Service Manual

H201

AM/FM PLL DIGITAL TUNING WATER PROOF RADIO

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SPECIFICATION.

FM. ELECTRICAL PERFORMANCE

Model: H201	Brand: SANGEAN	Temp: ° C	R.H.: %	Date: 2006/7/14

Test Item	Condition			Value		Test no.		Unit
	Input	Output	freq	Nom.	Lim	1.	2.	
Tuning Range		S/N=6dB	Min	87.5				MHz
			Max	108				
Intermediate freq.		S/N=6dB		10.7	±0.05			MHz
Max. Sensitivity		S/N=6dB	90MHz 98MHz 106MHz	8 8 8	18 18 18			dBu
Usable Sensitivity		S/N=30dB	90MHz 98MHz 106MHz	14 14 14	22 22 22			dBu
Image Rejection		S/N=6dB	106MHz	26	18			dB
I.F. Rejection		S/N=6dB	90MHz		60			dB
3db Limiting	60dBu		98MHz	14	22			dBu
Min. output				0.3	1			mV
Auto Scan	60dBu			18	26			dBu
S/N Ratio				50	40			dB
Current Consumption		VR=R.O		120	140			mA
Am. Suppression (1mV)				32	26			dB
Audio Fidelity (-3dB W/Pre-emphasis) USA=75uS EUR=50uS				100	200			Hz
				10k	8k			Hz
Output Power(75KHz dev.)		10%T.H.D.		450	300			mW
T. H. D. (75KHz dev.)				1	3			%
Over load capacity		10%T. H.D.		120	100			dBu
Lowest Batt. Volt.	60dBu		98MHz	2	±0.1			V
								V
								uA
Supply Voltage: DC 3 V	R.O.: 50mW	Load: 8 Ohm	Modulation: 1KHz Mod./22.5KHz Dev.					

Remark:	Approved by	Released/Tested by
( )首件產品 ( )客戶抽測: ( )成品 ( )例行抽測 ( )業務樣品: ( )半成品( )新機種 ( )工程變更:		

SPECIFICATION.

MW. ELECTRICAL PERFORMANCE

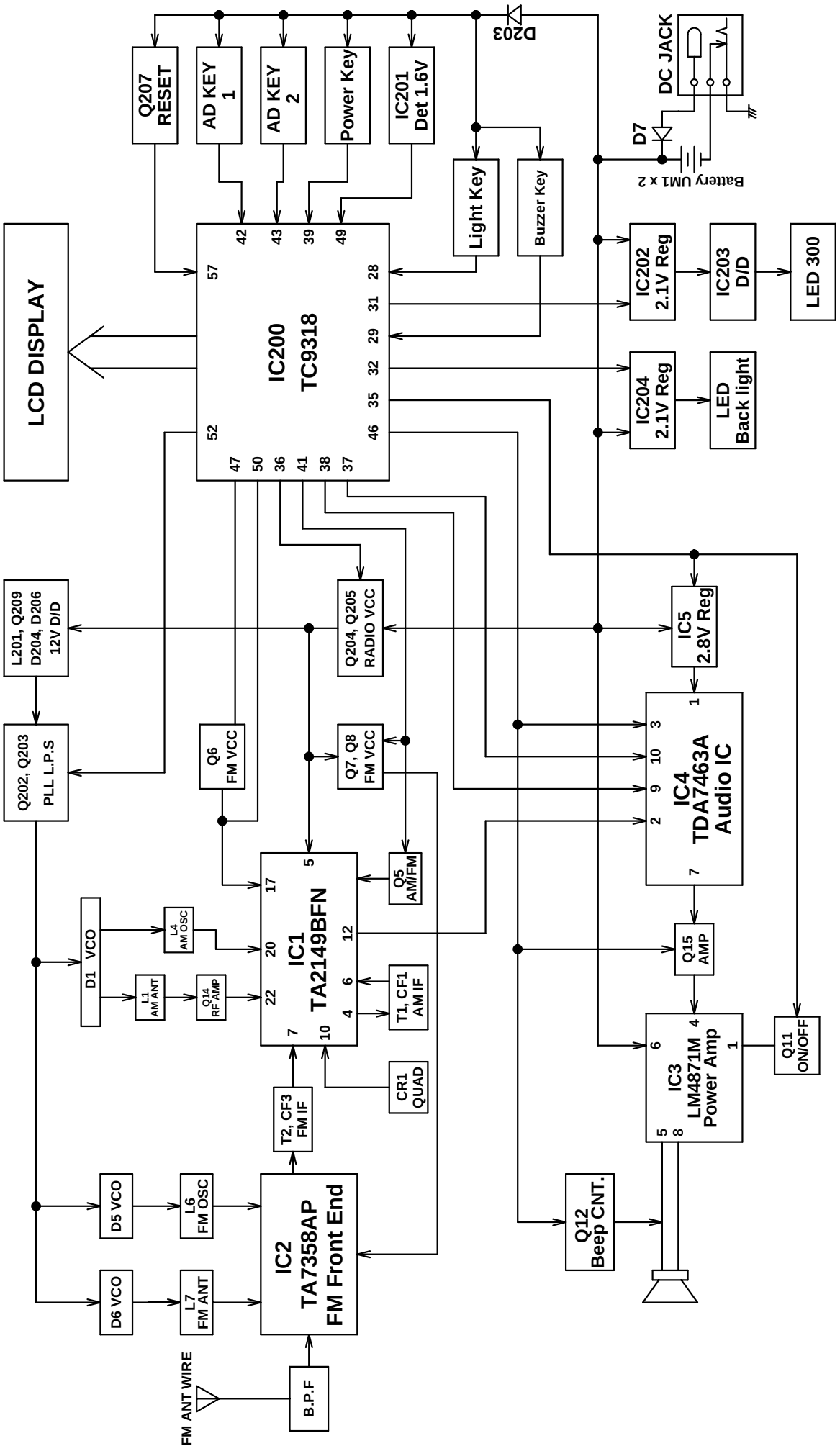
Model: H201(歐)	Brand: SANGEAN	Temp: ° C	R.H.: %	Date: 2006/7/24

Test Item	Condition			Value		Test no.		Unit
	Input	Output	freq	Nom.	Lim	1.	2.	
Tuning Range			Min	522				KHz
			Max	1629				
Intermediate freq.		S/N=6dB	Min	450	±2			KHz
Max. Sensitivity		S/N=6dB	603KHz 999KHz 1404KHz	32 28 28	38 38 36			dBu/m
Usable Sensitivity		S/N=20dB	603KHz 999KHz 1404KHz	45 43 42	52 50 50			dBu/m
Image Rejection		S/N=6dB	1404KHz	40	30			dB
I.F. Rejection		S/N=6dB	603KHz	60	46			dB
Selectivity(±10KHz)		S/N=6dB	1404KHz	38	26			dB
Bandwidth(-6dB)		S/N=6dB		8	6-11			KHz
T. H. D.	74dBu/m		999KHz	1.5	4			%
Lowest Batt. Volt.	74dBu/m			2	±0.1			V
Auto. Scan. Stop. Sens.				46	54			dBu/m
Current Consumption	74dBu/m	VR=R.O		120	140			mA
Freq. Response (-6dB)	74dBu/m			100	200			Hz
				3000	2000			Hz
Output Power 80% Mod.		10%T.H.D.		450	300			mW
Over load capacity	80%mod.	10%T. H.D.		100	90			dBu/m
A. G. C. F. O. M.	100dBu/m				40			dB
S/N Ration	74dBu/m			44	36			dB
Whistle Modulation	74dBu/m		2IF/3IF		15			%

Supply Voltage: DC3 V	R.O.: 50mW	Load: 8 Ohm	Modulation: 1KHz/30% Mod

Remark:	Approved by	Released/Tested by
( )首件產品 ( )客戶抽測: ( )成品 ( )例行抽測 ( )業務樣品: ( )半成品( )新機種 ( )工程變更:		

BLOCK DIAGRAM



ALIGNMENT INSTRUCTIONS

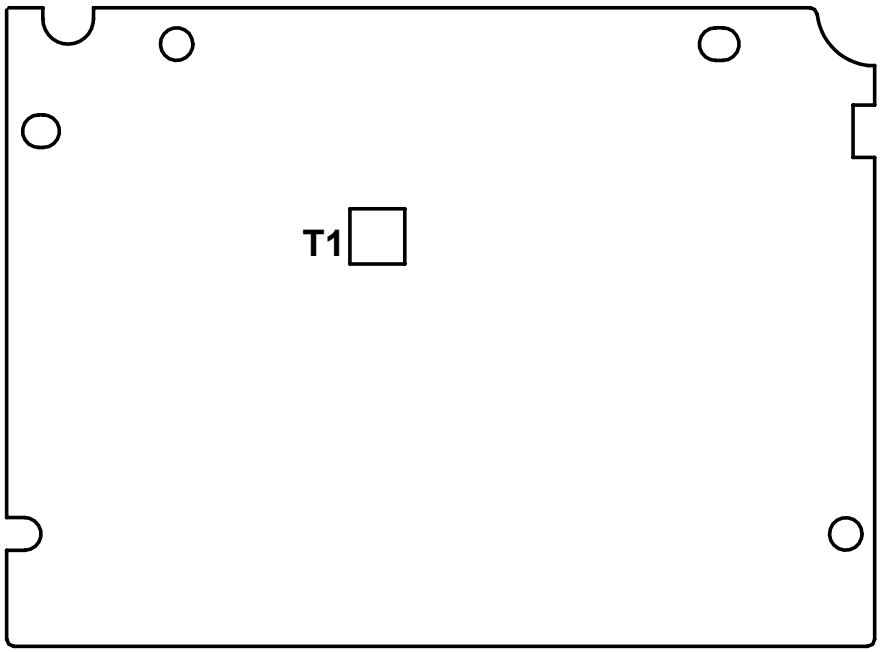
1. ALIGNMENT FOR AM IF

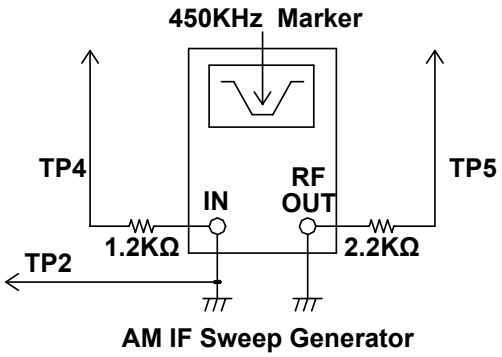
a. Required Instruments:
AM IF Sweep Generator with scope

b. Alignment Procedure

Mode	Adjustment	Procedure
AM	T1	(1) Press the power button to turn on the radio. (2) Connect the input terminal of AM IF sweep generator in series with a resistor of 1.2KΩ to the TP2 and TP4. (3) Connect the RF output terminal of AM IF sweep generator to another test point TP5. (4) Adjust T1 to have a max. output with a marker frequency of 450KHz on the sweep scope.

c. Instrument Connection





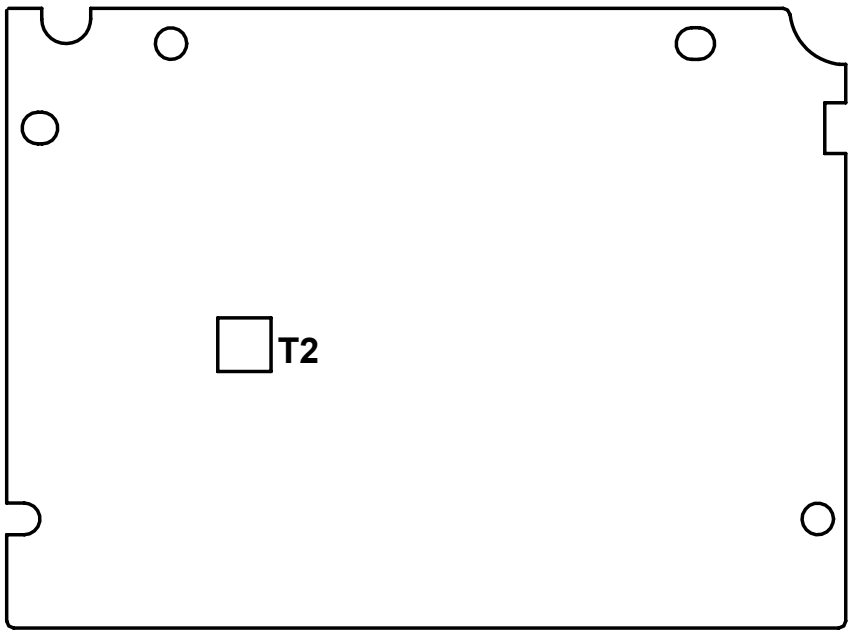
2. ALIGNMENT FOR FM IF

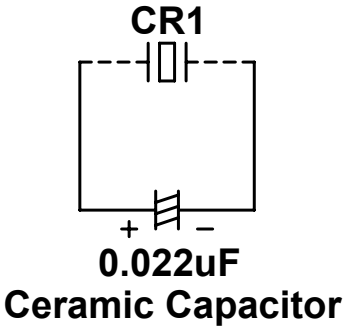
a. Required Instruments:
FM IF Sweep Generator with scope

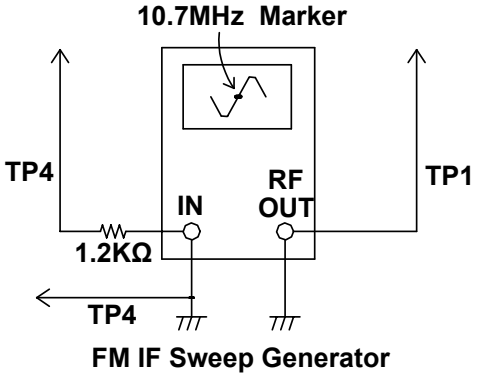
b. Alignment Procedure

Mode	Adjustment	Procedure
FM	T2	(1) Turn on the radio. (2) Connect the input of FM IF sweep generator in series with a 1.2KΩ resistor to the TP2 and TP4. (3) Connect the RF output of FM IF sweep generator to another TP1. (4) Connect a 0.022μF ceramic capacitor to CR1 in parallel. (5) Adjust T1 to have a max. output and best symmetrical curve with respect to the center archer frequency of 10.7MHz.

c. Instrument Connection







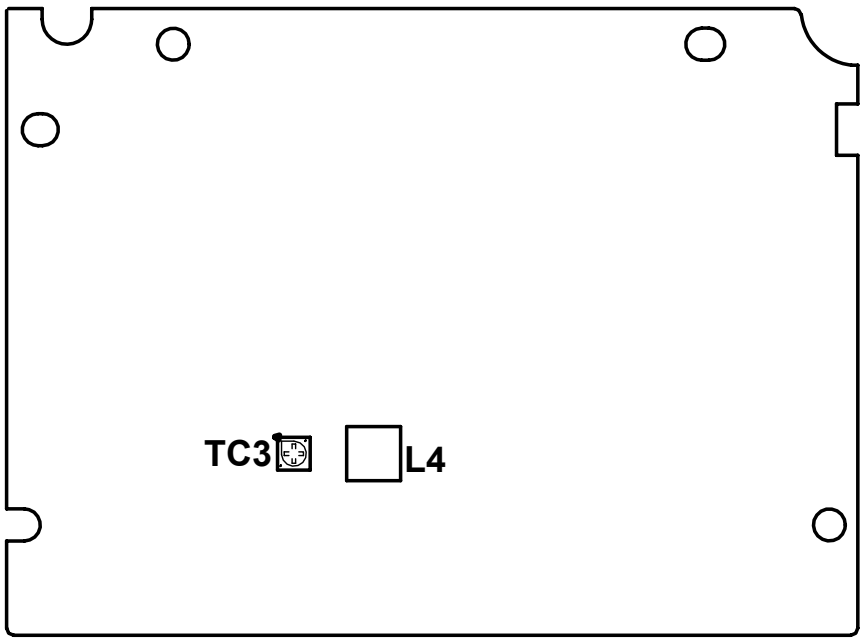
3. ALIGNMENT FOR AM TUNING VOLTAGE RANGE

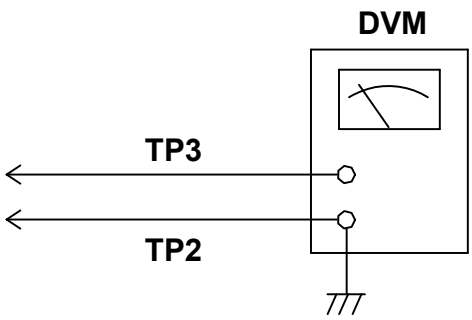
a. Required Instruments:
DVM

b. Alignment Procedure

Mode	Adjustment	Procedure
AM	L4 TC3	(1) Turn on the radio. (2) Connect the probe of DVM to the test point TP2 and TP3. (3) Tune the AM frequency to 522KHz. (4) Adjust L4 to have a reading of 1.2 ± 0.04V. (5) Tune the AM frequency to 1629KHz. (6) Adjust TC3 to have a reading of 6.5 ± 0.3V.

c. Instrument Connection





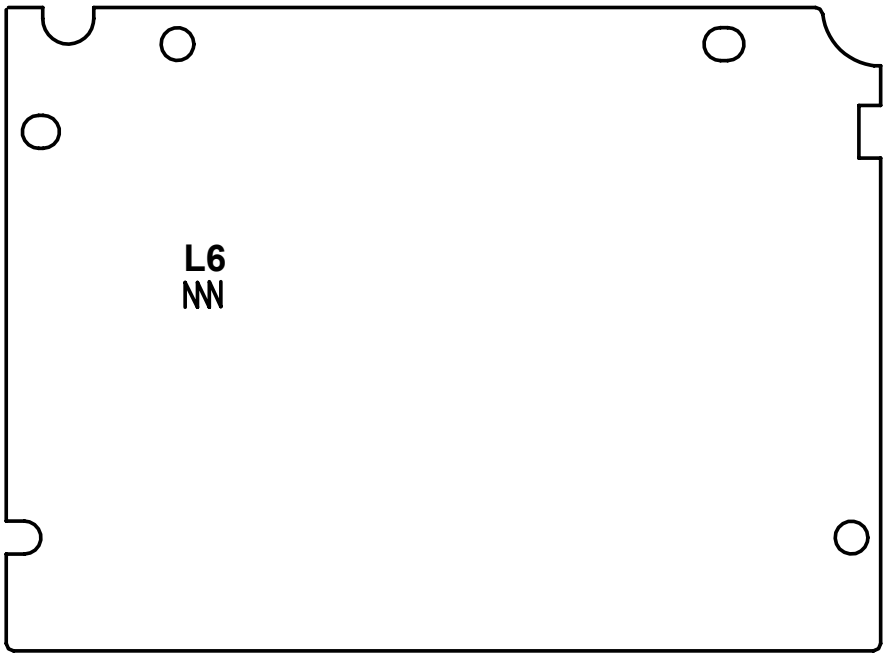
4. ALIGNMENT FOR FM TUNING VOLTAGE

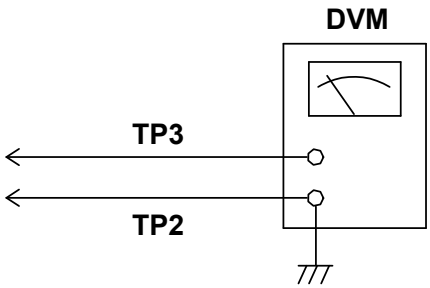
a. Required Instruments
DVM

b. Alignment Procedure

Mode	Adjustment	Procedure
FM	L6	(1) Turn on the radio. (2) Connect the probe of DVM to the TP3 and TP2. (3) Tune the FM frequency to 108MHz. (4) Adjust L6 to have a reading of 7.6V ± 0.3V.

c. Instrument Connection





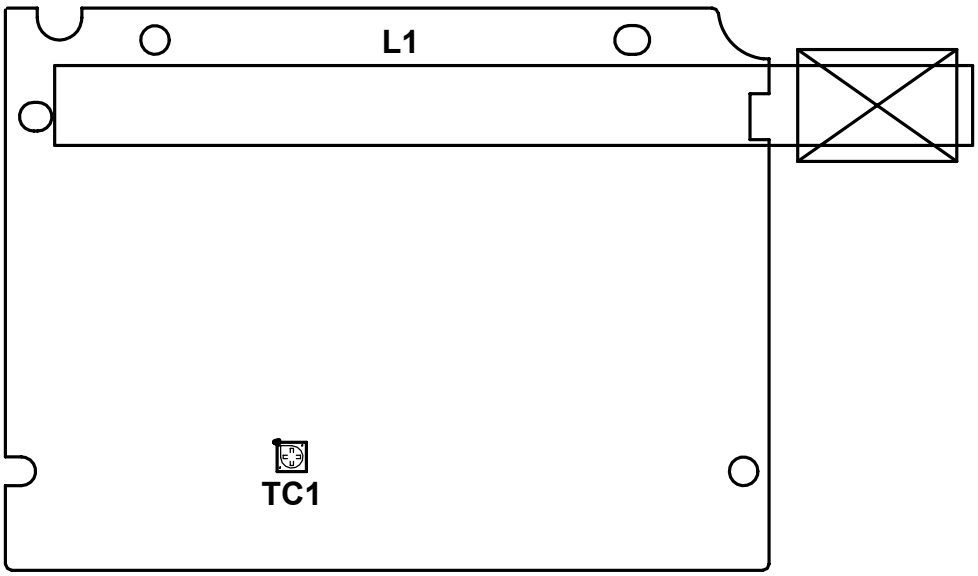
5. ALIGNMENT FOR AM SENSITIVITY

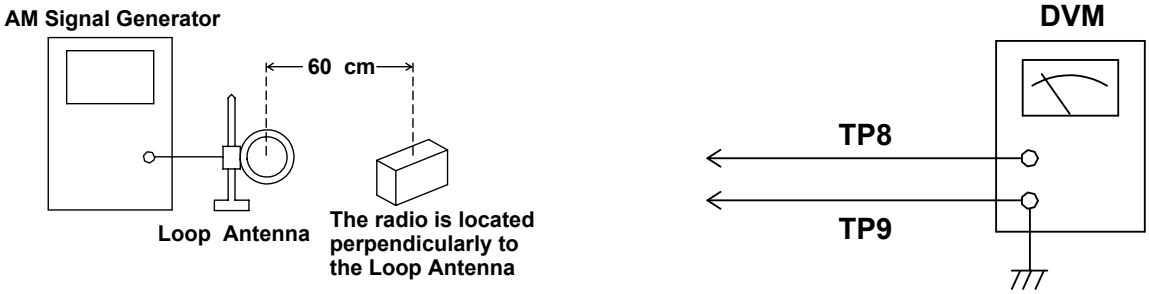
a. Required Instruments
AM Signal Generator
SSVM

b. Alignment Procedure

Mode	Adjustment	Procedure
AM	TC1 L1	(1) Turn on the radio. (2) Connect a SSVM to the speaker TP8 and TP9 terminals. (3) Connect an AM signal generator together with standard loop dummy antenna and feed 30% modulated signal to the AM ferrite bar antenna (L1). (4) Tune the generator frequency to 1404KHz. (5) Tune the AM frequency to 1404KHz and adjust TC1 to have a max reading on SSVM. (6) Return the generator frequency to 603KHz. (7) Tune the AM frequency to 603KHz and adjust L1 to have a max reading on SSVM. (8) Repeat (4) to (7) as necessary to minimize tracking error.

c. Instrument Connection





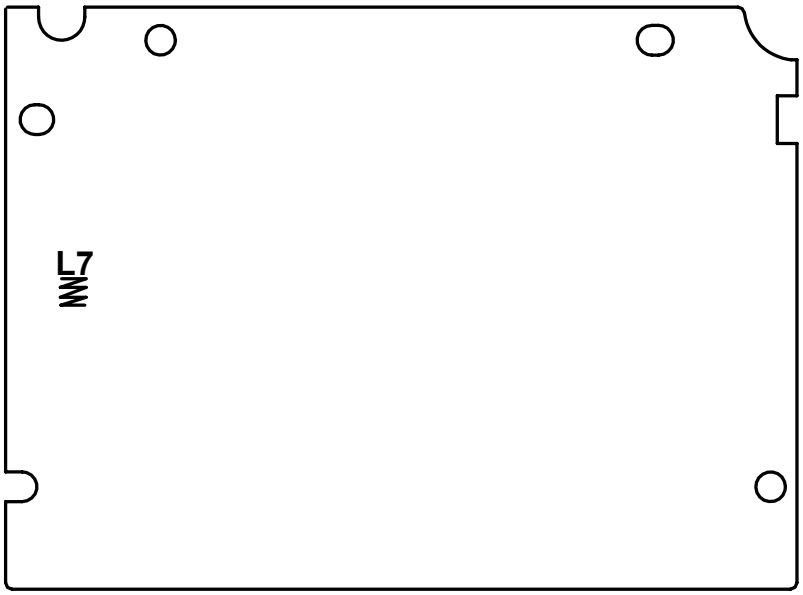
6. ALIGNMENT FOR FM TUNING SENSITIVITY

a. Required Instruments
FM Signal Generator (frequency range up to 220MHz)
SSVM

b. Alignment Procedure

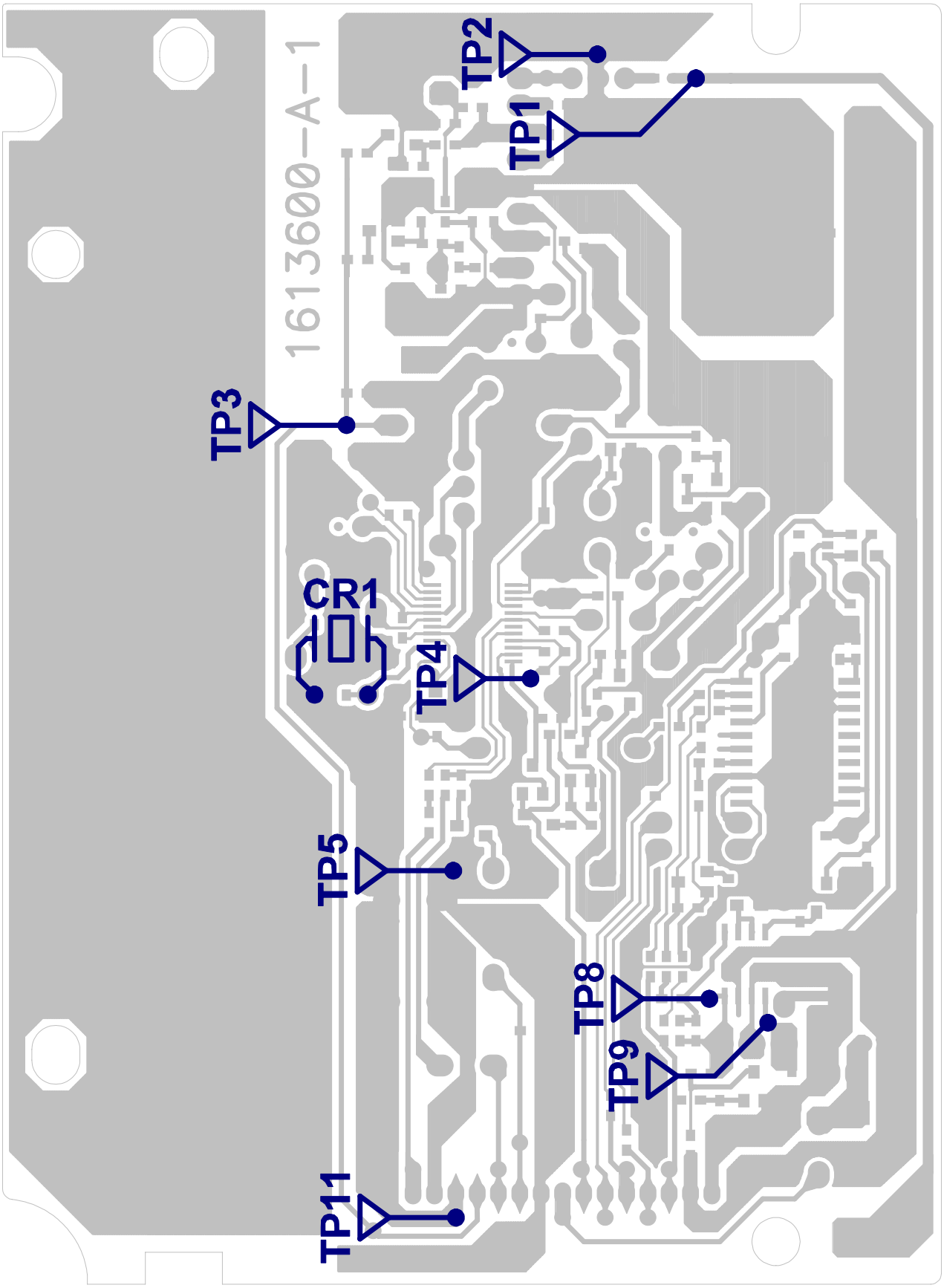
Mode	Adjustment	Procedure
FM	L7	(1) Turn on radio. (2) Connect a SSVM to speaker TP8 and TP9. (3) Connect a FM signal generator to TP1 and TP2. (4) Set the signal generator to 22.5KHz deviation with 1KHz modulation. (5) Always tune the generator frequency to exactly same as the radio band frequency before adjustment. (6) Tune the FM frequency to 106MHz and adjust L7 to have a max audio output.

c. Instrument Connection

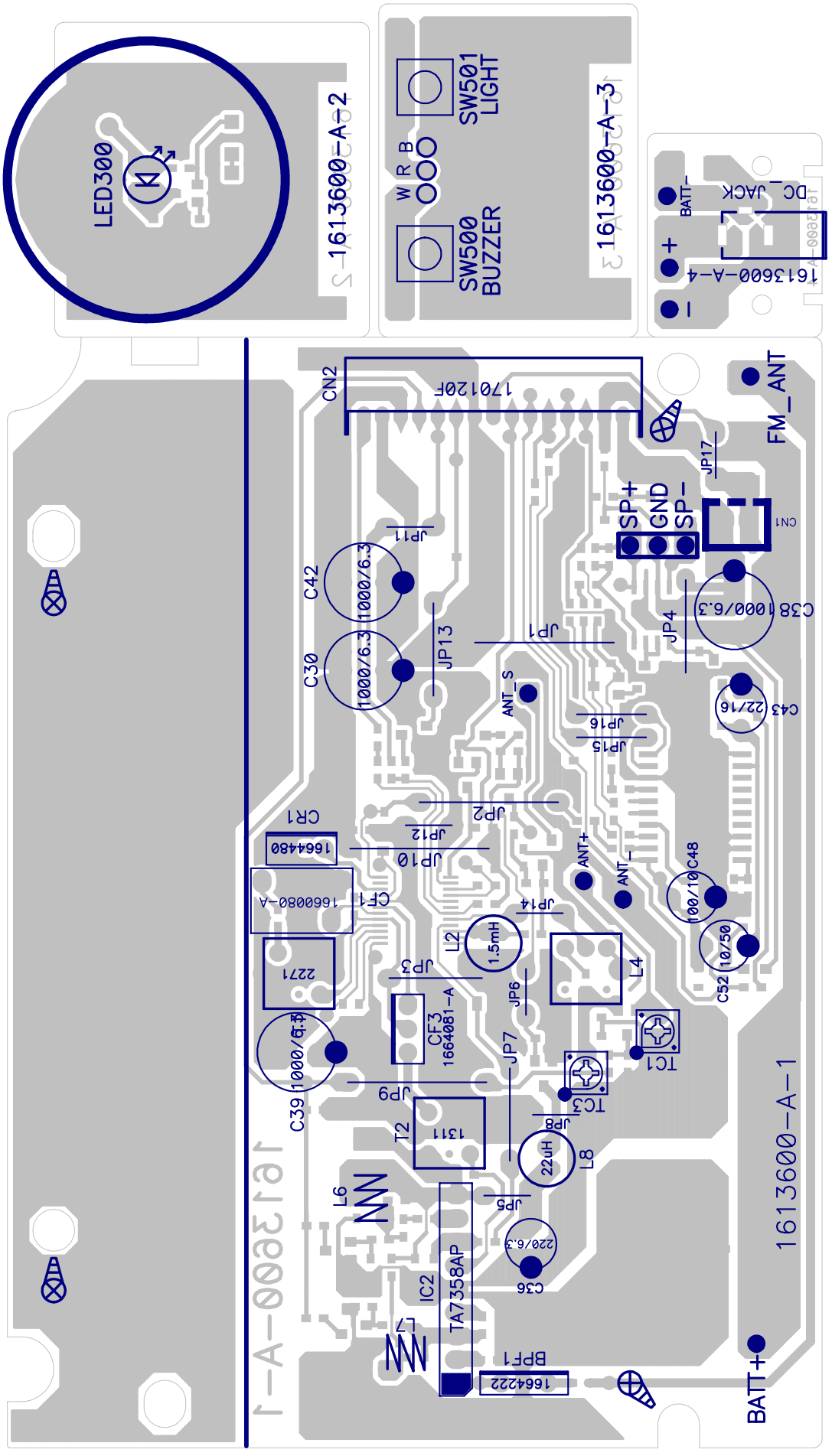




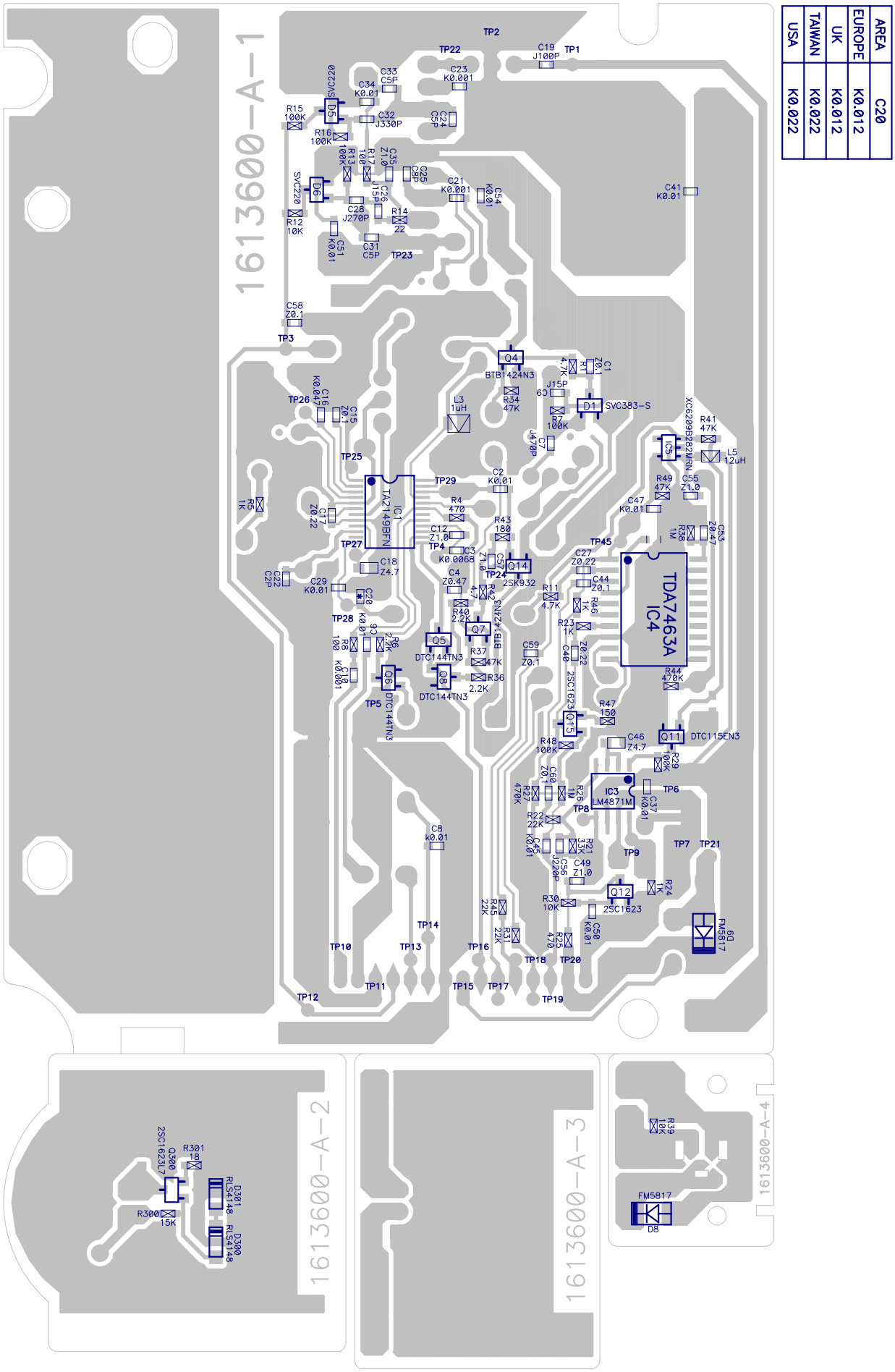
TEST POINTS DIAGRAM



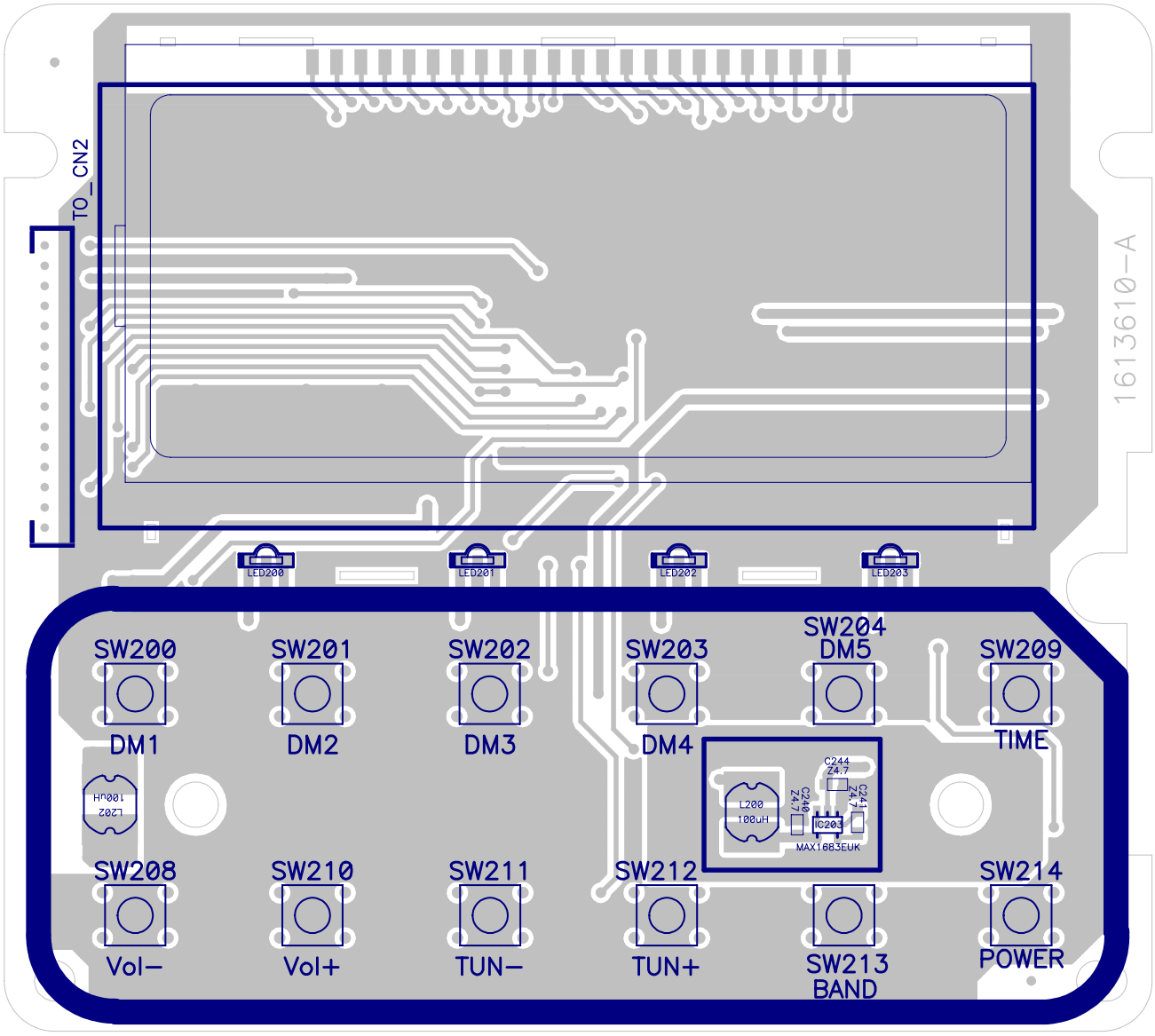
MAIN PCB TOP VIEW



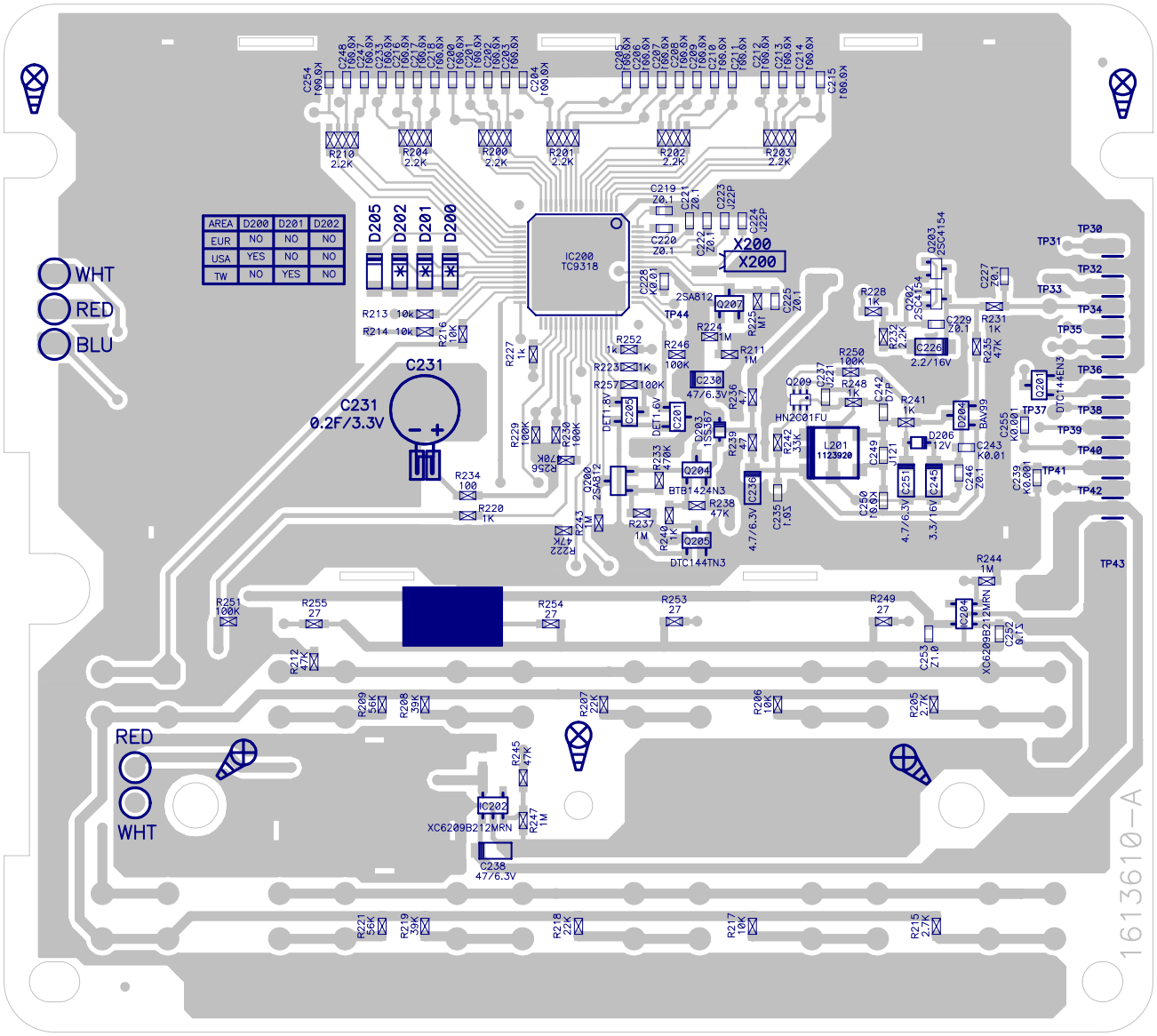
MAIN PCB BOTTOM VIEW



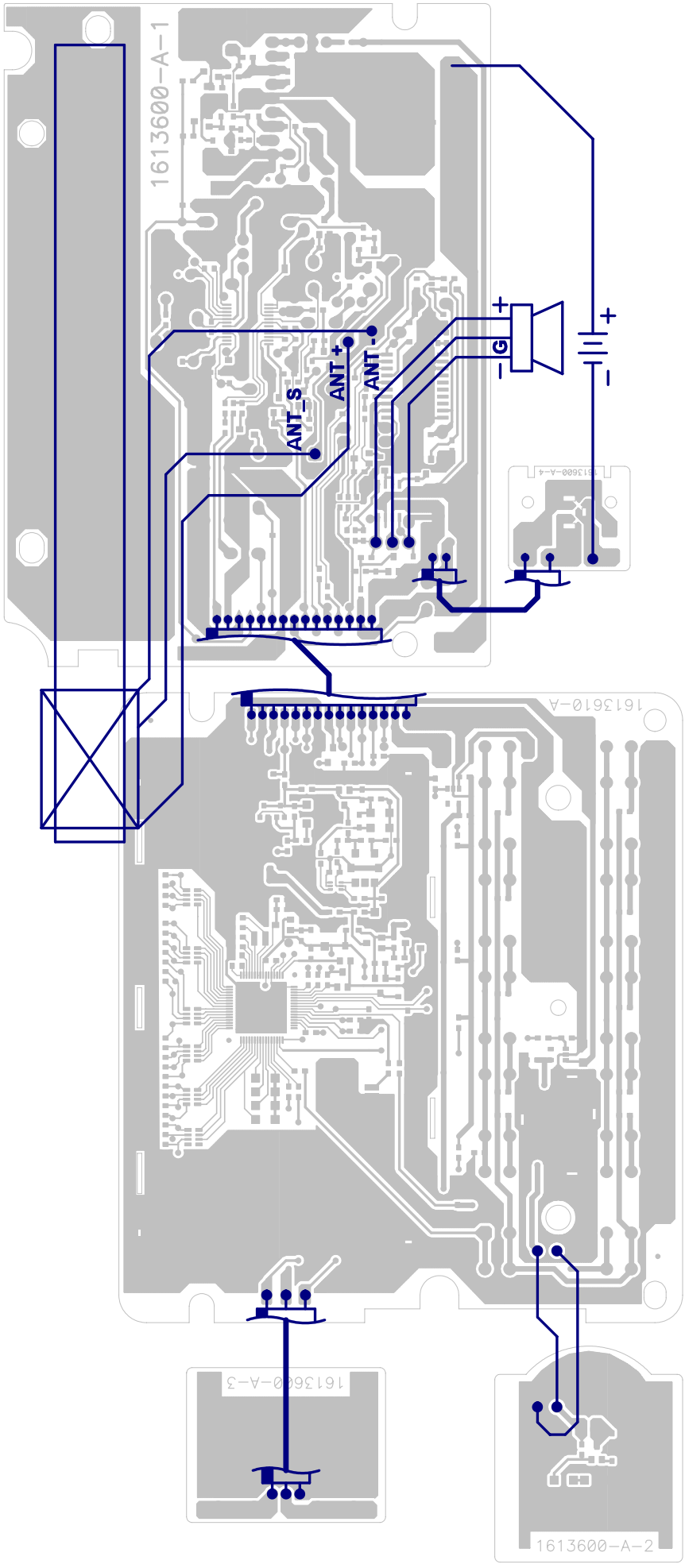
CONTROL PCB TOP VIEW



CONTROL PCB BOTTOM VIEW

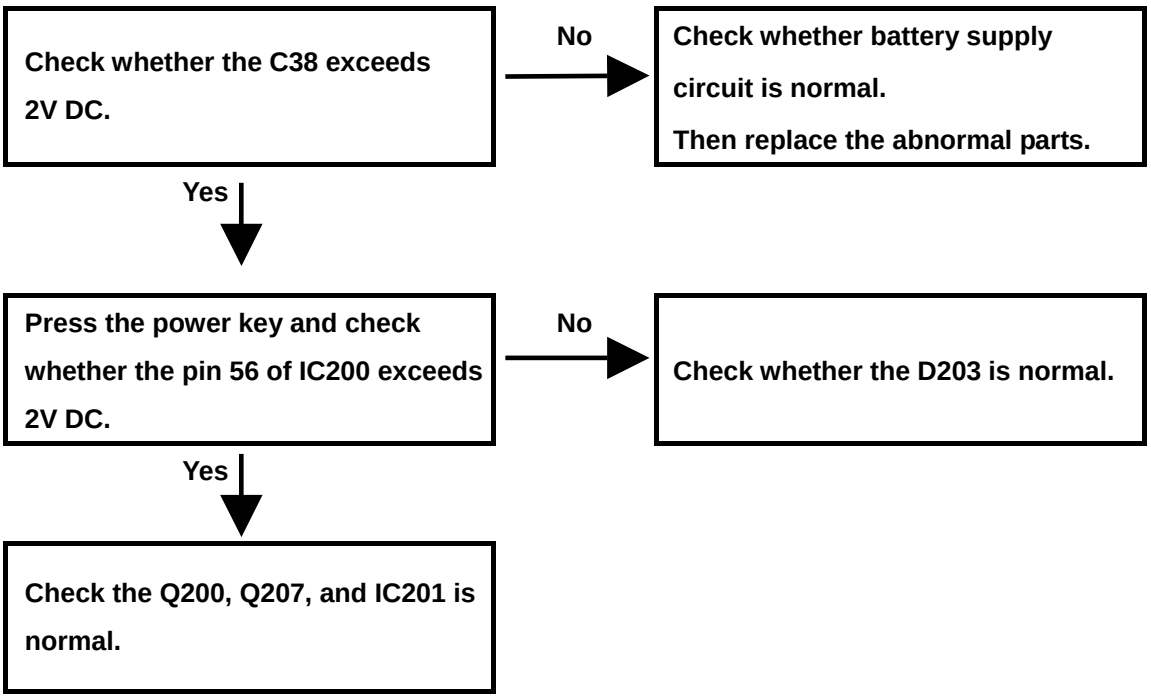


WIRING DIAGRAM

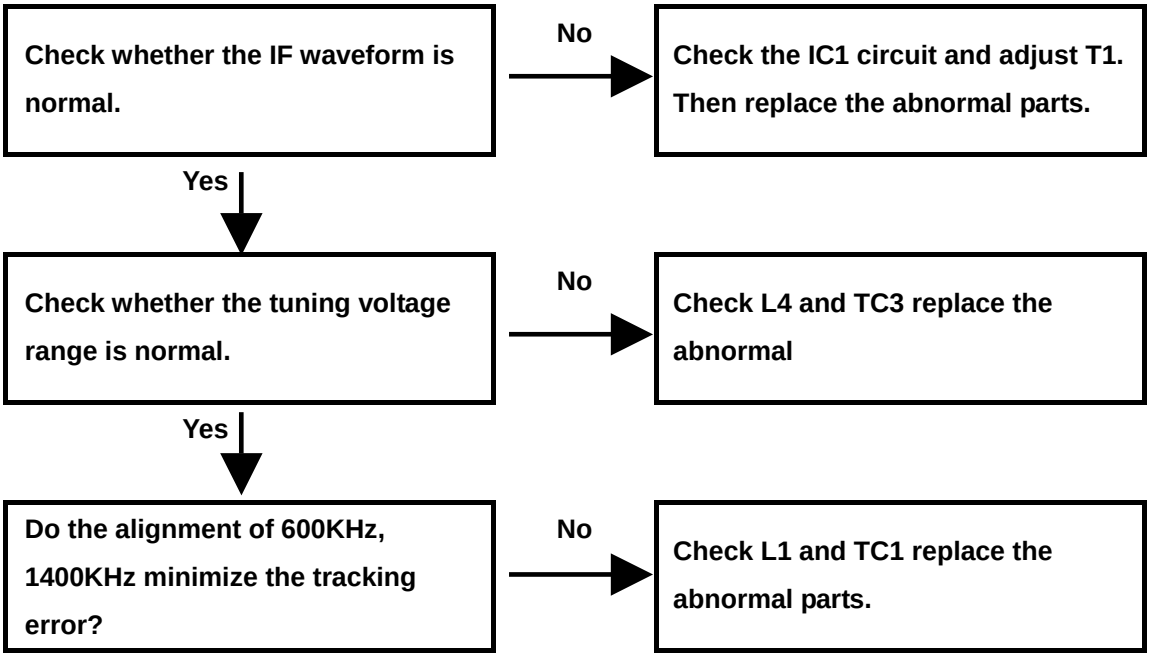


TROUBLESHOOTING FLOW CHART

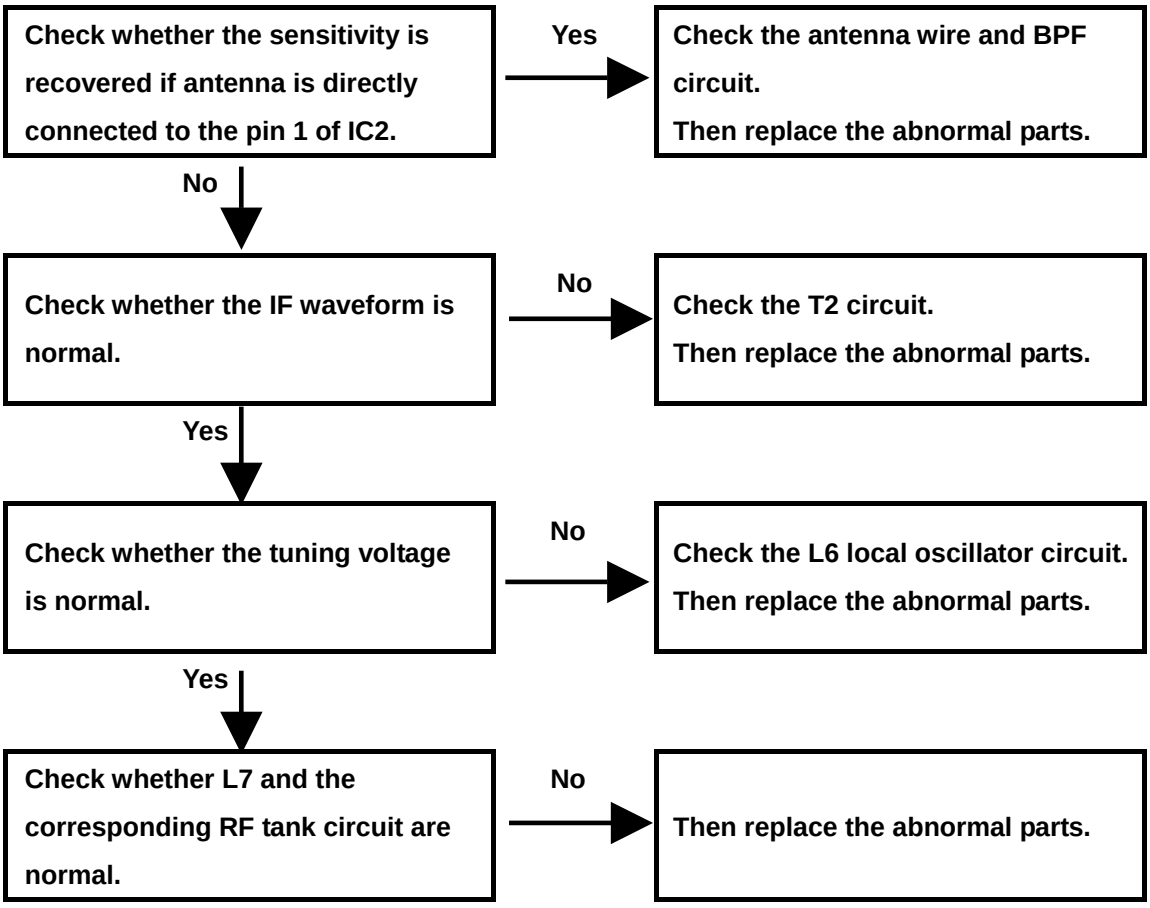
(1) Power can not be turned on



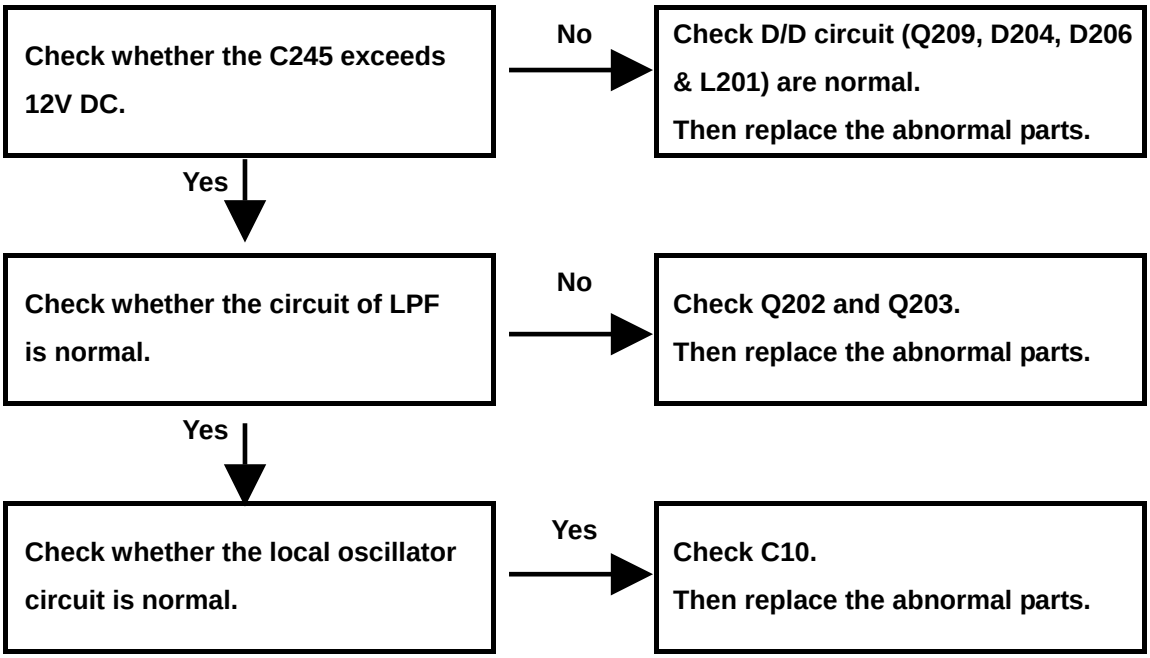
(2) Weak sensitivity in AM band



(3) Weak sensitivity in FM band



(4) PLL does not work



ELECTRICAL PARTS LIST

H201

PART NO	DESCRIPTION	Q'TY	REMARK
1000830-A	CH LSI TC9318AFAG-104	1	IC 200,
1010210-A	IC TA7358APG SIP9	1	IC 2,
1013260-A	CH IC TA2149BFN	1	IC 1,
1014890-A	CH IC TDA7463A	1	IC 4,
1014900-A	CH IC XC6209B212MRN	2	IC 202,204,
1014910-A	CH IC XC61CN1602MRN	1	IC 201,
1014920-A	CH IC LM4871M	1	IC 3,
1014930-A	CH IC MAX1683EUK-T	1	IC 203,
1015160-A	CH IC XC6209B282MRN	1	IC 5,
1015190-A	CH IC XC61CN1802MRN	1	IC 205,
1020230-A	CH TR 2SA812-T1B-A M6	2	Q 200,207,
1020241-A	CH TR 2SC1623-T1B-A L7	3	Q 12,15,300,
1021110-A	CH TR BTB1424N3-R SOT23	3	Q 4,7,204,
1022272-A	CH TR 2SC4154-G hFE:400	2	Q 202,203,
1026001-A	CH TR HN2C01FU-GRhFE=200	1	Q 209,
1026140-A	CH TR DTC144EN3 SOT23	1	Q 201,
1026141-A	CH TR DTC144TN3 SOT23	4	Q 5,6,8,205,
1026143-A	CH TR DTC115EN3 SOT23	1	Q 11,
1030170-A	CH FET 2SK932-23-TB-E	1	Q 14,
1041220-A	CH DIODE 1SS367	1	D 203,
1041400-A	CH DIODE SCHOTTKY FM5817	2	D 7,8,
1043140-A	CH VARICAP SVC383-S	1	D 1,
1043180-A	CH VARICAP SVC220	2	D 5,6,
104535D-A	CH ZENER DIODE 12V	1	D 206,
1046011-A	CH DIODE MM4148	3	D 205,300,301,
1046180-A	CH DIODE HBAV99	1	D 204,
1057090-A	CH LED YEL HL-HKD34C-TRB	4	LED200-203,
1062260-A	LED WHT 5φ 50AWC2D-011	1	LED300,
1111410-A	BAR & COIL 1410	1	L 1,
1121312-A	ADJ. COIL 1312	1	T 2,
1121330-A	ADJ. COIL 1330	1	L 4,
1122271-A	ADJ. COIL 2271	1	T 1,
1123920-A	CH ADJ.COIL 3920	1	L 201,
11313JD-7A	CH WOUND IND.1uHJ-E	1	L 3,
11326A0K-A	CH INDUCTOR 12uHK-A	1	L 5,
1132900S-A	FIXED COIL 22μHK(A)-S	1	L 8,
11337KP-3A	CH WOUND IND.100uHK-N	2	L 200,202,
1135101S-A	FIXED COIL 1.5mH-S	1	L 2,
1142350U-A	SP COIL 3.5x5.5Tx0.6	1	L 6,
1143350U-A	SP COIL 4x5.5Tx0.6	1	L 7,
1210281-A	TC 20P 4.5mm RED	2	CT 1,3,
1600810-A	LCD SV-WT2413BPTZ	1	LCD200,
1613600-A	PCB A H201	1	
1613610-A	PCB C H201	1	
1621100-A	SPK 3" 8Ω 3W	1	SP
1631632-A	TACT SW 130±30gf5mm	14	SW 200-204,208-214,500, 501,
1647050-A	JACK DC 5φ TC18-038-01	1	DC JACK
1650530-A	X'TAL 75KHz+10/-20PPM2x6	1	X 200,
1664081-A	FILTER SFELF10M7JAA0-B0	1	CF 3,
1664222-A	FIL GFMB7-C2-LF 88-108M	1	BPF1,
1664480-A	DISCR CDALF10M7GA100A-B0	1	CR 1,
1664600-A	FILTER LT450HW	1	CF 1,
170120F-A	CNT BASE 2x(15P)-H	1	CN 2,
1702010-A	CNT BASE 2.5x2P	1	CN 1,
1705280-A	CNT/WIRE 50(2x15P)	1	CNT2_WIRE
1705380-A	CNT/W 150(2.5+2P)	1	POWER_WIRE
2149120-A	ANT TERMINAL PIN	4	P 1-4,
441066PT1-A	EL 106M 50V 5x11-T	1	C 52,
442263PT1-A	EL 226M 16V 5x11	1	C 43,
441072PT1-A	EL 107M 10V 5x11	1	C 48,
442271PT1-A	EL 227M 6.3V 5x11	1	C 36,
441081KT1-A	EL 108M 6.3V 8x11.5	4	C 30,38,39,42,
4920400-A	CH SUPERCAP EECENOF204RT	1	C 231,
4B22532-A	CH TA 225M16V 3.2x1.6	1	C 226,

ELECTRICAL PARTS LIST

H201

PART NO	DESCRIPTION	Q'TY	REMARK
4B33532-A	CH TA 335M 16V 3.2x1.6	1	C 245,
4B47513-A	CH TA 475M 16V 3.2x1.6	2	C 236,251,
4B47612-A	CH TA 476M 6.3V 3.2x1.6	2	C 230,238,
5402001-A	CH CC 020C 50V NPO-C	1	C 22,
5405001-A	CH CC 050C 50V NPO-C	3	C 24,31,33,
5407001-A	CH CC 070C 50V NPO-C	1	C 242,
5408001-A	CH CC 080C 50V NPO-C	1	C 25,
5410101-A	CH CC 101J 50V NPO-C	1	C 19,
5410261-A	CH CC 102K 50V X7R-C	28	C 10,21,23,200-218,233 ,239,247,248,254,255
5410361-A	CH CC 103K 50V X7R-C	16	C 2,6,8,29,34,37,41,45 ,47,50,51,54,228,229 ,243,250,
5410446-A	CH CC 104Z 25V F-C	14	C 1,15,44,58,59,60,219 -222,225,227,235,246
5410556-A	CH CC 105Z 16V F-C	6	C 12,35,49,55,57,252,
5412101-A	CH CC 121J 50V NPO-C	1	C 249,
5415001-A	CH CC 150J 50V NPO-C	2	C 9,26,
5415361-A	CH CC 153K 50V X7R-C	1	C 20,
5422001-A	CH CC 220J 50V NPO-C	2	C 223,224,
5422101-A	CH CC 221J 50V NPO-C	2	C 56,237,
5422446-A	CH CC 224Z 25V Y5V-C	3	C 17,27,40,
5427101-A	CH CC 271J 50V NPO-C	1	C 28,
5433101-A	CH CC 331J 50V NPO-C	1	C 32,
5447101-A	CH CC 471J 50V NPO-C	1	C 7,
5447361-A	CH CC 473K 50V X7R-C	1	C 16,
5447472-A	CH CC 474Z 16V Y5V-C	2	C 4,53,
5468261-A	CH CC 682K 50V X7R-C	1	C 3,
5547573-A	CH CC 475Z 10V Y5V-A	5	C 18,46,240,241,244,
6130108-A	CH RD 1/16W 4.7J-C	2	R 42,236,
6130115-A	CH RD 1/16W 18J-C	1	R 301,
6130116-A	CH RD 1/16W 22J-C	1	R 14,
6130117-A	CH RD 1/16W 27J-C	4	R 249,253-255,
6130120-A	CH RD 1/16W 47J-C	1	R 239,
6130124-A	CH RD 1/16W 100J-C	3	R 8,17,234,
6130126-A	CH RD 1/16W 150J-C	1	R 47,
6130127-A	CH RD 1/16W 180J-C	1	R 43,
6130132-A	CH RD 1/16W 470J-C	2	R 4,25,
6130136-A	CH RD 1/16W 1KJ-C	13	R 5,23,24,46,220,223, 227,228,231,240,241, 248,252,
6130140-A	CH RD 1/16W 2.2KJ-C	4	R 6,36,40,232,
6130141-A	CH RD 1/16W 2.7KJ-C	2	R 205,215,
6130144-A	CH RD 1/16W 4.7KJ-C	2	R 1,11,
6130148-A	CH RD 1/16W 10KJ-C	8	R 12,30,39,206,213,214 ,216,217,
6130150-A	CH RD 1/16W 15KJ-C	1	R 300,
6130152-A	CH RD 1/16W 22KJ-C	5	R 22,31,45,207,218,
6130154-A	CH RD 1/16W 33KJ-C	2	R 21,242,
6130155-A	CH RD 1/16W 39KJ-C	2	R 208,219,
6130156-A	CH RD 1/16W 47KJ-C	9	R 34,37,41,49,212,222, 235,238,245,
6130157-A	CH RD 1/16W 56KJ-C	2	R 209,221,
6130160-A	CH RD 1/16W 100KJ-C	12	R 7,13,15,16,29,48,229 ,230,246,250,251,257
6130168-A	CH RD 1/16W 470KJ-C	4	R 27,44,233,256,
6130172-A	CH RD 1/16W 1MJ-C	9	R 26,38,211,224,225, 237,243,244,247,
6500440-A	CH RP 2.2KJx4-C	6	R 200-204,210,
8000010-A	W/JUMP 5(10)0.6mm	7	JP 5,6,8,11,12,14,17,
8000030-A	W/JUMP 7.5(10)0.6mm	2	JP 15,16,
8000040-A	W/JUMP 10(10)0.6mm	4	JP 3,4,7,13,
8000090-A	W/JUMP 15(10)0.6mm	4	JP 1,2,9,10,
8040040-A	W/PVC 1200(6+TU)GRY	1	ANT WIRE1
8141249-A	W/PVC 80(6+6)T WHT	1	BAT_N_WIRE

ELECTRICAL PARTS LIST

H201

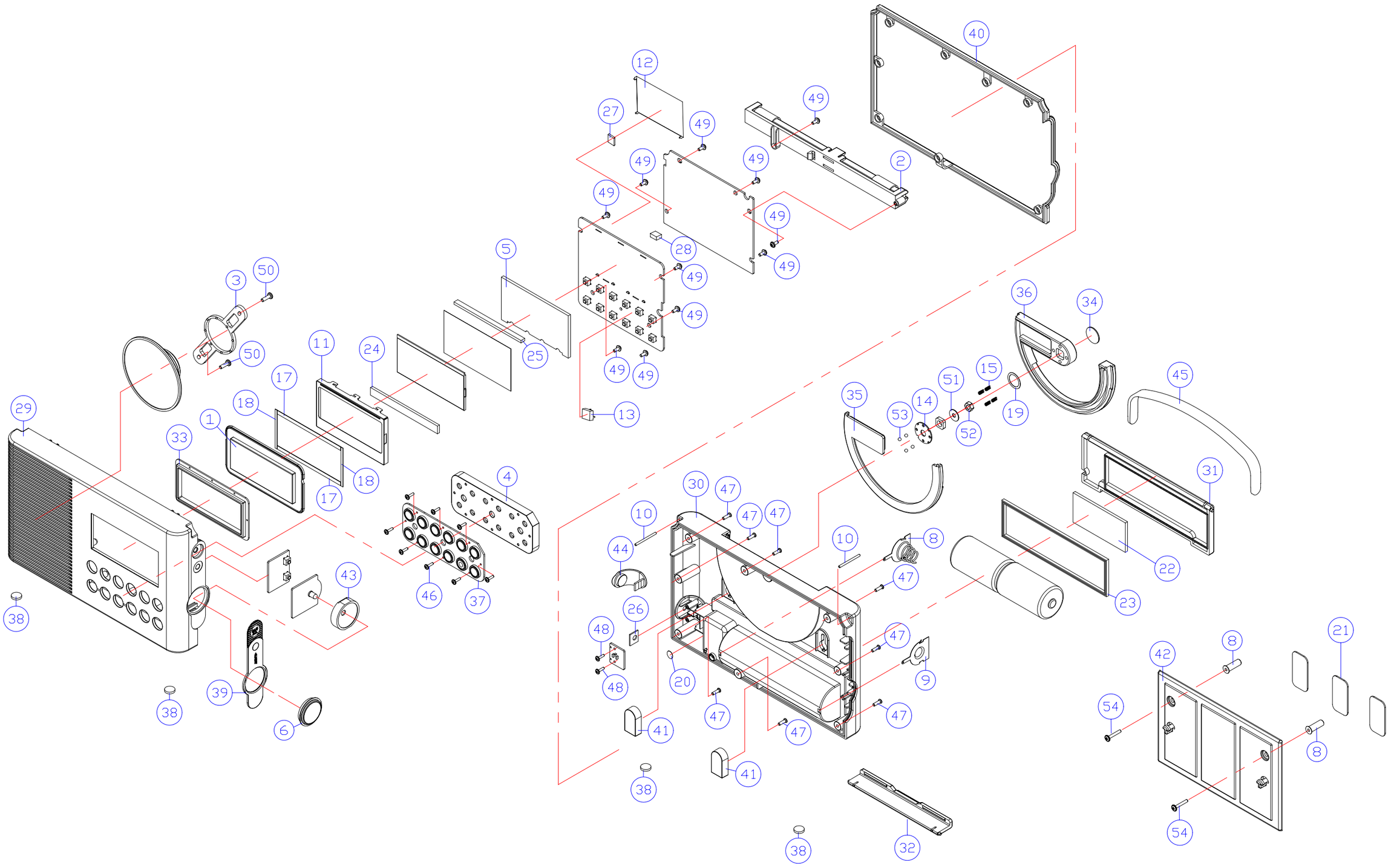
PART NO	DESCRIPTION	Q'TY	REMARK
8141649-A	W/PVC 100(6+6)WHT	1	BAT_+_WIRE
8592970-A	W/3 60(3+5)	1	KEY_WIRE
8592980-A	W/3 120(6+6)R/W/B	1	SPEAKER_WIRE
8596050-A	W/PVC/2 55(3+3)RED/WHT	1	LED_WIRE

MECHANICAL PARTS LIST

H201

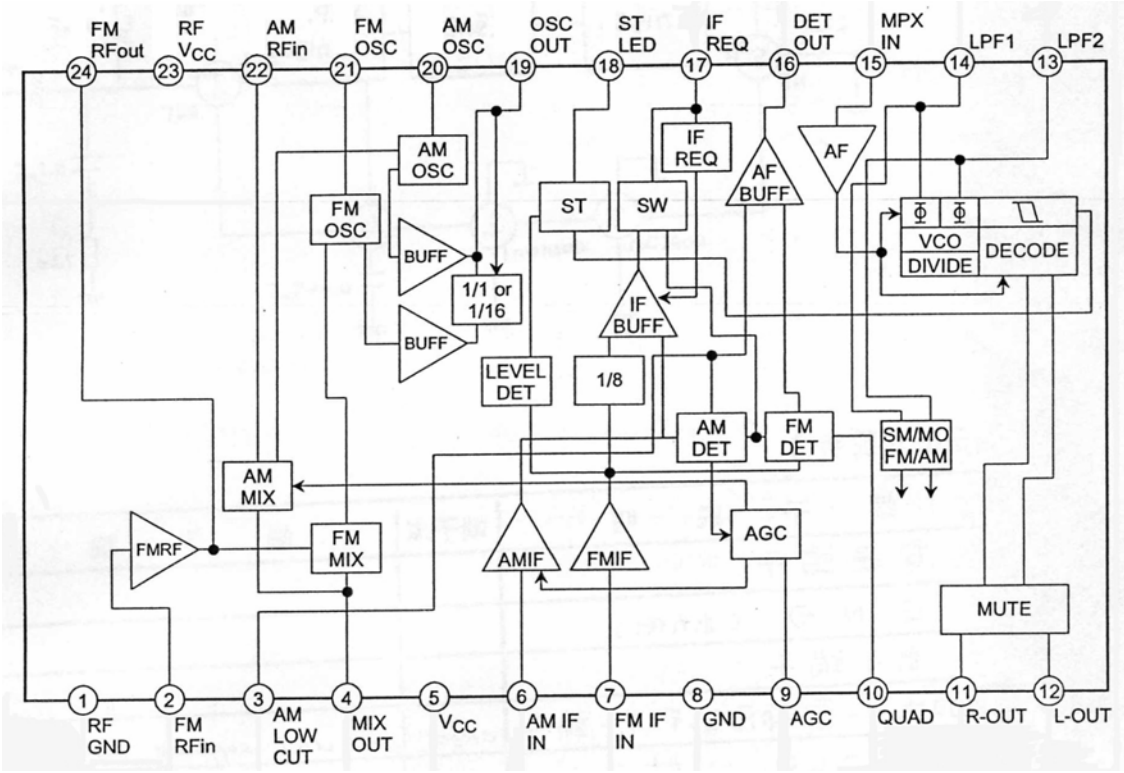
Ref no	PART NO.	DESCRIPTION	Q'TY	DWG NO.	REMARK
1	20Q1000-A	DISPLAY WINDOW	1	A3-Q1-23A	
2	20Q1010-A	BAR ANT HOLDER	1	A3-Q1-31A	
3	20Q1020-A	SPEAKER HOLDER	1	A3-Q1-32A	
4	20Q1030-A	KEY RUBBER HOLDER	1	A3-Q1-33A	
5	20Q1040-A	LCD LENS	1	A4-Q1-34A	
6	20Q1050-A	LIGHT COVER	1	A4-Q1-35A	
7	20Q1060-A	WALL INSERT	2	MHW-03	
8	21K9120-A	BATTERY CONTACT ASS'Y	1	A4-TONE-51A	
9	21PL000-A	BATTERY CONTACT(+)	1	A4-PL-18A	
10	21Q1000-A	BELT SHAFT	2	A4-Q1-13A	
11	21Q1010-A	LCD HOLDER	1	A3-Q1-01A	
12	21Q1020-A	SHIELD PLATE	1	A3-Q1-38A	
13	21Q1030-A	DC SHIELD COVER	1	A3-Q1-39A	
14	21Q1060-A	HANDLE PLATE	1	A4-Q1-10A	
15	21Q1070-A	SPRING	4	A4-Q1-11A	
16	2256000-A	P.C.B. HEMELON	3		
17	22Q1000-A	LCD HOLDER EVA(U/D)	2	A4-Q1-04A	
18	22Q1010-A	LCD HOLDER EVA(R/L)	2	A4-Q1-05A	
19	23Q1010-A	DOUBLE TAPE-A	1	A4-Q1-14A	HANDLE
20	23Q1030-A	AIR LEAK TAPE	1		
21	23Q1040-A	DOUBLE TAPE-C	3	A4-Q1-42A	TO MOUNT BRACKET
22	23Q1050-A	BATTERY COVER SPONGE	1	A4-Q1-43A	
23	24Q1000-A	BATTERY CASE PACKING	1	A4-Q1-15A	
24	24Q1010-A	LCD SPONGE	1	A4-Q1-17A	
25	24Q1020-A	CONDUCT RUBBER	1	A4-Q1-02A	
26	24Q1030-A	DC JACK PACKING	1	A4-Q1-40A	
27	24Q1040-A	SILICON RUBBER	1	A4-Q1-44A	C PCB
28	24Q1060-A	RUBBER	1	A4-Q1-46A	C PCB
29	301Q101-A	FRONT CABINET/CE	1	A1-Q1-21A	
30	303Q101-A	BACK COVER/CE	1	A1-Q1-22A	
31	304Q101-A	BATTERY COVER-A/CE	1	A3-Q1-24A	
32	304Q102-A	BATTERY COVER-B	1	A3-Q1-25A	
33	307Q101-A	DISPLAY WINDOW PACKING	1	A3-Q1-20A	
34	308Q101-A	HANDLE-COVER-A	1	A4-Q1-29A	
35	308Q102-A	HANDLE COVER-B	1	A2-Q1-30A	
36	309Q101-A	HANDLE	1	A2-Q1-28A	
37	313Q101-A	KEY RUBBER	1	A1-Q1-16A	
38	316Q101-A	FOOT RUBBER	4	A4-Q1-09A	
39	318Q101-A	LIGHT RUBBER	1	A3-Q1-12A	
40	335Q101-A	FRONT CABINET PACKING	1	A1-Q1-41A	
41	342Q101-A	BRACKET COVER	2	A4-Q1-27A	
42	344Q101-A	MOUNT BRACKET	1	A2-Q1-26A	
43	346Q101-A	LIGHT LENS	1	A4-Q1-36A	
44	347Q101-A	DC JACK COVER	1	A4-Q1-37A	
45	362Q101-A	STRAP	1		
46	9090006-A	SCREW M1.4*4(NI)	8		TO KEY RUBBER HOLDER
47	9102107-A	SCREW PTP 2.6x10(SUS)	8		BACK COVERx8
48	9151081-A	SCREW PTPW 2x8(ZK)	2		JACK PCBx2
49	9152082-A	SCREW PTPW 2.6x8(NI)	11		C PCBx5/A PCBx4 BAR ANT HOLDERx2
50	9153102-A	SCREW PTPW 3x10(NI)	2		SPEAKER HOLDERx2
51	9901007-A	WASHER	1	A4-Q1-18A	HANDLE
52	9902007-A	NUT M4	1	A4-Q1-19A	HANDLE SHAFT
53	9907040-A	STEEL BALL	4		HANDLE
54	9A44207-A	SCREW TPT 4x20 (SUS)	2		

EXPOLODED VIEWS

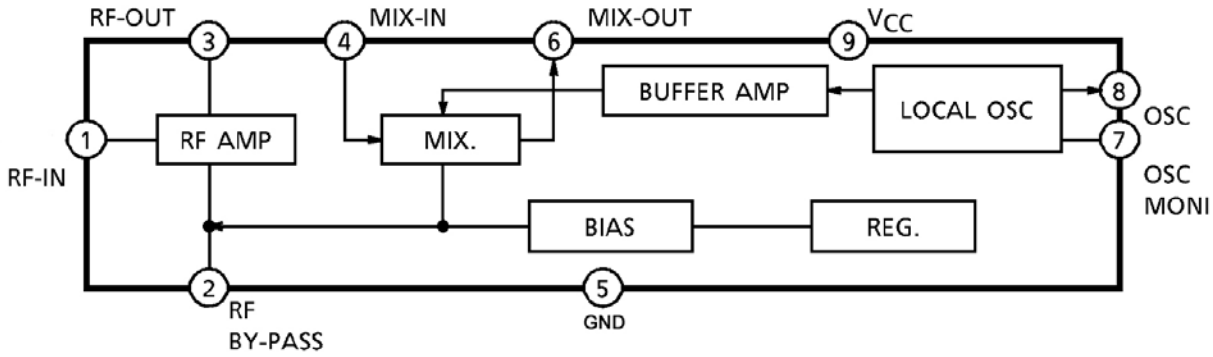


IC CIRCUIT BLOCK DIAGRAM

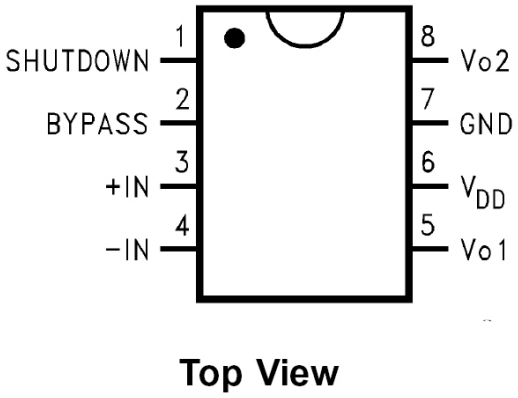
1. IC1 – TA2149BFN

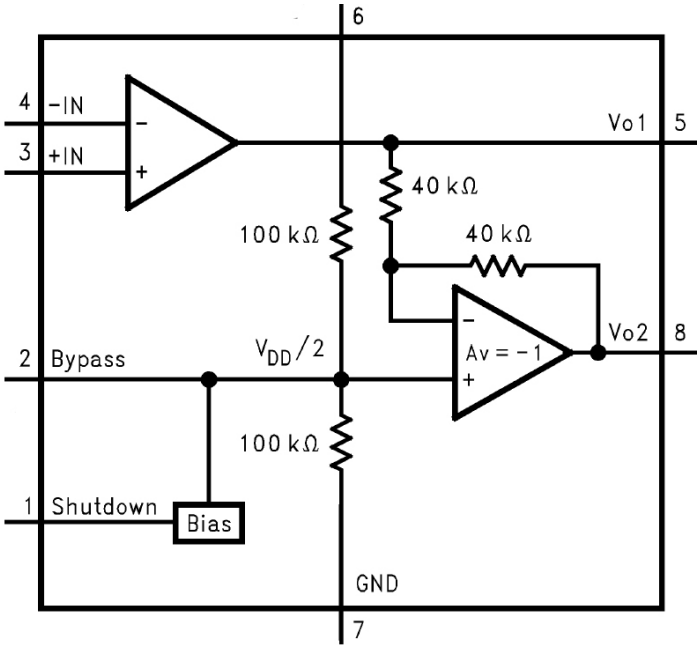


2. IC2 – TA7358APG

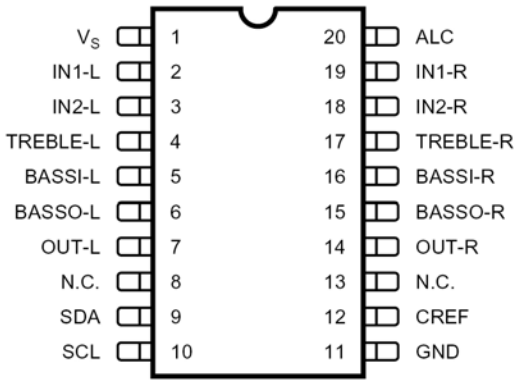


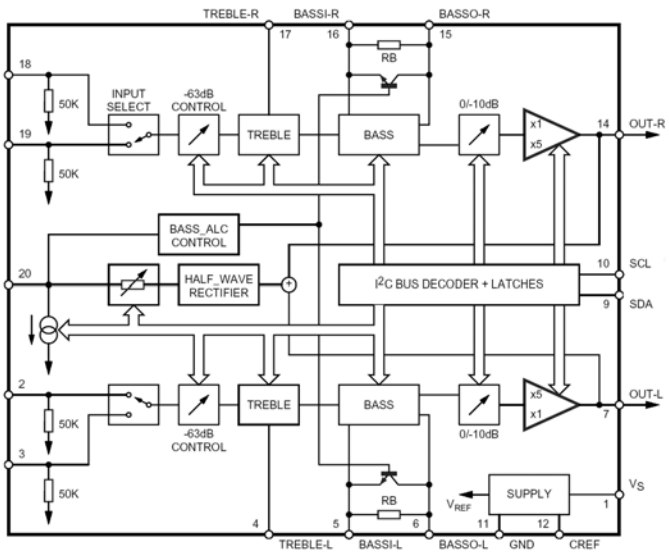
3. IC3 – LM4871M



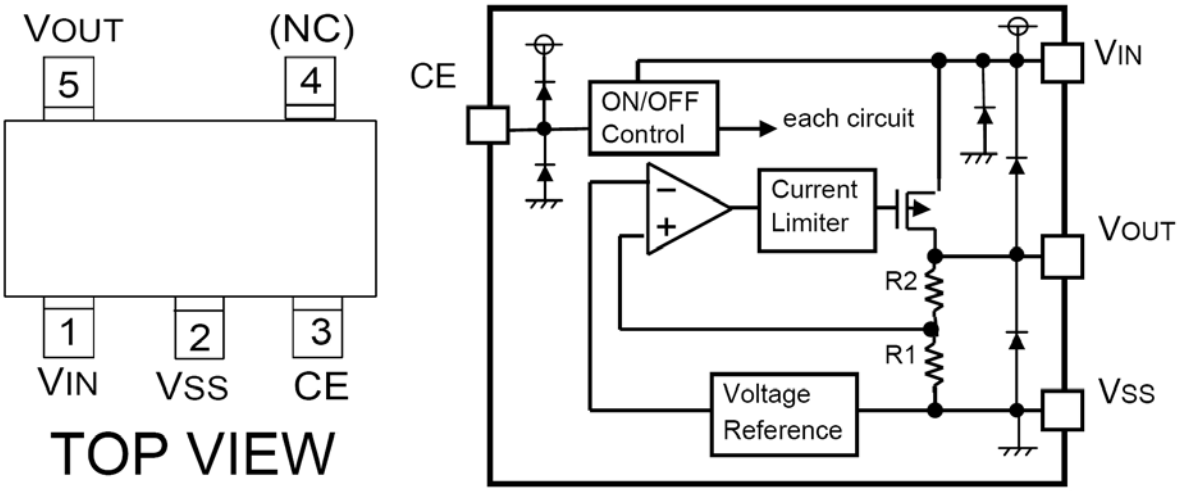


4. IC4 – TDA7463A

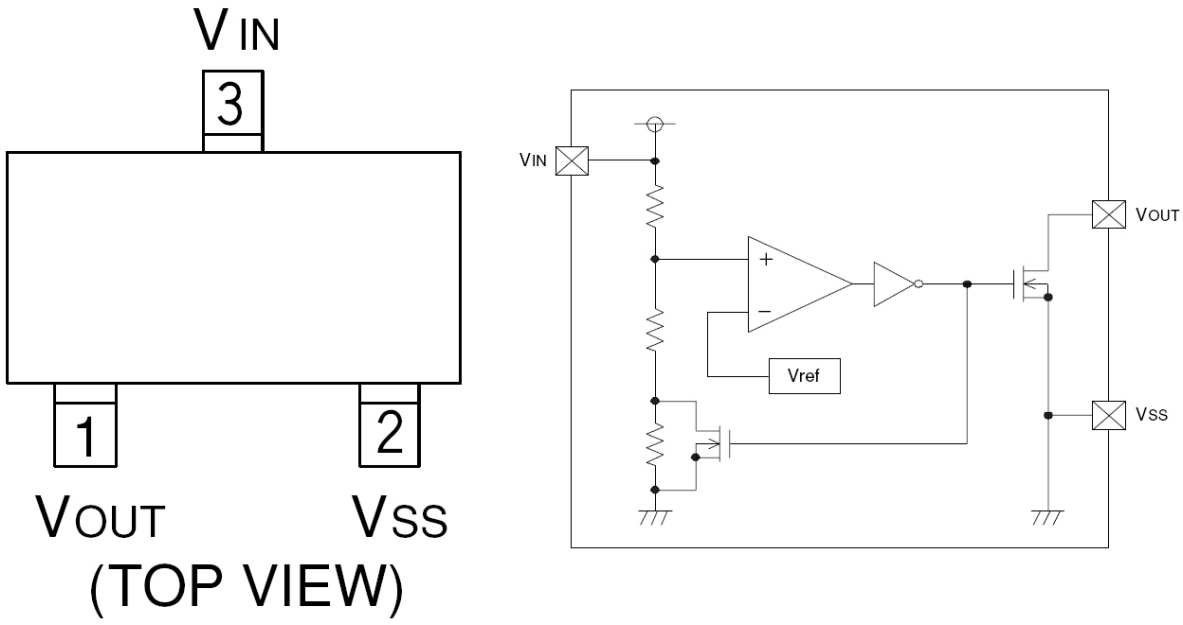




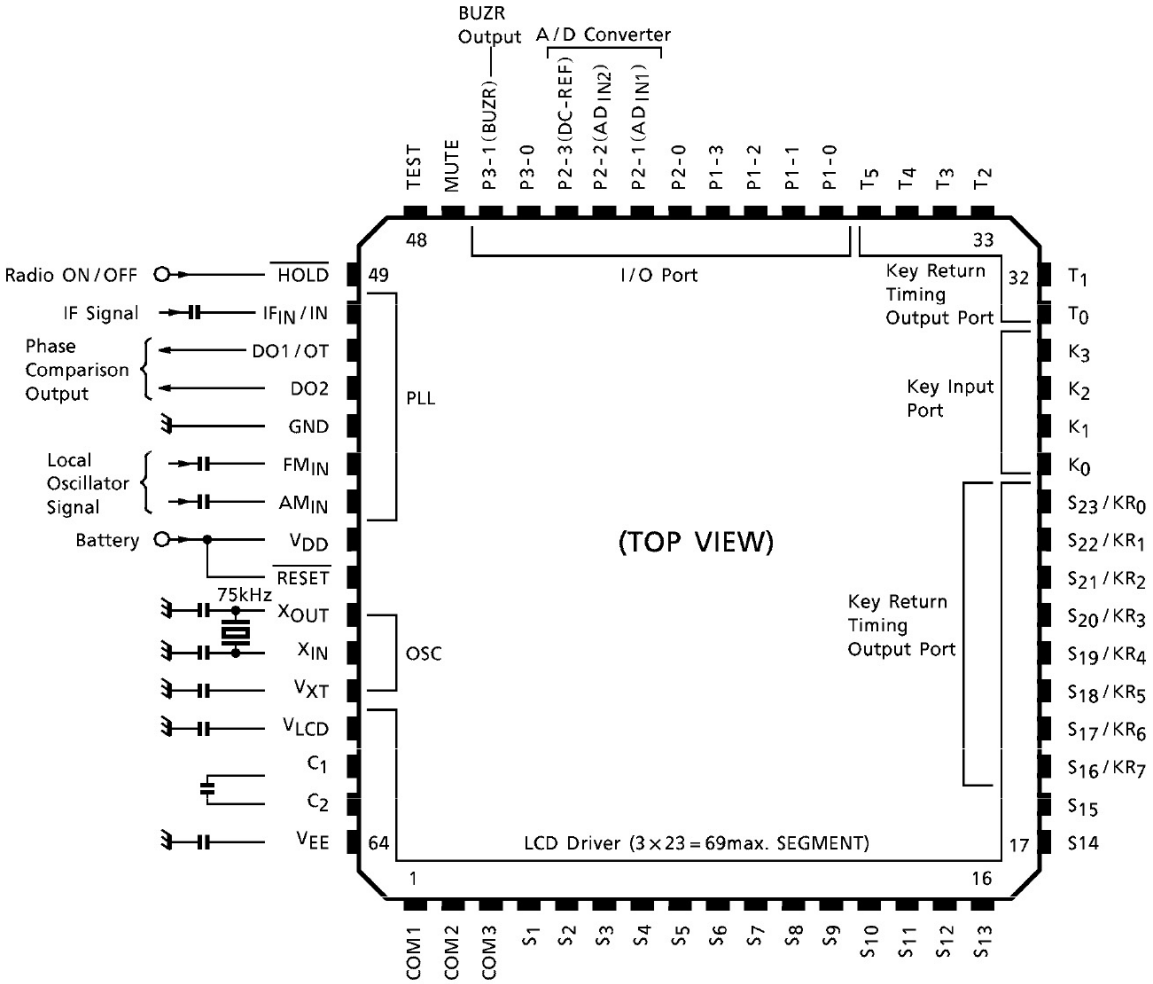
5. IC5 – XC6209B282MRN



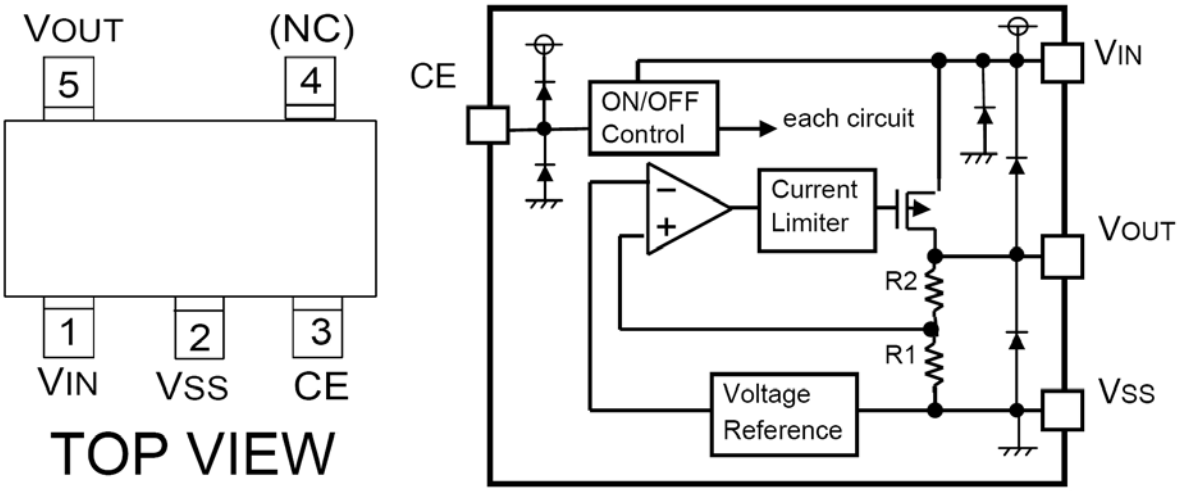
6. IC201 – XC61CN1602MRN



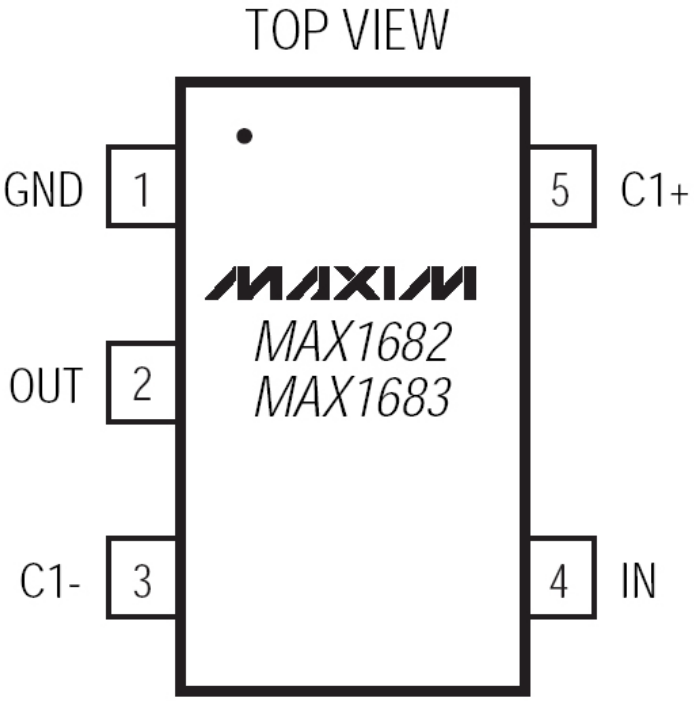
7. IC200 – TC9318AFAG



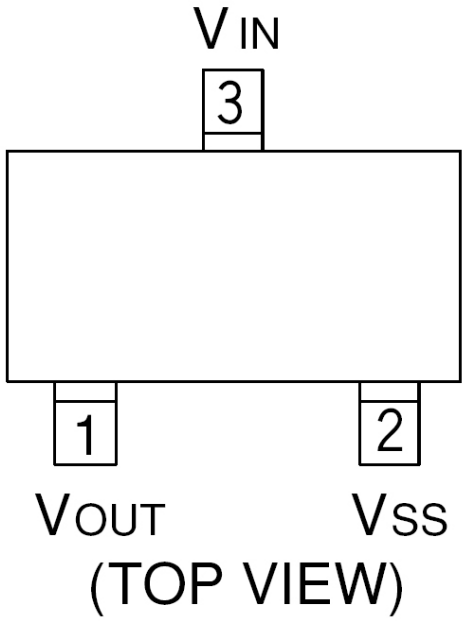
8. IC202 & IC204 – XC6209B212MRN

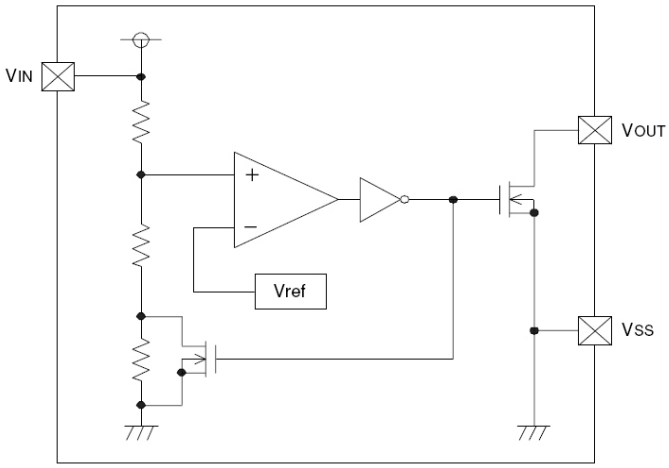


9. IC203 – MAX1683EUK-T



10. IC205 – XC61CN1802MRN





IC AND TRANSISTOR VOLTAGE CHART

IC1 – TA2149BFN

PIN	MW	FM	PIN	MW	FM	PIN	MW	FM
1	0	0	**9**	0.43	0.73	**17**	1.05	0.71
2	0	0.82	**10**	2.31	2.12	**18**	1.75	0
3	1.16	0	**11**	1.96	1.20	**19**	2.16	2.08
4	2.87	2.87	**12**	1.20	1.20	**20**	2.85	2.82
5	2.87	2.87	**13**	0	2.01	**21**	2.87	2.83
6	2.20	2.35	**14**	0	0	**22**	2.87	2.82
7	2.87	2.87	**15**	0.72	0.71	**23**	2.87	2.82
8	0	0	**16**	1.06	0.96	**24**	2.87	2.82

IC2 – TA7358APG

PIN	FM
1	0.84
2	1.55
3	2.74
4	1.53
5	0
6	2.82
7	2.12
8	2.80
9	2.82

IC3 – LM4871M

PIN	Radio ON	Radio OFF
1	0	2.96
2	1.46	0
3	1.46	0
4	1.47	0
5	1.47	0
6	2.94	3
7	0	0
8	1.45	0

IC4 – TDA7463A

PIN	FM	PIN	FM
1	2.85	**11**	0
2	1.05	**12**	0
3	1.05	**13**	0
4	0	**14**	0.53
5	1.05	**15**	1.06
6	1.06	**16**	1.05
7	1.06	**17**	0
8	0	**18**	0
9	2.72	**19**	0
10	2.72	**20**	1.02

IC5 – XC6209B282MRN

PIN	Radio ON
IN	2.76
VSS	0
CE	2.50
NC	0
OUT	2.73

IC201 – XC61CN1602MRN

PIN	Batty = 3.0V
IN	2.80
OUT	2.62
GND	0

IC202 – XC6209B212MRN

PIN	Light ON	Light OFF
1	3	3
2	0	0
3	2.72	0
4	0	0
5	2.08	0

IC204 – XC6209B212MRN

PIN	Back Light ON	Back Light OFF
1	2.96	3
2	0	0
3	2.85	0
4	0	0
5	2.13	0

IC200 – TC9318AFAG **Backlight OFF & light OFF & FM BAND**

PIN		PIN		PIN		PIN	
1	1.51	**17**	1.50	**33**	⁄	**49**	2.62
2	1.52	**18**	1.50	**34**	⁄	**50**	1.35
3	1.50	**19**	1.50	**35**	2.75	**51**	0
4	1.50	**20**	1.50	**36**	2.62	**52**	0
5	1.50	**21**	1.50	**37**	2.60	**53**	0
6	1.50	**22**	1.50	**38**	2.67	**54**	⁄
7	1.50	**23**	1.50	**39**	0	**55**	0.82
8	1.50	**24**	1.50	**40**	2.54	**56**	2.65
9	1.50	**25**	1.50	**41**	0.31	**57**	2.62
10	1.50	**26**	1.50	**42**	0	**58**	0.29
11	1.50	**27**	0	**43**	0	**59**	0.36
12	1.50	**28**	0	**44**	2.84	**60**	1.42
13	1.50	**29**	0	**45**	0	**61**	2.98
14	1.50	**30**	0	**46**	0	**62**	0.76
15	1.50	**31**	0	**47**	0	**63**	2.24
16	1.50	**32**	0	**48**	0	**64**	1.51

IC205 – XC61CN1802MRN

PIN	Batty = 3.0V
IN	2.80
OUT	2.62
GND	0

IC203 – MAX1683EUK-T

PIN	Light ON	Light OFF
1	0	0
2	3.55	0
3	1	0
4	2.05	0
5	2.77	0

Transistor

		MW	FM
Q4	C	0.29	2.67
	B	2.69	2.13
	E	2.77	2.77
Q5	C	0	1.91
	B	2.69	0.29
	E	0	0
Q7	C	2.76	0
	B	2.13	2.76
	E	2.78	2.77
Q8	C	0	2.76
	B	2.69	0.29
	E	0	0
Q14	G	0	0
	S	0	0
	D	0.85	0

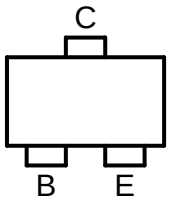
		POWER ON
Q6	C	0.97
	B	0
	E	0
Q11	C	0
	B	2.04
	E	0
Q12	C	2.89
	B	0
	E	0
Q15	C	1.21
	B	0.85
	E	0.24
Q200	C	2.86
	B	2.39
	E	2.88

		POWER ON
Q201	C	2.55
	B	0
	E	0
Q204	C	0
	B	2.02
	E	2.88
Q205	C	0
	B	2.66
	E	0
Q207	C	2.66
	B	2.17
	E	2.67

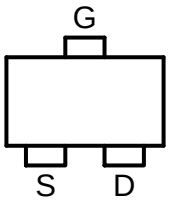
		LIGHT ON
Q300	C	0.5
	B	1
	E	0.28

SEMICONDUCTOR LEAD IDENTIFICATIONS

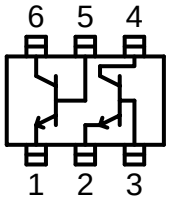
Transistors



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2SC1623
2SC4154
DTC115TN3
DTC144TN3
DTC144EN3
BTB1424N3



2SK932

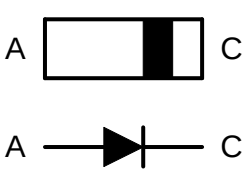


HN2C01FU

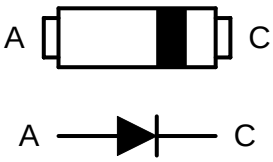
1. EMITTER 1
2. EMITTER 2
3. BASE 2
4. COLLECTOR 2
5. BASE 1
6. COLLECTOR 1

(E:Emitter C:Collector B:Base S:Source G:Gate D:Drain)

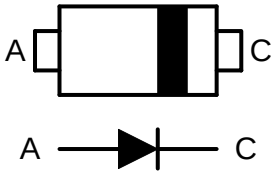
Diodes



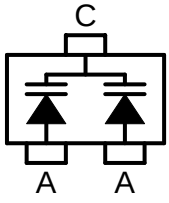
MM4148
1SS367



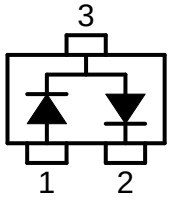
ZENER RD12



FM5817



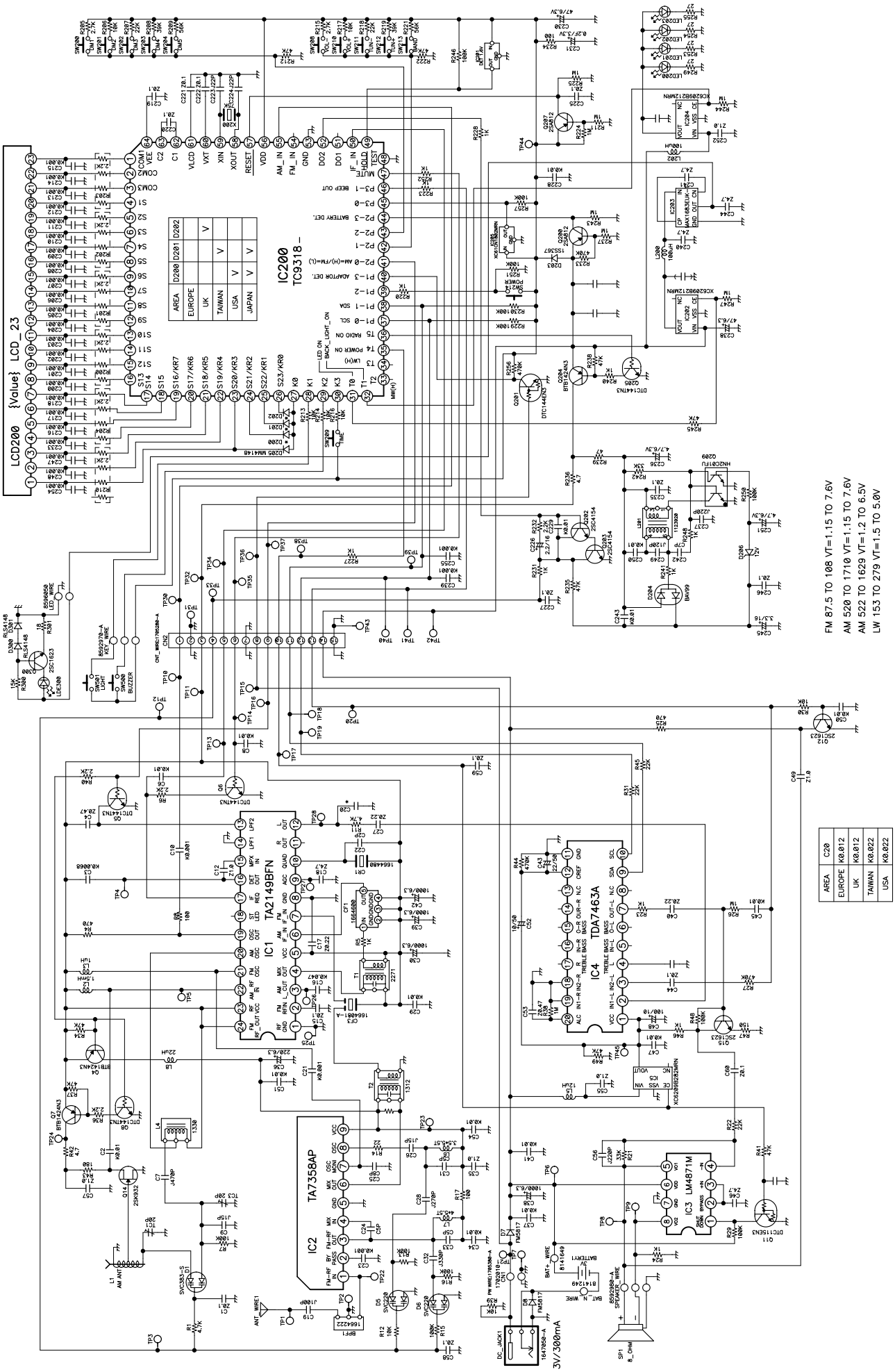
SVC220
SVC383



HBAV99

(A:Anode C:Cathode)

SCHEMATIC DIAGRAM



AREA	C20
EUROPE	K0.012
UK	K0.012
TAIWAN	K0.022
USA	K0.022