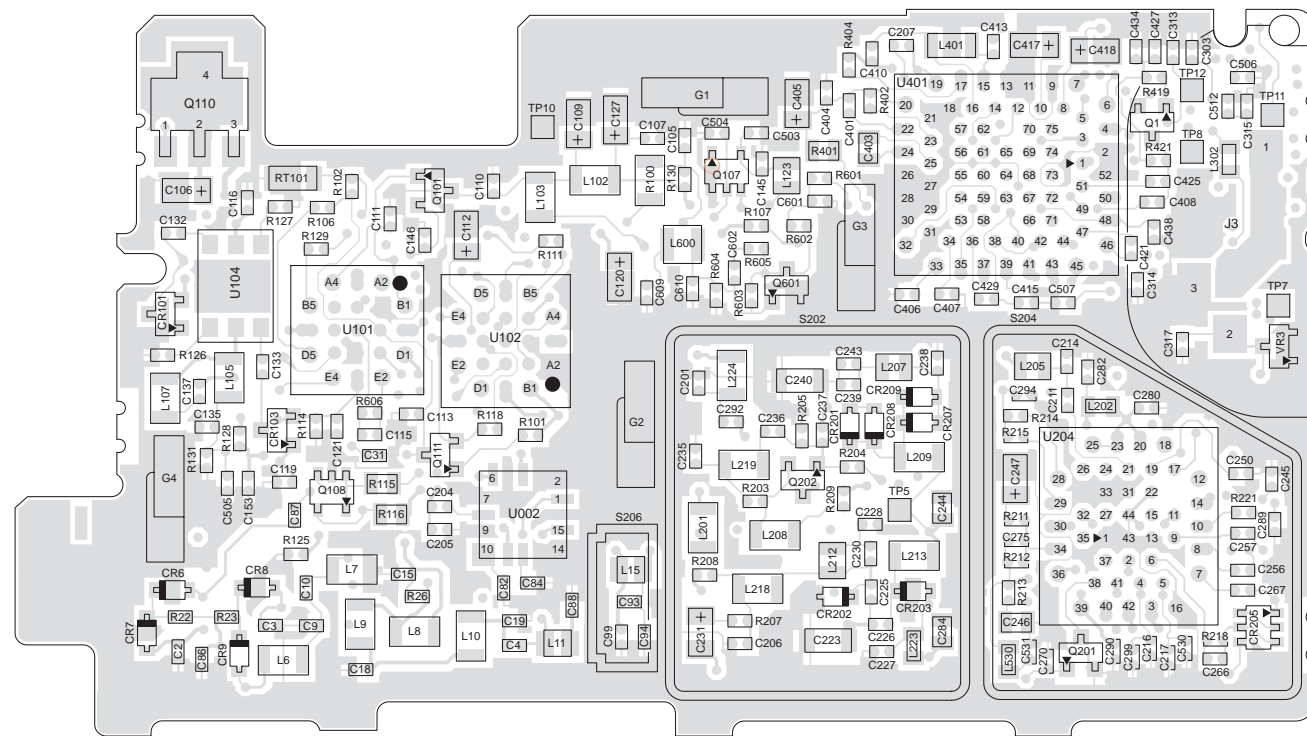
NLE4249D, NLE4250E UHF Range 1 and 2 RF Board Schematic Diagram, Sheet 3 of 3

VIEWED FROM SIDE 1



MAEPF-27127-O

VIEWED FROM SIDE 2



MAEPF-27128-O

NLE4249D, NLE4250E UHF Range 1 and 2 RF Board Component Location Detail and Parts List

NLE4249D2, NLE4250E UHF Range 1 (R1) and Range 2 (R2) RF Board Electrical Parts List

NOTE: Unless otherwise stated, the following parts are used for both UHF R1 and R2.

ITEM	MOTOROLA PART NUMBER	DESCRIPTION
		CAPACITOR, Fixed: pF ±5%; 50V unless otherwise stated
C1 (R1)	2113930F19	4.7 pF 50V ±0.25 pF 50V
C1 (R2)	2113930F13	3.3 pF 50V ±0.25 pF 50V
C2 (R1), C3 (R1)	-----	Not Placed
C2 (R2), C3 (R2)	2113930F12	2.4 pF 50V ±0.25 pF 50V
C4 (R1)	2113930F31	15 pF
C4 (R2)	2113930F36	24 pF
C5 (R1)	2113930F23	6.8 pF 50V ±0.25 pF 50V
C5 (R2)	2113930F22	6.2 pF 50V ±0.25 pF 50V
C6	2113930F20	5.1 pF 50V ±0.25 pF 50V
C7 (R1)	2113930F27	10 pF
C7 (R2)	2113930F28	11 pF
C9 (R1)	2113930F05	1.2 pF 50V ±0.1 pF 50V
C9 (R2)	2113930F15	3.3 pF 50V ±0.1 pF 50V
C10 (R1)	2113930F03	1 pF 50V ±0.1 pF 50V
C10 (R2)	2113930F29	12 pF
C11	2113931F49	10 nF
C13	2311049A66	22 μF
C15	2113930F47	68 pF
C18 (R1), C19 (R1)	2113930F07	1.5 pF 50V ±0.1 pF 50V
C18 (R2)	-----	Not Placed
C19 (R2)	2113930F19	4.7 pF 50V ±0.25 pF 50V
C31	2113931F49	10 nF
C72	2113930F51	100 pF
C82	2113931F49	10 nF
C83	2113930F51	100 pF
C84	2113931F49	10n pF
C85	2311049J23	10 μF
C86	2113930F47	68 pF
C87	2113930F51	100 pF
C88	2113930F45	56 pF
C89 (R1)	2113930F22	6.2 pF 50V ±0.25 pF 50V
C89 (R2)	2113930F20	5.1 pF 50V ±0.25 pF 50V
C90 (R1)	2113930F31	15 pF
C90 (R2)	2113930F26	9.1 pF 50V ±0.25 pF 50V
C91 (R1)	2113930F28	11 pF
C91 (R2)	2113930F27	10 pF
C92 (R1)	2113930F18	4.3 pF 50V ±0.25 pF 50V
C92 (R2)	2113930F09	1.8 pF 50V ±0.1 pF 50V
C93 (R1)	2113930F20	5.1 pF 50V ±0.25 pF 50V
C93 (R2)	2113930F17	3.9 pF 50V ±0.25 pF 50V
C94 (R1)	2113930F29	12 pF
C94 (R2)	2113930F27	10 pF
C98	2113930F51	100 pF
C99 (R1)	2113930F28	11 pF
C99 (R2)	2113930F21	5.6 pF 50V ±0.25 pF 50V
C101	2113930F51	100 pF

C102	-----	Not Placed
C103	2311049J26	10 μF
C104, C105	2113930F51	100 pF
C106	2311049A56	4.7 μF
C107	2113930F51	100 pF
C108	-----	Not Placed
C109	2311049A07	1 μF
C110	-----	Not Placed
C111	2113930F51	100 pF
C112	2311049A07	1 μF
C113	2113930F51	100 pF
C115	2113932K07	.047 μF +80/-20% 16V
C116	-----	Not Placed
C117	2113930F51	100 pF
C119	2113930F51	100 pF
C120	-----	Not Placed
C121	2113930F51	100 pF
C123	2113932K15	0.1 μF +80/-20% 16V
C125, C126	2311049A54	3.3 μF
C127	-----	Not Placed
C132	2113930F25	8.2 pF 50V ±0.25 pF 50V
C133 (R1)	2113930F15	3.3 pF 50V ±0.25 pF 50V
C133 (R2)	2113930F09	1.8 pF 50V ±0.1 pF 50V
C135	2113930F51	100 pF
C137, C138	2113930F51	100 pF
C140	2113931F41	.0047 μF
C141	2113930F51	100 pF
C145	2113930F51	100 pF
C146	-----	Not Placed
C147	2113930F51	100 pF
C148 (R1)	2113930F26	9.1 pF 50V ±0.25 pF 50V
C148 (R2)	2113930F11	2.2pF 50V ±0.25 pF 50V
C149 (R1)	2113930F35	22 pF
C149 (R2)	2113930F27	10 pF
C150 (R1)	2113930F29	12 pF
C150 (R2)	2113930F25	8.2 pF 50V ±0.25 pF 50V
C151 (R1)	2113930F14	3.0 pF 50V ±0.25 pF 50V
C151 (R2)	2113930F18	4.3 pF 50V ±0.25 pF 50V
C152	2113932K15	0.1 μF +80/-20% 16V
C153	2113930F47	68 pF
C201 (R1)	2113930F03	1.0 pF 50V ±0.1 pF 50V
C201 (R2)	-----	Not Placed
C202	-----	Not Placed
C203	2113930F07	1.5 pF 50V ±0.1 pF 50V
C204	2113930F51	100 pF
C205	-----	Not Placed
C206 (R1)	2113931F37	3.3 nF
C206 (R2)	2113931F29	1.5 nF
C207	2113931F49	10 nF
C208	2113930F51	100 pF
C209	2113931F49	10 nF
C210	2113932E07	.022 μF 10% 16V
C211	2113930F51	100 pF
C214 (R1)	2113930F20	5.1 pF 50V ±0.25 pF 50V
C214 (R2)	2113930F14	3.0 pF 50V ±0.25 pF 50V
C216, C217	2113930F51	100 pF
C219 (R1)	2113930F16	3.6 pF 50V ±0.25 pF 50V

C219 (R2)	2113930F11	2.2 pF 50V ±0.25 pF 50V
C220 (R1)	2113930F20	5.1 pF 50V ±0.25 pF 50V
C220 (R2)	2113930F22	6.2 pF 50V ±0.25 pF 50V
C221	2113931F49	10 nF
C222 (R1)	2113930F17	3.9 pF 50V ±0.25 pF 50V
C222 (R2)	2113930F18	4.3 pF 50V ±0.25 pF 50V
C223	2113906C02	4.5 pF Laser Trim
C225	2113930F03	1 pF 50V ±0.1 pF 50V
C226 (R1)	2113930F28	11 pF
C226 (R2)	2113930F26	9.1 pF 50V ±0.25 pF 50V
C227, C228	2113930F51	100 pF
C230	-----	Not Placed
C231	2311049A60	10 µF
C233	2113930F51	100 pF
C235 (R1)	2113930F18	4.3 pF 50V ±0.25 pF 50V
C235 (R2)	2113930F20	5.1 pF 50V ±0.25 pF 50V
C236 (R1)	2113930F20	5.1 pF 50V ±0.25 pF 50V
C236 (R2)	2113930F18	4.3 pF 50V ±0.25 pF 50V
C237	2113930F15	3.3 pF 50V ±0.25 pF 50V
C238	2113930F51	100 pF
C239 (R1)	2113930F27	10 pF
C239 (R2)	2113930F24	7.5 pF 50V ±0.25 pF 50V
C240	2113906C02	4.5 pF Laser Trim
C243 (R1)	2113930F25	8.2 pF 50V ±0.25 pF 50V
C243 (R2)	2113930F24	7.5 pF 50V ±0.25 pF 50V
C244	2109720D09	.022 µF
C245	2113931F25	1 nF
C246	2109720D09	.022 µF
C247	2311049A05	0.47 µF
C250	2113931F25	1 nF
C253	2311049J23	10 µF
C254	2311049A56	4.7 µF
C255	2113932E07	.022 µF 10% 16V
C256, C257	2113931F49	10 nF
C258	2311049J11	4.7 µF
C260	2113932K07	.047 µF +80/-20% 16V
C266, C267	2113931F49	10 nF
C270	2113932E07	.022 µF 10% 16V
C271	2311049A56	4.7 µF
C274	2113931F49	10 nF
C275	2113932K15	0.1 µF +80/-20% 16V
C279, C280	2113932K15	0.1 µF +80/-20% 16V
C282	2113932K15	0.1 µF +80/-20% 16V
C284	2113743A23	0.22 µF 10%
C289, C290	2113930F51	100 pF
C292 (R1)	2113930F03	1.0 pF 50V ±0.1 pF 50V
C292 (R2)	2113930F51	100 pF
C294	2113930F51	100 pF
C299	2113931F41	4.7 nF
C303	2113932E07	.022 µF 10% 16V
C304	2311049J11	4.7 µF
C308, C309	2113932E07	.022 µF 10% 16V
C310	2311049J11	4.7 µF
C313	-----	Not Placed
C314, C315	2113930F51	100 pF
C317	2113930F51	100 pF
C401	2113932K03	.033 µF +80/-20% 16V

C402	2113930F39	33 pF
C403	2113743A13	.047 µF
C404	2113932K15	0.1 µF +80/-20% 16V
C405	2311049A42	3.3 µF
C406, C407	2113931F49	10 nF
C408	2113931F25	1 nF
C409	2113931F21	680 pF
C410	2113930F48	75 pF
C413	2113931F49	10 nF
C414	2113931F45	6.8 nF
C415	2113932K15	0.1 µF +80/-20% 16V
C416	2113931F49	10 nF
C417, C418	2311049A42	3.3 µF
C419	2113932K15	0.1 µF +80/-20% 16V
C420	2113930F36	24 pF
C421	2113931F49	10 nF
C422	2113930F41	39 pF
C423, C424	2113930F42	43 pF
C425	2113930F11	2.2 pF 50V ±0.25 pF 50V
C426	2113743A23	0.22 µF 10%
C427	2113931F41	4.7 nF
C428	2311049A40	2.2 µF
C429	2113932K15	0.1 µF +80/-20% 16V
C430	2311049J23	10 µF
C431, C432	2113930F39	33 pF
C433	2113932K15	0.1 µF +80/-20% 16V
C434	2113931F49	10 nF
C438	2113932K15	0.1 µF +80/-20% 16V
C442	-----	Not Placed
C450	2311049J23	10 µF
C500 thru C504	2113930F47	68 pF
C505	2113931F41	4.7 nF
C506, C507	2113930F47	68 pF
C511, C512	2113932K15	0.1 µF +80/-20% 16V
C513	2113930F51	100 pF
C514, C515	2113932K15	0.1 µF +80/-20% 16V
C530	2113931F25	1 nF
C531	2113931F41	4.7 nF
C601, C602	2113932K15	0.1 µF +80/-20% 16V
C603	2113930F17	3.9 pF 50V ±0.25 pF 50V
C604	2113930F22	6.2 pF 50V ±0.25 pF 50V
C605	2113930F18	4.3 pF 50V ±0.25 pF 50V
C606	2113930F27	10 pF
C609	2113930F18	4.3 pF 50V ±0.25 pF 50V
C610	2113930F28	11 pF
C611	2113930F27	10 pF
C614	2113930F21	5.6 pF 50V ±0.25 pF 50V
C702	2113932K15	0.1 µF +80/-20% 16V
		DIODE: See Note 1.
CR5 thru CR9	4862824C01	Varactor
CR101	4805129M67	Dual
CR103	4805129M67	Dual
CR108, CR109	4802482J02	PIN
CR201	4802245J29	Varactor
CR202	4862824C01	Varactor
CR203	4862824C03	Varactor
CR204, CR205	4802233J09	Triple

CR205	4802233J09	TRIPLE
CR206	4805129M06	Dual
CR207 thru CR209	4802245J29	Varactor
		CORE:
E1, E2	2484657R01	Bead, Inductor
E101	2484657R01	Bead, Inductor
E104	-----	Not Placed
		FUSE:
F1	6505757V02	Surface Mount, 2 Amp
		FILTER: See Note 2.
FL1, FL2	4805245J33	Crystal, Mono, 73.35 MHz
FL401, FL402	9105398W01	450 kHz
		JACK:
J1	-----	Not Placed
J2	0905304Z01	Connector, Coaxial
J3	-----	Not Placed
		COIL, RF:
L6 (R1)	2462587T41	39 nH
L6 (R2)	2462587T38	22 nH
L7 (R1)	2462587T40	33 nH
L7 (R2)	2462587T38	22 nH
L8 (R1)	2462587T42	47 nH
L8 (R2)	2462587T20	270 nH
L9 (R1)	2462587T40	33 nH
L9 (R2)	2462587T38	22 nH
L10 (R1)	2462587T42	47 nH
L10 (R2)	2462587T05	15 nH
L11	2460591B04	11.03 nH
L12	2460591M32	27.42 nH
L13	2460591B80	19.61 nH
L14, L15	2460591B04	11.03 nH
L25	2462587Q48	1.2 µH
L30 (R1), L31 (R2)	2460591B22	8.67 nH
L30 (R1), L31 (R2)	2460591A01	4.22 nH
L32	2460591B04	11.03 nH
L34 (R1), L35 (R2)	2460591B22	8.67 nH
L34 (R2), L35 (R2)	2460591A01	4.22
L37	2460591B04	11.03
L102	-----	Not Placed
L103	2462587T20	270 nH
L105	2462587T20	270 nH
L107, L108	2462587T17	150 nH
L121, L122	2462587T20	270 nH
L123	2462587V38	220 nH
L126 thru L128	2460591B04	11.03 nH
L201 (R1)	2462587T38	22 nH
L201 (R2)	2462587T37	18 nH
L202	2462587Q20	2.2 µH
L204	2462587Q42	390 nH
L205 (R1)	2462587V27	27 nH
L205 (R2)	2462587V26	22 nH
L207 (R1)	2462587V38	220 nH
L207 (R2)	2462587V36	150 nH
L208, L209	2462587T22	390 nH
L210 (R1)	2405619V01	14.9 nH
L210 (R2)	2405619V03	15.1 nH
L211 (R1)	2405619V05	11.3 nH

L211 (R2)	2405619V07	9 nH
L212 (R1)	2462587V26	22 nH
L212 (R2)	2462587V25	18 nH
L213 (R1)	2462587T15	100 nH
L213 (R2)	2462587T22	390 nH
L215	2462587T22	390 nH
L216	2462587T05	15 nH
L218	2462587T22	390 nH
L219	2462587T37	18 nH
L220 (R1)	2462587T39	27 nH
L220 (R2)	2462587T12	56 nH
L221	2462587T22	390 nH
L223	2462587Q42	390 nH
L224 (R1)	2462587T40	33 nH
L224 (R2)	2462587T42	47 nH
L302	2462587Q42	390 nH
L401	2462575A16	3.9 µH
L402	2462587V37	180 nH
L530	2462587Q48	1.2 µH
L600, L601	2405452C59	910 nH
L602	2405452C64	1.5 µH
L603	2405452C61	1.1 µH
L605	2462587N65	750 nH
		TRANSISTOR: See Note 1.
Q001	4805218N55	NPN
Q101	4805128M16	PNP
Q107	4805921T02	Switching
Q108	4802245J10	Dual NPN
Q110	4802245J12	PNP
Q111	4805128M16	PNP
Q201	4802245J15	JFET P-Channel
Q202, Q203	4805218N55	NPN
Q601	4882022N70	NPN
		RESISTOR, Fixed: Ω ±5%; 1/8W Unless otherwise stated
R7	0662057A25	100
R22, R23	0662057A73	10k
R26	-----	Not Placed
R27	0662057A01	10
R036	-----	Not Placed
R100	2462587T20	270 nH
R101	0662057A73	10k
R102	0662057A65	4.7k
R106	0662057A61	3.3k
R107	0662057A58	2.4k
R110	0662057A65	4.7k
R111, R112	0662057A49	1k
R113	0662057A73	10k
R114	0662057A77	15k
R115	0662057G27	182k
R116	0662057G19	130k
R118	0662057A97	100k
R125	0662057B22	1M
R126	0662057A18	51
R127	0662057A12	30
R128	0662057A89	47k
R129	0662057A65	4.7k

R130	0662057B47	0
R131	0662057B22	1 M
R203 (R1)	0662057A09	22
R203 (R2)	0662057A01	10
R204	0662057A73	10k
R205	0662057A77	15k
R206	0662057A73	10k
R207	0662057A93	68k
R208	0662057A58	2.4k
R209	0662057A41	470
R210	0662057A37	330
R211	0662057A27	120
R212, R213	0662057A46	750
R214	0662057A89	47k
R215	0662057A88	43k
R217	0662057A77	15k
R218	0662057A97	100k
R219 (R1)	0662057A01	10
R219 (R2)	0662057A09	22
R220	0662057A56	2k
R221	0662057A51	1.2k
R222	0662057A56	2k
R223	0662057A89	47k
R301	0662057B47	0
R401	0660079U18	5.1
R402	0662057B08	270k
R403	0662057A83	27k
R404	0662057A73	10k
R405	0662057A13	33
R406	0662057A69	6.8k
R407	0662057A17	47
R410, R411	0662057A21	68
R412	0662057A13	33
R413	0662057A35	270
R414	0662057A56	2k
R416	0662057A80	20k
R417	0662057A01	10
R418	0662057A53	1.5k
R419	0662057A89	47k
R420	0662057A80	20K
R421	0662057A56	2k
R510	0662057B47	0
R601	0662057A25	100
R602	0662057A56	2k
R603	0662057A85	33k
R604	0662057A75	12k
R605	0662057A61	3.3k
R606	0662057B22	1 M
		THERMISTOR:
RT101	0605621T02	50k
		SHIELD:
S201	2602657J02	VCO
S202 (R1)	2602674J03	VCO Back
S202 (R2)	2602674J02	VCO Back
S203	2602658J01	Pendulum
S204	2602675J01	Synthesizer, Back
S205	2602660J01	Harmonic Filter, UHF

S206	2602686J01	Coil
S207	2605547X01	Varactor
		TRANSFORMER:
T1	2505515V08	4:1
T2	2505515V11	16:1
		INTEGRATED CIRCUIT MODULE: See Note 1.
U1	5105329V20	RF Amplifier
U2	5105329V26	Mixer
U101	5105835U52	TX ALC
U102	5105835U51	D/A CONVERTER
U104	5102001J68	Coupler
U105 (R1)	5105385Y10	LDMOS RF PA UHF-1
U105 (R2)	5105385Y11	LDMOS RF PA UHF-2
U106	5105469E65	5V Regulator
U201	5102227J37	VCO Buffer
U202	5105469E65	5V Regulator
U203	5105385Y42	16.8 MHz Reference Oscillator
U204	5105457W81	Fractional-N Synthesizer
U401	5105835U90	ABACUS
		DIODE: See Note 1.
VR1	4813830A33	20V
VR3	4813830A33	20V
VR402	4805129M58	Varactor

Notes:

- For optimum performance, order replacement diodes, transistors, and circuit modules by Motorola part number only.
- When ordering crystals, specify carrier frequency, crystal frequency, crystal type number, and Motorola part number.
- Part value notations:
 $p=10^{-12}$
 $n=10^{-9}$
 $\mu=10^{-6}$
 $m=10^{-3}$
 $k=10^3$
 $M=10^6$
- ITEM refers to the component reference designator. SIDE refers to the location of the component on the board; S1=Side 1, S2=Side 2.
- The NLE4249 UHF RF Board uses a 6-layer printed circuit board.

