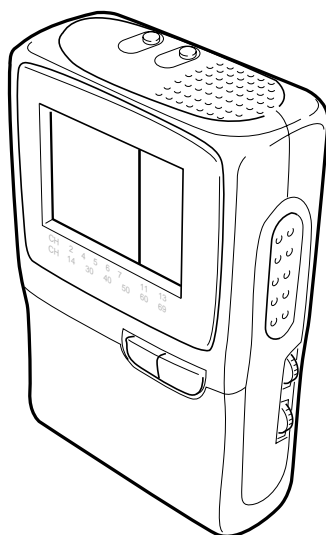


# SERVICE MANUAL & PARTS LIST (without price)

**TV-770B** (KX-503B)  
(For NTSC)

**JUN. 1996**



TV-770B

**CASIO®**

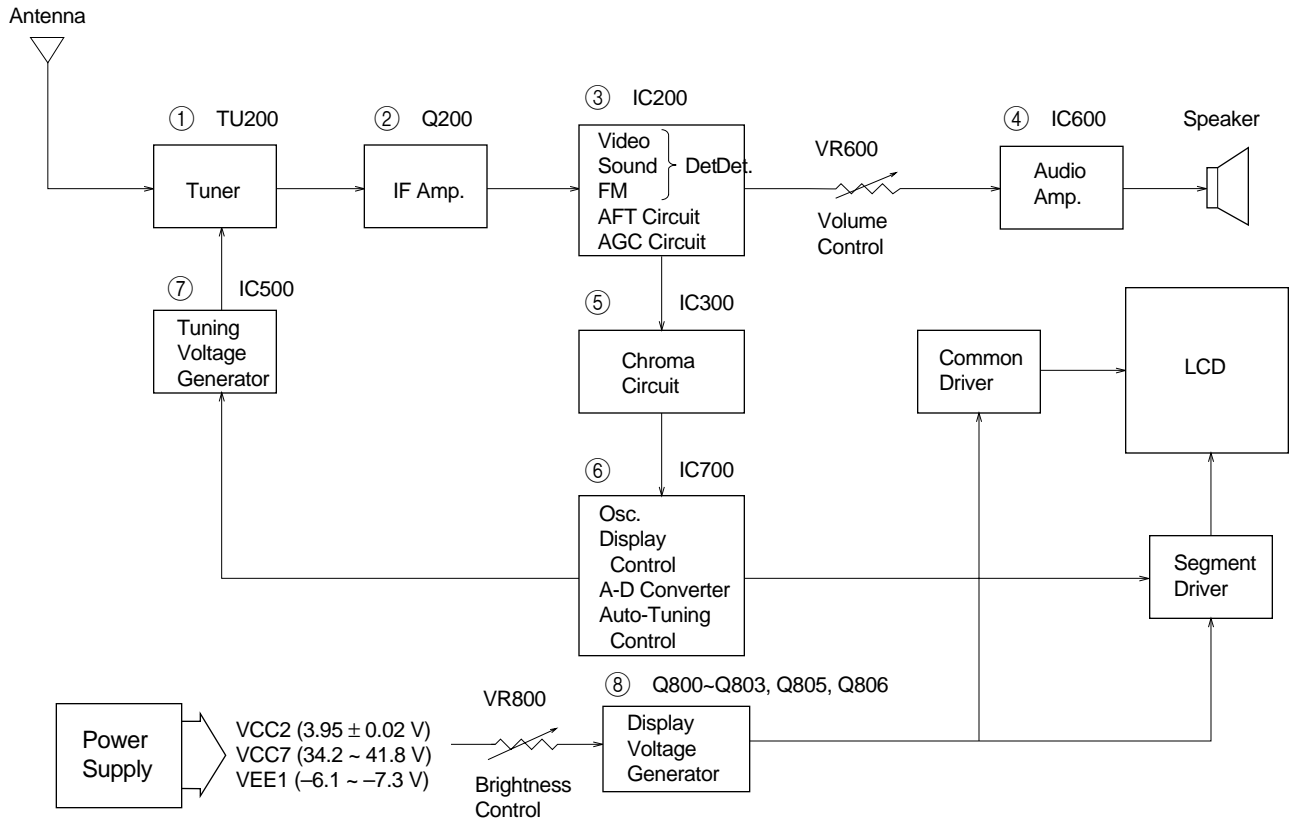
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## SPECIFICATIONS

Item	Specification
1. Reception channels	VHF: 2 ~ 13 ch    UHF: 14 ~ 69 ch
2. Power voltage	DC 6.0 V
3. Power consumption	Approx. 3.6 W
4. Current consumption	Approx. 600 mA
5. Battery life (with alkaline batteries)	Approx. 4.0 hours
6. Power supply	Batteries       : 4 × LR6 (D) size batteries Car adaptor   : CA-K65 AC adaptor   : AD-K64, 65
7. Connection terminals	Earphone jack               : 3.5 ø mini External power jack       : 6.0 V DC IN External antenna jack     : 3.5 ø mini
8. Screen size	2.3 inches
9. No. of picture element	39,600 (110 × 360) dots
10. Dimensions	127 mm (H) × 81 mm (W) × 35 mm (D)
11. Weight	200 g without batteries
12. Options	AC adaptor                       : AD-K64, 65 Car adaptor                       : CA-K65 Antenna matching device       : AS-35S

## BLOCK DIAGRAM

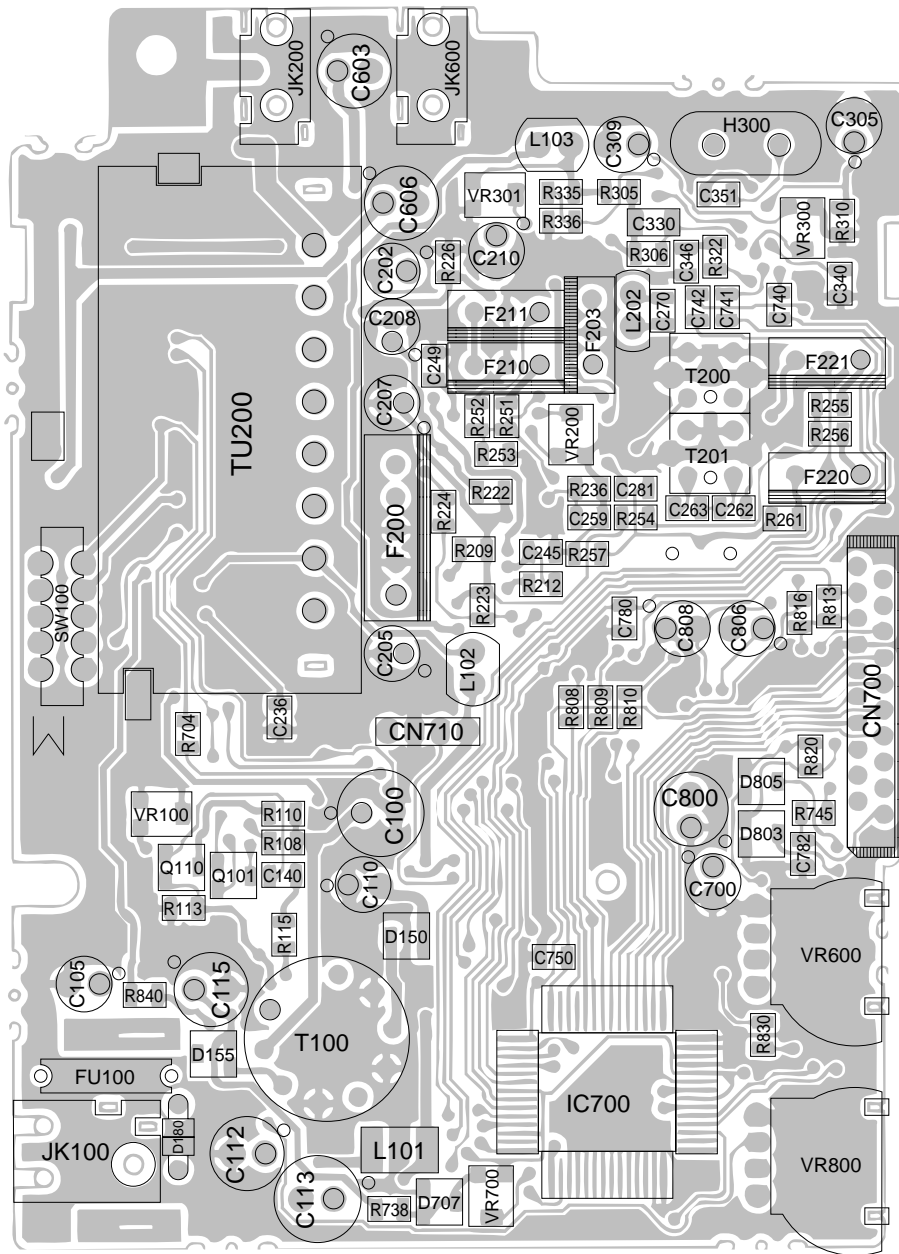


- ① — Color tuner: TU200 TEPU5-02  
Selects a desired radio wave and changes it to the video IF signal.
- ② — Video IF amp.: Q200 2SC4238  
Amplifies the video IF signal output from tuner TU200 by 10 times (20 dB).
- ③ — Video det./Sound det./FM det./AFT/AGC: IC200 M51348FP  
Eliminates the carrier wave in the video IF signal, and picks up the video signal and the sound IF signal. Also, the sound signal is picked up from the sound IF signal by FM detection.
- ④ — Audio amp.: IC600 NJM2070M  
Sound amplification.
- ⑤ — Chroma circuit: IC300 M52042FP  
Generates the tricolor (red, green, and blue) from the video signal.
- ⑥ — Osc./A-D converter/display control/auto-tuning control: IC700 MSM6625-02 GSK-640F  
Converts the color signal into a digital signal.  
Also, generates the clock pulse for the display and controls the display.
- ⑦ — Tuning voltage generator: IC500 MSC1169MS-K  
Generates the tuning voltage with the tuning pulse output from ⑥.
- ⑧ — Display voltage generator: Q800~Q803, Q805, Q806, 2SD601A-R x 4, 2SB709A-R, 2SD1149-S  
Generates the display voltages V0 ~ V4 with VEE1 and VCC7 outputs from the power supply.

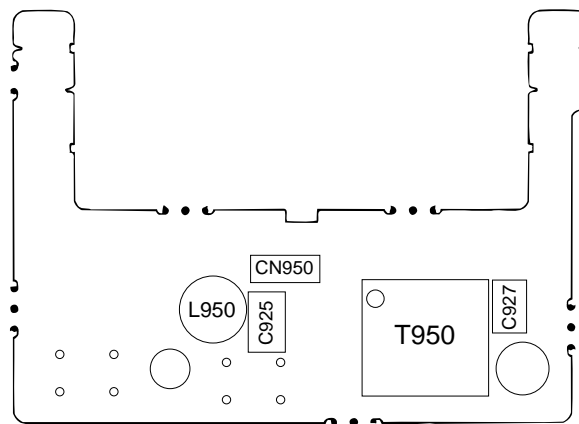
# PRINTED CIRCUIT BOARDS

## TOP VIEWS

Linear



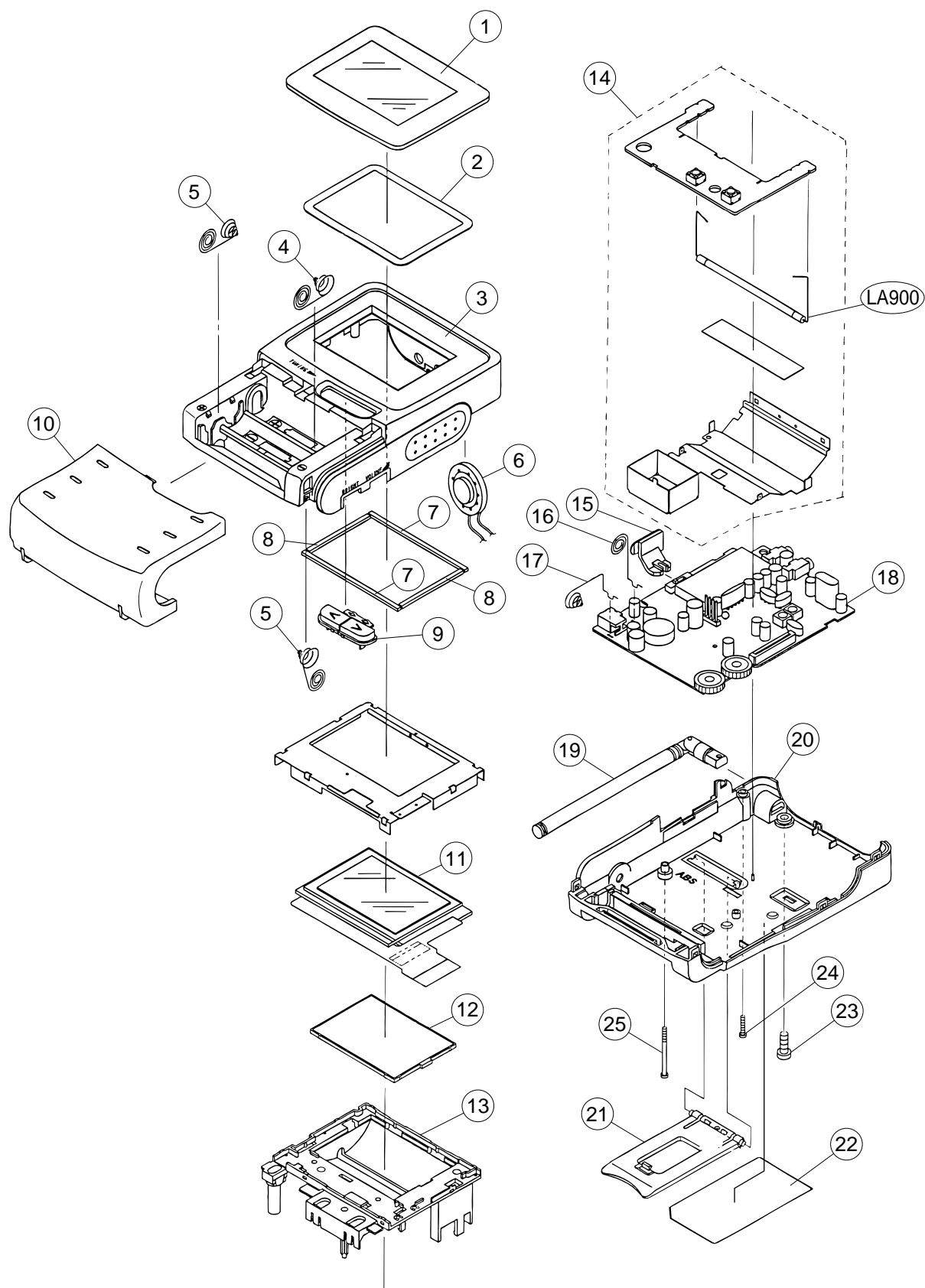
## Back Light



## Linear



# EXPLODED VIEW



# PARTS LIST

## LINEAR PCB

Item	Code No.	Parts Name	Specification	Q	R
<b>Diodes</b>					
D100	2390 1176	Chip diode	MA152WK-(TX)	1	C
D110	2315 0166	Chip zener diode	MA3047-L(TX)	1	C
D150	2390 1176	Chip diode	MA152WK-(TX)	1	C
D152	2390 1176	Chip diode	MA152WK-(TX)	1	C
D155	2390 1302	Chip diode	MA153A-(TX)	1	C
D180	2390 1190	Chip diode	ERA15-01Y	1	C
D500	2360 1344	Chip zener diode	MA3330-M(TX)	1	C
D703	2390 0469	Chip diode	MA157A-(TX)	1	C
D705	2390 1358	Variable diode	MA329-(TX)	1	C
D707	2360 1113	Chip zener diode	MA3082-M(TX)	1	C
D800	2360 2919	Chip zener diode	MA3056-L(TX)	1	C
D803	2390 0469	Chip diode	MA157A-(TX)	1	C
D805	2390 1253	Chip diode	MA152WA-(TX)	1	C
<b>Fuse</b>					
FU100	3632 0469	Fuse	PI-251001(F10)	1	A
<b>ICs</b>					
IC200	2114 1827	Linear IC	M51348FP-T1	1	C
IC300	2114 3332	Linear IC	M52042FP-T1	1	C
IC500	2114 0182	Linear IC	MSC1169MS-K-620	1	C
IC600	2114 2464	Linear IC	NJM2070M-T1	1	C
IC700	2011 3514	LSI	MSM6625-02GSK-640F	1	C
<b>Jacks</b>					
JK100	3501 8281	Jack	HEC0811-010010	1	B
JK200	3501 5439	Jack	HSJ1456-01-210	1	C
JK600	3501 5439	Jack	HSJ1456-01-210	1	C
<b>Transistors</b>					
Q101	2230 7011	Chip transistor	2SD601A-R(TX)	1	B
Q110	2230 7011	Chip transistor	2SD601A-R(TX)	1	B
Q111	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q200	2252 0707	Chip transistor	2SC4238-(TX)	1	C
Q300	2210 8026	Chip transistor	2SB709A-R(TX)	1	C
Q800	2230 7011	Chip transistor	2SD601A-R(TX)	1	C
Q801	2210 8026	Chip transistor	2SB709A-R(TX)	1	C
Q802	2230 7011	Chip transistor	2SD601A-R(TX)	1	C
Q803	2230 7011	Chip transistor	2SD601A-R(TX)	1	C
Q805	2253 0476	Chip transistor	2SD1149-S(TX)	1	C
Q806	2230 7011	Chip transistor	2SD601A-R(TX)	1	C
<b>Switch</b>					
SW100	3412 0938	Slide switch	ESD-11V231	1	C
<b>Converter</b>					
T100	3065 0672	DC-DC converter	LC12U-40	1	B
<b>Tuner</b>					
TU200	1013 5511	Tuner	TEPU5-02	1	C
<b>Variable resistors</b>					
VR600	2765 1708	Volume	XV081PV1NB10K3017	1	C
VR800	2765 2037	Volume	XV081PV1NB20K3017	1	C

Notes: Q – Quantity per unit  
R – Rank

## BL PCB

Item	Code No.	Parts Name	Specification	Q	R
<b>Lamp</b>					
LA900	3851 1918	Fluorescent lamp	3064BB-CA39	1	A
<b>Transistors</b>					
Q950	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q951	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
<b>Switches</b>					
SW700	3412 1029	Switch	SKHHAL	1	C
SW701	3412 1029	Switch	SKHHAL	1	C
<b>Transformer</b>					
T950	3012 1470	Inverter trans	NT-07	1	B

Notes: Q – Quantity per unit  
R – Rank

## MAIN COMPONENT

Item	Code No.	Parts Name	Specification	Q	R
1	6611 0980	Display plate BXM-K503	K440797-1	1	C
2	6611 1010	Adhesive tape A-K503	K440801-1	1	X
3	6611 0870	Upper case BXM-K503	K140252-1	1	X
4	6020 7658	Battery spring B1 G513	P408A-1	1	X
5	6020 7666	Battery spring B2 G513	P409A-1	2	X
6	3831 0854	Speaker	28-8F-03	1	C
7	6611 0990	Cushion A-K503	K440802-1	2	X
8	6611 1000	Cushion B-K503	K440802-2	2	X
9	6611 2290	Tuning button A-K503	K240481-1	1	X
10	6611 0890	Battery cover A-K503	K240450-1	1	X
11	2725 1218	LCD	PSG123CO-TO	1	C
12	6611 0930	Light diffuser sheet A-K503	K440800-1	1	X
13	6611 0900	Reflector case K503	K140261-1	1	X
14	6611 2261	BL unit	K340625*1	1	B
15	6611 0910	Switch knob A-K503	K340575-1	1	X
16	6611 0960	Battery spring A-K503	K440798-1	1	X
17	6611 0970	Battery spring B-K503	K440799-1	1	X
18	6611 2256	Linear PCB ass'y	K240495*1	1	B
19	3851 1470	Rod antenna	VR70100GA	1	B
20	6611 0880	Lower case BXM-K503	K140253-1	1	X
21	6611 2300	Stand A-K503	K310518-7	1	C
22	6611 2310	Rating plate BXM-K503	K340609-1	1	X
23	6609 1290	Screw A-K610	K412031-1	1	C
24	5860 0532	Screw	BT3 1.7X9 Bk	1	C
25	6609 9630	Screw A-K720	K410188-6	1	C

Notes: Q – Quantity per unit  
R – Rank

The following electrical parts will be not supplied from CASIO. (For TV-770B)

C100	10RE2-220	C756	GR40Y5V103Z50PT	R307	ERJ-6GEYJ152V
C105	6.3RC2-47MS-T36	C758	GR40Y5V104Z25PT	R310	ERJ-6GEYJ474V
C110	10RC2-33MS-T36	C760	GR40W5R222K50PT	R322	ERJ-6GEYJ473V
C112	6.3RC2-100MS-T36	C761	GR40Y5V104Z25PT	R330	ERJ-6GEYJ302V
C113	6.3RC2S-100-T36	C770	GR40Y5V224Z16PT	R331	ERJ-6GEYJ511V
C115	50RC2-10MS-T36	C782	GR40Y5V224Z16PT	R335	ERJ-6GEYJ223V
C137	GR40W5R682K50PT	C806	50RC2-3R3-T36	R336	ERJ-6GEYJ683V
C140	GR40CH471J50PT	C808	50RC2-2R2-T36	R500	ERJ-6GEYJ104V
C145	GR40W5R332K50PT	C830	GR40Y5V104Z25PT	R501	ERJ-6GEYJ563V
C182	GR40Y5V104Z25PT	C836	GR40Y5V104Z25PT	R502	ERJ-6GEYJ274V
C185	GR40Y5V104Z25PT	C837	GR40CH221J50PT	R541	ERJ-6GEYJ223V
C200	UMK316B104K-T	C841	UMK316F474Z-T	R545	ERJ-6GEYJ684V
C202	6.3RC2-47MS-T36	CN700	52806-2010	R550	ERJ-6GEYJ152V
C205	50RC2-2R2	CN710	9210B-1-04Z009-T	R606	ERJ-8GEYK4R7V
C207	6.3RC2-47MS	F200	SAF45MB200Z	R607	ERJ-8GEYK4R7V
C208	6.3RC2-47MS	F203	TPS4.5MB	R610	ERJ-6GEYJ153V
C210	16RC2-10-T36	F210	SFSL4.5MDB12	R611	ERJ-6GEYJ132V
C233	GR40Y5V103Z50PT	F220	CDSL4.5MC30C12	R615	ERJ-6GEYJ222V
C234	GR40Y5V104Z25PT	H300	HC-49U	R641	ERJ-6GEYJ104V
C236	GR40Y5V103Z50PT	L101	LEM4532-470K-TP	R645	ERJ-6GEYJ470V
C237	GR40Y5V103Z50PT	L102	EL0405RA-101K-2	R700	ERJ-6GEYJ105V
C238	GR40Y5V103Z50PT	L200	LK2125-R82K-TP	R704	ERJ-6GEYJ273V
C240	GR40Y5V103Z50PT	L202	LAL02VA150J	R706	ERJ-6GEY0R00V
C243	GR40Y5V103Z50PT	L705	LEM3225-270K-TP	R707	ERJ-6GEYJ0R00V
C245	GR40W5R103K50PT	L710	BK2125HS601-T	R710	ERJ-6GEYJ560V
C246	GR40Y5V103Z50PT	R105	ERJ-6GEYJ222V	R711	ERJ-6GEYJ270V
C249	GR40Y5V474Z16PT	R106	ERJ-6GEYJ103V	R719	ERJ-6GEY0R00V
C259	GR40W5R223K25PT	R107	ERJ-6GEYJ333V	R725	ERJ-6GEYF131V
C261	GR40PH560J50PT	R108	ERJ-6GEYJ274V	R726	ERJ-6GEYF751V
C262	GR40Y5V103Z50PT	R110	ERJ-6GEYJ271V	R727	ERJ-6GEYF102V
C263	GR40PH560J50PT	R113	ERJ-6GEYJ222V	R730	ERJ-6GEYJ562V
C264	GR40CH1R5C50PT	R115	ERJ-6GEYJ220V	R733	ERJ-6GEYJ104V
C265	GR40Y5V103Z50PT	R116	ERJ-6GEYK4R7V	R738	ERJ-6GEYJ303V
C281	GR40CH270J50PT	R201	ERJ-6GEYJ820V	R745	ERJ-6GEYJ272V
C282	ERJ-6GEY0R00V	R202	ERJ-6GEYJ472V	R800	ERJ-6GEYJ473V
C305	16RC2-10-T36	R203	ERJ-6GEYJ222V	R803	ERJ-6GEYJ242V
C309	6.3RC2-47MS-T36	R204	ERJ-6GEYJ561V	R808	ERJ-6GEYJ153V
C330	EMK316B474K-T	R205	ERJ-6GEYJ220V	R809	ERJ-6GEYJ153V
C335	GR40CH331J50PT	R207	ERJ-6GEYJ151V	R810	ERJ-6GEYJ153V
C340	GR40W5R103K25PT	R208	ERJ-6GEYJ272V	R813	ERJ-6GEYJ223V
C345	GR40W5R471K50PT	R209	ERJ-6GEYJ103V	R814	ERJ-6GEYJ223V
C346	GR40W5R333K25PT	R210	ERJ-6GEYJ472V	R815	ERJ-6GEYJ562V
C348	GR40Y5V104Z25PT	R211	ERJ-6GEYJ104V	R816	ERJ-6GEYJ223V
C350	GR40CH181J50PT	R212	ERJ-6GEYJ222V	R820	ERJ-6GEYK475V
C351	GR40CH220J50PT	R222	ERJ-6GEYJ470V	R825	ERJ-6GEYJ103V
C545	GR40W5R333K25PT	R223	ERJ-6GEYJ124V	R827	ERJ-6GEYJ333V
C550	GR40Y5V683Z50PT	R224	ERJ-6GEYK475V	R830	ERJ-6GEYJ223V
C603	6.3RC2-100MS-T36	R225	ERJ-6GEY0R00V	R833	ERJ-6GEYJ223V
C606	6.3RC2-100MS-T36	R236	ERJ-6GEYJ274V	R840	ERJ-6GEYJ103V
C630	GR40Y5V103Z50PT	R239	ERJ-6GEYJ392V	T200	S5LD3-01
C635	EMK212F105Z-T	R246	ERJ-6GEYJ181V	T201	S5LD3-01
C642	GR40Y5V104Z25PT	R247	ERJ-6GEYJ102V	TM100	157-102-53031-TP
C700	6.3RC2-47MS-T36	R251	ERJ-6GEY0R00V	VR100	EVN5ESX50B23
C740	GR40Y5V104Z25PT	R256	ERJ-6GEYJ561V	VR200	EVN5ESX50B54
C741	GR40Y5V104Z25PT	R257	ERJ-6GEYJ182V	VR300	EVN5ESX50B14
C742	GR40Y5V104Z25PT	R258	ERJ-6GEY0R00V	VR301	EVN5ESX50B54
C750	GR40CH470J50PT	R261	ERJ-6GEY0R00V	VR700	EVN5ESX50B15
C751	GR40CH470J50PT	R305	ERJ-6GEYJ102V		
C755	GR40UJ270J50PT	R306	ERJ-6GEYJ473V		

# IC AND TRANSISTOR LEAD IDENTIFICATION

## IC/LSI

### IC200 M51348FP-T1

IF AGC OUT	1	24	IF AGC ADJ
IF AGC IN	2	23	SyOUT
RF AGC	3	22	SyIN
AGCDL	4	21	AFTC
VCCv	5	20	LLD
IFIN	6	19	LLD
IFIN	7	18	VIDEO
GNDv	8	17	AFT
VCCs	9	16	SIFOUT
SIFIN	10	15	FMD
FB	11	14	ATT
GNDs	12	13	AUDIO

### IC300 M52042FP

VIDEO	1	24	VCC
SY IN	2	23	VCXO OUT
ACCF	3	22	NC
SY OUT	4	21	VCXO IN
HDIN	5	20	COLOR
Y CLAMP	6	19	TINT
Y LPF	7	18	KILLER F
Y OUT	8	17	APCF
CONT	9	16	APCREF
R	10	15	KILLER OUT
G	11	14	PIX
B	12	13	GND

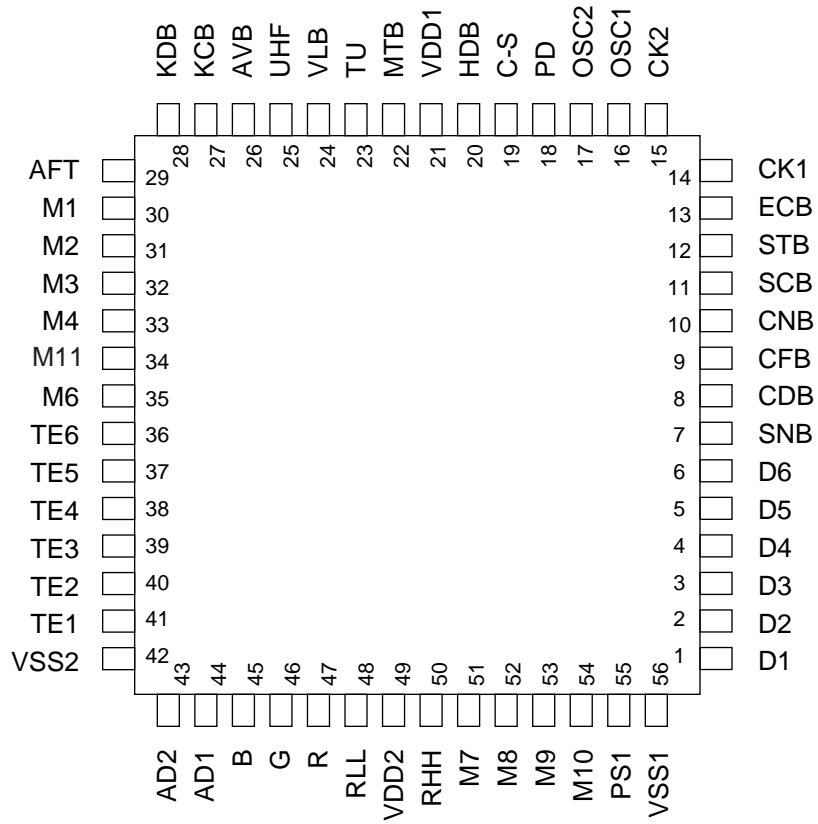
### IC500 MSC1169MS-K-620

Vref	1	16	VCC
U1	2	15	BS
U2	3	14	BT
VL1	4	13	IN
VL2	5	12	OUT
VH1	6	11	TU
VH2	7	10	H/L
GND	8	9	U/V

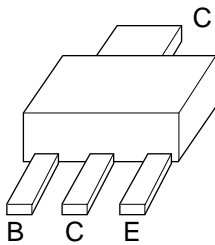
### IC600 NJM2070M-T1

NC	1	8	NC
+IN	2	7	VCC
-IN	3	6	OUT
GND	4	5	GND

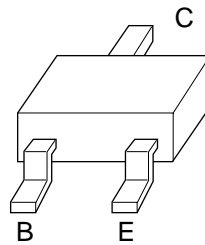
**IC700**  
**MSM6625-02GSK-640F**



**TRANSISTORS**



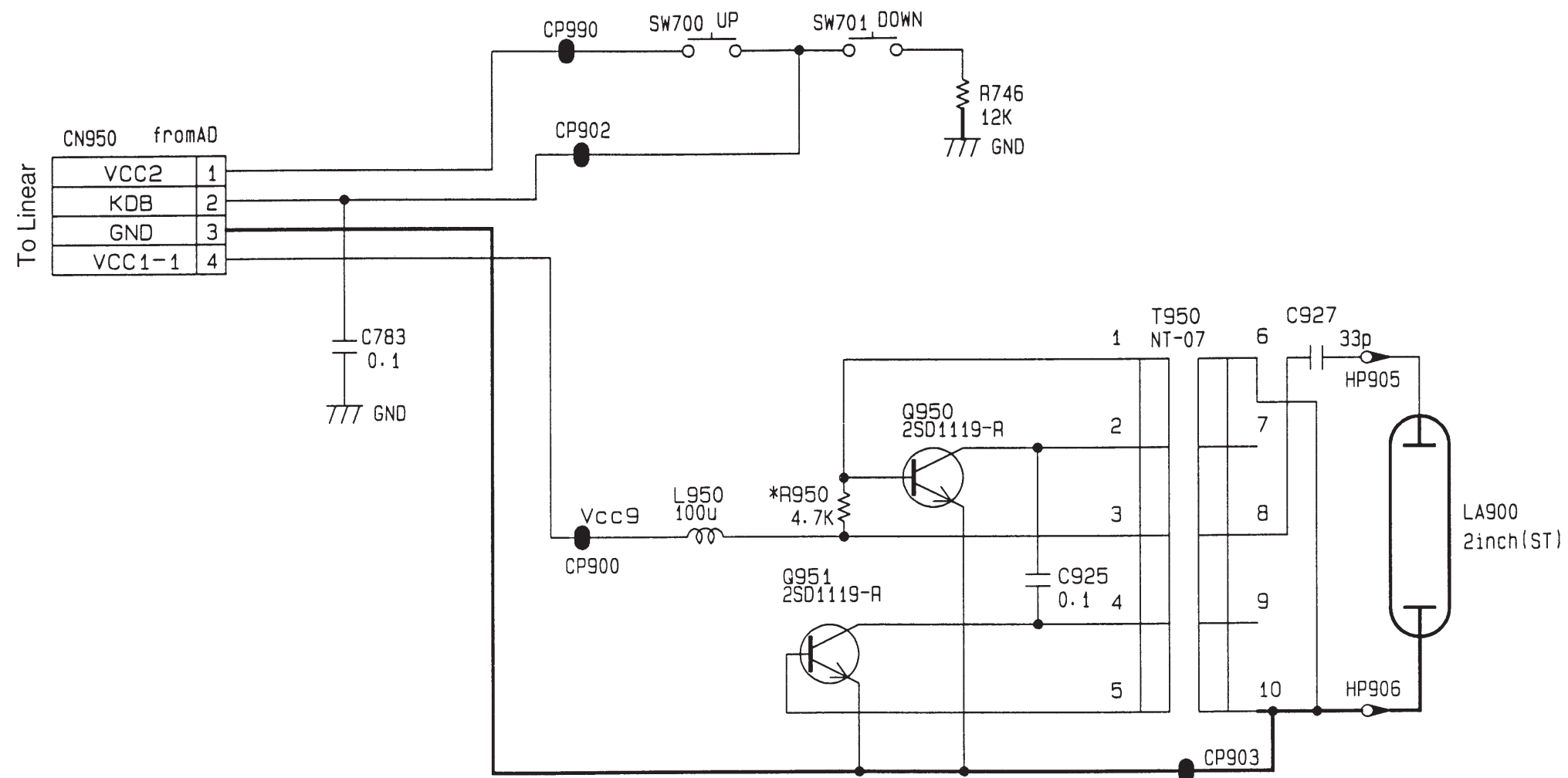
**2SD1119**



**2SB709A 2SD601A**  
**2SC4238 2SD1149-S**



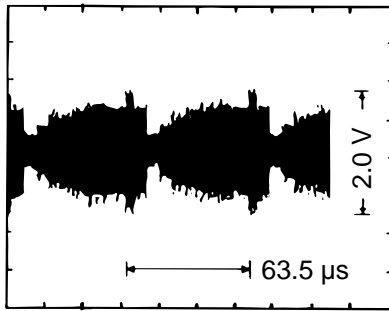
## BACK LIGHT



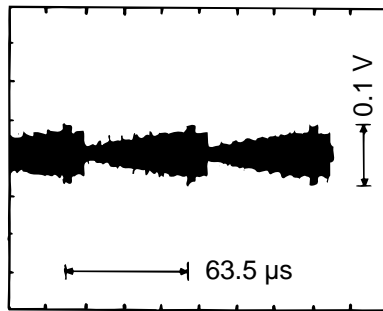
**Notes:**

- Notes:**
1. All resistance values are indicated in "ohms" ( $k=10^3$  ohms,  $M=10^6$  ohms).
  2. All capacitance values are indicated in " $\mu F$ " ( $p=10^{-6}$   $\mu F$ ).
  3. All inductance values are indicated in " $\mu H$ ."

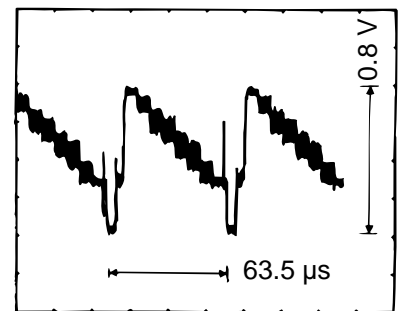
## WAVEFORMS



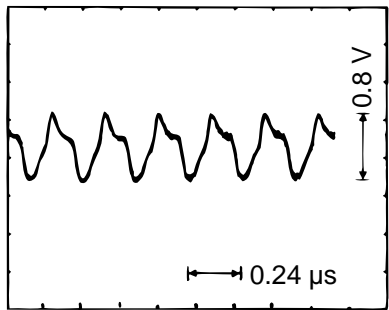
① Q200 collector



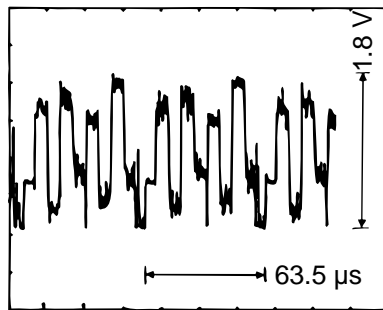
② IC200 pin 19



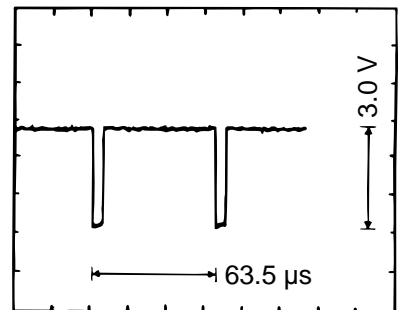
③ IC200 pin 18



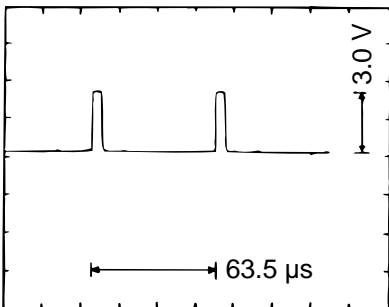
④ IC300 pin 23



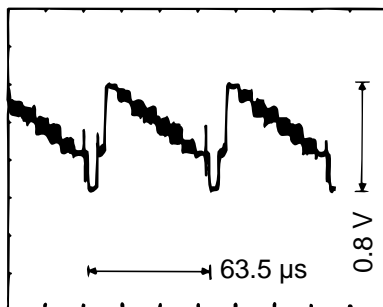
⑤ IC300 pin 12



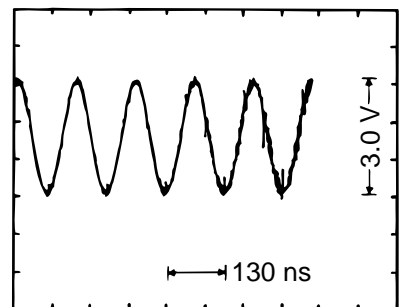
⑥ IC300 pin 5



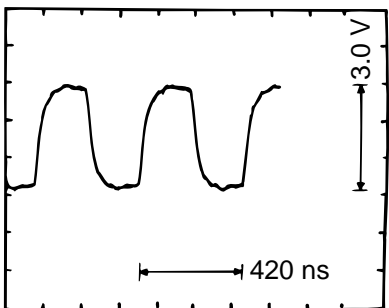
⑦ IC300 pin 4



⑧ IC300 pin 1



⑨ IC700 pin 16



⑩ IC700 pin 14

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