SAMSUNG

DUAL BAND Mobile Cellular Phone

SGH-2488

SERVICE *Manual*

DUAL BAND Mobile Cellular Phone

CONTENTS

ELECTRONICS

Samsung Electronics Co.,Ltd.
Printed in Korea
11/1999 Rev 1.0
GH68-00844A

1. General Description

1-1 Dualband System

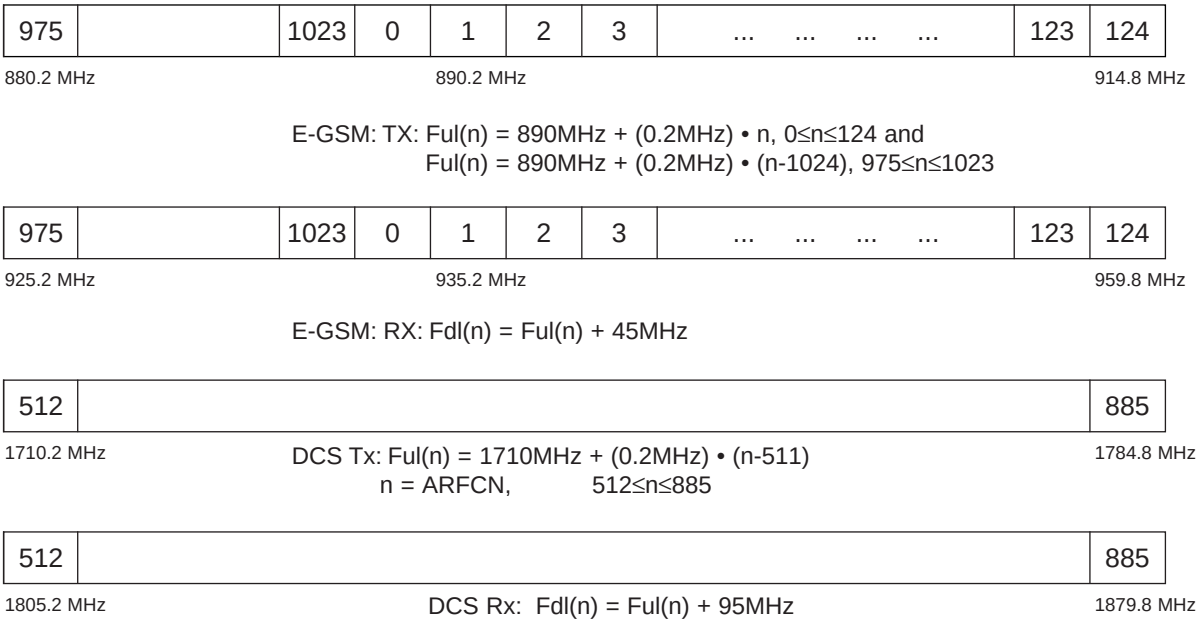
1-1-1 Calls

Dual band handsets supports the E-GSM and DCS system, DCS is an acronym for Digital Cellular system, and GSM® is an acronym for Global System for Mobile communications©, using TDMA for wide-area cellular operation. The GSM and DCS system consists of the sub-systems shown;
The Mobile Station (MS) talks to the Base Station System (BSS) via an RF air interface. The Base Station System (BSS) consists of Base Transceiver Station (BTS) and a Base Station Controller (BSC). The interface between BTS and BSC is called an Abis interface. Generally one BSC controls 20 to 30 BTSs, and a Mobile Switching Center (MSC) controlling the traffic among different cells would be reported back from a number of BSSs. A Visitor Location Register (VLR) will be allocated to one MSC to find the mobiles out of their home cell by listing them to VLR. The MSC would also be connected to the Home Location Register (HLR), the Authentication Center (AC) and the Equipment Identity Register (EIR) So the system verify that the users and equipment are legal subscriber.

1-1-2 Channels

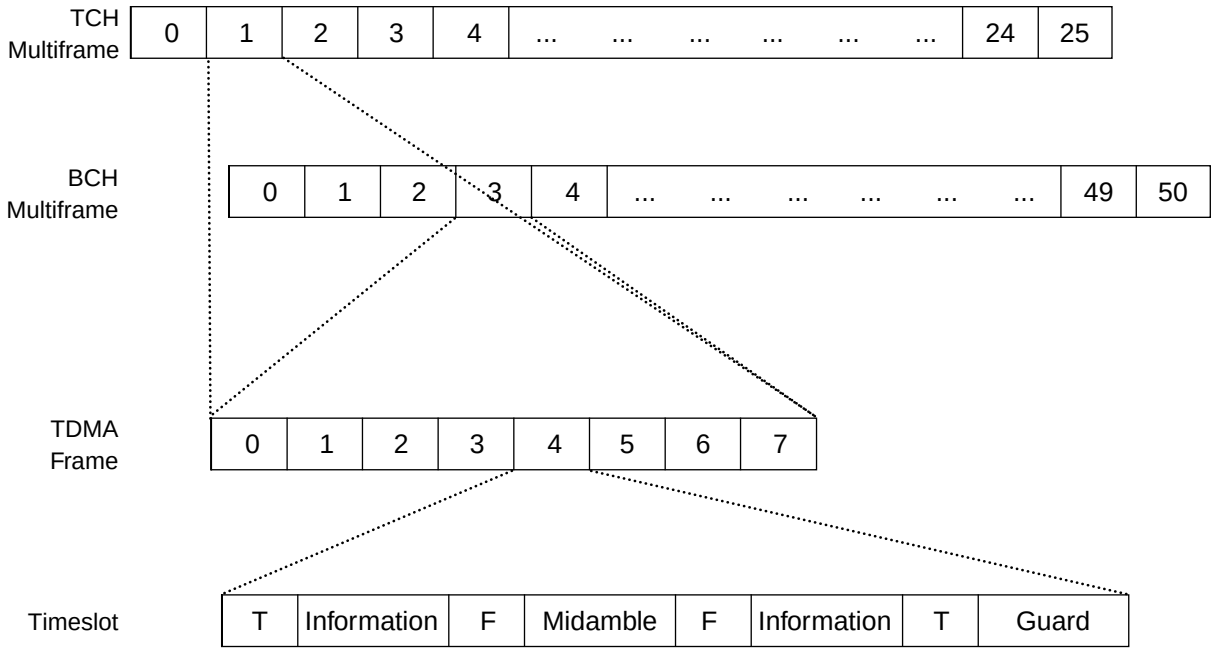
Channels used in the E-GSM and DCS system can be divided into two classes - Logical and Physical channel. Physical channels can be described in terms of their frequency and time domain characteristics. They are the actual frequencies and timeslots the MS and BS transmits or receives on. The logical channels are mapped onto these physical channels logically. Any particular and instant, physical channels may be control or traffic channels, which determines the function of a physical channel at a particular point in time.

1-1-3 Airinterface of ARFCN (Absolute Radio Frequency Channel Number)



< Fig. 1 ARFCN Diagram >

1-1-4 GSM TDMA Timeslots, Frames, and Multiframes



< Fig. 2 Concept of Frames and Timeslots >

1-1-5 Logical Channel

TCH (Traffic CH) is used mainly for transferring the speech information, and the BCH (Broadcast CH) is related to control information.The major function of BCH is transferring information on the downlink for MS synchronization, identification, paging, and controll. BCH is always radiated from every cells and the MS tries to find the BCH which has highest level soon after turned on. The organization of BCH is shown belows; FCCH (Frequency Correction Channel), SCH (Synchronization Channel), and BCCH (Broadcast Control Channel). CCCH (Common Control Channel) will play a role like a message board, and is divided into two control channels - PCH (Paging Channel) and AGCH (Access Grant Channel). SACCH (Slow Associated Control Channel) exists every 12 frames, controlling and controls the TX power level and timing advance of MS, transferring cell information to MS on downlink, transferring the information about RX level, Quality, and RX level of adjacent cell on uplink. FACCH (Fast Associated Control Channel) steals and changes the TCH when needing a Handover. SDCCH (Stand-alone Dedicated Control Channel) and RACH (Random Access Channel) operate during the call setup procedure.

2. Circuit Description

2-1 RF Part

2-1-1 Frequency Generator

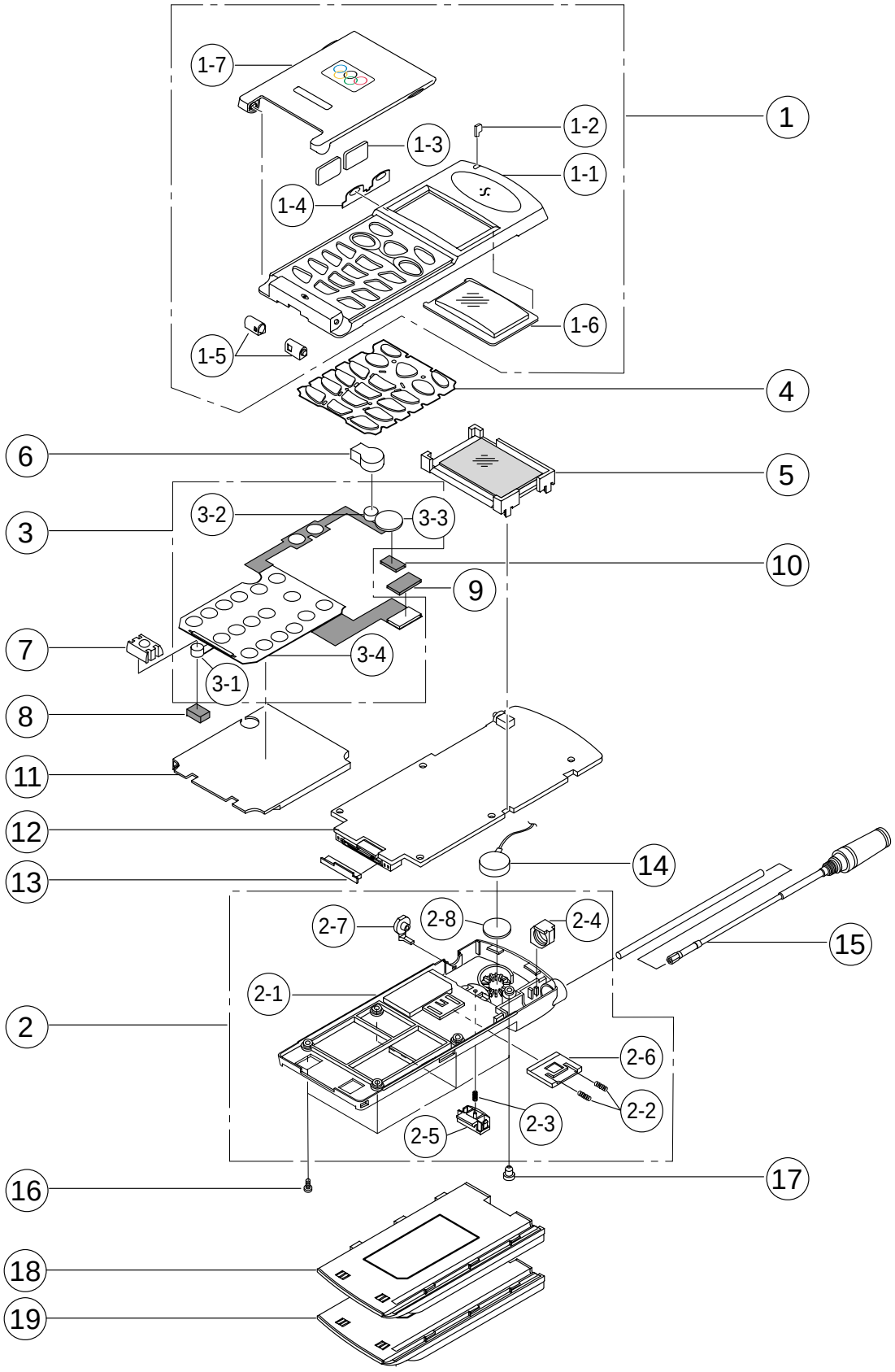
The 13MHz reference clock (VCTCXO) drives the logic and RF part. The 13 MHz reference is controlled by the logic (10bits DAC minimum) and is kept to a frequency error less than ±0.1 ppm after synchronization with the GSM network.
The IF VCO generates 233~259.5MHz VHF LO used in the RX I,Q Demodulator and after doubling(493~519MHz), it used in the TX I,Q modulator. The UHF LO for the first RX down conversion and the TX offset mixing works in superheterodyne mode to reduce the relative bandwidth and to be able to work at a frequency greater than 1 GHz.

2-1-2 Transmitter

The baseband GSM chipset (Kernel 5) generates I and Q baseband signals for the transmit modulator. The modulator (U2893B) is the first stage which takes the baseband signal and upconverts it to a fixed intermediate frequency. The modulator provides more than 35dBc of carrier and unwanted side-band refection and produces GMSK modulated signal, the “reference” signal at 493~519 MHz which passes to the offset phase-locked loop block (OPLL). The OPLL consists of a down-converter, phase detector, loop filter and transmit VCOs operation at the final RF output frequency. The down converter mixes the UHF LO (eg. 1210MHz) with the transmit VCO signal to generate a “feedback” signal at 493~519 MHz. The “feedback” signal passes via a limiter to one port of the phase detector. The GMSK “reference” signal from the modulator passes via second limiter to the other input port of the phase detector. The phase detector generates an error current proportional to the phase difference between the “feedback” signal from the down-converter and the “reference” signal from the modulator. This error current is filtered by a third order low-pass filter to generate an output voltage which depends on the GMSK modulation and the desired channel frequency. This voltage controls the transmit VCO such that the VCO output signal, centered on the correct RF channel, is frequency modulated with the original GMSK data. The center frequency of the transmit VCO is offset from the UHF LO frequency by 493~519MHz. The OPLL acts as a tracking narrowband band pass filter tuned to the desired channel frequency. This reduces the wideband products. The OPLL architecture results in a low-noise GMSK modulated signal at 902MHz(1747MHz) with very low spurious content.
The RF GMSK output from the transmit VCO is fed to the RF power amplifier. The peak output power and the profile of the transmitted burst are controlled by means of a closed feedback loop. The RF output from the PA is sampled with a directional coupler. The sampled signal passes to an RF detector diode whose output voltage is dependent on the incident RF level. This “feedback” voltage passes to the inverting input of the loop integrator. A “reference” signal is generated within the baseband section under control of the layer 1 software. The loop maintains zero difference between the “feedback” signal and the “reference” signal. In this way, the amplitude and shape of the transmitted RF burst may be controlled by the baseband processor. In particular, the rise and fall profiles can be controlled to meet the stringent power/time templates and switching transient requirements of GSM 05.05.
The RF output passes to the antenna connector via an integrated TX/RX switch and lowpass filter to attenuate the harmonics generated by the power amplifier.

1. Exploded Views and Parts List

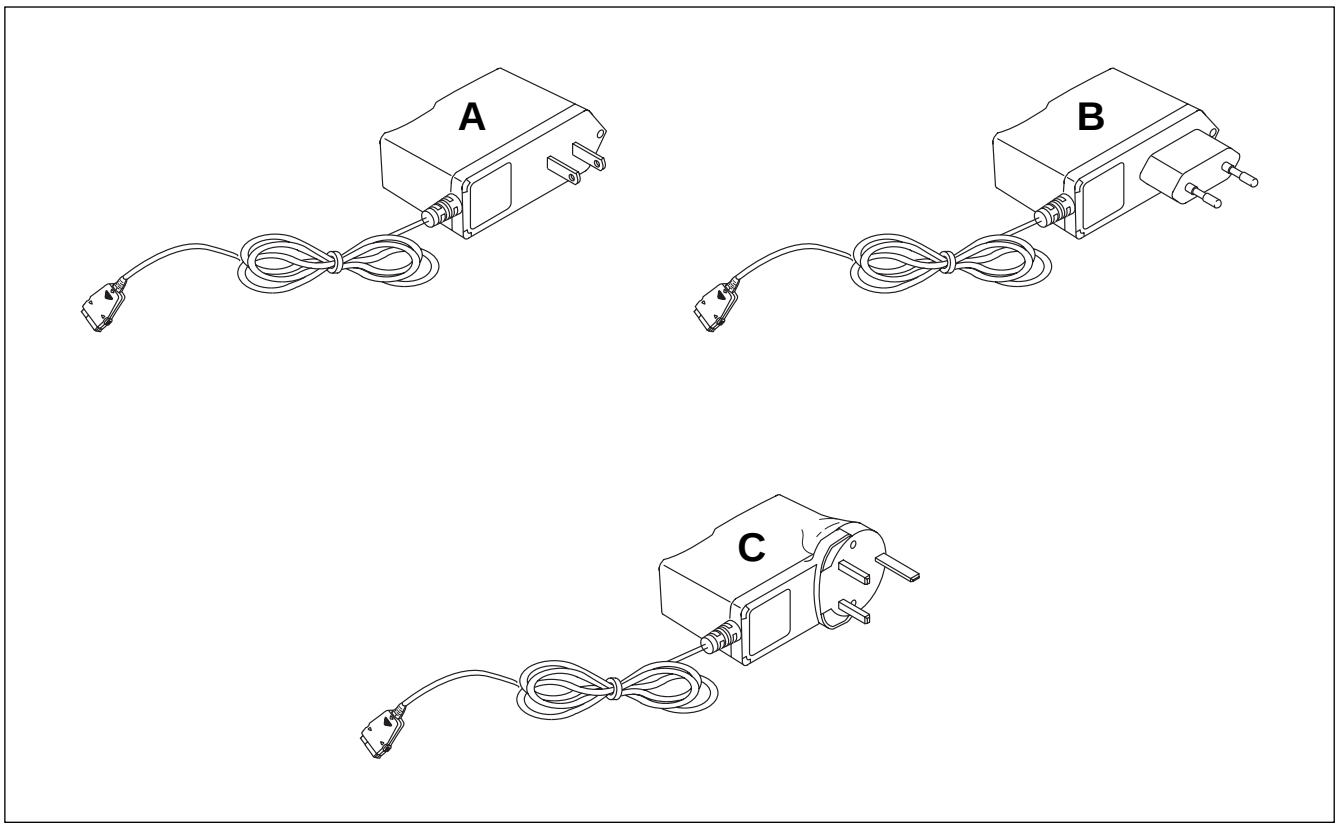
1-1 Main Exploded View (SGH-2488)



1-2 Main Parts List

Level	Description	SEC CODE	Q'ty	Remark
1	MEC-FRONT COVER	GH75-00614A	1	GOLD
1-1	PMO-FRONT COVER	GH72-00595A	1	SNA
1-2	PMO-LED CAP	GH72-00182A	1	SNA
1-3	PM0-VOLUME KEY	GH72-00608A	2	SNA
1-4	RMO-RUBBER KEY	GH73-00190A	1	SNA
1-5	MEC-HINGE ASSY	GH75-11115A	2	SNA
1-6	MEC-SUA WINDOW	GH75-00406A	1	
1-7	MEC-FLIP COVER	GH75-00615A	1	
2	MEC-REAR COVER	GH75-00616A	1	GOLD
2-1	PMO-REAR COVER	GH72-01403A	1	SNA
2-2	IPR-SIM SPRING	GH70-00006A	2	SNA
2-3	IPR-LOCKER SPRING	GH70-10633A	1	SNA
2-4	NDC-ANTENNA BRAKET	GH71-00021A	1	
2-5	PMO-BATT LOCKER	GH72-00147A	1	SNA
2-6	PMO-SIM LOCKER	GH72-00513A	1	SNA
2-7	RMO-EAR COVER	GH73-00194A	1	
2-8	TAPE MOTOR	GH74-00196A	1	SNA
3	KEY PBA	GH96-00892A	1	
3-1	MIC ASSY	GH96-00830A	1	
3-2	BUZZER	3002-001104	1	
3-3	SPEAKER	3001-001167	1	
3-4	REED SWITCH	3409-001003	1	
4	PMO-KEY PAD	GH72-00607C	1	
5	LCD ASSY	GH96-00891A	1	
6	RUBBER BUZZER	GH73-00188A	1	
7	RUBBER MIC	GH73-00189A	1	
8	SPONGE MIC	GH74-00355A	1	SNA
9	SPONGE CONNECTOR	GH74-00402A	1	SNA
10	SPONGE SPEAK	GH74-00403A	1	SNA
11	PM0-SHIELD COVER	GH72-00591A	1	
12	PBA MAIN	GH92-00878A	1	
13	RMO-CONNECTOR COVER	GH73-40673G	1	
14	MOTOR	GH31-10004A	1	
15	ANTENNA	GH42-00038A	1	
16	SCREW-MACHINE	6001-001148	5	5PCS
17	RUBBER CAP	GH73-00191A	1	
18	BATTERY	GH43-00143D	1	750mAh
19	BATTERY	GH43-00183D	1	1000mAh

1-3 Travel Adapter

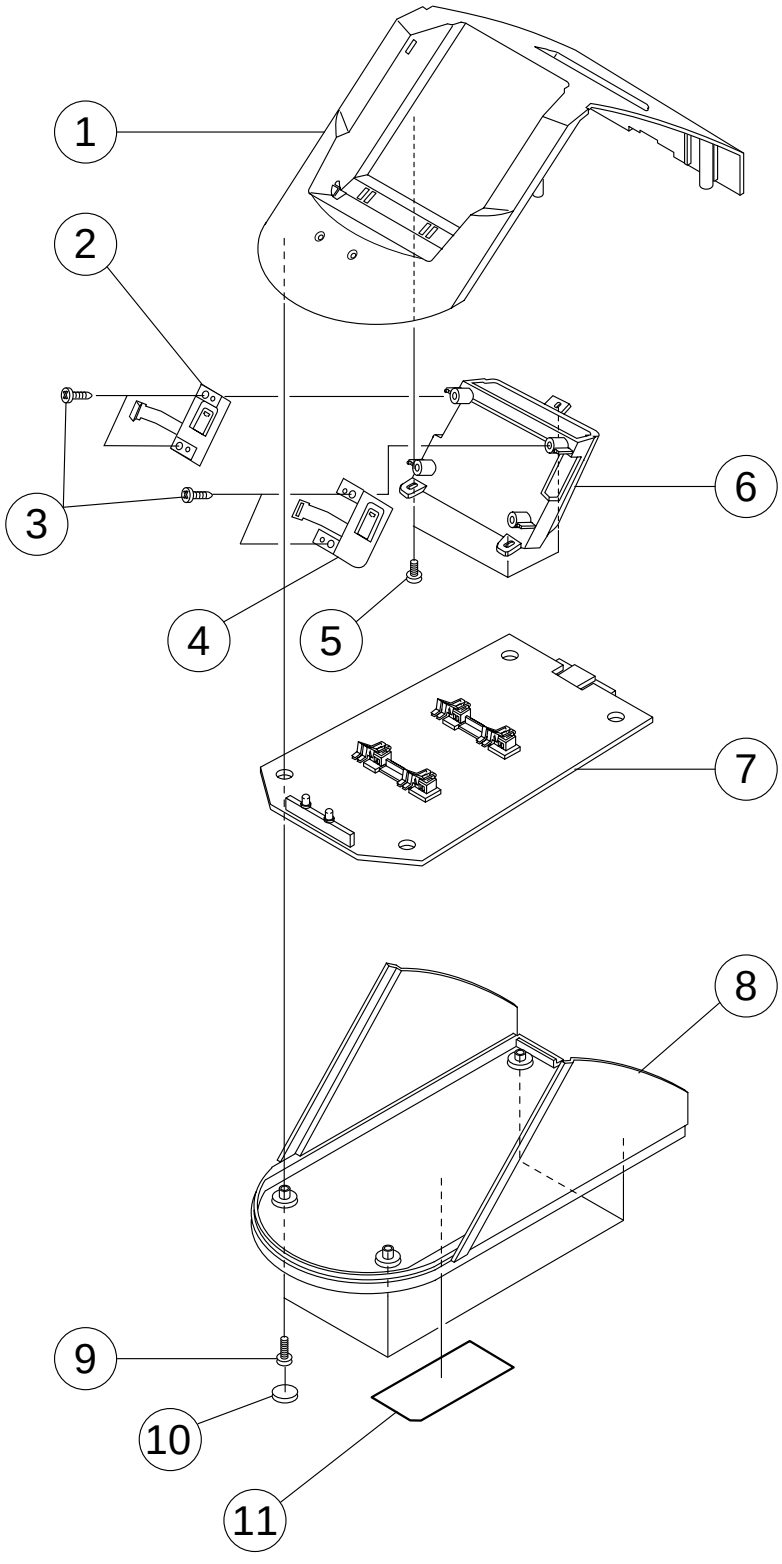


1-4 Travel Adapter Parts List

TYPE	SEC CODE	REMARK
A	GH96-01143A	CHINA
B	GH96-01146A	EUROPE
C	GH96-01095A	UNITED KINGDOM

1-5 Desk Top Charger

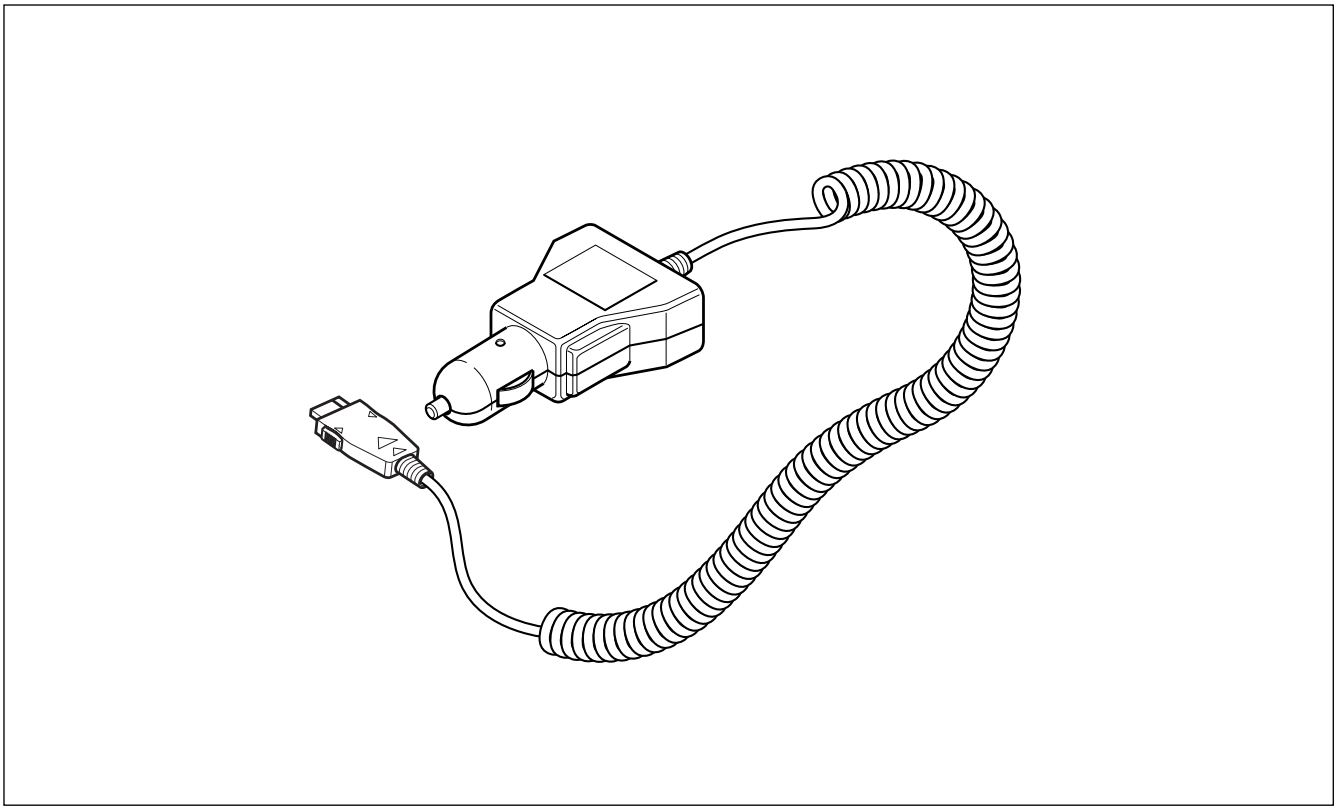
SEC CODE : GH44-00090B



1-6 Desk Top Charger Parts List

NO	DESCRIPTION	SEC.CODE	Q'TY	REMARK
1	UPPER CASE		1	
2	HANGER SPRING (L)		1	
3	SCREW TAPPING		4	
4	HANGER SPRING(R)		1	
5	SCREW TAPPING		3	
6	BATT. HOUSING		1	
7	PCB		1	
8	LOWER BASE		1	
9	SCREW TAPPING		4	
10	BUMPON		4	
11	LABEL		1	

1-7 Ciger Light Adapter

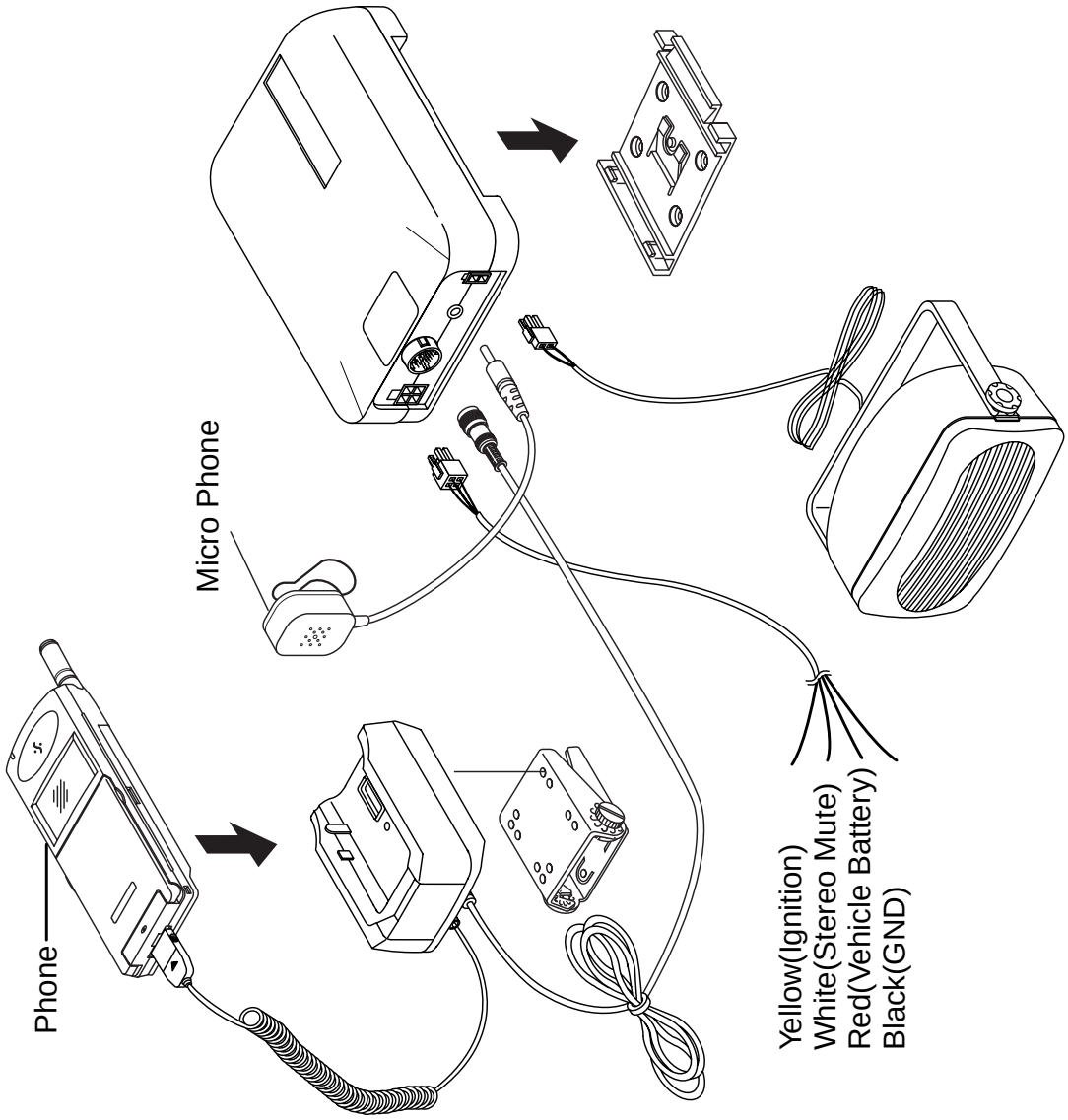


1-8 Ciger Light Adapter Parts List

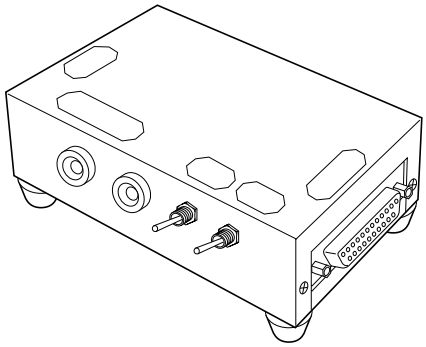
DESCRIPTION	SEC CODE	REMARK
Ciger Light Adapter Code	GH44-00040A	BLACK

1-9 Hands Free Kit

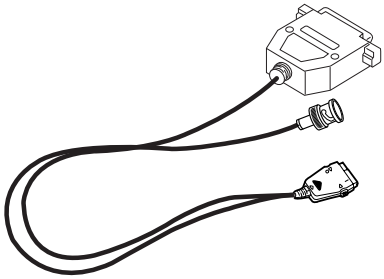
SEC CODE : GH96-00800A



1-10 Test Jig

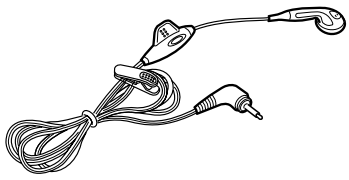


TEST JIG	GH80-10508A



DATA CABLE	GH39-30532A

1-11 Earphone



EARPHONE	GH96-00830A

2 Electrical Parts List

2-1 Main Parts List

REFERENCE	SEC.CODE	DESCRIPTIONS
D401,D801	0401-001033	Diode-Switching,25V,200mA
D253,D255,D808	0404-001044	Diode-Schottky,20V,1A,SMD
D400	0404-001054	Diode-Schottky,70V,15mA,SOT-143
D600	0405-001051	Diode-Varactor,4.7V,50nA,SOT-23
D101,D102,D176,D820,D903,D904	0406-001084	ESD Diode
D252	0407-001002	Diode-Array,80V,300mA,CA2-3
D901,D902	0407-001006	Diode-Array,20V,100mA,C2-3
D251	0407-001007	Diode-Array,80V,25mA,CA4-2
Q959	0501-000162	TR-SMALL SIGNAL,PNP,200mW,SOT-323
Q958	0501-000462	TR-SMALL SIGNAL,PNP,225mW,SOT-
Q951,Q961,Q962	0501-002011	TR-SMALL SIGNAL,NPN,200mW,SOT-23
Q300	0501-002037	TR-SMALL SIGNAL,MPN,55mW,SOT-434
Q601,Q604	0501-002196	TR-SMALL SIGNAL,NPN,280mW,SOT-323
U307	0501-002205	TR-SMALL SIGNAL,NPN,SOT-343
Q151,Q153,Q255	0504-000167	TR-Digital,NPN,100mW,10K10Kohm,SSM
Q256,Q257	0504-000168	TR-Digital,NPN,100mW,47K47Kohm,SSM
Q500	0505-000110	FET-SILICON,60V,115mA,200mW
U501,U502	0505-001131	FET-SILICON,-12V,-500mA,690mohm
Q957	0505-001332	FET-SILICON
Q600	0506-000173	TR-ARRAY,NPN,80mW,SOT-363
U128,U252,U302,U303,U400,U403,U412,U813	0506-001004	TR-ARRAY,NPN/PNP,50V-100mA
LED100	0601-000276	LED/CHIP,1.6x2.0mm
U902,U903	0801-000022	IC-CMOS LOGIC,NANDGATE,SOP,5P
U900,U901,U904,U906	0801-000794	IC-CMOS LOGIC,ANDGATE,SOT-25,5P
U971	0801-000796	IC-CMOS LOGIC,ORGATE,SOT-25,5P
U973	0801-002540	IC-CMOS LOGIC,COMBINATIONGATE
U905	0801-002345	IC-CMOS LOGIC,INVERATER,SOP,5P
U413,U414	0801-002349	IC-CMOS LOGIC
U962,U963	1001-001088	ANALOG SWITCH
U969	1003-001226	IC-POWER DRIVER,SOP,8P,120MIL
U203	1103-001184	IC-EEPROM
U972	1107-001225	IC-Flash memory
U970	1109-001153	IC-ETC.MEMORY,2Mx16Bit,CSP,72P,-,9
U406	1201-001018	IC-OP AMP,SOT-23,5P,Single,70dB
U127	1201-001212	IC-OP AMP,TSSOP,16P,150MIL,DUAL,200M
U604	1201-001248	IC-CASCADE AMP,SOT-143,4P,2.7V
U402	1201-001299	IC-POWER Amp,RF-K,8P,SINGLE,8V
U408	1201-001411	IC-POWER Amp

REFERENCE	SEC.CODE	DESCRIPTIONS
U960	1202-001022	IC-VOLTAGE COMP,SSOP,8P,110MIL,7V
U804	1203-001256	IC-SWITCH VOL REG,SOT-23,5P,59MI
U801,U803,U805,U806,U810,U811	1203-001285	IC-SWITCH VOL REG,SOT-23,5P,150MII
U809	1203-001511	IC-Reset,SOT-23,3P
U253	1203-001515	IC-BATTERY,SSOP,16P,150MIL
U812	1203-001702	IC-DC/DC CONVERTER,SOP,10P,112MIL
U102	1203-001740	IC-DC/DC CONVERTER,SOP,16P,150MIL
U301	1204-001006	IC-IP SYSTEM,SOP,20P,205MIL
U300,U305	1205-001307	IC-MIXER,SOP,16,197MIL
U200	1205-001643	IC-KERNEL
U950	1205-001697	IC-VOCODER,QFP,80P,3V
U202	1206-001009	IC-TIMER,SOP,8P,173MIL
U603	1209-001220	IC-PLL SYSTEM,SOP,20P,173MIL
U500	1209-001233	IC-PLL SYSTEM,SSOP,28P
TH1	1404-001005	THERMISTOR,47Kohm,5%,4054K,20mW
D179	1405-001018	Varistors
D103,D104	1405-001019	Varistors
R184	2007-000070	R-CHIP,0ohm,5%,1/16W,DA,TP,1608
R105,R129,R135,R163,R177,R178,R179,R180,R181, R182,R183,R185,R186,R187,R188,R621,R653	2007-000138	R-CHIP,100ohm,5%,1/16W,DA,TP,1005
R644,R1000	2007-000139	R-CHIP,220ohm,5%,1/16W,DA,TP,1005
R220,R221,R264,R529,R611,R646,R811,R951,R954,R1001	2007-000140	R-CHIP,1Kohm,5%,1/16W,DA,TP,1005
R640	2007-000141	R-CHIP,2.2Kohm,5%,1/16W,DA,TP,1005
R309,R609,R223	2007-000142	R-CHIP,2.7Kohm,5%,1/16W,DA,TP,1005
R351	2007-000143	R-CHIP,4.7Kohm,5%,1/16W,DA,TP,1005
R606,R628	2007-000145	R-CHIP,6.2Kohm,5%,1/16W,DA,TP,1005
R603	2007-000146	R-CHIP,6.8Kohm,5%,1/16W,DA,TP,1005
R106,R107,R152,R205,R210,R255,R232,R235,R238, R253,R256,R363,R418,R419,R605,R630,R637,R906, R907,R952,R962,R963,R984,R985,R996,R988,R998, R999	2007-000148	R-CHIP,10Kohm,5%,1/16W,DA,TP,1005
R300	2007-000152	R-CHIP,20Kohm,5%,1/16W,DA,TP,1005
R622	2007-000153	R-CHIP,22Kohm,5%,1/16W,DA,TP,1005
R126,R208,R218,R219,R352,R353	2007-000157	R-CHIP,47Kohm,5%,1/16W,DA,TP,1005
R257	2007-000159	R-CHIP,56Kohm,5%,1/16W,DA,TP,1005
R100,R101,R151,R153,R162,R209,R212,R213,R214, R222,R231,R251,R252,R254,R263,R528,R812,R972 ,R980,R991,R997	2007-000162	R-CHIP,100Kohm,5%,1/16W,DA,TP,1005
R610,R639	2007-000164	R-CHIP,150Kohm,5%,1/16W,DA,TP,1005
R215,R326,R361,R505,R531,R631,R647,R978	2007-007771	R-CHIP,0ohm,5%,1/16W,DA,TP,1005
R308,R500,R501,R502,R503,R504,R517,R524,R527, R601,R602,R607,R633,R638,R650	2007-000172	R-CHIP,10ohm,5%,1/16W,DA,TP,1005
R651,R654	2007-000173	R-CHIP,22ohm,5%,1/16W,DA,TP,1005
R515,R516,R518	2007-000932	R-CHIP,470ohm,5%,1/16W,DA,TP,1005

REFERENCE	SEC.CODE	DESCRIPTIONS
R130,R136,R417	2007-001119	R-CHIP,680ohm,5%,1/16W,DA,TP,1005
R428	2007-001217	R-CHIP,82ohm,5%,1/16W,DA,TP,1005
R304,R623,R625,R627	2007-001288	R-CHIP,18ohm,5%,1/16W,DA,TP,1005
R431	2007-001295	R-CHIP,39ohm,5%,1/16W,DA,TP,1005
R305,R364,R410,R420,R511,R519,R520,R648,R649	2007-001298	R-CHIP,51ohm,5%,1/16W,DA,TP,1005
R445	2007-001301	R-CHIP,68ohm,5%,1/16W,DA,TP,1005
R404,R406,R617	2007-001305	R-CHIP,120ohm,5%,1/16W,DA,TP,1005
R430,R432	2007-001306	R-CHIP,150ohm,5%,1/16W,DA,TP,1005
R306,R311,R316,R317	2007-001307	R-CHIP,180ohm,5%,1/16W,DA,TP,1005
R613,R805	2007-001308	R-CHIP,200ohm,5%,1/16W,DA,TP,1005
R128,R134	2007-001311	R-CHIP,270ohm,5%,1/16W,DA,TP,1005
R356,R357,R365,R525,R526,R950,R953	2007-001313	R-CHIP,330ohm,5%,1/16W,DA,TP,1005
R612	2007-001316	R-CHIP,820ohm,5%,1/16W,DA,TP,1005
R507,R512	2007-001317	R-CHIP,910ohm,5%,1/16W,DA,TP,1005
R629	2007-001323	R-CHIP,3Kohm,5%,1/16W,DA,TP,1005
R354,R608	2007-001325	R-CHIP,3.3Kohm,5%,1/16W,DA,TP,1005
R618,R643	2007-001339	R-CHIP,180Kohm,5%,1/16W,DA,TP,1005
R413	2007-002797	R-CHIP,560ohm,5%,1/16W,DA,TP,1005
R301	2007-003020	R-CHIP,4.3Kohm,5%,1/16W,DA,TP,1005
R427,R429	2007-003030	R-CHIP,91ohm,5%,1/16W,DA,TP,1005
R407	2007-007001	R-CHIP,3.9Kohm,5%,1/16W,DA,TP,1005
R521	2007-007090	R-CHIP,11Kohm,5%,1/16W,DA,TP,1005
R510	2007-007095	R-CHIP,390ohm,5%,1/16W,DA,TP,1005
R362	2007-007096	R-CHIP,160ohm,5%,1/16W,DA,TP,1005
R132,R137,R259	2007-007107	R-CHIP,100Kohm,1%,1/16W,DA,TP,1005
R265	2007-007133	R-CHIP,300ohm,1%,1/16W,DA,TP,1005
R261	2007-007135	R-CHIP,18K,1%,1/16W,DA,TP,1005
R434,R900,R903,R905	2007-007137	R-CHIP,1.2Kohm,1%,1/16W,DA,TP,1005
R522	2007-007141	R-CHIP,240ohm,5%,1/16W,DA,TP,1005
R904,R987	2007-007142	R-CHIP,10Kohm,1%,1/16W,DA,TP,1005
R514,R523,R626,R645,R652	2007-007195	R-CHIP,3.9ohm,5%,1/16W,DA,TP,1005
R262,R416	2007-007309	R-CHIP,12Kohm,1%,1/16W,DA,TP,1005
R266,R414	2007-007310	R-CHIP,8.2Kohm,1%,1/16W,DA,TP,1005
R412	2007-007311	R-CHIP,22Kohm,1%,1/16W,DA,TP,1005
R409	2007-007316	R-CHIP,3.3Kohm,1%,1/16W,DA,TP,1005
R200,R201,R202,R203	2007-007317	R-CHIP,2.2Kohm,1%,1/16W,DA,TP,1005
R121,R127,R133,R303,R313,R415,R994,R995	2007-007318	R-CHIP,1Kohm,1%,1/16W,DA,TP,1005
R619	2007-007528	R-CHIP,1.5Kohm,1%,1/16W,DA,TP,1005
R435,R655	2007-007588	R-CHIP,1.8Kohm,1%,1/16W,DA,TP,1005
R258	2007-007590	R-CHIP,82Kohm,1%,1/16W,DA,TP,1005
R260	2007-007592	R-CHIP,270Kohm,1%,1/16W,DA,TP,1005
R979,R981	2007-007627	R-CHIP,16Kohm,1%,1/16W,DA,TP,1005

REFERENCE	SEC.CODE	DESCRIPTIONS
R983	2007-007630	R-CHIP,14Kohm,1%,1/16W,DA,TP,1005
R355,R902	2007-007788	R-CHIP,332ohm,1%,1/16W,DA,TP,1005
C524	2203-000151	C-CHIP,1.5nF,5%,50V,TP,2012
C215,C216,C217,C218,C303,C318,C337,C362,C368, C411,C416,C501,C502,C503,C508,C509,C516,C521, C623,C628,C635,C642	2203-000233	C-CHIP,100pF,5%,50V,TP,1005
C348,C512	2203-000278	C-CHIP,10pF,5%,50V,TP,1005
C445	2203-000311	C-CHIP,120pF,5%,50V,TP,1005
C310,C539,C604	2203-000330	C-CHIP,12pF,5%,50V,TP,1005
C625	2203-000359	C-CHIP,150pF,5%,50V,TP,1005
C201,C316,C431,C514,C951,C958,C959,C966,C967, C968,C969,C970,C1009,C1011,C1012,C1013,C1014, C1015,C1016,C1017,C1018,C1019	2203-000386	C-CHIP,15pF,5%,50V,TP,1005
C127,C135,C207,C311,C351,C352,C354,C356,C361, C371,C373,C375,C379,C504,C522,C621,C627,C637, C641	2203-000438	C-CHIP,1nF,10%,50V,TP,1005
C624	2203-000455	C-CHIP,1nF,5%,50V,TP,2012
C409	2203-000585	C-CHIP,220pF,10%,50V,TP,1005
C950,C956	2203-000604	C-CHIP,22nF,10%,25V,TP,1608
C305,C330,C374,C376,C378,C415, C505,C506,C515,C611,C617	2203-000628	C-CHIP,22pF,5%,50V,TP,1005
C405,C418,C423,C428,C454,C457,C458,C459,C460, C510,C511,C520,C530,C632,C633,C639	2203-000679	C-CHIP,27pF,5%,50V,TP,1005
C128,C136,C609	2203-000725	C-CHIP,3.9nF,10%,50V,TP,1005
C614	2203-000800	C-CHIP,33nF,10%,25V,TP,1608
C302,C306,C319	2203-000812	C-CHIP,33pF,5%,50V,TP,1005
C610	2203-000836	C-CHIP,390pF,10%,50V,TP,1005
C325	2203-000854	C-CHIP,39pF,5%,50V,TP,1005
C304,C357,C810,C819,C862,C867	2203-000940	C-CHIP,470pF,10%,50V,TP,1005
C321,C350,C353,C377,C647	2203-001017	C-CHIP,4pF,5%,50V,TP,1005
C1004	2203-001033	C-CHIP,5.6nF,10%,25V,TP,1005
C518,C519	2203-001072	C-CHIP,56pF,5%,50V,TP,1005
C165,C166,C167,C168	2203-001101	C-CHIP,6.8nF,10%,25V,X7R,TP,1005
C507,C513	2203-001153	C-CHIP,68pF,5%,50V,TP,1005
C300,C307,C315,C540,C606	2203-001178	C-CHIP,6pF,5%,50V,TP,1005
C314,C339	2203-001201	C-CHIP,7pF,5%,50V,TP,1005
C410,C430	2203-001221	C-CHIP,820pF,10%,50V,TP,1005
C613	2203-001259	C-CHIP,8pF,5%,50V,TP,1005
C169	2203-001402	C-CHIP,220nF,+80-20%,16V,TP,1608
C523	2203-001408	C-CHIP,270pF,5%,50V,TP,1608
C429	2203-002525	C-CHIP,560pF,10%,50V,TP,1005
C313	2203-002668	C-CHIP,0.5pF,0.1pF,50V,TP,1005
C214,C317,C906,C954,C964,C990,C996,C997,C1008 C1020,C1021,C1022,C1023,C1024	2203-003054	C-CHIP,9pF,5%,50V,TP,1005

REFERENCE	SEC.CODE	DESCRIPTIONS
C341,C349	2203-005050	C-CHIP,1.8pF,5%,50V,TP,1005
C210,C528,C603,C644	2203-005054	C-CHIP,4.7pF,5%,50V,TP,1005
C102,C117,C126,C134,C141,C204,C205,C206 C254,C258,C259,C260,C261,C358,C363,C372 C500,C608,C618,C634,C851,C853,C855,C869 C874,C901,C902,C903C904,C905,C961,C971 C972,C973,C974,C995,C999,C1000,C1005,C1010	2203-005061	C-CHIP,100nF,+80-20%,16V,TP,1005
C170,C171,C172,C173,C257,C364,C533,C534 C536,C638,C669,C800,C830,C831,C872	2203-005065	C-CHIP,1uF,+80-20%,10V,TP,1608
C177,C342,C645	2203-005158	C-CHIP,2.2pF,5%,50V,TP,1005
C629	2203-005195	C-CHIP,10nF,5%,25V,TP,3216
C346,C602,C646	2203-005444	C-CHIP,3pF,5%,50V,TP,1005
C178,C179,C180,C181	2203-005480	C-CHIP,33nF,10%,10V,TP,1005
C957	2203-005481	C-CHIP,47nF,10%,10V,TP,1005
C365,C616	2203-005562	C-CHIP,10uF,+80-20%,10V,TP,3216
C131,C139,C200,C211,C262,C333,C359,C360,C433 C435,C531,C600,C601,C605,C607,C612,C615,C620 C622,C626,C630,C636,C801,C828,C833,C850,C852 C854,C859,C870,C979,C1006,C1007	2203-000254	C-CHIP,10nF,10%,16V,TP,1005
C464,C871	2404-001083	Cap-Tantal,220uF,6.3V,20%,TP,7125
C827	2404-001020	Cap-Tantal,10uF,6.3V,20%,TP,3612
C103,C104,C805,C806,C816,C817,C826,C845,C860, C861,C868,C832	2404-001105	Cap-Tantal,10uF,6.3V,20%,TP,2012
C873	2404-001152	Cap-Tantal,220uF,20%,6.3V
C953	2404-001162	Cap-Tantal,47uF
C253	2203-005367	Cap-Tantal,6.8uF,20%,25V
L126,L128	2703-000217	Inductor,470uH/10%,2.5x3.2x2mm
L127,L129	2703-001071	Inductor,330uH/10%,2.5x3.2x2mm
L302	2703-001956	Inductor,100nH/5%,1608
L401	2703-001942	Inductor,33nH/5%,1608
L607	2703-001178	Inductor,3.3nH/0.3nH,1005
L327	2703-001943	Inductor,10nH/5%,1005
L175	2703-001290	Inductor,2.7nH/0.3nH,1608
L502,L503	2703-001308	Inductor,68nH/5%,1608
L177,L308,L600	2703-001950	Inductor,12nH/10%,1005
L320	2703-001544	Inductor,39nH/5%,1608
L250	2703-001595	Inductor,47nH/5%,1005
L300	2703-001685	Inductor,82nH/5%,1608
L402	2703-001708	Inductor,5.6nH/5%,1005
L800	2703-001928	Inductor,47uH/20% 4.8x4.8x1.8mm
L326	2703-001949	Inductor,4.7nH/5%,1005
L323,L500	2703-001722	Inductor,18nH/5%,1005
L321,L322,L405,L406,L504,L505	2703-001986	Inductor,33nH/5%,1005
L507,L324	2703-001726	Inductor,27nH/5%,1005
L328,L329,L602	2703-001727	Inductor,22nH/5%,1005

REFERENCE	SEC.CODE	DESCRIPTIONS
L604	2703-001728	Inductor,1.5nH/0.3nH,1005
L301,L303,L501	2703-001732	Inductor,56nH/5%,1608
L305,L310	2703-001952	Inductor,8.2nH/5%,1005
L309,L325,L340	2703-001953	Inductor,6.8nH/5%,1005
L306,L319	2703-001984	Inductor,3.9nH/10%,1005
L307,L603,L606	2703-001954	Inductor,2.7nH/0.3nH,1005
L251	2703-001740	Inductor,10uH/20%,1608
L601	2703-001794	Inductor,120nH/2%,1608
L318	2703-001798	Inductor,2.2nH/5%,1005
L801	2703-002020	Inductor,2.2mH/20%
X201	2801-003847	Crystal
X600	2806-001190	DUAL VCO,1171~1216MHz,3V,8mA,TP
X501	2806-001194	DCS TX VCO
X500	2806-001199	GSM TX VCO
X601	2809-001220	VCTCXO-13MHz
F305	2903-001203	Ceramic Filter
F300	2904-001146	Filter-SAW-AV,246MHz
F301	2904-001147	Filter-SAW-AV,942.5MHz
F303,F304	2904-001170	Filter-SAW,1842.5MHz,75MHz
F302	2904-001175	GSM RX SAW
U401	2909-001086	ANTENNA SWITCH,942.5MHz,897.5MHz
F200,F201	3301-001208	Core-Ferrite Bead
J100	3709-001121	SIM CONNECTOR,6P,2.54mm,SMD-S
M950	3710-001105	CONNECTOR-SOCKET,2P,1.27mm,SMD-S
J176	3710-001302	I/F Connetctor,18P,0.5mm
J151	3710-001428	BTB Connector,24P,0.5mm
J901	3722-001380	Earphone jack,6P
U405	4709-001174	Directional Coupler,890-915/1710-1785MHz
R360,R359,R604,R615,R632,C130,C138,C176,C370,C380, C367,C369,C517,C529,C535,C643,L176,L311,L341,L605		SOT,NC

SMD

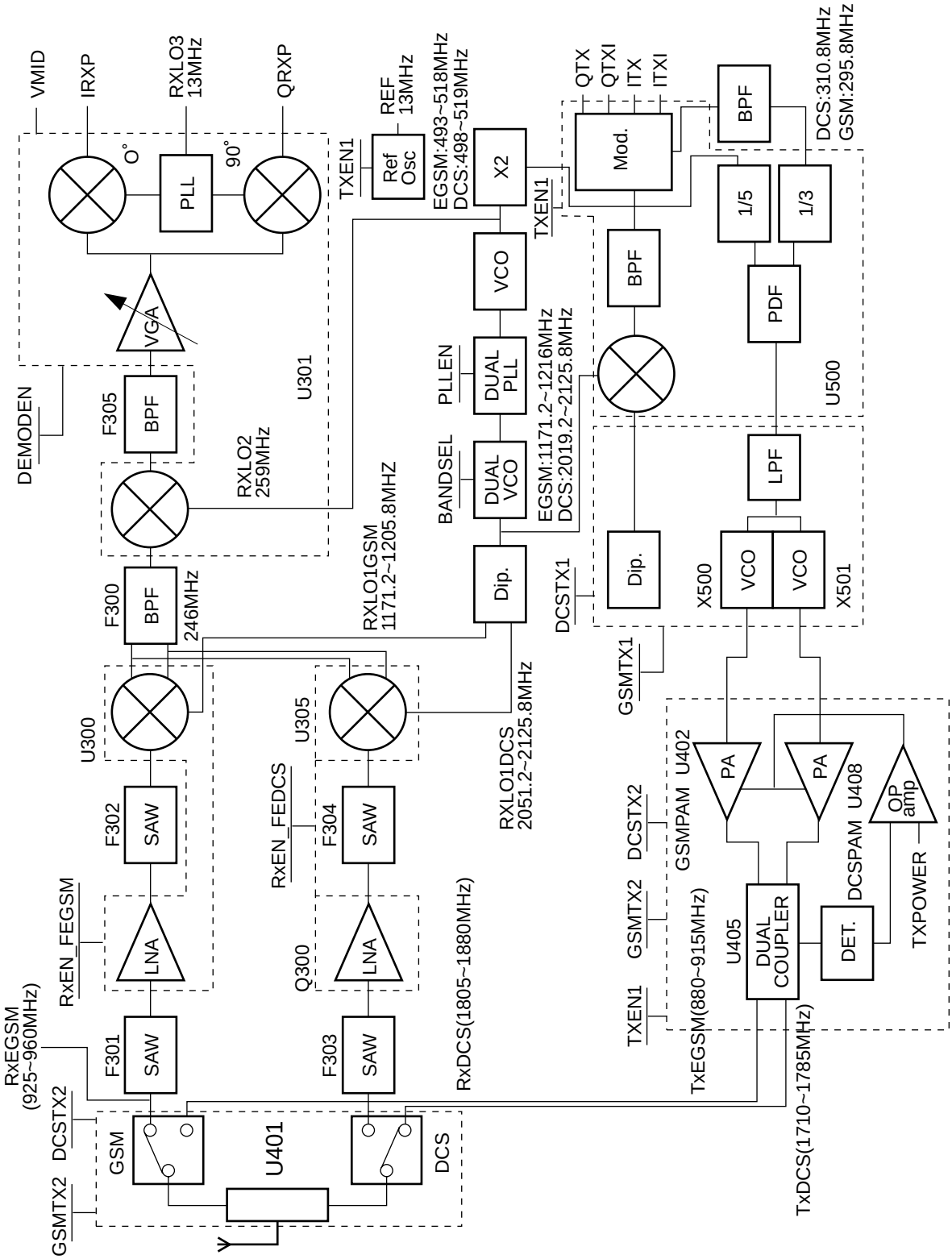
REFERENCE	SEC.CODE	DESCRIPTIONS
C863	4302-001081	BATT/CAP250uAH 3.3V
J180	GH96-00891A	LCD(LCD+EL+LCD Bracket)
motor	GH31-10004A	Vibrator motor
W176	GH39-00041A	Semirigid Cable
PCB	GH41-00090A	SGH-2488 PCB
	GH42-00038A	ANTENNA
	GH96-00892A	KEYPAD ASS'Y
A176	GH71-00020A	ANTENNA CLIP

OPTION

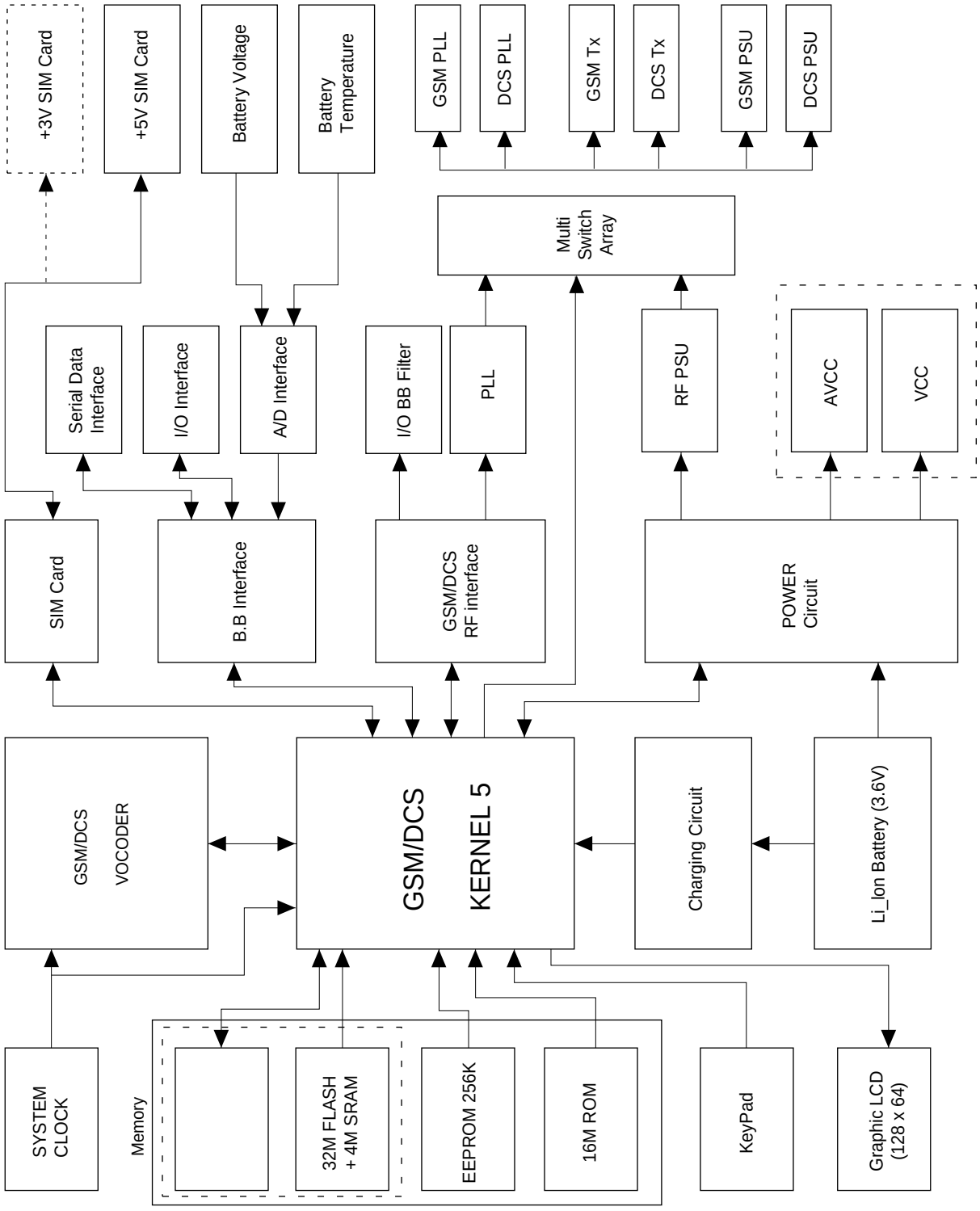
REFERENCE	SEC.CODE	DESCRIPTIONS
JIG	GH80-10508A	SGH-2400 TEST JIG
CABLE	GH39-30532A	SGH-2400 TEST JIG CABLE
TA	GH44-30553A	SGH-2400 TRAVEL ADAPTOR(China)
TA CABLE	GH39-10504A	SGH-2400 TA CABLE
CLA	GH44-00040A	SGH-2400 CLA
DTC	GH44-00090A	DESK TOP CHARGE
SLIM BATTERY		540mAh (Light Grey)
SLIM BATTERY		540mAh (Dark Grey)
SLIM BATTERY		540mAh (BLACK)
STANDARD BATTERY	GH43-00143D	750mAh (Light Grey)
STANDARD BATTERY	GH43-00143E	750mAh (Dark Grey)
STANDARD BATTERY	GH43-00143F	750mAh (BLACK)
EXTENDED BATTERY	GH43-00183D	1000mAh (Light Grey)
EXTENDED BATTERY	GH43-00183E	1000mAh (Dark Grey)
EXTENDED BATTERY	GH43-00183F	1000mAh (BLACK)
DATA KIT	*GH96-00774A*	*SGH-2400 DATA KIT*
HFK		*HANDS FREE KIT*
EAR PHONE	GH96-00830A	EAR PHONE

3 Block Diagrams

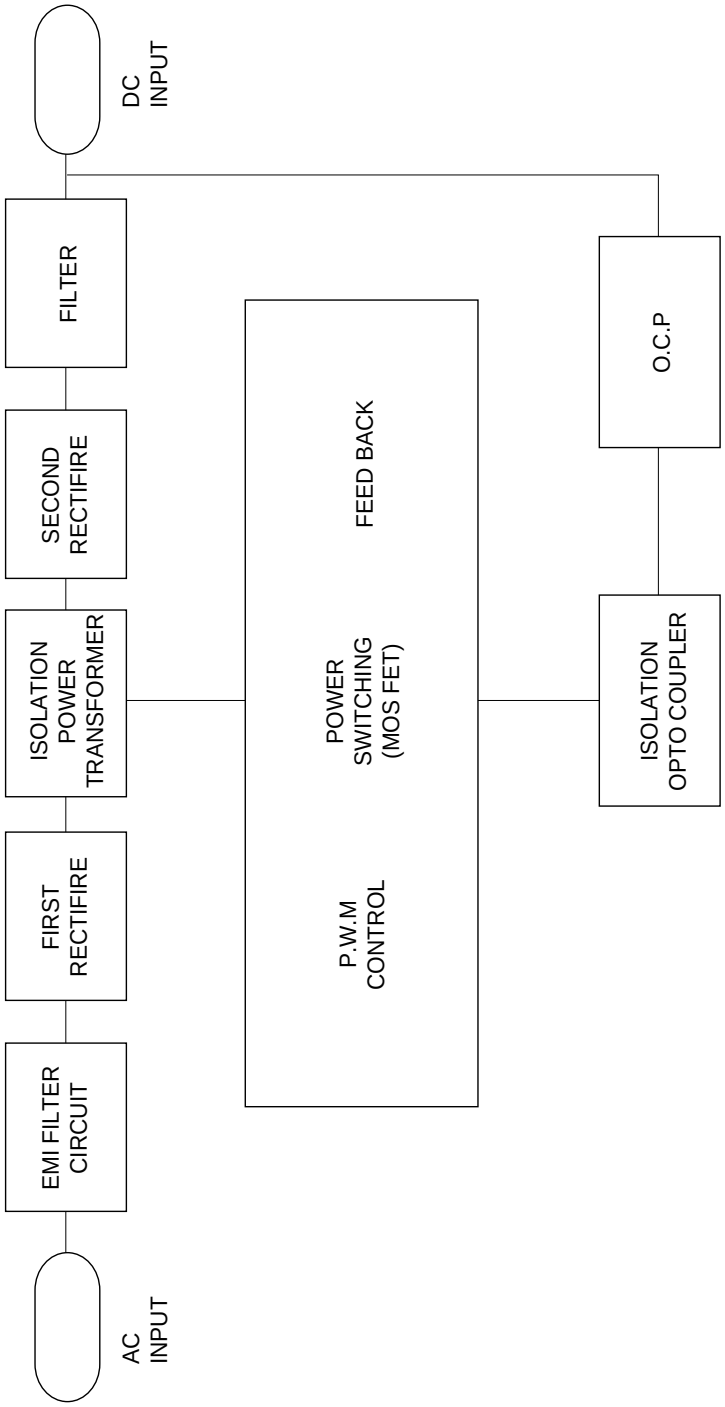
3-1 Main RF



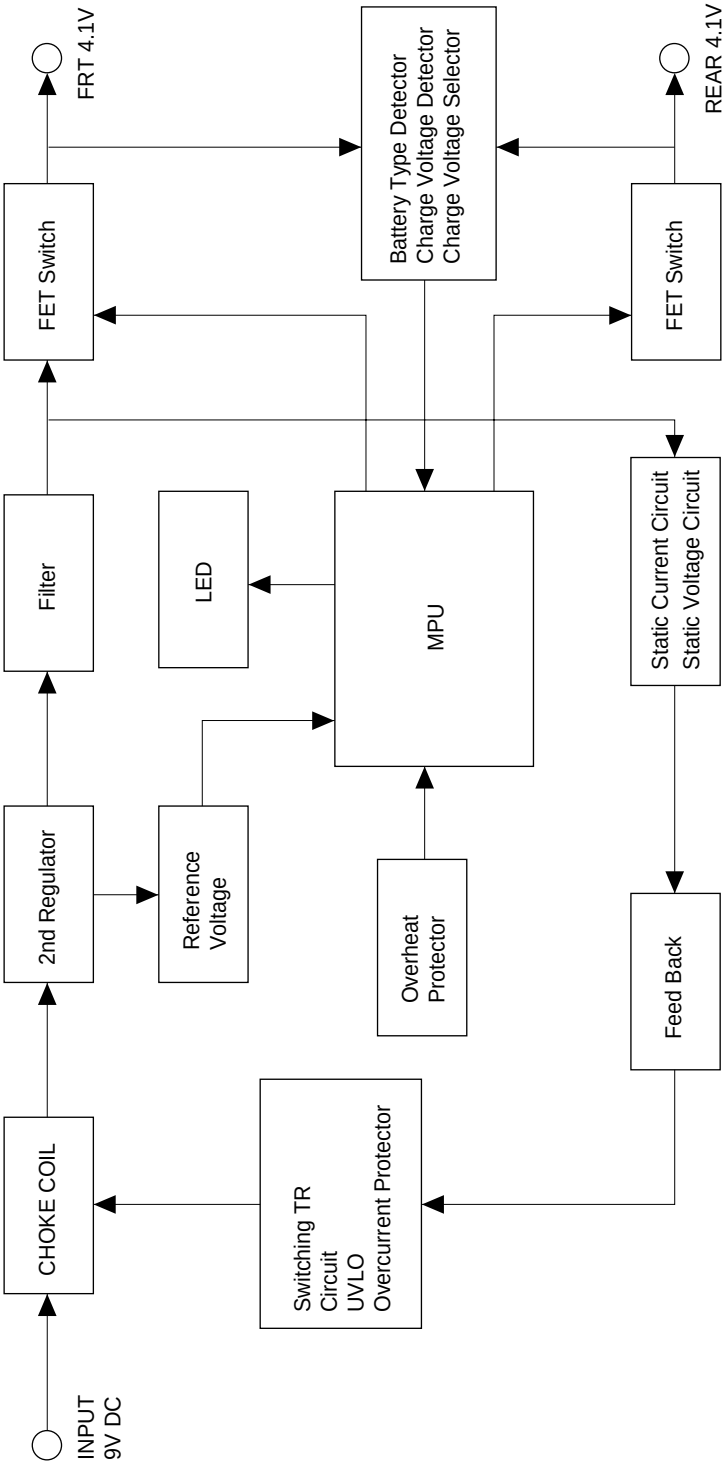
3-2 Main Base Band



3-3 Travel Adapter

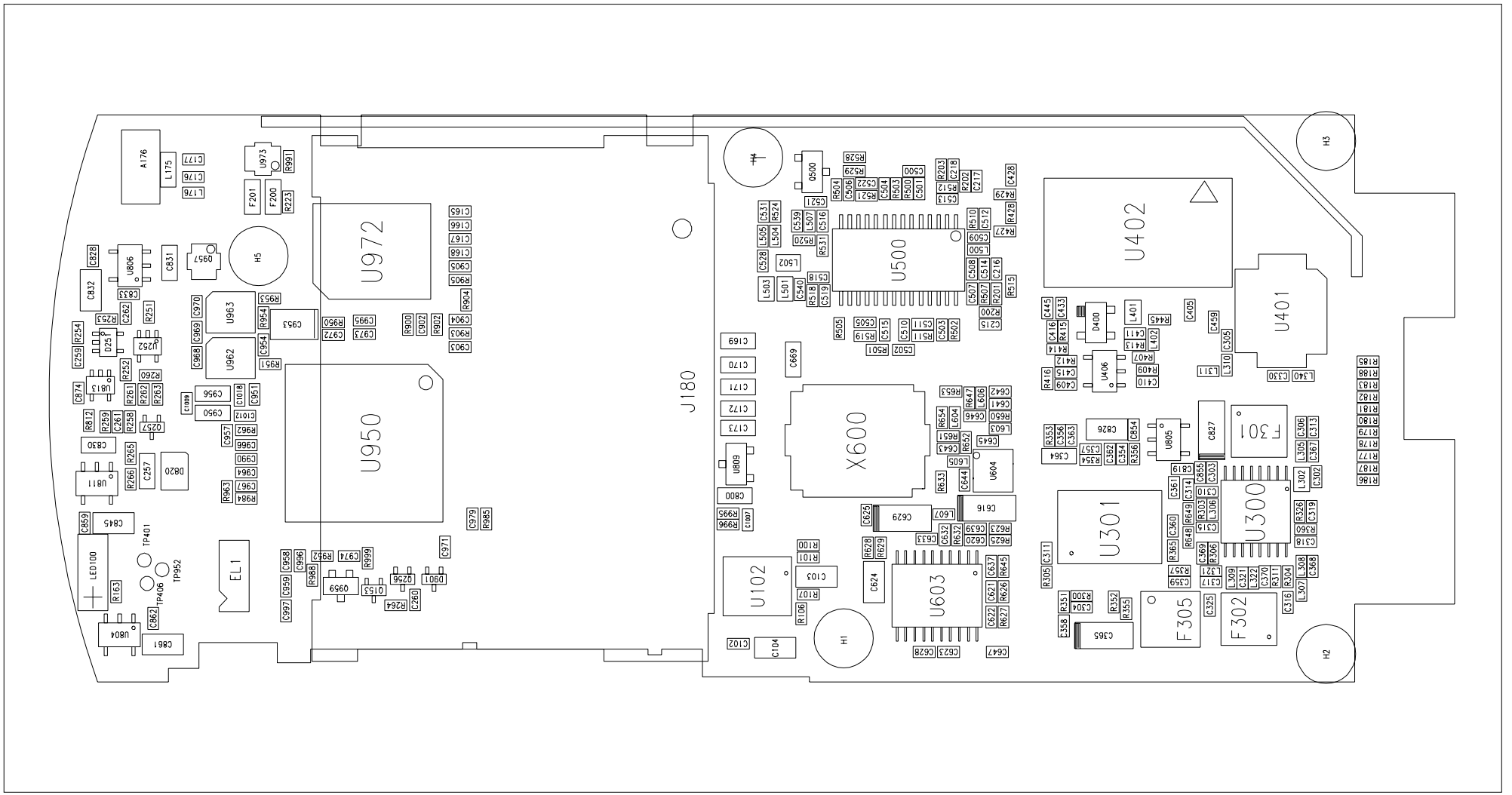


3-4 Desk Top Charger



4. PCB Diagrams

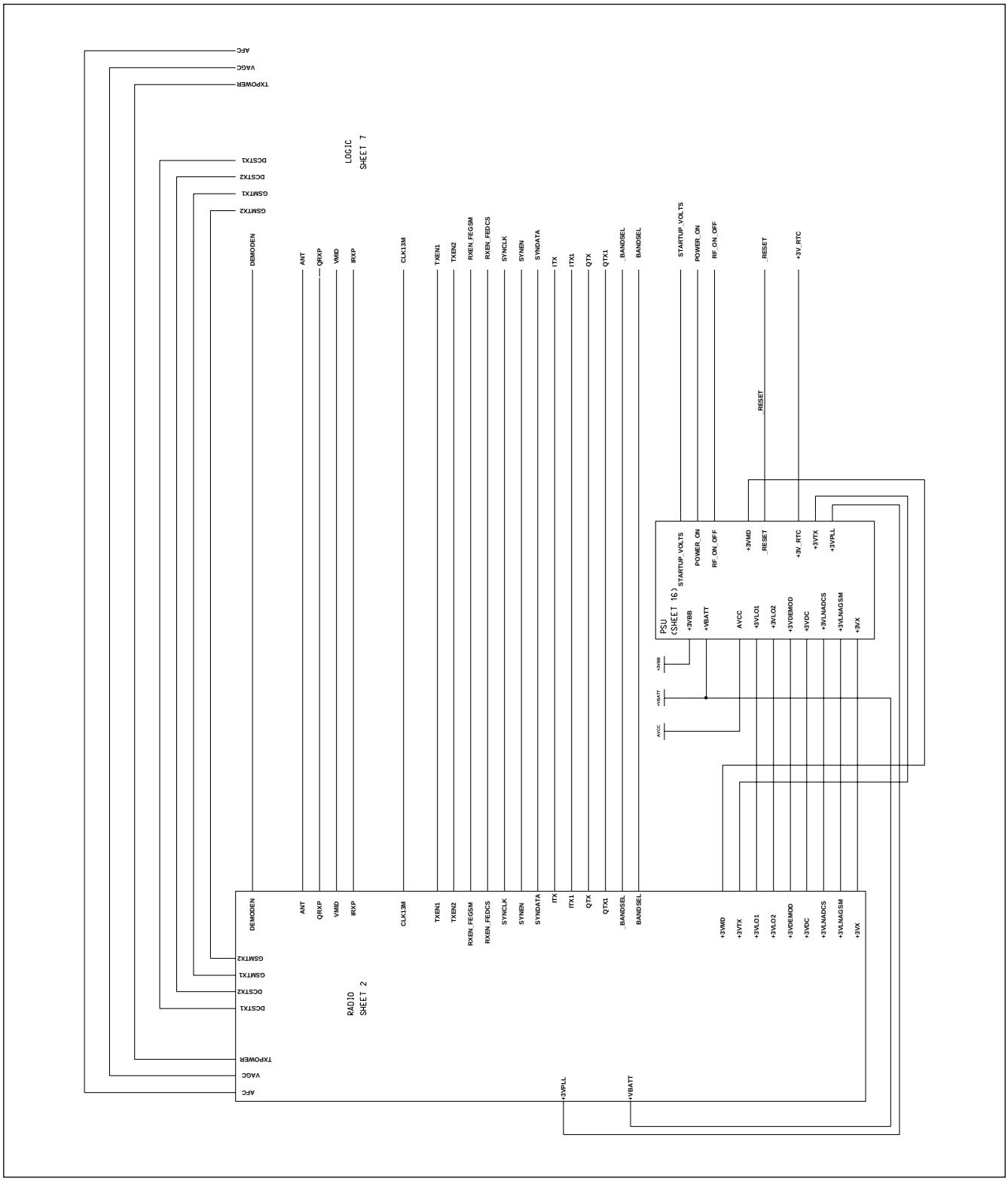
4-1 Main Top



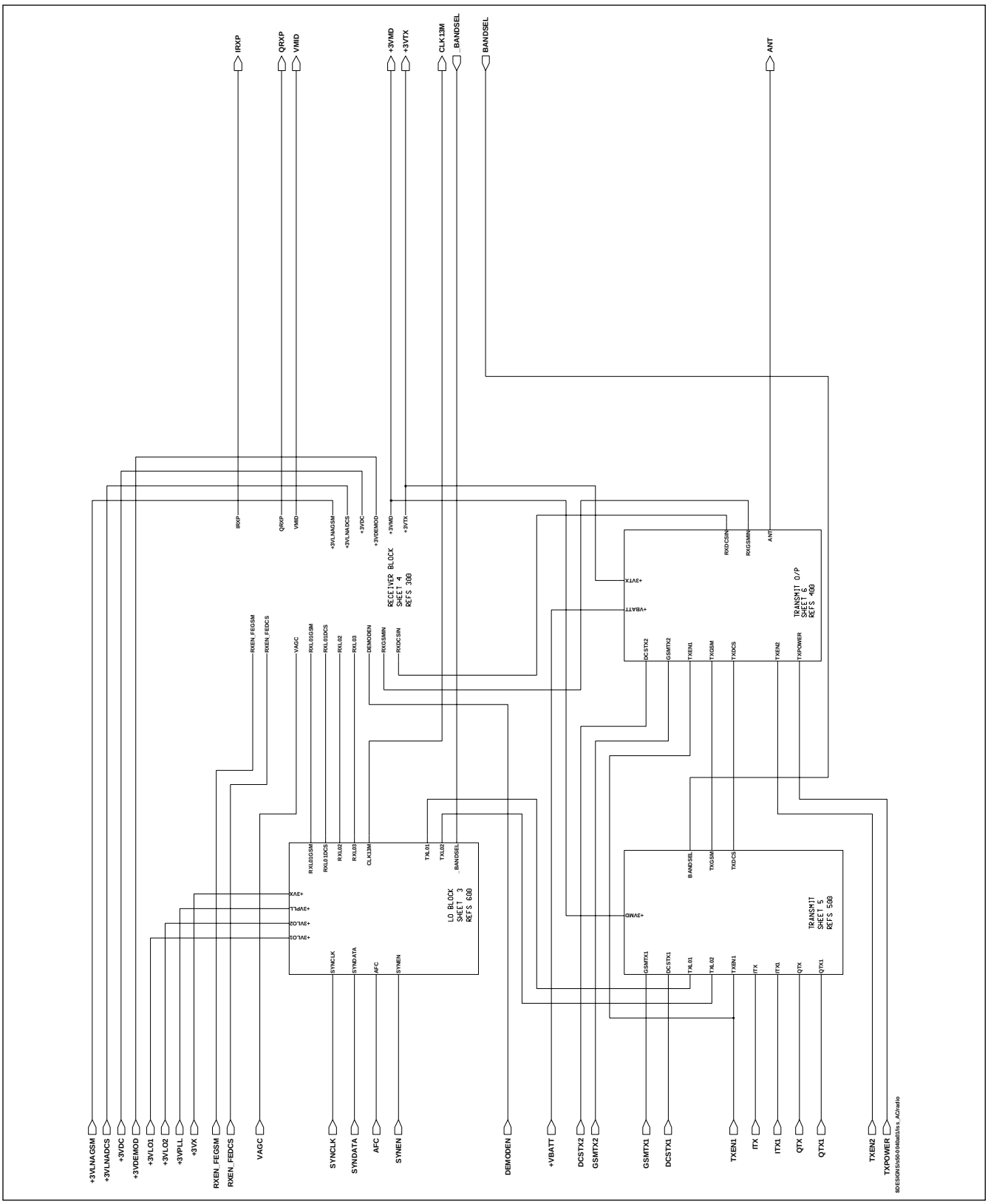
4-2 Main Bottom

5. Schematic Diagrams

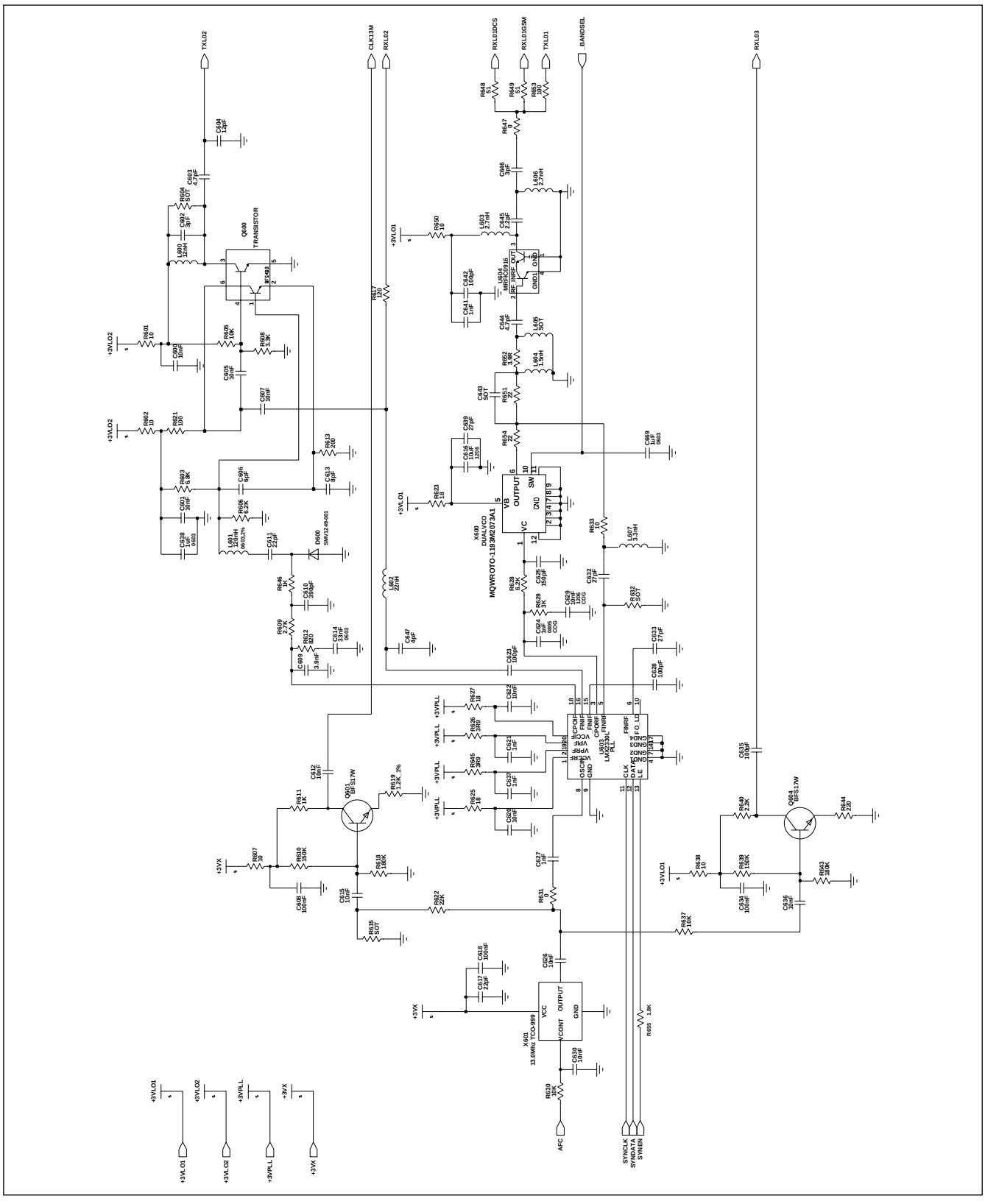
5-1 Top Level



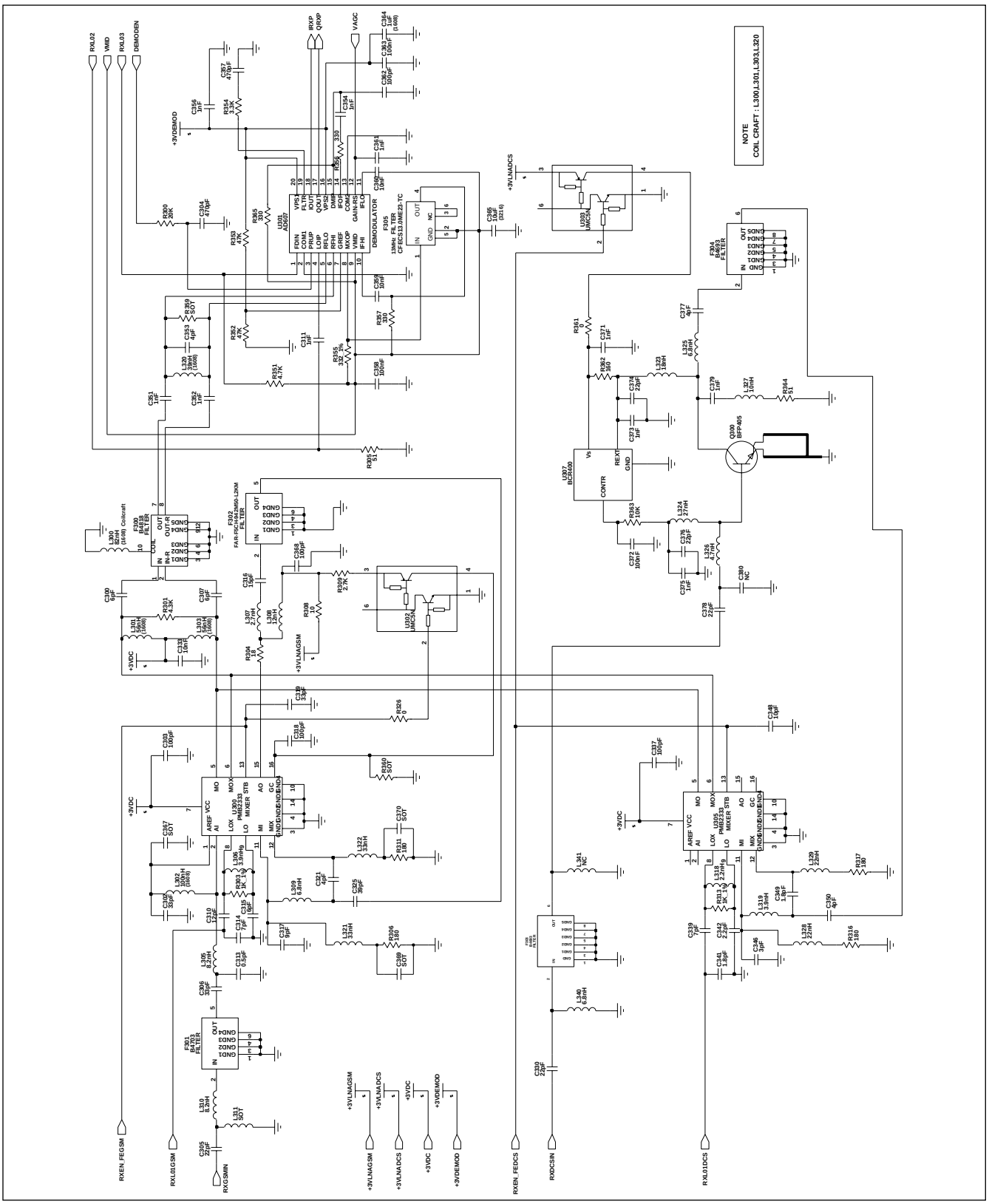
5-2 Radio


IRXP
QRXP
VMID
+3VMID
+3VTX
CLK13M
_BANDSEL
BANDSEL
ANT
RECEIVER BLOCK
SHEET 4
REFS 500
TRANSMIT O/P
SHEET 16
REFS 600
LO BLOCK
SHEET 3
REFS 600
TRANSMIT
SHEET 5
REFS 500
+3VLNAGSM
+3VLNADCS
+3VDC
+3VDEMOD
+3VLO1
+3VLO2
+3VPLL
+3VX
RXEN_FEGSM
RXEN_FEDCS
VAGC
SYNCLK
SYNDATA
AFC
SYNEN
DEMODEN
+VBATT
DCSTX2
GSMTX2
GSMTX1
DCSTX1
TXEN1
ITX
ITX1
QTX
QTX1
TXEN2
TXPOWER

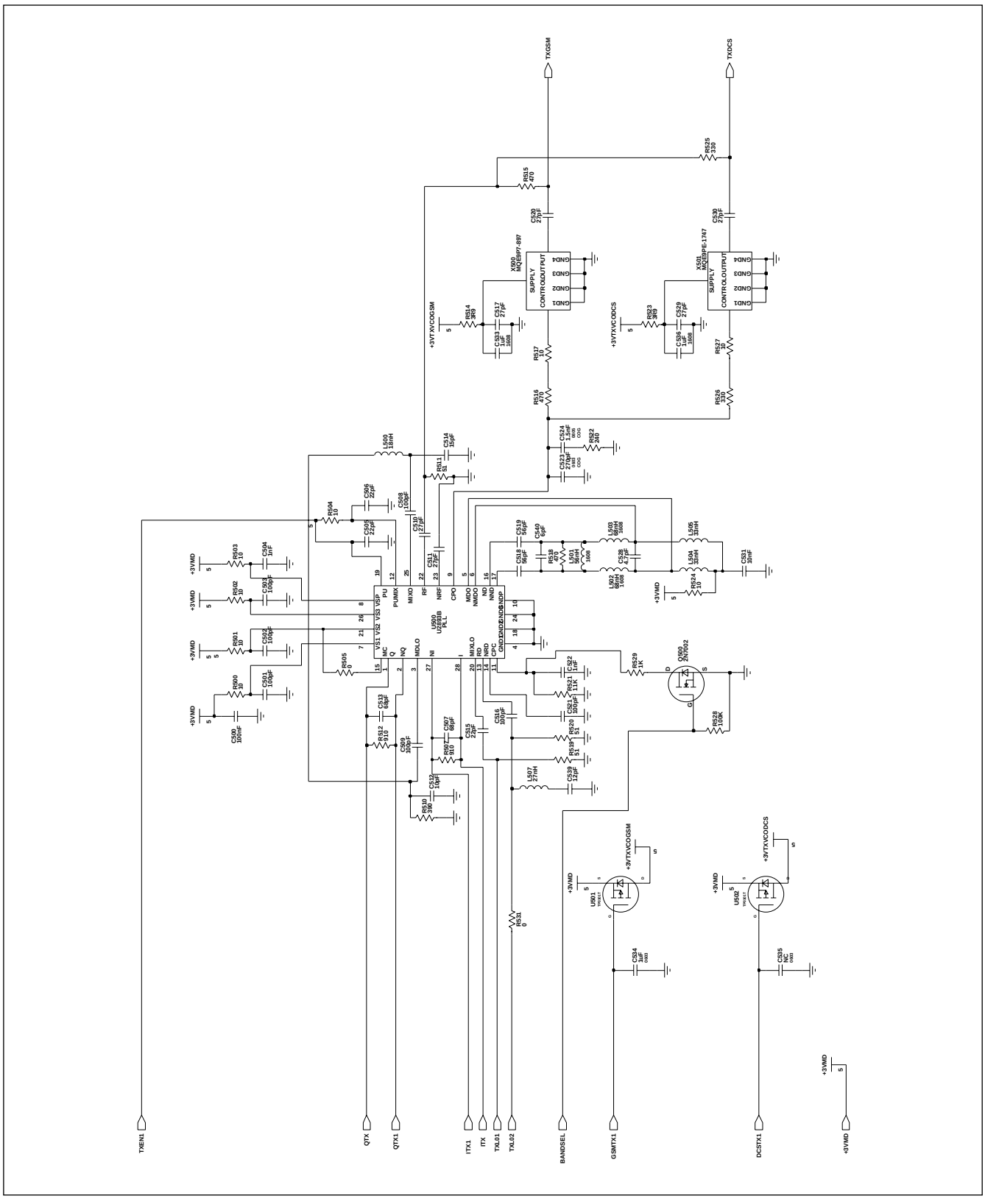
5-3 Main VCO and Local



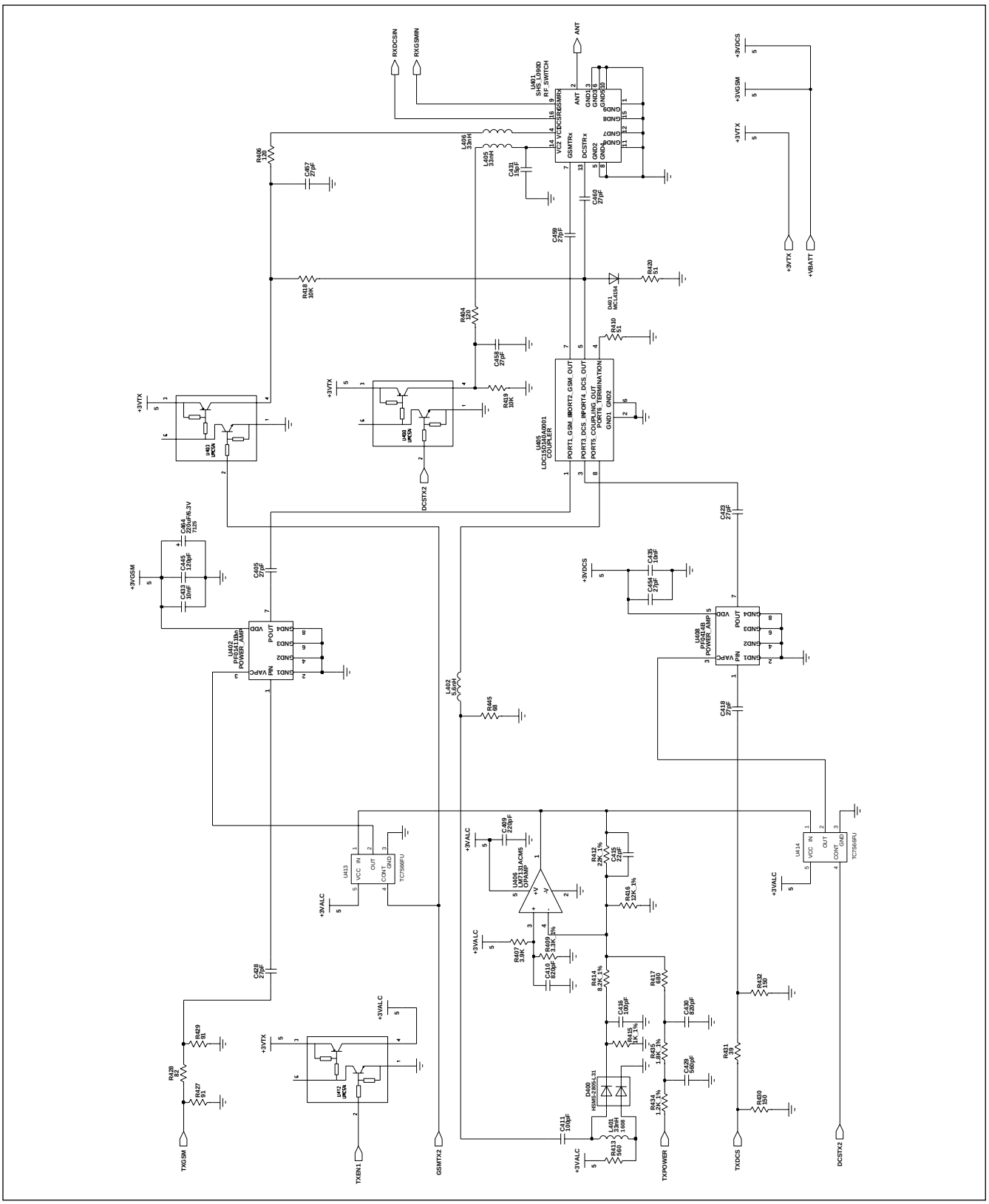
5-4 Receiver


NOTE
COIL CRAFT : L300,L301,L303,L320
RXI,Q2
VMID
RXI,Q3
DEMODEN
IRXP
QRXP
VAGC
+3VDEMOD
+3VLNADCS
+3VLNAGSM
+3VDC
+3VLNA,DCS
RXEN_FEGSM
RXI,Q1GSM
RXGSMIN
RXEN_FEDCS
RXQCSIN
RXI,Q1DCS

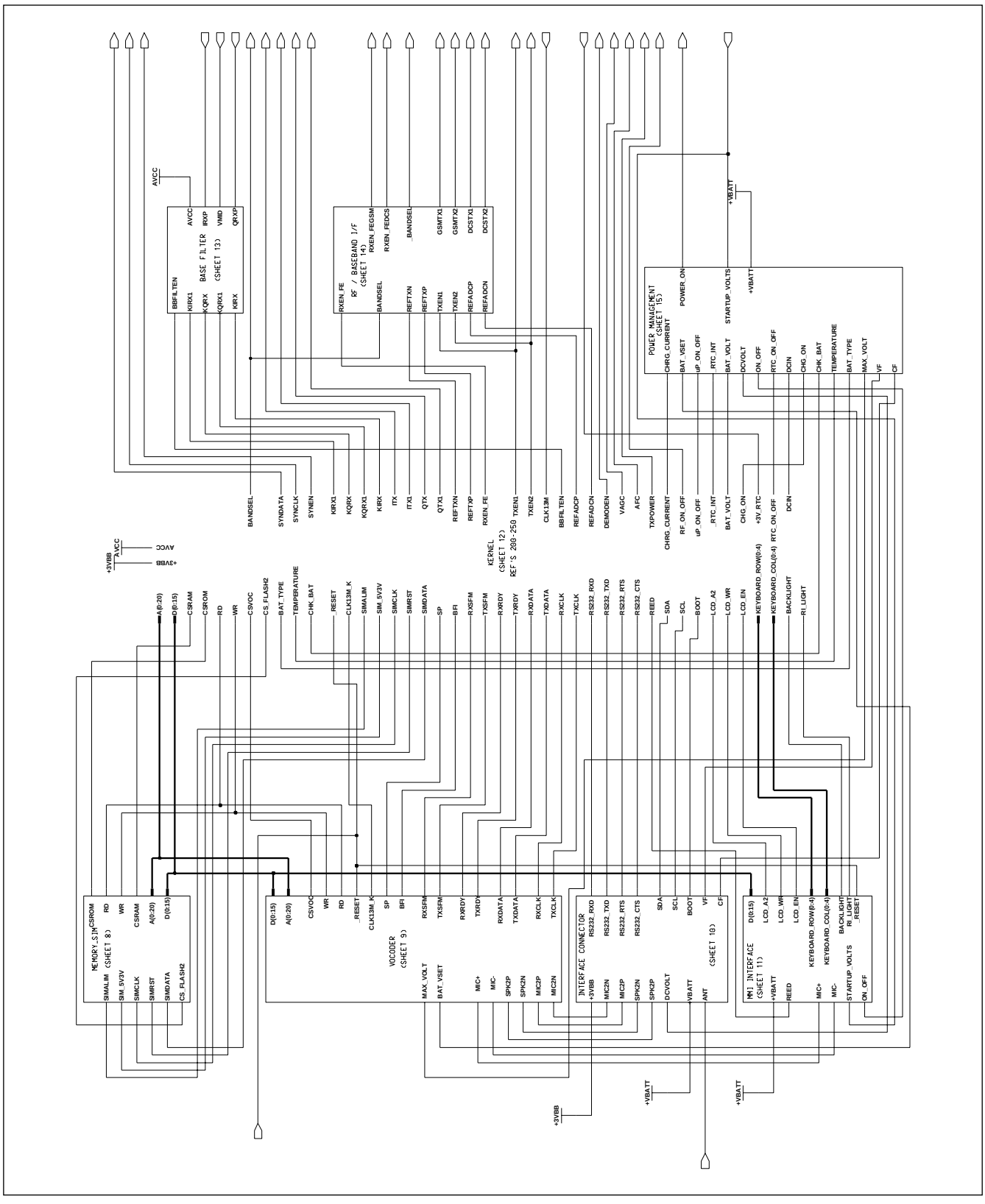
5-5 Modulator & Tx Vco



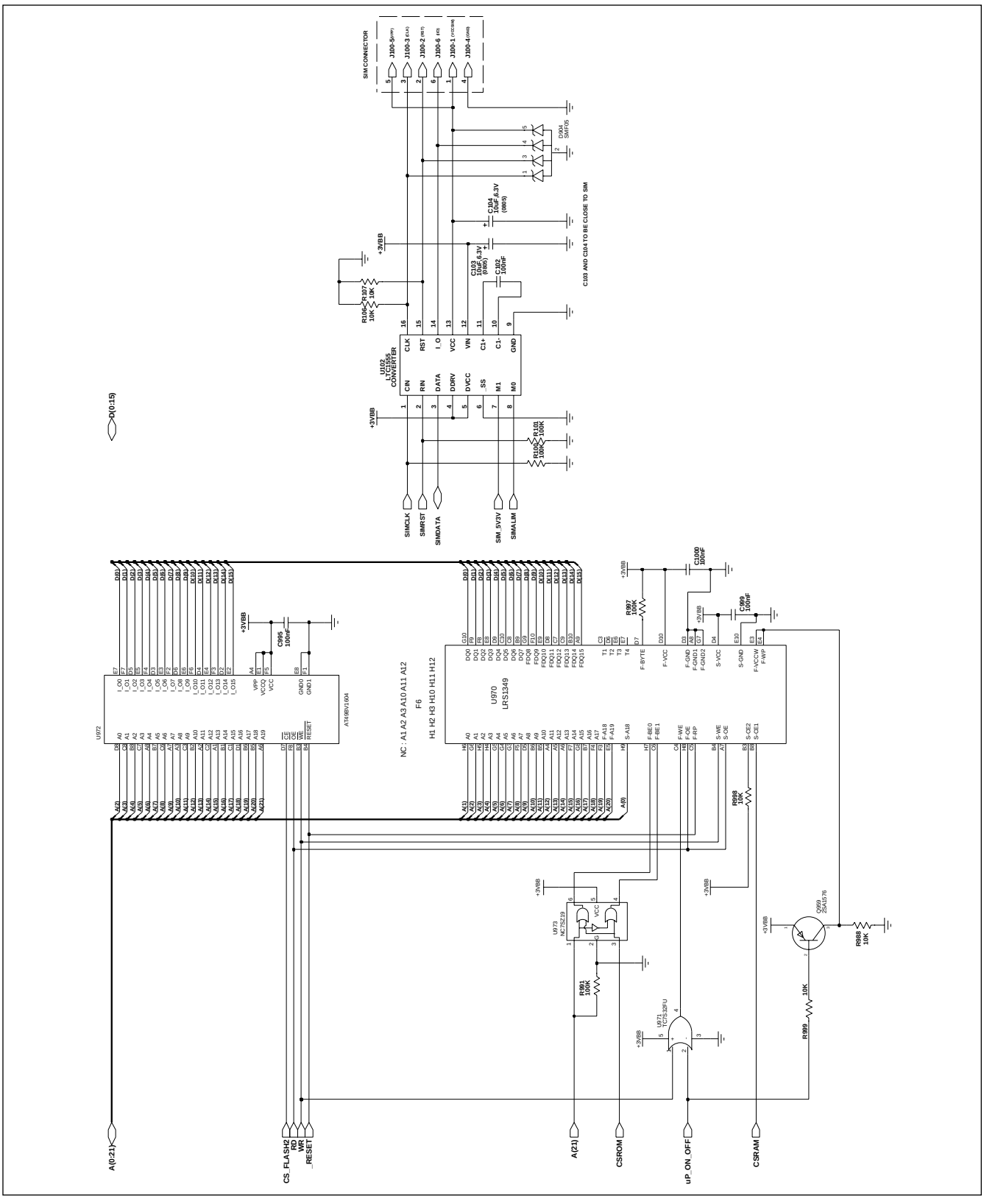
5-6 Transmit Output Stage



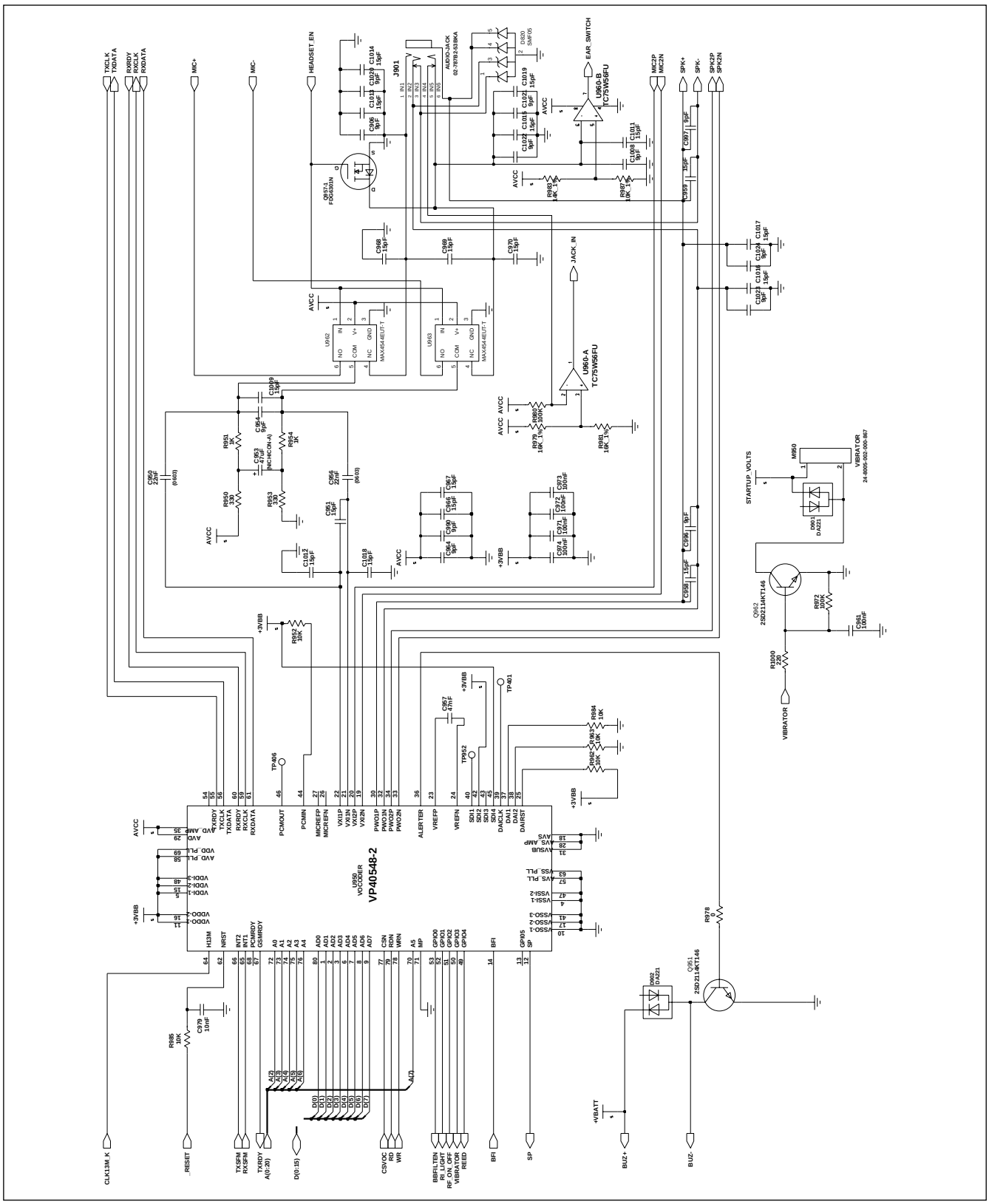
5-7 Base Band Block



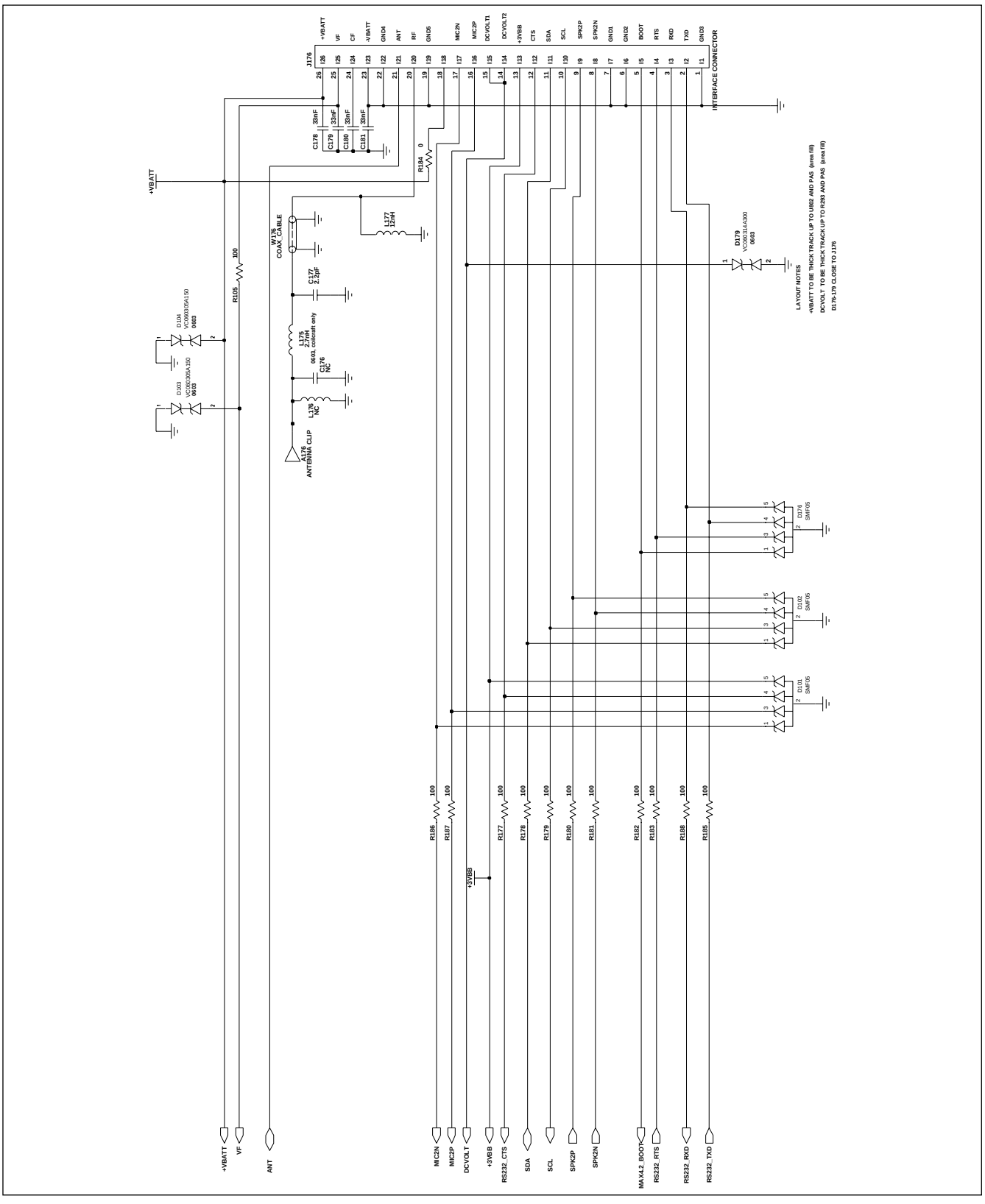
5-8 Memory & SIM Schematic



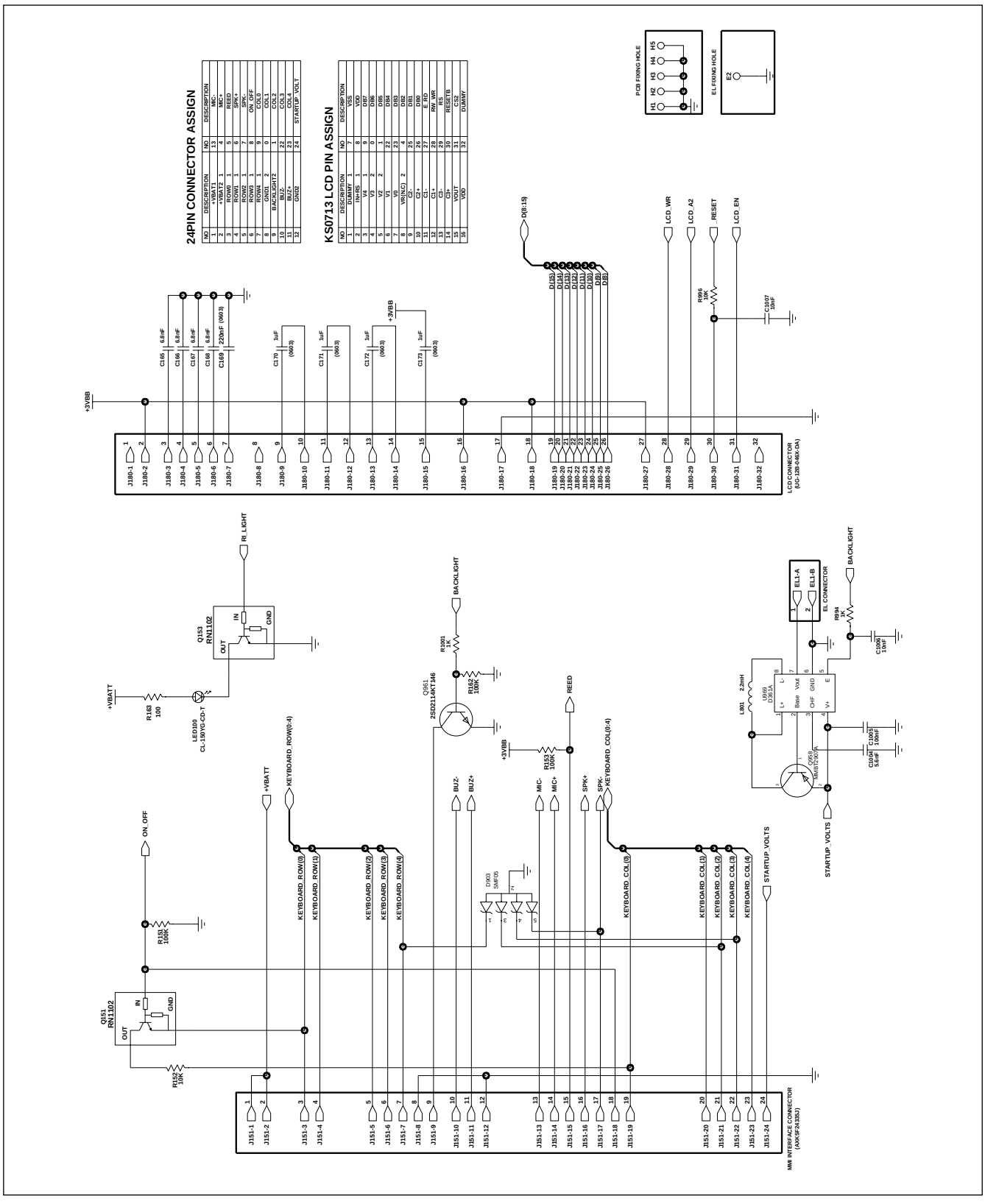
5-9 Vocoder


VP40548-2
U950
VOCODER
J901
AUDIO-JACK
02-7878-2-33BKA
U960-B
TC75W56FU
U960-A
TC75W56FU
EAR_SWITCH
JACK_IN
HEADSET_EN
MIC+
MIC-
MIC2P
MIC2N
SPK+
SPK-
SPK2P
SPK2N
TXCLK
TXDATA
RXRDY
RXCLK
RXDATA
VIBRATOR
24-8005-002-000-867
STARTUP_VOLTS
CLK13M_K
RESET
TXSFM
RXSFM
TXRDY
A(0:20)
D(0:15)
CSVOC
RD
WR
BBFILTEN
RI_LIGHT
RF_ON_LED
VIBRATOR
REED
BFI
SP
BUZ+
BUZ-
+VBATT
+3VBB
AVCC

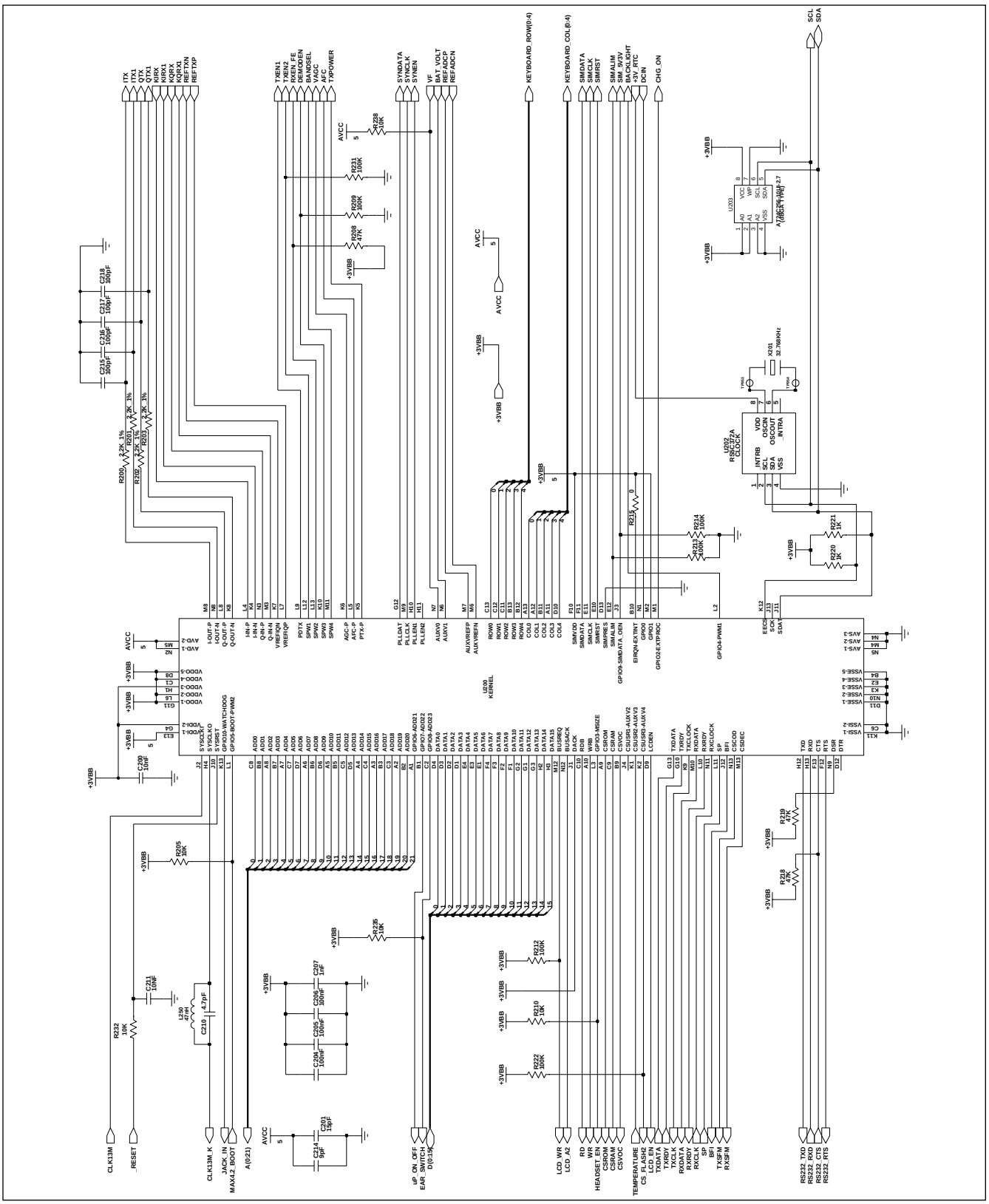
5-10 Interface Connector



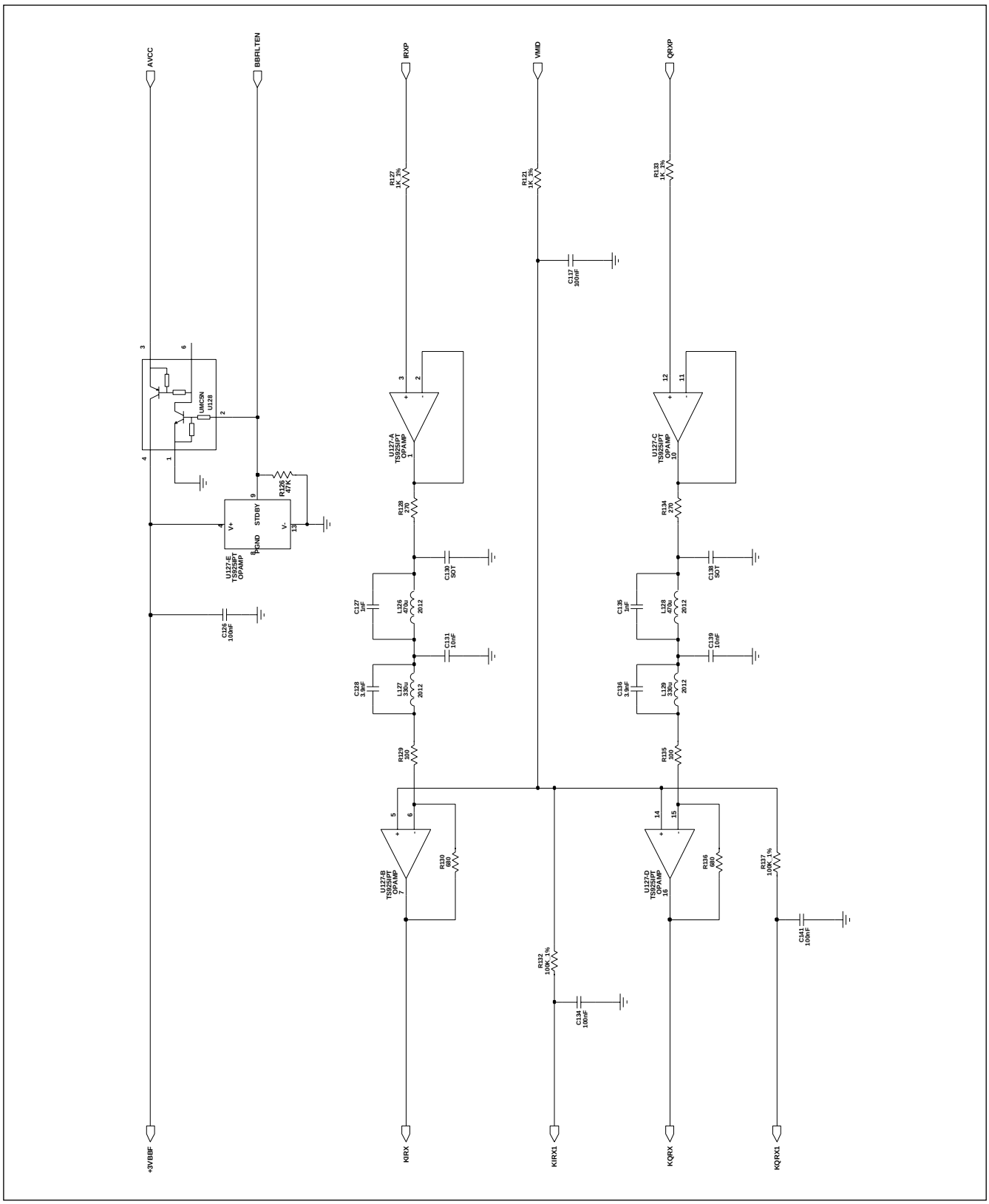
5-11 MMI Interface



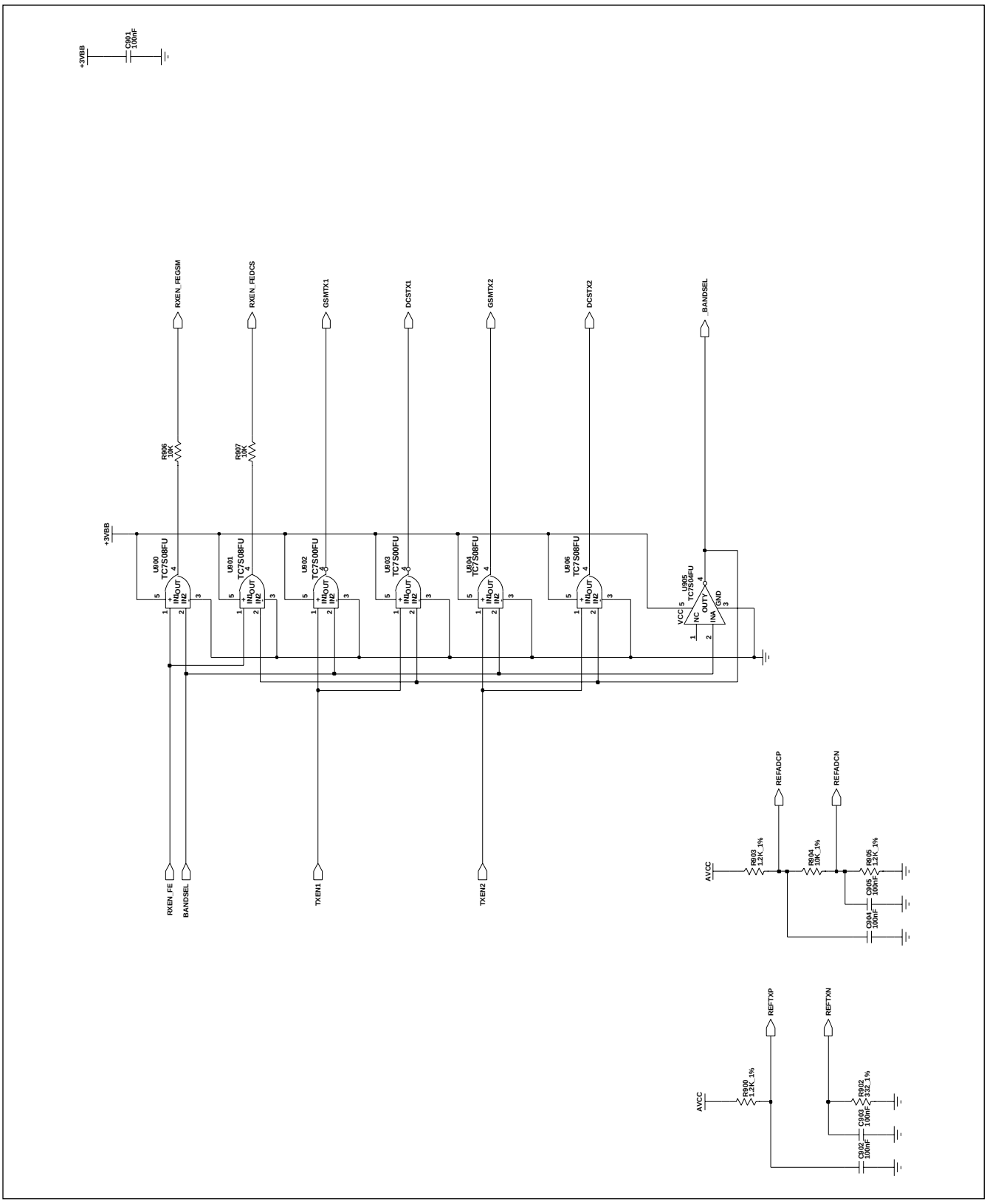
5-12 Kernel



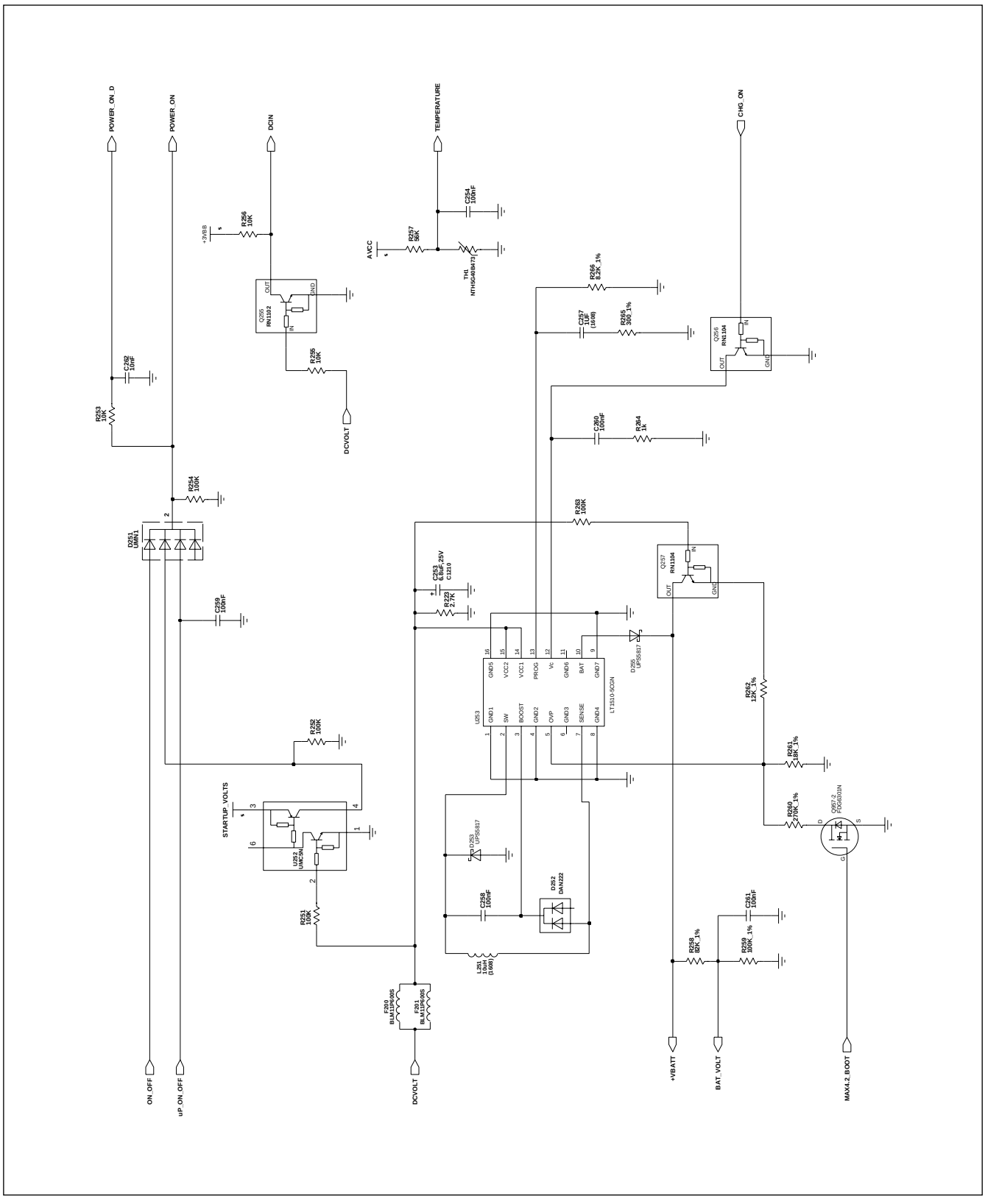
5-13 Baseband Filters



5-14 Control Logics



5-15 Power Management



5-16 Power Supply Units