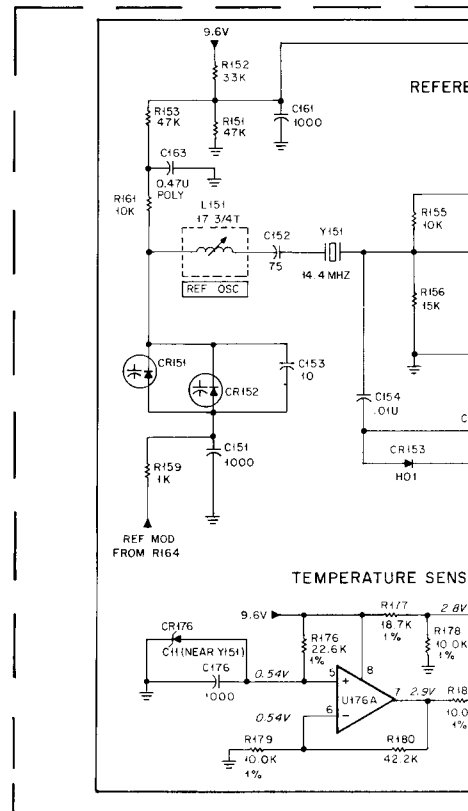
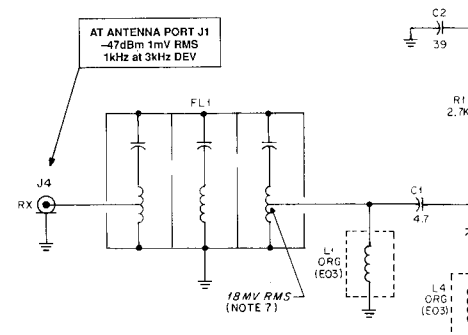


800 MHz RF Board Transistor D.C. Voltage Table

Transistor Ref. No.	VOLTAGE			VOLTAGE		
	BASE	EMITTER	COLLECTOR	GATE	SOURCE	DRAIN
Q1	7.2	0	8.4	—	—	—
Q2	7.8	8.4	1.2	—	—	—
Q51	—	—	—	0	1.8	9.6
Q52	—	—	—	0	1.8	9.6
Q53	0(SIG)	0(SIG)	9.6	—	—	—
Q101	4.8	4.8	0 (LOCK)	—	—	—
Q102	.72(R)	0	.21	—	—	—
Q103	4.8	4.0	9.6	—	—	—
Q104	7.4	6.9	2-8v	—	—	—
Q105	2.0	2.4	2-8v	—	—	—
Q106	5.8	5.0	9.6	—	—	—
Q107	1.6	.87	9.6	—	—	—
Q151	5.5	5.2	9.5	—	—	—
Q152	8.7	9.5	6.7	—	—	—
Q201	1.8	1.2	8.5	—	—	—
Q202	1.3	2.4	9.6	—	—	—
Q203	1.6(T)	2.5(T)	9.4(T)	—	—	—
Q204	9.5(R)	9.6	9.4(T)	—	—	—
Q251	9.5	8.8	9.6	—	—	—

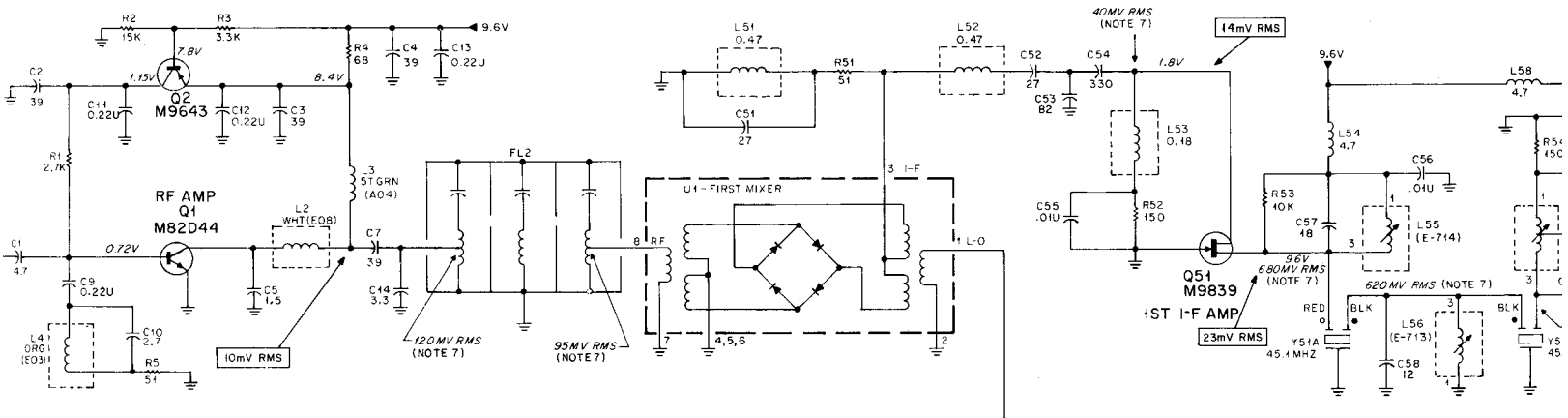


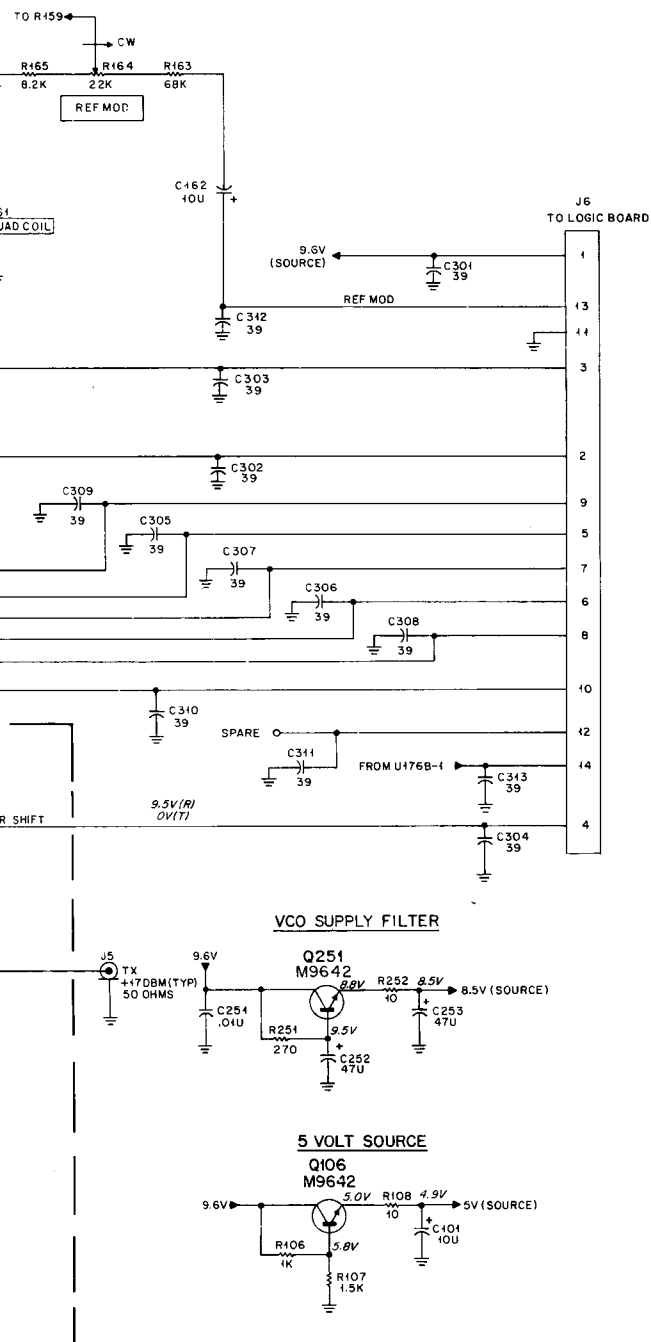
Schematic, Circuit Board Diagrams, and
Parts List for HLF4095B 800 MHz RF Board

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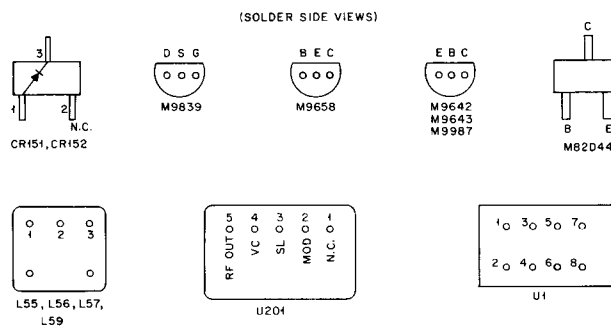
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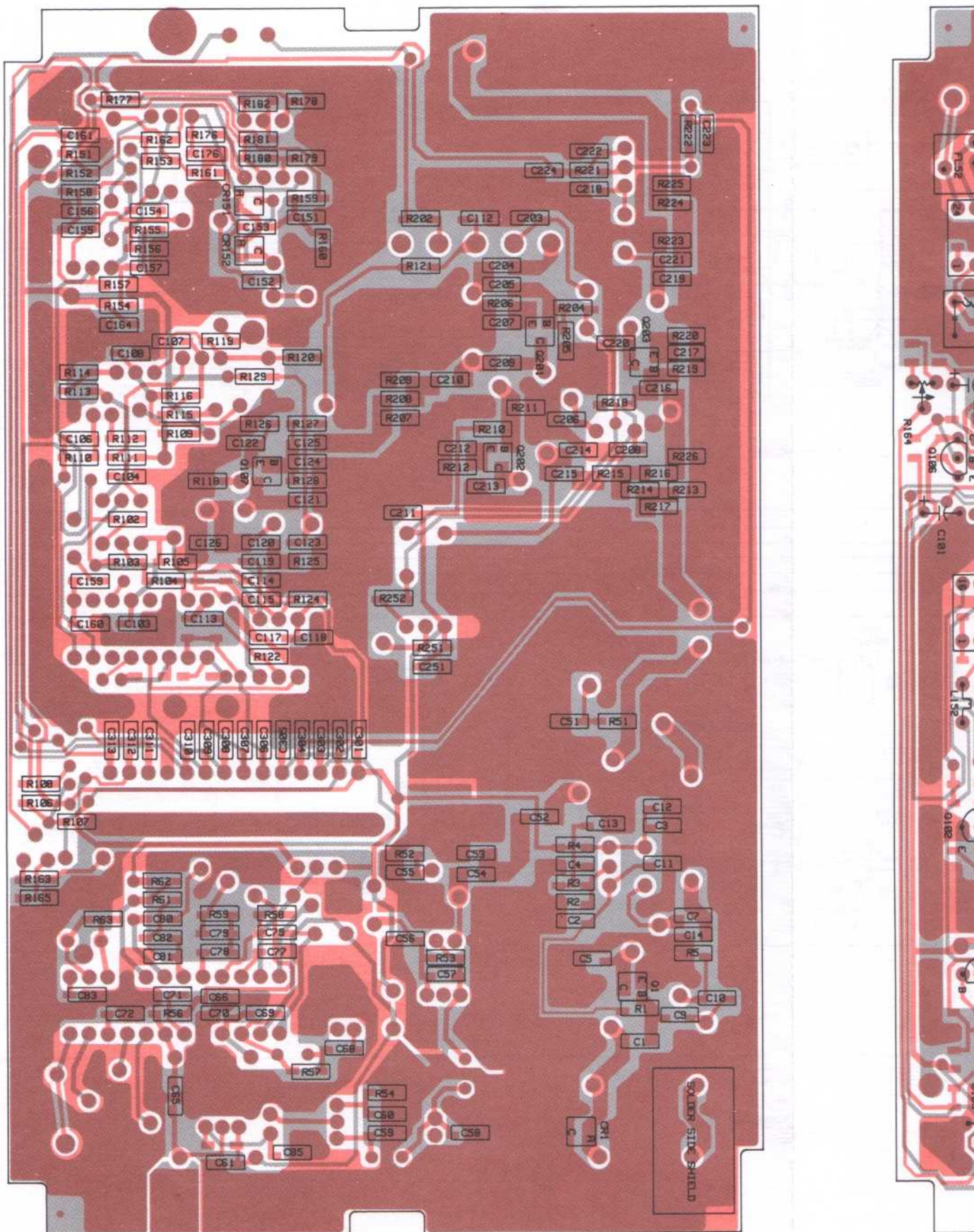


NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, INDUCTOR VALUES ARE IN MICROHENRIES.
2. NON-POLARIZED CAPACITORS ARE CHIP-TYPE UNLESS OTHERWISE INDICATED.
3. POLARIZED CAPACITORS ARE ALUMINUM ELECTROLYTIC TYPE UNLESS OTHERWISE INDICATED.
4. DC VOLTAGES ARE MEASURED WITH A HIGH IMPEDANCE (10 MEGOHM) DC VOLTMETER.
5. AC RF VOLTAGES ARE MEASURED WITH A HIGH IMPEDANCE RF MILLIVOLTMETER.
6. ALL VOLTAGE MEASUREMENTS ARE IN THE RECEIVE MODE UNLESS INDICATED AS FOLLOWS:
(R) RECEIVE MODE
(T) TRANSMIT MODE
7. MEASURED IN THE RECEIVE MODE WITH AN ON-CHANNEL SIGNAL AT A LEVEL OF -20 DBM.
8. MEASURED IN THE RECEIVE MODE WITH AN ON-CHANNEL SIGNAL AT A LEVEL OF -20 DBM, MODULATED WITH 1 KHZ AT 3 KHZ DEVIATION. MEASURED WITH AN AC RMS VOLTMETER.
9. VOLTAGES WITHIN BLOCKS MEASURED IN RECEIVE MODE WITH ON-CHANNEL SIGNAL AT LEVEL OF -47 DBM (1mV RMS), MODULATED WITH 1 KHZ AT 3 KHZ DEV. MEASURED WITH RF MILLIVOLTMETER AND RF BOARD IN CHASSIS.

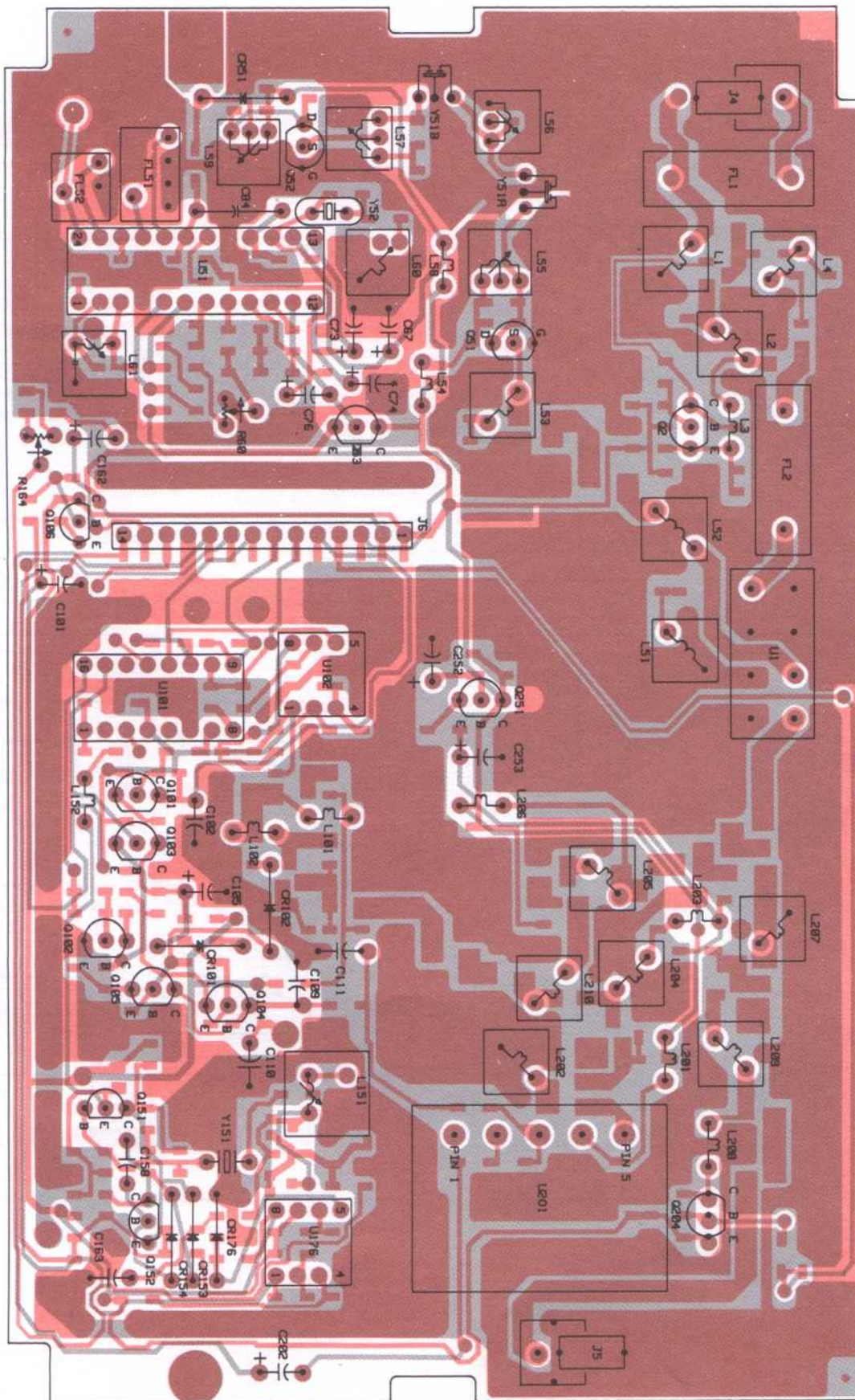


GEW-7590-0



SOLDER SIDE VIEW

SOLDER SIDE	RED	GAW-7727-O
COMPONENT SIDE	GREY	GAW-7728-O
OVERLAYS	BLACK	GDW-7729-O



COMPONENT SIDE VIEW

GAW-7727-O
GAW-7728-O
GDW-7729-O

parts list

HLF4095B MaxTrac 800 MHz RF Board

MXW-7409-O

MXW-7409-O (2)

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
capacitor, fixed (unless otherwise stated)		
C1	21-13740B17	4.7 pF, ±5%, 50V
C2-4	21-13740B39	39 pF, ±5%, 50V
C5	21-13740B05	1.5 pF, ±5%, 50V
C7	21-13740B39	39 pF, ±5%, 50V
C9	21-11032B15	.22 uF, +80%, -20%, 50V
C10	21-13740B11	2.7 pF, ±5%, 50V
C11-13	21-11032B15	.22 uF, +80%, -20%, 50V
C14	21-13740B13	3.3 pF, ±5%, 50V
C51	21-13740B35	27 pF, ±5%, 50V
C52	21-13740B35	27 pF, ±5%, 50V
C53	21-13740B47	82 pF, ±5%, 50V
C54	21-13740B61	330 pF, ±5%, 50V
C55,56	21-13741B45	.01 uF, ±5%, 50V
C57	21-13740B31	18 pF, ±5%, 50V
C58	21-13740B27	12 pF, ±5%, 50V
C59	21-13740B31	18 pF, ±5%, 50V
C60,61	21-13741B45	.01 uF, ±5%, 50V
C65	21-11032B15	.22 uF, +80, -20%, 50V
C66	21-13741B45	.01 uF, ±5%, 50V
C67	23-11013D13	10 uF, +10%, 20V, tantalum
C68	21-13740B33	22 pF, ±5%, 50V
C69	21-13740B39	39 pF, ±5%, 50V
C70	21-13740B29	15 pF, ±5%, 50V
C71,72	21-11032B15	.22 uF, +80, -20%, 50V
C73	23-11013D13	10 uF, +10%, 20V, tantalum
C74	23-11048B13	10 uF, ±20%, 16V, electrolytic
C75	21-13741B69	.1 uF, ±5%, 50V
C76	23-11048B05	1 uF, ±20%, 50V, electrolytic
C77,78	21-11032B15	.22 uF, +80, -20%, 50V
C79	21-13741B29	.0022 uF, ±5%, 50V
C80	21-11032B15	.22 uF, +80, -20%, 50V
C81	21-13740B55	180 pF, ±5%, 50V
C82,83	21-11032B15	.22 uF, +80, -20%, 50V
C84	21-82450B14	2.4 pF, ±5%, 500V
C85	21-13740B27	12 pF, ±5%, 50V
C101	23-11048B13	10 uF, ±20%, 16V, electrolytic
C102	08-11051A13	.1 uF, ±5%, 63V
C103,104	21-13741B45	.01 uF, ±5%, 50V
C105	23-11048B13	10 uF, ±20%, 16V, electrolytic
C106	21-13740B29	15 pF, ±5%, 50V
C107	21-13741B69	.1 uF, ±5%, 50V
C108	21-13741B69	.1 uF, ±5%, 50V
C109	08-11051A09	.022 uF, ±5%, 63V
C110	08-11051A19	1 uF, ±5%, 63V
C111	08-11051A07	.01 uF, ±5%, 63V
C112	21-13741B43	.0082 uF, ±5%, 50V
C113,114	21-13741B45	.01 uF, ±5%, 50V
C115	21-13740B39	39 pF, ±5%, 50V
C117	21-13741B69	.1 uF, ±5%, 50V
C118-120	21-13740B39	39 pF, ±5%, 50V
C121	21-13740B11	2.7 pF, ±5%, 50V
C122,123	21-13740B39	39 pF, ±5%, 50V
C125	21-13740B39	39 pF, ±5%, 50V
C126	21-13740B17	4.7 pF, ±5%, 50V
C151	21-13740B73	.001 uF, ±5%, 50V
C152	21-13740B46	75 pF, ±5%, 50V
C153	21-13740B25	10 pF, ±5%, 50V
C154	21-13741B45	.01 uF, ±5%, 50V
C155,156	21-13740B55	180 pF, ±5%, 50V
C157	21-13741B45	.01 uF, ±5%, 50V
C158	08-11051A15	.22 uF, ±5%, 63V
C159	21-13740B35	27 pF, ±5%, 50V
C160	21-13740B29	15 pF, ±5%, 50V
C161	21-13740B73	.001 uF, ±5%, 50V
C162	23-11048B13	10 uF, ±20%, 16V, electrolytic
C163	08-11051A17	.47 uF, ±5%, 63V
C164	21-13741B69	.1 uF, ±5%, 50V
C176	21-13740B73	.001 uF, ±5%, 50V
C202	23-11048B19	47 uF, ±20%, 16V, electrolytic
C203,204	21-13740B39	39 pF, ±5%, 50V
C205	21-13740B22	7.5 pF, ±5%, 50V
C206-208	21-13740B39	39 pF, ±5%, 50V
C209	21-13740B07	1.8 pF, ±5%, 50V
C210	21-13740B09	2.2 pF, ±5%, 50V
C211,212	21-13740B39	39 pF, ±5%, 50V
C213	21-13740B17	4.7 pF, ±5%, 50V
C214	21-13740B21	6.8 pF, ±5%, 50V
C215-217	21-13740B39	39 pF, ±5%, 50V
C218	21-13741B39	39 pF, ±5%, 50V
C219	21-13740B22	7.5 pF, ±5%, 50V
C220	21-13740B11	2.7 pF, ±5%, 50V
C221-223	21-13740B39	39 pF, ±5%, 50V
C224	21-13740B45	.01 uF, ±5%, 50V
C251	21-13740B45	68 pF, ±5%, 50V
C252,253	23-11048B19	47 uF, ±20%, 16V, electrolytic
C301-313	21-13740B39	39 pF, ±5%, 50V
diode (see note)		
CR51	48-83654H01	silicon
CR101,102	48-83654H01	silicon
CR151,152	48-05129M21	varactor
CR153,154	48-83654H01	silicon
CR176	48-82256C11	10V zener
filter		
FL1,2	91-80054M01	3 pole, ceramic
FL51	91-80097D06	6 element, ceramic
FL52	91-80098D06	3 element, ceramic
RF coil		
L1	24-11030E03	orange

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
L2	24-11030E08	white
L3	24-11030A04	5 turns, green
L4	24-11030E03	orange
L51,52	24-80063M09	.47 uH
L53	24-80063M04	.18 uH
L54	24-80063M21	4.7 uH
L55	24-80164M04	5.2 turns, variable
L56	24-80164M01	1:6 ratio, variable
L57	24-80164M04	5.2 turns, variable
L58	24-80063M21	4.7 uH
L59	24-80164M03	4.3 turns, variable
L60	24-80063M14	1.2 uH
L61	25-80000E01	transformer
L101	24-11030A04	5 turns, green
L102	24-11030E04	yellow
L151	24-80299D01	17.75 turns, orange
L152	24-80063M22	5.6 uH
L201	24-11030A04	5 turns, green
L202	24-11030E01	brown
L203	24-11030A04	5 turns, green
L204	24-11030E04	yellow
L205	24-11030E03	orange
L206	24-11030A04	5 turns, green
L207	24-11030E02	red
L208	24-11030A04	5 turns, green
L209,210	24-11030E04	yellow
connector receptacle		
J4,5	09-80135M01	2 pin coax
J6	09-80130M03	14 position socket
transformer		
T1,2	25-80163M02	500 MHz balance transformer
transistor (see note)		
Q1	48-80950X01	NPN
Q2	48-00869643	PNP
Q51,52	48-00869839	N-channel
Q53	48-00869642	NPN
Q101	48-00869643	PNP
Q102,103	48-80182D20	NPN
Q104	48-00869643	PNP
Q105,106	48-00869642	NPN
Q107	48-80950X01	NPN
Q151	48-00869658	NPN
Q152	48-00869643	PNP
Q201-203	48-80950X01	NPN
Q204	48-00869643	PNP
Q251	48-00869642	NPN
resistor, fixed, ohm, ±5%, 1/8 watt (unless otherwise stated)		
R1	06-11077A84	2.7k
R2	06-11077B03	15k
R3	06-11077A86	3.3k
R4	06-11077A46	68
R5	06-11077A43	51
R51	06-11077A43	51
R52	06-11077A54	150
R53	06-11077A98	10k
R54	06-11077A54	150
R56	06-11077B45	820k
R57	06-11077A72	820
R58	06-11077B23	100k
R59	06-11077B27	150k
R60	18-05500L08	22k, ±20%, potentiometer
R61	06-11077B19	68k
R62	06-11077B09	27k
R63	06-11077B21	82k
R102	06-11077A62	330
R103,104	06-11077A98	10k
R105	06-11077B11	33k
R106	06-11077A74	1k
R107	06-11077A78	1.5k
R108,109	06-11077A26	10
R110	06-11077B03	15k
R111	06-11077A68	560
R112	06-11077A78	1.5k
R113	06-11077A64	390
R114	06-11077A68	560
R115	06-11077A78	1.5k
R116	06-11077A92	5.6k
R118	06-11077A78	1.5k
R119	06-11077A89	4.3k
R120	06-11077A96	8.2k
R121	06-11077A98	10k
R122	06-11077A88	3.9k
R124	06-11077A60	270
R125	06-11077A43	51
R126	06-11077A50	100
R127	06-11077A84	2.7k
R128	06-11077A72	820
R129	06-11077A58	220
R151	06-11077B15	47k
R152	06-11077B11	33k
R153	06-11077B15	47k
R154	06-11077A34	22
R155	06-11077A98	10k
R156	06-11077B03	15k
R157	06-11077A78	1.5k
R158,159	06-11077A74	1k
R161	06-11077A98	10k
R163	06-11077B19	68k

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R164	18-05500L08	22k, $\pm 20\%$, potentiometer
R165	06-11077A96	8.2k
R176	06-11077G26	22.6k, $\pm 1\%$
R177	06-11077G18	18.7k, $\pm 1\%$
R178,179	06-11077F91	10k, $\pm 1\%$
R180	06-11077G52	42.2k, $\pm 1\%$
R181	06-11077F91	10k, $\pm 1\%$
R182	06-11077G28	23.7k, $\pm 1\%$
R202	06-11077A80	1.8k
R204	06-11077A88	3.9k
R205	06-11077A76	1.2k
R206	06-11077A50	100
R207	06-11077A44	56
R208	06-11077A60	270
R209	06-11077A44	56
R210	06-11077A88	3.9k
R211	06-11077A74	1k
R212	06-11077A50	100
R213	06-11077A44	56
R214	06-11077A38	33
R215,216	06-11077A30	15
R217	06-11077A32	18
R218	06-11077A88	3.9k
R219	06-11077A74	1k
R220	06-11077A50	100
R221	06-11077A88	3.9k
R222	06-11077A88	3.9k
R223	06-11077A66	470
R224	06-11077A28	12
R225	06-11077A66	470
R251	06-11077A60	270
R252	06-11077A26	10
integrated circuits (see note)		
U1	51-80058M01	mixer
U51	51-05479G05	linear
U101	51-84704M75	synthesizer
U102	51-80924V01	prescaler
U176	51-84621K89	dual opamp
U201	51-80267L01	VCO hybrid
crystal (see note)		
Y51	91-80022M02	45.1 MHz
Y52	48-80008K02	44.645 MHz
Y151	48-80174D05	14.4 MHz
non-referenced parts		
	14-05160A01	insulator
	26-80098M01	coil can shield, 7 used
	26-80097M01	coil can shield
	26-80228L01	coax connector shield
	26-80228L01	coax connector shield
	26-80229L03	VCO shield
	26-80256L01	coax connector bottom shield
	30-10286A72	24 strand wire, white
	42-80047N01	grounding clip
	54-80111F01	PROM label
	75-05295B02	crystal base pad, 2 used
	75-05295B07	crystal base pad, 2 used
	84-80132L01	circuit board

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note: For best performance, order diodes, transistors, and integrated circuit devices by Motorola part number.

Schematic, Circuit Board Diagrams, and
Parts List for HLF4095B 800 MHz RF Board

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