DR-235TMkIII

Service Manual

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ALINCO, INC.

SPECIFICATIONS

■ General

Frequency coverage	DR-235
T MkIII	216.000 ~ 279.995MHz (RX) 222.000 ~ 224.995MHz (TX)

Operating mode		FM 16K0F3E (Wide mode) 8K50F3E (Narrow mode)
Frequency resolution		5 , 8.33 , 10 , 12.5 , 15 , 20 , 25 , 30 , 50 kHz
Number of memory Channels		100
Antenna impedance		50ohm unbalanced
Power requirement		13.8V DC + / - 15% (11.7 ~ 15.8 V)
Ground method		Negative ground
Current drain	Receive	0.6 A (max.) 0.4 A (Squelched)
	Transmit	Approx. 8.0 A max.
Operating temperature		-10 °C ~ 60°C
Frequency stability		+ / - 2.5 ppm
Dimensions		142 (w) x 40 (h) x 174 (d) mm
		(142 x 40 x 188 mm for projection included)
Weight		Approx. 1.0 Kg

■ Transmitter

Output power	Hi	25 W
	Mid	10 W
	Low	Approx. 5 W
Modulation system		Variable reactance frequency modulation
Maximum Frequency deviation		+ / - 5kHz (Wide mode) + / - 2.5kHz (Narrow mode)
Spurious emission		- 60 dB
Adjacent channel power		- 60 dB
Noise and hum ratio		- 40 dB (Wide mode) - 34 dB (Narrow mode)
Microphone impedance		2kohm

■ Receiver

Sensitivity	- 14 dBu for 12 dB SINAD
Receiver circuit	Double conversion super-heterodyne
Intermediate frequency	1st 30.85 MHz 2nd 455kHz
Squelch sensitivity	- 18 dBu
Adjacent channel selectivity	- 65 dB (Wide mode) - 55 dB (Narrow mode)
Inter-modulation rejection ratio	60 dB
Spurious and image rejection ratio	70 dB
Audio output power	2.0 W (8ohm , 10 % THD)

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

CIRCUIT DESCRIPTION

1) Receiver System DR- 235

The receiver system is a double superheterodyne system with a 30.85 MHz first IF and a 455 kHz second IF.

1. Front End

The received signal at any frequency in the 216.000MHz to 279.995MHz range is passed through the low-pass filter (L116, L115, L114, L113, C204, C203, C202, C216 and C215) and tuning circuit (L105, L104 and D105, D104), and amplified by the RF amplifier (Q107). The signal from Q107 is then passed through the tuning circuit (L103, L107, L102, and varicaps D103, D107 and D102) and converted into 30.85 MHz by the mixer (Q106). The tuning circuit, which consists of L105, L104, varicaps D105 and D104, L103, L107, L102, varicaps D103, D107 and D102, is controlled by the tracking voltage form the VCO. The local signal from the VCO is passed through the buffer (Q145), and supplied to the source of the mixer (Q106). The radio uses the lower side of the superheterodyne system.

2. IF Circuit

The mixer mixes the received signal with the local signal to obtain the sum of and difference between them. The crystal filter (XF101A, XF101B) selects 30.85 MHz frequency from the results and eliminates the signals of the unwanted frequencies. The first IF amplifier (Q105) then amplifies the signal of the selected frequency.

3. Demodulation Circuit

After the signal is amplified by the first IF amplifier (Q105), it is input to pin 16 of the demodulator IC (IC108). The second local signal of 30.395 MHz , which is oscillated by the internal oscillation circuit in IC108 and crystal (X104), is input through pin 1 of IC108. Then, these two signals are mixed by the internal mixer in IC108 and the result is converted into the second IF signal with a frequency of 455 kHz. The second IF signal is output from pin 3 of IC108 to the ceramic filter (FL101 or FL102), where the unwanted frequency band of that signal is eliminated, and the resulting signal is sent back to the IC108 through pins 5.
The second IF signal input via pin 5 is demodulated by the internal limiter amplifier and quadrature detection circuit in IC108, and output as an audio signal through pin 9.

4. Audio Circuit

The audio signal from pin 9 of IC108 is amplified by the audio amplifier (IC120:A),and switched by the signal switch IC (IC111) and then input it to the de-emphasis circuit.
and is compensated to the audio frequency characteristics in the de-emphasis circuit (R203, R207, R213, R209, C191, C218, C217) and amplified by the AF amplifier (IC120:B). The signal is then input to volume (VR1) . The adjusted signal is sent to the audio power amplifier (IC117) through pin 1 to drive the speaker.

5. Squelch Circuit

The detected output which is outputted from the pin 9 of IC108 is inputted to pin 8 of IC108 after it was been amplified by IC120:A and it is outputted from pin 14 after the noise component was been eliminated from the composed band pass filter in the built in amplifier of the IC. The adjusted voltage level at VR101 is delivered to the comparator of the CPU.
The voltage is led to pin 2 of CPU and compared with the setting voltage. The squelch will open if the input voltage is lower than the setting voltage. During open squelch, pin 30 (SQC) of the CPU becomes "L" level, AF control signal is being controlled and sounds is outputted from the speaker.)

6. AIR Band Reception

If it is made air band receiving mode, IF signal is demodulated by AM decoder of IC108, and is output from pin12 as the AF signal.

7. WIDE/NARROW Switching circuit

The 2nd IF 455 kHz signal which passes through filter FL101 (wide) and FL102 (narrow) during narrow, changes its width using the width control switching D115 and D116.

2) Transmitter System DR- 235

1. Modulator Circuit

The audio signal is converted to an electrical signal by the microphone, and input it to the microphone amplifier (Q6). Amplified signal which passes through mic-mute control IC109 is adjusted to an appropriate mic-volume by means of mic-gain adjust VR106.
IC114:C and D consists of four operational amplifiers; one amplifier (pins 12, 13, and 14) is composed of pre-emphasis and IDC circuits and the other (pins 8, 9, and 10) is composed of a splatter filter. The maximum frequency deviation is obtained by VR107. and input to the signal switch (IC113) (9600 bps packet signal input switch) and input to the cathode of the varicap of the VCO, to change the electric capacity in the oscillation circuit. This produces the frequency modulation.

2. Power Amplifier Circuit

The transmitted signal is oscillated by the VCO, amplified by the drive amplifier (Q145) and younger amplifier (Q115), and input to the final power module (IC110). The signal is then amplified by the final power module (IC110) and led to the antenna switch (D110) and low-pass filter (L113, L114, L115, L116, C215, C216, C202, C203 and C204), where unwanted high harmonic waves are reduced as needed, and the resulting signal is supplied to the antenna.

3. APC Circuit

Part of the transmission power from the low-pass filter is detected by D111, converted to DC. The detection voltage is passed through the APC circuit (IC114:A,IC114:B), then it controls the APC voltage supplied to the younger amplifier Q115 and the final power module IC110 to fix the transmission power.

3) PLL Synthesizer Circuit DR- 235

1. PLL

The dividing ratio is obtained by sending data from the CPU (IC1) to pin 10 and sending clock pulses to pin 9 of the PLL IC (IC116). The oscillated signal from the VCO is amplified by the buffer (Q134 and Q135) and input to pin 8 of IC116. Each programmable divider in IC116 divides the frequency of the input signal by N according to the frequency data, to generate a comparison frequency of 5 or 6.25 kHz.

2. Reference Frequency Circuit

The reference frequency appropriate for the channel steps is obtained by dividing the 12.8 MHz reference oscillation (X102) by 4250 or 3400, according to the data from the CPU (IC1). When the resulting frequency is 5 kHz, channel steps of 5, 10, 15, 20, 25, 30, and 50 kHz are used. When it is 6.25 kHz, the 12.5 kHz channel step is used.

3. Phase Comparator Circuit

The PLL (IC116) uses the reference frequency, 5 or 6.25kHz. The phase comparator in the IC116 compares the phase of the frequency from the VCO with that of the comparison frequency, 5 or 6.25kHz, which is obtained by the internal divider in IC116.

4. PLL Loop Filter Circuit

If a phase difference is found in the phase comparison between the reference frequency and VCO output frequency, the charge pump output (pin 5) of IC116 generates a pulse signal, which is converted to DC voltage by the PLL loop filter and input to the varicap of the VCO unit for oscillation frequency control.

5. VCO Circuit

A Colpitts oscillation circuit driven by Q131 directly oscillates the desired frequency. The frequency control voltage determined in the CPU (IC1) and PLL circuit is input to the varicaps (D122 and D123). This change the oscillation frequency, which is amplified by the VCO buffer (Q134) and output from the VCO area.

4) CPU and Peripheral Circuits

1. LCD Display Circuit

The CPU turns ON the LCD via segment and common terminals with 1/4 the duty and 1/3 the bias, at the frame frequency is 64Hz.

2. Dimmer Circuit

The dimmer circuit makes the output of pin 13 of CPU (IC1) into "H" level at set mode, so that Q9 and Q3 will turn ON to make the lamp control resistor R84 short and make its illumination bright. But on the other hand, if the dimmer circuit makes pin 13 into "L" level, Q9 and Q3 will turn OFF, R84's illumination will become dimmer as its hang on voltage falls down in the working LED (D11, D2, D5, D3 and D6).

3. Reset and Backup

When the power form the DC cable increases from Circuits 0 V to 2.5 or more, "H" level reset signal is output form the reset IC (IC4) to pin 33 of the CPU (IC1), causing the CPU to reset. The reset signal, however, waits at 100, and does not enter the CPU until the CPU clock (X1) has stabilized.

4. S (Signal) Meter Circuit

The DC potential of pin 12 of IC108 is input to pin 1 of the CPU (IC1), converted from an analog to a digital signal, and displayed as the S-meter signal on the LCD.

5. DTMF Encoder

The CPU (IC1) is equipped with an internal DTMF encoder. The DTMF signal is output from pin 10, through R35, R34 and R261 (for level adjustment), and then through the microphone amplifier (IC114:D), and is sent to the varicap of the VCO for modulation. At the same time, the monitoring tone passes through the AF circuit and is output form the speaker.

6. Tone Encoder

The CPU (IC1) is equipped with an internal tone encoder. The tone signal (67.0 to 250.3 Hz) is output from pin 9 of the CPU to the varicap (D120) of the VCO for modulation.

7. DCS Encoder

The CPU (IC1) is equipped with an internal DCS code encoder. The code (023 to 754) is output from pin 9 of the CPU to the PLL reference oscillator. When DCS is ON, DCS MUTE circuit (Q126-ON, Q133-ON, Q132-OFF) works. The modulation activates in X102 side only.

8. CTCSS, DCS Decoder

The voice band of the AF output signal from pin 3 of IC120:A is cut by sharp active filter IC104:A and D (VCVS) and amplified, then led to pin 4 of CPU. The input signal is compared with the programmed tone frequency code in the CPU. The squelch will open when they match. During DCS, Q108 is ON, C419 is working and cut off frequency is lowered.

5) Power Supply Circuit

When power supply is ON, there is a "L" signal being inputted to pin 39 (PSW) of CPU which enables the CPU to work. Then, "H" signal is outputted from the pin 41 (C5C) of CPU and drives ON the power supply switch control Q8 and Q7 which turns the 5VS ON.5VS turns ON the PLL IC116, main power supply switch Q127 and Q122, AF POWER IC117 and the 8 V of AVR (IC115).During reception, pin 29 (R5) of CPU outputs "H" level, Q124 is ON, and the reception circuits supplied by 8 V.While during transmission, pin 28 (T5) of CPU outputs "L" level which is reverse by Q11 so that the output in Q128 will be "H" level, Q123 is ON, and the transmission circuit is supplied by 8 V.Or, in the case when the condition of PLL is UNLOCK, "L" level is outputted from pin 14 of IC116, UNLOCK switch Q148 is OFF,Q129is ON, transmission switch Q128 is OFF which makes the transmission to stop.

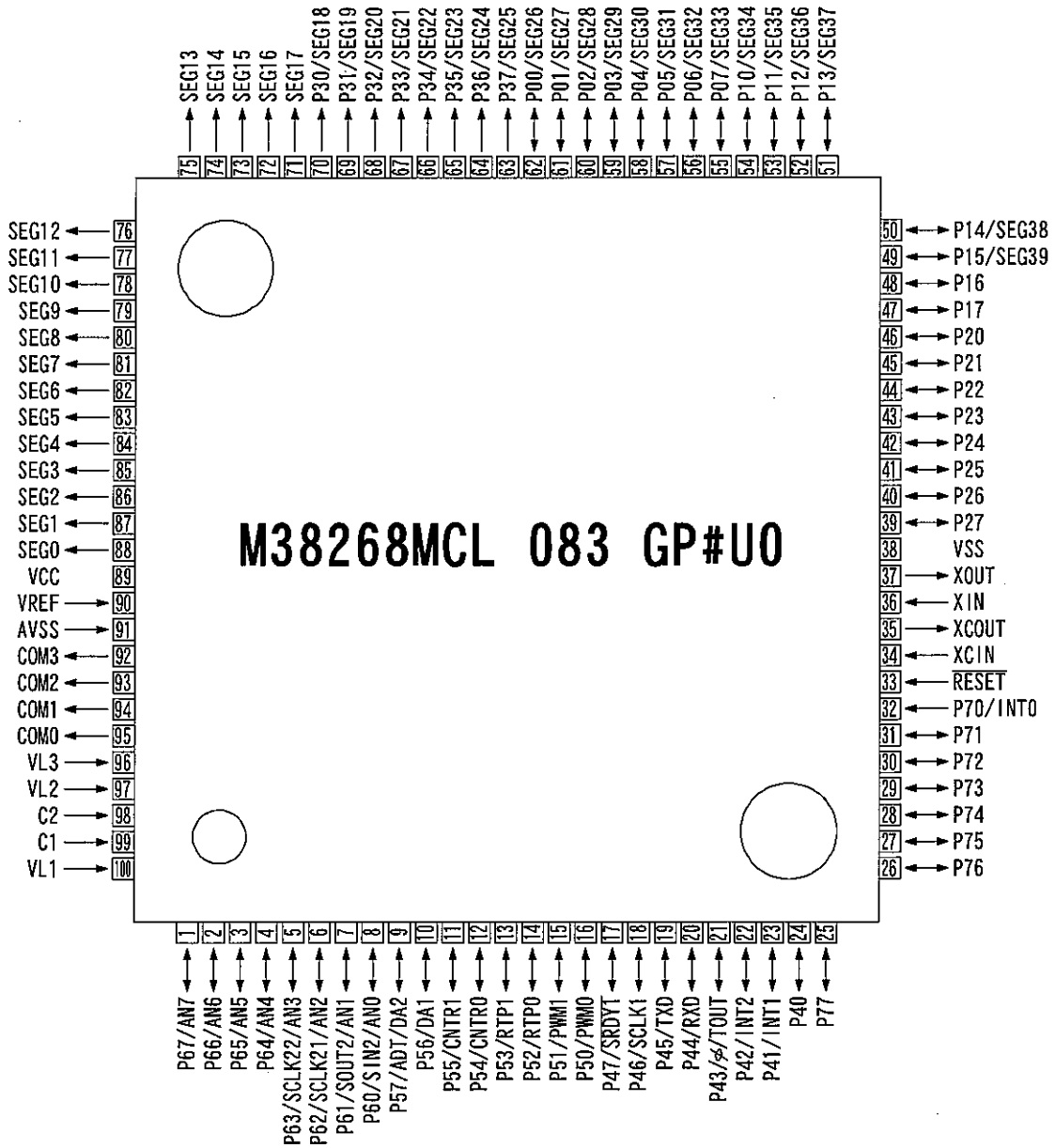
1. ACC External Power Supply Terminal

When optional power supply cord DEC-37 etc. is connected to the external power supply terminal JK101, with ACC power supply ON, switch Q101 will turn ON, 5 V of AVR IC101 pin 2 (STB) becomes "L" which makes C5V to turn ON. With this, it can turn the power supply of the radio ON.

6) M38268MCL083GP#U0 (XA1130A)

CPU

Terminal Connection
(TOP VIEW)



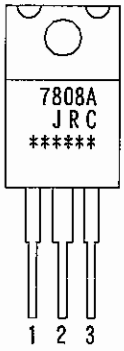
No.	Terminal	Signal	I/O	Description
1	P67/AN7	SMT	I	S-meter input
2	P66/AN6	SQL	I	Noise level input for squelch
3	P65/AN5	BAT	I	Battery voltage input
4	P64/AN4	TIN	I	CTCSS tone input / DCS code input
5	P63/SCLK22/AN3	BP1	I	Band plan 1
6	P62/SCLK21/AN2	BP2	I	Band plan 2
7	P61/SOUT2/AN1	DCSW	O	DCS signal mute
8	P60/SIN2/AN0	RE2	I	Rotary encoder input
9	P57/ADT/DA2	TOUT	O	CTCSS tone output / DCS tone output
10	P56/DA1	DOUT	O	DTMF output
11	P55/CNTR1	SCL	O	Serial clock for EEPROM
12	P54/CNTR0	TBST	O	Tone burst output
13	P53/RTP1	BP4	I/O	Band plan 4 / lamp dimmer HI / LOW switch
14	P52/RTP0	MUTE	I/O	Microphone mute / Security alarm SW
15	P51/PWM1	CLK	O	Serial clock output for PLL, scramble
16	P50/PWM0	DATA	I/O	Serial data output for PLL scramble / PLL unlock signal input
17	P47/SRDY1	TSTB	I/O	Trunking board detection / Strobe signal to trunking board
18	P46/SCLK1	STB	O	Strobe for PLL IC
19	P45/TXD	UTX	O	UART data transmission output
20	P44/RXD	RTX	I	UART data reception output
21	P43/□/TOUT	BEEP	I/O	Beep tone / Band plan 3
22	P42/INT2	SEC	I	Security voltage input
23	P41/INT1	RE1	I	Rotary encoder input
24	P40	DSQ	I	Digital squelch input
25	P77	PTT	I	PTT input
26	P76	SSTB	O	Strobe signal to scramble IC / Security mode
27	P75	W/N	O	Wide Narrow SW
28	P74	T5	O	TX power ON / OFF output
29	P73	R5	O	RX power ON / OFF output
30	P72	SQC	O	SQL ON / OFF
31	P71	C/S	O	Digital scramble ON / OFF
32	P70/INT0	BU	I	Backup signal detection input
33	RESET	RESET	I	Reset input
34	XCIN	Xcin	-	-
35	XCOUT	Xcout	-	-
36	XIN	Xin	-	Main clock input
37	XOUT	Xout	-	Main clock output
38	VSS	GND	-	CPU GND
39	P27	PSW	I	Power switch input
40	P26	SDA	O	Serial data for EEPROM
41	P25	C5C	O	C5V power ON / OFF output
42	P24	AIR	O	Air band SW / Tx middle power
43	P23	LOW	O	Tx low power
44	P22	EXP	O	Trunking / Packet data SW
45	P21	SW6	I	Key sw 6 (SQL)
46	P20	SW5	I	Key sw 5 (CALL)
47	P17	SW4	I	Key sw 4 (TSQ)
48	P16	SW3	I	Key sw 3 (MHz)
49	P15/SEG39	SW2	I	Key sw 2 (V/M)
50	P14/SEG38	SW1	I	Key sw 1 (FUNC)

No.	Terminal	Signal	I/O	Description
51	P13/SEG37	DOWN	I	Mic down input
52	P12/SEG36	DUD	I	Digital unit detect
53	P11/SEG35	SCR	I	Scramble IC ready signal / PTT input for 9600bps
54	P10/SEG34	UP	I	Mic up input
55	P07/SEG33	S33	O	LCD segment signal
56	P06/SEG32	S32	O	
57	P05/SEG31	S31	O	
58	P04/SEG30	S30	O	
59	P03/SEG29	S29	O	
60	P02/SEG28	S28	O	
61	P01/SEG27	S27	O	
62	P00/SEG26	S26	O	
63	P37/SEG25	S25	O	
64	P36/SEG24	S24	O	
65	P35/SEG23	S23	O	
66	P34/SEG22	S22	O	
67	P33/SEG21	S21	O	
68	P32/SEG20	S20	O	
69	P31/SEG19	S19	O	
70	P30/SEG18	S18	O	
71	SEG17	S17	O	
72	SEG16	S16	O	
73	SEG15	S15	O	
74	SEG14	S14	O	
75	SEG13	S13	O	
76	SEG12	S12	O	
77	SEG11	S11	O	
78	SEG10	S10	O	
79	SEG9	S9	O	
80	SEG8	S8	O	
81	SEG7	S7	O	
82	SEG6	S6	O	
83	SEG5	S5	O	
84	SEG4	S4	O	
85	SEG3	S3	O	
86	SEG2	S2	O	
87	SEG1	S1	O	
88	SEG0	S0	O	
89	VCC	VDD	-	CPU power terminal
90	VREF	Vref	-	AD converter power supply
91	AVSS	Avss	-	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	I	-	-
99	C1	C1	-	-
100	VL1	VL1	I	LCD power supply

SEMICONDUCTOR DATA

1) NJM7808FA (XA0102)

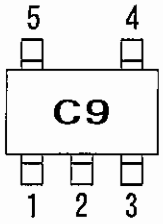
8V (1A) Voltage Regulator



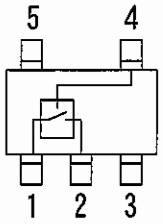
1. INPUT
2. COMMON
3. OUTPUT

2) TC4S66F (XA0115)

Bilateral Switch



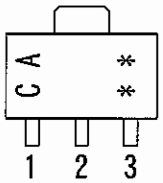
1. IN / OUT
2. OUT / IN
3. VSS
4. CONT
5. VDD



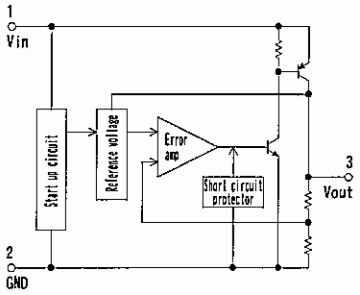
CONT	Function (IN-OUT)
L	Disconnect (Hi Z)
H	Connect (290ohm typ.)

3) AN8010M (XA0119)

10V (50mA) Voltage Regulator

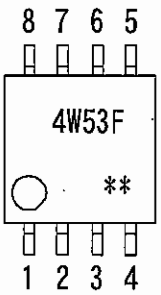


1. OUTPUT
2. COMMON
3. INPUT



4) TC4W53FU (XA0348)

Multiplexer / De-multiplexer



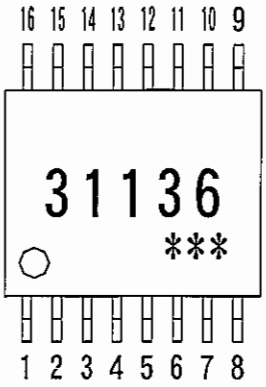
1. COMMON
2. INH
3. VEE
4. VSS
5. A
6. ch 1
7. ch 0
8. VDD

Controll input		ON channel
INH	A	
L	L	ch 0
L	H	ch 1
H	*	NONE

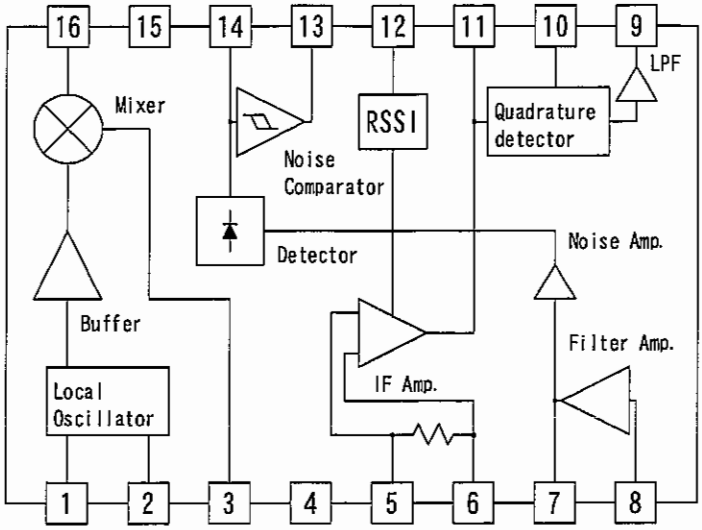
* Don't't care

5) TA31136FN (XA0404)

Narrow Band FM IF IC

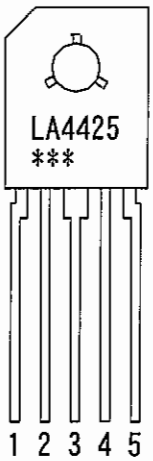


1. OSC IN
2. OSC OUT
3. MIX OUT
4. Vcc
5. IF IN
6. DEC
7. FIL OUT
8. FIL IN
9. AF OUT
10. QUAD
11. IF OUT
12. RSSI
13. N-DET
14. N-REC
15. GND
16. MIX IN



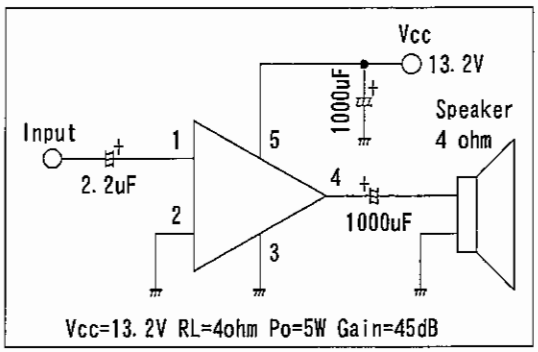
6) LA4425A (XA0410)

5W Audio Power Amplifier



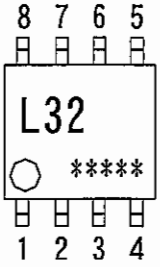
1. Input
2. Small signal GND
3. Large signal GND
4. Output
5. Vcc

Test Circuit



7) BR24L32FJ (XA0604Z)

32K-Bit EEPROM

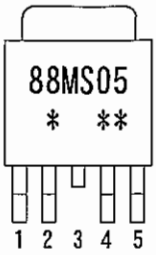


1. A0
2. A1
3. A2
4. Vss
5. SDA
6. SCL
7. WP
8. Vcc

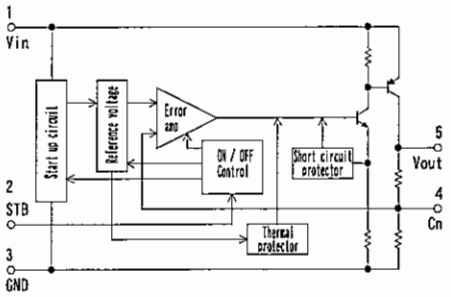
Name	Function
A0...A2	User Configurable Chip Select
Vss	Ground
SDA	Serial Address / Data / I/O
SCL	Serial Clock
WP	Write Protect Input
Vcc	+2.5 ~ 6.0V Power Supply

8) L88MS05TLL (XA0675)

5V (500mA) Voltage Regulator with On/Off Function



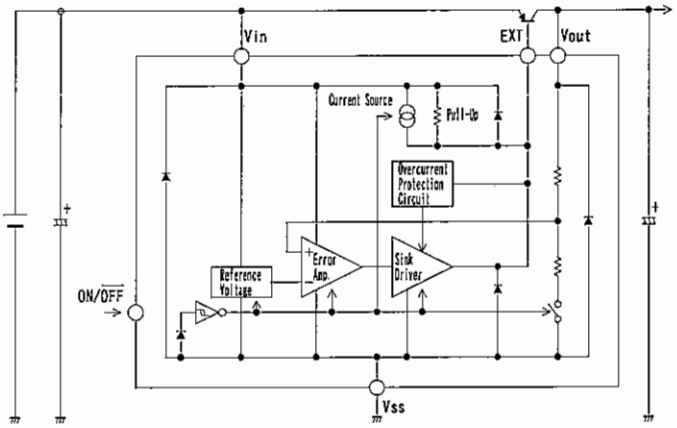
1. Vin
2. STB
3. GND
4. Cn
5. Vout



9) S-816A50AMC (XA0925)

External Transistor Type 5V Voltage Regulator with On/Off Function

1. EXT
2. Vss
3. ON/OFF
4. Vin
5. Vout



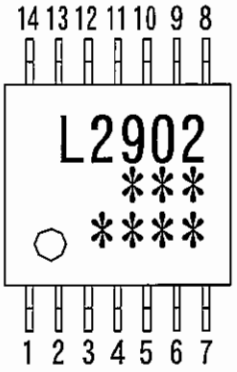
10) LM2904PWR (XA1103)

Dual Operational Amplifiers

1. Output A
2. Inverting Input A
3. Non-inverting Input A
4. GND
5. Non-inverting Input B
6. Inverting Input B
7. Output B
8. Vcc

11) LM2902PWR (XA1106)

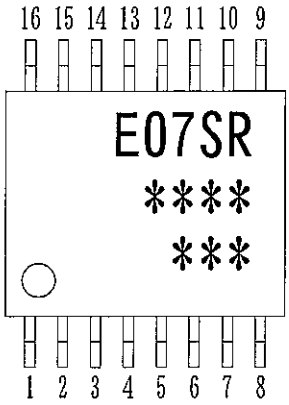
Quad Operational Amplifiers



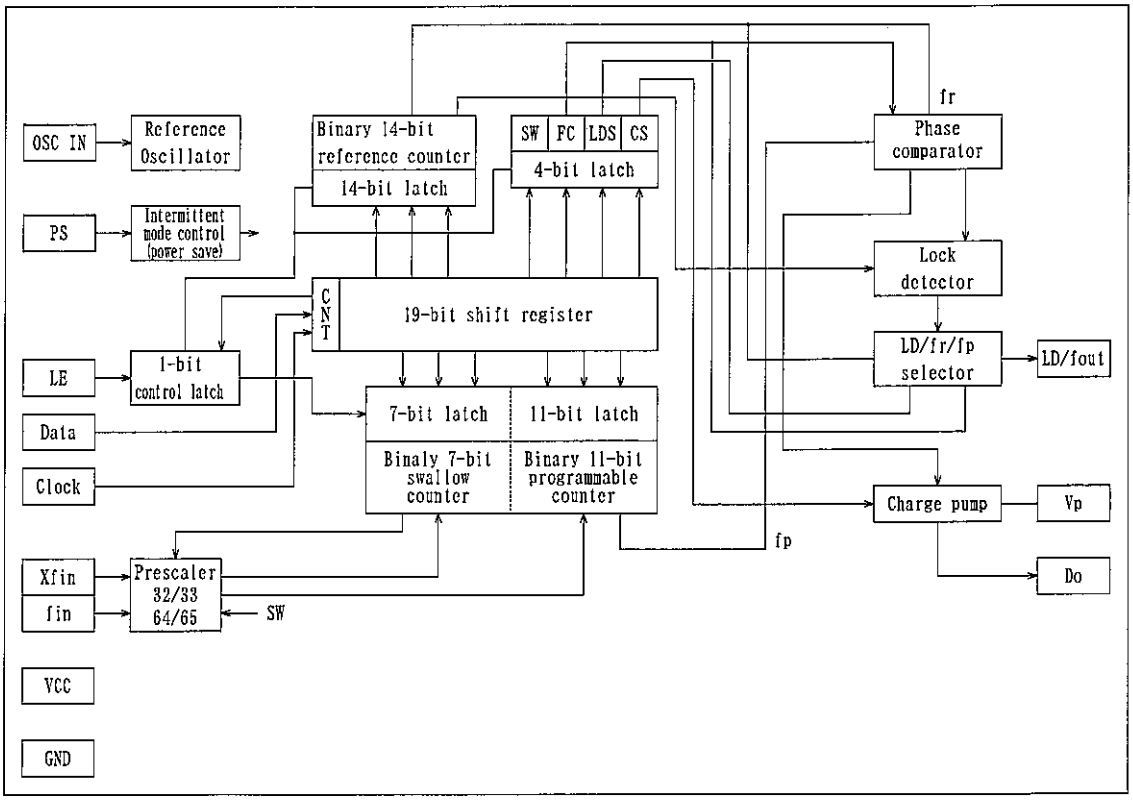
1. Output A
2. Inverting Input A
3. Non-inverting Input A
4. Vcc
5. Non-inverting Input B
6. Inverting Input B
7. Output B
8. Output C
9. Inverting Input C
10. Non-inverting Input C
11. GND
12. Non-inverting Input D
13. Inverting Input D
14. Output D

12) MB15E07SR (XA1107)

PLL Synthesizer



1. OSC IN
2. N. C.
3. Vp
4. Vcc
5. Do
6. GND
7. Xfin
8. fin
9. Clock
10. Data
11. LE
12. PS
13. N. C.
14. LD / fout
15. N. C.
16. N. C.

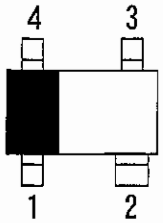


(Vcc = 2.7 to 5.0V, Ta = -40°C to +85oC)

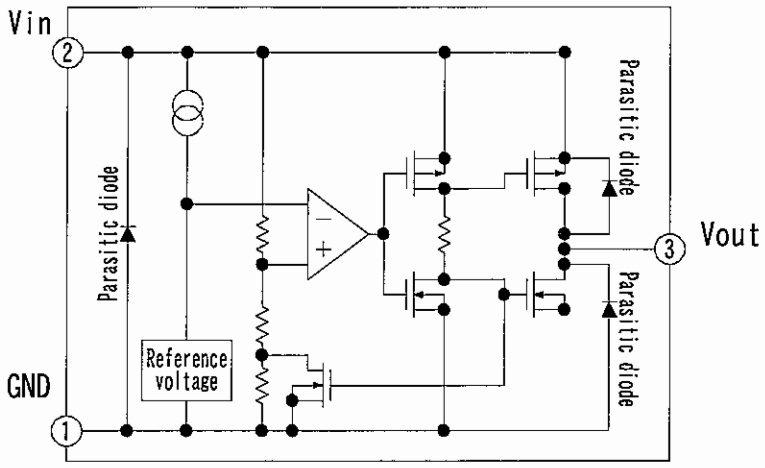
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply voltage	Vcc	-	2.7	3.75	5.0	V
Power supply current	Icc	2500MHz Vcc=Vp=3.75V		8.0		mA
LPF supply voltage	Vp	-	Vcc	-	5.5	V
Local oscillator input level	Vfin	100MHz to 300MHz 300MHz to 2500MHz	-6 -15		+2 +2	dBm
Local oscillator input frequency	fin	-	100		2500	MHz
Xin input level	Vxin	-	0.5		Vcc	Vp-p
Xin input frequency	Fxin	-	3		40	MHz

13) S-80845CLNB (XA1120)

4.5V Voltage Detector

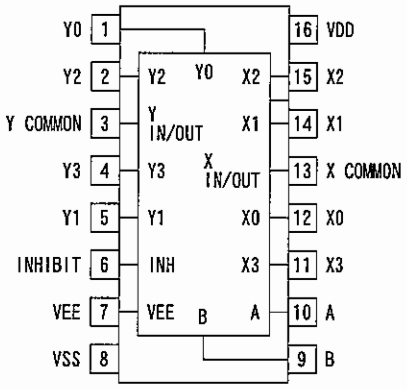


1. Vout
2. Vin
3. NC
4. GND



14) BU4052BFV (XA1229)

Analog Multiplexer / De-multiplexer

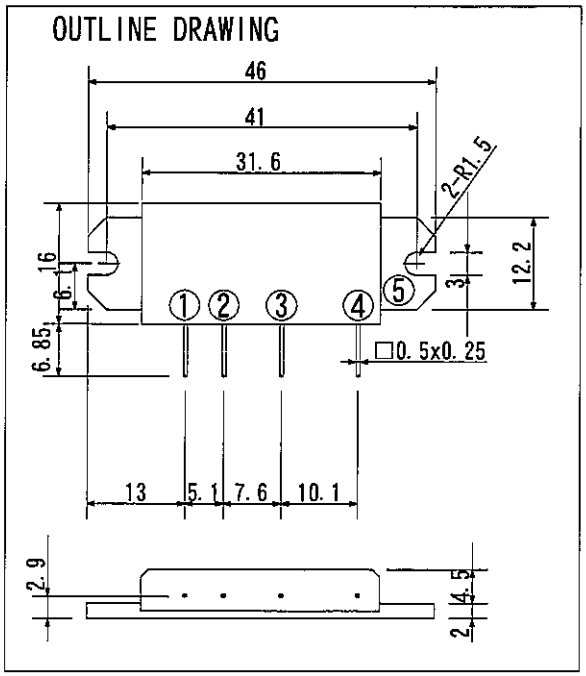


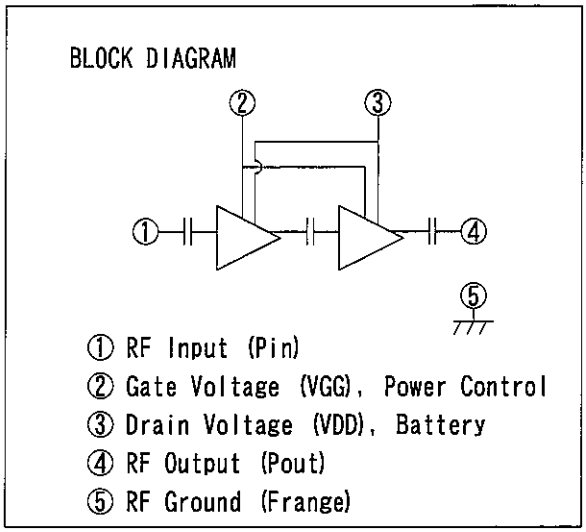
INHIBIT	A	B	COMMON	ON SWITCH
L	L	L	X Y	X0 Y0
L	H	L		X1 Y1
L	L	H		X2 Y2
L	H	H		X3 Y3
H	*	*		NONE

* Don't care

15) S-AV40 (XA1230)

222 ~ 225MHz 30W RF Power Module





ABSOLUTE MAXIMUM RATING (Tc = 25 °C, unless otherwise noted)

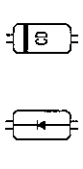
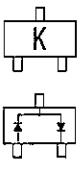
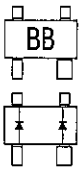
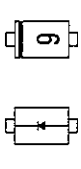
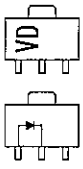
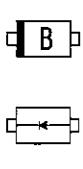
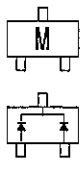
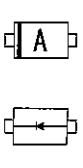
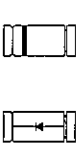
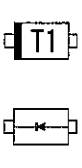
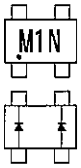
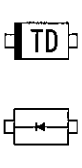
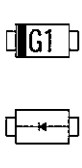
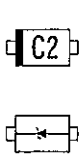
Symbol	Parameter	Conditions	Ratings	Unit
VDD	Drain Voltage	VGG < 5V, Pi = 50mW, Po < 30W	17	V
VGG	Gate Voltage	VDD < 12.5V, Pin=50mW	6	V
IDD	Drain Current		8	A
Pin	Input Power	12.5V < VDD < 16.5V, VGG = 5V, Pi = 50mW	100	mW
Pout	Output Power		30	W
Tcase (OP)	Operation Case Temperature		-30 to +100	°C
Tstg	Storage Temprature		-40 to +110	°C

ELECTRICAL CHARACTERISTICS (Tc = 25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings			Unit
			Min	Typ	Max	
f	Frequency Range	VDD = 12.5V VGG = 5V Pin = 50mW	220		246	MHz
Pout	Output Power		30			W
η T	Total Efficiency		40			%
2fo	2nd Harmonic				-25	dBc
Pin	Input VSWR				3.0	-
IGG	Gate Current			1		mA
-	Stability	VDD=10.5-16.5V, VGG=0-5V, Pin=50mW, Pout<30W (VGG control), Load VSWR=3:1 ALL PHASE	All sprious output than 60dB bellow desired signal			-
-	Load VSWR Tolerance	VDD=15.0V, Pin=50mW, Pout=30W (VGG control), Load VSWR=10:1 ALL PHASE	No degradation			

16) Transistor, Diode and LED Outline Drawing

Top View

M1407	DA204U	1SV237	RN731V	1SV268	MA2S728	DAN235E
XD0013	XD0130	XD0141	XD0257	XD0301	XD0315	XD0320
						
MA2S111	RLS-73	1SV278	MA4S713	1SV282	CRG01	UDZS5.6B
XD0323	XD0363	XD0374	XD0375	XD0376	XD0391	XD0395
						
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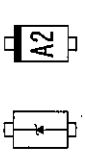
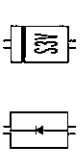
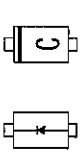
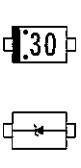
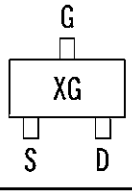
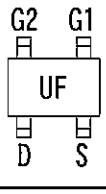
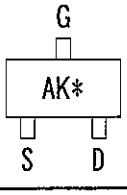
XD0402	XD0414	XD0418	XD0451	XE0021	XE0053	XE0066
						
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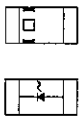	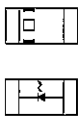	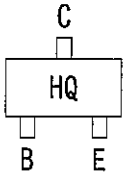	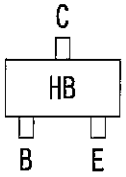	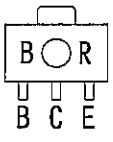	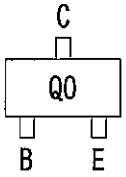	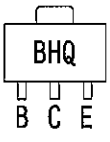
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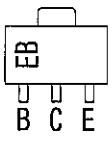
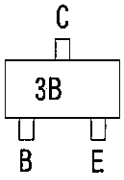
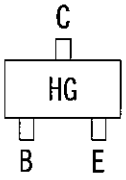
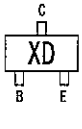
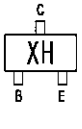
XT0194	XT0208	XT0210	XU0178	XU0195	XU0209	XU0210
			Rb=10kohm Rbe=none	 Rb=47kohm Rbe=47kohm	Rb=4.7kohm Rbe=none	 Rb=10kohm Rbe=47kohm
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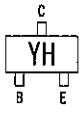
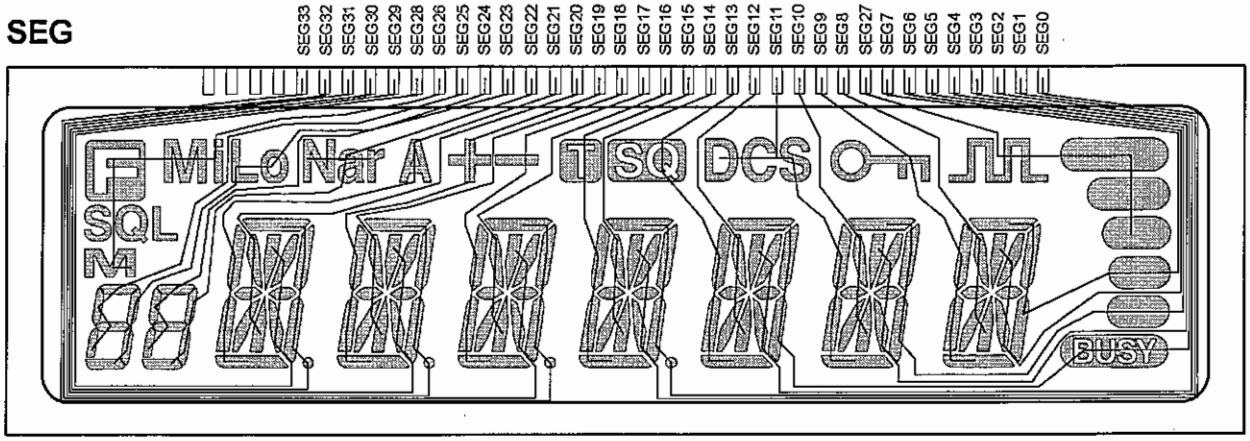
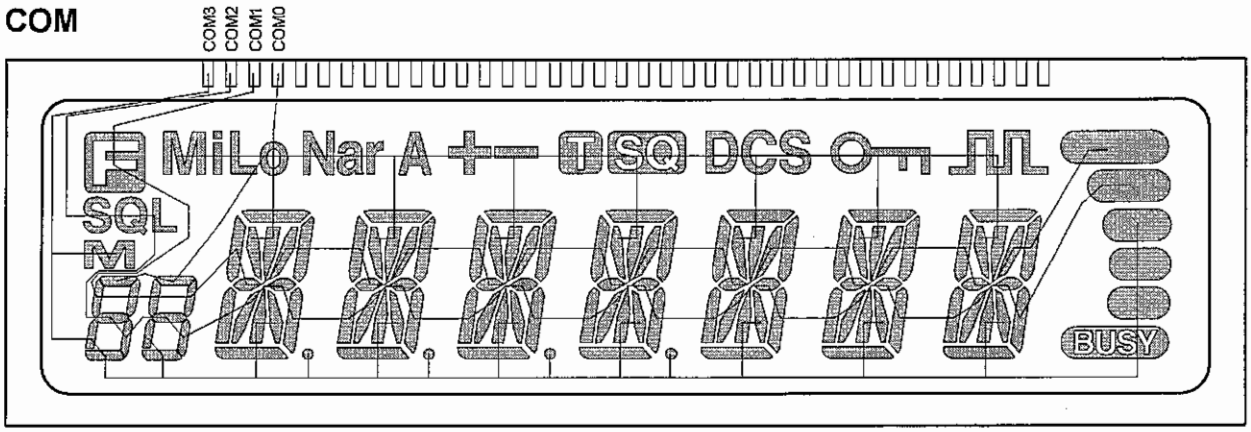
XU0211						
 Rb=10kohm Rbe=47kohm						

17) LCD Connection (TTR3626UPFDHN)

SEG

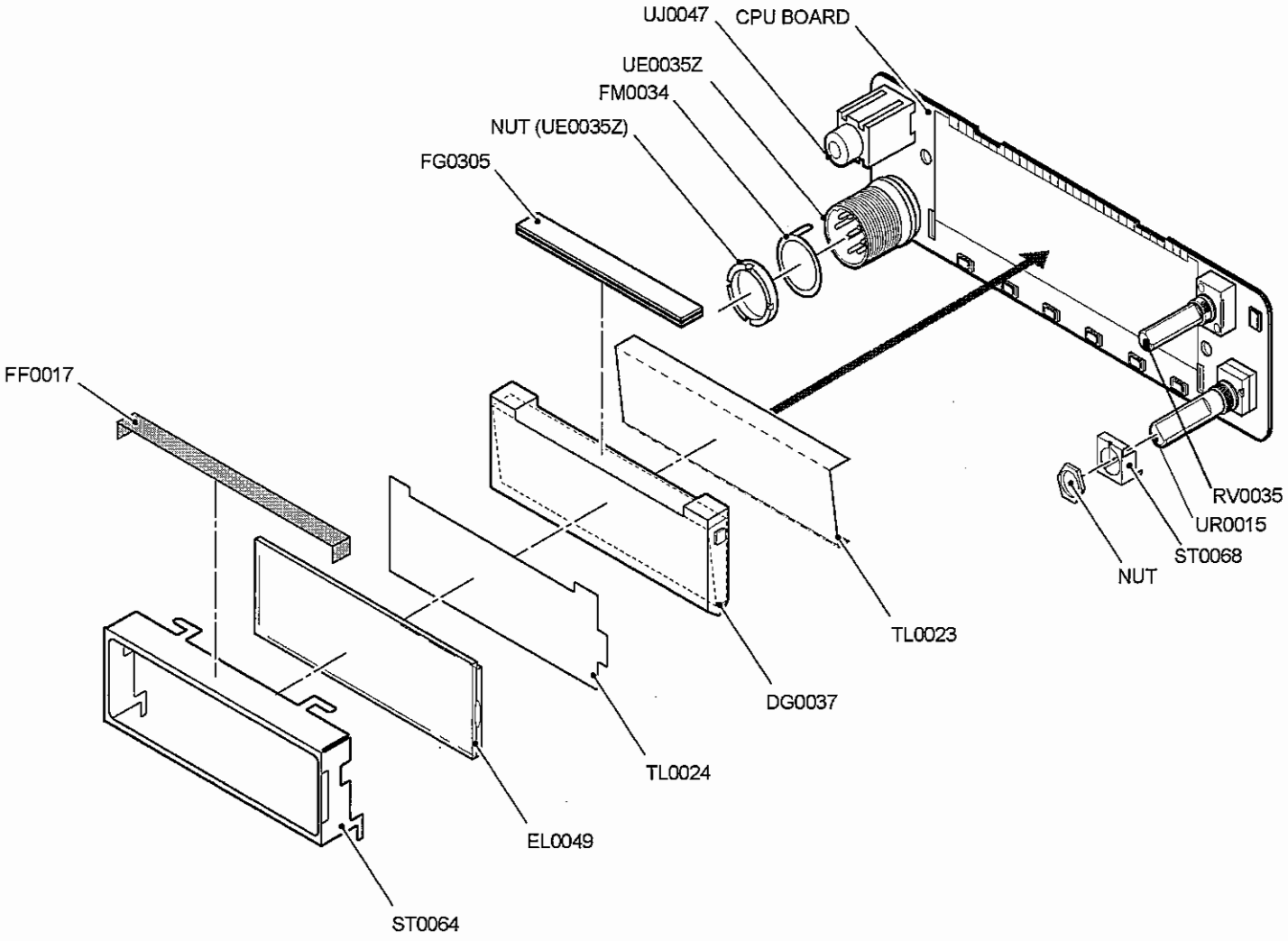


COM

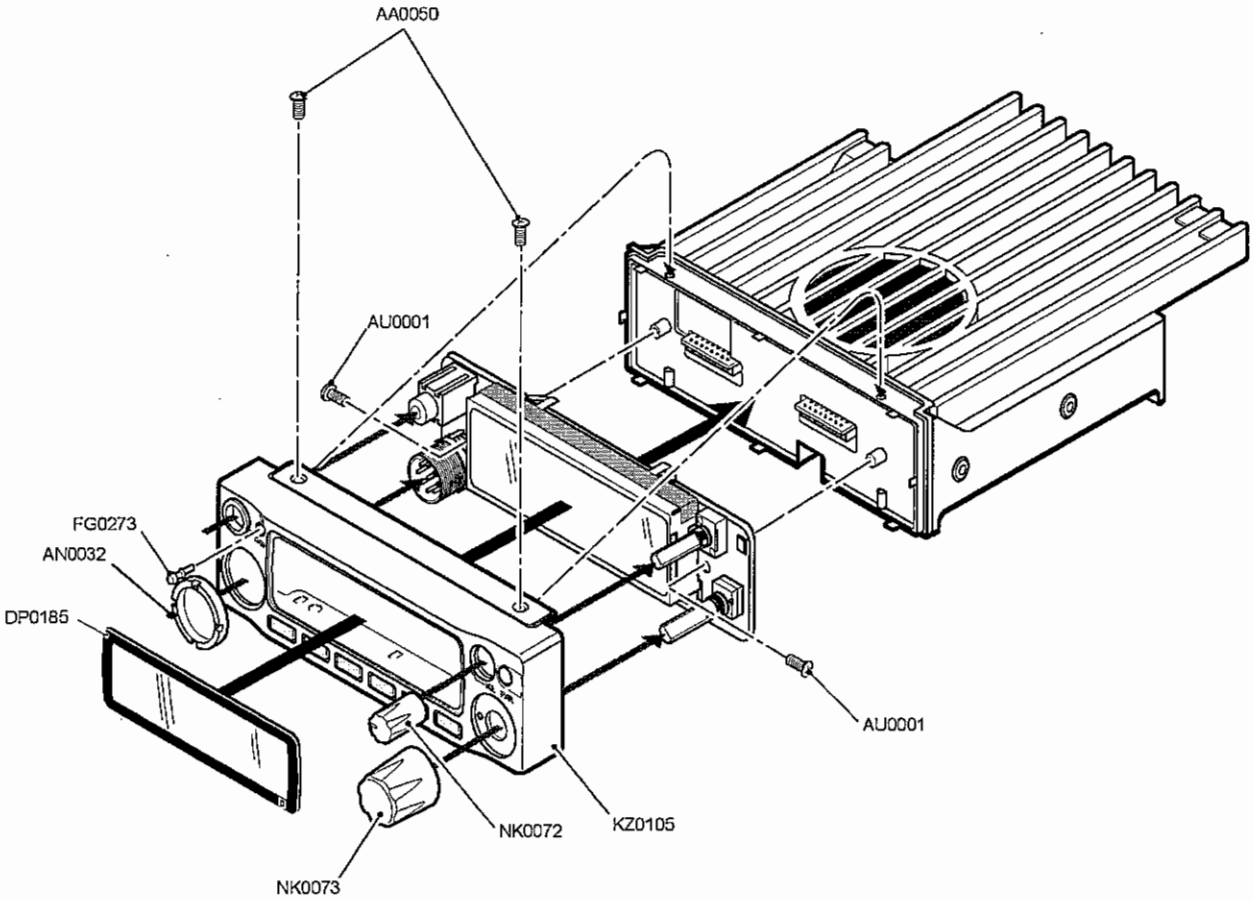


EXPLODED VIEW

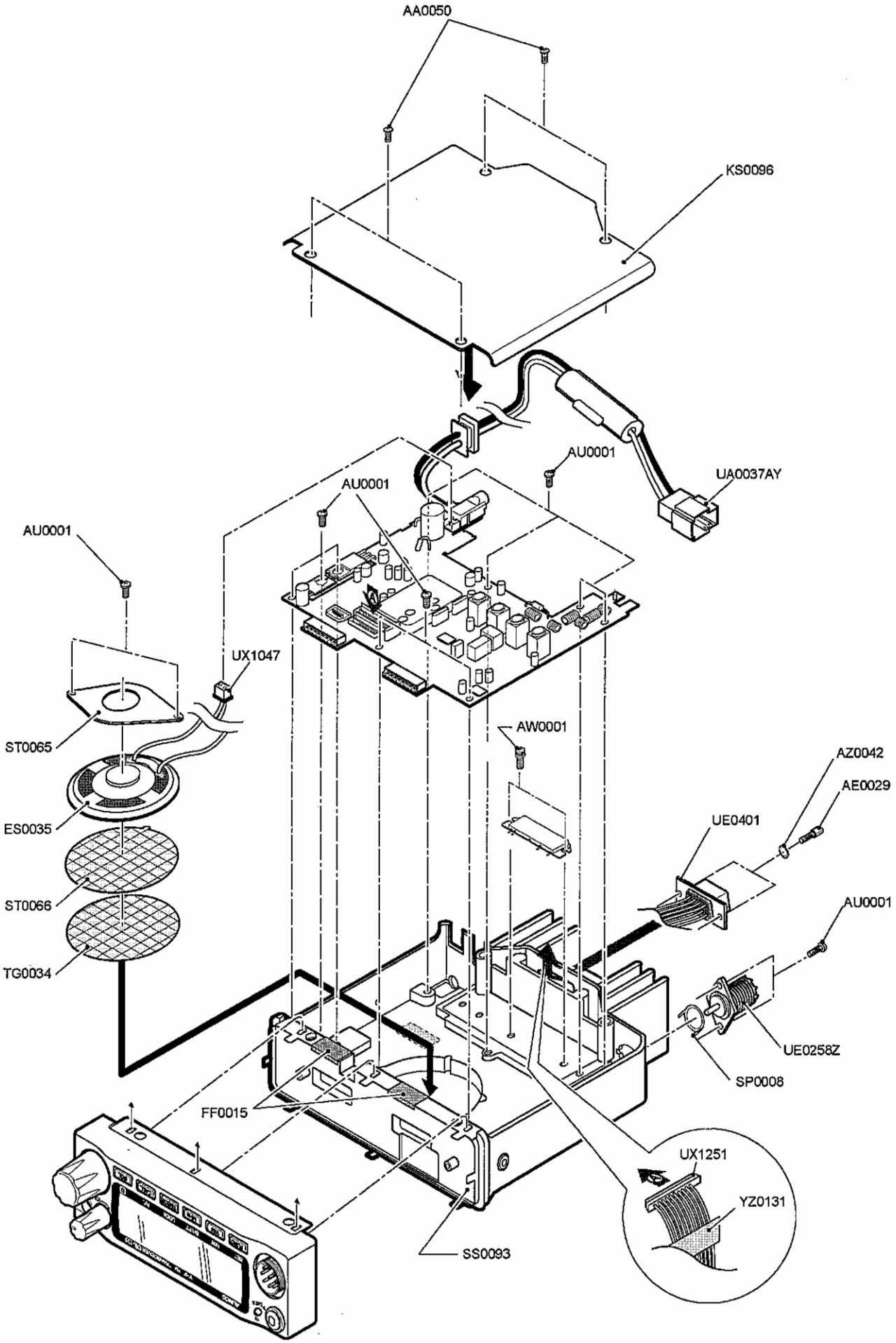
1) LCD Assembly



2) Top and Front View



3) Bottom View



PARTS LIST

CPU Unit

Ref No.	Part No.	Description	Parts Name	Qty.
C1	CU3554	Chip C.	GRM155B11A104KA01D	1
C2	CU3554	Chip C.	GRM155B11A104KA01D	1
C3	CU3549	Chip C.	GRM155B11C153KA01D	1
C4	CU3549	Chip C.	GRM155B11C153KA01D	1
C5	CU3554	Chip C.	GRM155B11A104KA01D	1
C6	CU3523	Chip C.	GRM1552C1H101JD01D	1
C7	CU3523	Chip C.	GRM1552C1H101JD01D	1
C8	CU3543	Chip C.	GRM155B11E472KA01D	1
C9	CU3554	Chip C.	GRM155B11A104KA01D	1
C10	CU3543	Chip C.	GRM155B11E472KA01D	1
C11	CU3543	Chip C.	GRM155B11E472KA01D	1
C12	CU3553	Chip C.	GRM155B11A473KA01D	1
C13	CS0049	Chip tantalum	TMCSA1C105MTRF	1
C14	CU3514	Chip C.	GRM1552C1H180JZ01D	1
C15	CU3514	Chip C.	GRM1552C1H180JZ01D	1
C16	CU3535	Chip C.	GRM155B11H102KA01D	1
C17	CS0424	Chip tantalum	TMCMA1C106MTRF	1
C18	CU3535	Chip C.	GRM155B11H102KA01D	1
C19	CU3554	Chip C.	GRM155B11A104KA01D	1
C20	CU3547	Chip C.	GRM155B11C103KA01D	1
C21	CU3547	Chip C.	GRM155B11C103KA01D	1
C22	CU3535	Chip C.	GRM155B11H102KA01D	1
C23	CU3547	Chip C.	GRM155B11C103KA01D	1
C24	CU3535	Chip C.	GRM155B11H102KA01D	1
C25	CU3535	Chip C.	GRM155B11H102KA01D	1
C26	CU3535	Chip C.	GRM155B11H102KA01D	1
C27	CU3535	Chip C.	GRM155B11H102KA01D	1
C28	CS0439	Chip tantalum	TMCMA0J476MTRF	1
C29	CS0049	Chip tantalum	TMCSA1C105MTRF	1
C30	CS0424	Chip tantalum	TMCMA1C106MTRF	1
C31	CU3547	Chip C.	GRM155B11C103KA01D	1
C32	CU3547	Chip C.	GRM155B11C103KA01D	1
CN1	UE0291	Connector	17R-JE(LF)(SN)	1
CN2	UE0291	Connector	17R-JE(LF)(SN)	1
CN3	UE0035Z	Mic Connector	MIC FM214-8SMPY(Z)	1
D1	XL0069	Chip LED	FA1111C-TR	1
D2	XL0077	Chip LED	FA1111C-732-TR	1
D3	XL0077	Chip LED	FA1111C-732-TR	1
D4	XL0069	Chip LED	FA1111C-TR	1
D5	XL0077	Chip LED	FA1111C-732-TR	1
D6	XL0077	Chip LED	FA1111C-732-TR	1
D8	XD0323	Chip Diode	MA2S11100L	1
D9	XD0418	Chip Diode	RB521S-30TE61	1
D10	XD0391	Chip Diode	CRG01(TE85L,Q)	1
D11	XL0077	Chip LED	FA1111C-732-TR	1
D12	XD0402	Chip Diode	VDZT2R 5.1B	1
D13	XD0402	Chip Diode	VDZT2R 5.1B	1
D14	XD0418	Chip Diode	RB521S-30TE61	1
D15	XD0402	Chip Diode	VDZT2R 5.1B	1
D16	XD0418	Chip Diode	RB521S-30TE61	1
D17	XD0418	Chip Diode	RB521S-30TE61	1
D19	XD0363	Chip Diode	RLS-73TE-11	1
IC1	XA1130A	IC	M38268MCA-083GP#U0	1
IC2	XA0604Z	IC	BR24L32FJ-WE2	1
IC4	XA1120	IC	S80845CLNB-B66-T2G	1
IC5	XA0675	IC	L88MS05TL-TL-E	1
JK1	UJ0047	Jack	HSJ2013-01-120	1
JP3	MACL04GG	Wire	#30AH1-040-H1	1
LCD1	EL0049	LCD	TTR3626 UPTDHN	1
Q1	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q2	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q3	XT0110	Chip Transistor	2SA1036K T146Q	1
Q4	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q5	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q6	XT0210	Chip Transistor	2SC6026MFV-GR(TPL3)	1
Q7	XT0170	Chip Transistor	2SB0766ARL	1
Q8	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q9	XU0195	Chip Transistor	RN1104(TE85L,F)	1
Q10	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q11	XU0211	Chip Transistor	RN2107MFV(TPL3)	1
Q12	XU0211	Chip Transistor	RN2107MFV(TPL3)	1
Q13	XU0211	Chip Transistor	RN2107MFV(TPL3)	1
R1	RK3554	Chip R.	ERJ2GEJ223X	1
R2	RK3501	Chip R.	ERJ2GE0R00X	1
R4	RK3554	Chip R.	ERJ2GEJ223X	1
R5	RK3550	Chip R.	ERJ2GEJ103X	1
R6	RK3550	Chip R.	ERJ2GEJ103X	1
R7	RK0025	Chip R.	ERJ6GEYJ331V	1
R8	RK0025	Chip R.	ERJ6GEYJ331V	1
R9	RK3538	Chip R.	ERJ2GEJ102X	1
R10	RK3032	Chip R.	MCR03EZPJ331	1
R11	RK3546	Chip R.	ERJ2GEJ472X	1
R14	RK3548	Chip R.	ERJ2GEJ682X	1
R16	RK3001	Chip R.	MCR03EZPJ000	1
R19	RK3562	Chip R.	ERJ2GEJ104X	1
R20	RK3542	Chip R.	ERJ2GEJ222X	1
R21	RK3030	Chip R.	MCR03EZPJ221	1

Ref No.	Part No.	Description	Parts Name	Qty.
R22	RK3538	Chip R.	ERJ2GEJ102X	1
R25	RK3550	Chip R.	ERJ2GEJ103X	1
R26	RK3550	Chip R.	ERJ2GEJ103X	1
R27	RK3550	Chip R.	ERJ2GEJ103X	1
R28	RK3538	Chip R.	ERJ2GEJ102X	1
R29	RK3538	Chip R.	ERJ2GEJ102X	1
R30	RK3538	Chip R.	ERJ2GEJ102X	1
R31	RK3538	Chip R.	ERJ2GEJ102X	1
R32	RK3544	Chip R.	ERJ2GEJ332X	1
R33	RK3534	Chip R.	ERJ2GEJ471X	1
R34	RK3547	Chip R.	ERJ2GEJ562X	1
R35	RK3552	Chip R.	ERJ2GEJ153X	1
R36	RK3562	Chip R.	ERJ2GEJ104X	1
R37	RK3549	Chip R.	ERJ2GEJ822X	1
R38	RK3551	Chip R.	ERJ2GEJ123X	1
R39	RK3558	Chip R.	ERJ2GEJ473X	1
R40	RK3562	Chip R.	ERJ2GEJ104X	1
R41	RK3526	Chip R.	ERJ2GEJ101X	1
R42	RK3550	Chip R.	ERJ2GEJ103X	1
R43	RK3550	Chip R.	ERJ2GEJ103X	1
R44	RK3026	Chip R.	MCR03EZPJ101	1
R45	RK3550	Chip R.	ERJ2GEJ103X	1
R47	RK3538	Chip R.	ERJ2GEJ102X	1
R48	RK3538	Chip R.	ERJ2GEJ102X	1
R49	RK3538	Chip R.	ERJ2GEJ102X	1
R50	RK3570	Chip R.	ERJ2GEJ474X	1
R51	RK3538	Chip R.	ERJ2GEJ102X	1
R52	RK3538	Chip R.	ERJ2GEJ102X	1
R53	RK3562	Chip R.	ERJ2GEJ104X	1
R54	RK3550	Chip R.	ERJ2GEJ103X	1
R55	RK3574	Chip R.	ERJ2GEJ105X	1
R56	RK3550	Chip R.	ERJ2GEJ103X	1
R57	RK3566	Chip R.	ERJ2GEJ224X	1
R58	RK3534	Chip R.	ERJ2GEJ471X	1
R59	RK3526	Chip R.	ERJ2GEJ101X	1
R60	RK3034	Chip R.	MCR03EZPJ471	1
R61	RK3574	Chip R.	ERJ2GEJ105X	1
R62	RK3550	Chip R.	ERJ2GEJ103X	1
R63	RK3526	Chip R.	ERJ2GEJ101X	1
R64	RK3549	Chip R.	ERJ2GEJ822X	1
R65	RK3526	Chip R.	ERJ2GEJ101X	1
R66	RK3550	Chip R.	ERJ2GEJ103X	1
R67	RK3526	Chip R.	ERJ2GEJ101X	1
R68	RK3550	Chip R.	ERJ2GEJ103X	1
R69	RK3542	Chip R.	ERJ2GEJ222X	1
R70	RK3562	Chip R.	ERJ2GEJ104X	1
R71	RK3574	Chip R.	ERJ2GEJ105X	1
R72	RK3550	Chip R.	ERJ2GEJ103X	1
R73	RK3032	Chip R.	MCR03EZPJ331	1
R74	RK3526	Chip R.	ERJ2GEJ101X	1
R75	RK3546	Chip R.	ERJ2GEJ472X	1
R76	RK3532	Chip R.	ERJ2GEJ331X	1
R77	RK0025	Chip R.	ERJ6GEYJ331V	1
R79	RK3538	Chip R.	ERJ2GEJ102X	1
R80	RK3538	Chip R.	ERJ2GEJ102X	1
R82	RK3550	Chip R.	ERJ2GEJ103X	1
R83	RK3538	Chip R.	ERJ2GEJ102X	1
R84	RK0018Z	Chip R.	RK73B2ATTD 101J	1
R85	RK3546	Chip R.	ERJ2GEJ472X	1
R86	RK3550	Chip R.	ERJ2GEJ103X	1
R87	RK3554	Chip R.	ERJ2GEJ223X	1
R88	RK3550	Chip R.	ERJ2GEJ103X	1
R89	RK3558	Chip R.	ERJ2GEJ473X	1
R90	RK3558	Chip R.	ERJ2GEJ473X	1
R91	RK3550	Chip R.	ERJ2GEJ103X	1
R92	RK1025	Chip R.	ERJ8GEYJ331V	1
R95	RK3562	Chip R.	ERJ2GEJ104X	1
R96	RK4014	Chip R.	ERJ12YJ100U	1
R97	RK3550	Chip R.	ERJ2GEJ103X	1
R98	RK0025	Chip R.	ERJ6GEYJ331V	1
R99	RK0025	Chip R.	ERJ6GEYJ331V	1
RE1	UR0015	Dial	RH90N74E20 20FRY5630	1
RL1	UL0020	Relay	ATQ209	1
SW1	UU0042	Switch	SKQYAAE010	1
SW2	UU0042	Switch	SKQYAAE010	1
SW3	UU0042	Switch	SKQYAAE010	1
SW4	UU0042	Switch	SKQYAAE010	1
SW5	UU0042	Switch	SKQYAAE010	1
SW6	UU0042	Switch	SKQYAAE010	1
SW7	UU0042	Switch	SKQYAAE010	1
VR1	RV0035	Variable R.	EVUF2JFK4B14	1
W1	UX1270	Wire	WIRE DR235 W1	1
X1	XQ0131	Xtal	CSA310 3.6864MHZ	1
	DG0037		LCD LIGHT DR135	1
	FF0017	Cloth	BLIND CLOTH DR570	1
	FG0305		LCD RUB.CONNECT. 135	1
	FM0034		MIC GND PLATE	1

Ref No.	Part No.	Description	Parts Name	Qty.
	FP0034		MIC SPACER DR110	1
	FP0234		MIC SPACER A DR135	1
	ST0064		LCD HOLDER DR135	1
	ST0068		DIAL FITTING DR135	1
	TL0023		REFLECTION DR135	1
	TL0024		DIFFUSION SHEET 135	1

MAIN Unit

Ref No.	Part No.	Description	Parts Name	Qty.
C101	CU3047	Chip C.	C1608JB1H103KT-NS	1
C102	CU3547	Chip C.	GRM155B11C103KA01D	1
C103	CS0406Z	Chip tantalum	TAJA105M035Y	1
C104	CU3047	Chip C.	C1608JB1H103KT-NS	1
C105	CS0439	Chip tantalum	TMCMA0J476MTRF	1
C107	CU3554	Chip C.	GRM155B11A104KA01D	1
C108	CU3547	Chip C.	GRM155B11C103KA01D	1
C109	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C110	CU3547	Chip C.	GRM155B11C103KA01D	1
C111	CU3554	Chip C.	GRM155B11A104KA01D	1
C112	CU3554	Chip C.	GRM155B11A104KA01D	1
C113	CU3047	Chip C.	C1608JB1H103KT-NS	1
C114	CU3547	Chip C.	GRM155B11C103KA01D	1
C116	CU3019	Chip C.	C1608CH1H470JT-NS	1
C117	CU3547	Chip C.	GRM155B11C103KA01D	1
C120	CU3522	Chip C.	GRM1552C1H820JD01D	1
C121	CU3505	Chip C.	GRM1552C1H4R0CZ01D	1
C122	CU3502	Chip C.	GRM1554C1H1R0CZ01D	1
C123	CU3513	Chip C.	GRM1552C1H150JZ01D	1
C130	CU0108	Chip C.	LMK212BJ105KG-T	1
C131	CU3535	Chip C.	GRM155B11H102KA01D	1
C132	CU3535	Chip C.	GRM155B11H102KA01D	1
C133	CU3503	Chip C.	GRM1554C1H2R0CZ01D	1
C135	CU3547	Chip C.	GRM155B11C103KA01D	1
C136	CU3011	Chip C.	C1608CH1H100DT-NS	1
C137	CU3515	Chip C.	GRM1552C1H220JZ01D	1
C139	CU3515	Chip C.	GRM1552C1H220JZ01D	1
C140	CU3515	Chip C.	GRM1552C1H220JZ01D	1
C141	CU3535	Chip C.	GRM155B11H102KA01D	1
C142	CU3547	Chip C.	GRM155B11C103KA01D	1
C143	CU3554	Chip C.	GRM155B11A104KA01D	1
C144	CU3505	Chip C.	GRM1552C1H4R0CZ01D	1
C145	CU3503	Chip C.	GRM1554C1H2R0CZ01D	1
C146	CE0364	Electrolytic C.	16ME47SWB+TS	1
C148	CU3515	Chip C.	GRM1552C1H220JZ01D	1
C149	CU3515	Chip C.	GRM1552C1H220JZ01D	1
C150	CU3502	Chip C.	GRM1554C1H1R0CZ01D	1
C151	CU3547	Chip C.	GRM155B11C103KA01D	1
C152	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C153	CU3535	Chip C.	GRM155B11H102KA01D	1
C154	CU3535	Chip C.	GRM155B11H102KA01D	1
C155	CU3512	Chip C.	GRM1552C1H120JZ01D	1
C157	CU3535	Chip C.	GRM155B11H102KA01D	1
C158	CU3513	Chip C.	GRM1552C1H150JZ01D	1
C159	CU3518	Chip C.	GRM1552C1H390JZ01D	1
C160	CU0108	Chip C.	LMK212BJ105KG-T	1
C161	CU3554	Chip C.	GRM155B11A104KA01D	1
C163	CU3535	Chip C.	GRM155B11H102KA01D	1
C164	CU3535	Chip C.	GRM155B11H102KA01D	1
C165	CU3559	Chip C.	GRM155B30J105KE18D	1
C166	CE0420	Electrolytic C.	16MV22SZ	1
C169	CU3527	Chip C.	GRM1552C1E221JD01D	1
C170	CU3554	Chip C.	GRM155B11A104KA01D	1
C173	CU3535	Chip C.	GRM155B11H102KA01D	1
C174	CU3527	Chip C.	GRM1552C1E221JD01D	1
C175	CU3535	Chip C.	GRM155B11H102KA01D	1
C176	CU3502	Chip C.	GRM1554C1H1R0CZ01D	1
C177	CU3515	Chip C.	GRM1552C1H220JZ01D	1
C178	CU3554	Chip C.	GRM155B11A104KA01D	1
C179	CU3554	Chip C.	GRM155B11A104KA01D	1
C180	CU3535	Chip C.	GRM155B11H102KA01D	1
C181	CU3503	Chip C.	GRM1554C1H2R0CZ01D	1
C182	CU3547	Chip C.	GRM155B11C103KA01D	1
C183	CU3035	Chip C.	C1608JB1H102KT-NS	1
C184	CU3035	Chip C.	C1608JB1H102KT-NS	1
C185	CS0232	Chip tantalum	TMCMA1V474MTRF	1
C186	CU3508	Chip C.	GRM1552C1H7R0DZ01D	1
C187	CU3535	Chip C.	GRM155B11H102KA01D	1
C188	CU3535	Chip C.	GRM155B11H102KA01D	1
C189	CU3011	Chip C.	C1608CH1H100DT-NS	1
C190	CU3547	Chip C.	GRM155B11C103KA01D	1
C191	CU3552	Chip C.	GRM155B11A333KA01D	1
C193	CU4033	Chip C.	GRM31BR72J102KW01L	1
C194	CU3008	Chip C.	LMK212BJ105KG-T	1
C195	CU3010	Chip C.	C1608CH1H090DT-NS	1
C196	CU3507	Chip C.	GRM1552C1H6R0DZ01D	1
C199	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C200	CU3035	Chip C.	C1608JB1H102KT-NS	1
C201	CU4013	Chip C.	GRM31M2C2H150JV01L	1
C202	CU4013	Chip C.	GRM31M2C2H150JV01L	1
C203	CU4013	Chip C.	GRM31M2C2H150JV01L	1
C204	CU4008	Chip C.	GRM31M2C2H7R0DV01L	1
C205	CU3035	Chip C.	C1608JB1H102KT-NS	1
C206	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C207	CU3002	Chip C.	C1608CH1H010CT-NS	1
C208	CU3002	Chip C.	C1608CH1H010CT-NS	1
C209	CU3035	Chip C.	C1608JB1H102KT-NS	1
C210	CU3008	Chip C.	LMK212BJ105KG-T	1
C211	CU3008	Chip C.	LMK212BJ105KG-T	1
C212	CE0364	Electrolytic C.	16ME47SWB+TS	1
C213	CU3035	Chip C.	C1608JB1H102KT-NS	1
C215	CU4013	Chip C.	GRM31M2C2H150JV01L	1
C216	CU4013	Chip C.	GRM31M2C2H150JV01L	1
C217	CU3551	Chip C.	GRM155B11C223KA01D	1
C218	CU3551	Chip C.	GRM155B11C223KA01D	1
C219	CU3035	Chip C.	C1608JB1H102KT-NS	1
C220	CU3035	Chip C.	C1608JB1H102KT-NS	1
C221	CU3547	Chip C.	GRM155B11C103KA01D	1
C222	CU3535	Chip C.	GRM155B11H102KA01D	1
C223	CE0364	Electrolytic C.	16ME47SWB+TS	1
C224	CU3023	Chip C.	C1608CH1H101JT-NS	1
C225	CU3035	Chip C.	C1608JB1H102KT-NS	1
C226	CU3035	Chip C.	C1608JB1H102KT-NS	1
C227	CU0108	Chip C.	LMK212BJ105KG-T	1
C228	CU3535	Chip C.	GRM155B11H102KA01D	1
C229	CU3553	Chip C.	GRM155B11A473KA01D	1
C230	CU3535	Chip C.	GRM155B11H102KA01D	1
C231	CU3535	Chip C.	GRM155B11H102KA01D	1
C232	CU3535	Chip C.	GRM155B11H102KA01D	1
C233	CU3535	Chip C.	GRM155B11H102KA01D	1
C235	CU3503	Chip C.	GRM1554C1H2R0CZ01D	1
C237	CU3535	Chip C.	GRM155B11H102KA01D	1
C238	CU3111	Chip C.	C1608JB1E104KT-NS	1
C239	CU3535	Chip C.	GRM155B11H102KA01D	1
C241	CU3522	Chip C.	GRM1552C1H820JD01D	1
C242	CU3551	Chip C.	GRM155B11C223KA01D	1
C243	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C244	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C245	CU0108	Chip C.	LMK212BJ105KG-T	1
C246	CU3543	Chip C.	GRM155B11E472KA01D	1
C247	CU3554	Chip C.	GRM155B11A104KA01D	1
C248	CU3547	Chip C.	GRM155B11C103KA01D	1
C249	CU3538	Chip C.	GRM155B11H182KA01D	1
C250	CU3526	Chip C.	GRM1552C1E181JD01D	1
C252	CU3535	Chip C.	GRM155B11H102KA01D	1
C253	CU3543	Chip C.	GRM155B11E472KA01D	1
C254	CU3111	Chip C.	C1608JB1E104KT-NS	1
C255	CE0364	Electrolytic C.	16ME47SWB+TS	1
C256	CU3111	Chip C.	C1608JB1E104KT-NS	1
C257	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C258	CU0108	Chip C.	LMK212BJ105KG-T	1
C259	CU3535	Chip C.	GRM155B11H102KA01D	1
C260	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C261	CU3535	Chip C.	GRM155B11H102KA01D	1
C262	CU3535	Chip C.	GRM155B11H102KA01D	1
C263	CS0424	Chip tantalum	TMCMA1C106MTRF	1
C264	CU3511	Chip C.	GRM1552C1H100JZ01D	1
C265	CU3535	Chip C.	GRM155B11H102KA01D	1
C266	CU3503	Chip C.	GRM1554C1H2R0CZ01D	1
C267	CU3535	Chip C.	GRM155B11H102KA01D	1
C268	CU3535	Chip C.	GRM155B11H102KA01D	1
C269	CU3535	Chip C.	GRM155B11H102KA01D	1
C270	CU3047	Chip C.	C1608JB1H103KT-NS	1
C272	CS0220	Chip tantalum	TMCMA1C225MTRF	1
C273	CS0220	Chip tantalum	TMCMA1C225MTRF	1
C274	CU3535	Chip C.	GRM155B11H102KA01D	1
C275	CU3502	Chip C.	GRM1554C1H1R0CZ01D	1
C276	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C277	CE0343	Electrolytic C.	16ME1000HC+T	1
C278	CU3535	Chip C.	GRM155B11H102KA01D	1
C279	CU3551	Chip C.	GRM155B11C223KA01D	1
C280	CS0405Z	Chip tantalum	TAJA475M010Y	1
C281	CU3509	Chip C.	GRM1552C1H8R0DZ01D	1
C282	CU3503	Chip C.	GRM1554C1H2R0CZ01D	1
C283	CU3527	Chip C.	GRM1552C1E221JD01D	1
C284	CU3504	Chip C.	GRM1553C1H3R0CZ01D	1
C285	CU3535	Chip C.	GRM155B11H102KA01D	1
C286	CU3027	Chip C.	C1608CH1H221JT-NS	1
C287	CS0063	Chip tantalum	TMCSA1V104MTRF	1
C288	CU3509	Chip C.	GRM1552C1H8R0DZ01D	1
C289	CU3535	Chip C.	GRM155B11H102KA01D	1
C290	CU3535	Chip C.	GRM155B11H102KA01D	1
C291	CS0406Z	Chip tantalum	TAJA105M035Y	1
C293	CU3535	Chip C.	GRM155B11H102KA01D	1
C294	CU3035	Chip C.	C1608JB1H102KT-NS	1
C295	CU3551	Chip C.	GRM155B11C223KA01D	1
C296	CU3511	Chip C.	GRM1552C1H100JZ01D	1
C297	CU3535	Chip C.	GRM155B11H102KA01D	1
C298	CS0405Z	Chip tantalum	TAJA475M010Y	1
C300	CU3511	Chip C.	GRM1552C1H100JZ01D	1
C301	CU3523	Chip C.	GRM1552C1H101JD01D	1
C302	CU3523	Chip C.	GRM1552C1H101JD01D	1
C303	CU3523	Chip C.	GRM1552C1H101JD01D	1

Ref No.	Part No.	Description	Parts Name	Qty.
C304	CU3535	Chip C.	GRM155B11H102KA01D	1
C305	CU3547	Chip C.	GRM155B11C103KA01D	1
C306	CU3554	Chip C.	GRM155B11A104KA01D	1
C307	CU3547	Chip C.	GRM155B11C103KA01D	1
C308	CE0342	Electrolytic C.	16ME470HC+TS	1
C309	CU3551	Chip C.	GRM155B11C223KA01D	1
C310	CU3523	Chip C.	GRM1552C1H101JD01D	1
C311	CU3013	Chip C.	C1608CH1H150JT-NS	1
C314	CS0405Z	Chip tantalum	TAJA475M010Y	1
C315	CS0405Z	Chip tantalum	TAJA475M010Y	1
C316	CS0405Z	Chip tantalum	TAJA475M010Y	1
C317	CS0405Z	Chip tantalum	TAJA475M010Y	1
C318	CU3535	Chip C.	GRM155B11H102KA01D	1
C319	CS0405Z	Chip tantalum	TAJA475M010Y	1
C320	CS0405Z	Chip tantalum	TAJA475M010Y	1
C321	CS0220	Chip tantalum	TMCMA1C225MTRF	1
C322	CU3035	Chip C.	C1608JB1H102KT-NS	1
C328	CU0108	Chip C.	LMK212BJ105KG-T	1
C329	CU3545	Chip C.	GRM155B11E682KA01D	1
C331	CU3547	Chip C.	GRM155B11C103KA01D	1
C332	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C333	CU3535	Chip C.	GRM155B11H102KA01D	1
C334	CU3505	Chip C.	GRM1552C1H4R0CZ01D	1
C401	CU3549	Chip C.	GRM155B11C153KA01D	1
C402	CU3550	Chip C.	GRM155B11C183KA01D	1
C403	CU3552	Chip C.	GRM155B11A333KA01D	1
C404	CU3559	Chip C.	GRM155B30J105KE18D	1
C405	CU3541	Chip C.	GRM155B11H332KA01D	1
C406	CU3545	Chip C.	GRM155B11E682KA01D	1
C407	CU3540	Chip C.	GRM155B11H272KA01D	1
C408	CU3544	Chip C.	GRM155B11E562KA01D	1
C409	CU3536	Chip C.	GRM155B11H122KA01D	1
C410	CU3539	Chip C.	GRM155B11H222KA01D	1
C412	CU0108	Chip C.	LMK212BJ105KG-T	1
C413	CU3541	Chip C.	GRM155B11H332KA01D	1
C414	CU3542	Chip C.	GRM155B11H392KA01D	1
C415	CU3545	Chip C.	GRM155B11E682KA01D	1
C417	CU3548	Chip C.	GRM155B11C123KA01D	1
C418	CU3547	Chip C.	GRM155B11C103KA01D	1
C419	CU3548	Chip C.	GRM155B11C123KA01D	1
C420	CE0339	Electrolytic C.	16ME10SWB+TS-ALC	1
C421	CU3035	Chip C.	C1608JB1H102KT-NS	1
C422	CS0220	Chip tantalum	TMCMA1C225MTRF	1
C423	CU3111	Chip C.	C1608JB1E104KT-NS	1
C425	CU3559	Chip C.	GRM155B30J105KE18D	1
C426	CU0108	Chip C.	LMK212BJ105KG-T	1
C501	CU3554	Chip C.	GRM155B11A104KA01D	1
C502	CU3547	Chip C.	GRM155B11C103KA01D	1
C701	CS0405Z	Chip tantalum	TAJA475M010Y	1
C702	CU3554	Chip C.	GRM155B11A104KA01D	1
C703	CS0405Z	Chip tantalum	TAJA475M010Y	1
CN102	UE0293	Connector	17PS-JE	1
CN103	UE0293	Connector	17PS-JE	1
CN104	UA0037AY	Wire	R-B2.0X0.2M PLUG 15A	1
CN105	UE0214	Connector	AXN420C530P	1
CN106	UE0043	Connector	PI22A02M	1
CN107	UE0393	Connector	PI28A11M	1
CN110	UE0341	Connector	PI28A02M	1
D101	XD0257	Chip Diode	RN731V TE-17	1
D102	XD0374	Chip Diode	1SV278(TPH2,F)	1
D103	XD0374	Chip Diode	1SV278(TPH2,F)	1
D104	XD0374	Chip Diode	1SV278(TPH2,F)	1
D105	XD0374	Chip Diode	1SV278(TPH2,F)	1
D106	XD0402	Chip Diode	VDZT2R 5.1B	1
D107	XD0374	Chip Diode	1SV278(TPH2,F)	1
D108	XD0130	Chip Diode	DA204U T106	1
D109	XD0301	Chip Diode	1SV268-TD-E	1
D110	XD0013	Diode	XB15A407A2GBN MI407	1
D111	XD0375	Chip Diode	MA4S713-(TX)	1
D112	XD0375	Chip Diode	MA4S713-(TX)	1
D113	XD0323	Chip Diode	MA2S11100L	1
D114	XD0141	Chip Diode	1SV237(TE85L,F)	1
D115	XD0320	Chip Diode	DAN235E-TL	1
D116	XD0320	Chip Diode	DAN235E-TL	1
D118	XD0130	Chip Diode	DA204U T106	1
D119	XD0323	Chip Diode	MA2S11100L	1
D120	XD0374	Chip Diode	1SV278(TPH2,F)	1
D121	XD0414	Chip	S3V60-5000	1
D122	XD0376	Chip Diode	1SV282(TPH2,F)	1
D123	XD0376	Chip Diode	1SV282(TPH2,F)	1
D124	XD0451	Chip Diode	015AZ3.0-X(TPL3,F)	1
D127	XD0402	Chip Diode	VDZT2R 5.1B	1
D128	XD0418	Chip Diode	RB521S-30TE61	1
D129	XD0418	Chip Diode	RB521S-30TE61	1
D130	XD0323	Chip Diode	MA2S11100L	1
D136	XD0395	Chip Diode	UDZS TE-17 5.6B	1
D501	XD0315	Chip Diode	MA2S728-(TX)	1
F101	EF0028	Chip Fuse	TF16SN1.25TTD	1
FL101	XC0047	Ceramic Filter	ALFYM455E=K	1
FL102	XC0036	Ceramic Filter	ALFYM450G=K	1
IC101	XA0675	IC	L88MS05TL-TL-E	1
IC104	XA1106	IC	LM2902PWR	1

Ref No.	Part No.	Description	Parts Name	Qty.
IC108	XA0404	IC	TA31136FNG(EL)	1
IC109	XA0115	IC	TC4S66F(TE85R,F)	1
IC110	XA1230	IC	S-AV40(ALI,Q) 200MHZ	1
IC111	XA1229	IC	BU4052BCFV-E2	1
IC112	XA0119	IC	AN8010M-E1	1
IC113	XA0348	IC	TC4W53FU(TE12L,F)	1
IC114	XA1106	IC	LM2902PWR	1
IC115	XA0102	IC	NJM7808FA-#ZZZB	1
IC116	XA1107	IC	MB15E07SRPFTGBNDEFE1	1
IC117	XA0410	IC	LA4425A-E	1
IC118	XA0925	IC	S-816A50AMC-BAZ-T2G	1
IC120	XA1103	IC	LM2904PWR	1
IC121	XA0348	IC	TC4W53FU(TE12L,F)	1
IC701	XA1103	IC	LM2904PWR	1
JK101	UJ0061	Jack	LD-0208-1.3	1
JK102	UJ0024Z	Jack	LGY6501-00900FC	1
L101	QC0043	Chip Inductor	NLV32T-2R2J-PFS	1
L102	QA0155	Coil	E544ENAS-110251	1
L103	QA0155	Coil	E544ENAS-110251	1
L104	QA0155	Coil	E544ENAS-110251	1
L105	QA0155	Coil	E544ENAS-110251	1
L106	QC0290	Chip Inductor	NLV25T-1R5J-PFS	1
L107	QA0155	Coil	E544ENAS-110251	1
L111	QKA35E	Coil	MR3.0 3.5T 0.8	1
L112	QKA25D	Coil	MR3.0 2.5T 0.6	1
L113	QKA35E	Coil	MR3.0 3.5T 0.8	1
L114	QKA35E	Coil	MR3.0 3.5T 0.8	1
L115	QKA35E	Coil	MR3.0 3.5T 0.8	1
L116	QKA35E	Coil	MR3.0 3.5T 0.8	1
L117	QC0061	Chip Inductor	NLV32T-033J-PFS	1
L118	QKA95D	Coil	MR3.0 9.5T 0.6	1
L119	QC0532	Chip Inductor	LQW2BHN33NJ03L	1
L121	QC0290	Chip Inductor	NLV25T-1R5J-PFS	1
L122	QC0290	Chip Inductor	NLV25T-1R5J-PFS	1
L123	QA0147Z	Coil	SMD-3245	1
L125	QC0627	Chip Inductor	LL1608-FSLR10J	1
L126	QC0284	Chip Inductor	NLV25T-R47J-PFS	1
Q101	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q102	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q104	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q105	XT0178	Chip Transistor	2SC4915-O(TE85L,F)	1
Q106	XE0053	Chip FET	3SK293(TE85L,F)	1
Q107	XE0053	Chip FET	3SK293(TE85L,F)	1
Q108	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q109	XT0208	Chip Transistor	2SD2620J0L	1
Q110	XT0208	Chip Transistor	2SD2620J0L	1
Q111	XE0021	Chip FET	2SK880-GR(TE85L,F)	1
Q113	XU0209	Chip Transistor	EMD6T2R	1
Q115	XT0194	Chip Transistor	2SC5551-TD-E	1
Q116	XT0110	Chip Transistor	2SA1036K T146Q	1
Q117	XT0210	Chip Transistor	2SC6026MFV-GR(TPL3)	1
Q118	XT0210	Chip Transistor	2SC6026MFV-GR(TPL3)	1
Q119	XU0195	Chip Transistor	RN1104(TE85L,F)	1
Q120	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q121	XU0178	Chip Transistor	XP1215-TX	1
Q122	XT0190	Chip Transistor	2SB1386 T100Q	1
Q123	XT0170	Chip Transistor	2SB0766ARL	1
Q124	XU0209	Chip Transistor	EMD6T2R	1
Q125	XE0021	Chip FET	2SK880-GR(TE85L,F)	1
Q126	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q127	XT0210	Chip Transistor	2SC6026MFV-GR(TPL3)	1
Q128	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q129	XU0195	Chip Transistor	RN1104(TE85L,F)	1
Q130	XU0195	Chip Transistor	RN1104(TE85L,F)	1
Q131	XE0066	Chip FET	2SK2539-TB-E	1
Q132	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q133	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q134	XT0125	Chip Transistor	2SC4245 (TE85L,F)	1
Q135	XT0125	Chip Transistor	2SC4245 (TE85L,F)	1
Q136	XU0195	Chip Transistor	RN1104(TE85L,F)	1
Q137	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
Q139	XT0210	Chip Transistor	2SC6026MFV-GR(TPL3)	1
Q140	XT0210	Chip Transistor	2SC6026MFV-GR(TPL3)	1
Q141	XU0211	Chip Transistor	RN2107MFV(TPL3)	1
Q142	XU0195	Chip Transistor	RN1104(TE85L,F)	1
Q144	XT0210	Chip Transistor	2SC6026MFV-GR(TPL3)	1
Q145	XT0125	Chip Transistor	2SC4245 (TE85L,F)	1
Q146	XT0170	Chip Transistor	2SB0766ARL	1
Q147	XU0209	Chip Transistor	EMD6T2R	1
Q148	XU0195	Chip Transistor	RN1104(TE85L,F)	1
Q149	XU0210	Chip Transistor	RN1107MFV(TPL3)	1
R101	RK3050	Chip R.	MCR03EZPJ103	1
R102	RK3091	Chip R.	MCR03EZPFX3902	1
R103	RK3091	Chip R.	MCR03EZPFX3902	1
R104	RK3050	Chip R.	MCR03EZPJ103	1
R105	RK3530	Chip R.	ERJ2GEJ221X	1
R106	RK3554	Chip R.	ERJ2GEJ223X	1
R107	RK3554	Chip R.	ERJ2GEJ223X	1
R109	RK3526	Chip R.	ERJ2GEJ101X	1
R110	RK3526	Chip R.	ERJ2GEJ101X	1
R111	RK3550	Chip R.	ERJ2GEJ103X	1
R112	RK3526	Chip R.	ERJ2GEJ101X	1

Ref No.	Part No.	Description	Parts Name	Qty.
R114	RK3540	Chip R.	ERJ2GEJ152X	1
R115	RK3549	Chip R.	ERJ2GEJ822X	1
R116	RK3534	Chip R.	ERJ2GEJ471X	1
R117	RK3562	Chip R.	ERJ2GEJ104X	1
R118	RK3526	Chip R.	ERJ2GEJ101X	1
R125	RK3536	Chip R.	ERJ2GEJ681X	1
R126	RK3551	Chip R.	ERJ2GEJ123X	1
R127	RK3501	Chip R.	ERJ2GE0R00X	1
R128	RK3562	Chip R.	ERJ2GEJ104X	1
R129	RK3550	Chip R.	ERJ2GEJ103X	1
R130	RK3562	Chip R.	ERJ2GEJ104X	1
R131	RK3562	Chip R.	ERJ2GEJ104X	1
R132	RK3550	Chip R.	ERJ2GEJ103X	1
R133	RK3537	Chip R.	ERJ2GEJ821X	1
R134	RK3553	Chip R.	ERJ2GEJ183X	1
R136	RK3534	Chip R.	ERJ2GEJ471X	1
R141	RK3550	Chip R.	ERJ2GEJ103X	1
R142	RK3543	Chip R.	ERJ2GEJ272X	1
R143	RK3550	Chip R.	ERJ2GEJ103X	1
R144	RK3542	Chip R.	ERJ2GEJ222X	1
R145	RK3552	Chip R.	ERJ2GEJ153X	1
R146	RK3552	Chip R.	ERJ2GEJ153X	1
R147	RK3550	Chip R.	ERJ2GEJ103X	1
R148	RK3538	Chip R.	ERJ2GEJ102X	1
R149	RK3562	Chip R.	ERJ2GEJ104X	1
R150	RK3546	Chip R.	ERJ2GEJ472X	1
R151	RK3550	Chip R.	ERJ2GEJ103X	1
R152	RK3538	Chip R.	ERJ2GEJ102X	1
R153	RK3562	Chip R.	ERJ2GEJ104X	1
R155	RK3551	Chip R.	ERJ2GEJ123X	1
R156	RK3558	Chip R.	ERJ2GEJ473X	1
R157	RK3562	Chip R.	ERJ2GEJ104X	1
R158	RK3522	Chip R.	ERJ2GEJ470X	1
R159	RK3570	Chip R.	ERJ2GEJ474X	1
R160	RK3562	Chip R.	ERJ2GEJ104X	1
R161	RK3562	Chip R.	ERJ2GEJ104X	1
R162	RK3521	Chip R.	ERJ2GEJ390X	1
R163	RK3514	Chip R.	ERJ2GEJ100X	1
R164	RK3025	Chip R.	MCR03EZPJ820	1
R165	RK3574	Chip R.	ERJ2GEJ105X	1
R166	RK3562	Chip R.	ERJ2GEJ104X	1
R167	RK3564	Chip R.	ERJ2GEJ154X	1
R168	RK3554	Chip R.	ERJ2GEJ223X	1
R169	RK3550	Chip R.	ERJ2GEJ103X	1
R170	RK3558	Chip R.	ERJ2GEJ473X	1
R171	RK3562	Chip R.	ERJ2GEJ104X	1
R172	RK3562	Chip R.	ERJ2GEJ104X	1
R173	RK3526	Chip R.	ERJ2GEJ101X	1
R174	RK3530	Chip R.	ERJ2GEJ221X	1
R176	RK3554	Chip R.	ERJ2GEJ223X	1
R178	RK3544	Chip R.	ERJ2GEJ332X	1
R179	RK3558	Chip R.	ERJ2GEJ473X	1
R180	RK3501	Chip R.	ERJ2GE0R00X	1
R181	RK3542	Chip R.	ERJ2GEJ222X	1
R182	RK3562	Chip R.	ERJ2GEJ104X	1
R183	RK3568	Chip R.	ERJ2GEJ334X	1
R184	RK3526	Chip R.	ERJ2GEJ101X	1
R185	RK3570	Chip R.	ERJ2GEJ474X	1
R186	RK3562	Chip R.	ERJ2GEJ104X	1
R187	RK3558	Chip R.	ERJ2GEJ473X	1
R189	RK3538	Chip R.	ERJ2GEJ102X	1
R190	RK3538	Chip R.	ERJ2GEJ102X	1
R191	RK3538	Chip R.	ERJ2GEJ102X	1
R193	RK3538	Chip R.	ERJ2GEJ102X	1
R195	RK3570	Chip R.	ERJ2GEJ474X	1
R196	RK3538	Chip R.	ERJ2GEJ102X	1
R200	RK3570	Chip R.	ERJ2GEJ474X	1
R203	RK3556	Chip R.	ERJ2GEJ333X	1
R204	RK3562	Chip R.	ERJ2GEJ104X	1
R205	RK0069	Chip R.	ERJ6GEYJ104V	1
R206	RK0003	Chip R.	ERJ6GEYJ150V	1
R207	RK3552	Chip R.	ERJ2GEJ153X	1
R208	RK3534	Chip R.	ERJ2GEJ471X	1
R209	RK3561	Chip R.	ERJ2GEJ823X	1
R210	RK3538	Chip R.	ERJ2GEJ102X	1
R211	RK4018	Chip R.	ERJ12YJ220U	1
R212	RK4026	Chip R.	ERJ12YJ101U	1
R213	RK3549	Chip R.	ERJ2GEJ822X	1
R214	RK3550	Chip R.	ERJ2GEJ103X	1
R215	RK3538	Chip R.	ERJ2GEJ102X	1
R216	RK3050	Chip R.	MCR03EZPJ103	1
R217	RK3050	Chip R.	MCR03EZPJ103	1
R218	RK3554	Chip R.	ERJ2GEJ223X	1
R219	RK3542	Chip R.	ERJ2GEJ222X	1
R220	RK4034	Chip R.	ERJ12YJ471U	1
R222	RK3550	Chip R.	ERJ2GEJ103X	1
R223	RK3526	Chip R.	ERJ2GEJ101X	1
R224	RK3526	Chip R.	ERJ2GEJ101X	1
R225	RK3554	Chip R.	ERJ2GEJ223X	1
R226	RK3038	Chip R.	MCR03EZPJ102	1
R227	RK3501	Chip R.	ERJ2GE0R00X	1
R228	RK3538	Chip R.	ERJ2GEJ102X	1

Ref No.	Part No.	Description	Parts Name	Qty.
R229	RK3555	Chip R.	ERJ2GEJ273X	1
R230	RK3546	Chip R.	ERJ2GEJ472X	1
R231	RK3050	Chip R.	MCR03EZPJ103	1
R232	RK3526	Chip R.	ERJ2GEJ101X	1
R233	RK3550	Chip R.	ERJ2GEJ103X	1
R234	RK3556	Chip R.	ERJ2GEJ333X	1
R235	RK3562	Chip R.	ERJ2GEJ104X	1
R236	RK3551	Chip R.	ERJ2GEJ123X	1
R237	RK3526	Chip R.	ERJ2GEJ101X	1
R238	RK3562	Chip R.	ERJ2GEJ104X	1
R239	RK3550	Chip R.	ERJ2GEJ103X	1
R240	RK3538	Chip R.	ERJ2GEJ102X	1
R241	RK3550	Chip R.	ERJ2GEJ103X	1
R242	RK3522	Chip R.	ERJ2GEJ470X	1
R243	RK3550	Chip R.	ERJ2GEJ103X	1
R244	RK3568	Chip R.	ERJ2GEJ334X	1
R245	RK3538	Chip R.	ERJ2GEJ102X	1
R246	RK3546	Chip R.	ERJ2GEJ472X	1
R247	RK3550	Chip R.	ERJ2GEJ103X	1
R248	RK3570	Chip R.	ERJ2GEJ474X	1
R249	RK3064	Chip R.	MCR03EZPJ154	1
R250	RK3570	Chip R.	ERJ2GEJ474X	1
R251	RK3554	Chip R.	ERJ2GEJ223X	1
R252	RK3570	Chip R.	ERJ2GEJ474X	1
R253	RK3557	Chip R.	ERJ2GEJ393X	1
R254	RK3557	Chip R.	ERJ2GEJ393X	1
R255	RK3546	Chip R.	ERJ2GEJ472X	1
R256	RK3526	Chip R.	ERJ2GEJ101X	1
R257	RK3546	Chip R.	ERJ2GEJ472X	1
R258	RK3557	Chip R.	ERJ2GEJ393X	1
R259	RK3550	Chip R.	ERJ2GEJ103X	1
R260	RK3554	Chip R.	ERJ2GEJ223X	1
R261	RK3554	Chip R.	ERJ2GEJ223X	1
R262	RK3562	Chip R.	ERJ2GEJ104X	1
R264	RK3538	Chip R.	ERJ2GEJ102X	1
R265	RK3568	Chip R.	ERJ2GEJ334X	1
R266	RK3550	Chip R.	ERJ2GEJ103X	1
R267	RK3522	Chip R.	ERJ2GEJ470X	1
R268	RK3550	Chip R.	ERJ2GEJ103X	1
R269	RK3562	Chip R.	ERJ2GEJ104X	1
R270	RK3560	Chip R.	ERJ2GEJ683X	1
R271	RK4034	Chip R.	ERJ12YJ471U	1
R272	RK3550	Chip R.	ERJ2GEJ103X	1
R273	RK3562	Chip R.	ERJ2GEJ104X	1
R274	RK3550	Chip R.	ERJ2GEJ103X	1
R275	RK3550	Chip R.	ERJ2GEJ103X	1
R276	RK3534	Chip R.	ERJ2GEJ471X	1
R277	RK3542	Chip R.	ERJ2GEJ222X	1
R278	RK3522	Chip R.	ERJ2GEJ470X	1
R279	RK3046	Chip R.	MCR03EZPJ472	1
R280	RK3558	Chip R.	ERJ2GEJ473X	1
R281	RK3041	Chip R.	MCR03EZPJ182	1
R282	RK3550	Chip R.	ERJ2GEJ103X	1
R283	RK3038	Chip R.	MCR03EZPJ102	1
R284	RK3526	Chip R.	ERJ2GEJ101X	1
R286	RK3534	Chip R.	ERJ2GEJ471X	1
R287	RK3546	Chip R.	ERJ2GEJ472X	1
R288	RK3550	Chip R.	ERJ2GEJ103X	1
R289	RK3544	Chip R.	ERJ2GEJ332X	1
R290	RK3554	Chip R.	ERJ2GEJ223X	1
R291	RK3558	Chip R.	ERJ2GEJ473X	1
R292	RK3522	Chip R.	ERJ2GEJ470X	1
R294	RK3546	Chip R.	ERJ2GEJ472X	1
R295	RK3538	Chip R.	ERJ2GEJ102X	1
R296	RK3568	Chip R.	ERJ2GEJ334X	1
R297	RK3532	Chip R.	ERJ2GEJ331X	1
R299	RK3545	Chip R.	ERJ2GEJ392X	1
R300	RK3526	Chip R.	ERJ2GEJ101X	1
R301	RK3538	Chip R.	ERJ2GEJ102X	1
R302	RK3525	Chip R.	ERJ2GEJ820X	1
R303	RK3559	Chip R.	ERJ2GEJ563X	1
R304	RK3559	Chip R.	ERJ2GEJ563X	1
R307	RK3541	Chip R.	ERJ2GEJ182X	1
R308	RK3526	Chip R.	ERJ2GEJ101X	1
R309	RK3550	Chip R.	ERJ2GEJ103X	1
R311	RK3538	Chip R.	ERJ2GEJ102X	1
R312	RK3538	Chip R.	ERJ2GEJ102X	1
R313	RK3538	Chip R.	ERJ2GEJ102X	1
R315	RK3544	Chip R.	ERJ2GEJ332X	1
R316	RK3551	Chip R.	ERJ2GEJ123X	1
R317	RK3501	Chip R.	ERJ2GE0R00X	1
R318	RK3568	Chip R.	ERJ2GEJ334X	1
R319	RK3561	Chip R.	ERJ2GEJ823X	1
R320	RK3562	Chip R.	ERJ2GEJ104X	1
R321	RK3543	Chip R.	ERJ2GEJ272X	1
R322	RD0108	Jumper	J1/6ZC	1
R323	RK3554	Chip R.	ERJ2GEJ223X	1
R324	RK3014	Chip R.	MCR03EZPJ100	1
R325	RK3566	Chip R.	ERJ2GEJ224X	1
R326	RK3538	Chip R.	ERJ2GEJ102X	1
R327	RK3092	Chip R.	MCR03EZPFX7502	1
R328	RD3013	Resistor	ERG1SJ100	1

Ref No.	Part No.	Description	Parts Name	Qty.
R330	RK3562	Chip R.	ERJ2GEJ104X	1
R331	RK3538	Chip R.	ERJ2GEJ102X	1
R332	RK3554	Chip R.	ERJ2GEJ223X	1
R333	RK3562	Chip R.	ERJ2GEJ104X	1
R334	RK3542	Chip R.	ERJ2GEJ222X	1
R335	RK3550	Chip R.	ERJ2GEJ103X	1
R337	RK3570	Chip R.	ERJ2GEJ474X	1
R339	RK3550	Chip R.	ERJ2GEJ103X	1
R340	RK3550	Chip R.	ERJ2GEJ103X	1
R341	RK3561	Chip R.	ERJ2GEJ823X	1
R342	RK3545	Chip R.	ERJ2GEJ392X	1
R343	RK3548	Chip R.	ERJ2GEJ682X	1
R344	RK3550	Chip R.	ERJ2GEJ103X	1
R345	RK3501	Chip R.	ERJ2GE0R00X	1
R346	RK3561	Chip R.	ERJ2GEJ823X	1
R347	RK3551	Chip R.	ERJ2GEJ123X	1
R348	RK3534	Chip R.	ERJ2GEJ471X	1
R349	RK3562	Chip R.	ERJ2GEJ104X	1
R401	RK3553	Chip R.	ERJ2GEJ183X	1
R402	RK3551	Chip R.	ERJ2GEJ123X	1
R403	RK3542	Chip R.	ERJ2GEJ222X	1
R404	RK3562	Chip R.	ERJ2GEJ104X	1
R405	RK3563	Chip R.	ERJ2GEJ124X	1
R406	RK3559	Chip R.	ERJ2GEJ563X	1
R407	RK3562	Chip R.	ERJ2GEJ104X	1
R408	RK3558	Chip R.	ERJ2GEJ473X	1
R409	RK3560	Chip R.	ERJ2GEJ683X	1
R410	RK3557	Chip R.	ERJ2GEJ393X	1
R411	RK3562	Chip R.	ERJ2GEJ104X	1
R412	RK3550	Chip R.	ERJ2GEJ103X	1
R413	RK3550	Chip R.	ERJ2GEJ103X	1
R414	RK3566	Chip R.	ERJ2GEJ224X	1
R415	RK3558	Chip R.	ERJ2GEJ473X	1
R416	RK3550	Chip R.	ERJ2GEJ103X	1
R417	RK3568	Chip R.	ERJ2GEJ334X	1
R418	RK3560	Chip R.	ERJ2GEJ683X	1
R419	RK3550	Chip R.	ERJ2GEJ103X	1
R420	RK3574	Chip R.	ERJ2GEJ105X	1
R421	RK3566	Chip R.	ERJ2GEJ224X	1
R422	RK3562	Chip R.	ERJ2GEJ104X	1
R423	RK3501	Chip R.	ERJ2GE0R00X	1
R426	RK3551	Chip R.	ERJ2GEJ123X	1
R427	RK3550	Chip R.	ERJ2GEJ103X	1
R428	RK3574	Chip R.	ERJ2GEJ105X	1
R429	RK3554	Chip R.	ERJ2GEJ223X	1
R430	RK3538	Chip R.	ERJ2GEJ102X	1
R432	RK3550	Chip R.	ERJ2GEJ103X	1
R433	RK3501	Chip R.	ERJ2GE0R00X	1
R501	RK3001	Chip R.	MCR03EZPJ000	1
R502	RK3034	Chip R.	MCR03EZPJ471	1
R503	RK3538	Chip R.	ERJ2GEJ102X	1
R702	RK3526	Chip R.	ERJ2GEJ101X	1
R703	RK3558	Chip R.	ERJ2GEJ473X	1
R704	RK3562	Chip R.	ERJ2GEJ104X	1
R705	RK3538	Chip R.	ERJ2GEJ102X	1
R900	RK3501	Chip R.	ERJ2GE0R00X	1
SH101	TS0172	Case	VCO CASE DR620	1
TH101	XS0031	Chip thermistor	NTCG164BH682JT-S	1
TH102	XS0050	Chip thermistor	NTCG164QH105JT-S	1
VR101	RH0233	Trimmer R.	RH02B1C15X(100K OHM)	1
VR102	RH0231	Trimmer R.	RH02B1CS4X(47K OHM)	1
VR103	RH0233	Trimmer R.	RH02B1C15X(100K OHM)	1
VR104	RH0233	Trimmer R.	RH02B1C15X(100K OHM)	1
VR105	RH0227	Trimmer R.	RH02B1C14X(10K OHM)	1
VR106	RH0231	Trimmer R.	RH02B1CS4X(47K OHM)	1
VR107	RH0225	Trimmer R.	RH02B1CS3X(4.7K OHM)	1
VR108	RH0233	Trimmer R.	RH02B1C15X(100K OHM)	1
VR109	RH0229	Trimmer R.	RH02B1CJ4X(22K OHM)	1
VR110	RH0233	Trimmer R.	RH02B1C15X(100K OHM)	1
X101	XK0002	Discriminator	CDBLB455KCAY07-B0	1
X102	XQ0194	VCTCXO	NT3225SA 12.800MHZ	1
X104	XQ0058A	Xtal	UM5 30.395M	1
XF101	XF0014Z	Xtal Filter	UM1 30.85MHZ	1
	FG0320	SP Cushion	SP CUSHION DR135	1
	SD0034	Spring	GND SPRING DR130	2
	TZ0049	Dumper	SILICON DUMPER	3
	UP0579	P.C.BOARD	DR235MK3 INTEGRATED	1

Mechanical Parts

Ref No.	Part No.	Description	Parts Name	Qty.
	UE0401	Dsub Connector	DBW20-091F200	1
	UX1251	Wire	WIRE D SUB	1
	ES0035	Speaker	57-8BC-35 ROHS	1
	UX1047	Wire	WIRE DR130	1
	AA0050	Screw	OH M2.6+6 FE/B.ZN	6
	AE0029	Screw	RDG-LNA-W1(01)	2
	AN0032	Nut	MIC NUT	1
	AU0001	Screw	PH/S B26+8 FEN	15
	AW0001	Screw	PH/D6 3+8 FE/N	2
	AZ0042	Washer	WASHER	2

Ref No.	Part No.	Description	Parts Name	Qty.
	DP0185	LCD Panel	LCD PANEL DR235MK3	1
	FF0015	Cloth	BLIND CLOTH DR110	3
	FG0273	Rubber	ON AIR KEY RUBBER	1
	KS0096	Bottom Case	BOTTOM CASE DR135	1
	KZ0105	Front Case	FRONT ASSY. DR135	1
	NK0072	Knob	VOL KNOB DR135	1
	NK0073	Knob	DIAL KNOB DR135	1
	SP0008	GND Terminal	GND TERM XM601	1
	SS0106	Chassis	CHASSIS DR235MK3	1
	ST0065	SP Holder	SP HOLDER DR135	1
	ST0066	SP Fitting	SP FITTING DR135	1
	TG0034	SP Himeron	SP HIMERON DR135	1
	UE0258Z	ANT Connector	FM-M.D.R-4(Z)	1
	YZ0131	Tape	#9110 12X1MM	60
	DS0446	Label	NITTO MODEL PLATE(S)	1
	PR0288	Label	SCREW STKR DX70	2
	PR0451	Label	FCC PART15(3)	1
	PR0452	Label	FCC HOME USE	1

Packing Parts

Ref No.	Part No.	Description	Parts Name	Qty.
	HK0566A	Packege	PACKAGE DR235	1
	HM0218Z	Carton Box	MASTER CARTON DR135Z	0.2
	HU0099Z	P.MTL/Carton	FRONT INNER DR605	1
	HU0159Z	P.MTL/Carton	INNER DR135T	1
	HU0161Z	P.MTL/Carton	INNER 5 PCS	0.4
	PH0015		WARRANTY CEAT EXPORT	1
	PR0513	Label	NITTO 13X13 LABEL(W)	6
	PR0514	Label	EPSON 10X49 LABEL(W)	2
	UX1259	Wire	WIRE SCR1 DR135T	1
	UX1260	Wire	WIRE SCR2 DR135T	1

ACCESSORIES

Ref No.	Part No.	Description	Parts Name	Qty.
	ADFM78	Bracket	BRACKET DR130	1
	ADUA38	Power Cable	R-B2.0X3M RECEPT.15A	1
	EHM57D	Microphone	MICROPHON EMS57D	1
	HP0009	Plastic Bag	PLA.BAG 5X125X250	1
	HP0035	Plastic Bag	E.BAG 5X200X250	1
	PK0121	Diagram	SCHEMATIC DR235MK3	1
	PR0454Y	Label	SECURITY STICKER T	2
	PS0513B	Manual	INSTRUCTION DR235MK3	1

ACCESSORIES (SCREW SET)

Ref No.	Part No.	Description	Parts Name	Qty.
	AA0013	Screw	BH M5+20 FE/ZN	4
	AE0012	Screw	HEXH/D M4+8 FE/3BBC	4
	AJ0003	Screw	BH T5+20 FE/ZN 1	4
	AN0002	Nut	HEX N5X0.8 FE/ZN	4
	AZ0009	Washer	SW 5X9.2X1.3 FE/ZN	4
	AZ0010	Washer	SW 5X12X0.8 FE/ZN	4
	EF0005	Fuse	FGBO 15A	2
	FM0079Z	Spanner	SPANNER DR130	1
	HP0006	Plastic Bag	5X90X170	1
	YZ0121	Tape	TAPE 10MM	2

TNC (EJ41U)

Ref No.	Part No.	Description	Parts Name	Qty.
BAT1	ED0006	Battery	BR2032-1F2	1
C1	CS0210	Chip tantalum	TMCMB0J156MTRF	1
C2	CS0210	Chip tantalum	TMCMB0J156MTRF	1
C3	CU3035	Chip C.	C1608JB1H102KT-NS	1
C4	CU3111	Chip C.	C1608JB1E104KT-NS	1
C5	CU9018	Chip C.	C3216JB1C105MT-N	1
C6	CU3047	Chip C.	C1608JB1H103KT-NS	1
C7	CU3047	Chip C.	C1608JB1H103KT-NS	1
C8	CU3111	Chip C.	C1608JB1E104KT-NS	1
C9	CU3051	Chip C.	C1608JB1H223KT-NS	1
C10	CU3111	Chip C.	C1608JB1E104KT-NS	1
C11	CU3111	Chip C.	C1608JB1E104KT-NS	1
C12	CU9018	Chip C.	C3216JB1C105MT-N	1
C13	CU3051	Chip C.	C1608JB1H223KT-NS	1
C14	CU3031	Chip C.	C1608JB1H471KT-NS	1
C15	CU3051	Chip C.	C1608JB1H223KT-NS	1
C16	CU3051	Chip C.	C1608JB1H223KT-NS	1
C17	CU3045	Chip C.	C1608JB1H682KT-NS	1
C18	CU3045	Chip C.	C1608JB1H682KT-NS	1
C19	CU3047	Chip C.	C1608JB1H103KT-NS	1
C20	CU9018	Chip C.	C3216JB1C105MT-N	1
C21	CU3111	Chip C.	C1608JB1E104KT-NS	1
C22	CU3035	Chip C.	C1608JB1H102KT-NS	1
C23	CU3111	Chip C.	C1608JB1E104KT-NS	1
C24	CU3004	Chip C.	C1608CH1H030CT-NS	1
C25	CU3047	Chip C.	C1608JB1H103KT-NS	1
C26	CU3058	Chip C.	GRM1882C1H221JA01D	1
C27	CU3023	Chip C.	C1608CH1H101JT-NS	1
C28	CU3111	Chip C.	C1608JB1E104KT-NS	1
C29	CU3111	Chip C.	C1608JB1E104KT-NS	1
C30	CU3111	Chip C.	C1608JB1E104KT-NS	1
C31	CU3062	Chip C.	C1608CH1H160JT-NS	1
C32	CU3111	Chip C.	C1608JB1E104KT-NS	1
C33	CS0049	Chip tantalum	TMCSA1C105MTRF	1
C34	CS0394	Chip tantalum	TMCMB0J476MTRF	1
C35	CU3111	Chip C.	C1608JB1E104KT-NS	1
C36	CU3019	Chip C.	C1608CH1H470JT-NS	1
C37	CU3043	Chip C.	C1608JB1H472KT-NS	1
C38	CU3111	Chip C.	C1608JB1E104KT-NS	1
C39	CU3047	Chip C.	C1608JB1H103KT-NS	1
C40	CU3045	Chip C.	C1608JB1H682KT-NS	1
C41	CU3031	Chip C.	C1608JB1H471KT-NS	1
C42	CU9018	Chip C.	C3216JB1C105MT-N	1
C43	CU3039	Chip C.	C1608JB1H222KT-NS	1
C44	CU3051	Chip C.	C1608JB1H223KT-NS	1
C45	CU3045	Chip C.	C1608JB1H682KT-NS	1
C46	CU3039	Chip C.	C1608JB1H222KT-NS	1
C48	CU3111	Chip C.	C1608JB1E104KT-NS	1
CN1	UE0402	Connector	PI28B11M	1
D1	XL0036	Chip LED	SML-310MTT86	1
D3	XL0036	Chip LED	SML-310MTT86	1
D4	XL0036	Chip LED	SML-310MTT86	1
D5	XD0291	Chip Diode	MA2J72900L	1
D6	XD0291	Chip Diode	MA2J72900L	1
IC1	XA0678	IC	TGT021DQ	1
IC2	XA0463	IC	TA75S393F(TE85L,F)	1
IC3	XA0679	IC	TMT0111Q	1
IC4	XA0224	IC	NJM2904M-TE1-#FMZB	1
IC5	XA0326	IC	NJM2903M-TE1-#FMZB	1
IC6	XA0680	IC	ADM232AARN-REEL	1
L2	QB0044	Chip Coil	BK1608HM601-T	1
Q1	XT0095	Chip Transistor	2SC4081 T106R	1
Q2	XT0094	Chip Transistor	2SA1576A T106R	1
Q3	XT0094	Chip Transistor	2SA1576A T106R	1
Q4	XT0094	Chip Transistor	2SA1576A T106R	1
Q5	XE0029	Chip Transistor	2SK1580-T1-A	1
Q6	XT0095	Chip Transistor	2SC4081 T106R	1
Q7	XU0078	Chip Transistor	UNR521L00L	1
Q8	XT0095	Chip Transistor	2SC4081 T106R	1
Q9	XT0094	Chip Transistor	2SA1576A T106R	1
Q10	XT0095	Chip Transistor	2SC4081 T106R	1
Q11	XT0095	Chip Transistor	2SC4081 T106R	1
R1	RK3062	Chip R.	MCR03EZPJ104	1
R2	RK3062	Chip R.	MCR03EZPJ104	1
R3	RK3062	Chip R.	MCR03EZPJ104	1
R4	RK3062	Chip R.	MCR03EZPJ104	1
R5	RK3034	Chip R.	MCR03EZPJ471	1
R6	RK3034	Chip R.	MCR03EZPJ471	1
R7	RK3034	Chip R.	MCR03EZPJ471	1
R8	RK3032	Chip R.	MCR03EZPJ331	1
R9	RK3038	Chip R.	MCR03EZPJ102	1
R10	RK3050	Chip R.	MCR03EZPJ103	1
R11	RK3066	Chip R.	MCR03EZPJ224	1
R12	RK3038	Chip R.	MCR03EZPJ102	1
R13	RK3038	Chip R.	MCR03EZPJ102	1
R14	RK3038	Chip R.	MCR03EZPJ102	1
R15	RK3038	Chip R.	MCR03EZPJ102	1
R16	RK3038	Chip R.	MCR03EZPJ102	1
R17	RK3050	Chip R.	MCR03EZPJ103	1
R18	RK3050	Chip R.	MCR03EZPJ103	1

Ref No.	Part No.	Description	Parts Name	Qty.
R19	RK3038	Chip R.	MCR03EZPJ102	1
R20	RK3038	Chip R.	MCR03EZPJ102	1
R21	RK3053	Chip R.	MCR03EZPJ183	1
R22	RK3054	Chip R.	MCR03EZPJ223	1
R23	RK3050	Chip R.	MCR03EZPJ103	1
R24	RK3071	Chip R.	MCR03EZPJ564	1
R25	RK3050	Chip R.	MCR03EZPJ103	1
R26	RK3050	Chip R.	MCR03EZPJ103	1
R27	RK3050	Chip R.	MCR03EZPJ103	1
R28	RK3048	Chip R.	MCR03EZPJ682	1
R29	RK3050	Chip R.	MCR03EZPJ103	1
R30	RK3044	Chip R.	MCR03EZPJ332	1
R32	RK3042	Chip R.	MCR03EZPJ222	1
R33	RK3050	Chip R.	MCR03EZPJ103	1
R34	RK3051	Chip R.	MCR03EZPJ123	1
R35	RK3051	Chip R.	MCR03EZPJ123	1
R36	RK3054	Chip R.	MCR03EZPJ223	1
R37	RK3051	Chip R.	MCR03EZPJ123	1
R38	RK3051	Chip R.	MCR03EZPJ123	1
R39	RK3050	Chip R.	MCR03EZPJ103	1
R40	RK3051	Chip R.	MCR03EZPJ123	1
R41	RK3054	Chip R.	MCR03EZPJ223	1
R42	RK3044	Chip R.	MCR03EZPJ332	1
R44	RK3038	Chip R.	MCR03EZPJ102	1
R45	RK3030	Chip R.	MCR03EZPJ221	1
R46	RK3057	Chip R.	MCR03EZPJ393	1
R47	RK3050	Chip R.	MCR03EZPJ103	1
R48	RK3050	Chip R.	MCR03EZPJ103	1
R49	RK3046	Chip R.	MCR03EZPJ472	1
R50	RK3038	Chip R.	MCR03EZPJ102	1
R51	RK3061	Chip R.	MCR03EZPJ823	1
R52	RK3058	Chip R.	MCR03EZPJ473	1
R53	RK3054	Chip R.	MCR03EZPJ223	1
R54	RK3001	Chip R.	MCR03EZPJ000	1
R55	RK3062	Chip R.	MCR03EZPJ104	1
R56	RK3064	Chip R.	MCR03EZPJ154	1
R57	RK3058	Chip R.	MCR03EZPJ473	1
R58	RK3050	Chip R.	MCR03EZPJ103	1
R59	RK3001	Chip R.	MCR03EZPJ000	1
R60	RK3044	Chip R.	MCR03EZPJ332	1
R61	RK3001	Chip R.	MCR03EZPJ000	1
R62	RK3060	Chip R.	MCR03EZPJ683	1
R63	RK3029	Chip R.	MCR03EZPJ181	1
R64	RK3050	Chip R.	MCR03EZPJ103	1
R65	RK3050	Chip R.	MCR03EZPJ103	1
R66	RK3059	Chip R.	MCR03EZPJ563	1
R67	RK3050	Chip R.	MCR03EZPJ103	1
R68	RK3054	Chip R.	MCR03EZPJ223	1
R69	RK3050	Chip R.	MCR03EZPJ103	1
R70	RK3050	Chip R.	MCR03EZPJ103	1
R71	RK3050	Chip R.	MCR03EZPJ103	1
R72	RK3050	Chip R.	MCR03EZPJ103	1
R73	RK3001	Chip R.	MCR03EZPJ000	1
R74	RK3058	Chip R.	MCR03EZPJ473	1
R75	RK3062	Chip R.	MCR03EZPJ104	1
R76	RK3064	Chip R.	MCR03EZPJ154	1
R77	RK3030	Chip R.	MCR03EZPJ221	1
R78	RK3050	Chip R.	MCR03EZPJ103	1
R79	RK3050	Chip R.	MCR03EZPJ103	1
R80	RK3058	Chip R.	MCR03EZPJ473	1
R81	RK3058	Chip R.	MCR03EZPJ473	1
R82	RK3044	Chip R.	MCR03EZPJ332	1
R83	RK3074	Chip R.	MCR03EZPJ105	1
R84	RK3050	Chip R.	MCR03EZPJ103	1
R85	RK3046	Chip R.	MCR03EZPJ472	1
R87	RK3062	Chip R.	MCR03EZPJ104	1
R88	RK3062	Chip R.	MCR03EZPJ104	1
VR1	RH0142	Trimmer R.	MVR22HXBREN103	1
VR2	RH0142	Trimmer R.	MVR22HXBREN103	1
W2	UX1253	Connector	WIRE TNC	1
X1	XQ0124	Xtal	AT-49 7.9872MHZ	1
	UP0402	P.C.BOARD	EJ41U TNC	0.125
	FF0033	VERCRO	VELCRO A	1
	FG0040	Cushion	SPEAKER CUSHION DR41	2
	TZ0024	Insulator	LITHIUM BATT.DJ500	1
	TZ0056	Dumper	SILICON DUMPER 49U	1
	YZ0131	Tape	#9110 12X1MM	25

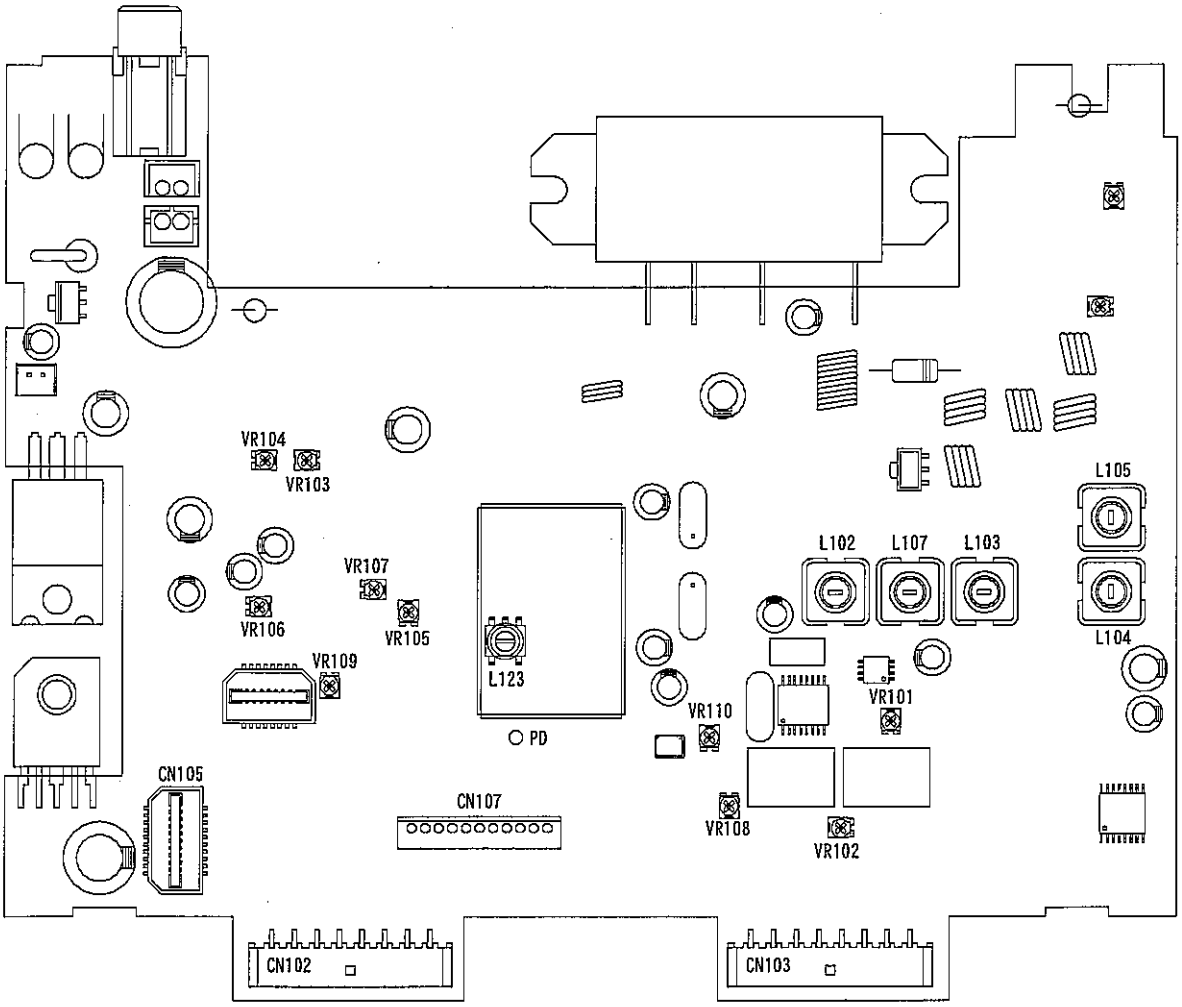
TNC (EJ41U) Packing Parts

Ref No.	Part No.	Description	Parts Name	Qty.
	FD0001	Floppy-Disc	FLOPPY-DISC	1
	FF0034	VELCRO	VELCRO B	1
	FG0040	Cushion	SPEAKER CUSHION DR41	1
	HK0487	Package	ITEM CARTON EJ41U	1
	HP0029	Plastic bag	E.BAG 5X100X100	1
	HP0040	Plastic bag	8X130X200	1
	PF0061	SHEET	SHEET EJ41U	1
	PR0449	Label	EJ41U LABEL	1
	PS0354	Manual	INSTRUCTION EJ41U	1
	PS0355	Manual	INST-DISC EJ41U	1
	UZ0030	Plug	MP-013LC	1

DR-235 ADJUSTMENT

1) Adjustment Spot

Power Supply Voltage 13.8V
Output of SSG is all EMF indication.
If without instruction, WIDE mode.
If without instruction, SSG output is MOD 1KHz WIDE DEV 3.5KHz/DEV,
NARROW DEV 1.75KHz/DEV.
Standard modulation is also based above.
Speaker load is 8 ohm and output is 50 ~ 100 mV.



2) VCO and RX Adjustment Specification

ITEM	CONDITION	UNIT	ADJ. SPOT	ADJUSTING MRTHOD
Adjustment Frequency	223.50MHz TX	MAIN	VR110	Adjust so that Tx Frequency becomes within 223.50MHz +/- 100Hz
VCO Adjustment	224.99MHz RX	MAIN	L123	Adjust so that PD voltage becomes 2.2V
VCO Confirmation	224.99MHz RX	MAIN		Confirm if PD voltage becomes less than 6.2V
Rx Signal Sensitivity Adjustment	223.50MHz 216.05MHz 223.50MHz 250.05MHz	MAIN	L105, L104 L103, L107 L102	Repeatedly adjust so that the Rx sensitivity becoms in maximum/. Confirm: At –7dBu SINAD more than 12dB At –8dBu SINAD more than 12dB At –3dBu SINAD more than 12dB
Squelch Adjustment	223.50MHz SSG OFF Indicate 01	MAIN	VR101	Adjust so that the squelch stops at perfectly close location
S Meter Adjustment	223.50MHz SSG 20dBu 1KHz Indicate 01	MAIN	VR102	Adjust so that all the indicator appears

3) TX Adjustment Specification

ITEM	CONDITION	UNIT	ADJ. SPOT	ADJUSTING MRTHOD
HI POWER Adjustment	223.50MHz HI POWER	MAIN	VR103	Adjust to 25.0 +/- 1.0W
MID POWER Adjustment	223.50MHz MID POWER	MAIN	VR104	Adjust to 10.0 +/- 1.0W
LOW POWER Confirmation	223.50MHz LOW POWER	MAIN		Confirm if it becomes 4.5 +/- 1.0W
Maximum Deviation Adjustment	223.50MHz MOD 1KHz 40mVemf WIDE	MAIN	VR107	4.5 +/- 0.1KHz/DEV
Maximum Deviation Adjustment	223.50MHz MOD 1KHz 40mVemf NARROW	MAIN	VR105	2.2 +/- 0.1KHz/DEV
Mic Gain Adjustment	223.50MHz MOD 1KHz 4mVemf WIDE	MAIN	VR106	3.0 +/- 0.1KHz/DEV
CTCSS Modulation Level Confirmation	223.50MHz 88.5Hz	MAIN		800 +/- 200Hz/DEV 3KHz LPF ON
DCS Modulation Level Adjustment	223.50MHz 255 Code	MAIN	VR108	800 +/- 50Hz/DEV 3KHz LPF ON
1750Hz Modulation Level Adjustment	223.50MHz 1750Hz	MAIN	VR109	3.0 +/- 0.5KHz/DEV
DTMF Modulation Level Confirmation	223.50MHz DTMF 1 Press the V/M key during TX	MAIN		3.0 +/- 0.5KHz/DEV

4) RX Test Specification

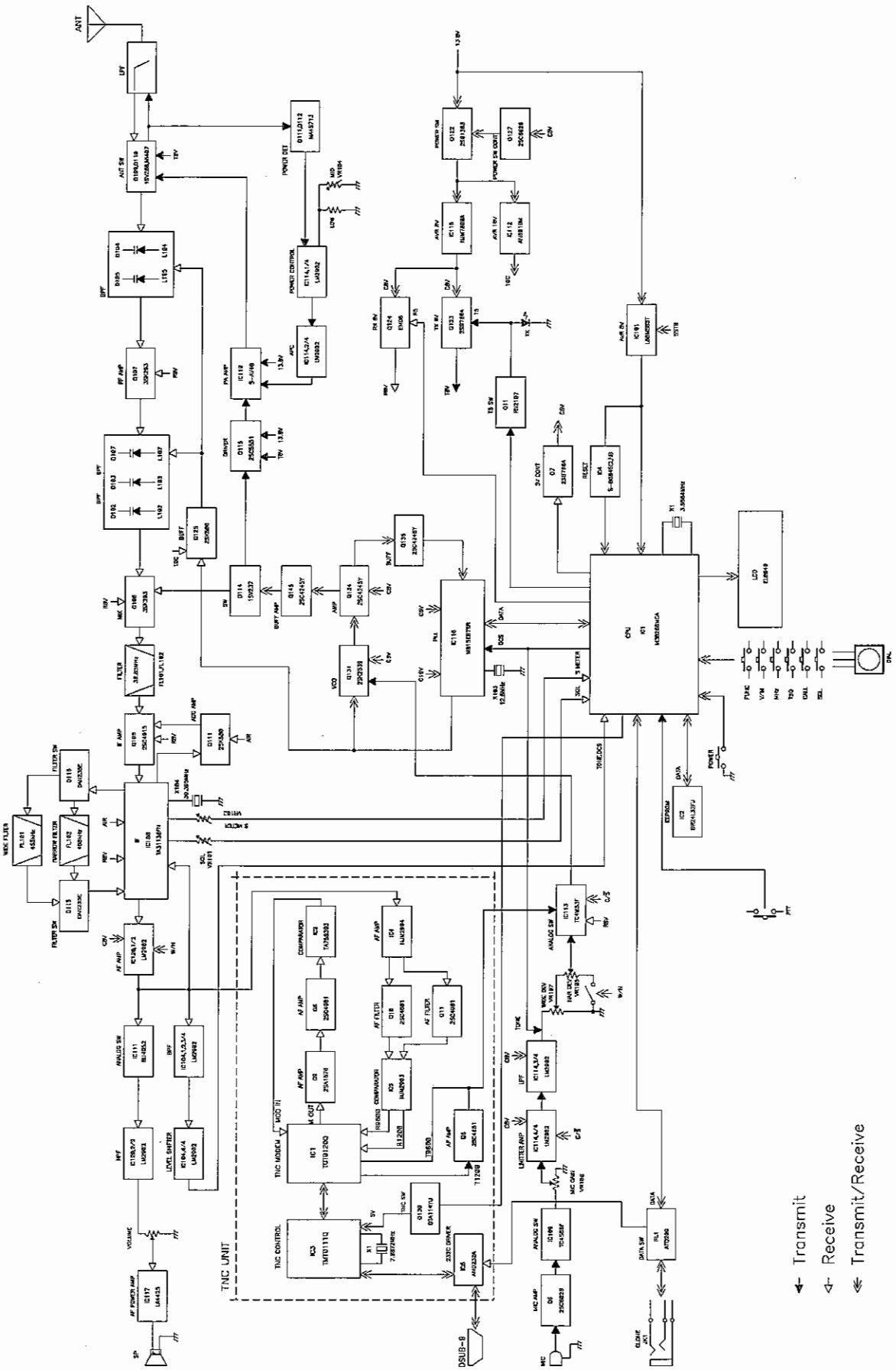
TEST ITEM	CONDITION	ADJ. STANDARD	TEST STANDARD	NOTE
RX Signal Sensitivity	216.05MHz 223.50MHz 250.05MHz	Less than –7dBu Less than –8dBu Less than –3dBu	Less than –6dBu Less than –7dBu Less than –2dBu	12dB SINAD
	223.50MHz NARROW	Less than –8dBu	Less than –7dBu	
	223.55MHz	Less than 6dBu	Less than 7dBu	AM 10dB S/N
RX Distortion	223.50MHz WIDE NARROW	Less than 4%	Less than 5%	SSG Output 30dBu
RX S/N	223.50MHz WIDE	More than 40dB	More than 38dB	SSG Output 40dBu 0.3 ~ 3KHz BPF OFF
	223.50MHz NARROW	More than 34dB	More than 32dB	
Squelch Sensitivity	223.50MHz Indication 02	Squelch Open	Squelch Open	SSG Output –10dBu
		Squelch Close	Squelch Close	SSG Output OFF
S Meter	223.50MHz 1KHz 3.5KHz/DEV	All appears at 20dBu	All appears at 25dBu	Decrease SSG level and decrease S Meter level
AF Output	223.50MHz	More than 2W	More than 2W	SSG Output 30dBu
CTCSS Sensitivity	223.50MHz WIDE	Open at 500Hz/DEV	Open at 500Hz/DEV	SSG Output 0dBu 88.5Hz
	223.50MHz NARROW	Open at 250Hz/DEV	Open at 250Hz/DEV	
DCS Sensitivity	223.50MHz WIDE	Opens when Test Equipment is in TX	Opens when Test Equipment is in TX	255 Code
	223.50MHz NARROW	Opens when Test Equipment is in TX	Opens when Test Equipment is in TX	
Drain Current	223.50MHz	Less than 0.65A	Less than 0.65A	Max volume
Power off Current	223.50MHz	Less than 10mA	Less than 10mA	Power off
Howling	223.50MHz	Don't occur	Don't occur	SSG Output 60dBu Mod off, Max volume

5) TX Test Specification

TEST ITEM	CONDITION	ADJ. STANDARD	TEST STANDARD	NOTE
Tx Output HI POWER	222.00MHz 223.50MHz 224.95MHz	25 +/- 1W	25 +/- 3W 25 +/- 3W 25 +/- 3W	
Tx Output MID POWER	223.50MHz	10 +/- 1W	10 +/- 2W	
Tx Output LOW POWER	223.50MHz	4.5 +/- 1W	3 ~ 6W	
Drain Current	223.50MHz	Less than 7A	Less than 8A	
Frequency Deviation	223.50MHz	Within +/- 0.1KHz	Within +/- 0.3KHz	
Spurious	222.00MHz 223.50MHz 224.95MHz	More than 65dB More than 65dB More than 65dB	More than 60dB More than 60dB More than 60dB	MID and LOW standard power is also the same as of HI power level
Modulation Level	223.50MHz WIDE	3.0 +/- 0.1KHz/DEV 4.5 +/- 0.1KHz/DEV	3.0 +/- 0.2KHz/DEV 4.5 +/- 0.2KHz/DEV	MIC in 1KHz 4mVemf MIC in 1KHz 40mVemf
	223.50MHz NARROW	2.2 +/- 0.1KHz/DEV	2.2 +/- 0.2KHz/DEV	MIC in 1KHz 40mVemf
CTCSS Modulation Level	223.50MHz WIDE	800 +/- 200Hz/DEV	800 +/- 200Hz/DEV	88.5Hz 3KHz LPF ON
DCS Modulation Level	223.50MHz WIDE	800 +/- 50Hz/DEV	800 +/- 200Hz/DEV	255 Code 3KHz LPF ON
	223.50MHz NARROW	600 +/- 200Hz/DEV	600 +/- 300Hz/DEV	
1750Hz Modulation Level	223.50MHz WIDE	3.0 +/- 0.1KHz/DEV	3.0 +/- 0.5KHz/DEV	
DTMF Modulation Level	223.50MHZ WIDE	3.0 +/- 0.5KHz/DEV	3.0 +/- 0.5KHz/DEV	Press the V/M key during TX
Modulation Distortion	223.50MHz WIDE	Less than 3%	Less than 4%	
TX S/N	223.50MHz WIDE	More than 40dB	More than 38dB	0.3 ~ 3KHz BPF ON
	223.50MHz NARROW	More than 34dB	More than 32dB	

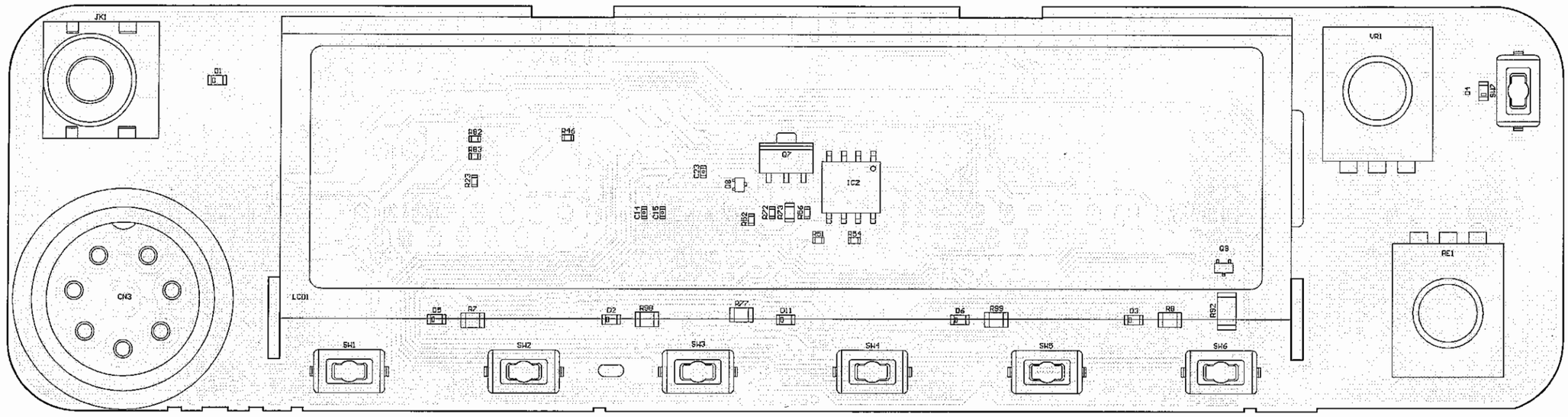
BLOCK DIAGRAM

1) DR-235

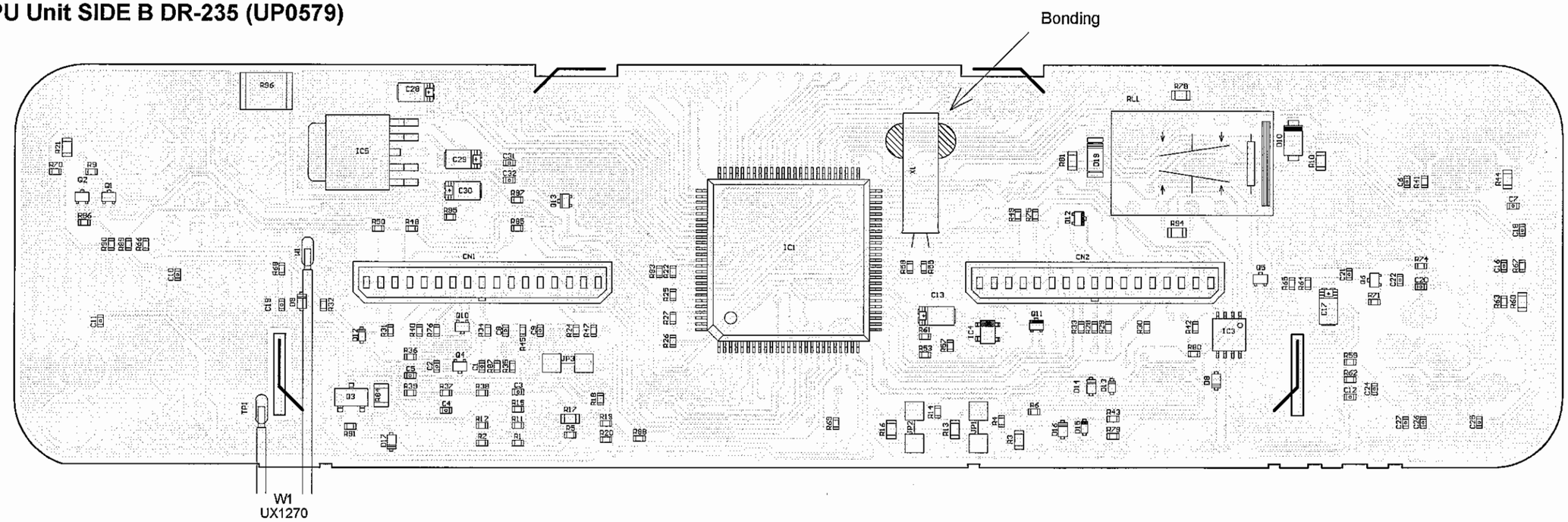


PC BOARD VIEW

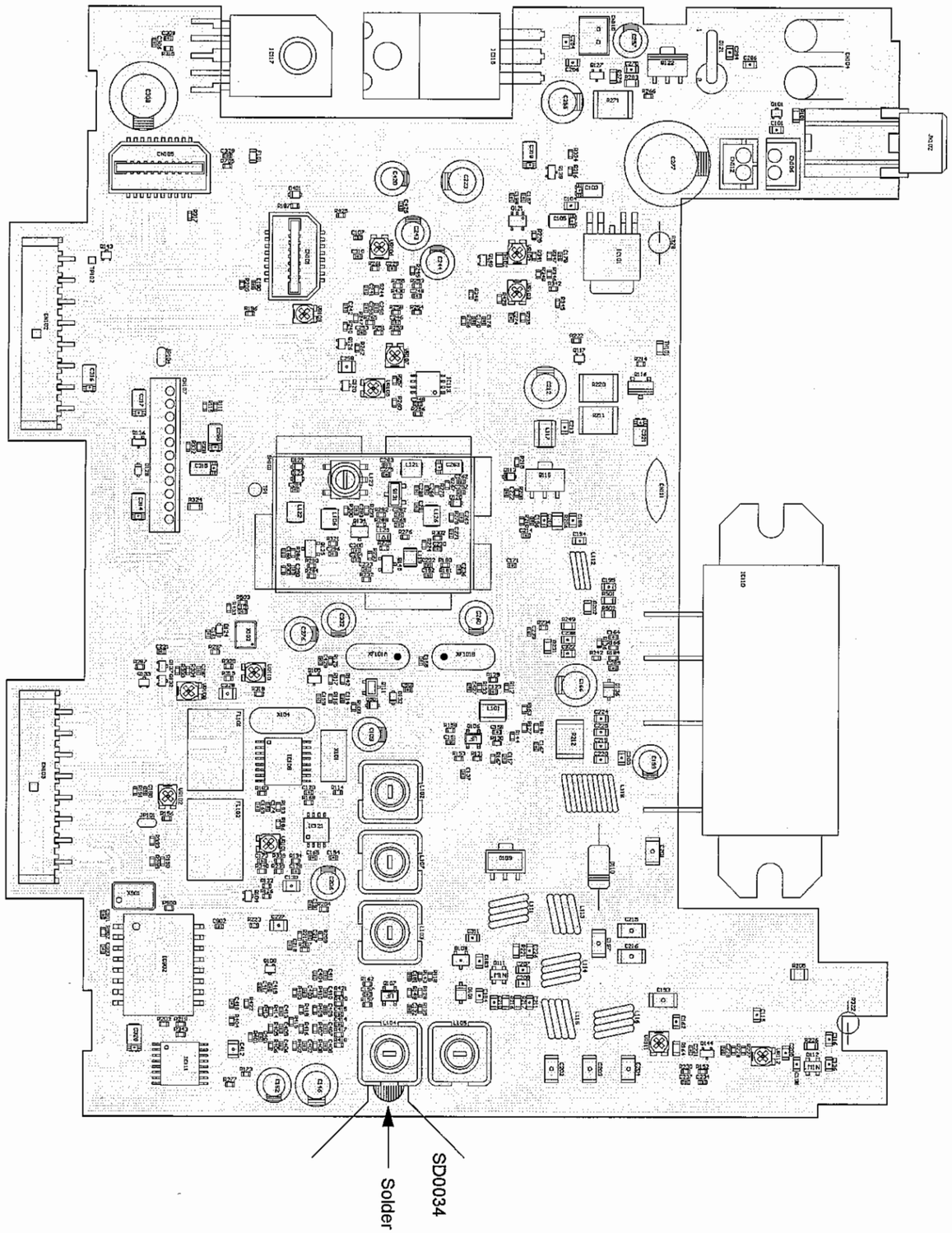
1) CPU Unit SIDE A DR-235 (UP0579)



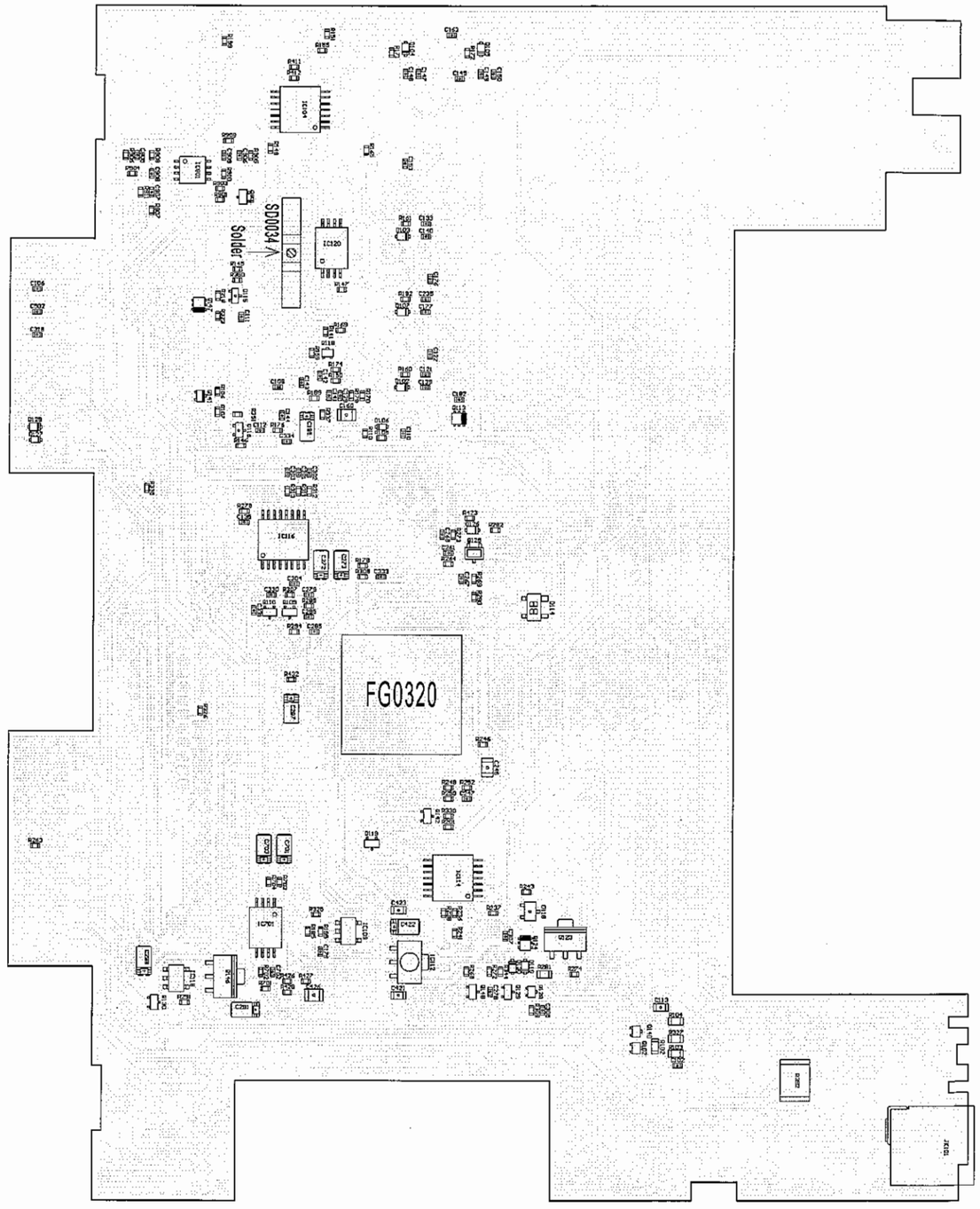
2) CPU Unit SIDE B DR-235 (UP0579)



3) MAIN Unit Side A DR-235 (UP0579)

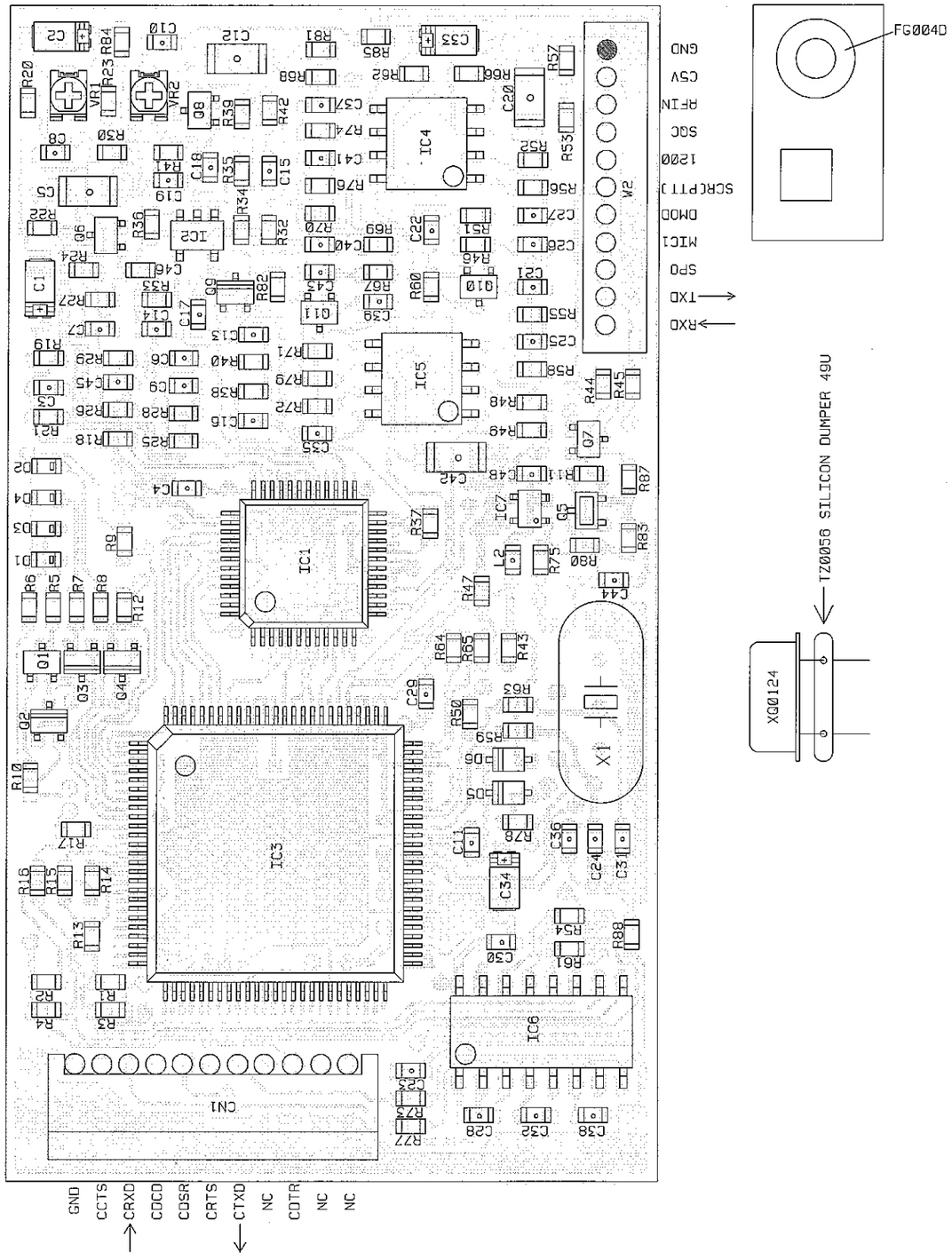


4) MAIN Unit Side B DR-235 (UP0579)



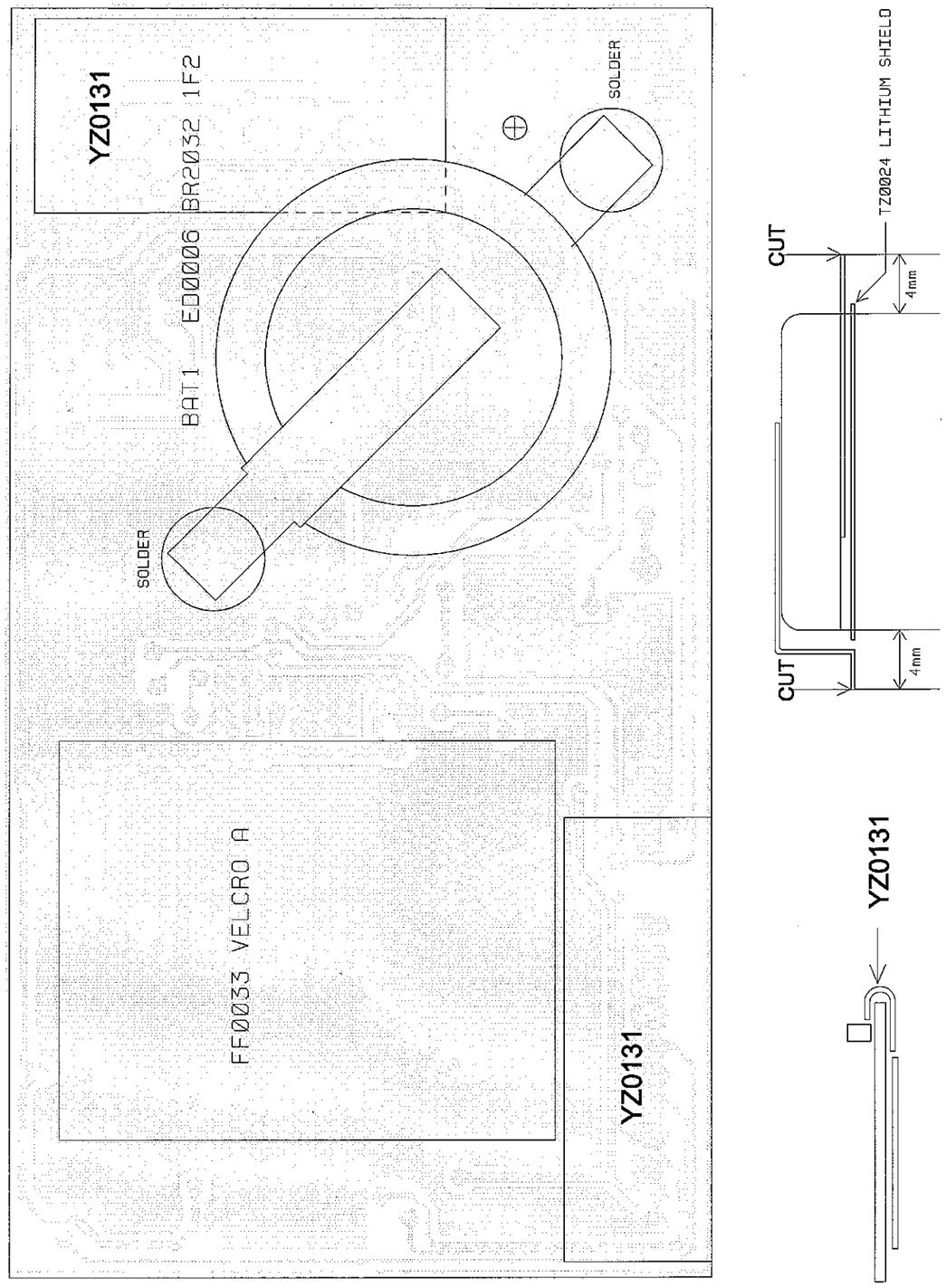
5) TNC Unit Side A (UP0402)

OPTION unit (EJ41U)



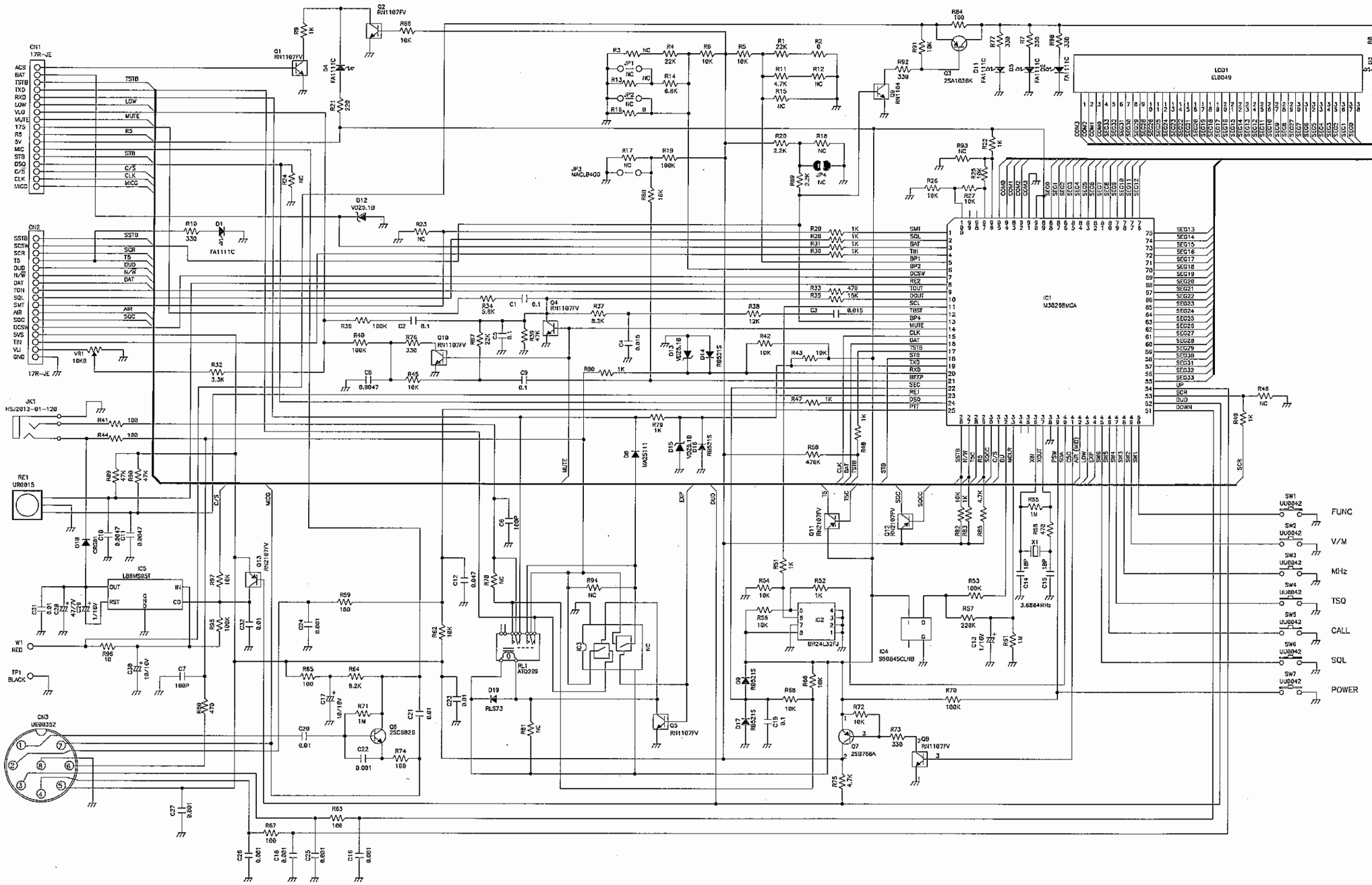
6) TNC Unit Side B (UP0402)

OPTION unit (EJ41U)

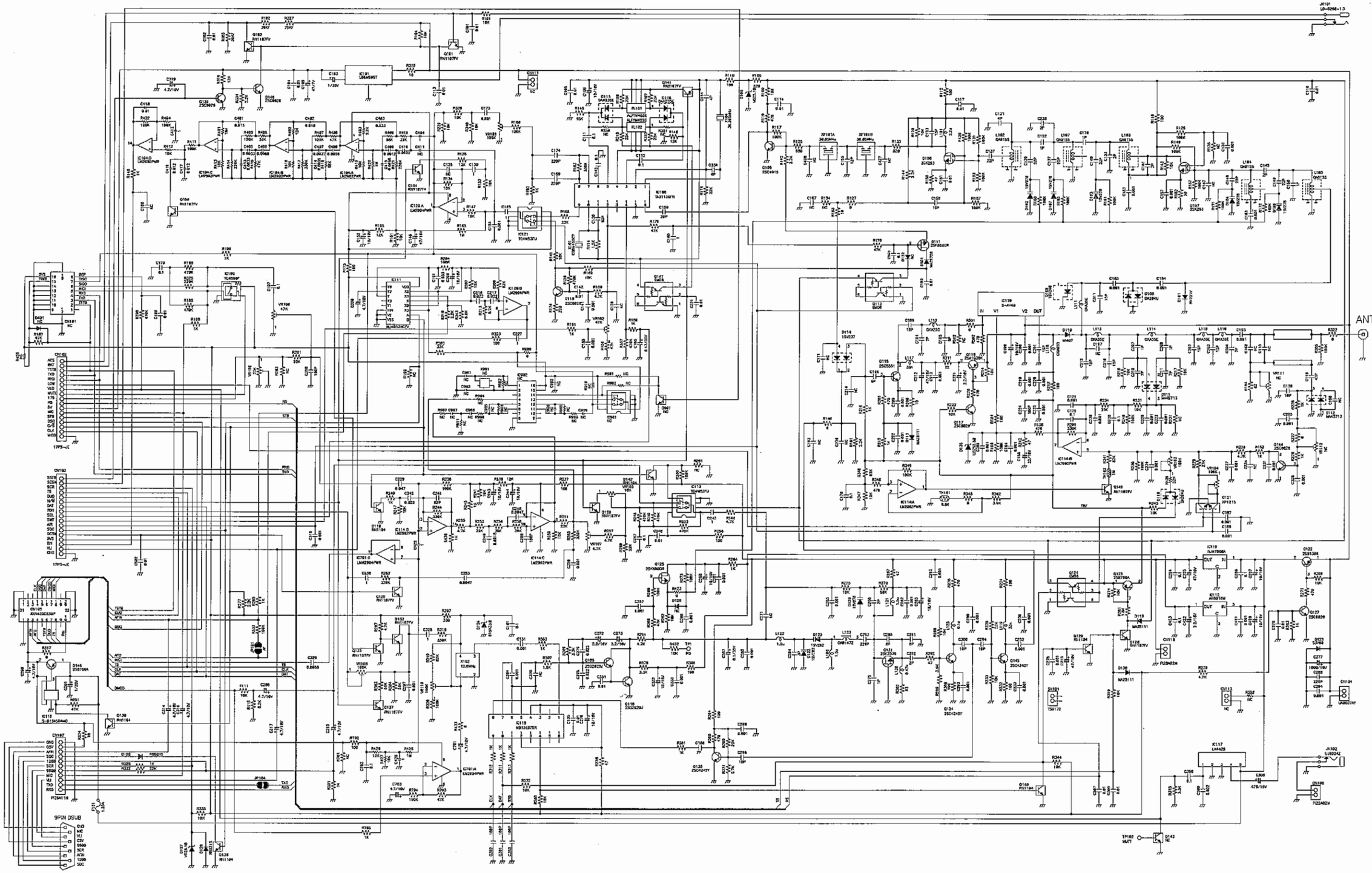


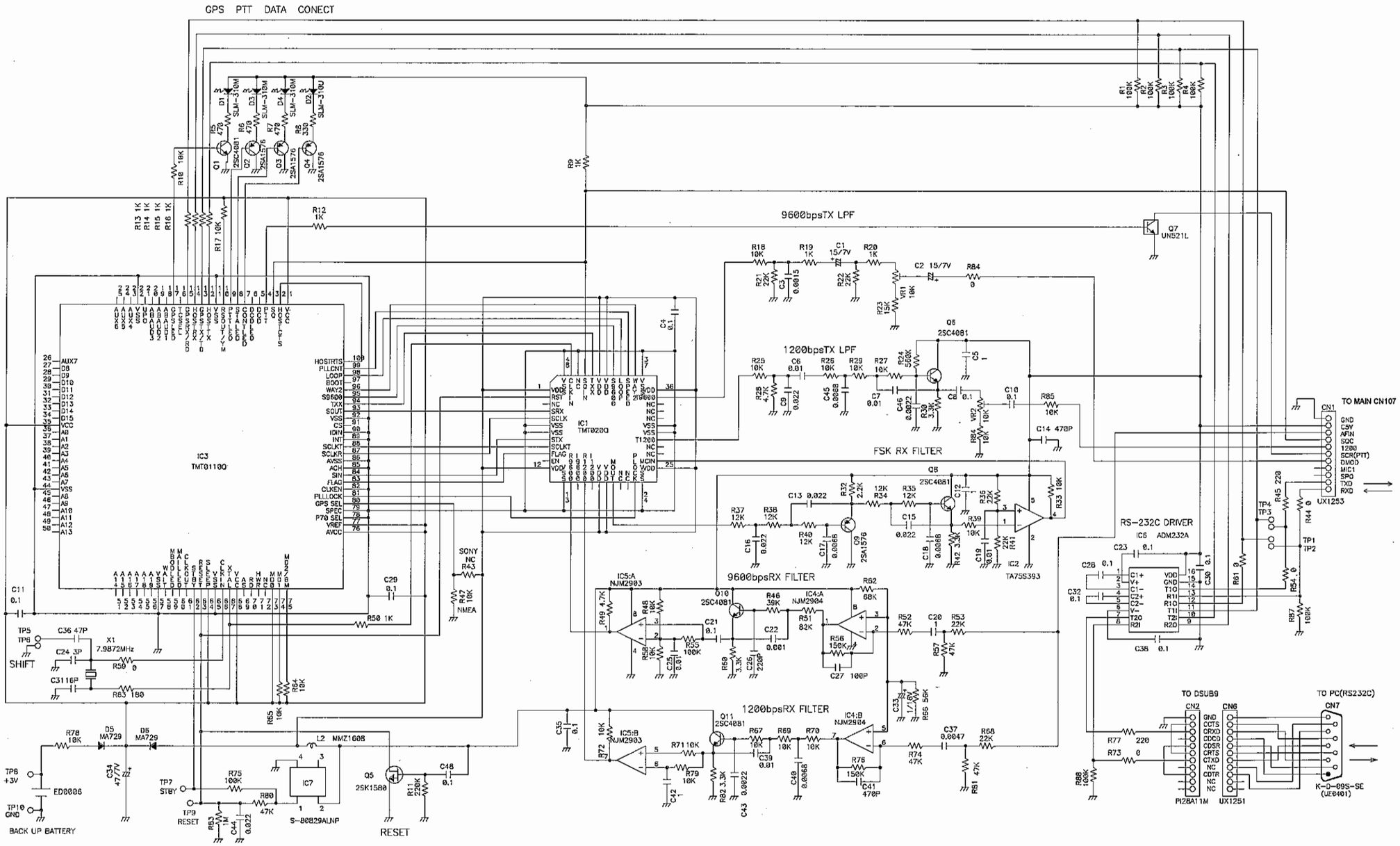
SCHEMATIC DIAGRAM

1) CPU Unit DR-235



2) MAIN Unit DR-235



3) TNC Unit

OPTION Unit (EJ41U)