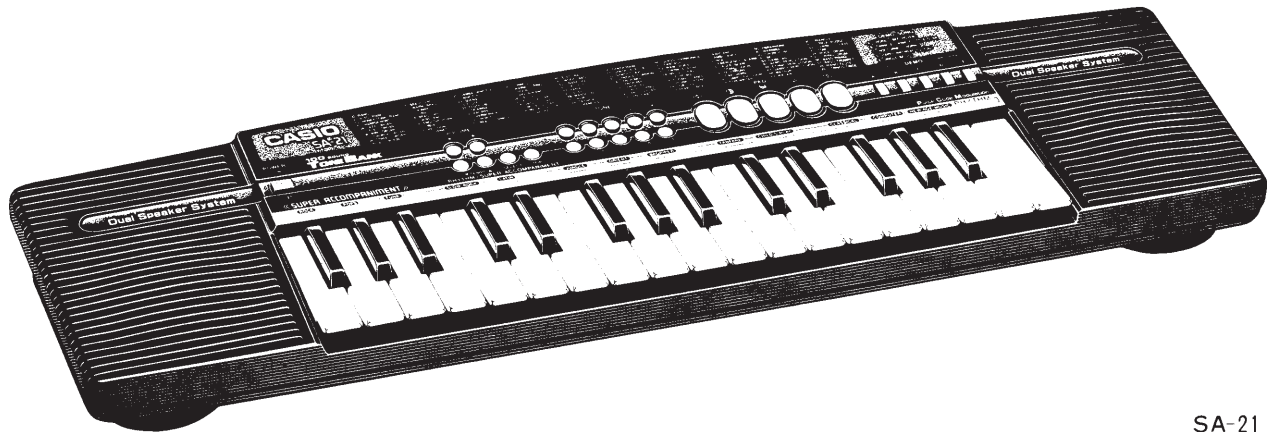


SERVICE MANUAL & PARTS LIST (with price)

ELECTRONIC KEYBOARD

SA-21

MAR. 1991



SA-21

CASIO®

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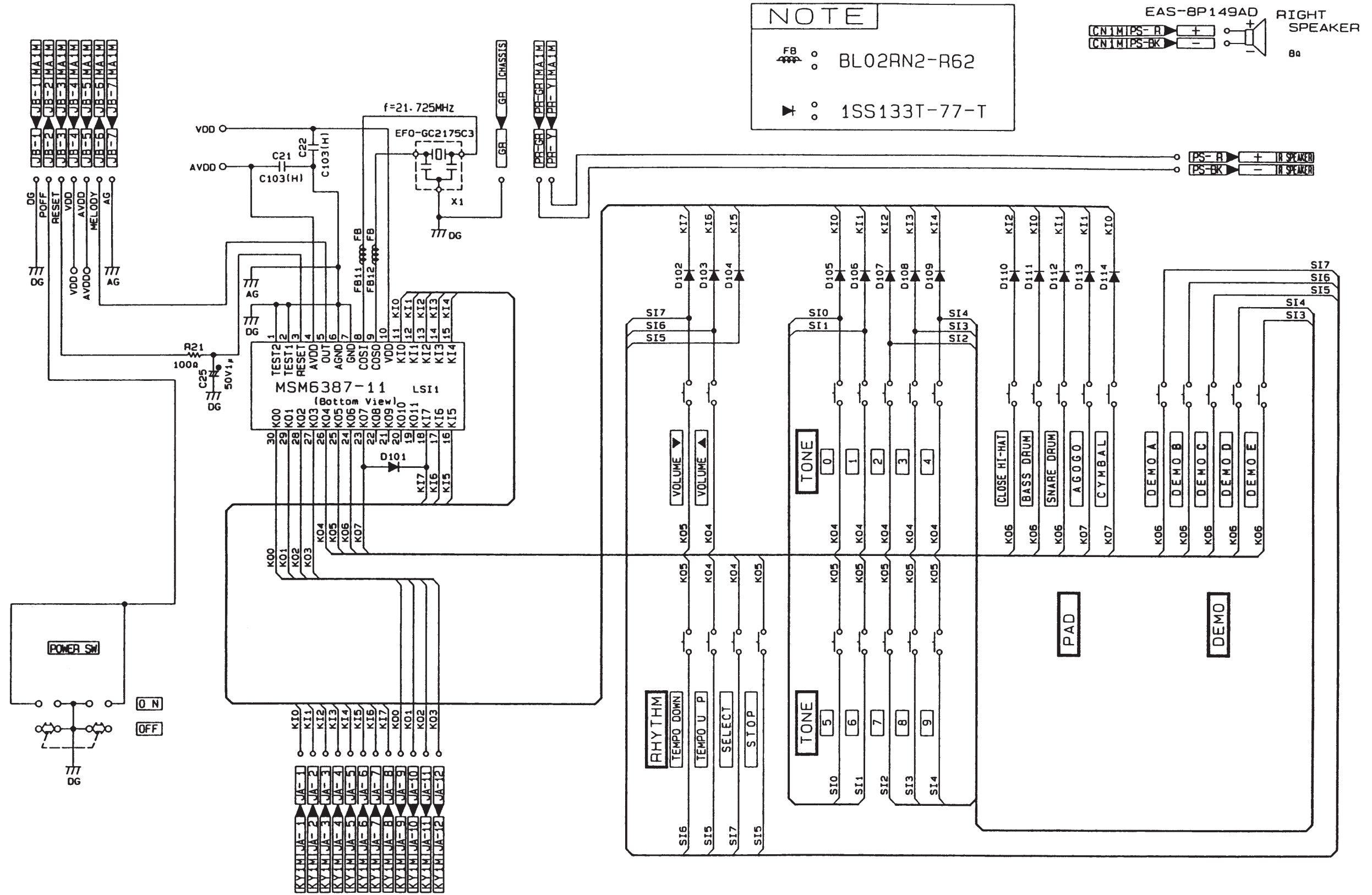
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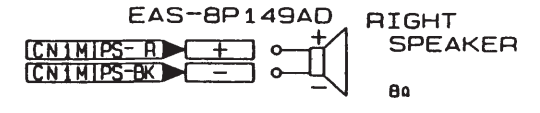
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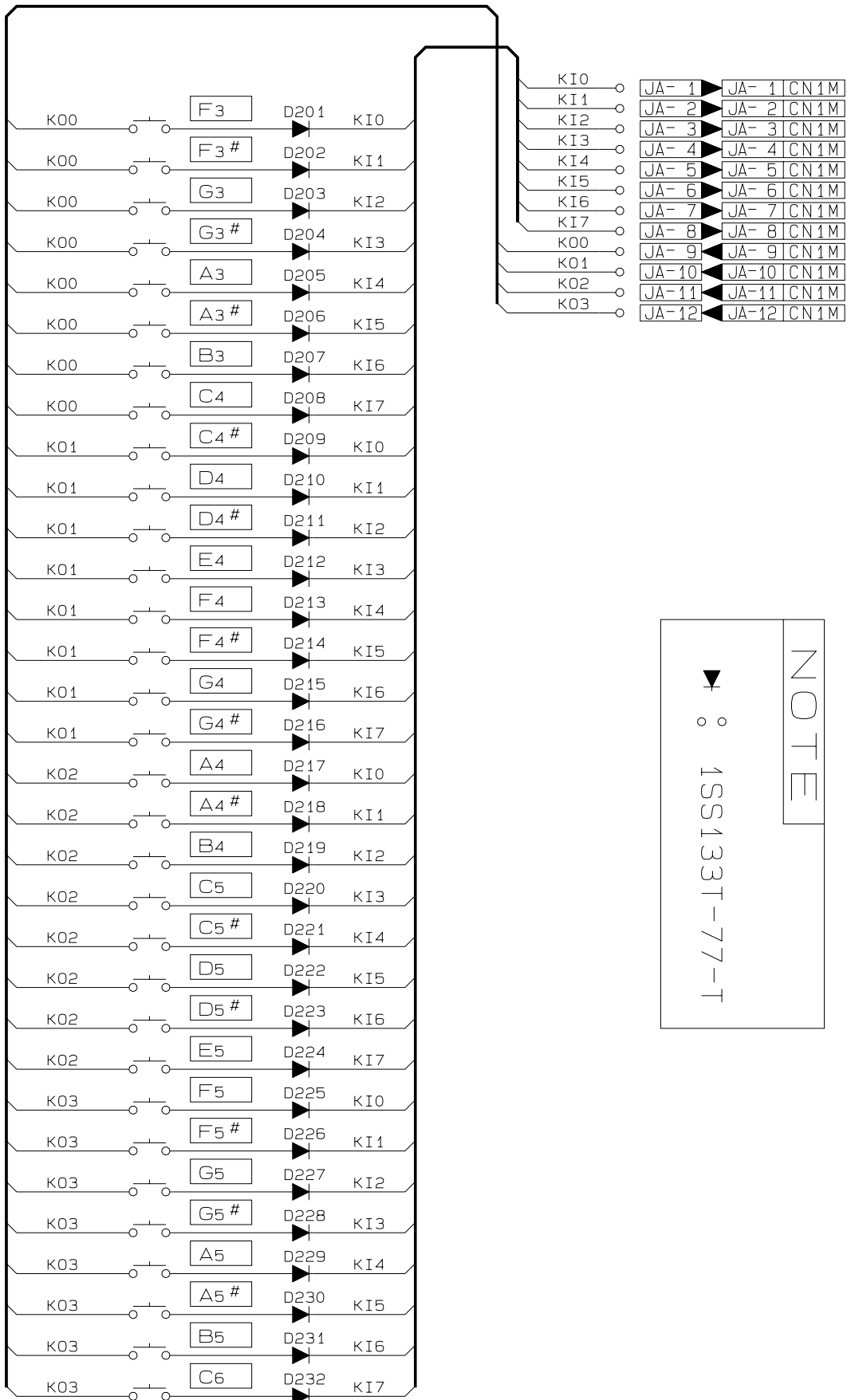
NOTE

FB : BL02RN2-R62

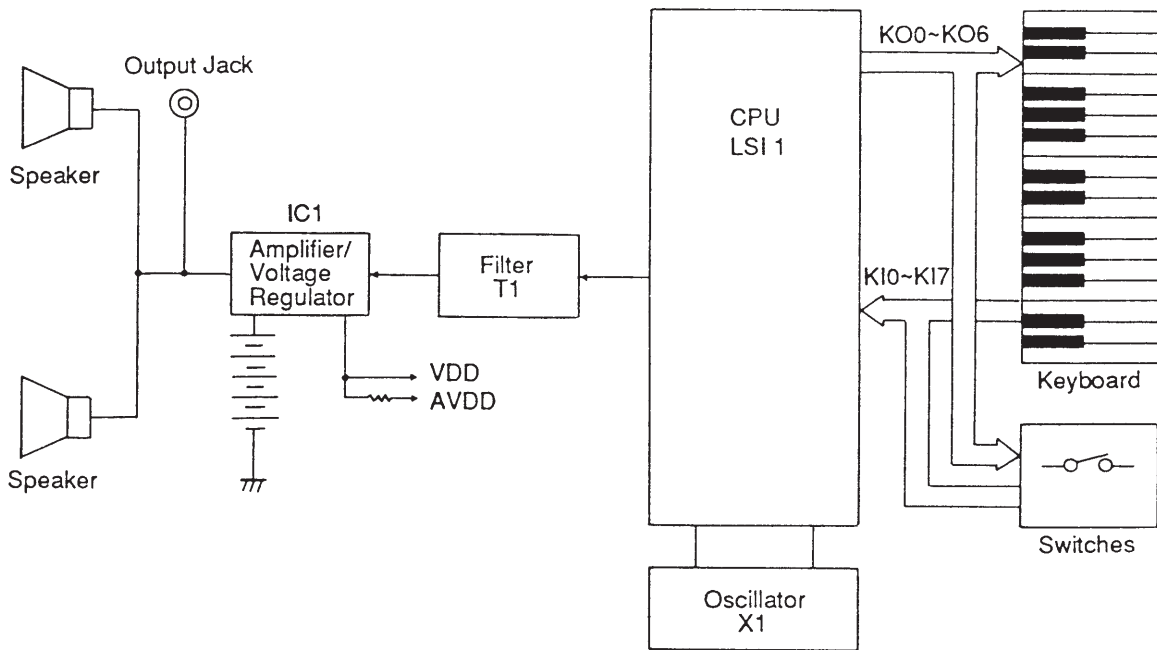
▶ : 1SS133T-77-T



PCB M3233-KY1M



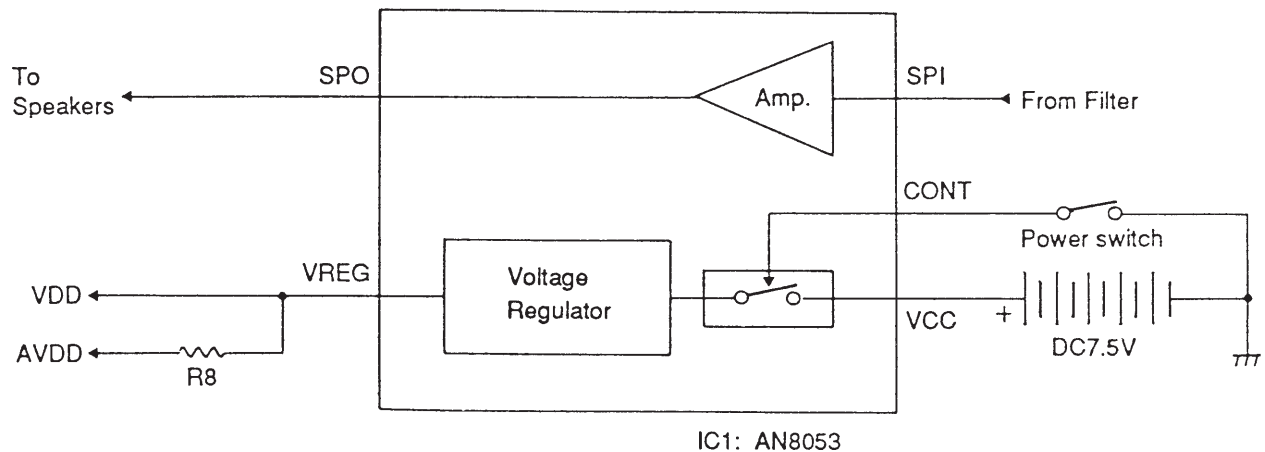
BLOCK DIAGRAM



CIRCUIT DESCRIPTION

Amplifier/Voltage Regulator (AN8053)

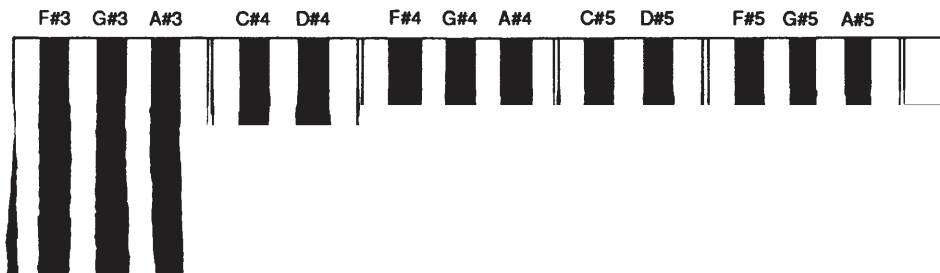
Consisting of an amplifier and a voltage regulator, AN8053 amplifies the sound signal from Filter block and also provides +5V voltage.



Key and Switch Matrix

	KO0	KO1	KO2	KO3	KO4	KO5	KO6	KO7
KI0	F3	C#4	A4	F5	0	5	BASS DRUM	CYMBAL
KI1	F#3	D4	A#4	F#5	1	6	SNARE DRUM	AGOGO
KI2	G3	D#4	B5	G5	2	7	CLOSE HI-HAT	
KI3	G#3	E4	C5	G#5	3	8	Demo E	
KI4	A3	F4	C#5	A5	4	9	Demo D	
KI5	A#3	F#4	D5	A#5	Tempo ▲	Stop	Demo C	
KI6	B3	G4	D#5	B5	Volume ▲	Tempo ▼	Demo B	
KI7	C4	G#4	E5	C6	Select	Volume ▼	Demo A	

Nomenclature of Keys



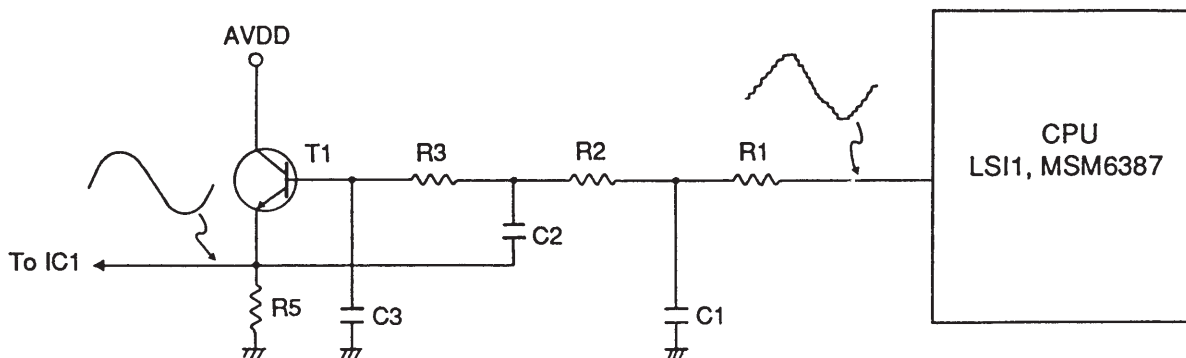
CPU (LSI: MSM6387-11)

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

The following table shows pin function of the LSI.

Pin No.	Terminal	In/Out	Pin Function
1, 2	TEST1, TEST2	—	Not used. Connected to the ground.
3	RESET	In	Power ON reset terminal. When the power switch is turned on, the terminal receives Low level signal and the internal circuits of the LSI are initiated.
4	AVDD	In	+5V source for the built-in DAC
5	OUT	Out	Sound waveform output
6	AGND	In	Ground (0V) source for the built-in DAC
7	GND	In	Ground (0V) source
8, 9	COSI, COSO	In/Out	21.725 MHz clock pulse input/output
10	VDD	In	+5V source
11~18	KI0~KI7	In	Input terminals from keys and switches
19~22	KO11~KO8	—	Not used
23~30	KO7~KO0	Out	Key and switch scan signals output

Filter Block



Since the sound signal from the CPU is a stepped waveform, the Filter block smoothes the waveform.

PARTS LIST

SA-21

- Notes:
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.

Item	Code No.	Parts Name	Spec. No.	Q	*	FOB Japan N. R. Yen Unit Price	R N K
1) MA1M PCB ASS'Y							
	2114 1596	Monolithic IC	AN8053	1		120	A B
	2220 1387	Transistor	2SC1740SQ-TP-T	1	10	13	A A
	2301 0275	Diode	1SS176-TPA7-T	1	20	5	C A
	2390 0371	Diode	DSK10B-BT-T(=1SR139-100T-3)	1	20	11	C A
	2617 0028	Carbon film resistor	R-20-100-J-T24-T	3	20	3	C A
	2617 0087	Carbon film resistor	R-20-4.7K-J-T24-T	1	20	3	C A
	2617 0133	Carbon film resistor	R-20-82K-J-T24-T	1	20	3	C A
	2617 0289	Carbon film resistor	R-20-15K-J-T24-T	3	20	3	C A
	2801 7994	Electrolytic capacitor	16RE3-470-T14-T	1	20	27	C A
	2805 3134	Electrolytic capacitor	10RE2-22-T2-T	1	20	14	C A
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	1	20	14	C A
	2807 0993	Electrolytic capacitor	16RE2-22-T2-T	1	20	17	C A
	2807 1082	Electrolytic capacitor	16RE2-100-T2-T	1	10	27	C A
	2807 1091	Electrolytic capacitor	6.3RE2-100-T2-T	1	20	18	C A
	2813 0679	Semiconductive capacitor	DD407SR563K16-T	1	20	9	C A
	2818 0494	Ceramic capacitor	RT-HE80TKSL331J-T	1	10	9	C A
	2818 2082	Ceramic capacitor	RT-HE70TKYF103Z-T	1	10	3	C A
	2819 5141	Semiconductive capacitor	DD404SR222K25-T	1	20	6	C A
	2819 5150	Semiconductive capacitor	DD404SR562K25-T	1	20	6	C A
	3501 3731	DC jack	HEC2305-01-250	1	20	30	C A
	3501 4375	Jack	YKB21-5101X	1	5	54	C B
	3841 0539	Inductor	ELE-V100KR-T	1	20	26	C A
O*	4317 0932	Blank PCB-M3211-MA1M	M210667B-1	1		31	X A
2) CN1M PCB ASS'Y							
O*	2011 0861	LSI	MSM6387-11	1		670	A G
	2390 1344	Diode	1SS133T-77-T	14	20	3	C A
	2590 0742	Ceramic osillator	EFO-GC2175C3	1	5	65	C B
	3020 2147	Ferrite beads	BL02RN2-R62	2	10	15	C A
O*	3719 3178	PC Joiner M233A	DF5H12125-80008000	1	10	29	C A
O*	3719 3185	PC Joiner M233B	DF5H07080-8000M	1	20	23	C A
O*	4317 2290	Blank PCB-M3233-CN1M	M111059--1	1		140	X B
3) KY1M PCB ASS'Y							
	2390 1344	Diode	1SS133T-77-T	32	20	3	C A
O*	4317 2300	Blank PCB-M3233-KY1M	M111059-2	1		140	X B
4) UPPER CASE BLOCK							
1	3831 0385	Speaker	EAS-8P149AD	2		150	C B
2	6909 7380	SL contact 9D	CSB-09D	1	20	26	B A
3	6917 1471	Key contact rubber	M210670A-1	1	5	91	B B
40*	6917 1511	White key set	M110550A-1	1		150	C B
50*	6917 1522	Black key set	M110551B-1	1	5	73	C B
6	6917 4510	Stopper 216	M411074-1	1	20	10	C A
70*	6919 2110	Upper case sub ass'y	M211197*1	1		450	C E
80*	6919 2120	Rubber button 233A	M311428-1	1	5	83	C B
90*	6919 2130	Rubber button 233B	M311429-1	1		120	C B
100*	6919 2140	Rubber button 233C	M311430-1	1	5	75	C B
110*	6919 2150	Contact rubber 233	M311431-1	1	10	43	B A
120*	6919 2160	Button 233	M411583-1	5	20	12	B A
130*	6919 2170	Slide knob 135	M32180-2	1	20	17	C A
140*	6919 2180	Button stopper M233	M411618-1	1	20	18	X A
5) LOWER CASE BLOCK							
15	6345 2238	Battery spring A-G55	A42606B-1	1	10	5	X A
	6902 6690	Rubber foot	M41361-1	4	10	5	C A
16	6912 2630	Battery spring 120	M42382-1	1	10	14	X A

Notes: O* - New parts

Q'ty - Quantity used per unit

* - Minimum order and supply quantity

Rank A: Essential

B: Stock recommended

C: Others

X: No stock recommended

Item	Code No.	Parts Name	Spec. No.	Q	*	FOB Japan N. R. Yen Unit Price	R N K	
170*	6919 2080	Lower case sub ass'y	M211199*1	1		580	C	F
6) BATTERY COVER								
180*	6919 2090	Battery cover	M311444-1	1	10	15	C	A

Notes: O* - New parts
Qty - Quantity used per unit
* - Minimum order and supply quantity

Rank A: Essential
B: Stock recommended
C: Others
X: No stock recommended

EXPLODED VIEW / DISASSEMBLY

