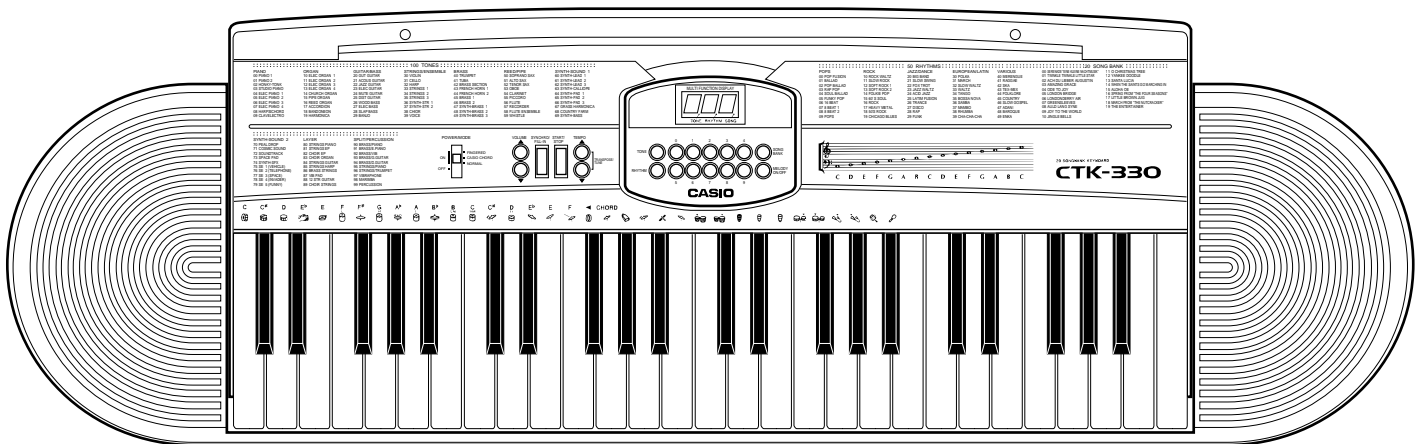


# CASIO®

# Service Manual

(without price)

## CTK-330



CTK-330

**ELECTRONIC KEYBOARD**

**INDEX**

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## SPECIFICATIONS

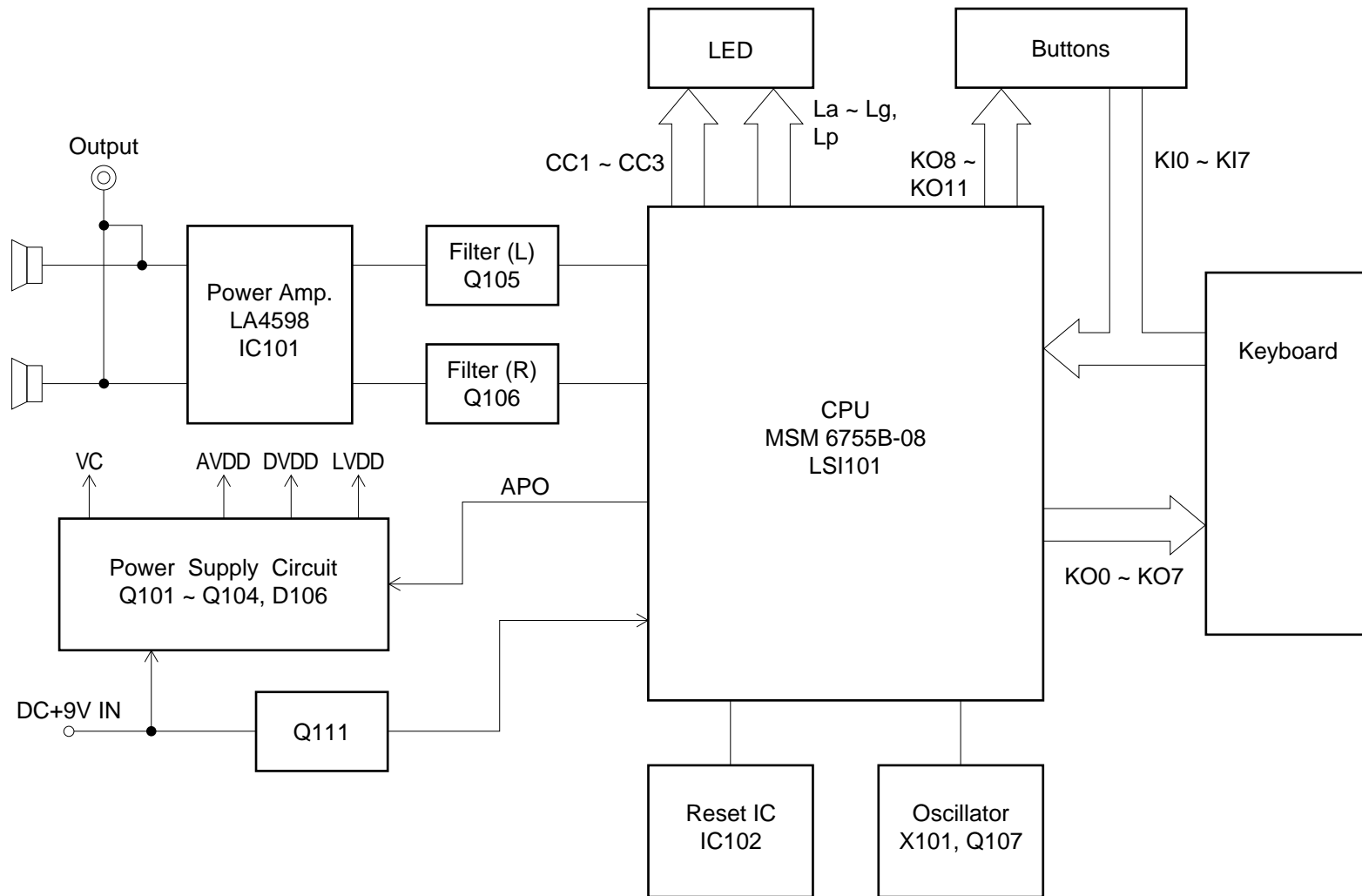
### GENERAL

Number of keys:	49
Polyphonic:	12-note
Preset tones:	100
Auto-rhythms:	50, Tempo control: 40 to 255
Accompaniment:	Casio Chord, Fingered
Song bank:	20-tune
Tuning control:	440 Hz $\pm$ 50 cents
Built-in speakers:	4 inch dia. 2 W input rating: 2 pcs
Terminals:	Stereo standard Jack (Output impedance: 100 ohm, Output voltage: 3 V (rms) MAX
Power source:	2-way AC or DC source AC: AC adapter DC: 6 AA size dry batteries
Power consumption:	7.2 W
Dimensions(HWD):	988 $\times$ 311 $\times$ 125 mm (38-15/16 $\times$ 12-1/4 $\times$ 4-15/16 inches)
Weight:	3.5 kg (7.7 lbs) excluding batteries

### ELECTRICAL

Current drain with 9 V DC:	
No sound output	120 mA $\pm$ 30%
Maximum volume	650 mA $\pm$ 30%
with white keys C1 to G2 pressed in Synth-Lead 1	
Volume: 9	
Phone output Level (Vrms with 8 ohm load each channel):	
with key E3 pressed in Synth-Lead 1	80 mV $\pm$ 30%
Sound Pressure (at 10 cm away from speaker):	
with key E3 pressed in Synth-Lead 1	100 dB $\pm$ 10 dB
Minimum operating voltage:	6.0 V

# BLOCK DIAGRAM

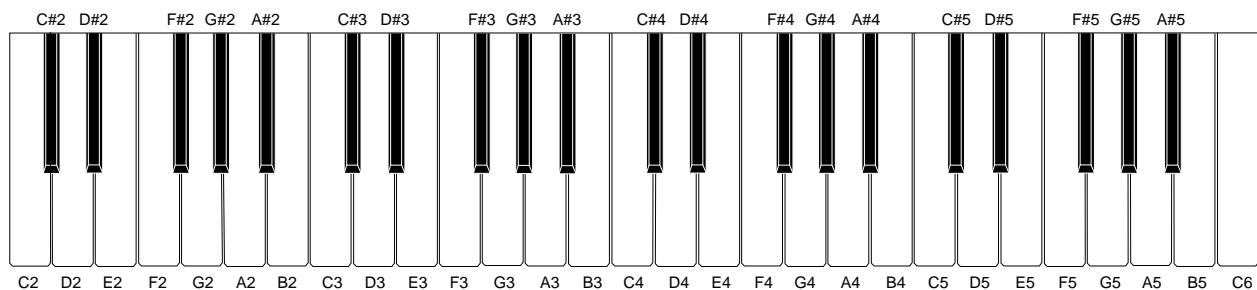


# CIRCUIT DESCRIPTION

## KEY MATRIX

	KI0	KI1	KI2	KI3	KI4	KI5	KI6	KI7
KO0	C2	G#2	E3	C4	G#4	E5	C6	
KO1	C#2	A2	F3	C#4	A4	F5		
KO2	D2	A#2	F#3	D4	A#4	F#5		
KO3	D#2	B2	G3	D#4	B4	G5		
KO4	E2	C3	G#3	E4	C5	G#5		
KO5	F2	C#3	A3	F4	C#5	A5		
KO6	F#2	D3	A#3	F#4	D5	A#5		
KO7	G2	D#3	B3	G4	D#5	B5		
KO8	0	1	2	3	4	Start/Stop	Tempo Up	Volume Up
KO9	5	6	7	8	9	Tempo Down	Volume Down	Synchro/ Fill-In
KO10	Tone	Rhythm	Song Bank	Melody On/Off				
KO11					Fingered	CASIO Chord	Normal	Power Off

## NOMENCLATURE OF KEYS



## CPU (LSI101: MSM6755B-06)

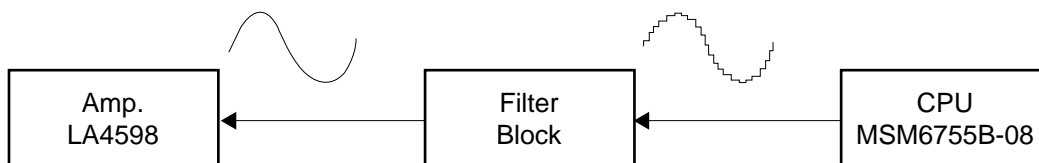
The CPU contains a sound data ROM and a DAC (Digital to Analog Converter), and it provides left and right channel sound waveforms in accordance with the pressed key and the selected tone.

The following table shows the pin functions of LSI101.

Pin No.	Terminal	In/Out	Function
1 ~ 29	MA14 ~ NC2	—	Not used.
30	DGND	In	Ground (0 V) source
31	DVCC	In	+5 V source
32, 33	XTLO, XTLI	In/Out	20 MHz clock input/output
34	NC3	—	Not used. Connected to ground.
35	RSTB	In	Reset signal input
36	P24/RXD	—	Not used. Connected to +5 V.
37	P25/TXD	—	Not used.
38	NMI	In	Power on signal input. Connected to +5 V.
39	APO	Out	APO (Auto Power Off) signal output
40	NC4	—	Not used.
41	REFH	Out	Terminal for the built-in DAC
42, 43	NC5, NC6	—	Not used.
44	DAOR	Out	Right channel sound waveform output
45	NC7	—	Not used.
46	AVdac	In	+5 V source for the built-in DAC and ADC
47	DAOL	Out	Left channel sound waveform output
48	REFL	Out	Terminal for the built-in DAC and ADC
49	AGdac	In	Ground source for the built-in DAC
50	AGadc	In	Ground source for the built-in ADC
51	ANI	—	Not used. Connected to ground.
52	AVadc	In	+5 V source for the internal ADC
53	NC8	—	Not used. Connected to +5 V.
54	MOD0	In	Mode selection terminal
55, 56	MOD1, MOD2	In	Mode selection terminal
57	KO9/P40	In	APO cancelation signal input
58 ~ 65	KI0/P30 ~ KI7/P37	In	Terminals for key/button input signal
66 ~ 73	KO1/P50 ~ KO8/P57	Out	Terminals for key scan signal
74 ~ 77	P20 ~ P23	Out	Terminals for button scan signal
78	NC9	—	Not used.
79	LVCC	In	+5 V source
80 ~ 82	CC1 ~ CC3	Out	LED common signal output
83 ~ 87	—	—	Not used.
88 ~ 95	La ~ Lg, Lp	Out	LED segment signal output
96	LGND	In	Ground (0 V) source
97 ~ 100	—	—	Not used.

## FILTER BLOCK

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

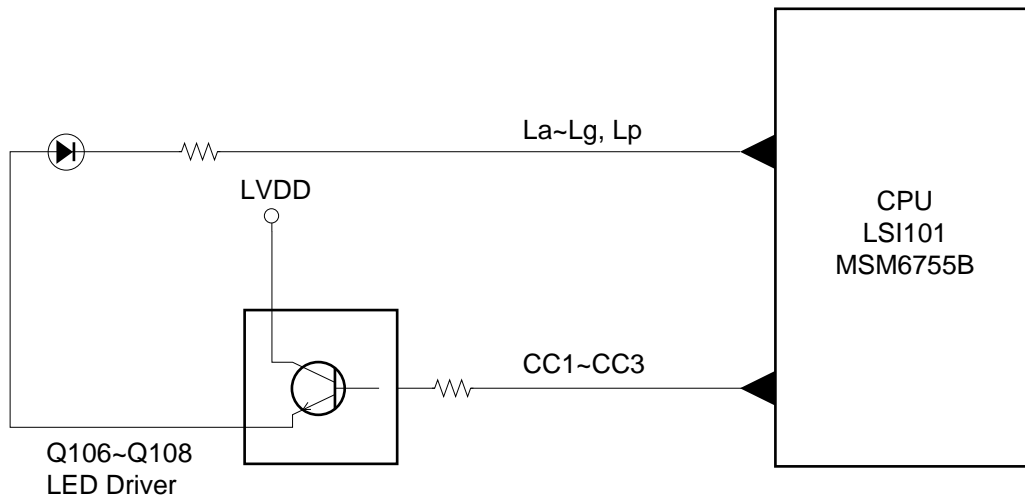


## POWER AMPLIFIER (IC101: LA4598)

The power amplifier is a two-channel amplifier with standby switch.  
The following table shows the pin function of IC101.

Pin No.	Terminal	In/Out	Function
1	Power GND	In	Ground (0 V) source
2	Ch1 B.S.	—	Terminal for a bootstrap capacitor
3	Ch1 OUT	Out	Channel 1 output
4	VCC	In	+9 V source
5	Ch1 N.F.	In	Negative feedback input
6	Ch1 IN	In	Channel 1 input
7	D.C.	—	Terminal for a decoupling capacitor
8	Pre GND	In	Ground (0 V) source
9	Stand by	In	Power control signal input. 0 V: Off, +9 V: On
10	Ch2 IN	In	Channel 2 input
11	Ch2 N.F.	In	Negative feedback input
12	Ch2 OUT	Out	Channel 2 output
13	Ch2 B.S.	—	Terminal for a bootstrap capacitor
14	NC	—	Not used

## LED DRIVING



## CPU (LSI101: MSM6755B-06)

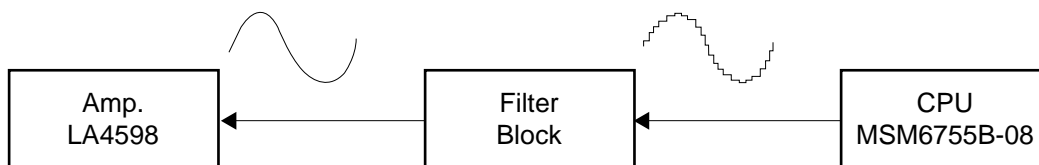
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The following table shows the pin functions of LSI101.

Pin No.	Terminal	In/Out	Function
1 ~ 29	MA14 ~ NC2	—	Not used.
30	DGND	In	Ground (0 V) source
31	DVCC	In	+5 V source
32, 33	XTLO, XTLO	In/Out	20 MHz clock input/output
34	NC3	—	Not used. Connected to ground.
35	RSTB	In	Reset signal input
36	P24/RXD	—	Not used. Connected to +5 V.
37	P25/TXD	—	Not used.
38	NMI	In	Power on signal input. Connected to +5 V.
39	APO	Out	APO (Auto Power Off) signal output
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42, 43	NC5, NC6	—	Not used.
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79	LVCC	In	+5 V source
80 ~ 82	CC1 ~ CC3	Out	LED common signal output
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88 ~ 95	La ~ Lg, Lp	Out	LED segment signal output
96	LGND	In	Ground (0 V) source
97 ~ 100	—	—	Not used.

## FILTER BLOCK

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

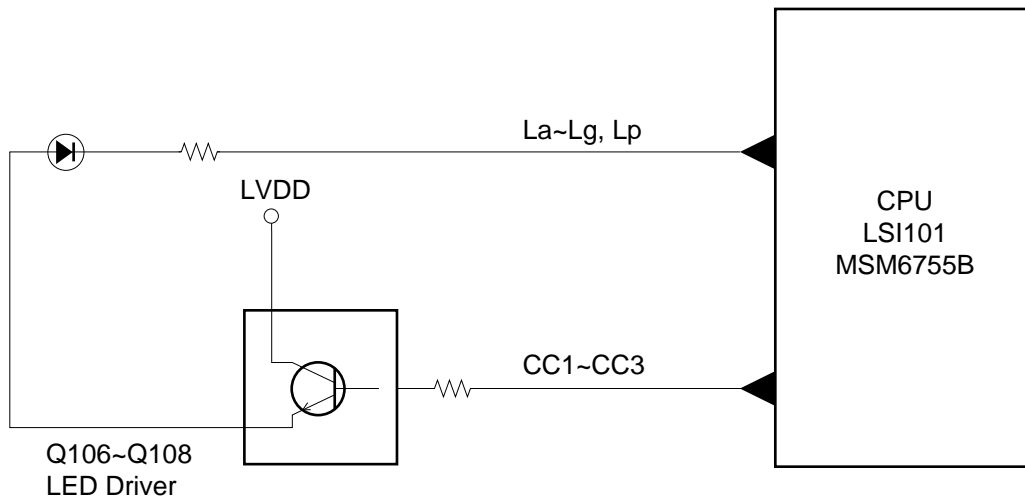


## POWER AMPLIFIER (IC101: LA4598)

The power amplifier is a two-channel amplifier with standby switch.  
The following table shows the pin function of IC101.

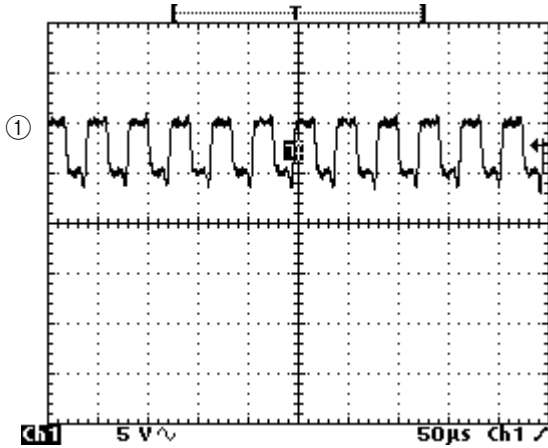
Pin No.	Terminal	In/Out	Function
1	Power GND	In	Ground (0 V) source
2	Ch1 B.S.	—	Terminal for a bootstrap capacitor
3	Ch1 OUT	Out	Channel 1 output
4	VCC	In	+9 V source
5	Ch1 N.F.	In	Negative feedback input
6	Ch1 IN	In	Channel 1 input
7	D.C.	—	Terminal for a decoupling capacitor
8	Pre GND	In	Ground (0 V) source
9	Stand by	In	Power control signal input. 0 V: Off, +9 V: On
10	Ch2 IN	In	Channel 2 input
11	Ch2 N.F.	In	Negative feedback input
12	Ch2 OUT	Out	Channel 2 output
13	Ch2 B.S.	—	Terminal for a bootstrap capacitor
14	NC	—	Not used

## LED DRIVING

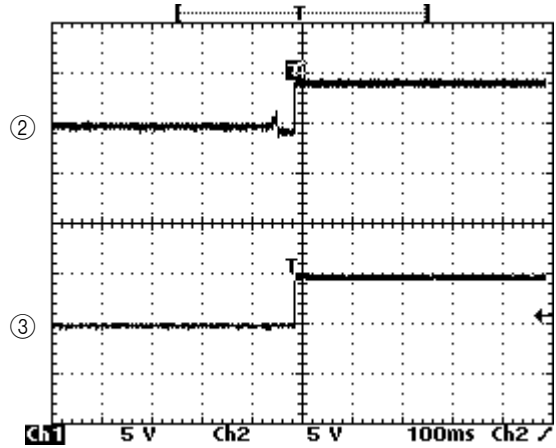




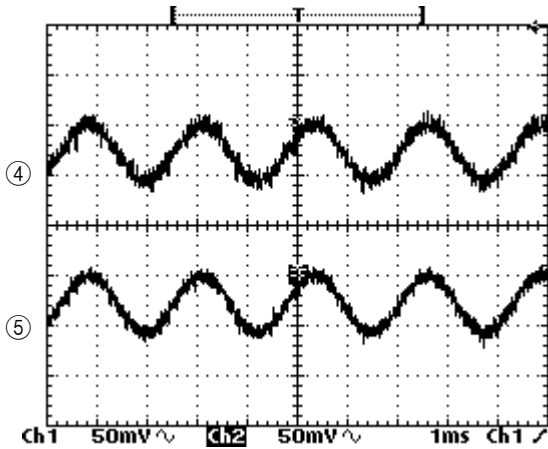
## MAJOR WAVEFORMS



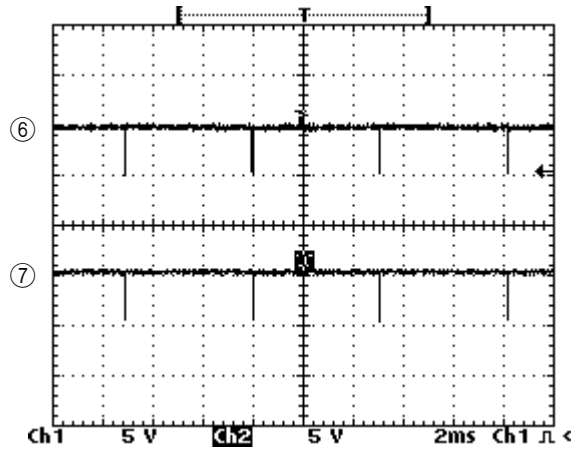
① Clock pulse  
MSM6755B-08 pin 32



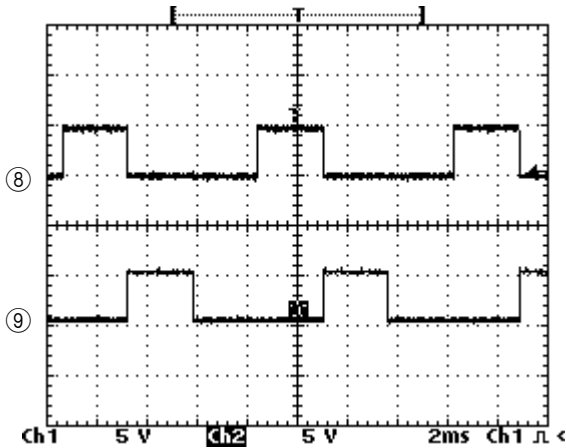
② Reset signal  
MSM6755B-08 pin 35  
③ APO signal  
MSM6755B-08 pin 39



④ Sound waveform (R-ch) Tone: whistle  
MSM6755B-08 pin 44 Key: A4  
⑤ Sound waveform (L-ch) Volume:  
MSM6755B-08 pin 47



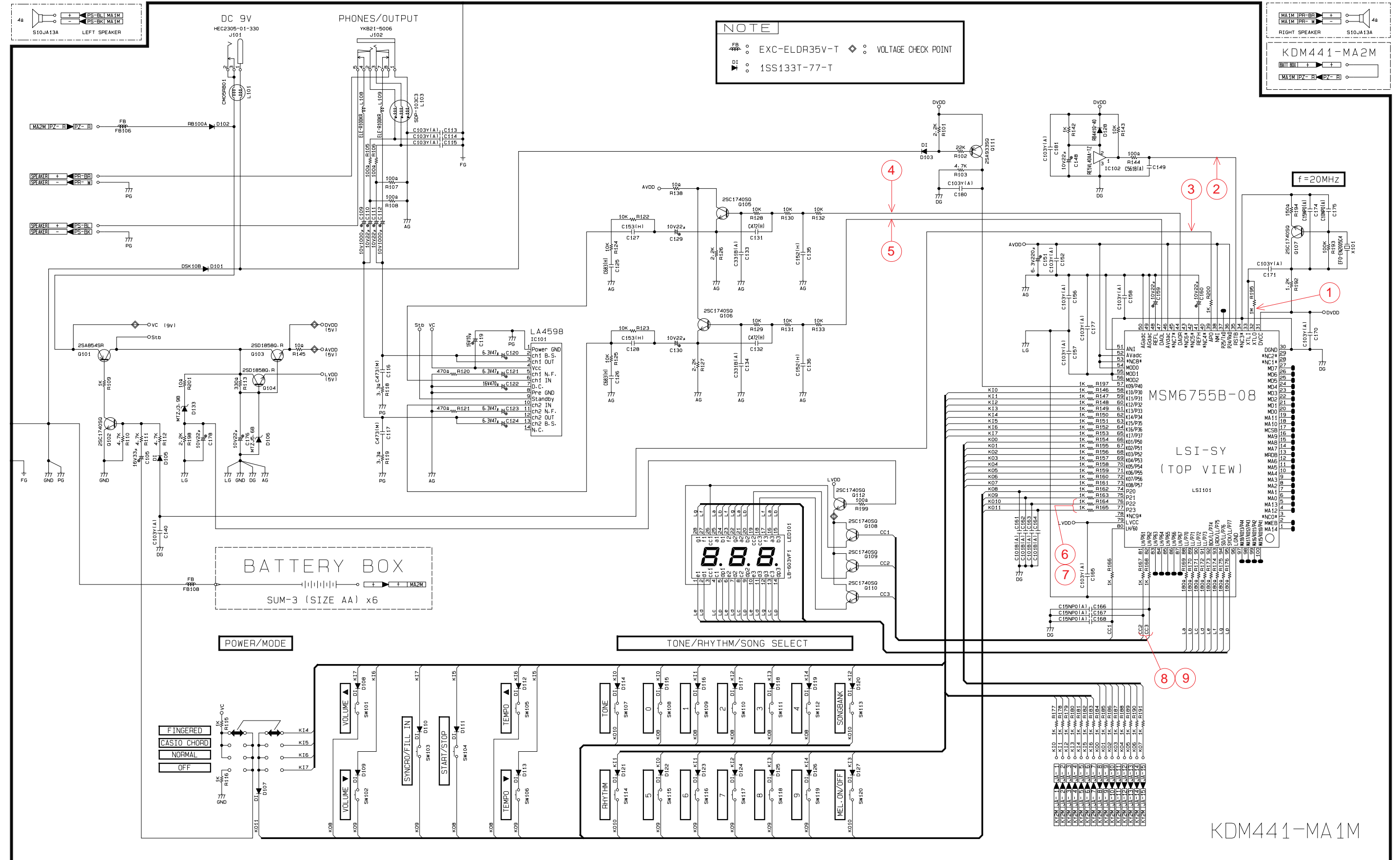
⑥ Button scan signal KO10  
MSM6755B-08 pin 76  
⑦ Button scan signal KO11  
MSM6755B-08 pin 77



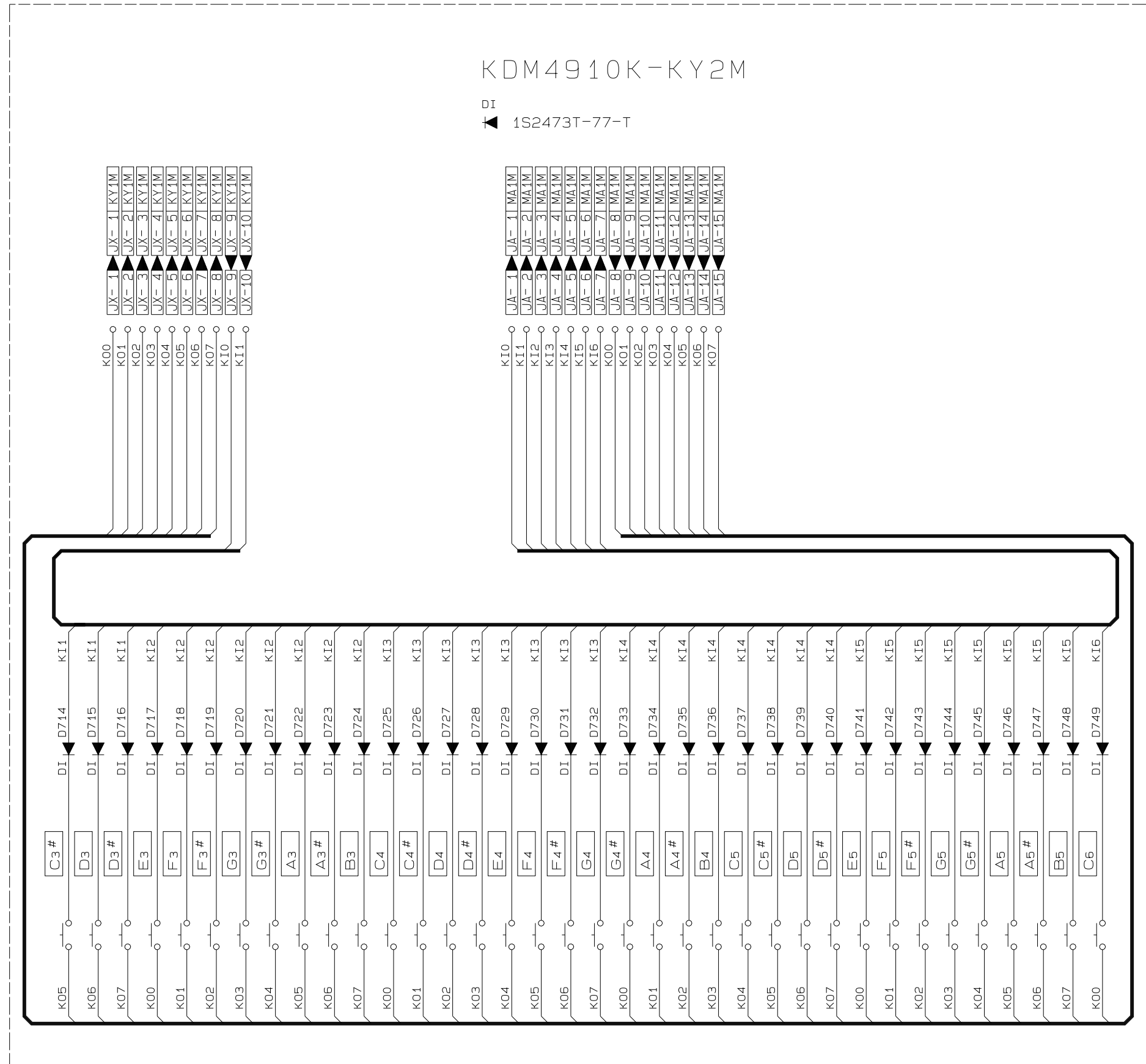
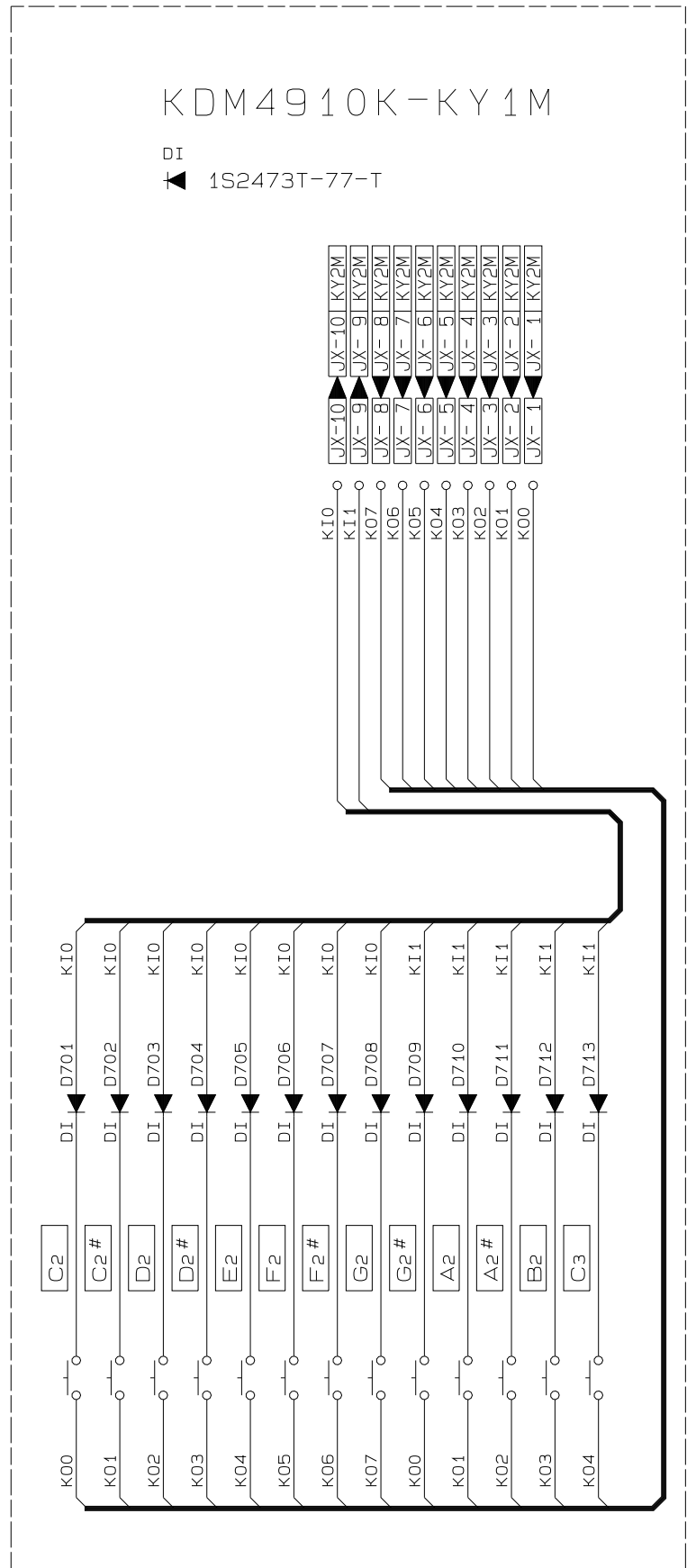
⑧ LED common signal CC2  
MSM6755B-08 pin 81  
⑨ LED common signal CC3  
MSM6755B-08 pin 82

# SCHEMATIC DIAGRAMS

## Main PCB KDM441-MA1M/MA2M

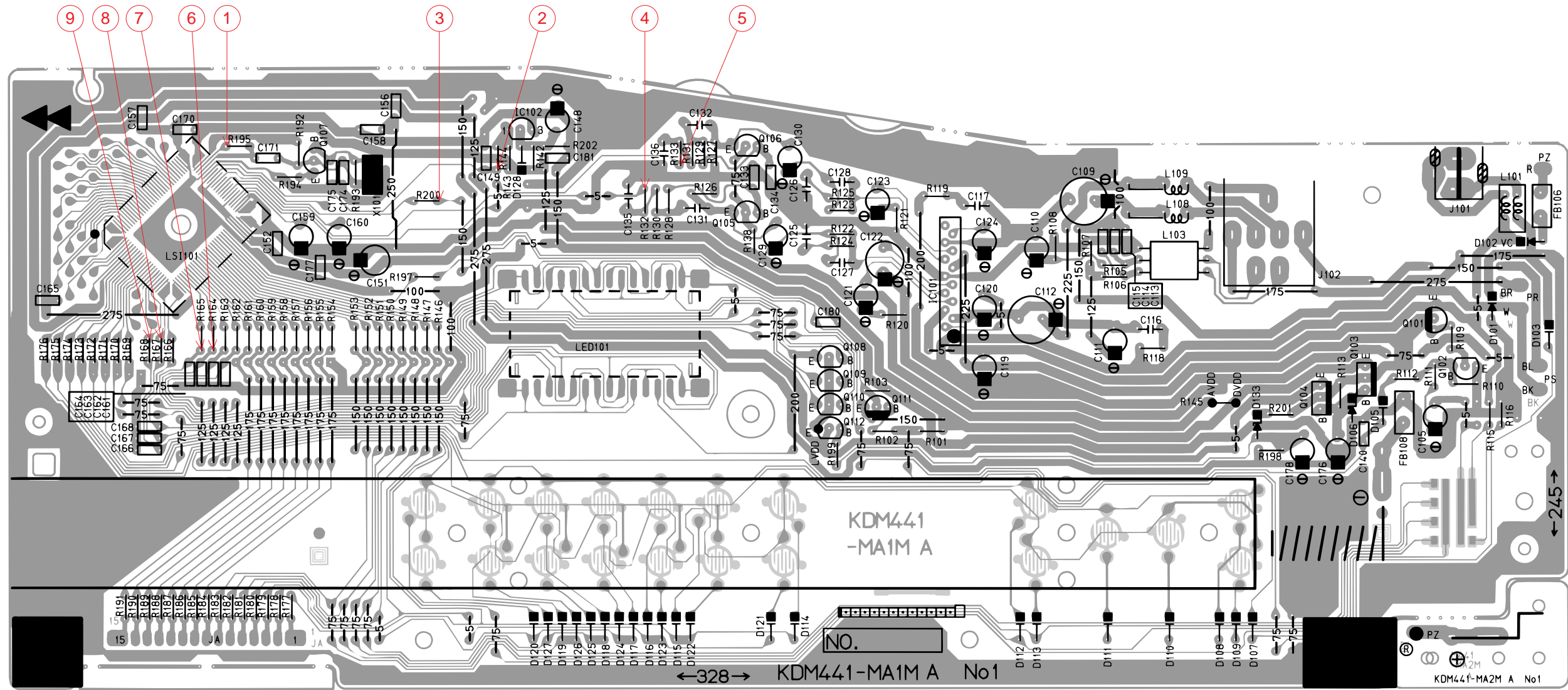


Keyboard PCBs KDM4910K-KY1M/KY2M

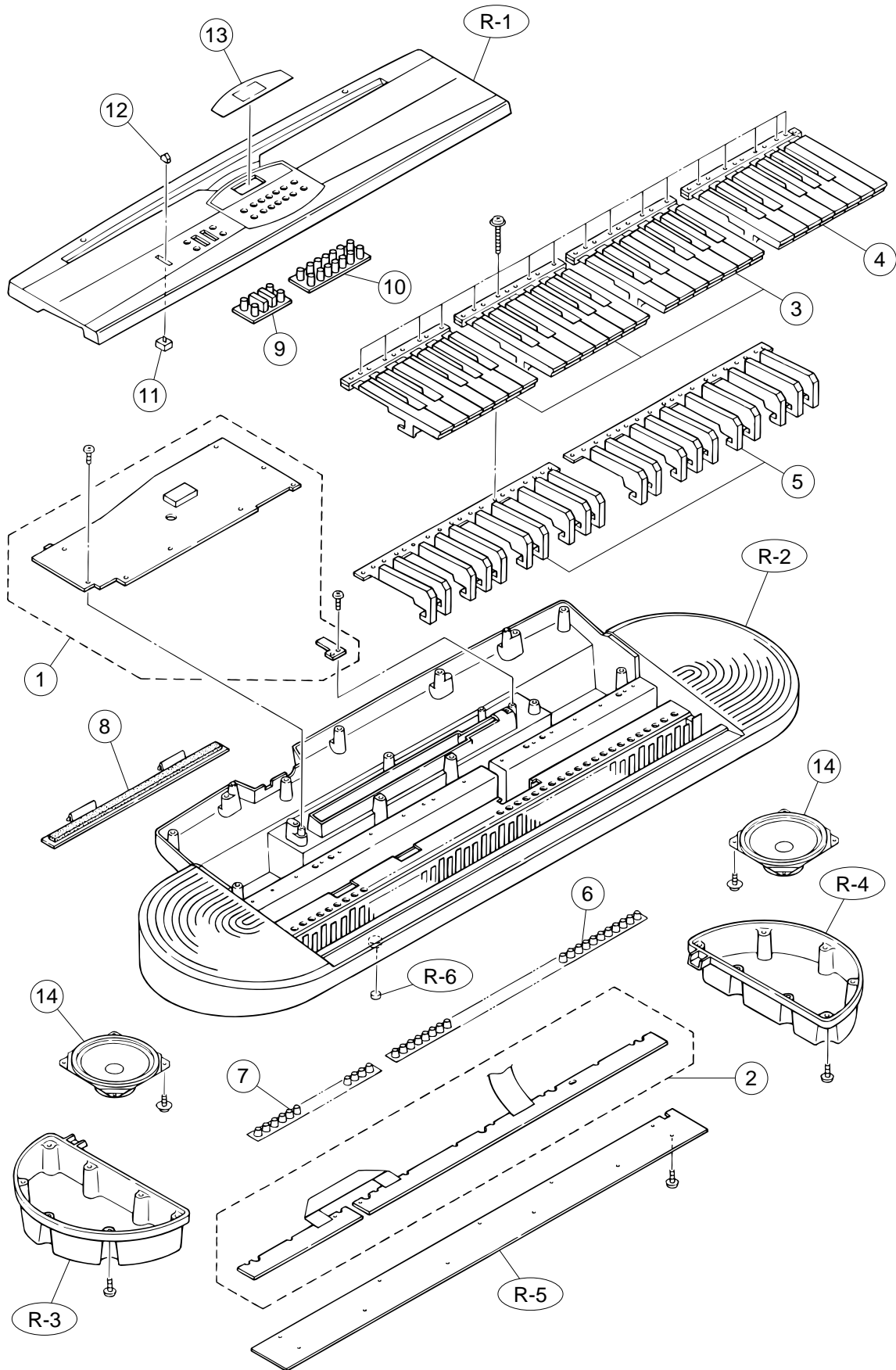


# PRINTED CIRCUIT BOARD

Main PCB KDM441-MA1M



# EXPLODED VIEW



# PARTS LIST

## CTK-330

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.

Item	Code No.	Parts Name	Specification	Q	R
<b>Main PCB</b>					
1	6925 4480	Main PCB ass'y M441-MA1,2M	M140451*1	1	B
LSI101	2012 3948	LSI, CPU	MSM6755B-08	1	A
IC101	2114 2891	IC, Amp.	LA4598	1	A
IC102	2105 5922	IC	RE5VL40AA-TZ	1	A
Q101	2250 0168	Transistor	2SA854SR-TP-T	1	A
Q102, Q105 - Q110, Q112	2220 1387	Transistor	2SC1740SQ-TP-T	8	A
Q103, Q104	2253 0448	Transistor	2SD1858Q,R-TV6-T	2	A
Q111	2200 2449	Transistor	2SA933SQ-TP-T	1	A
D101	2390 0371	Diode	DSK10B-BT-T	1	B
D102	2390 1323	Diode	RB100A-T32-T	1	B
D103, D105, D107 - D127	2390 1344	Diode	1SS133T-77-T	23	C
D106	2360 2002	Diode, Zener	MTZJ5.6B-T77-T	1	B
D128	2390 2828	Diode	RB441Q-40T-77	1	B
D133	2360 1715	Diode, Zener	MTZJ3.9B-T77-T	1	B
LED101	2370 1309	LED	LB-603VF1	1	B
X101	2590 1526	Ceramic oscillator	EFO-EN2005C4	1	B
J101	3501 7049	Jack, Power	HEC2305-01-330	1	B
J102	3612 0665	Jack, Phone	YKB21-5006	1	C
<b>Keyboard PCB</b>					
2	6925 4490	Keyboard PCB ass'y	M140449*1	1	C
D701 - D749	2301 0101	Diode	1S2473T-77-T	49	B
<b>Mechanical Parts</b>					
3	6922 2720	White key set, LT-CB	M312118*1	3	A
4	6922 2730	White key set, LT-CS	M312118*2	1	A
5	6922 2740	Black key set, LT-10P	M111726-1	2	A
6	6922 4000	Key contact rubber, 31-contact	M111765-1	1	A
7	6923 2390	Key contact rubber, 18-contact	M240025-1	1	A
8	6925 4500	Battery cover	M340528*1	1	B
9	6925 4510	Rubber button	M240463-1	1	B
10	6925 4520	Rubber button	M240464-1	1	B
11	6909 5890	Slide contact	CSB-12D	1	B
12	6921 5030	Slide knob	M311859-1	1	B
13	6925 4530	Display plate	M340511-1	1	C
14	3831 0770	Speaker	S10JA13A	2	B
<b>Accessory</b>					
	6916 7880	Music stand	M310827-1	1	B

Notes: Q – Used quantity

R – Rank

**CASIO COMPUTER CO.,LTD.**  
Service Division

8-11-10, Nishi-Shinjuku  
Shinjuku-ku, Tokyo 160, Japan  
Telephone: 03-3347-4926