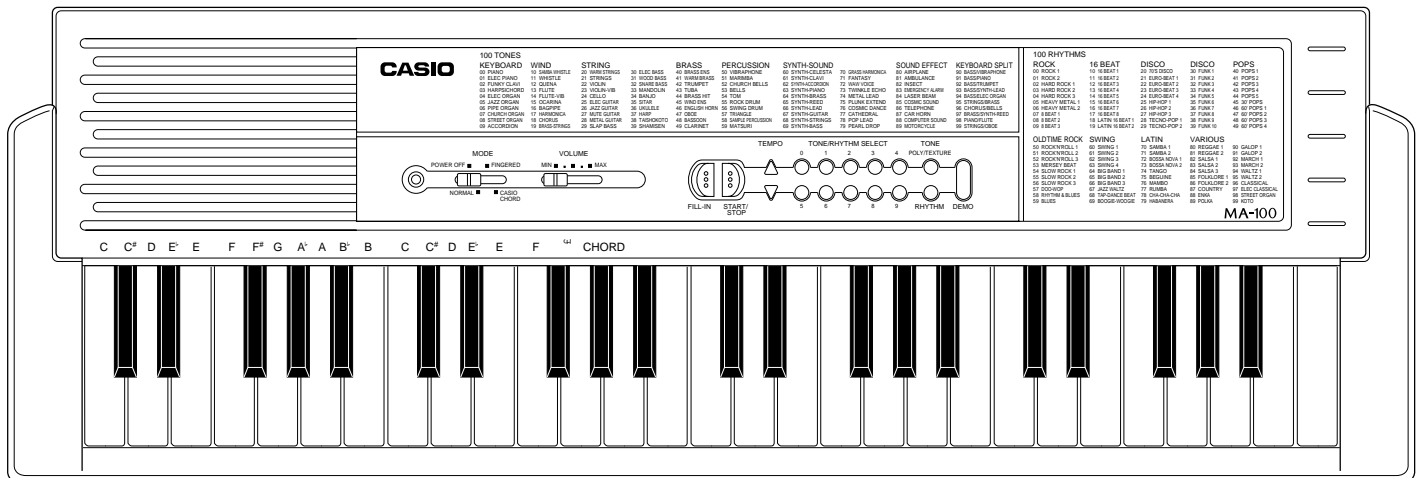


CASIO®

Service Manual

(without price)

MA-100



MA-100

ELECTRONIC KEYBOARD

INDEX

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SPECIFICATIONS

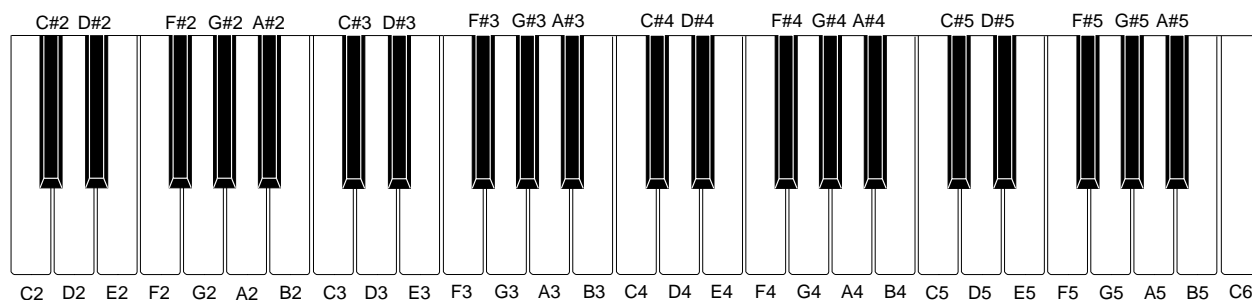
GENERAL

Number of keys:	49
Polyphonic:	8-note
Preset tones:	100
Auto-rhythms:	100
Auto-accompaniment:	CASIO Chord/Fingered
Demonstration tune:	Classical Medley
Built-in speakers:	8 cm dia. 1.1 W Input Rating: 1 pc.
Terminal:	AC Adapter Jack (DC 7.5 V)
Power source:	2-way AC or DC source
	AC: AC adapter
	DC: 5 AA size dry batteries
Power consumption:	1.8 W
Dimensions(HWD):	63 x 650 x 217 mm (2-1/2 x 25-9/16 x 8-1/2 inches)
Weight:	1.4 kg (3.1 lbs) excluding batteries

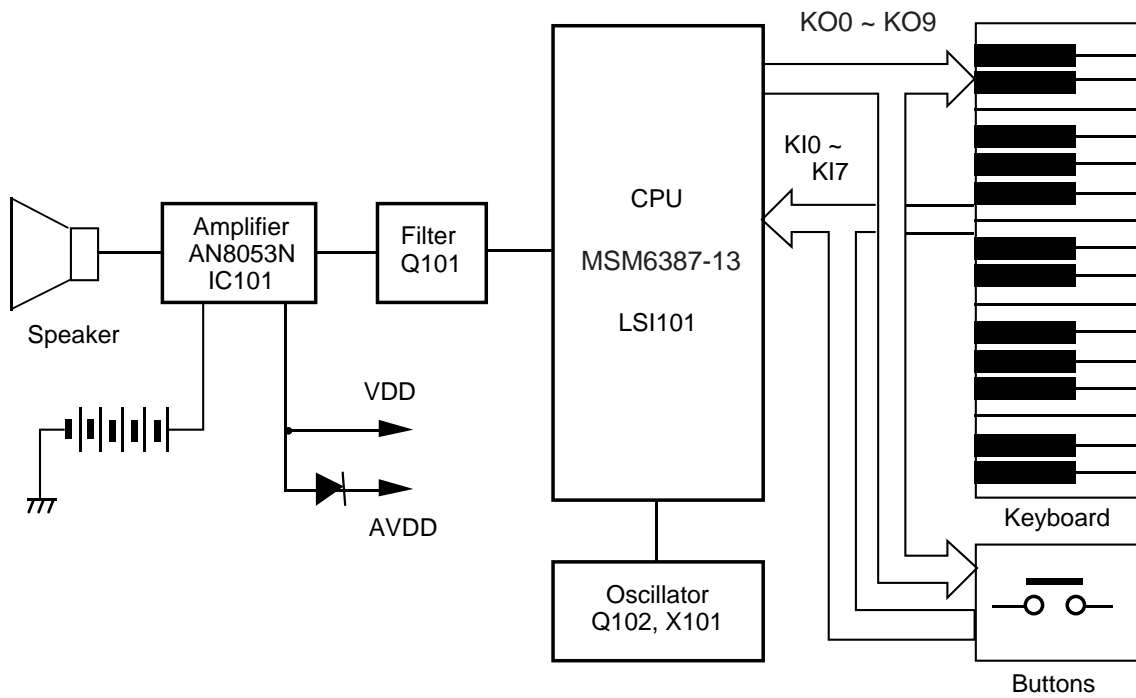
ELECTRICAL

Current drain with 9V DC:	
No sound output	34 mA \pm 20%
Maximum volume	110 mA \pm 20%
with keys C3, D3, E3 and F3 pressed	
in Church Organ tone, Volume; Maximum	
Speaker Output Level at 4 Ω load:	510 mV \pm 20 %
with key E2 pressed in Church Organ tone	
Volume; Maximum	
Minimum operating voltage:	5.5 V

Nomenclature of Keys



BLOCK DIAGRAM



CIRCUIT DESCRIPTION

Key Matrix

	KI0	KI1	KI2	KI3	KI4	KI5	KI6	KI7
KO0	0	1	C2	C#2	D2	D#2	E2	F2
KO1	2	3	F#2	G2	G#2	A2	A#2	B2
KO2	4	5	C3	C#3	D3	D#3	E3	F3
KO3	6	7	F#3	G3	G#3	A3	A#3	B3
KO4	8	9	C4	C#4	D4	D#4	E4	F4
KO5	Tone	Rhythm	F#4	G4	G#4	A4	A#4	B4
KO6	Tempo Up	Tempo Down	C5	C#5	D5	D#5	E5	F5
KO7	Start/ Stop	Fill-In	F#5	G5	G#5	A5	A#5	B5
KO8	Demo		C6					
KO9						Normal	Fingered	CASIO Chord

CPU (LSI101: MSM6387-13)

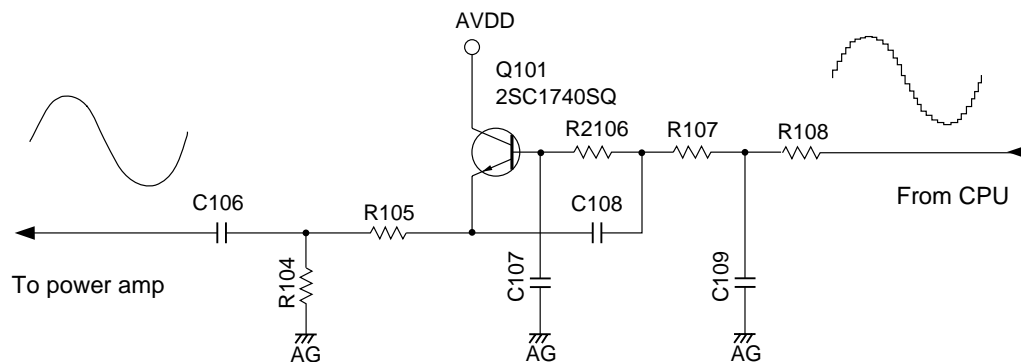
Containing a sound data ROM and a DAC (Digital to Analog Converter), the CPU provides sound waveform in accordance with the pressed key and the selected tone.

The following table shows the pin functions of LSI101.

Pin No.	Terminal	In/Out	Function
1, 2	TEST1, TEST2	—	Not used. Connected to ground.
3	RESET	In	Power ON reset terminal. On: +5 V Off: 0 V
4	AVDD	In	+5 V source for the built-in DAC
5	OUT	Out	Sound waveform output
6	AGND	In	Ground (0 V) source for the built-in DAC
7	GND	In	Ground (0 V) source
8	COSI	In	21.725 MHz clock pulse input
9	COSO	—	Not used
10	VDD	In	+5 V source
11 ~ 18	KI0 ~ KI7	In	Input terminals from keys and switches
19, 20	KO11, KO10	—	Not used
21 ~ 30	KO9 ~ KO0	Out	Key and switch scan signal outputs

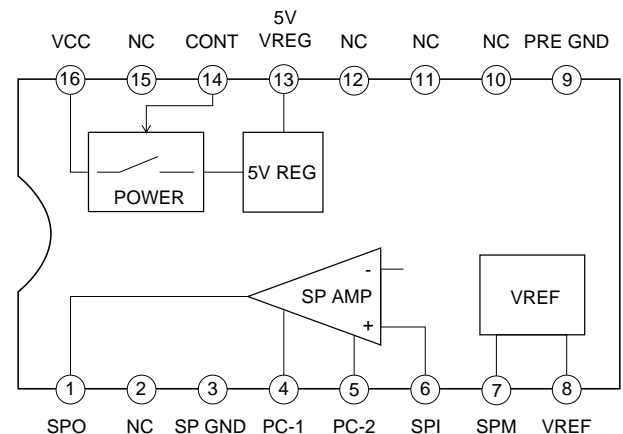
Filter Block

Since the sound signal from the CPU is a stepped waveform, the filter block is added to smooth the waveform.

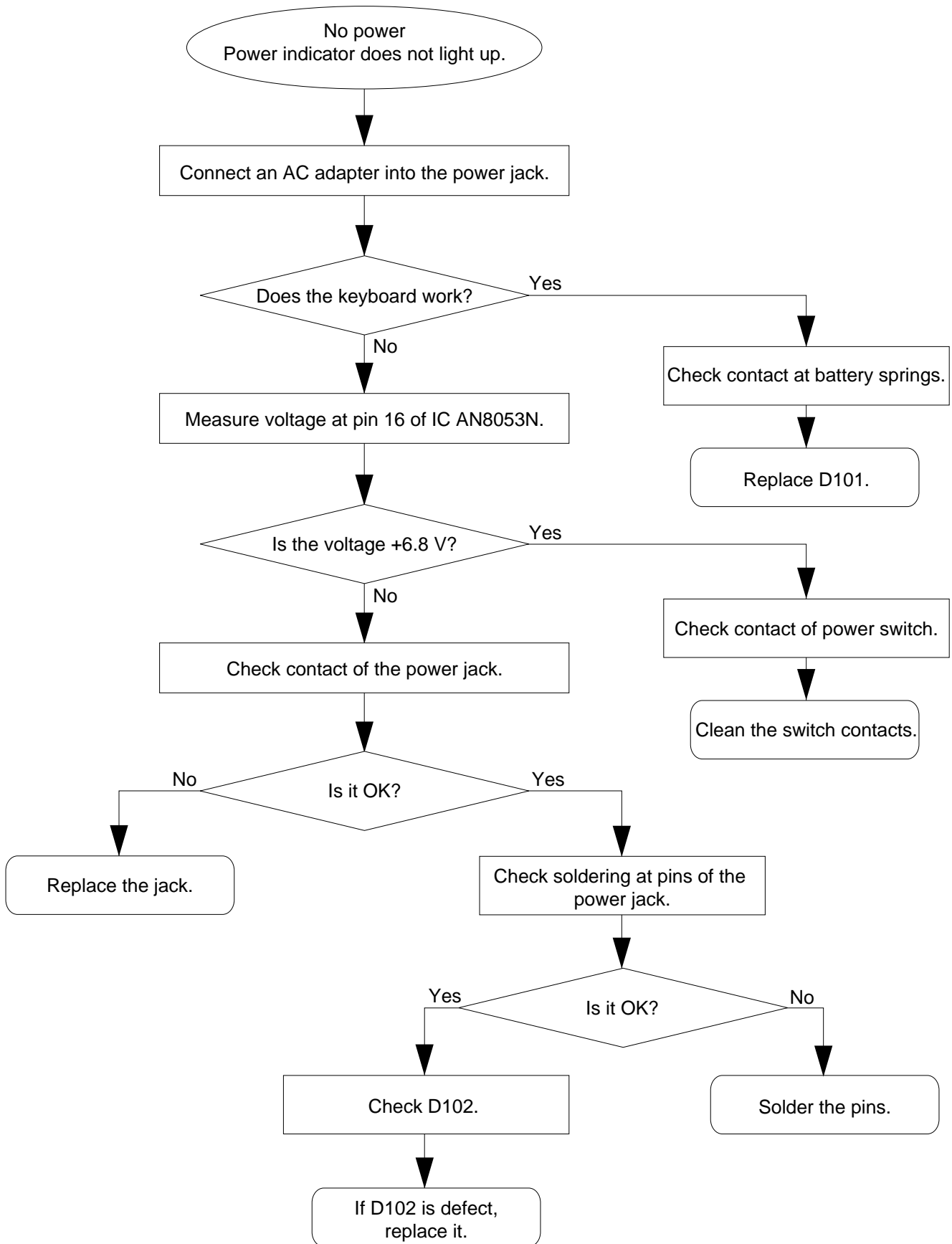


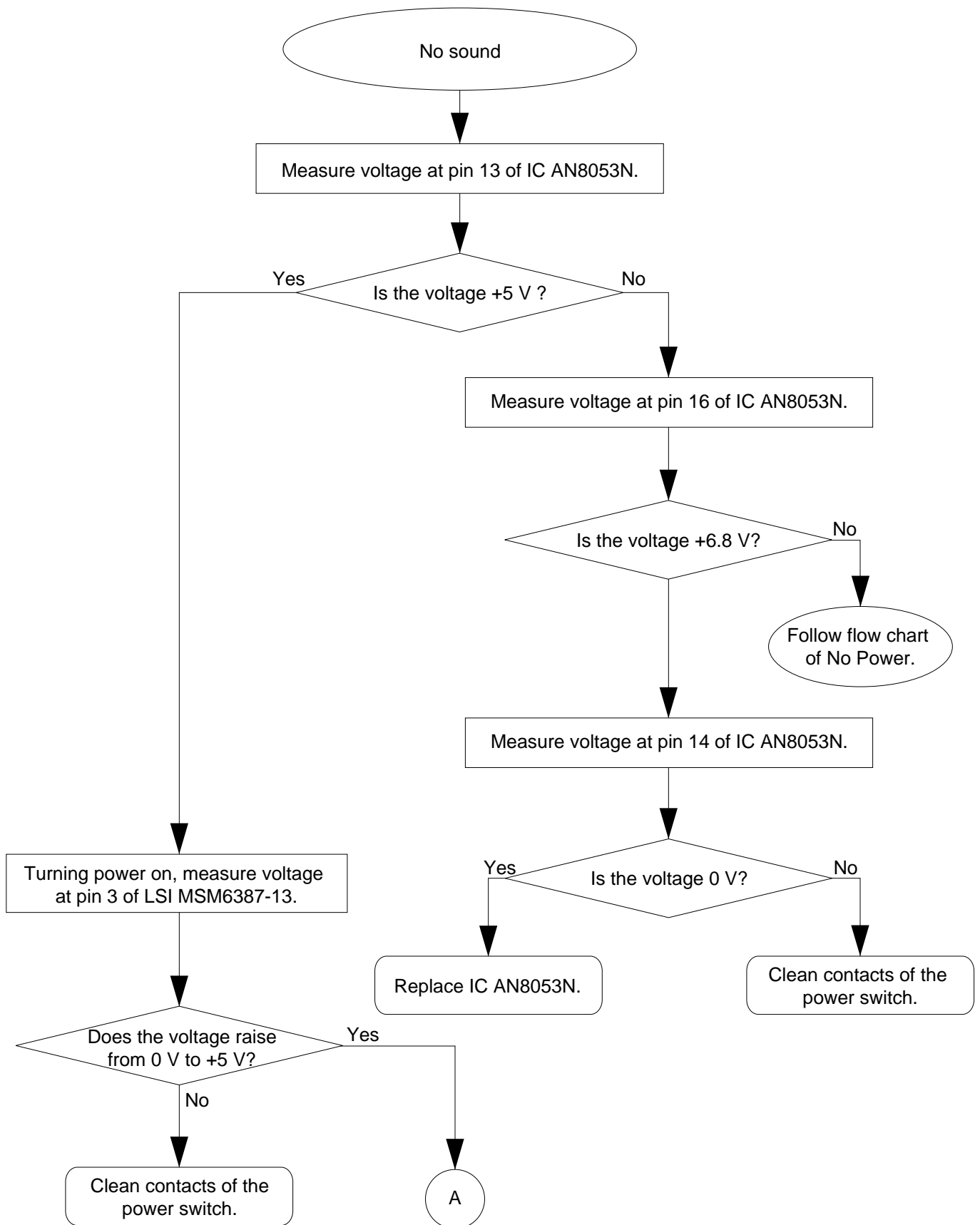
Amplifier/Voltage Regulator (IC101: AN8053N)

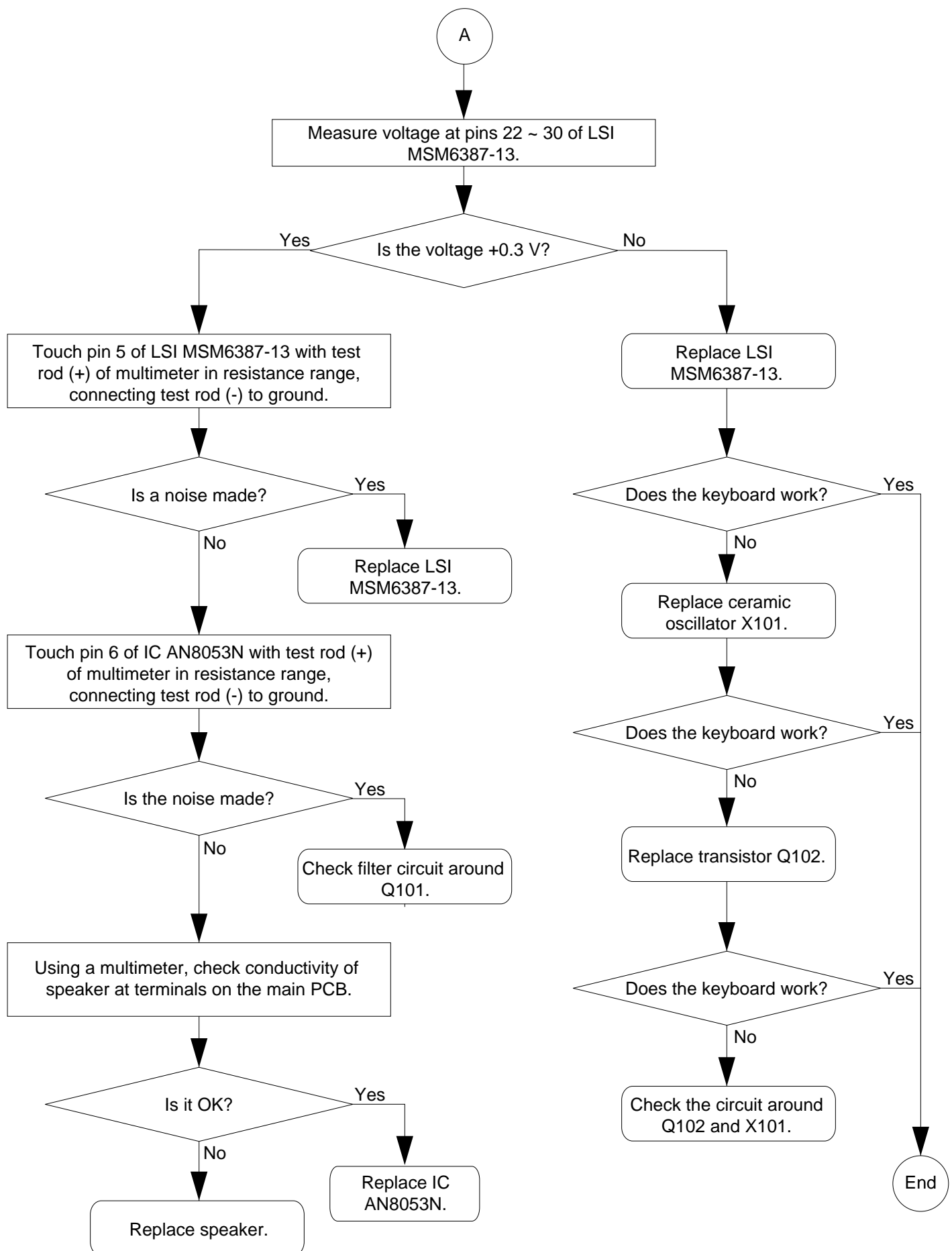
The right figure shows the internal block of IC101.



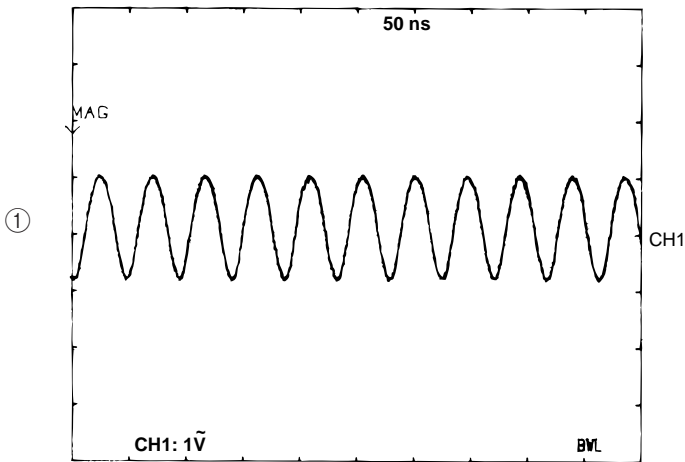
TROUBLESHOOTING



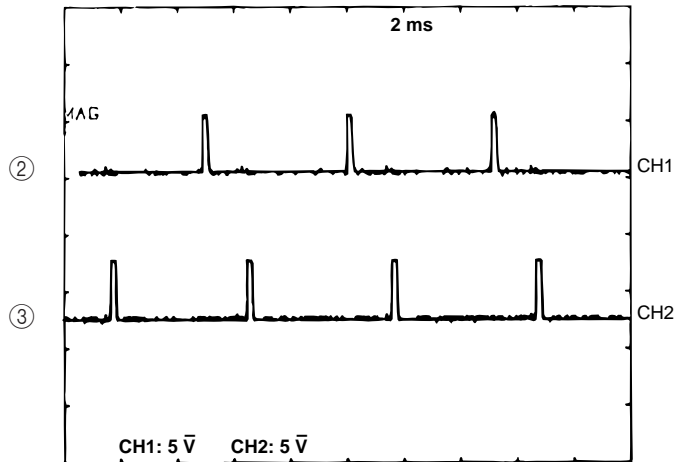




MAJOR WAVEFORMS

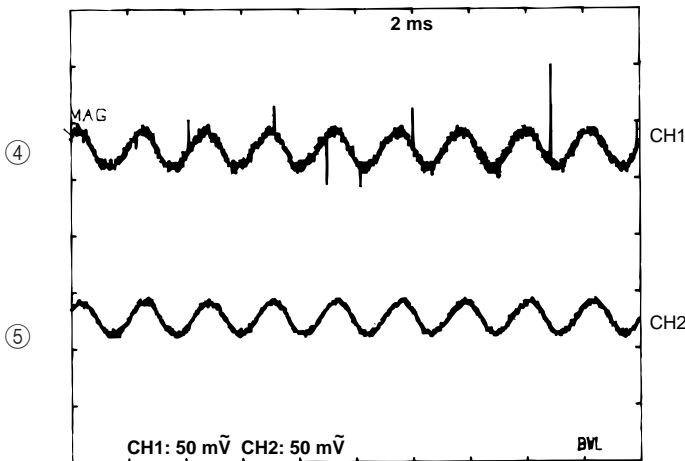


① Clock pulse COSI
MSM6387-13 pin 8



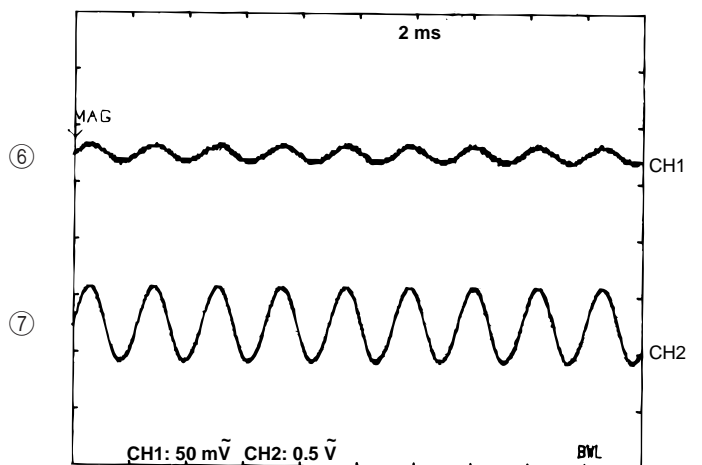
② Key scan signal KO0
MSM6387-13 pin 30

③ Key scan signal KO1
MSM6387-13 pin 29



④ Sound signal output
MSM6387-13 pin 5

⑤ Filter output
Collector of Q101

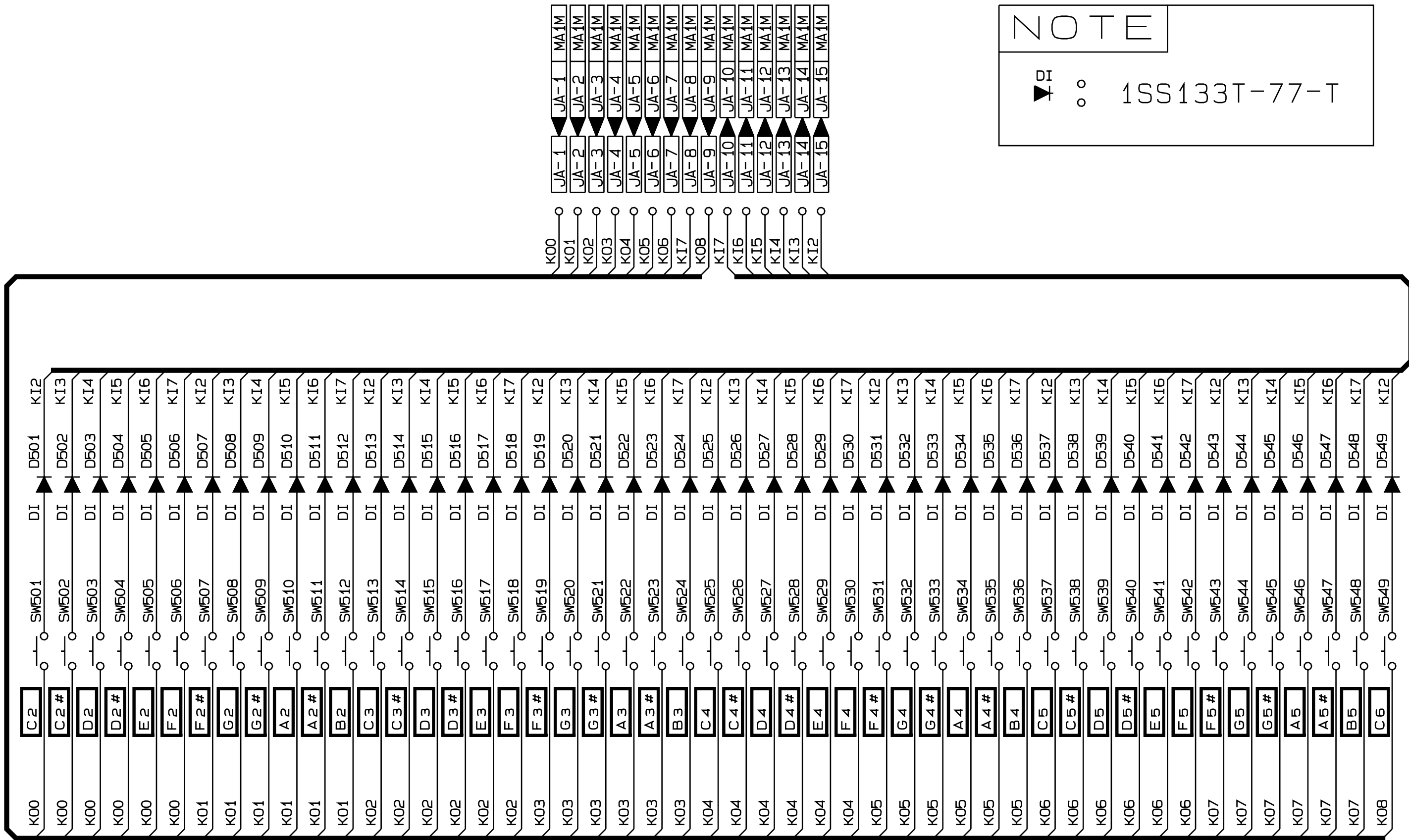


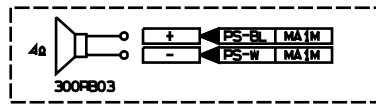
⑥ Power amp input
AN8053N pin 6

⑦ Power amp output
AN8053N pin 1

Tone : Flute (No.13)
Key : A3
Volume : Maximum

SCHEMATIC DIAGRAMS

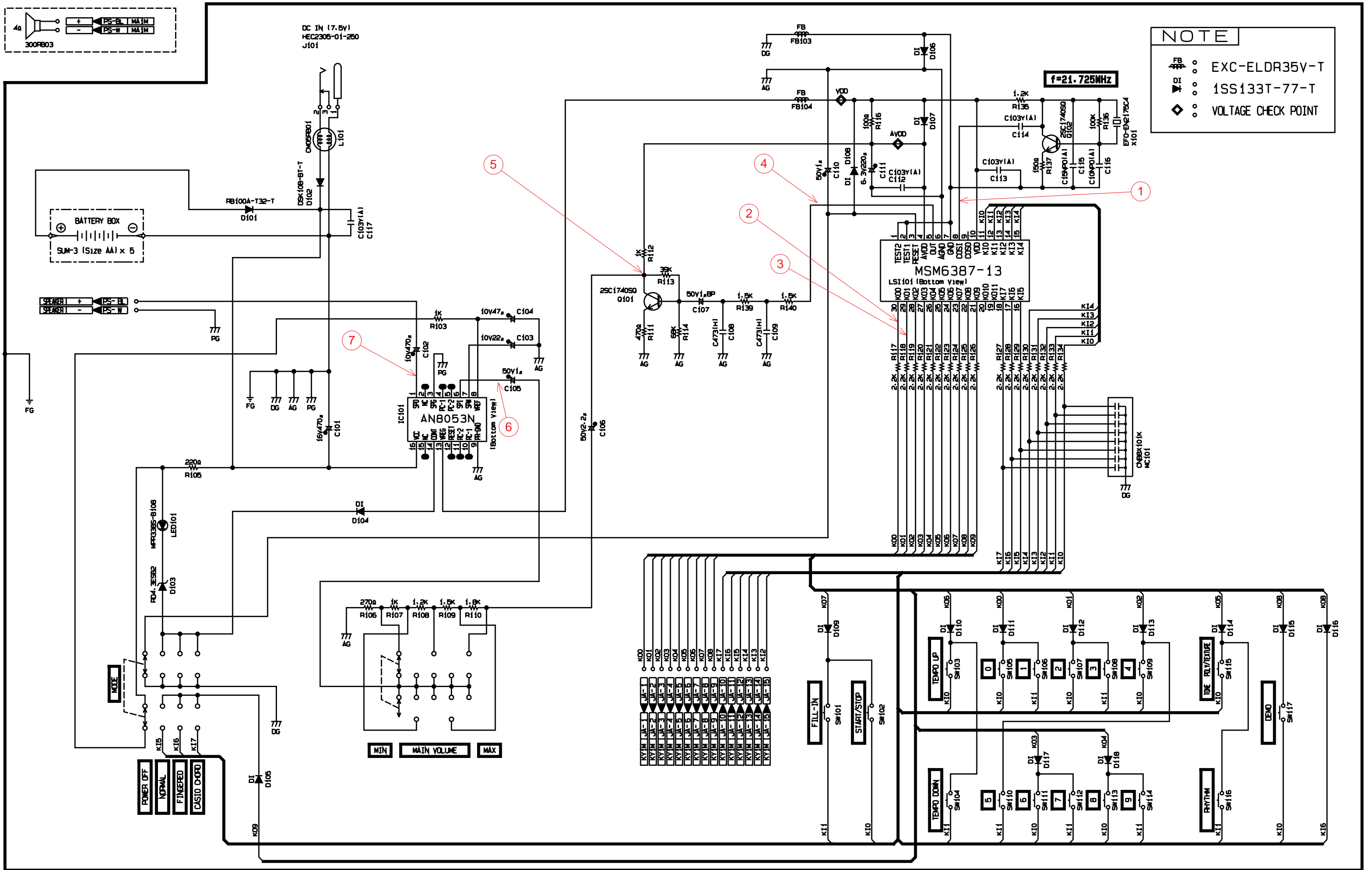




DC IN (7.5V)
HEC2305-D1-250
J101

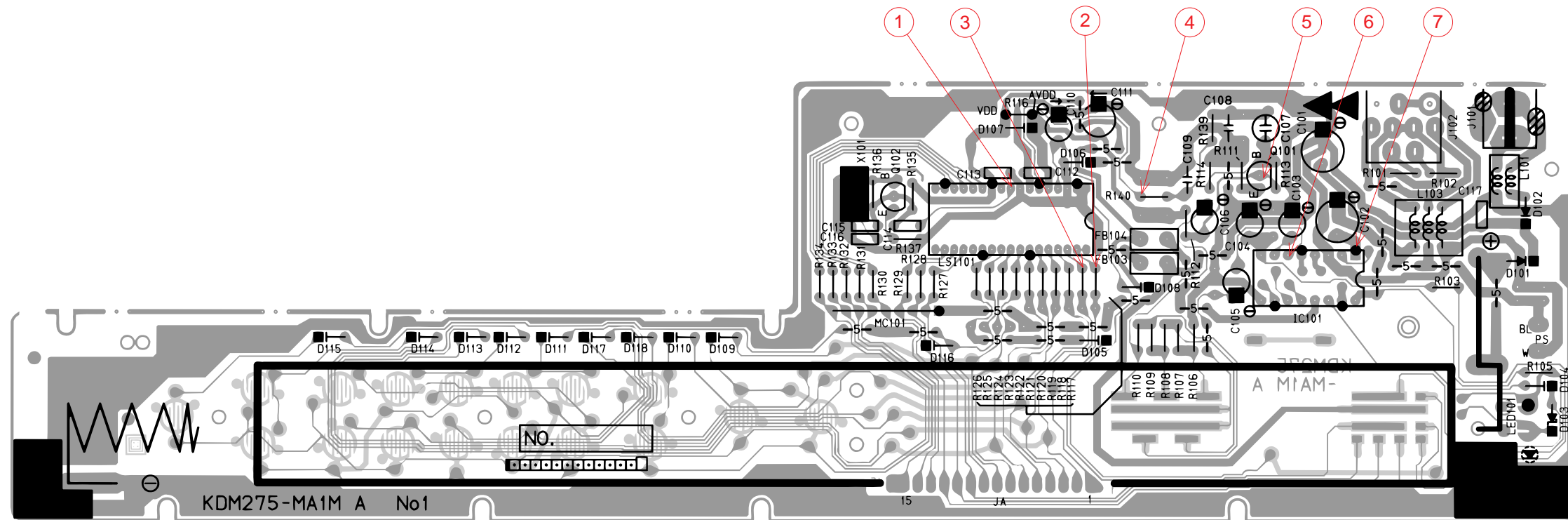
NOTE

- ⊕ ○ EXC-ELDR35V-T
- ▽ ○ 1SS133T-77-T
- ◇ ○ VOLTAGE CHECK POINT

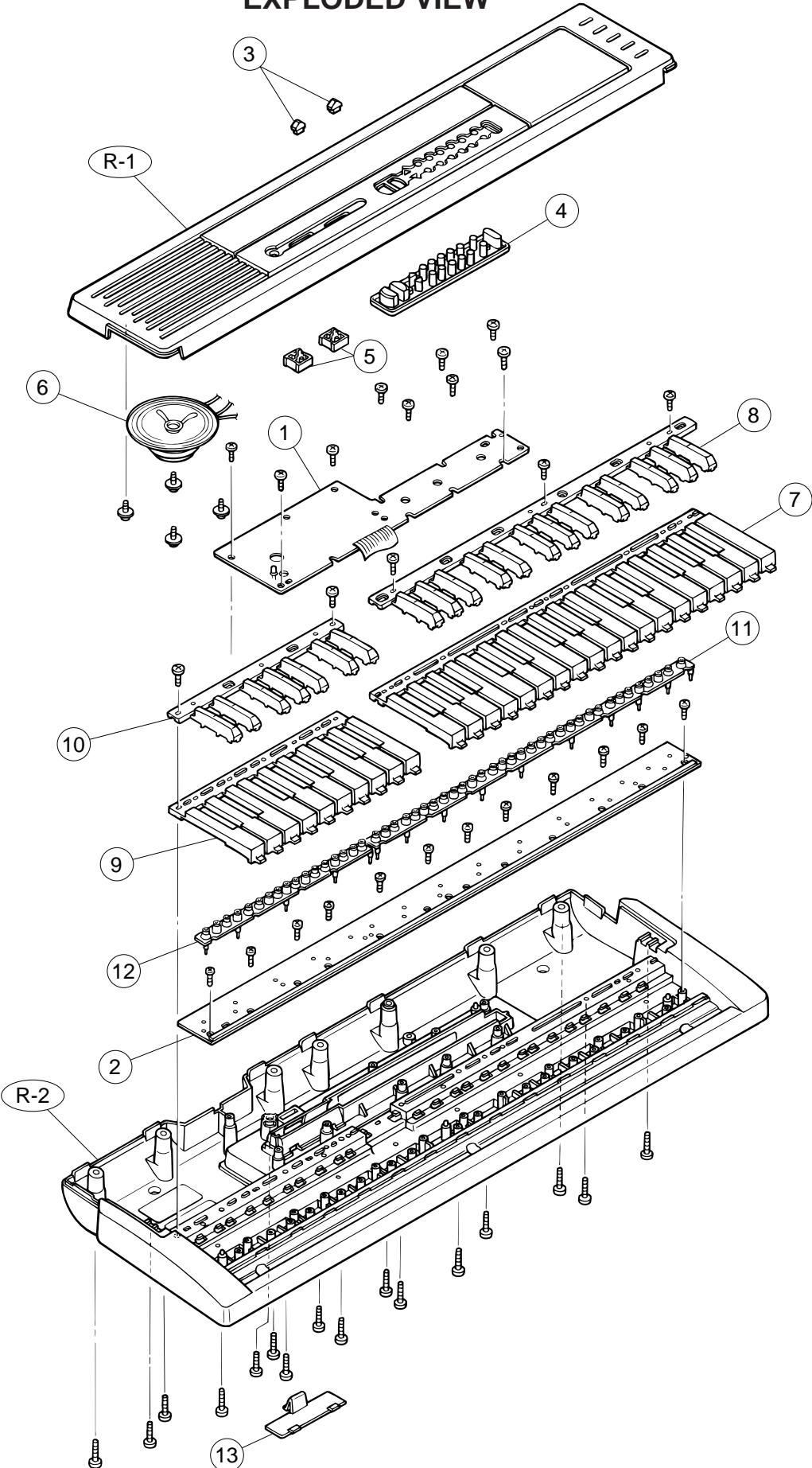


PCB VIEW

Main PCB



EXPLODED VIEW



PARTS LIST

MA-100

Notes: This parts list does not include the cosmetic parts, which parts are marked with item No. "R-X" in the exploded view.

Contact our spare parts department if you need these parts for refurbish.

1. Prices and specifications are subject to change without prior notice.
2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare parts Supply", published separately.
3. The numbers in item column correspond to the same numbers in drawing.

N	Item	Code No.	Parts Name	Specification	Q	FOB Japan N.R.Yen Unit Price	R
	IC101	2114 3269	IC, Power Amp.	AN8053N	1		A
	LSI101	2011 2961	LSI, CPU	MSM6387-13	1		A
	Q101, 102	2220 1387	Transistor	2SC1740SQ-TP-T	2		B
	D101	2390 1323	Diode	RB100A-T32-T	1		B
	D102	2390 0371	Diode	DSK10B-BT-T	1		B
	D103	2310 7848	Zener diode	RD4. 3ESB2-T1-T	1		A
	X101	2590 1897	Ceramic oscillator	EFO-EN2175C4	1		B
	J101	3501 3731	Power jack	HEC2305-01-250	1		A
N	1	6925 0500	PCB ass'y, MA1M	M240352*1	1		B
N	2	6925 0510	PCB ass'y, KY	M240353*1	1		B
	3	6921 5031	Slide knob	M311859A-1	2		B
N	4	6925 0540	Button, Rubber	M240278-1	1		B
	5	6909 5890	Slide contact	CSB-12D	2		B
N	6	3831 1029	Speaker	300RB03	1		B
N	7	6925 0550	White key set, 19-key	M140301-1	1		A
N	8	6925 0560	Black key set, 13-key	M140302-1	1		A
N	9	6925 0570	White key set, 10-key	M140303-1	1		A
N	10	6925 0580	Black key set, 7-key	M140304-1	1		A
N	11	6925 0590	Key contact rubber, 32-contact	M240287-1	1		B
N	12	6925 0600	Key contact rubber, 17-contact	M240288-1	1		B
	13	6906 7511	Battery cover	M312197A*3	1		B

Notes: N – New parts
R – Rank

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