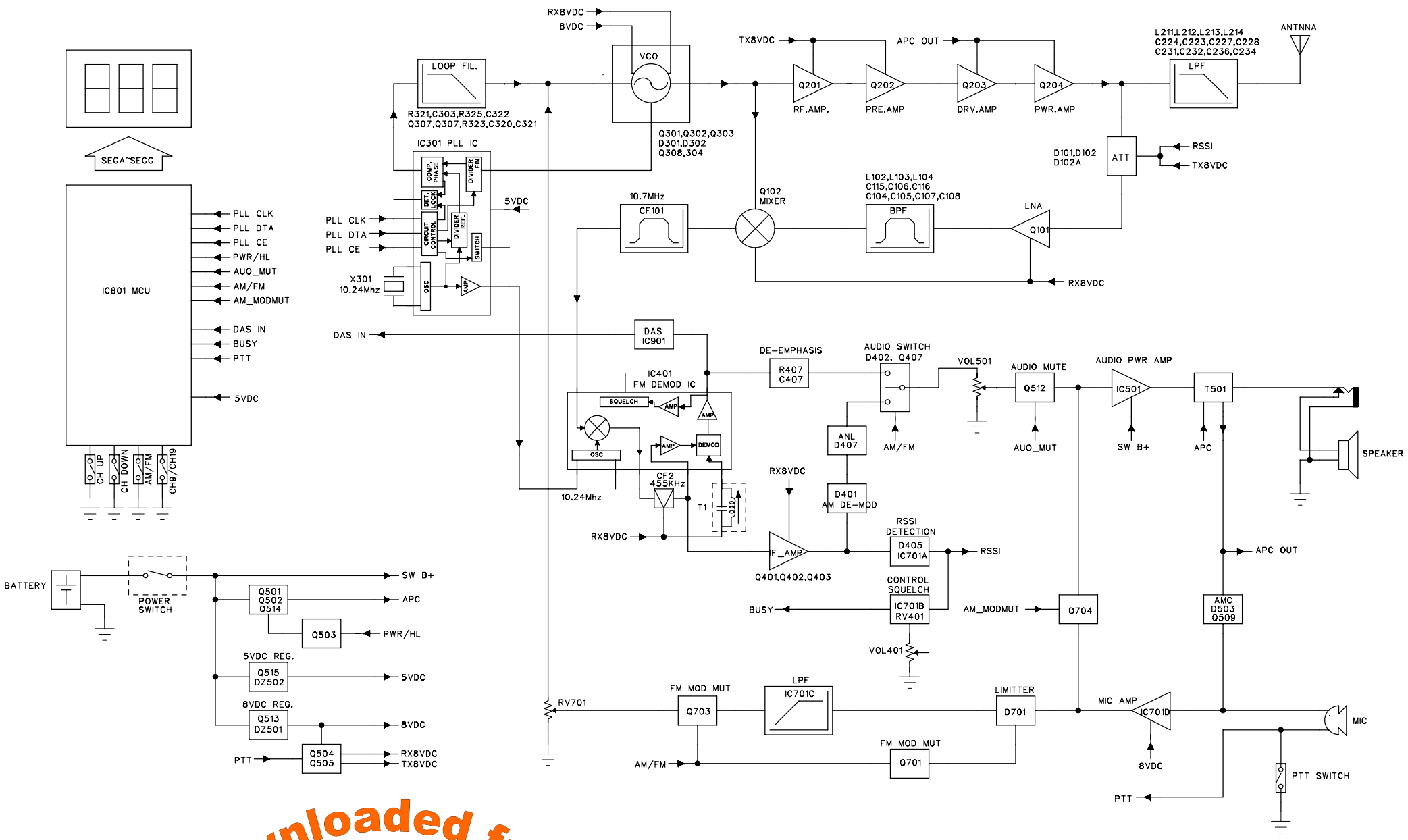

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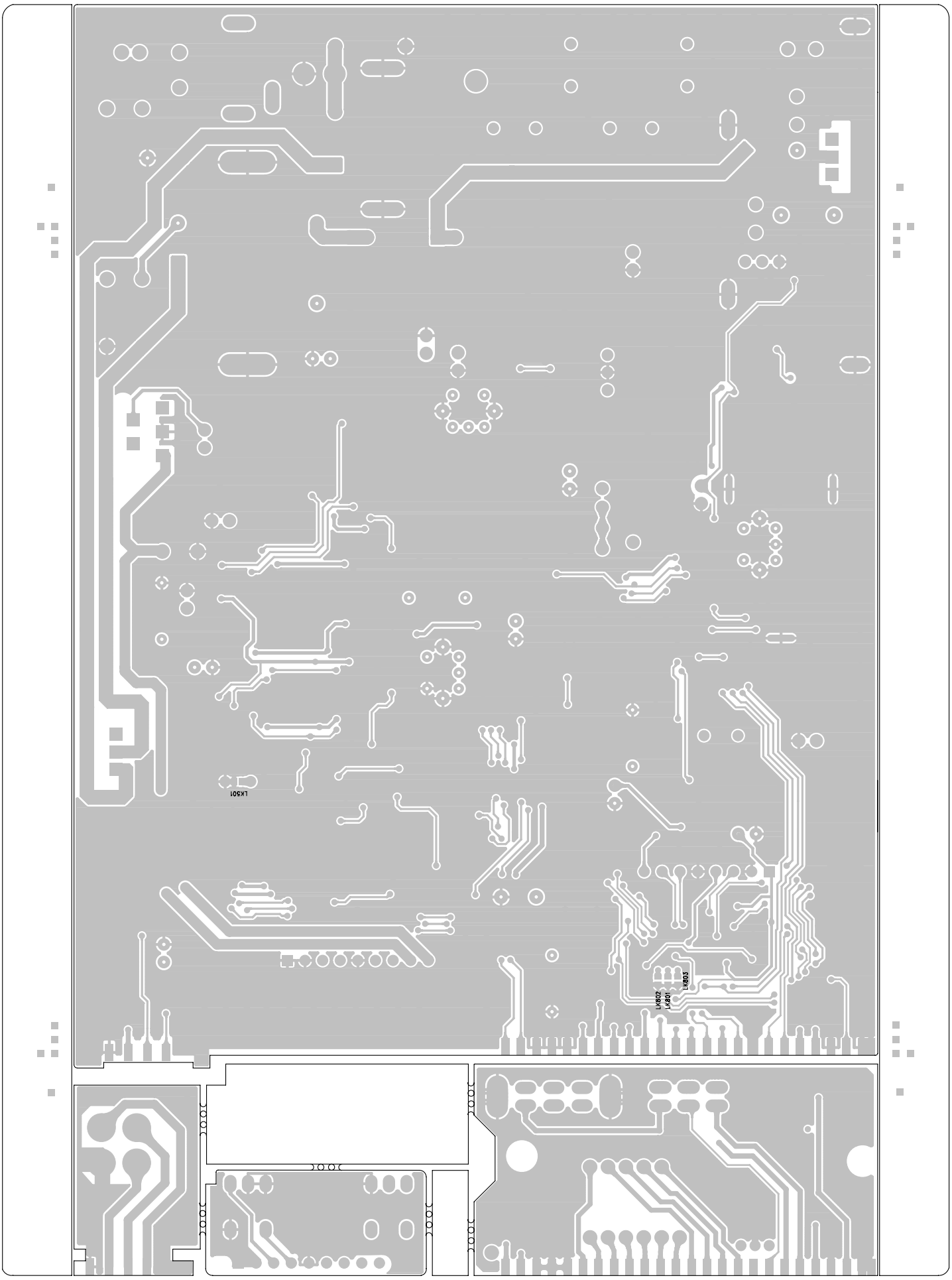
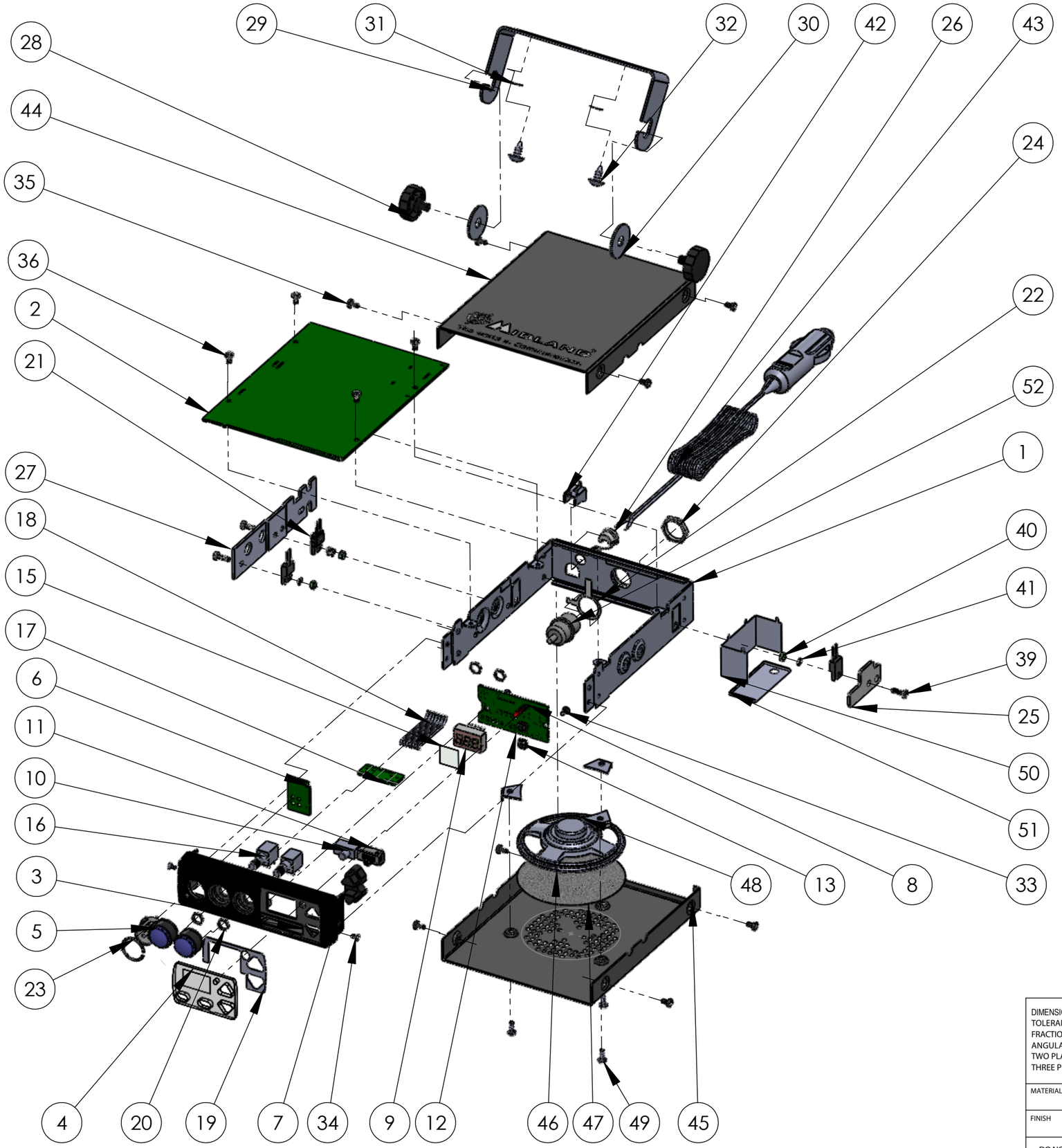
			MODEL NAME	M210 DAS
J.S.KIM	J.S.KIM		MODEL CODE	
			DRAWING NO.	


LK501
LK802
LK801
LK803



ITEM NO.	PART NAME	P/NO.	Q'TY
1	MAIN BODY	70-00012-00	1
2	P.C.B MAIN	18-00049-02	1
3	E.S.C	86-00018-00	1
4	LENS	84-00044-00	1
5	KNOB CONTROL	83-00042-00	1
6	P.C.B SUB MIC	18-00140-03	1
7	KNOB PUSH UP/DWN	83-00043-00	1
8	LED LAMP	06-00006-01	1
9	LED DISPLAY	06-00010-51	1
10	SLIDE SWITCH	32-00007-01	1
11	SLIDE SWITCH	32-00012-01	1
12	P.C.B SUB ESC	18-00132-03	1
13	SWITCH TACT	32-00004-21	2
14	KNOB CONTROL	83-00042-00	1
15	LED FILM	95-00034-00	1
16	VR	17-0A103-01	2
17	P.C.B SUB VOLUME	18-00139-03	1
18	FLAT WIRE CABLE	16-00009-00	1
19	CLIP ADHESIVE	92-00038-00	1
20	WASHER VR		2
21	I.C.	10-00028-00	1
22	LUG TERMINAL		1
23	CONNECTOR MIC	15-00034-01	1
24	NUT		1
25	HEAT SINK	73-00012-01	1
26	CORD STOPPER	82-00013-00	1
27	HEAT SINK	73-00014-00	1
28	SCREW(SECURING)	60-00003-03	2
29	BRACKET(SET MTG)	71-00017-00	1
30	WASHER	63-00002-00	2
31	WASHER	63-00022-00	3
32	TAPPING SCREW	60-00061-03	2
33	TAPPING SCREW	60-00038-02	2
34	MACHINE SCREW	60-00008-01	2
35	TAP TITE SCREW	60-00064-02	8
36	TAPPING SCREW	60-00053-02	4
39	MACHINE SCREW	60-00028-01	3
40	NUT	62-00004-00	3
41	WASHER SPRING	63-00014-00	3
42	JACK D.C.	20-00002-00	1
43	HARNESS ASS'Y	24-00012-00	1
44	UPPER COVER	74-00010-00	1
45	BOTTOM COVER	74-00009-00	1
46	SPEAKER	12-00000-83	1
47	FELT	90-00006-00	1
48	HOLDER SPEAKER	72-00001-00	3
49	TAPPING SCREW	60-00054-02	3
50	SHIELD PLATE BODY	76-00080-00	1
51	SHIELD PLATE TOP	76-00081-00	1
52	CONNECTOR ANT	15-00005-01	1
53	FELT STICKER	90-00007-00	2

DIMENSIONS ARE IN MILLIMETER
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

MATERIAL N/A

FINISH

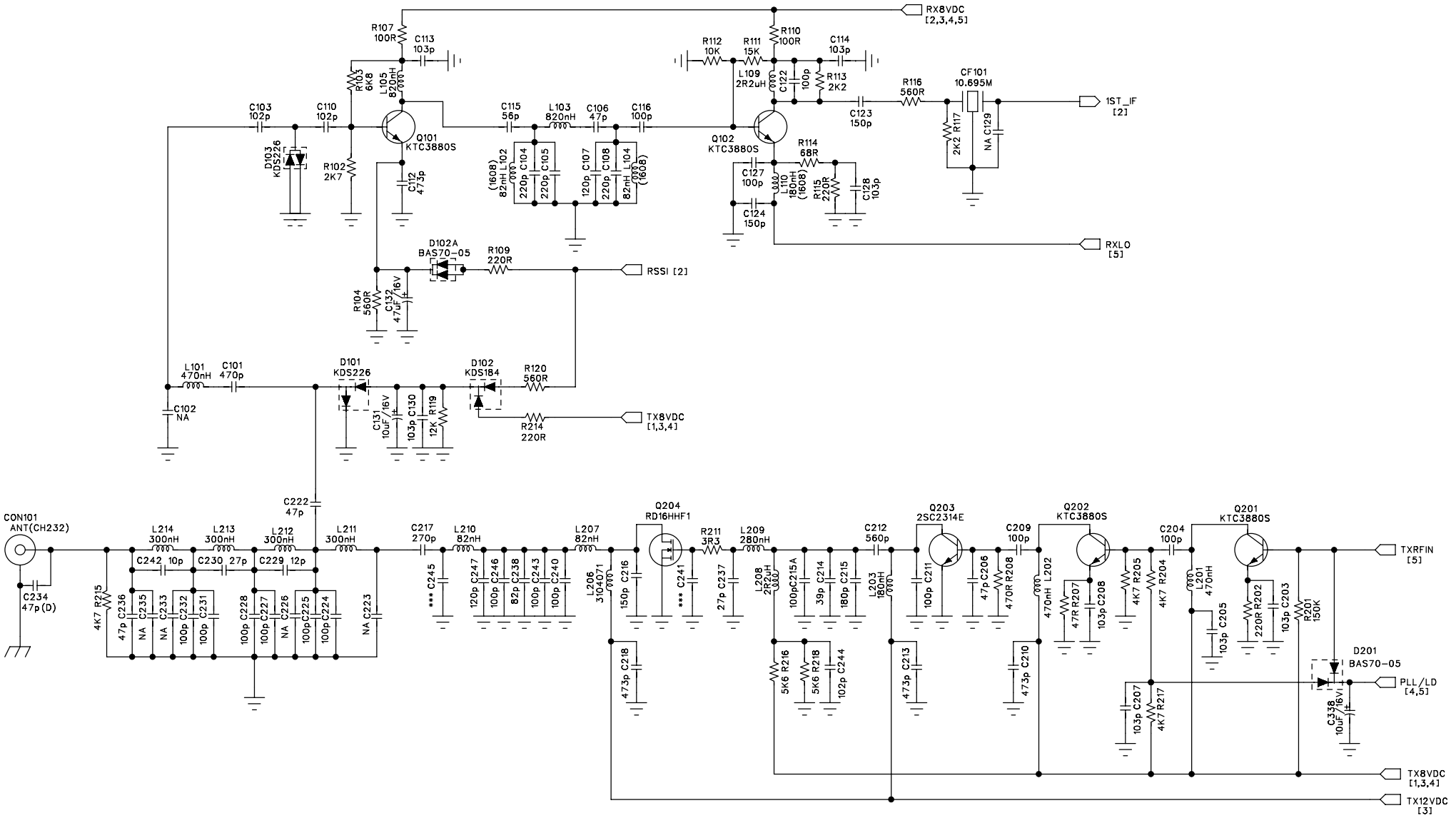
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	NATEE K.	19-09-12
CHECKED	ARCHANWIT B.	19-09-12
ENG APPR.	ARCHANWIT B.	19-09-12
MFG APPR.		
Q.A.		

COMMENTS

THAI RADIO CO.,LTD
787 M.1 BANLANE, A. BANG PA IN
AYUTTHAYA 13160
TEL. 035-351-787-9 ,FAX. 035-351-790

MODEL	M210_DAS
CUSTOMER	MIDLAND
NAME&TITLE	EXPLODED VIEW
SIZE A	DWG. NO.
REV.	
SCALE:	WEIGHT:
SHEET 1 OF 1	



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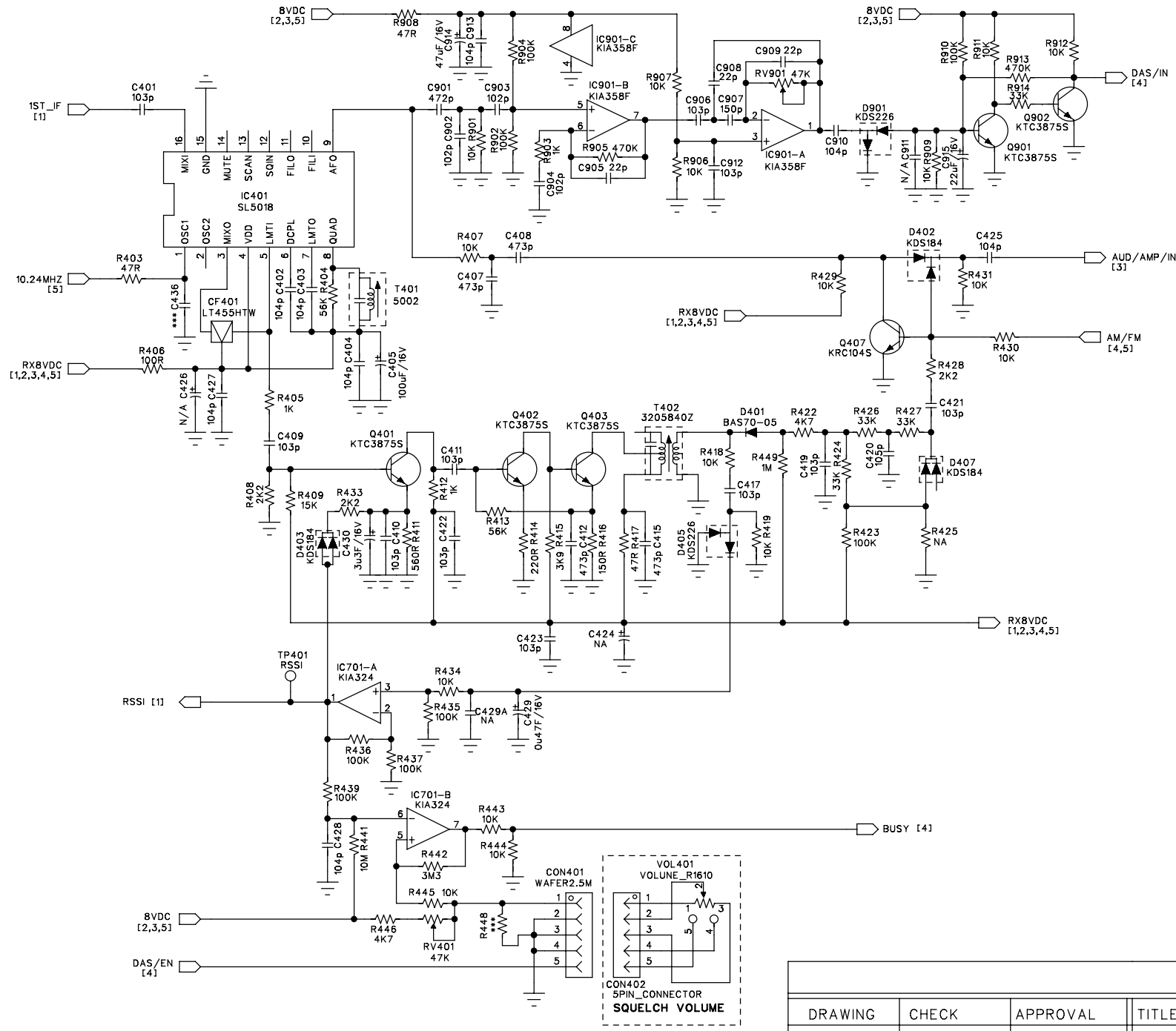
J.S.KIM	J.S.KIM		MODEL CODE	
			DRAWING NO.	



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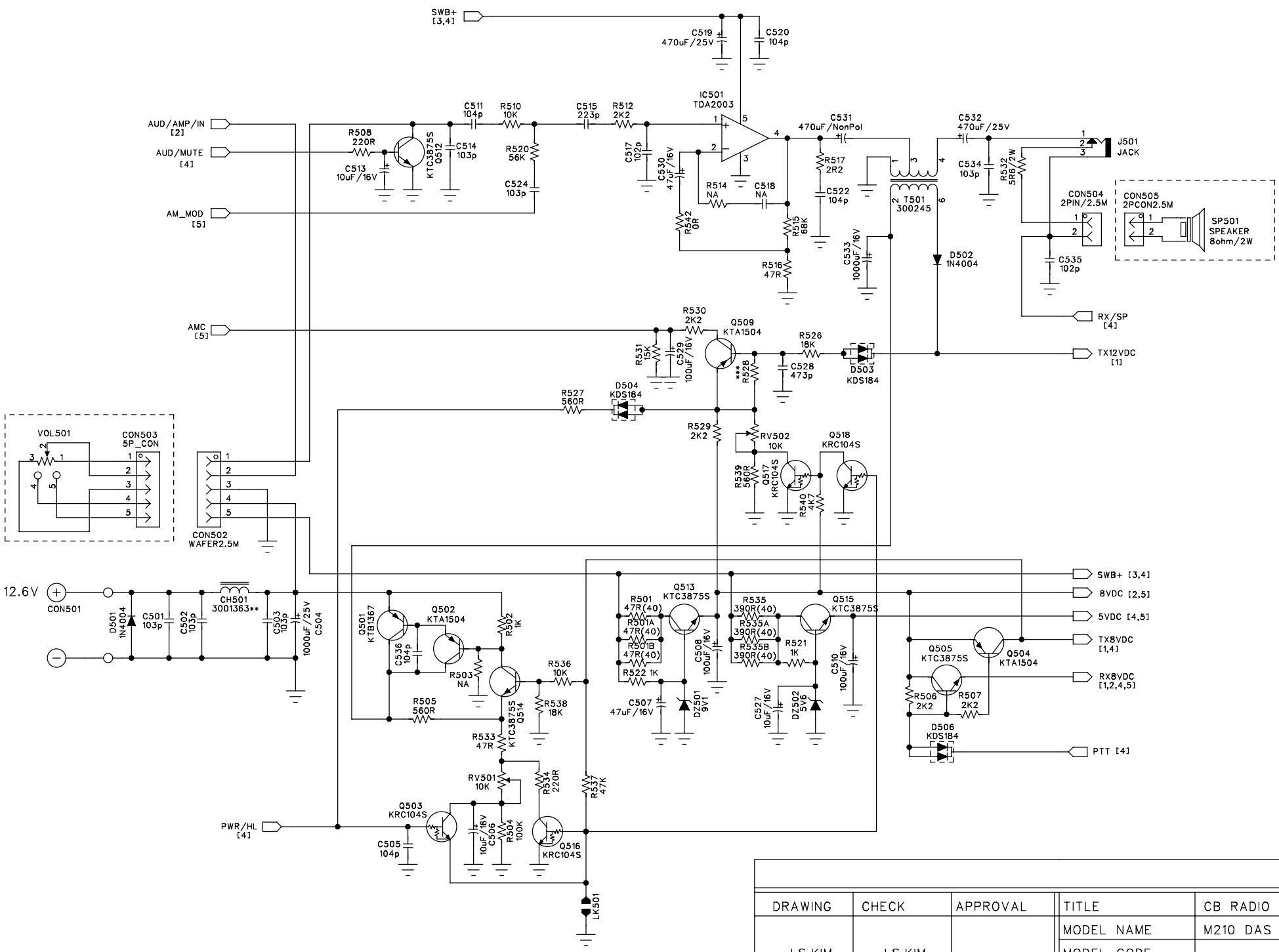

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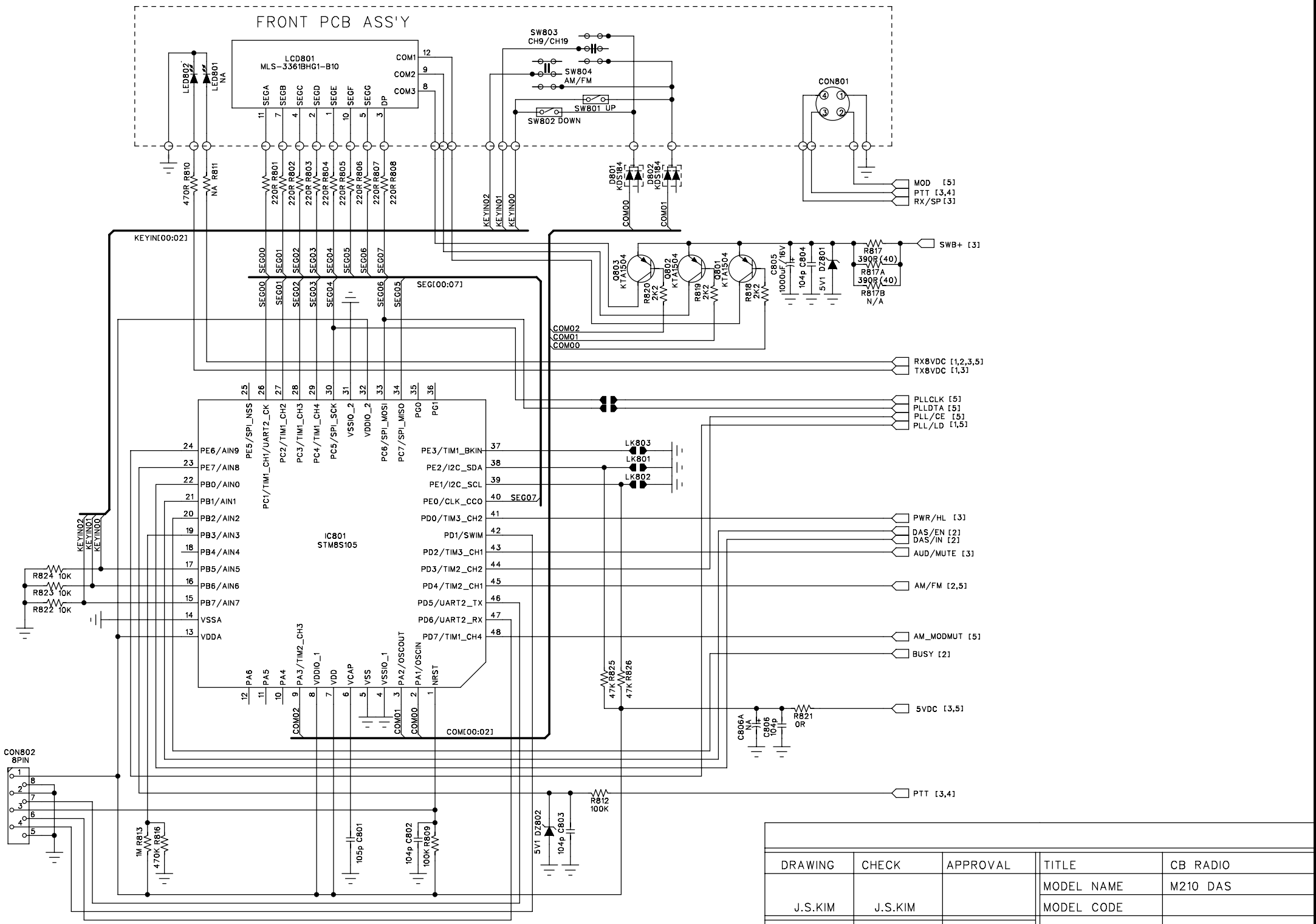

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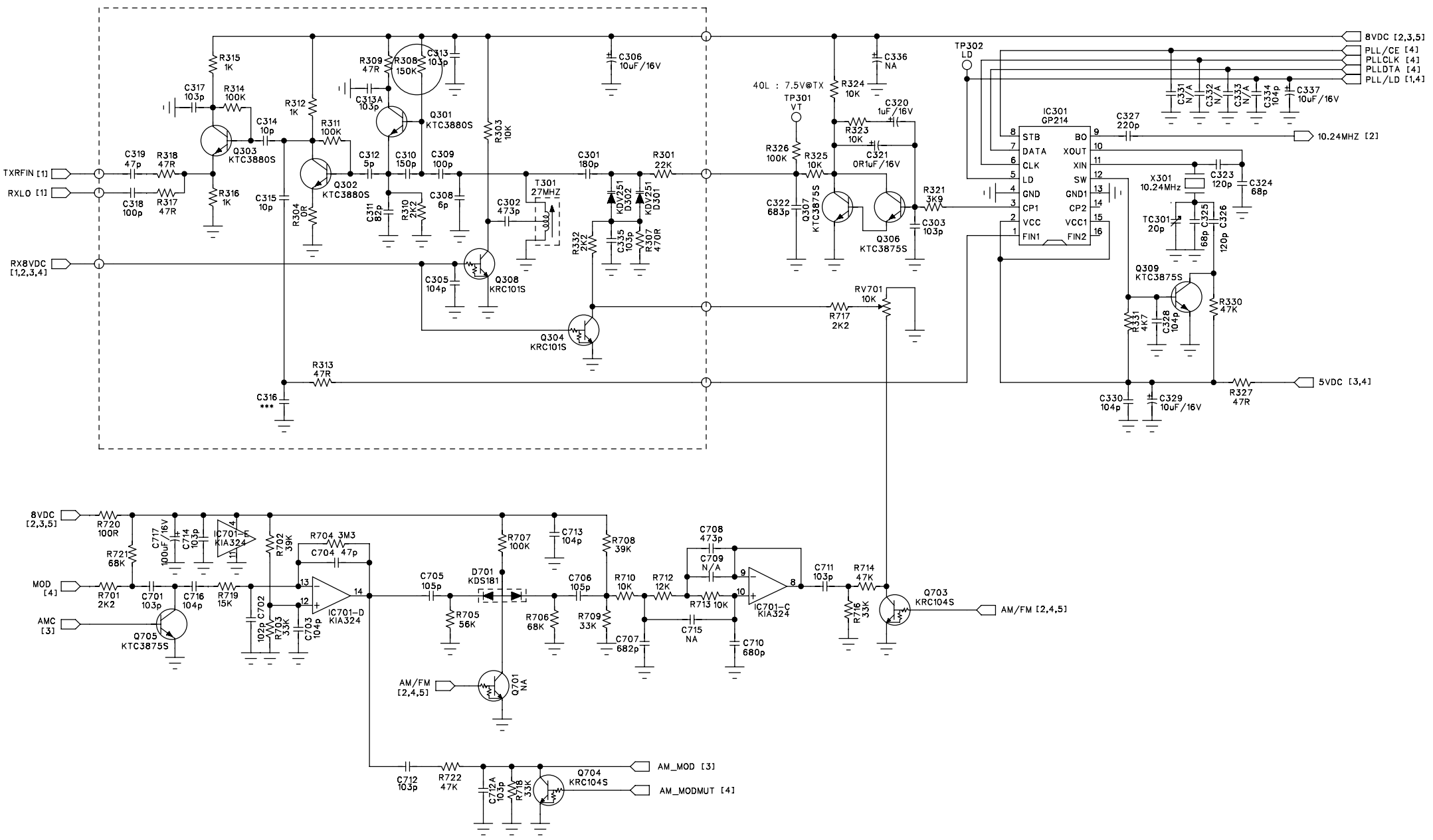
			MODEL NAME	M210 DAS
J.S.KIM	J.S.KIM		MODEL CODE	
			DRAWING NO.	



DRAWING	CHECK	APPROVAL	TITLE	CB RADIO
			MODEL NAME	M210 DAS
J.S.KIM	J.S.KIM		MODEL CODE	
			DRAWING NO.	

THEORY OF OPERATIONS

1.TRANSMITTER

1-1.RF Amplification

The output of pre driver AMP Q201 and 202. The output is then supplied to RF driver AMP Q203. The output of Q203 is supplied with tuning circuit L209 and C214, C215, C237 and goes to the gate of final RF AMP Q204. The output of 204 is supplied to the antenna through L-C tuning circuit.

1-2.Circuit for Suppression of Spurious Radiation

The tuning circuit between the output of final AMP Q204 and antenna, 4-stage "PHI" network L211, C224, C225, L212, C229, C227, C228, L213, C230, C231, C232, L214, C242, C326, C234 serves as a spurious radiation suppressor . This network also serves to match the impedance between TX power AMP Q304 and the antenna.

1-3.Circuit for Limiting Power

After finished all alignment, the constant voltage supply circuit limits the available power 4 W or slightly less. RV501 and corresponding three transistors control supply voltage of RF amplifier and other circuits.
The RV501 to make 4 w indication of RF power meter.
The tuning is adjusted so that the actual power is from 3.8 to 4.0 W. There are no other additional controls for adjusting the TX output power.

1-4.Modulation Control

1-4-1.FM

The microphone input is fed to microphone audio amplifier IC701 KIA324 which drives modulation varicap diode D301 and D302 in the VCO circuit. RV701 limits the incoming modulation audio levels to inhibit over modulation. While reading the modulation factor on the modulation analyzing equipment, adjust RV701 shall not exceed ±1.8 KHz/Dev. After 20 dB up from 1.25 KHz/1.2 KHz/Dev. Audio level

1-4-2.AM

The microphone input is fed to microphone audio amplifier IC701 KIA324 and goes to the audio power AMP IC IC501 to make nominal signal level to achieve wanted modulation. To control incoming audio signal, diode D503 and corresponding ALC circuit limits the modulation shall not exceed ±80% adjust RV502 ±80% modulation under 1.0 KHz AF 60% mod plus 20 dB of audio signal.

2.Receiver

CB receiver is dual conversion supper-heterodyne type with the 1st IF 10.695 MHz and 2nd IF 455 KHz. Receiver is separated two blocks, 1st IF section and 2nd IF section. The PLL synthesizer supplies first local frequency 37.26 MHz ~ 38.10 MHz.(for EU) and 38.29625 MHz ~ 37.68625 MHz (for UK) With the provided first local frequencies Q102 mixes the incoming RF signal to generate first IF signal. Mixed signals were filtered with the CF101 (10.695 MHz) crystal filter and other tuning circuits. Output signal of mixer is filtered with CF401 (455 KHz ceramic filter). The 455 KHz signal from the 2nd IF filter was amplified and limits internally. After amplification the signals fed the quadrature detector loop T401. Then we can see the recovered audio signals on Pin 9 for FM of IC401. With the amplitude of recovered signals, IC501 serves as an audio amplifier. For AM signal will be pass filter CF401 and supplied to IF amplifier Q401, Q402, Q403 respective and detected to voice signal by D401.

3.PLL synthesizer

3-1.Reference frequency

The crystal, X301 (10.240 MHz) and other components of IC301 can make a reference frequency oscillator with internal amplifier.

3-2.VCO

The Q301 and surrounding parts are consisting a clapp oscillator works as a VCO, the VCO can be oscillate over the required of 26.565 MHz to 38.68625 MHz

3-3.Phase detector and VCO control

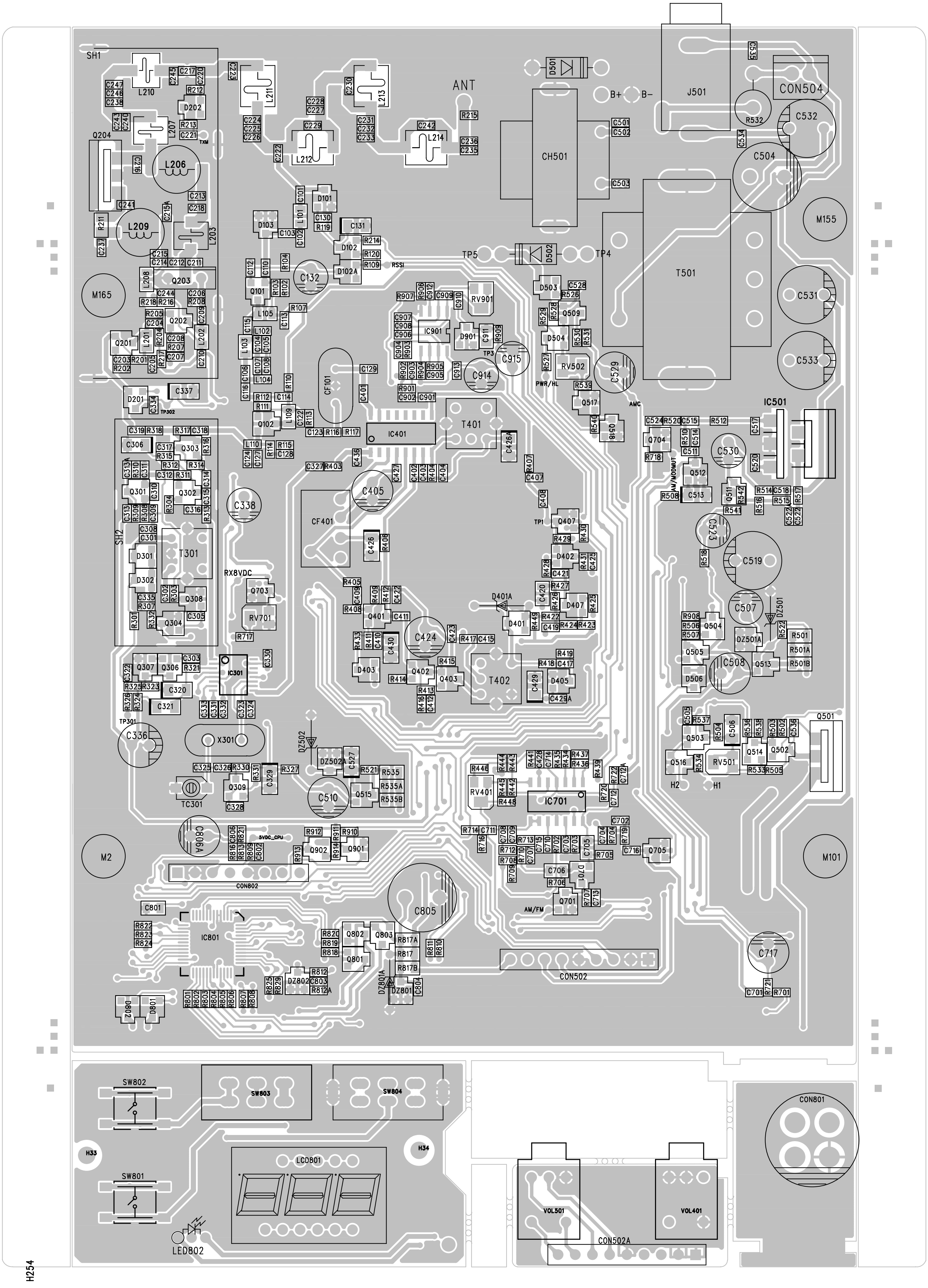
The detector is a digital phase comparator which compares the phase of the reference signal with programmable divider output square waves and develops a series of pulses whose DC level depends on the phase error of each signal.

3-4.Switching of tuning capacitor in VCO

The VCO circuit must tune with a wide rang of frequencies 37.26 MHz ~ 38.10 MHz (EU), 38.29625 MHz ~ 38.68625 MHz (UK), for receiver and 26.5650 MHz ~27.4050 MHz (EU), 27.60125 MHz ~ 27.99125 MHz (UK) for transmitter. To comply above rang of VCO, the tuning capacitance should switched for transmission or reception by C302, Q308.

3-5.Transmitter/Receiver buffer AMP

Output signal of Q301 is fed into buffer AMP Q302 and Q303.



M210 DAS_20120912_MP_Te - Wed Oct 03 09:23:02 2012