DJ – C7 T / E

Service Manual

CONTENTS

ALINCO, INC.

SPECIFICATIONS

General

Type		DJ – C7T	DJ-C7E
Transmitter Range	VHF	144.000 – 147.995MHz	144.000 – 145.995MHz
	UHF	420.000 – 449.995MHz	430.000 – 439.995MHz
Receiving Range	WFM	88.100 – 1.7.995MHz	87.500 – 107.995MHz
	VHF	108.000 – 173.995MHz	144.000 – 145.995MHz
	UHF	380.000 – 511.995MHz	430.000 – 439.995MHz
Modulation		F3E	
Operating temperature		-10 °C ~ 60°C (+14°F ~ +140°F)	
Frequency stability		-7 ~ +3 ppm	
Antenna impedance		50ohm unbalanced (SMA)	
Supply Voltage		3.7 – 6.0VDC (External)	
Ground method		Negative ground	
Current drain	Transmit	DC6.0V: VHF Approx. 0.28A, UHF Approx. 0.32A	
		3.7V(EBP-58N): VHF Approx. 0.25A, UHF Approx. 0.30A	
	Receive	Approx. 70mA	
	Battery Save	Approx. 19mA	
Dimensions (Projection exclusive)		58 (w) x 96 (h) x 14.5 (d) mm	
Weight		Approx. 102g (EBP-58N inclusive)	

Transmitter

Type		DJ-C7T	DJ-C7E
Output power	DC6.0V	Approx. 0.5W	
	EBP-58N equipped	Approx. 0.3W	
Modulation System		Variable reactance frequency modulation	
Maximum Frequency Deviation		+/- 5kHz	
Spurious Emission		- 60 dB c or less	
Microphone impedance		Approx. 2kohm	

Receiver

Type		DJ-C7T	DJ-C7E
Receiver circuit		Double conversion super-heterodyne	
Intermediate frequency	1st	50.85MHz (FM/AM), 10.7MHz (WFM)	
	2nd	450MHz (FM/AM)	
Sensitivity (12dB SINAD)		144.000 – 147.995MHz 420.000 – 449.995MHz -15dBu or less	144.000 – 145.995MHz 430.000 – 439.995MHz -15dBu or less
Audio output power		100mW or more (Max) / 90mW or more (8ohm, 10 % THD)	
Spurious response		60 dB or less	
Squelch sensitivity		Approx. - 18 dBu or less	

! NOTE: All specifications are subject to change without notice or obligation.

CIRCUIT DESCRIPTION

1) Reception

1. RX Method

[FM/AM]
Double Super Heterodyne Method
1st IF: 50.85MHz
2nd IF: 450kHz

[WFM]
Single Super Heterodyne Method
1st IF: 10.7MHz

2. Front End

[WFM BAND]
The signal input from antenna passes through the low pass filter, and then it is amplified at RF amplifier Q13. The amplified signal is led to band pass filter and band switch D17, then input to the mixer IC3.

[VHF BAND]
The signal input from antenna passes through the low pass filter, and then it is amplified at RF amplifier Q18. The amplified signal is led to band pass filter and band switch D17, then input to the mixer IC3.

[UHF BAND]
The signal input from antenna passes through the band pass filter, and then it is amplified at RF amplifier Q21. The amplified signal is led to band pass filter and band switch D29, then input to the mixer IC3.

3. Mixer

[FM/AM]
The input signal to the mixer IC3 and the 1st local signal are added or subtracted at mixer IC3, and the crystal filter FL1 selects the signal of 50.85 MHz, then it is amplified at the 1st IF amplifier Q15 after the adjacent signal is eliminated.

[WFM]
The input signal to the mixer IC3 and the 1st local signal are added or subtracted at mixer IC3, and the ceramic filter FL2 selects the signal of 10.7MHz, then it is amplified at the 1st IF amplifier Q14 after the adjacent signal is eliminated.

4. IF

[FM/AM]
The signal amplified at the 1st IF amplifier Q15 is supplied to pin 24 of IC7 for demodulation. Also the signal of 12.6 MHz from the reference buffer output of IC2 is multiplied by 3 at Q12, and then it is led to pin 1 of IC7. 2 input signals are mixed in the mixer circuit inside IC7 and converted into the 2nd IF signal of 450kHz.The converted 2nd IF signal is output from pin 3 of IC7.

[FM]
The output signal from pin 3 of IC7 is led to pin 7 of IC7 after eliminating the adjacent channel signal at the ceramic filter FL3. The input 2nd IF signal to pin 7 of IC7 is demodulated at the limiter amplifier and quadrature detector circuits inside of IC7, then output from pin 12 of IC7 as an AF signal.

[AM]
The output signal from pin 3 of IC7 is led to the pin 5 of IC7 after eliminating the adjacent channel signal at the ceramic filter FL3. The 2nd IF signal input to pin 5 of IC7 is AM-demodulated inside of IC and output from pin 13 of IC7 as an AF signal. The 1st IF amplifier Q15 is controlled by reverse AGC at AGC amplifier Q19 to get better audio output even though the input is changed, and the gain is controlled.

[WFM]
The signal amplified at the 1st IF amplifier Q14 is supplied to pin 7 of IC7 for demodulation.
The input 2nd IF signal to pin 7 of IC7 is demodulated at the limiter amplifier and quadrature detector circuits inside of IC7, then output from pin 12 of IC7 as an AF signal.

5. Squelch

The AF signal got from pin 12 of IC7 is fed to pin 19 of IC7. The input signal is output from pin 21 of IC7 passing through the noise filter amplifier and rectifier circuits inside of IC7. The rectified signal is added to the A/D port of the microcomputer IC6. Judging the signal, the microcomputer controls ON/OFF of the audio output.

6. Audio

[FM/AM/WFM]
The selection of receiving audio output signal between FM/WFM and AM is performed at IC8. The volume of output audio signal is adjusted at the electronic volume IC14 via the AF amplifier Q27. The signal is input to pin 2 of audio power amplifier IC12 and output from pin 6 to drive a speaker, etc.

7. VCO

[VHF]
VCO in VHF band consists of the Colpitts oscillator. D3, D4 and L11 determine the oscillating frequency, and the signal is oscillated at the transistor Q2. The oscillated signal is supplied to pin 8 of PLL-IC2 passing through the buffer amplifier Q5 and Q4.

[UHF]
VCO in UHF band consists of the Colpitts oscillator. D9, D11 and L18 determine the oscillating frequency, and the signal is oscillated at the transistor Q7. The oscillated signal is supplied to pin 8 of PLL-IC2 passing through the buffer amplifier Q5 and Q4.

8. PLL

PLL-IC2 is used to control the oscillating frequency of VCO. IC2 is controlled by the serial control signal sent from the microprocessor IC6. The 12.6MHz reference frequency of IC2 oscillates the crystal oscillator X1 at the inside circuit.

[VHF]
IC2 compares the frequency gained by dividing the signal added to pin 8 of IC2 by the control signal from IC6 with the frequency gained by dividing the reference frequency of 12.6MHz inside IC2. When the phase difference is found as a result of phase comparison, the pulse signal is output from the charge pump output of pin 5 of IC2, then the signal is converted into the DC voltage at the passive filter and added to the cathode side of VCO variable-capacitor D3 and D4 to make the phases equal. In result the stabilized oscillation can be done at the desired frequency.

[UHF]
IC2 compares the frequency gained by dividing the signal added to pin 8 of IC2 by the control signal from IC6 with the frequency gained by dividing the reference frequency of 12.6MHz inside IC2. When the phase difference is found as a result of phase comparison, the pulse signal is output from the charge pump output of pin 5 of IC2, then the signal is converted into the DC voltage at the passive filter and added to the cathode side of VCO variable-capacitor D9 and D11 to make the phases equal. In result the stabilized oscillation can be done at the desired frequency.

2) Transmitter

1. Microphone Amplifier

The microphone amplifier IC301 has 2 operational amplifiers. The voice is converted into the electric signal through the microphone, and then supplied to IC301. The input signal is amplified and pre-emphasized to be output.

[VHF]
The signal output from microphone amplifier is adjusted the maximum frequency deviation at VR2. The adjusted signal is added to the cathode of VCO variable-capacitor D4 for deviation to change the capacity of the oscillation circuit resulting the FM deviation.

[UHF]
The signal output from microphone amplifier is adjusted the maximum frequency deviation at VR1. The adjusted signal is added to the cathode of VCO variable-capacitor D10 for deviation to change the capacity of the oscillation circuit resulting the FM deviation.

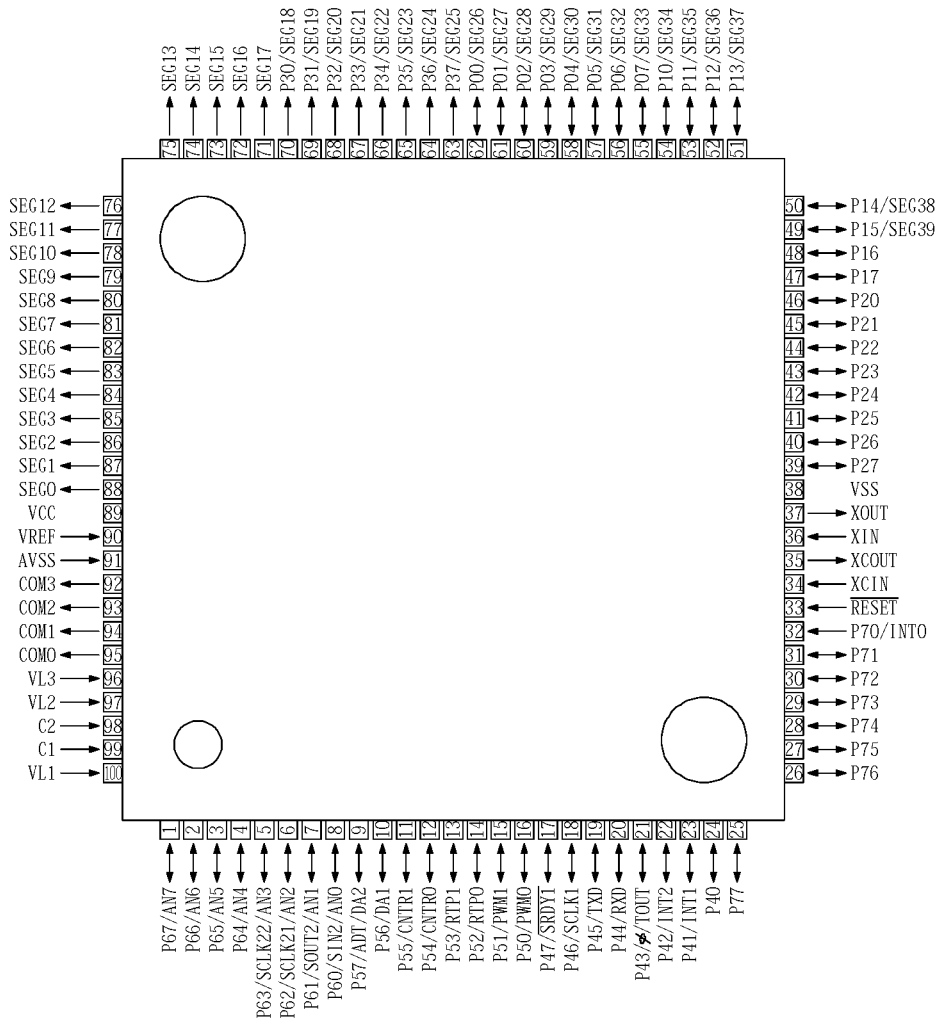
2. Power Amplifier

The oscillated signal at VCO is supplied to the power amplifier Q3, passing through buffer amplifier Q5, driver amplifier IC1. The power-amplified signal is supplied to the antenna through the duplexer after the harmonics are attenuated enough.

3) M38268MCL069GP (XA1023)

CPU

Terminal Connection
(TOP VIEW)

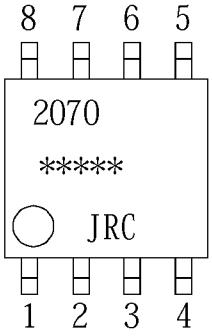


No.	Terminal	Signal	I/O	Description
1	P67/AN7	BP1	I	Band plan 1
2	P66/AN6	BCHK	I	Battery detection input
3	P65/AN5	PCNT	0	Battery detection SW output
4	P64/AN4	SMT	I	S-meter input
5	P63/SCLK22/AN3	SQL	I	Noise level input for squelch
6	P62/SCLK21/AN2	TIN	I	CTCSS Tone input
7	P61/SOUT2/AN1	TLC	O	TX LED SW output
8	P60/SIN2/AN0	BAT	I	Battery charge voltage input
9	P57/ADT/DA2	TUNC/TONE	O	RX Tuning/Tone out
10	P56/DA1	PO	O	Power control output
11	P55/CNTR1	C3C	O	C3V power ON/OFF output
12	P54/CNTR0	TBST	O	Tone burst output
13	P53/RTP1	PT3	I	PTT input
14	P52/RTP0	CLK	O	Serial clock output
15	P51/PWM1	DATA/UL	I/O	Serial data output/Unlock input
16	P50/PWM0	STB1	O	Strobe for PLL
17	P47/SRDY1	STB2	O	Strobe for electronic volume
18	P46/SCLK1	EAR	O	Earphone antenna SW output
19	P45/TXD	CTX	O	Clone data transmission output
20	P44/RXD	CRX	I	Clone data reception input
21	P43/φ/TOUT	BEEP/BP3	I/O	Beep tone output/Band plan 3
22	P42/INT2	DET	I	DC-JACK detection input
23	P41/INT1	RE2	I	Rotary encoder input 2
24	P40	RESW	I	Rotary encoder push SW input
25	P77	RE1	I	Rotary encoder input 1
26	P76	P3C	O	PLL power ON/OFF output
27	P75	PLC	O	Low VHF VCO ON/OFF output
28	P74	PUC	O	UHF VCO ON/OFF output
29	P73	PVC	O	VHF VCO ON/OFF output
30	P72	SDA	I/O	Serial data I/O for EEPROM
31	P71	SCL	O	Serial clock output for EEPROM
32	P70/INT0	BU	I	Back up signal detection input
33	RESET	RESET	I	Reset input
34	XCIN	NC	—	—
35	XCOUT	NC	—	—
36	XIN	XIN	I	Clock input
37	XOUT	XOUT	O	Clock output
38	VSS	VSS	—	CPU GND
39	P27	V/M	I	V/M key input
40	P26	BAND	I	BAND key input
41	P25	SCAN	I	SCAN key input
42	P24	POWER	I	POWER key input
43	P23	FUNC	I	FUNC key input
44	P22	MONI	I	MONI key input
45	P21	BUG	O	Bugging SW output
46	P20	CHG	O	Charge SW output
47	P17	R3C	O	RX power ON/OFF output
48	P16	BARC	O	Bar antenna SW output
49	P15/SEG39	BD1C	O	BND1 power SW output
50	P14/SEG38	BD2C	O	BND2 power SW output

No.	Terminal	Signal	I/O	Description
51	P13/SEG37	W/NC	O	Wide / Narrow SW output
52	P12/SEG36	FMC	O	FM SW output
53	P11/SEG35	T3C	O	T3V power ON/OFF SW output
54	P10/SEG34	TSWC	O	Tone power ON/OFF SW output
55	P07/SEG33	TUC	O	UHF-TX power ON/OFF SW output
56	P06/SEG32	TVC	O	VHF-power ON/OFF SW output
57	P05/SEG31	BD3C	O	BND3 power SW output
58	P04/SEG30	BD4C	O	BND4 power SW output
59	P03/SEG29	AMC	O	AM SW output
60	P02/SEG28	AFC	O	AF SW output
61	P01/SEG27	AFPC	O	AF power amp SW output
62	P00/SEG26	SD	O	RX-LED ON/OFF SW output
63	P37/SEG25	SEG25	O	LCD segment signal
64	P36/SEG24	SEG24	O	LCD segment signal
65	P35/SEG23	SEG23	O	LCD segment signal
66	P34/SEG22	SEG22	O	LCD segment signal
67	P33/SEG21	SEG21	O	LCD segment signal
68	P32/SEG20	SEG20	O	LCD segment signal
69	P31/SEG19	SEG19	O	LCD segment signal
70	P30/SEG18	SEG18	O	LCD segment signal
71	SEG17	SEG17	O	LCD segment signal
72	SEG16	SEG16	O	LCD segment signal
73	SEG15	SEG15	O	LCD segment signal
74	SEG14	SEG14	O	LCD segment signal
75	SEG13	SEG13	O	LCD segment signal
76	SEG12	SEG12	O	LCD segment signal
77	SEG11	SEG11	O	LCD segment signal
78	SEG10	SEG10	O	LCD segment signal
79	SEG9	SEG09	O	LCD segment signal
80	SEG8	SEG8	O	LCD segment signal
81	SEG7	SEG7	O	LCD segment signal
82	SEG6	SEG6	O	LCD segment signal
83	SEG5	SEG5	O	LCD segment signal
84	SEG4	SEG4	O	LCD segment signal
85	SEG3	SEG3	O	LCD segment signal
86	SEG2	SEG2	O	LCD segment signal
87	SEG1	SEG1	O	LCD segment signal
88	SEG0	SEG0	O	LCD segment signal
89	VCC	VDD	–	CPU power supply
90	VREF	VDD	–	AD converter power supply
91	AVSS	VDD	–	AD converter GND
92	COM3	COM3	O	LCD COM3 output
93	COM2	COM2	O	LCD COM2 output
94	COM1	COM1	O	LCD COM1 output
95	COM0	COM0	O	LCD COM0 output
96	VL3	VL3	–	LCD power supply
97	VL2	VL2	–	LCD power supply
98	C2	NC	–	–
99	C1	NC	–	–
100	VL1	VL1	–	LCD power supply

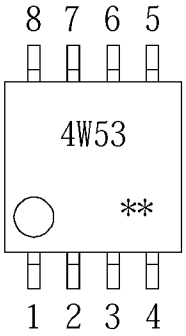
SEMICONDUCTOR DATA

1) NJM2070M (XA0210) Audio Power Amplifier



1. NC
2. + INPUT
3. - INPUT
4. GND
5. GND
6. OUTPUT
7. V+
8. NC

2) TC4W53FU (XA0348) Analog Multiplexer/De-multiplexer

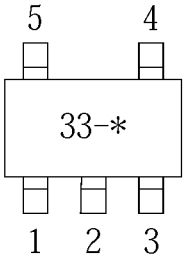


1. COMMON
2. INH
3. VEE
4. VSS
5. A
6. ch1
7. ch0
8. VDD

Contorol input		On channel
INH	A	
L	L	ch0
L	H	ch1
H	*	NONE

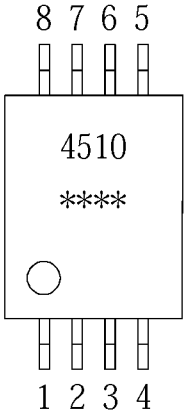
* Don't care

3) XC62HR3302MR (XA0519) 3.3V Voltage Regulator



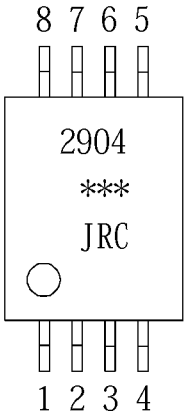
1. NC
2. VIN
3. CE (Active high)
4. VSS
5. VOUT

4) BA4510FV (XA0537) Dual Operational Amplifires



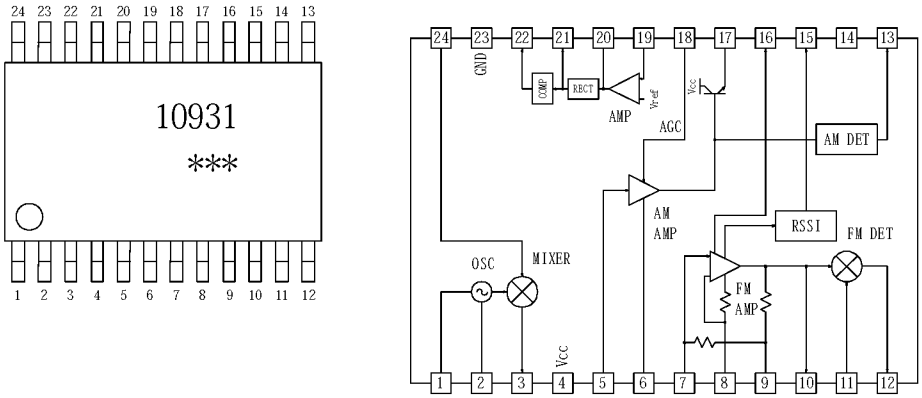
1. Output 1
2. Inverting Input 1
3. Non-inverting Input 1
4. GND
5. Non-inverting Input 2
6. Inverting Input 2
7. Output 2
8. V+

5) NJM2904V (XA0573) Dual Operational Amplifires

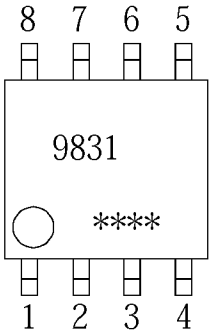


1. Output 1
2. Inverting Input 1
3. Non-inverting Input 1
4. GND
5. Non-inverting Input 2
6. Inverting Input 2
7. Output 2
8. V+

6) TK10931V (XA0666) Narrow Band AM/FM IF IC

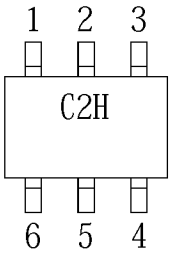


7) BU9831F (XA0882) Non-volatile Electronic Potentionmeter



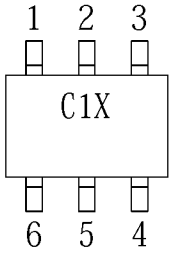
1. CS
2. SK
3. DIO
4. GND
5. VL
6. VW
7. VH
8. Vcc

8) uPC2771TB (XA0953) MMIC Medium Output Power Amplifier



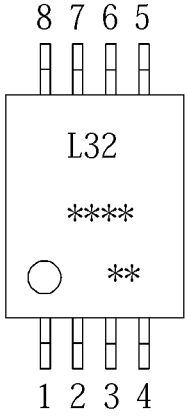
1. INPUT
2. GND
3. GND
4. OUTPUT
5. GND
6. Vcc

9) uPC2757TB (XA0953) MMIC 1st Frequency Down-converter



1. RF INPUT
2. GND
3. LO INPUT
4. PS
5. Vcc
6. IF OUTPUT

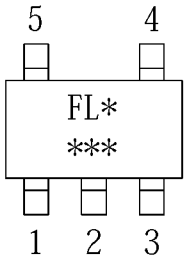
10) BR24L32FV (XA1008) 4k x 8bit EEPROM



1. A0
2. A1
3. A2
4. Vss
5. SDA
6. SCL
7. WP
8. Vcc

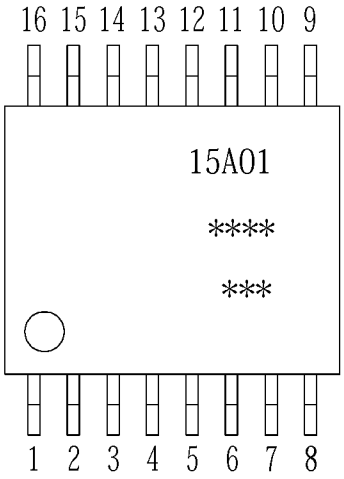
Name	Function
A0...A2	User configurable chip selects
Vss	Ground
SDA	Serial address/data I/O
SCL	Serial clock
WP	Write protect input
Vcc	+2.5V - 6.0V Power supply

11) BD4930FVE (XA1009) 3.0V Voltage Detector

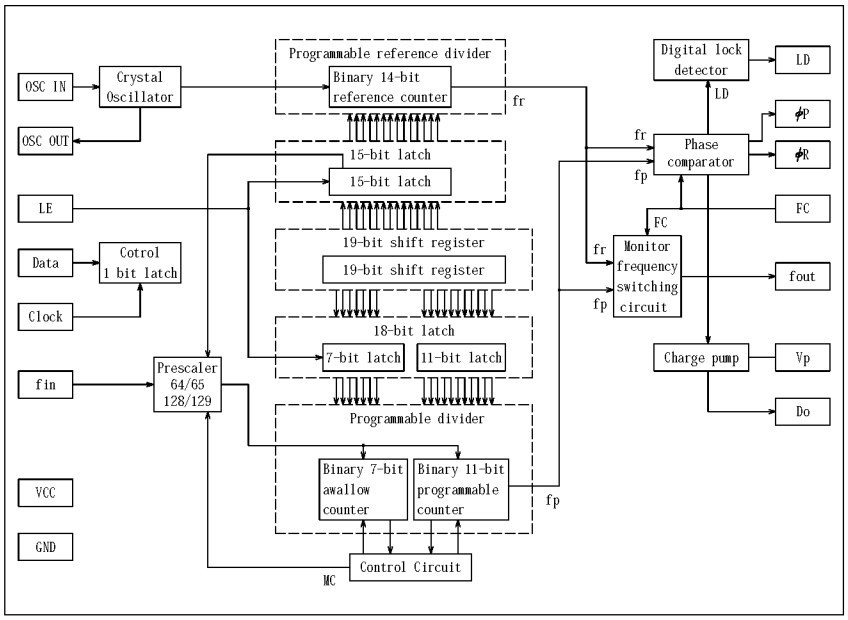


1. VOUT
2. GND (Substrate)
3. N.C.
4. GND
5. VDD

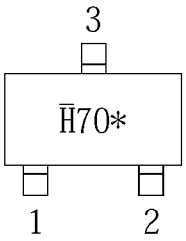
12) MB15A01PFV1 (XA1010) PLL Frequency Synthesizer



1. OSC IN
2. OSC OUT
3. Vp
4. VCC
5. Do
6. GND
7. LD
8. fin
9. Clock
10. Data
11. LE
12. FC
13. NC
14. fout
15. ϕP
16. ϕR



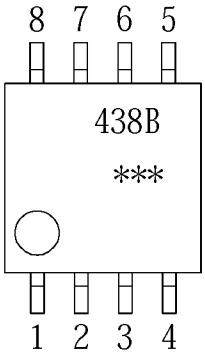
13) XC6383A701MR (XA1012) PFM Controlled, Step-up DC/DC Converter IC



1. Vss
2. Lx
3. Vout

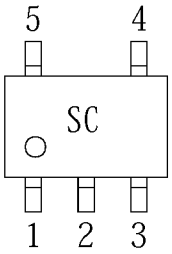
7.0V +/- 2.5% output

14) MM1438BW (XA1013) Litium-ion Battery Charging Control IC



1. GND
2. LV
3. SW2
4. SW1
5. VCC
6. EXT
7. CEL
8. CS

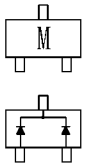
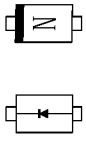
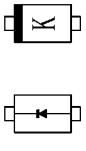
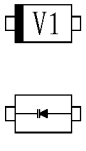
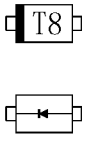
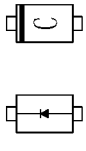
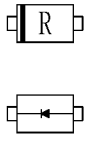
15) TA75S51FU (XA1014) CMOS Singe Operational Amplifire



1. Non-inverting Input
2. VSS
3. Inverting Input
4. Output
5. VDD

16) Transistor, Diode and LED Outline Drawings

Top View

DAN235E	MA2S357	MA2S304	1SV311	1SV279	MA27077	MA27728
XD0320	XD0337	XD0343	XD0344	XD0364	XD0381	XD0382
						
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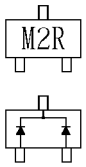	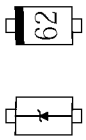	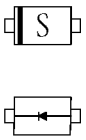	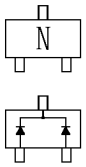	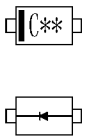	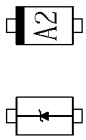	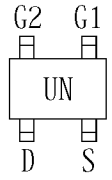
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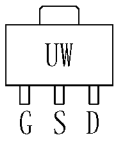
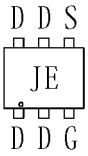
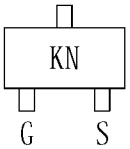
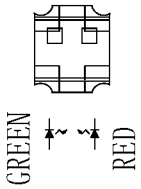
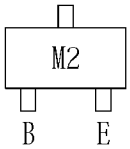
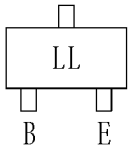
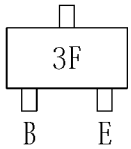
XE0049	XE0058	XE0059	XL0097	XT0180	XT0181	XT0192
						
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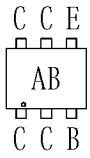
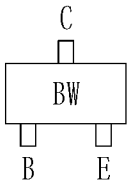
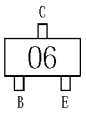
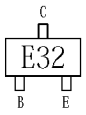
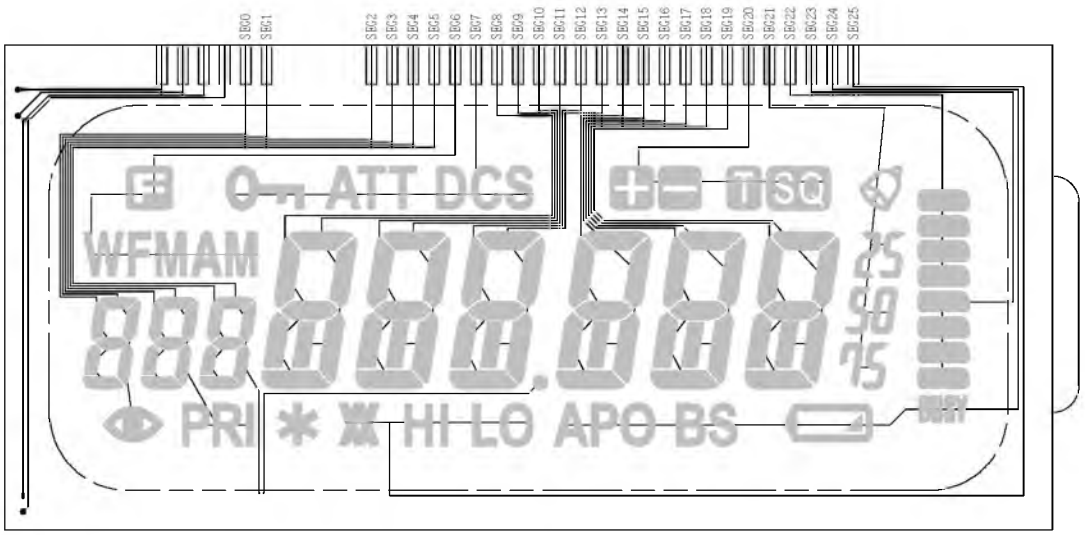
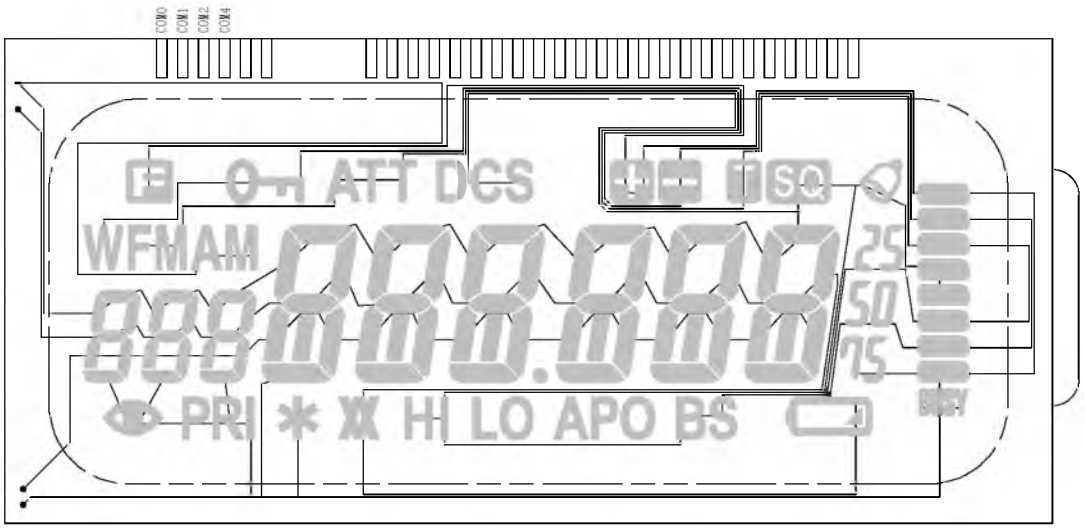
XT0195	XT0196	XU0205	XU0206	XU0207	XU0208	XU0209
						
		Rb=47kohm Rbe=none	Rb=2.2kohm Rbe=47kohm	Rb=10kohm Rbe=47kohm	Rb=10kohm Rbe=10kohm	Rb=4.7kohm Rbe=none

17) LCD Connection (EL0056 A48A002X)

SEGMENT

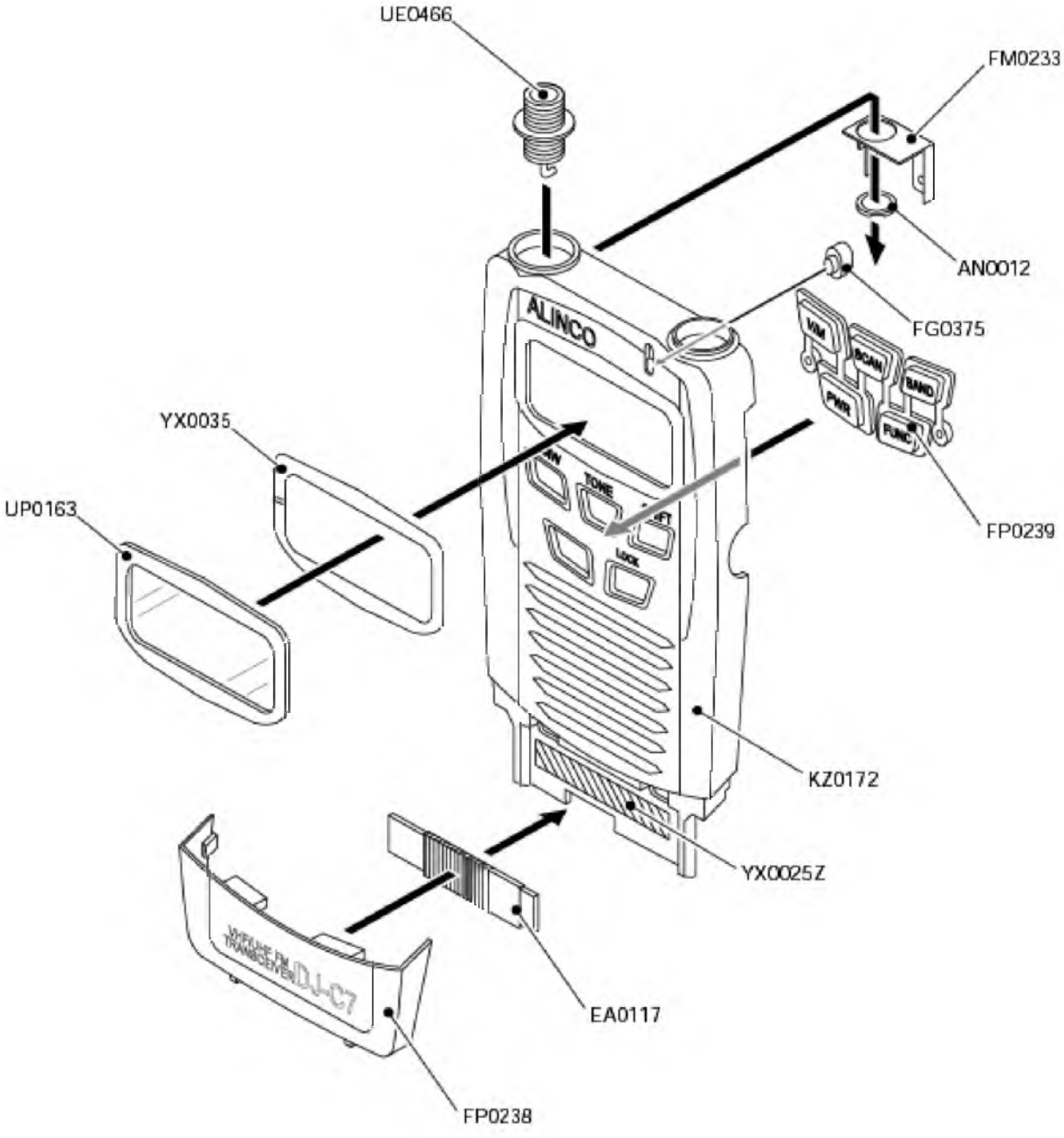


COMMON

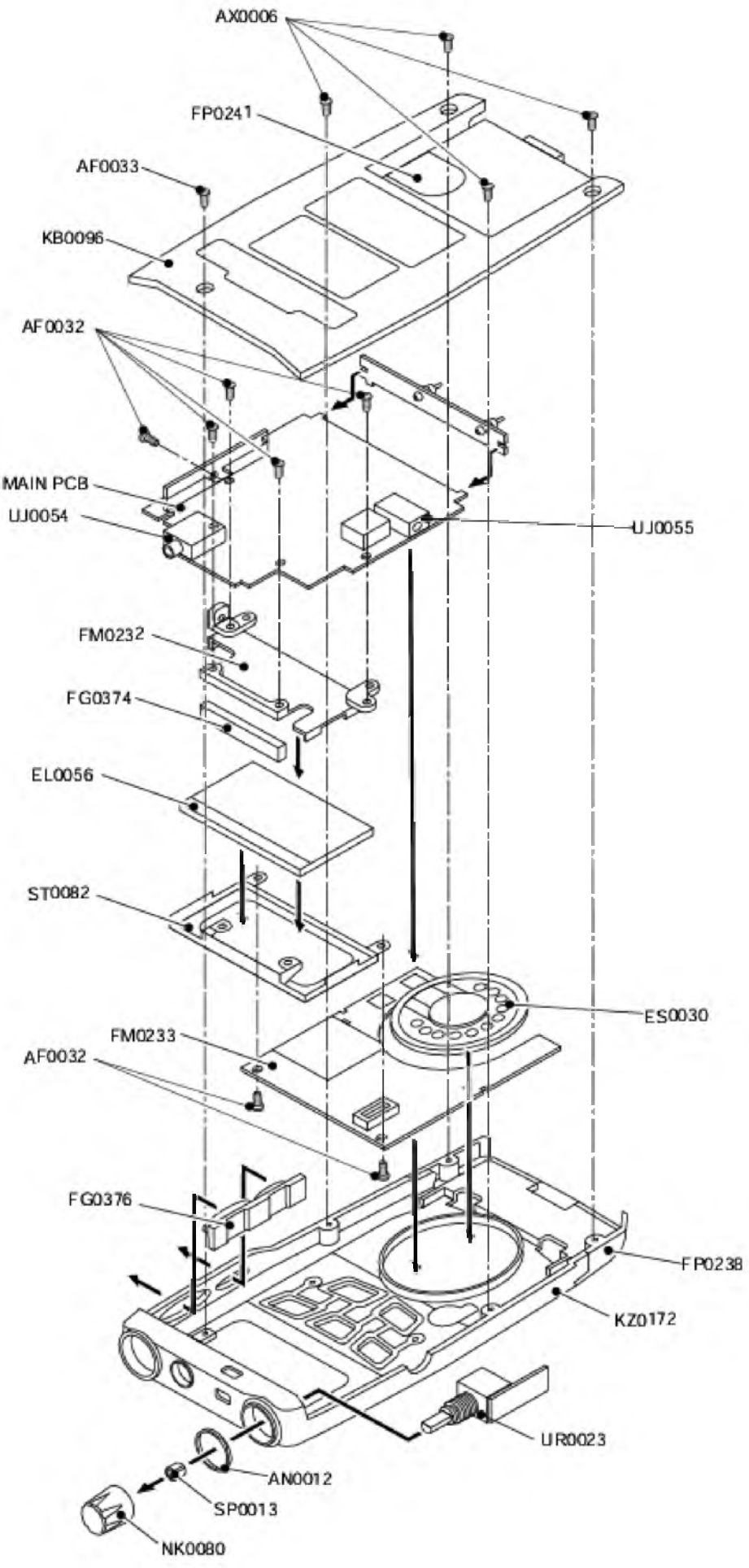


EXPLODED VIEW

1) Front View



2) Rear View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FP0241
AF0033
KB0096
AF0032
MAIN PCB
UJ0054
UJ0055
FM0232
FG0374
EL0056
ST0082
ES0030
FM0233
AF0032
FG0376
FP0238
KZ0172
UR0023
AN0012
SP0013
NK0080

PARTS LIST

MAIN Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	FG0374		LCD RUBBER	
	FM0232		LCD FRAME	
	ST0082		LCD HOLDER DJC7	
	TS0174		VCO CASE DJC7	
	UP0497	PC Board	C7 INTEGRATED	
C1	CS0431	Chip Tantalum	10V 2.2UF	
C2	CU3535	Chip C.	GRM36B102K50PT	
C3	CU3535	Chip C.	GRM36B102K50PT	
C4	CU3508	Chip C.	1005 CH 50V 7PF D	
C5	CU3503	Chip C.	GRM36CK020C50PT	
C6	CU3535	Chip C.	GRM36B102K50PT	
C7	CU3535	Chip C.	GRM36B102K50PT	
C8	CS0396	Chip Tantalum	20V 0.1UF	
C9	CU3535	Chip C.	GRM36B102K50PT	
C10	CU3535	Chip C.	GRM36B102K50PT	
C11	CS0429	Chip Tantalum	4V22UF	
C12	CU3535	Chip C.	GRM36B102K50PT	
C13	CU3535	Chip C.	GRM36B102K50PT	
C14	CU3519	Chip C.	GRM36CH470J50PT	
C15	CU3509	Chip C.	GRM36CH080D50PT	
C17	CU3516	Chip C.	GRM36CH270J50PT	
C18	CU3517	Chip C.	GRM36CH330J50PT	
C20	CU3518	Chip C.	GRM36CH390J50PT	
C22	CU3507	Chip C.	GRM36CH060D50PT	
C23	CU3535	Chip C.	GRM36B102K50PT	
C24	CU3535	Chip C.	GRM36B102K50PT	
C25	CU3523	Chip C.	GRM36CH101J50PT	
C26	CU3502	Chip C.	GRM36CK010C50PT	
C27	CU3535	Chip C.	GRM36B102K50PT	
C28	CU3514	Chip C.	GRM36CH180J50PT	
C29	CU3502	Chip C.	GRM36CK010C50PT	
C30	CU3535	Chip C.	GRM36B102K50PT	
C31	CU3535	Chip C.	GRM36B102K50PT	
C32	CU3526	Chip C.	GRM36CH181J25PT	
C33	CU3527	Chip C.	GRM36CH221J25PT	
C34	CU3535	Chip C.	GRM36B102K50PT	
C35	CU3535	Chip C.	GRM36B102K50PT	
C36	CS0396	Chip Tantalum	20V 0.1UF	
C37	CU3535	Chip C.	GRM36B102K50PT	
C38	CU3509	Chip C.	GRM36CH080D50PT	
C39	CU3512	Chip C.	GRM36CH120J50PT	
C40	CU3531	Chip C.	GRM36B471K50PT	
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C42	CU3507	Chip C.	GRM36CH060D50PT	
C43	CU3518	Chip C.	GRM36CH390J50PT	
C44	CU3531	Chip C.	GRM36B471K50PT	
C45	CS0429	Chip Tantalum	4V22UF	
C46	CU3502	Chip C.	GRM36CK010C50PT	
C47	CU3503	Chip C.	GRM36CK020C50PT	
C48	CU3508	Chip C.	1005 CH 50V 7PF D	
C49	CU3512	Chip C.	GRM36CH120J50PT	
C50	CU3509	Chip C.	GRM36CH080D50PT	
C51	CU3527	Chip C.	GRM36CH221J25PT	
C52	CU3531	Chip C.	GRM36B471K50PT	
C53	CU3507	Chip C.	GRM36CH060D50PT	
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C56	CU3502	Chip C.	GRM36CK010C50PT	
C57	CU3509	Chip C.	GRM36CH080D50PT	
C58	CU3515	Chip C.	GRM36CH220J50PT	
C59	CU3535	Chip C.	GRM36B102K50PT	
C60	CS0396	Chip Tantalum	20V 0.1UF	
C61	CU3503	Chip C.	GRM36CK020C50PT	
C62	CU3554	Chip C.	GRM36B104K10PT	
C63	CU3507	Chip C.	GRM36CH060D50PT	

Ref. No.	Parts No.	Description	Parts Name	Version
C64	CU3515	Chip C.	GRM36CH220J50PT	
C67	CU3547	Chip C.	GRM36B103K16PT	
C68	CU3523	Chip C.	GRM36CH101J50PT	
C70	CU3531	Chip C.	GRM36B471K50PT	
C72	CU3535	Chip C.	GRM36B102K50PT	
C73	CU3535	Chip C.	GRM36B102K50PT	
C74	CS0396	Chip Tantalum	20V 0.1UF	
C76	CS0431	Chip Tantalum	10V 2.2UF	
C78	CU3547	Chip C.	GRM36B103K16PT	
C79	CS0429	Chip Tantalum	4V22UF	
C80	CU3535	Chip C.	GRM36B102K50PT	
C83	CU3535	Chip C.	GRM36B102K50PT	
C84	CU3535	Chip C.	GRM36B102K50PT	
C85	CU3547	Chip C.	GRM36B103K16PT	
C86	CU3501	Chip C.	GRM36CK0R5C50PT	
C87	CU3547	Chip C.	GRM36B103K16PT	
C88	CU3506	Chip C.	GRM36CH050C50PT	
C89	CU3547	Chip C.	GRM36B103K16PT	
C91	CU3514	Chip C.	GRM36CH180J50PT	
C92	CU3503	Chip C.	GRM36CK020C50PT	
C93	CU3504	Chip C.	GRM36CJ030C50PT	
C94	CU3519	Chip C.	GRM36CH470J50PT	
C95	CU3518	Chip C.	GRM36CH390J50PT	
C96	CU3514	Chip C.	GRM36CH180J50PT	
C97	CU3535	Chip C.	GRM36B102K50PT	
C98	CU3511	Chip C.	GRM36CH100D50PT	
C99	CU3535	Chip C.	GRM36B102K50PT	
C100	CU3547	Chip C.	GRM36B103K16PT	
C101	CU3515	Chip C.	GRM36CH220J50PT	
C102	CU3517	Chip C.	GRM36CH330J50PT	
C103	CU3513	Chip C.	GRM36CH150J50PT	
C104	CU3517	Chip C.	GRM36CH330J50PT	
C105	CU3519	Chip C.	GRM36CH470J50PT	
C107	CU3509	Chip C.	GRM36CH080D50PT	
C108	CU3514	Chip C.	GRM36CH180J50PT	
C109	CU3522	Chip C.	GRM36CH820J50PT	
C110	CU3535	Chip C.	GRM36B102K50PT	
C111	CS0429	Chip C.	4V22UF	
C112	CS0429	Chip Tantalum	4V22UF	
C113	CU3535	Chip C.	GRM36B102K50PT	
C114	CU3535	Chip C.	GRM36B102K50PT	
C115	CU3519	Chip C.	GRM36CH470J50PT	
C116	CU3535	Chip C.	GRM36B102K50PT	
C117	CU3551	Chip C.	GRM36B223K16PT	
C118	CU3506	Chip C.	GRM36CH050C50PT	
C119	CU3535	Chip C.	GRM36B102K50PT	
C120	CU3554	Chip C.	GRM36B104K10PT	
C121	CU3535	Chip C.	GRM36B102K50PT	
C122	CU3535	Chip C.	GRM36B102K50PT	
C123	CU3515	Chip C.	GRM36CH220J50PT	
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C125	CU3519	Chip C.	GRM36CH470J50PT	
C126	CU3523	Chip C.	GRM36CH101J50PT	
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C128	CU3535	Chip C.	GRM36B102K50PT	
C130	CU3551	Chip C.	GRM36B223K16PT	
C131	CU3554	Chip C.	GRM36B104K10PT	
C132	CU3547	Chip C.	GRM36B103K16PT	
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C134	CU3559	Chip C.	GRM155B30J105KE18D	
C135	CU3531	Chip C.	GRM36B471K50PT	
C136	CS0428	Chip Tantalum	4V15UF	
C137	CU3551	Chip C.	GRM36B223K16PT	
C138	CU3535	Chip C.	GRM36B102K50PT	
C139	CU3513	Chip C.	GRM36CH150J50PT	

Ref. No.	Parts No.	Description	Parts Name	Version
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C143	CU3506	Chip C.	GRM36CH050C50PT	
C144	CU3513	Chip C.	GRM36CH150J50PT	
C145	CS0432	Chip Tantalum	TMCMA1A226MTR	
C146	CS0425	Chip Tantalum	TMCMBOJ107MTR	
C147	CU3501	Chip C.	GRM36CK0R5C50PT	
C148	CU3506	Chip C.	GRM36CH050C50PT	
C149	CU3506	Chip C.	GRM36CH050C50PT	
C150	CU3519	Chip C.	GRM36CH470J50PT	
C151	CU3559	Chip C.	GRM155B30J105KE18D	
C152	CU3554	Chip C.	GRM36B104K10PT	
C153	CU3547	Chip C.	GRM36B103K16PT	
C154	CU3554	Chip C.	GRM36B104K10PT	
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C157	CU3519	Chip C.	GRM36CH470J50PT	
C158	CU3506	Chip C.	GRM36CH050C50PT	
C160	CU3535	Chip C.	GRM36B102K50PT	
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C162	CU3523	Chip C.	GRM36CH101J50PT	
C163	CS0429	Chip Tantalum	4V22UF	
C164	CU3547	Chip C.	GRM36B103K16PT	
C165	CU3559	Chip C.	GRM155B30J105KE18D	
C166	CU3547	Chip C.	GRM36B103K16PT	
C167	CU3531	Chip C.	GRM36B471K50PT	
C168	CU3547	Chip C.	GRM36B103K16PT	
C169	CU3554	Chip C.	GRM36B104K10PT	
C171	CU3535	Chip C.	GRM36B102K50PT	
C172	CU3517	Chip C.	GRM36CH330J50PT	
C173	CU3517	Chip C.	GRM36CH330J50PT	
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C176	CU3554	Chip C.	GRM36B104K10PT	
C177	CU3554	Chip C.	GRM36B104K10PT	
C178	CU3523	Chip C.	GRM36CH101J50PT	
C179	CS0431	Chip Tantalum	10V 2.2UF	
C180	CU3559	Chip C.	GRM155B30J105KE18D	
C181	CU3554	Chip C.	GRM36B104K10PT	
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C183	CU3559	Chip C.	GRM155B30J105KE18D	
C184	CU3535	Chip C.	GRM36B102K50PT	
C185	CU3551	Chip C.	GRM36B223K16PT	
C186	CU3551	Chip C.	GRM36B223K16PT	
C187	CS0397	Chip Tantalum	16V 1UF	
C188	CU3547	Chip C.	GRM36B103K16PT	
C189	CU3547	Chip C.	GRM36B103K16PT	
C190	CU3535	Chip C.	GRM36B102K50PT	
C191	CU3535	Chip C.	GRM36B102K50PT	
C192	CS0424	Chip Tantalum	TMCMA1C106MTR	
C193	CU3535	Chip C.	GRM36B102K50PT	
C194	CS0429	Chip Tantalum	4V22UF	
C195	CU3559	Chip C.	GRM155B30J105KE18D	
C197	CU3547	Chip C.	GRM36B103K16PT	
C198	CU3501	Chip C.	GRM36CK0R5C50PT	
C199	CU3547	Chip C.	GRM36B103K16PT	
C200	CU3547	Chip C.	GRM36B103K16PT	
C201	CU3505	Chip C.	GRM36CH040C50PT	
C202	CU3512	Chip C.	GRM36CH120J50PT	
C204	CU3547	Chip C.	GRM36B103K16PT	
C205	CS0432	Chip Tantalum	TMCMA1A226MTR	
C206	CS0431	Chip Tantalum	10V 2.2UF	
C207	CU3539	Chip C.	GRM36B222K50PT	
C208	CS0431	Chip Tantalum	10V 2.2UF	
CN1	UE0474	Connector	AXK6F16545YJ	
D1	XD0397	Chip Diode	MA2711100L	
D2	XD0381	Chip Diode	MA27077	
D3	XD0343	Chip Diode	MA2S304001AR	
D4	XD0343	Chip Diode	MA2S304001AR	
D5	XD0364	Chip Diode	1SV279-TPH3	
D7	XD0381	Chip Diode	MA27077	

Ref. No.	Parts No.	Description	Parts Name	Version
D8	XD0381	Chip Diode	MA27077	
D9	XD0364	Chip Diode	1SV279-TPH3	
D10	XD0364	Chip Diode	1SV279-TPH3	
D11	XD0364	Chip Diode	1SV279-TPH3	
D14	XD0337	Chip Diode	MA2S357-TX	
D15	XD0337	Chip Diode	MA2S357-TX	
D16	XD0400	Chip Diode	DAN222MT2L	
D17	XD0320	Chip Diode	DAN235E-TL	
D18	XD0320	Chip Diode	DAN235E-TL	
D19	XD0381	Chip Diode	MA27077	
D20	XD0343	Chip Diode	MA2S304001AR	
D21	XD0343	Chip Diode	MA2S304001AR	
D23	XD0343	Chip Diode	MA2S304001AR	
D24	XD0344	Chip Diode	1SV311 TPH3	
D25	XD0344	Chip Diode	1SV311 TPH3	
D26	XD0344	Chip Diode	1SV311 TPH3	
D27	XD0383	Chip Diode	MA781WK-TX	
D28	XD0381	Chip Diode	MA27077	
D29	XD0381	Chip Diode	MA27077	
D30	XD0382	Chip Diode	MA27728	
D31	XD0344	Chip Diode	1SV311 TPH3	
D32	XD0400	Chip Diode	DAN222MT2L	
D33	XL0097	Chip LED	SML-521MUWT86	
D34	XD0381	Chip Diode	MA27077	
D35	XD0401	Chip Diode	DG1M3	
D36	XD0397	Chip Diode	MA2711100L	
D37	XD0381	Chip Diode	MA27077	
D38	XD0381	Chip Diode	MA27077	
D42	XD0396	Chip Diode	VDZT2R 3.9B	
FL1	XF0062	Crystal Filter	DSF444SAF 50.85MHZ	
FL2	XC0097	Ceramic Filter	SFECV10M7JA00-R0	
FL3	XC0075	Ceramic Filter	CFUCG450E-TC	
IC1	XA0953	IC	UPC2771TB-E3	
IC2	XA1010	IC	MB15A01PFV1-G-BND-EF	
IC3	XA0976	IC	UPC2757TB-E3	
IC4	XA0519	IC	XC62HR3302MR	
IC5	XA1014	IC	TC75S51FU TE85L	
IC6	XA1011	IC	CPU DJC7	
IC7	XA0666	IC	TK10931V	
IC8	XA0348	IC	TC4W53FU(TE12L)	
IC9	XA1012	IC	XC6383A701MR	
IC11	XA1008	IC	BR24L32FV-WE2	
IC12	XA0210	IC	IC NJM2070M	
IC13	XA1009	IC	BD4930FVE-TR	
IC14	XA0882	IC	BU9831F	
JK1	UJ0054	Jack	HSJ1102-01-520	
JK2	UJ0055	Jack	HEC4306-010010	
L1	QC0538	Chip Inductor	LQN21AR10J04	
L2	QC0507	Chip Inductor	LK16081R0K-T	
L3	QC0587	Chip Inductor	LQW1608A18NJ00T1	
L4	QC0587	Chip Inductor	LQW1608A18NJ00T1	
L5	QC0591	Chip Inductor	LQW1608A39NJ00T1	
L6	QC0591	Chip Inductor	LQW1608A39NJ00T1	
L7	QC0589	Chip Inductor	LQW1608A27NJ00T1	
L8	QC0596	Chip Inductor	LQW1608AR10J00T1	
L9	QC0508	Chip Inductor	LK16082R2K-T	
L10	QC0617	Chip Inductor	LL1608-FS15NJ	
L11	QC0594	Chip Inductor	LQW1608A68NJ00T1	
L12	QC0586	Chip Inductor	LQW1608A15NJ00T1	
L13	QC0586	Chip Inductor	LQW1608A15NJ00T1	
L14	QC0507	Chip Inductor	LK16081R0K-T	
L15	QC0586	Chip Inductor	LQW1608A15NJ00T1	
L16	QC0587	Chip Inductor	LQW1608A18NJ00T1	
L17	QC0507	Chip Inductor	LK16081R0K-T	
L18	QC0585	Chip Inductor	LQW1608A12NJ00T1	
L19	QC0716	Chip Inductor	LQW1608AR27J00T1	
L20	QC0709	Chip Inductor	HK1005R10J	
L22	QC0719	Chip Inductor	LQW1608AR39J00T1	
L23	QC0716	Chip Inductor	LQW1608AR27J00T1	
L25	QC0600	Chip Inductor	LQW1608AR22J00T1	
L26	QC0719	Chip Inductor	LQW1608AR39J00T1	

Ref. No.	Parts No.	Description	Parts Name	Version
L27	QC0592	Chip Inductor	LQW1608A47NJ00T1	
L28	QC0718	Chip Inductor	LQW1608AR33J00T1	
L29	QC0597	Chip Inductor	LQW1608AR12J00T1	
L30	QC0720	Chip Inductor	LQW1608AR47J00T1	
L31	QC0598	Chip Inductor	LQW1608AR15J00	
L32	QC0597	Chip Inductor	LQW1608AR12J00T1	
L33	QC0586	Chip Inductor	LQW1608A15NJ00T1	
L34	QC0590	Chip Inductor	LQW1608A33NJ00T1	
L35	QC0590	Chip Inductor	LQW1608A33NJ00T1	
L36	QC0587	Chip Inductor	LQW1608A18NJ00T1	
L37	QC0717	Chip Inductor	NLV32T-471JPF	
L38	QC0586	Chip Inductor	LQW1608A15NJ00T1	
L39	QC0585	Chip Inductor	LQW1608A12NJ00T1	
L40	QA0160	Coil	K5-S2/33331 PKI-0042	
L41	QC0592	Chip Inductor	LQW1608A47NJ00T1	
L42	QA0159	Coil	DET COIL QA0159	
L43	QC0507	Chip Inductor	LK16081R0K-T	
L44	QC0717	Chip Inductor	NLV32T-471JPF	
L45	QC0508	Chip Inductor	LK16082R2K-T	
LCD1	EL0056	LCD	LCD DJC7	
Q1	XU0209	Chip Transistor	EMD6T2R	
Q2	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q3	XE0049	Chip FET	2SK3078A(TE12L)	
Q4	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q5	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q6	XU0205	Chip Transistor	DTC144TMT2L	
Q7	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q8	XU0206	Chip Transistor	DTA123JMT2L	
Q9	XU0205	Chip Transistor	DTC144TMT2L	
Q11	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q12	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q13	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q14	XT0181	Chip Transistor	2SC4738-BL(TE85R)	
Q15	XT0181	Chip Transistor	2SC4738-BL(TE85R)	
Q16	XU0205	Chip Transistor	DTC144TMT2L	
Q17	XU0208	Chip Transistor	EMD3T2R	
Q18	XE0037	Chip FET	3SK274(TE85L)	
Q19	XT0192	Chip Transistor	2SC5609	
Q21	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q22	XU0208	Chip Transistor	EMD3T2R	
Q23	XU0206	Chip Transistor	DTA123JMT2L	
Q24	XU0206	Chip Transistor	DTA123JMT2L	
Q25	XU0206	Chip Transistor	DTA123JMT2L	
Q26	XU0208	Chip Transistor	EMD3T2R	
Q27	XT0192	Chip Transistor	2SC5609	
Q28	XU0207	Chip Transistor	EMA8T2R	
Q29	XU0207	Chip Transistor	EMA8T2R	
Q30	XU0207	Chip Transistor	EMA8T2R	
Q31	XU0207	Chip Transistor	EMA8T2R	
Q32	XU0207	Chip Transistor	EMA8T2R	
Q33	XU0207	Chip Transistor	EMA8T2R	
Q34	XU0207	Chip Transistor	EMA8T2R	
Q35	XU0206	Chip Transistor	DTA123JMT2L	
Q36	XT0195	Chip Transistor	MCH6102-TL	
Q37	XU0205	Chip Transistor	DTC144TMT2L	
Q38	XU0205	Chip Transistor	DTC144TMT2L	
Q39	XT0196	Chip Transistor	2SA2030T2L	
Q40	XU0206	Chip Transistor	DTA123JMT2L	
Q41	XU0205	Chip Transistor	DTC144TMT2L	
Q42	XE0059	Chip FET	2SK3541T2L	
R1	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R2	RK3526	Chip R.	1005 1/16W 100 OHM J	
R3	RK3530	Chip R.	1005 1/16W 220 OHM J	
R4	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R5	RK3532	Chip R.	1005 1/16W 330 OHM J	
R6	RK3547	Chip R.	1005 1/16W 5.6K OHMJ	
R7	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R8	RK3530	Chip R.	1005 1/16W 220 OHM J	
R10	RK3518	Chip R.	1005 1/16W 22 OHM J	
R11	RK3550	Chip R.	1005 1/16W 10K OHM J	
R12	RK3550	Chip R.	1005 1/16W 10K OHM J	

Ref. No.	Parts No.	Description	Parts Name	Version
R13	RK3530	Chip R.	1005 1/16W 220 OHM J	
R14	RK3550	Chip R.	1005 1/16W 10K OHM J	
R15	RK3536	Chip R.	1005 1/16W 680 OHM J	
R16	RK3550	Chip R.	1005 1/16W 10K OHM J	
R17	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R18	RK3550	Chip R.	1005 1/16W 10K OHM J	
R19	RK3550	Chip R.	1005 1/16W 10K OHM J	
R20	RK3530	Chip R.	1005 1/16W 220 OHM J	
R21	RK3532	Chip R.	1005 1/16W 330 OHM J	
R22	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R23	RK3546	Chip R.	1005 1/16W 4.7K OHMJ	
R24	RK3526	Chip R.	1005 1/16W 100 OHM J	
R25	RK3547	Chip R.	1005 1/16W 5.6K OHMJ	
R26	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R27	RK3526	Chip R.	1005 1/16W 100 OHM J	
R28	RK3530	Chip R.	1005 1/16W 220 OHM J	
R29	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R30	RK3546	Chip R.	1005 1/16W 4.7K OHMJ	
R31	RK3550	Chip R.	1005 1/16W 10K OHM J	
R32	RK3550	Chip R.	1005 1/16W 10K OHM J	
R33	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R34	RK3534	Chip R.	1005 1/16W 470 OHM J	
R35	RK3550	Chip R.	1005 1/16W 10K OHM J	
R36	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R37	RK3522	Chip R.	1005 1/16W 47 OHM J	
R40	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R41	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R42	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R45	RK3539	Chip R.	1005 1/16W 1.2K OHMJ	
R46	RK3526	Chip R.	1005 1/16W 100 OHM J	
R47	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R48	RK3532	Chip R.	1005 1/16W 330 OHM J	
R49	RK3548	Chip R.	1005 1/16W 6.8K OHMJ	
R52	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R53	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R54	RK3529	Chip R.	1005 1/16W 180 OHM J	
R55	RK3550	Chip R.	1005 1/16W 10K OHM J	
R56	RK3534	Chip R.	1005 1/16W 470 OHM J	
R57	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R58	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R59	RK3534	Chip R.	1005 1/16W 470 OHM J	
R60	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R61	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R62	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R63	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R64	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R65	RK3526	Chip R.	1005 1/16W 100 OHM J	
R66	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R67	RK3540	Chip R.	1005 1/16W 1.5K OHMJ	
R68	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R69	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R70	RK3568	Chip R.	1005 1/16W 330K OHMJ	
R71	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R72	RK3558	Chip R.	1005 1/16W 47K OHM J	T
R73	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R74	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R75	RK3518	Chip R.	1005 1/16W 22 OHM J	
R76	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R77	RK3558	Chip R.	1005 1/16W 47K OHM J	E
R78	RK3550	Chip R.	1005 1/16W 10K OHM J	
R79	RK3550	Chip R.	1005 1/16W 10K OHM J	
R80	RK3550	Chip R.	1005 1/16W 10K OHM J	
R81	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R82	RK3522	Chip R.	1005 1/16W 47 OHM J	
R83	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R84	RK3561	Chip R.	1005 1/16W 82K OHM J	
R85	RK3558	Chip R.	1005 1/16W 47K OHM J	
R87	RK3550	Chip R.	1005 1/16W 10K OHM J	
R88	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R89	RK3522	Chip R.	1005 1/16W 47 OHM J	
R90	RK3562	Chip R.	1005 1/16W 100K OHMJ	

Ref. No.	Parts No.	Description	Parts Name	Version
R91	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R92	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R93	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R94	RK3554	Chip R.	1005 1/16W 22K OHM J	
R96	RK3554	Chip R.	1005 1/16W 22K OHM J	
R97	RK3550	Chip R.	1005 1/16W 10K OHM J	
R98	RK3554	Chip R.	1005 1/16W 22K OHM J	
R100	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R101	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R102	RK3554	Chip R.	1005 1/16W 22K OHM J	
R103	RK3556	Chip R.	1005 1/16W 33K OHM J	
R104	RK3534	Chip R.	1005 1/16W 470 OHM J	
R105	RK3559	Chip R.	1005 1/16W 56K OHM J	
R106	RK3568	Chip R.	1005 1/16W 330K OHMJ	
R107	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R109	RK3546	Chip R.	1005 1/16W 4.7K OHMJ	
R110	RK3552	Chip R.	1005 1/16W 15K OHM J	
R111	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R112	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R113	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R114	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R115	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R116	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R117	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R118	RK3550	Chip R.	1005 1/16W 10K OHM J	
R119	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R120	RK3555	Chip R.	1005 1/16W 27K OHM J	
R121	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R122	RK3554	Chip R.	1005 1/16W 22K OHM J	
R123	RK3554	Chip R.	1005 1/16W 22K OHM J	
R124	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R125	RK3527	Chip R.	1005 1/16W 120 OHM J	
R126	RK3527	Chip R.	1005 1/16W 120 OHM J	
R127	RK3554	Chip R.	1005 1/16W 22K OHM J	
R128	RK3558	Chip R.	1005 1/16W 47K OHM J	
R129	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R130	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R132	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R132	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R133	RK3534	Chip R.	1005 1/16W 470 OHM J	
R134	RK3514	Chip R.	1005 1/16W 10 OHM J	
R135	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R136	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R137	RK3526	Chip R.	1005 1/16W 100 OHM J	
R138	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R139	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R141	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R142	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R143	RK3526	Chip R.	1005 1/16W 100 OHM J	
R144	RK3501	Chip R.	1005 1/16W 0 OHM J	
R145	RK3550	Chip R.	1005 1/16W 10K OHM J	
R146	RK3554	Chip R.	1005 1/16W 22K OHM J	
R147	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R148	RK3554	Chip R.	1005 1/16W 22K OHM J	
R149	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R150	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R151	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R152	RK3550	Chip R.	1005 1/16W 10K OHM J	
R153	RK3550	Chip R.	1005 1/16W 10K OHM J	
R154	RK3554	Chip R.	1005 1/16W 22K OHM J	
R155	RK3550	Chip R.	1005 1/16W 10K OHM J	
R156	RK3559	Chip R.	1005 1/16W 56K OHM J	
R157	RK3550	Chip R.	1005 1/16W 10K OHM J	
R158	RK3550	Chip R.	1005 1/16W 10K OHM J	
R159	RK3550	Chip R.	1005 1/16W 10K OHM J	
R160	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R161	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R162	RK3550	Chip R.	1005 1/16W 10K OHM J	
R163	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R164	RK3529	Chip R.	1005 1/16W 180 OHM J	
R165	RK3526	Chip R.	1005 1/16W 100 OHM J	

Ref. No.	Parts No.	Description	Parts Name	Version
R167	RK3550	Chip R.	1005 1/16W 10K OHM J	
R168	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R170	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R171	RK3536	Chip R.	1005 1/16W 680 OHM J	
R172	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R173	RK3522	Chip R.	1005 1/16W 47 OHM J	
R174	RK3522	Chip R.	1005 1/16W 47 OHM J	
R175	RK3546	Chip R.	1005 1/16W 4.7K OHMJ	
R176	RK3558	Chip R.	1005 1/16W 47K OHM J	
R177	RK3558	Chip R.	1005 1/16W 47K OHM J	
TC1	CT0050	Chip Trimmer	TZY2Z100A001R00	
VR1	RH0144	Chip Trimmer Pot	2720 22K OHM	
VR2	RH0144	Chip Trimmer Pot	2720 22K OHM	
W1	MRCL02AA	Wire	#30R02-20-02	
X1	XQ0164	Crystal	DSX321G 12.6MHZ	
X2	XQ0132	Crystal	CSA309/4.194304MHZ	

KEY Unit

Ref. No.	Parts No.	Description	Parts Name	Version
C301	CU3539	Chip C.	GRM36B222K50PT	
C302	CU3534	Chip C.	1005 B 50V 820PF K	
C303	CU3539	Chip C.	GRM36B222K50PT	
C304	CU3559	Chip C.	GRM155B30J105KE18D	
C305	CU3521	Chip C.	GRM36CH680J50PT	
C306	CU3551	Chip C.	GRM36B223K16PT	
C307	CU3551	Chip C.	GRM36B223K16PT	
C308	CU3554	Chip C.	GRM36B104K10PT	
C309	CU3559	Chip C.	GRM155B30J105KE18D	
C310	CS0428	Chip Tantalum	4V15UF	
C311	CU3535	Chip C.	GRM36B102K50PT	
C312	CU3554	Chip C.	GRM36B104K10PT	
C313	CU3552	Chip C.	GRM36B333K10PT	
C314	CU3537	Chip C.	1005 B 50V 0.0015UFK	
C315	CU3552	Chip C.	GRM36B333K10PT	
C316	CU3554	Chip C.	GRM36B104K10PT	
C317	CU3523	Chip C.	GRM36CH101J50PT	
C318	CU3554	Chip C.	GRM36B104K10PT	
C319	CU3535	Chip C.	GRM36B102K50PT	
C320	CU3031	Chip C.	1608 B 50V 470PF K	
CN301	UE0475	Connector	AXK5F16545YJ	
D301	XD0402	Chip Diode	VDZT2R 5.1B	
IC301	XA0537	IC	BA4510FV-E2	
IC302	XA0573	IC	NJM2904V-TE1	
MIC301	EY0021	Mic	SKB-1144SP-C1033	
R301	RK3554	Chip R.	1005 1/16W 22K OHM J	
R302	RK3558	Chip R.	1005 1/16W 47K OHM J	
R303	RK3556	Chip R.	1005 1/16W 33K OHM J	
R304	RK3554	Chip R.	1005 1/16W 22K OHM J	
R305	RK3569	Chip R.	1005 1/16W 390K OHMJ	
R306	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R307	RK3550	Chip R.	1005 1/16W 10K OHM J	
R308	RK3534	Chip R.	1005 1/16W 470 OHM J	
R309	RK3557	Chip R.	1005 1/16W 39K OHM J	
R310	RK3556	Chip R.	1005 1/16W 33K OHM J	
R311	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R312	RK3552	Chip R.	1005 1/16W 15K OHM J	
R313	RK3557	Chip R.	1005 1/16W 39K OHM J	
R314	RK3550	Chip R.	1005 1/16W 10K OHM J	
R315	RK3550	Chip R.	1005 1/16W 10K OHM J	
R316	RK3554	Chip R.	1005 1/16W 22K OHM J	
R317	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R318	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R319	RK3561	Chip R.	1005 1/16W 82K OHM J	
R320	RK3561	Chip R.	1005 1/16W 82K OHM J	
R321	RK3561	Chip R.	1005 1/16W 82K OHM J	
R322	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R323	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	

Ref. No.	Parts No.	Description	Parts Name	Version
R324	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R325	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R326	RK3559	Chip R.	1005 1/16W 56K OHM J	
R327	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R328	RK3572	Chip R.	1005 1/16W 680K OHMJ	
R329	RK3570	Chip R.	1005 1/16W 470K OHMJ	
R330	RK3563	Chip R.	1005 1/16W 120K OHMJ	
R331	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R332	RK3526	Chip R.	1005 1/16W 100 OHM J	
SW301	UU0027	Chip Switch	SKQGAA	
SW302	UU0027	Chip Switch	SKQGAA	
SW303	UU0027	Chip Switch	SKQGAA	
SW304	UU0027	Chip Switch	SKQGAA	
SW305	UU0027	Chip Switch	SKQGAA	

BATTERY Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	UE0476		CONTACT PIN	
C401	CU3535	Chip C.	GRM36B102K50PT	
C402	CS0427	Chip Tantalum	6.3V10UF	
D401	XD0401	Chip Diode	DG1M3	
IC401	XA1013	IC	MM1438BWLE/R59-3644	
Q401	XE0058	Chip FET	MCH6305-TL	
Q402	XT0195	Chip Transistor	MCH6102-TL	
Q403	XU0205	Chip Transistor	DTC144TMT2L	
R401	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R402	RK3550	Chip R.	1005 1/16W 10K OHM J	
R403	RK3528	Chip R.	1005 1/16W 150 OHM J	
R404	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R405	RK0159	Chip R.	1608 1/10W 0.33OHM J	

PTT Unit

Ref. No.	Parts No.	Description	Parts Name	Version
SW501	UU0027	Chip Switch	SKQGAA	
SW502	UU0027	Chip Switch	SKQGAA	

ROTARY ENCODER Unit

Ref. No.	Parts No.	Description	Parts Name	Version
RE501	UR0023	Rotary Encoder	TP70N00AE20 13.5F	

Mechanical Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	AF0032		OPH17+3 FE N3	
	AF0033		OPH P17+3 FE/BZN3	
	AN0012		RND N7X0.75 BR/B.ZN	
	AX0006		OPH P1.7+5.5 FE/BZN3	
	DP0163		LCD PANEL	
	ES0030	Speaker	28-8AB-09D	
	FG0375		ON AIR RUBBER	
	FG0376		PTT RUBBER	
	FM0233		ANTENNA GND DJC7	
	FP0238		FRONT COVER	
	FP0239		KEY TOP	
	FP0241		REAR COVER DJC7	
	KB0096		REAR CASE	
	KZ0172		FRONT ASSY DJC7	
	NK0080		KNOB	
	SP0013		KNOB SPRING 7800	
	UE0466		SMA ANTENNA CONNECT.	
	YX0035		LCD TAPE DJC7	
	YZ0135		SOLDER PLATED LINE 0.4-1mm	

Packing Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	DS0446		SPEC. SHEET	
	EA0116		SMA ANTENNA	
	EDC126		AC ADAPTOR	T
	EDC128		AC ADAPTOR	E
	EG0055		EBP-58N PROTECTION BAG	
	FG0309		ANTENNA CAP	
	HK0598		Package	
	HM0235		CARTON 10	
	HP0003		PROTECTION BAG	
	HP0006Z		PROTECTION BAG	
	HU0197		INNER 10	
	HU0209		INNER	
	PH0015A		WARRANTY	T
	PK0102		CIRCUIT DIAGRAM	
	PR0447		FCC WARNING LABEL	T
	PR0452		FCC HOME USE LABEL	T
	PR0478		SERIAL SEAL	E
	PR0514		E-10x49 LABEL	
	PS0464		INSTRUCTION	
	PR0514		E-10x49 LABEL	
	PS0464		INSTRUCTION	

ADJUSTMENT

1) Required Test Equipment

The following items are required to adjust radio parameters.

1. Regulated Power Supply

Supply voltage:	6.0VDC
Current:	1A or more

2. Digital Multimeter

Voltage range:	FS = Approx. 20V
Current:	10A or more
Input resistance:	High impedance

3. Oscilloscope

Measurable frequency:	Audio Frequency

4. Audio Dummy Load

Impedance:	8Ω
Dissipation:	1W or more
Jack:	2.5Φ

5. SSG

Output frequency:	500MHz or more
Output level:	-20dBμ / 0.1μV to 120dBμ / 1V
Modulation:	FM / AM

6. Spectrum Analyzer

Measuring range:	Up to 2GHz or more

7. Power meter

Measurable frequency:	Up to 500MHz
Impedance:	50Ω unbalanced
Measuring range:	0.1W to 1W

8. Audio Voltmeter

Measurable frequency:	Up to 100kHz
Sensitivity:	1mV to 10V

9. Audio Generator

Output frequency:	67Hz to 10kHz
Output impedance:	600Ω unbalanced

10. Distortion Meter / SINAD Meter

Measurable frequency:	1kHz
Input level:	Up to 40dB
Distortion level:	1% to 100%

11. Frequency Counter

Measurable frequency:	Up to 500MHz
Measurable stability:	Approx. ± 0.1ppm

12. Linear Detector

Measurable frequency:	Up to 500MHz
Characteristics:	Flat
CN:	60dB or more

Note

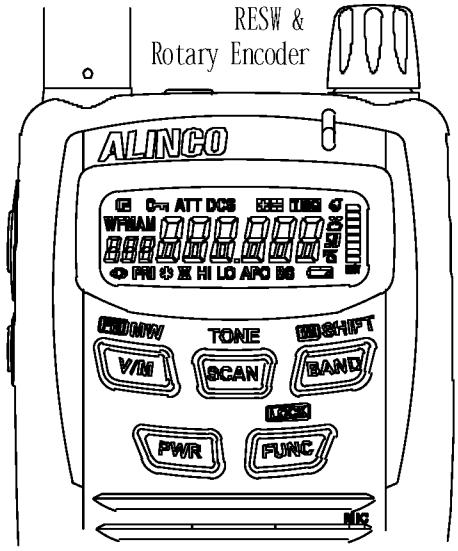
- Standard modulation: 1kHz ± 3.5kHz / DEV
- Reference sensitivity: 12dB SINAD
- Specified audio output level: 200mW at 8Ω
- Standard audio output level: 50mW at 8Ω
- Use an RF cable (3D2W: 47cm) for test equipment.
- Attach a fuse to RF indicated by EMF.
- All SSG outputs are indicated by EMF.
- Supply voltage for the transceiver: 6.0VDC

2) Entering and Releasing the Adjustment Mode

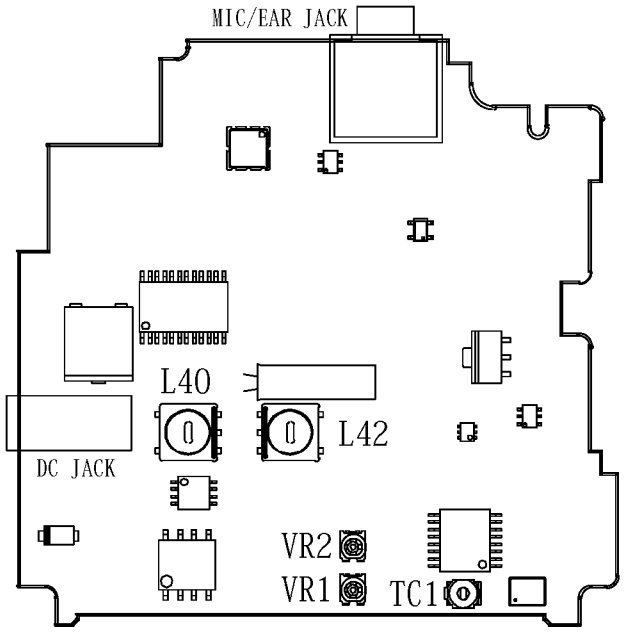
The DJ-C7 does not require a serviceperson to manipulate the components on the printed-circuit board, except the trimmer when adjusting reference frequency and deviation. Most of the adjustments for the transceiver are mode by using the keys on it while the unit is in the adjustment mode. Because the adjustment mode temporarily uses the channels, frequency must be set on each channel before adjustments can be mode. For instructions on how to program the channels, see the "DJ-C7 INSTRUCTION MANUAL" which came with the product. In consideration of the radio environment, the frequency on each channel must be near the value (+/-1MHz) listed in the table below. To enter the adjustment mode, set key lock and press [BAND], [V/M], [SCAN], [V/M], [SCAN], [BAND], and [FUNC] key. "Freq" appears in LCD. When changing the adjustment parameters, press the [SCAN] or [BAND] key.
To exit the adjustment mode, press the [MONI] key.

Adjustment Points

Front side



Rear side



Set power supply voltage to 6.0V.

1. Reference frequency adjustment

Display: FrEq, Adjust point: TC1
Adjust the TC1 to 435.03MHz (C7E).
Adjust the TC1 to 445.03MHz (C7T).

2. UHF-Power adjustment

Display: U Pow, Adjust point: RE (Rotary Encoder)
Adjust the UHF-Power to 480mW at the TX condition.
Frequency: 435.03MHz (C7E)
Frequency: 445.03MHz (C7T)

3. VHF-Power adjustment

Display: v Pow, Adjust point: RE
Adjust the VHF-Power to 480mW at the TX condition.
Frequency: 145.03MHz

4. UHF-Modulation adjustment

Display: U mod, Adjust point: VR1
Input the low frequency of 1kHz 50mV from MIC terminal, and then adjust the modulation to 4.5kHz at the TX condition.
Frequency: 435.03MHz (C7E)
Frequency: 445.03MHz (C7T)

5. VHF-Modulation adjustment

Display: v mod, Adjust point: VR2
Input the low frequency of 1kHz 50mV from MIC terminal, and then adjust the Modulation to 4.5kHz at the TX condition.
Frequency: 145.03MHz

6. NFM-AF output adjustment

Display: nAF, Adjust point: L42
Input 80dBu to the test unit which modulation is 1kHz 3.5kHz and adjust the L42 to maximum AF level.
Frequency: 435.07MHz (C7E)
Frequency: 445.07MHz (C7T)

7. WFM-AF output adjustment

Display: wAF, Adjust point: L40
Input 80dBu to the test unit which modulation is 1kHz 22.5kHz and adjust the L40 to maximum AF level.
Frequency: 88.7MHz

8. VHF-Sensitivity adjustment

Adjust point: RE
Adjust the sensitivity to the best condition of 12dB SINAD.
Display: vL tUn Low-F sensitivity adjustment 118.07MHz
Display: vm tUn Mid-F sensitivity adjustment 145.07MHz
Display: vH tUn Hight-F sensitivity adjustment 165.07MHz

9. UHF-Sensitivity adjustment

Adjust point: RE
Adjust the sensitivity to the best condition of 12dB SINAD.
Display: UL tUn Low-F Sensitivity Adjustment 380.07MHz
Display: Um tUn Mid-F Sensitivity Adjustment 435.07MHz(C7E)
Mid-F Sensitivity Adjustment 445.07MHz(C7T)
Display: UH tUn Hight-F Sensitivity Adjustment 465.07MHz

10. VHF-SQL adjustment

SQL MIN level Adjustment
Display: SqL vL Adjust point: [V/M] key
Input the 145.07MHz of -11dBu which modulation is 3.5kHz, and press the [V/M] key. Check the BEEP sound.

SQL MAX level Adjustment
Display: SqL vH Adjust point: [V/M] key
Input the 145.07MHz of -3dBu which modulation is 3.5kHz, and press the [V/M] key. Check the BEEP sound.

11. VHF S-meter adjustment

S meter 1 level Adjustment.
Display: S vL Adjust point: [V/M] key
Input the 145.07MHz of -3dBu which modulation is 3.5kHz, and press the [V/M] key.
Check the BEEP sound.

Display: S vH S meter 5 level Adjustment.
Input the 145.07MHz of 12dBu which modulation is 3.5kHz, and press the [V/M] key. Check the BEEP sound.

12. UHF SQL adjustment

SQL MIN level adjustment
Display: SqL UL Adjust point: [V/M] key
Input –10dBu which modulation is 3.5kHz, and press the [V/M] key.
Check the BEEP sound.
Frequency: 435.07MHz (C7E)
Frequency: 445.07MHz (C7T)

SQL MAX level adjustment
Display: SqL UH. Adjust point: [V/M] key
Input –2dBu which modulation is 3.5kHz, and press the [V/M] key.
Check the BEEP sound.

13. UHF S-meter adjustment

S-meter 1 level adjustment
Display: S UL Adjust point: [V/M] key
Input –3dBu which modulation is 3.5kHz, and press the [V/M] key.
Check the BEEP sound.
Frequency: 435.07MHz (C7E)
Frequency: 445.07MHz (C7T)

S-meter 5 level adjustment
Display: S UH Adjust point: [V/M] key
Input 12dBu which modulation is 3.5kHz, and press the [V/M] key.
Check the BEEP sound.

14. WFM SQL adjustment

SQL MIN level Adjustment
Display: SqL wL Adjust point: [V/M] key
Input –2dBu which modulation is 22.5kHz, and press the [V/M] key.
Check the BEEP sound.
Frequency: 88.7MHz

SQL MAX level Adjustment
Display: SqL wH Adjust point: [V/M] key
Input 8dBu which modulation is 22.5kHz, and press the [V/M] key.
Check the BEEP sound.

15. WFM S-meter adjustment

S-meter 1 level Adjustment
Display: S wL Adjust point: [V/M] key
Input 5dBu which modulation is 22.5kHz, and press the [V/M] key.
Check the BEEP sound.
Frequency: 88.7MHz

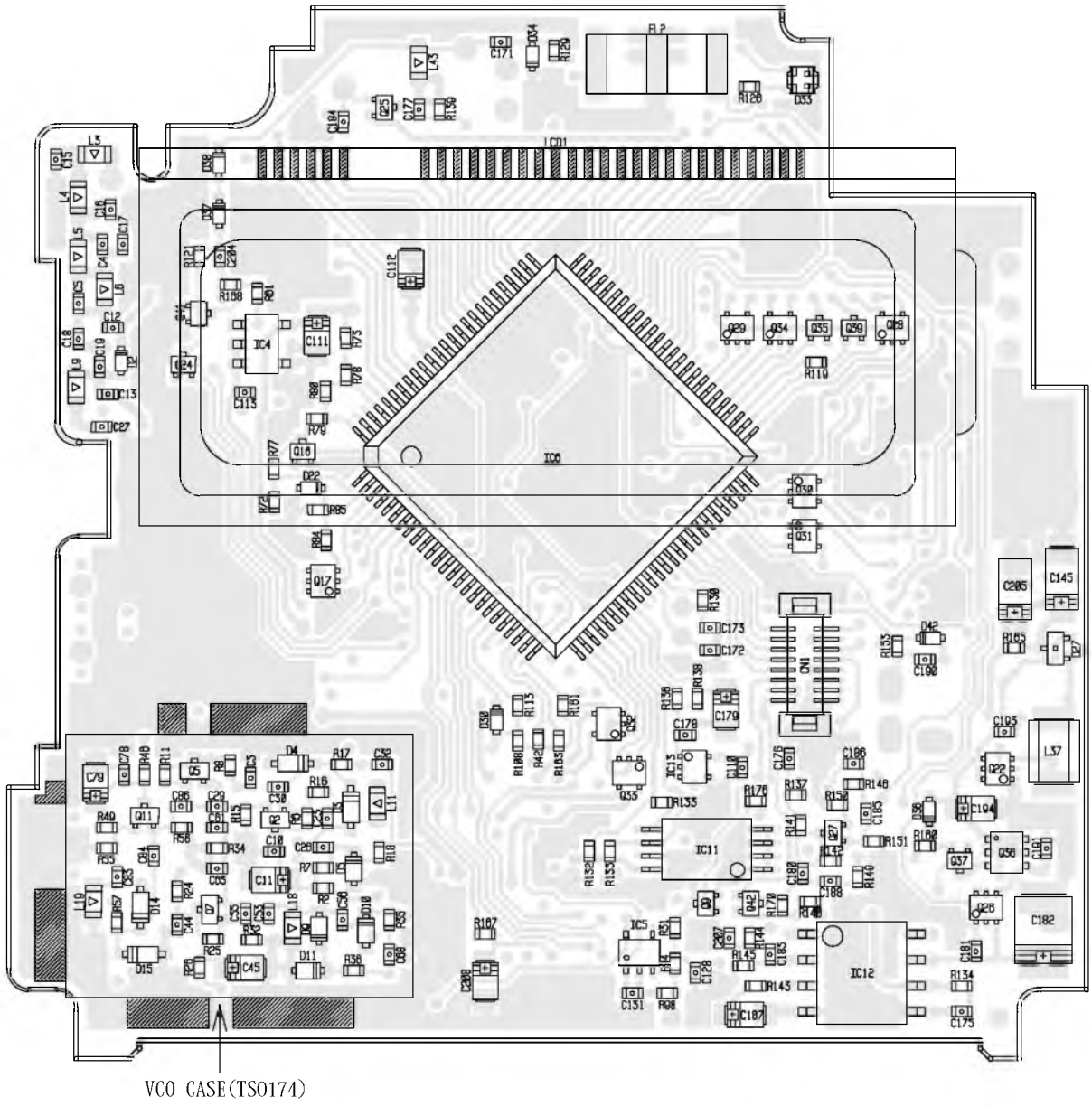
S meter 5 level Adjustment
Display: S wH Adjust point: [V/M] key
Input 20dBu which modulation is 22.5kHz, and press the [V/M] key.
Check the BEEP sound.

16. Low Battery Display Setting

Display: bAtt Adjust point: [V/M] key
Set power supply voltage to 3.7V.
After that, press the [V/M] key.
Check the BEEP sound.

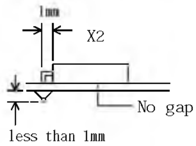
PC Board View

MAIN Side A



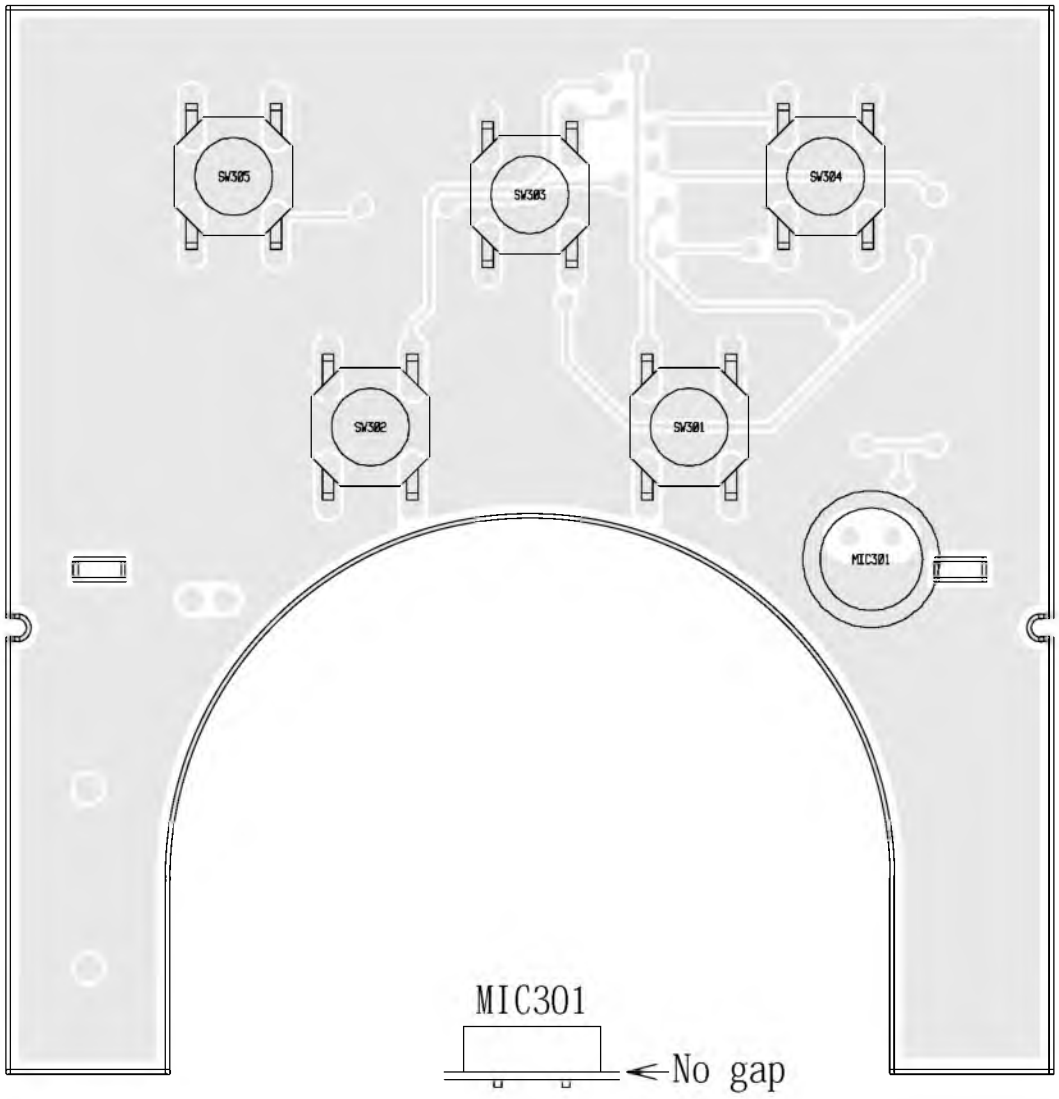
MAIN Side B


JK1
FL1
IC7
FL3
IC9
JK2
X2
L40
L42
IC8
IC14
IC2
L44
Q3
L1
C1
C8
IC1
X1
TC1
VR1
VR2
C148
C192
C174
D35
TP7
TP5
TP4
TP6
TP17
TP18
TP19

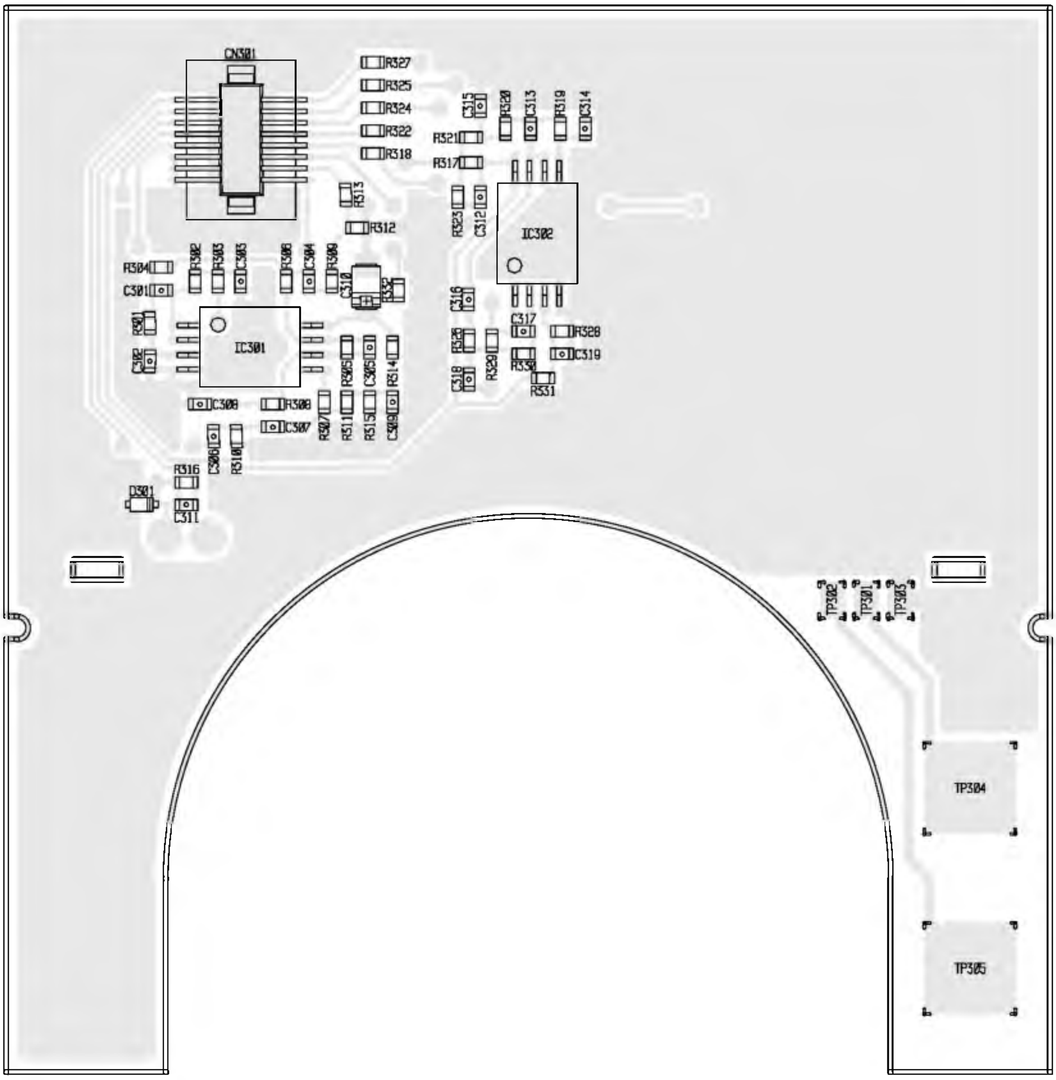

1mm
X2
No gap
less than 1mm

PC Board View

KEY Side A



KEY Side B


CN301
R327
R325
R324
R322
R318
R313
R312
R321
R317
C315
R320
C313
R319
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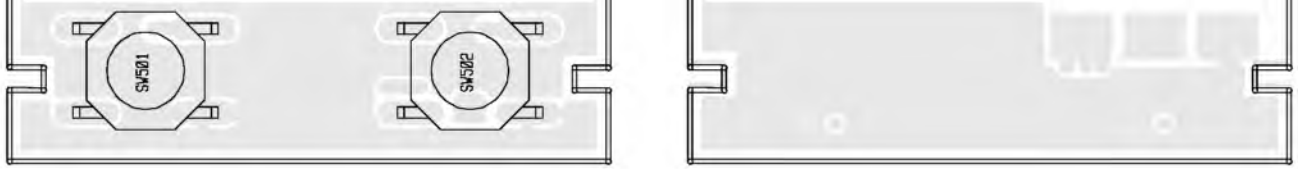
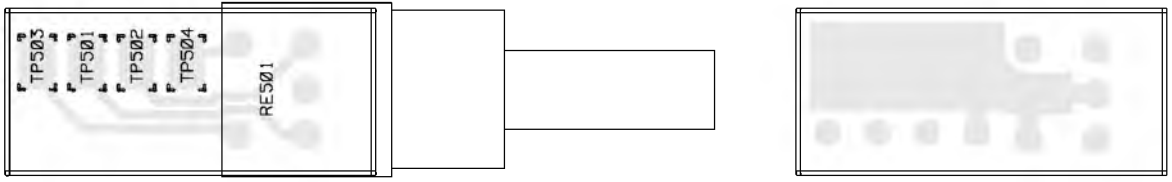
R323
C312
IC302
R304
C301
R302
R303
C303
R306
C304
R309
C310
R301
C302
IC301
C316
C317
R328
R326
R329
R330
C319
C318
R331
C308
R308
C307
R305
C305
R314
R307
R311
R315
C309
C306
R310
R316
D301
C311
TP302
TP301
TP303
TP304
TP305

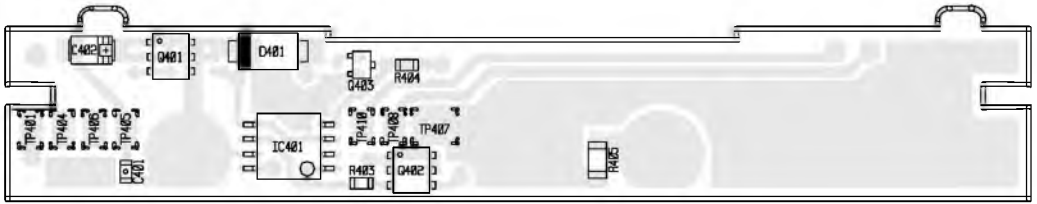


ROTARY ENCODER Side A & B



BATTERY Side A

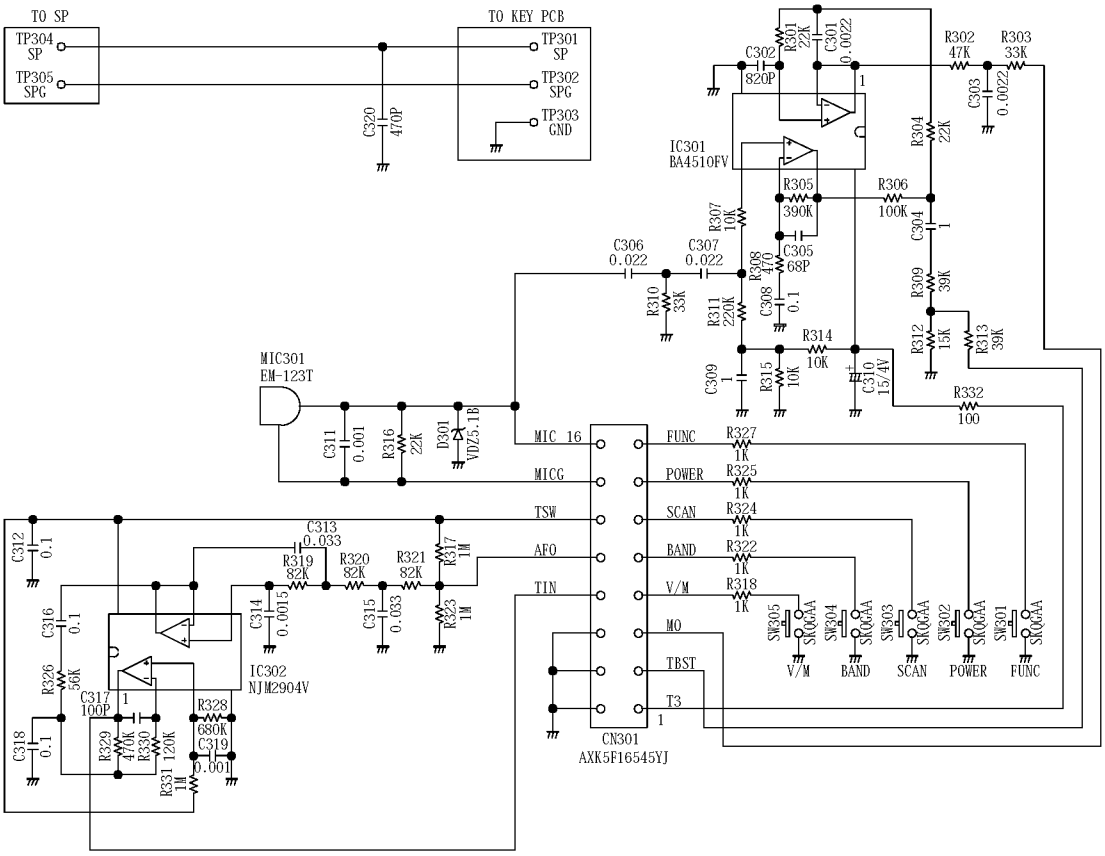
BATTERY Side B



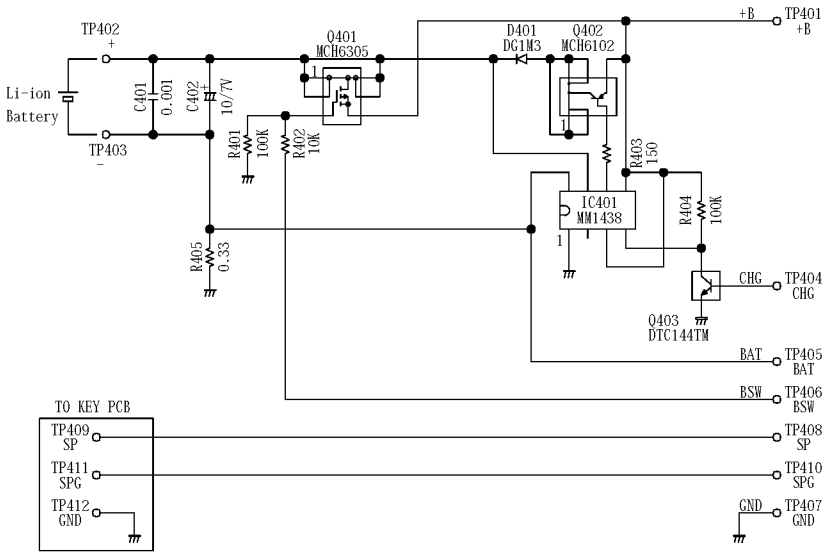
PTT Side A & B

SCHEMATIC DIAGRAM

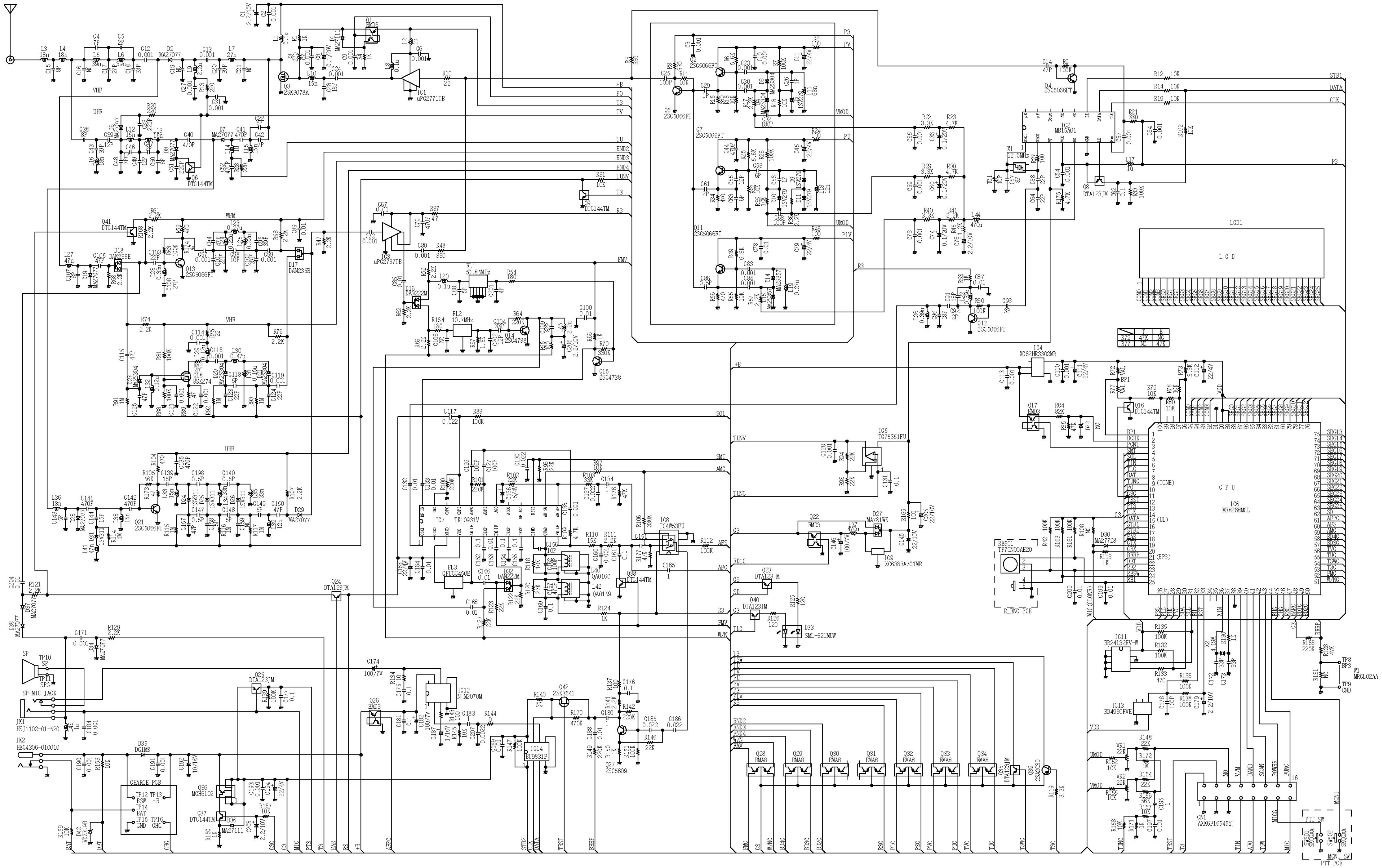
KEY UNIT



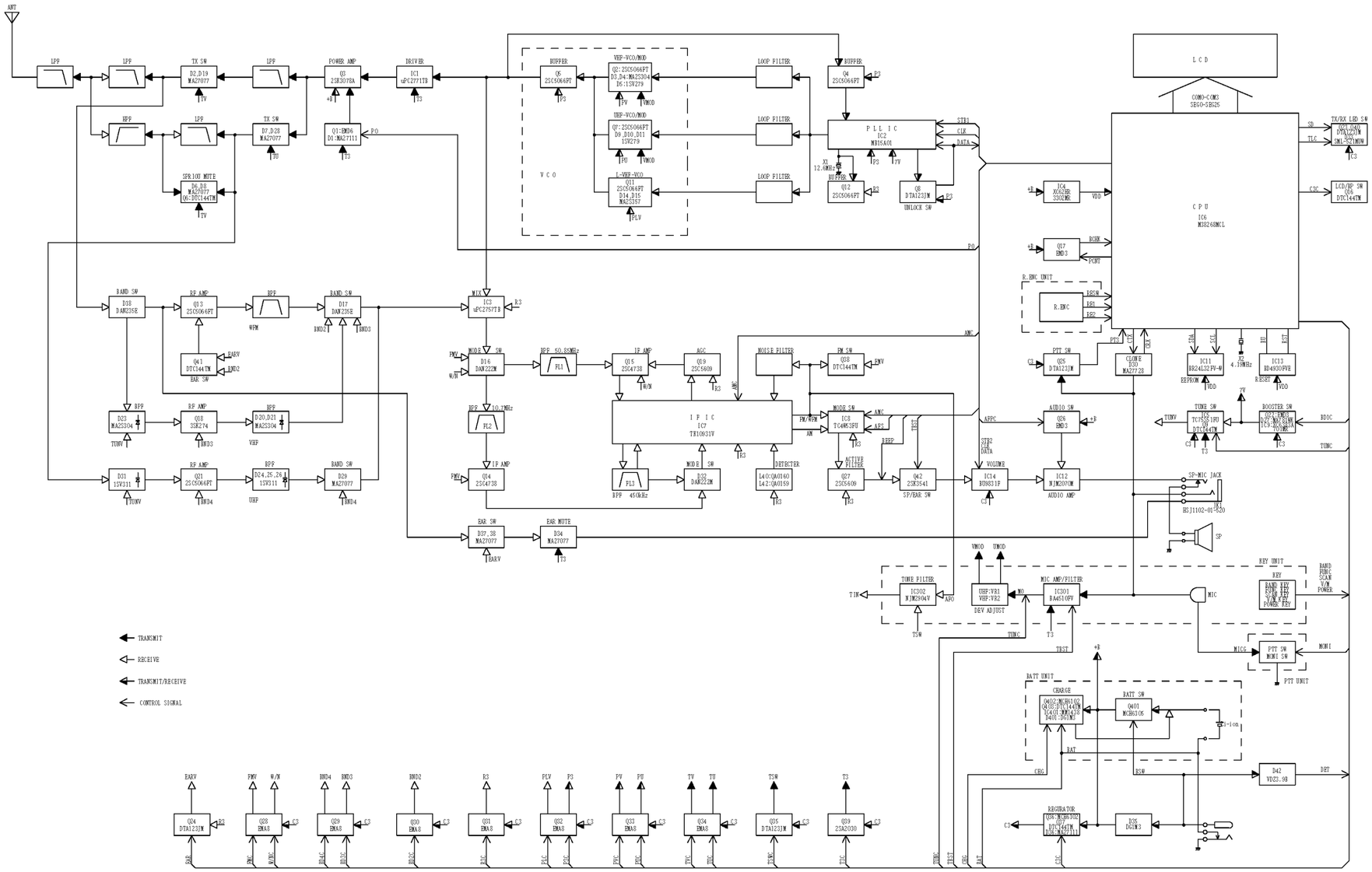
BATTERY UNIT



MAIN UNIT


VHF
UHF
WFM
IC1 uPC2771TB
IC2 MB15A01
IC3 uPC2757TB
IC4 XC62HR3302MR
IC5 TC75S51FU
IC6 M38268MCL
CPU
IC7 TK10931V
IC8 TC4W53FU
IC9 XC6383A701MR
IC11 BR24L32FV-W
IC12 NJM2070M
IC13 BD4930FVE
IC14 BU9831F
LCD1
LCD
FL1 50.85MHz
FL2 10.7MHz
FL3 CFUCG450E
X1 12.6MHz
X2 4.19M
SP
TP10 SP
TP11 SPG
SP-MIC JACK
JK1 HSJ1102-01-520
JK2 HEC4306-010010
CHARGE PCB
TP12 BSW
TP13 +B
TP14 BAT
TP15 GND
TP16 CHG
RE501 TP70N00AE20
R_ENC PCB
CN1 AXK6F16545YJ
PTT SW
SW501 SKQGAA
SW502 SKQGAA
MONI SW
PTT PCB
TP8 BP3
TP9 GND
W1 MRCL02AA

BLOCK DIAGRAM



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