

LG

COLOR MONITOR SERVICE MANUAL

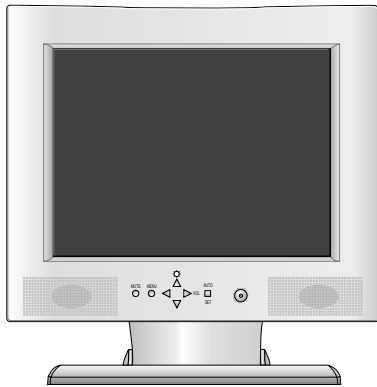
CHASSIS NO. : CL-18

FACTORY MODEL: LM568E

MODEL: FLATRON LCD 568LM (LM568E-GT)

CAUTION

BEFORE SERVICING THE UNIT,
READ THE **SAFETY PRECAUTIONS** IN THIS MANUAL.



*To apply the **Toshiba Module +GmZan2 Chip**.

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SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: Color TFT LCD
Size	: 15.0 inch (38.1cm)
Pixel Pitch	: 0.297mm x 0.297mm
Electrical Interface	: LVDS Interface
Color Depth	: 6-bits/ 16,194,277colors
Active Video Area	: 304.1mm x 228.1mm
Surface Treatment	: Anti-Glare, Hard Coating (3H)
Backlight Unit	: Bottom edge side 2CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10	
Left	: 60° typ., 50° min.
Right	: 60° typ., 50° min.
Top	: 55° typ., 40° min.
Bottom	: 45° typ., 40° min.

2-2. Luminance	: 160(min), 200(typ)
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2-3. Contrast Ratio	: 150(min), 250(typ)
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3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal

- 1) Type : Separate Sync. (Horizontal & Vertical)
- 2) Input Voltage Level : Low=0~0.8V, High=2.1~5.5V
- 3) Sync Polarity : Positive or Negative

3-2. Video Input Signal

- 1) Type : R, G, B Analog
- 2) Voltage Level : 0~0.714 V
 - a) Color 0, 0 : 0 Vp-p
 - b) Color 7, 0 : 0.467 Vp-p
 - c) Color 15, 0 : 0.714 Vp-p
- 3) Input Impedance : 75 Ω

3-3. Operating Frequency

Horizontal	: 31 ~ 61kHz
Vertical	: 56 ~ 75Hz

4. POWER SUPPLY

4-1. Power Adaptor

Input	: AC 100~240V, 50/60Hz 1.2A
Output	: DC 12V 3.0A

4-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 36 W	GREEN
STAND-BY	OFF/ON	OFF	less than 3 W	YELLOW
SUSPEND	ON/OFF	OFF	less than 3 W	YELLOW
OFF	OFF/OFF	OFF	less than 3 W	YELLOW
POWER OFF	-	-	less than 3 W	OFF

5. ENVIRONMENT

5-1. Operating Temperature: 10°C~35°C (50°F~95°F)	(Ambient)
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5-2. Relative Humidity	: 5%~95% (Non-condensing)
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5-3. MTBF	: 40,000(Min)
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6. DIMENSIONS (with TILT/SWIVEL)

Width	: 389.2mm (15.32")
Depth	: 161.8mm (6.37")
Height	: 382.4mm (15.05")

7. WEIGHT (with TILT/SWIVEL)

Net. Weight	: 4.8kg (10.58 lbs)
Gross Weight	: 6.8kg (14.99 lbs)

8. Audio Spec

8-1. Audio AMP

Input	: 0.700Vrms
Output	: 1Wrms+1Wrms
S/N	: more than 40dB

8-2. Speaker

Impedance	: 4 Ω
input	: Max: 1.5W, Normal: 1W

PRECAUTION

WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in LCD monitor that are important for safety. ***These parts are marked  on the schematic diagram and the replacement parts list.*** It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.
- Do not modify original design without obtaining written permission from LG or you will void the original parts and labor guarantee.

WARNING

BE CAREFUL ELECTRIC SHOCK !

- If you want to replace with the new backlight (CCFL) or inverter circuit, must disconnect the AC adapter because high voltage appears at inverter circuit about 650Vrms.
- Handle with care wires or connectors of the inverter circuit. If the wires are pressed cause short and may burn or take fire.

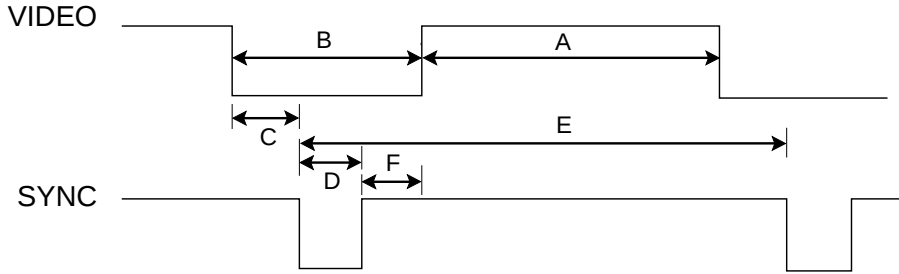
TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person's body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- The module not be exposed to the direct sunlight.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a softmaterial. (Cleaning with a dirty or rough cloth may damage the panel.)

CAUTION

Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

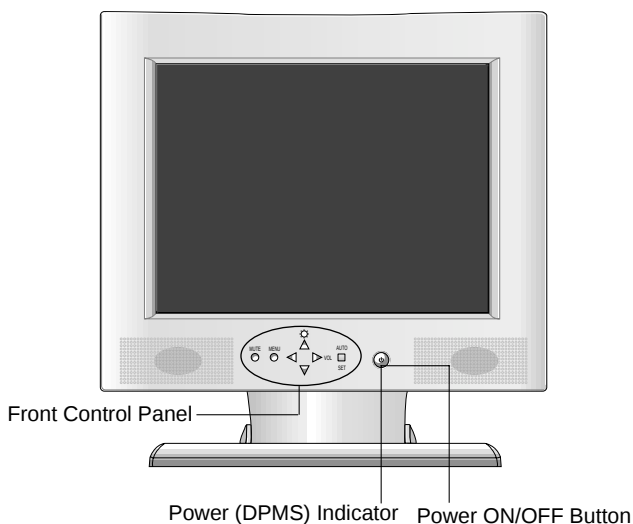
TIMING CHART



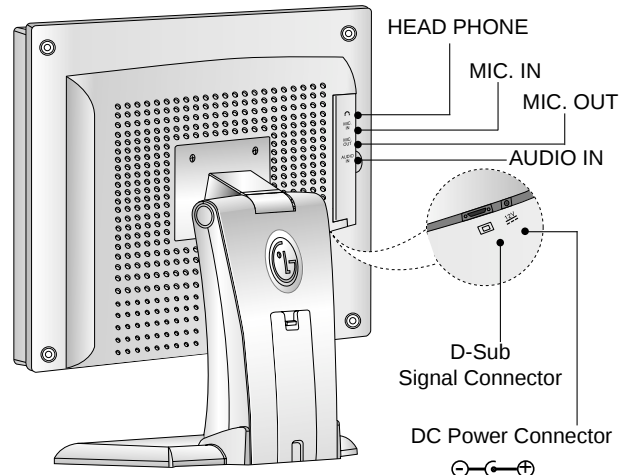
MODE	H / V	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Blanking Time (B)	Sync Duration (D)	Back Porch (F)	Front Porch (C)	Resolution
1	H (Pixels)	+	25.175	31.468 KHz	800	640	160	96	48	16	640 x 350
	V (Lines)	-		70.0 Hz	449	350	99	2	60	37	
2	H (Pixels)	-	28.322	31.468 KHz	900	720	180	108	55	17	720 x 400 (TEXT)
	V (Lines)	+		70.0 Hz	449	400	49	2	34	13	
3	H (Pixels)	-	25.175	31.469 KHz	800	640	160	96	48	16	640 x 480
	V (Lines)	-		60.0 Hz	525	480	45	2	33	10	
4	H (Pixels)	-	30.24	35.00 KHz	864	640	224	64	96	64	640 x 480
	V (Lines)	-		66.67 Hz	525	480	45	3	39	3	
5	H (Pixels)	-	31.5	37.861 KHz	832	640	192	40	128	24	640 x 480
	V (Lines)	-		72.8 Hz	520	480	40	3	28	9	
6	H (Pixels)	-	31.5	37.50 KHz	840	640	200	64	120	16	640 x 480
	V (Lines)	-		75.0 Hz	500	480	20	3	16	1	
7	H (Pixels)	+	36.0	35.156 KHz	1024	800	224	72	128	24	800 x 600
	V (Lines)	+		56.25 Hz	625	600	25	2	22	1	
8	H (Pixels)	+	40.0	37.879 KHz	1056	800	256	128	88	40	800 x 600
	V (Lines)	+		60.3 Hz	628	600	28	4	23	1	
9	H (Pixels)	+	50.0	48.077 KHz	1040	800	240	120	64	56	800 x 600
	V (Lines)	+		72.188 Hz	666	600	66	6	23	37	
10	H (Pixels)	+	49.5	46.875 KHz	1056	800	256	80	160	16	800 x 600
	V (Lines)	+		75.0 Hz	625	600	25	3	21	1	
11	H (Pixels)	-	57.2832	49.725 KHz	1152	832	320	64	224	32	832 x 624 (MAC)
	V (Lines)	-		74.55 Hz	667	624	43	3	39	1	
12	H (Pixels)	-	65	48.363 KHz	1344	1024	320	136	160	24	1024 x 768
	V (Lines)	-		60.0 Hz	806	768	38	6	29	3	
13	H (Pixels)	-	75	56.476 KHz	1328	1024	304	136	144	24	1024 x 768
	V (Lines)	-		70.0 Hz	806	768	38	6	29	3	
14	H (Pixels)	+	78.75	60.023 KHz	1312	1204	288	96	176	16	1024 x 768
	V (Lines)	+		75.0 Hz	800	768	32	3	28	1	

OPERATING INSTRUCTIONS

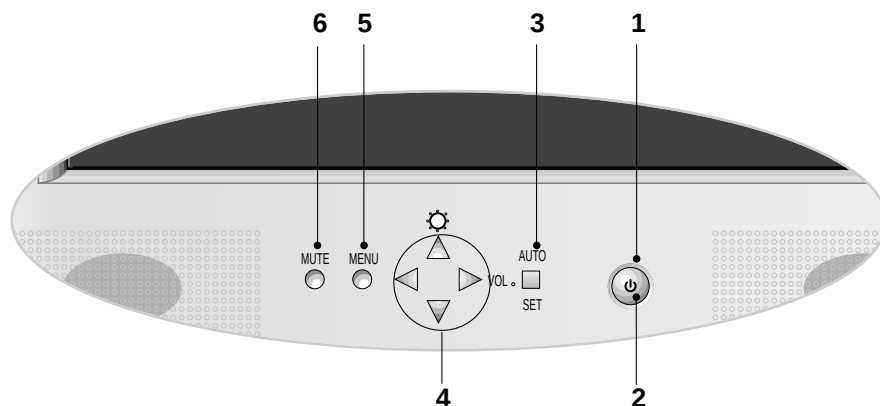
FRONT VIEW



REAR VIEW



Front Control Panel



- 1. Power ON/OFF Button**
Use this button to turn the monitor On or Off.

- 2. Power Indicator**
This indicator lights up green when the monitor operates normally. If the monitor is in DPM (Energy Saving) mode (stand-by/ suspend/power off), this indicator color changes to yellow.

- 3. AUTO/SET Button**
Use this button to enter a selection in the on screen display.

*** AUTO adjustment function**
Touch the **AUTO/SET** button before using OSD menu. This button is for the automatic adjustment of the screen position, clock and phase.

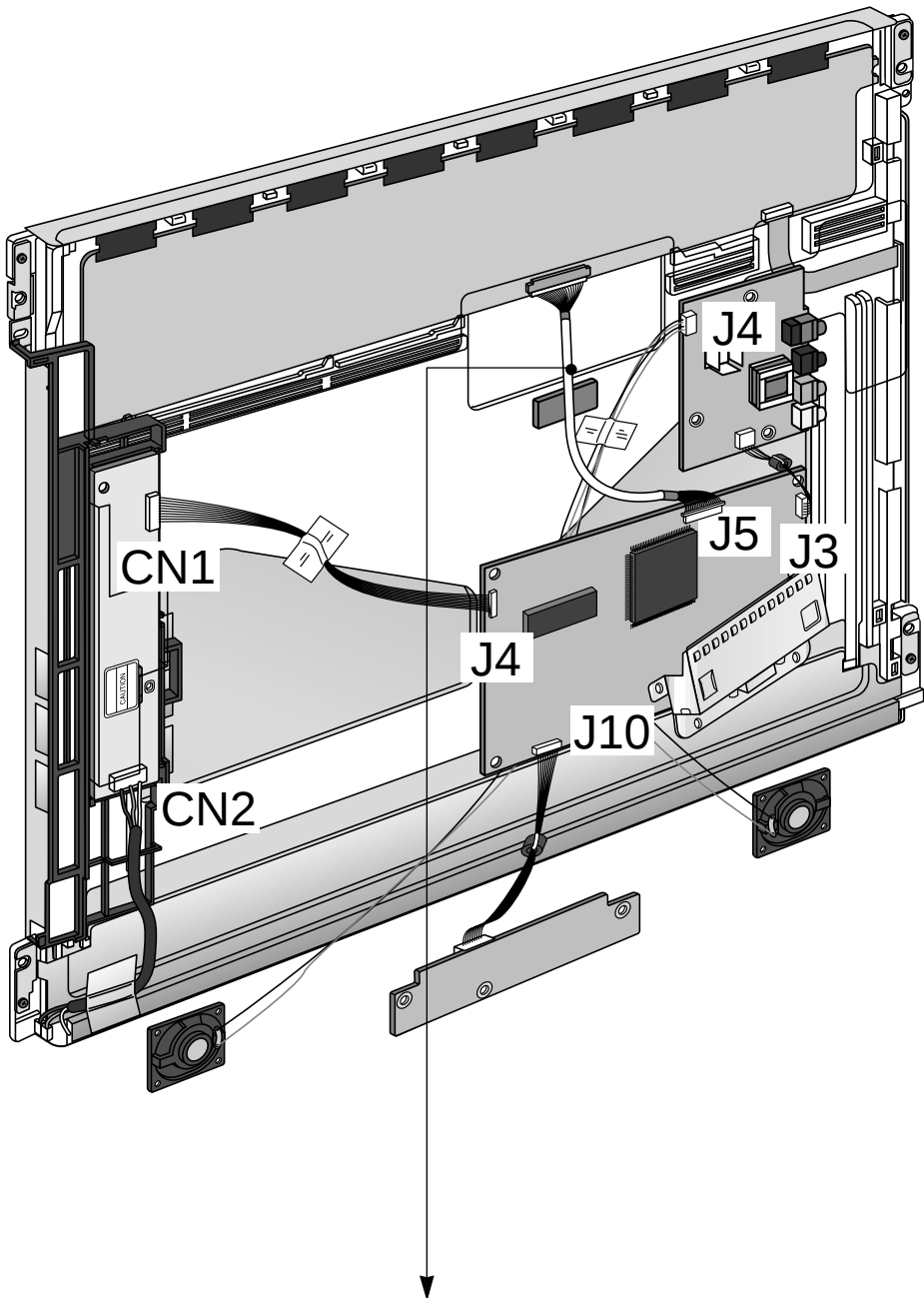


Note: Some signal from some graphics boards may not function properly. **If the results are unsatisfactory**, adjust your monitor's Position, Clock and Phase manually.

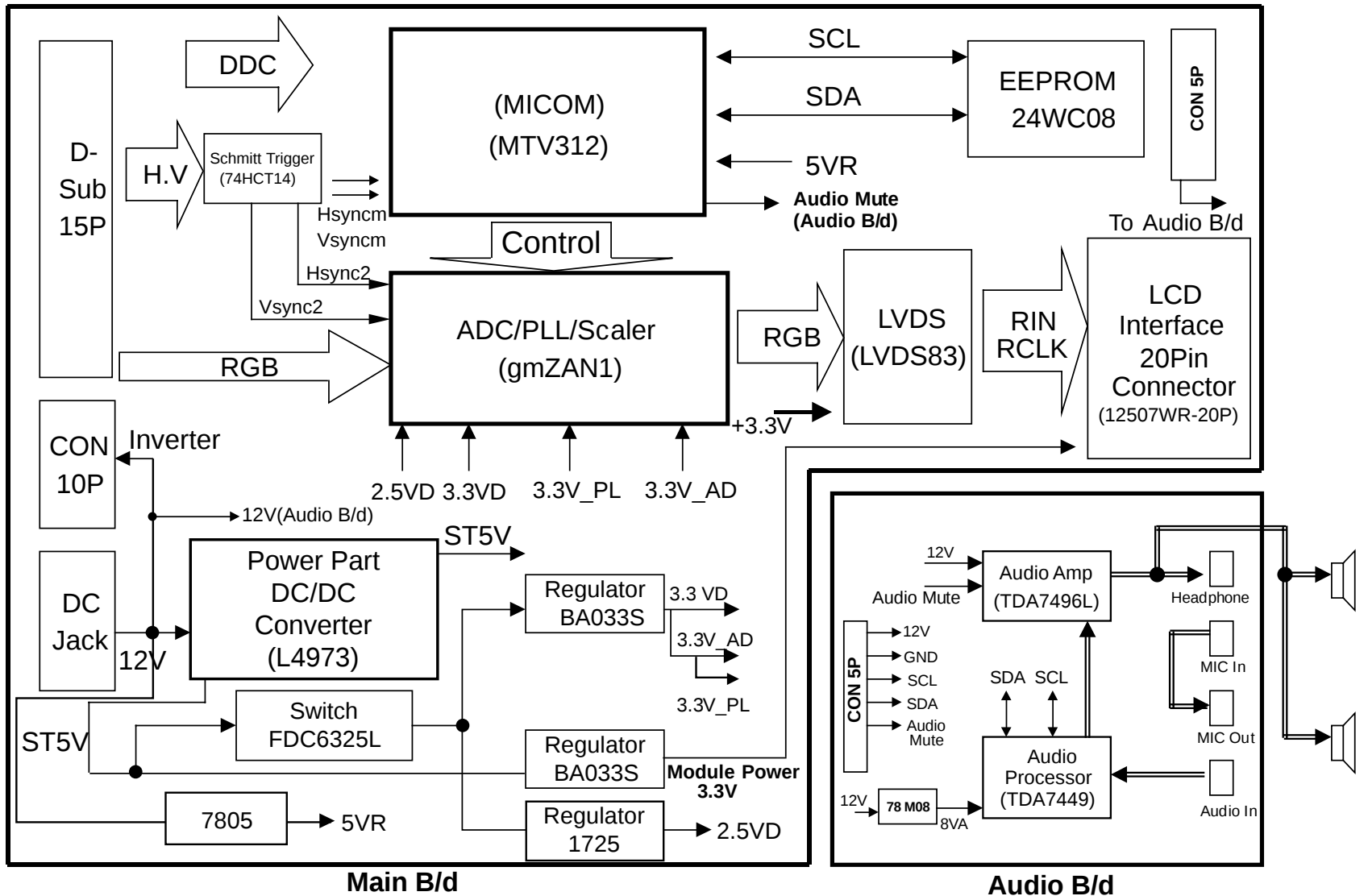
- 4. Navigation Buttons**
Use these buttons to choose or adjust items in the on screen display.
▼/▲ Use to adjust the brightness.
◀/▶ Use to adjust the volume.

- 5. MENU Button**
Use this button to enter and from the on screen display (OSD).

- 6. MUTE Button**
Use this button to turn on the audio or off.



Connector Ass'y P/N: 6631T11012N



DESCRIPTION OF BLOCK DIAGRAM

1. Scaler One chip IC(GMZAN2, U201)

GMZAN2 (U201) is one chip IC which it supports four internal function blocks of Video Amp, PLL, A/D converter and Video processor.

Video signal (0.7Vp.p) clamped through C209, 208, 207 with matching IC's proper cut off voltage.

This signal is processed as a proper 8 bit digital signal by U201's amplifying, phase locking, A/D converting, and scaling operations.

U3 generates Clock, Horizontal and Vertical sync, Data Enable signals as LCD Panel's input signals.

2. System Controller (Microprocessor) Circuit.

- 1) Microprocessor (U501) distinguishes polarity and frequency by calculating horizontal and vertical sync input from signal source.
- 2) Microprocessor (U501) carries out power control by sending power-down trigger signal to each IC.
- 3) Microprocessor (U501) communicates with EEPROM (U502), and GMZAN2 (U201) through IIC(2 lines) or 6 bit bus line. It makes all devices operated properly.
- 4) Microprocessor (U501) let User adjust screen by OSD function.

3. DC/ DC Converter.

This circuit supplies DC power for each device needing DC voltage of 3.3VD, 3.3V_AD, 3.3V_PL, Module Power 3.3V and 5VS.

L4978(U801) , the DC/DC controller IC converts input 12Vdc into 5VS and 3.3Vdc, 2.5Vdc with peripheral circuit composed of condensing components (ZD801, C810), and Regulators(U802,U805).

MODPWR(3.3V) for LCD module power is Regulator by U805, Regulator, controlled by Microprocessor.

3.3VD, 3.3V_AD, and 3.3V_PL for GMZAN2 (U201) and 3.3V for LVDS (U401) are switched by U804, switching FET, controlled by Microprocessor for Power saving.

4. Display Data Transmitter Part (LVDS).

This part transmit digital signal from the Scaler to the receiver of module.

5. Audio Part (TDA7449,TDA7496L)

In This Circuit, Audio Processor(TDA7449) Which is Controlled by Microprocessor(U501) adjust volume/treble/bass/balance of Audio signal which come from PC.

The Signal come from TDA7449 is amplified by TDA7496L. The final output signal is output through speaker.

ADJUSTMENT

All adjustment are thoroughly checked and corrected when the monitor leaves the factory, but sometimes several minor adjustment may be required.

Adjustment should be following procedure and after warming up for a minimum of 10 minutes.
Alignment appliances and tools.

- IBM Compatible PC
- Programmable Signal Generator.
(eg. VG-819 made by Astrodesign Co.)
- E(E)PROM with each mode data saved.
- Alignment Adapter and Software.

1. Adjustment for Factory Preset Mode

- 1) Run alignment program for LM568E on the IBM compatible PC.
- 2) Display cross hatch pattern at Mode 1.
- 3) Select EEPROM ALL Init command and Enter.
- 4) Press "Y" key, it will automatically save all FOS data to EEPROM.

2. Adjustment for White Balance

- 1) Display color 0,0 pattern at Mode 12.
- 2) Set External Bright to MAX position and Contrast to MAX Position.
- 3) Select PRESET START → BIAS CAL command and Enter.
- 4) No attempt to manually adjust, BIAS data is automatically adjusted and saved to the EEPROM.
- 5) Display color 15,0 pattern at Mode 12.
- 6) Select DRIVE CAL command and Enter.
- 7) Color 1 (9300K) and Color 2 (6500K) are automatically adjusted and saved to the EEPROM.
- 8) Select PRESET EXIT command and Enter.

3. DDC Data Write Procedure

- 1) Use this procedure only when there is some probelm on EDID data.
- 2) Select EEPROM → EDID Write command and Enter.
- 3) This will write the EDID data to EEPROM.

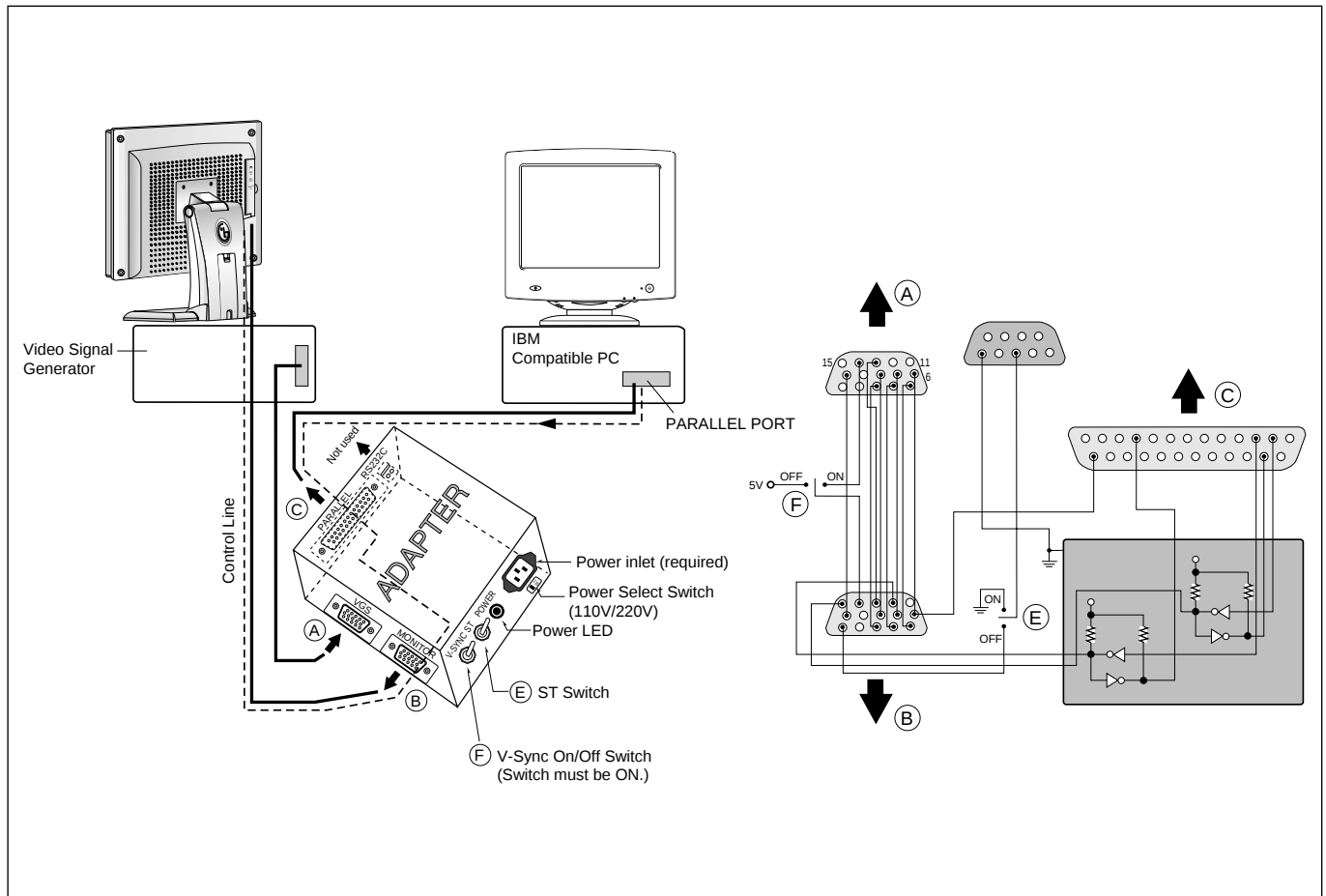
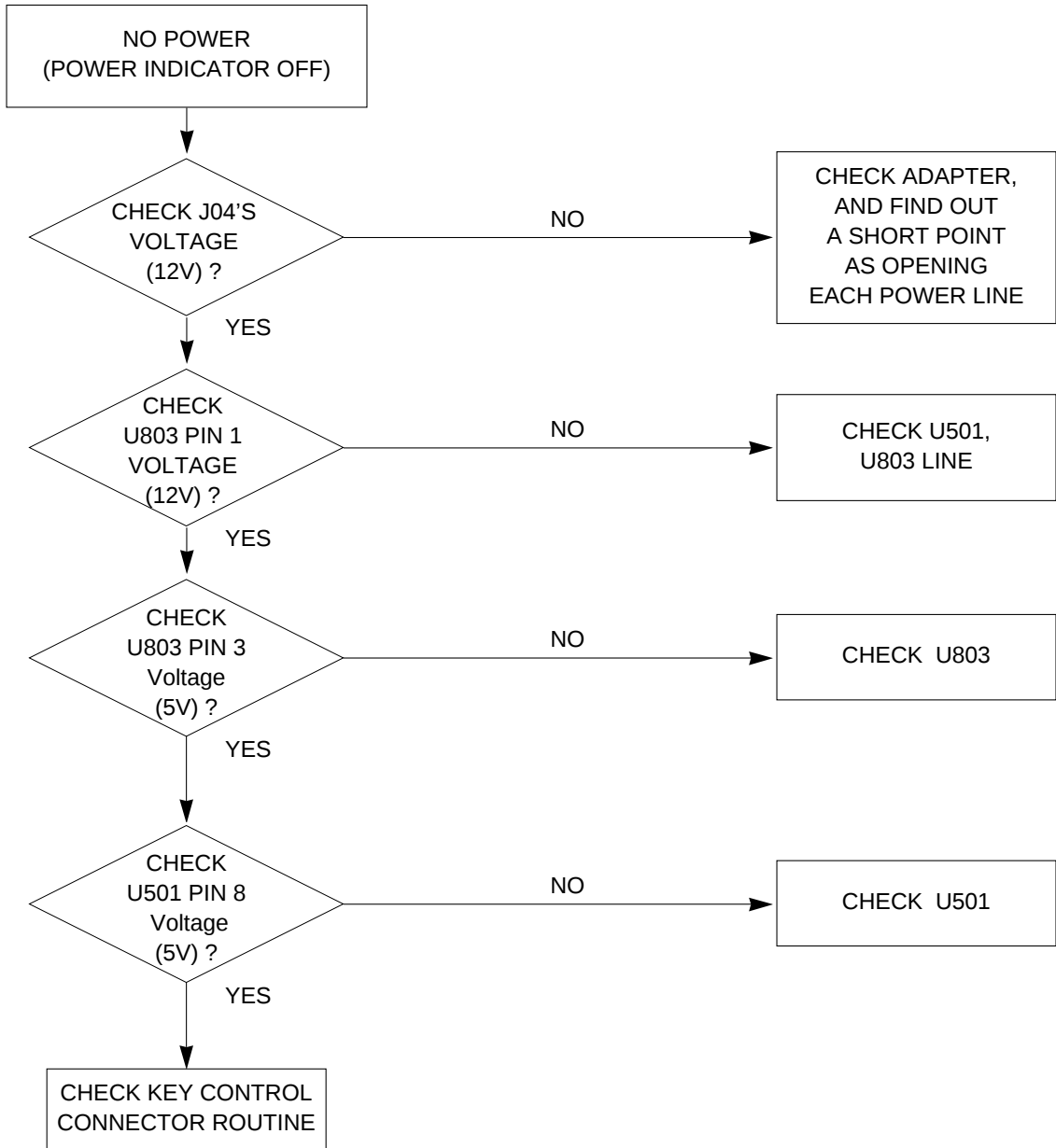


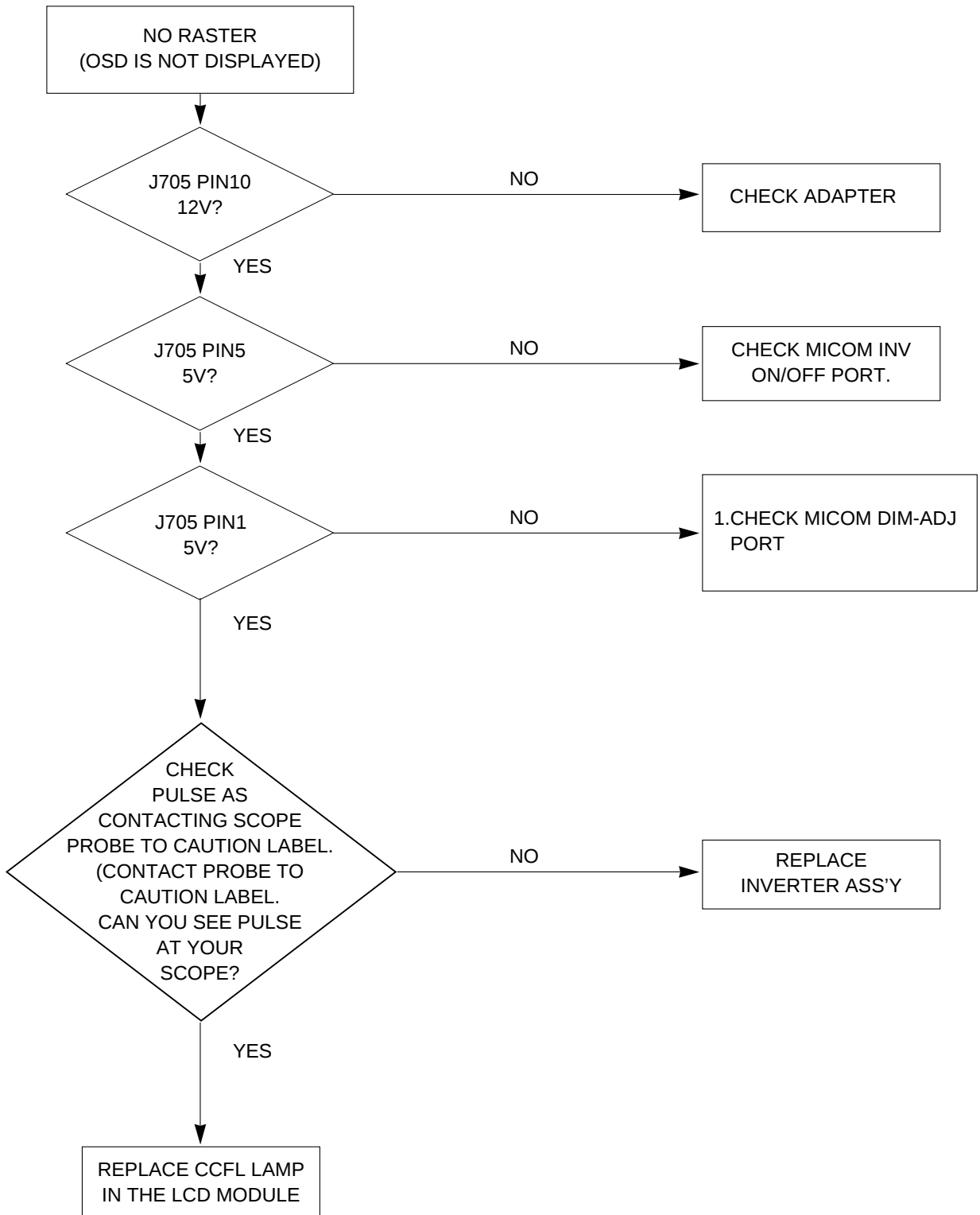
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

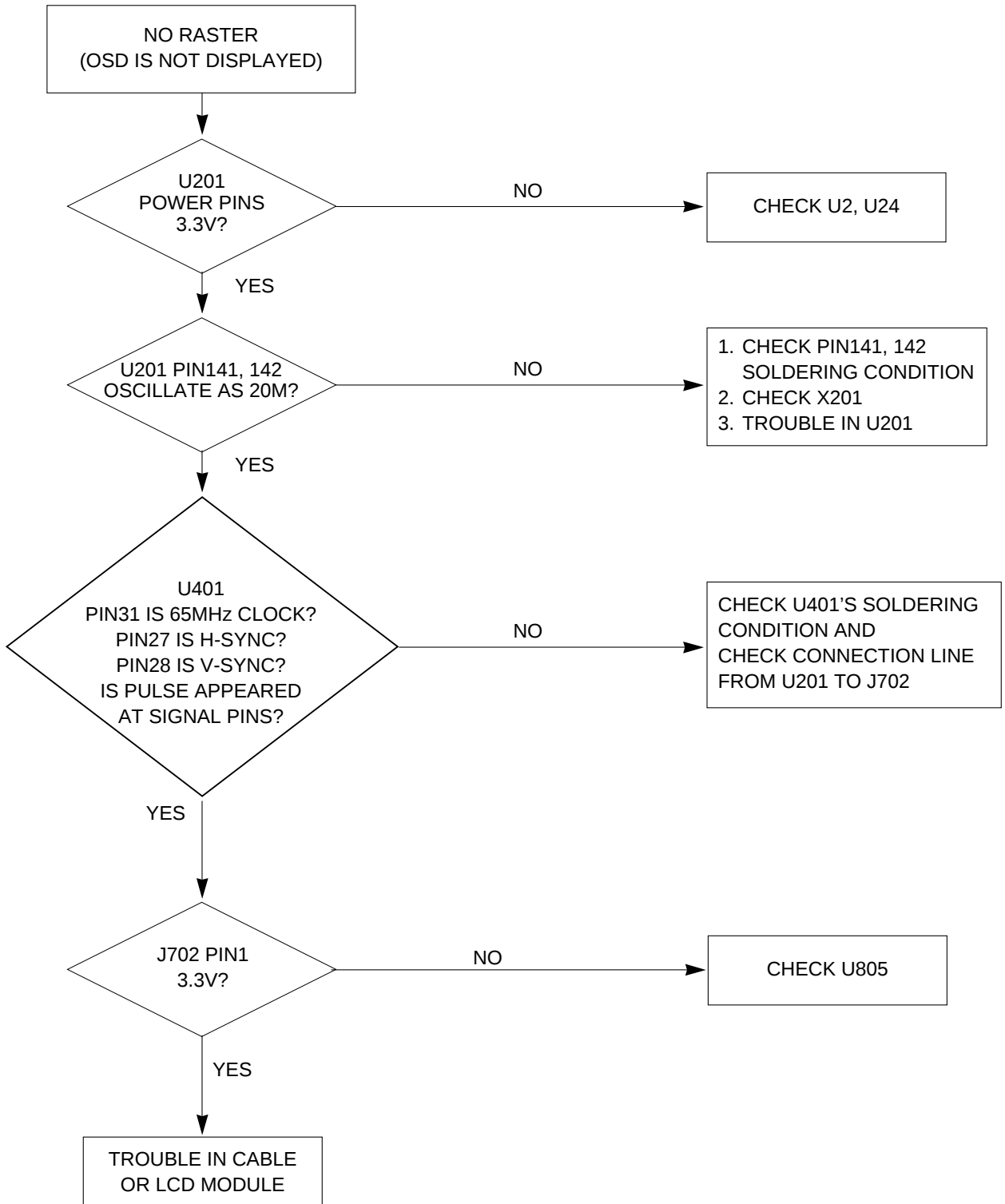
1. NO POWER



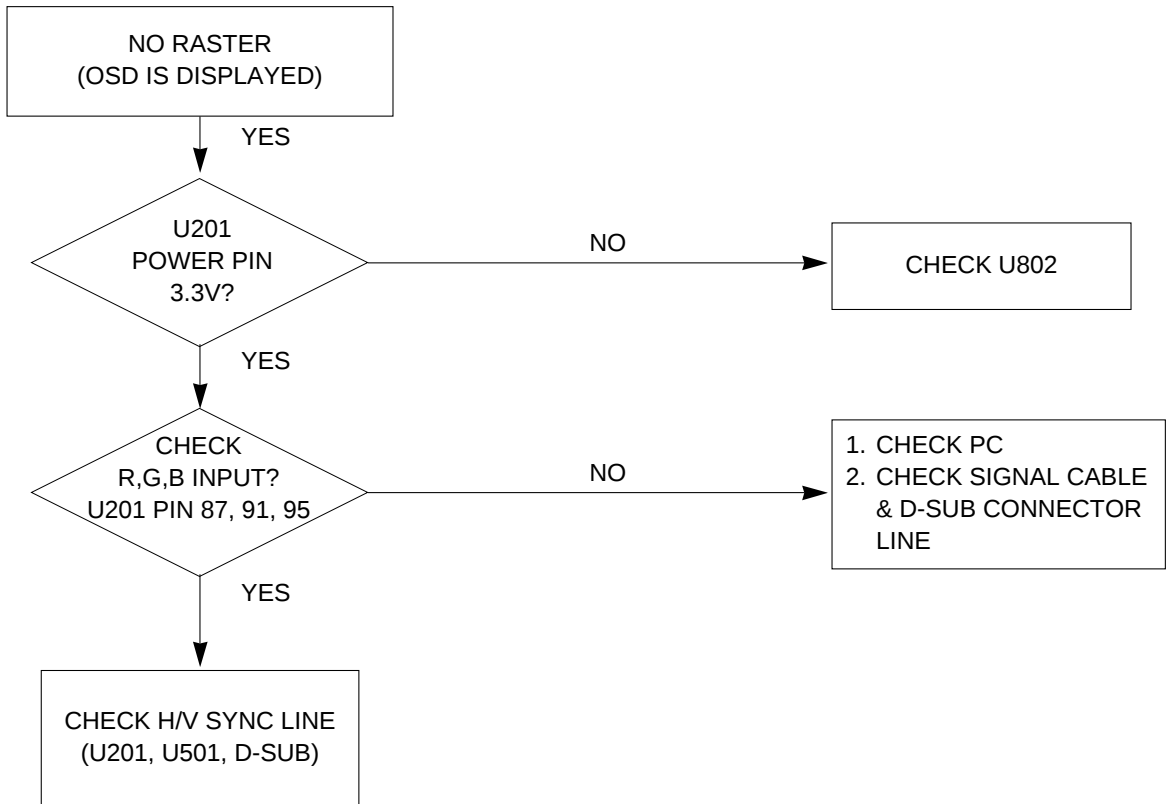
2. NO RASTER (OSD IS NOT DISPLAYED) – INVERTER



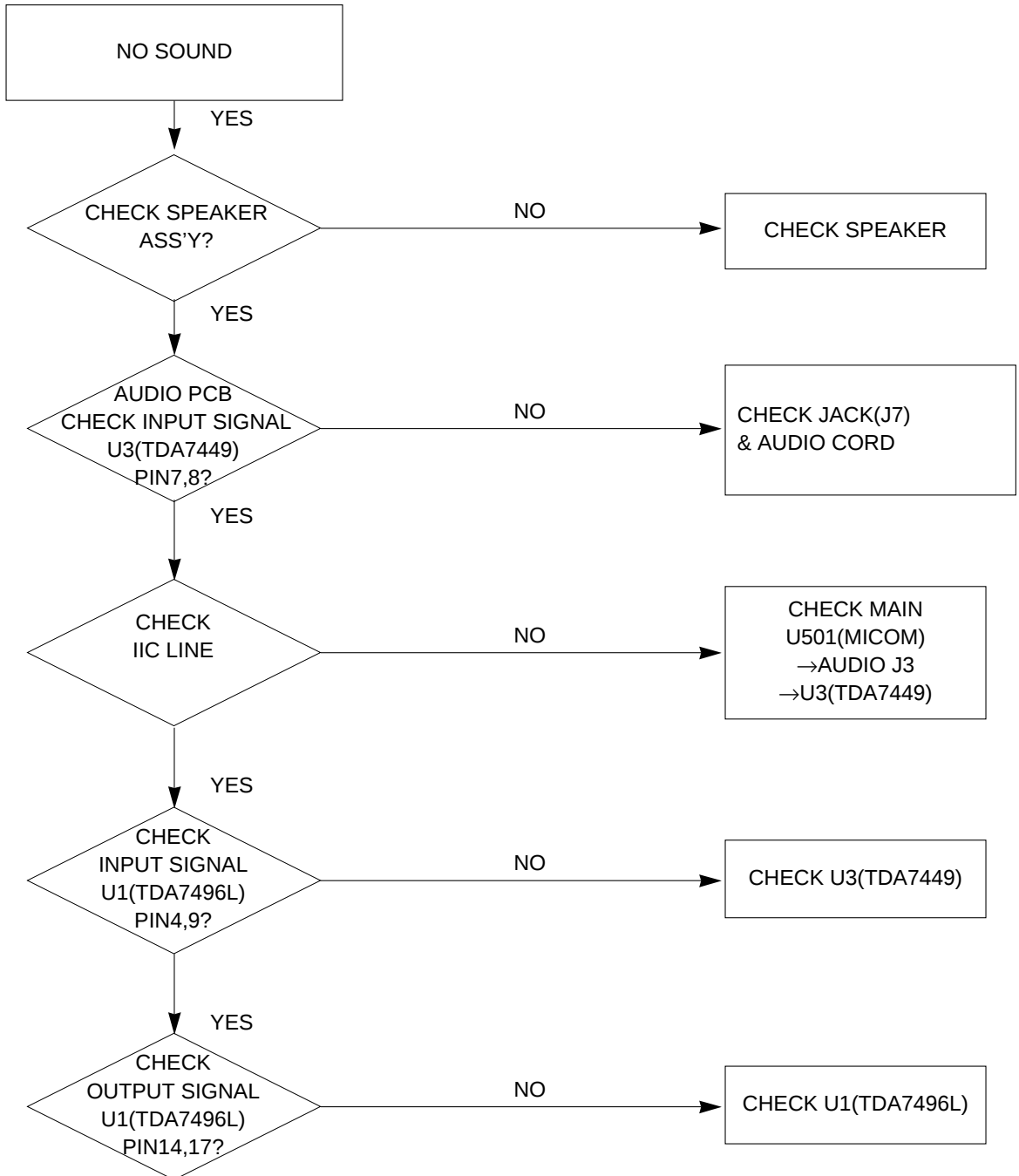
3. NO RASTER (OSD IS NOT DISPLAYED) – gmZAN1



4. NO RASTER (OSD IS DISPLAYED) – gmZAN1

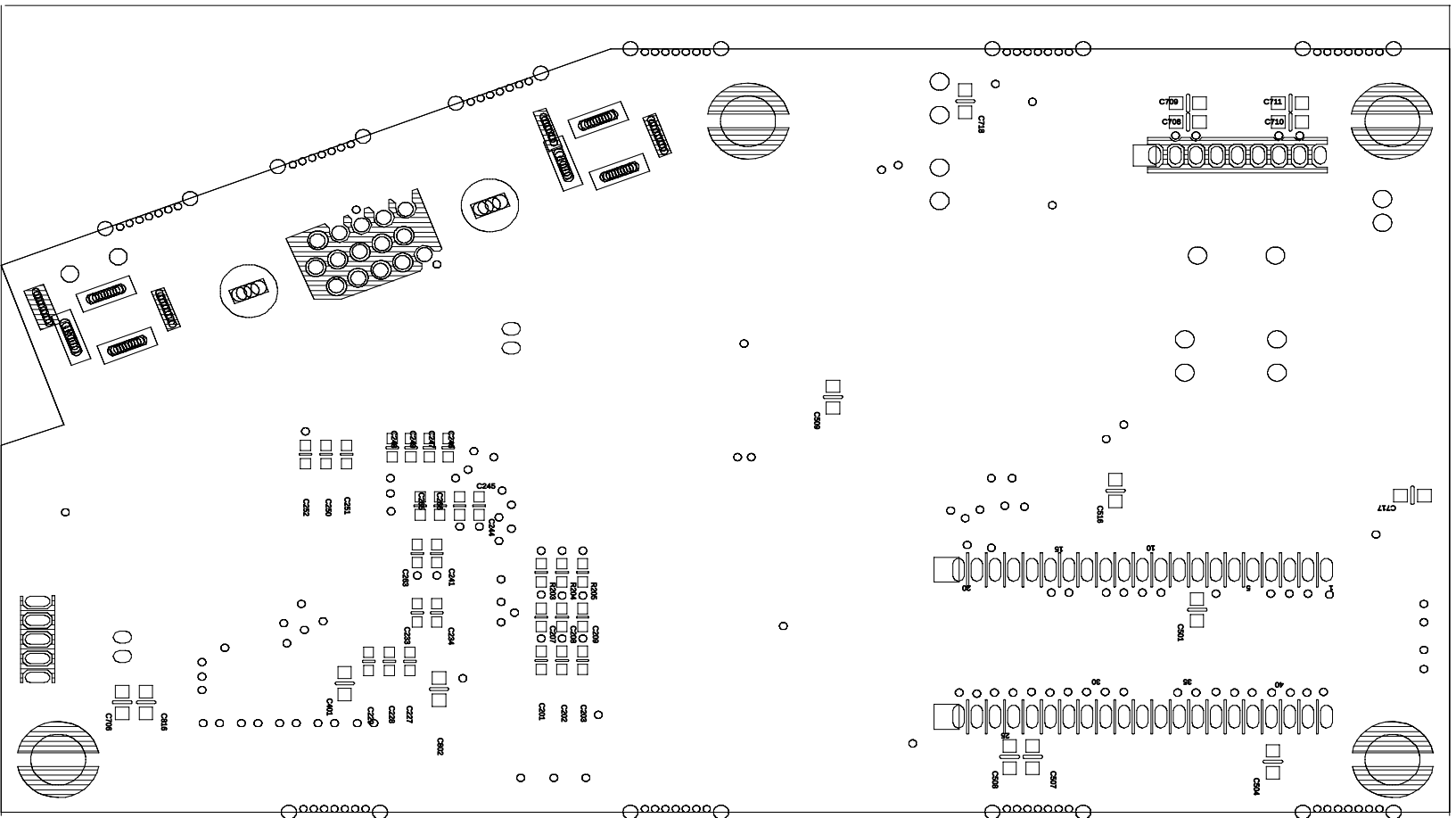


5. NO SOUND

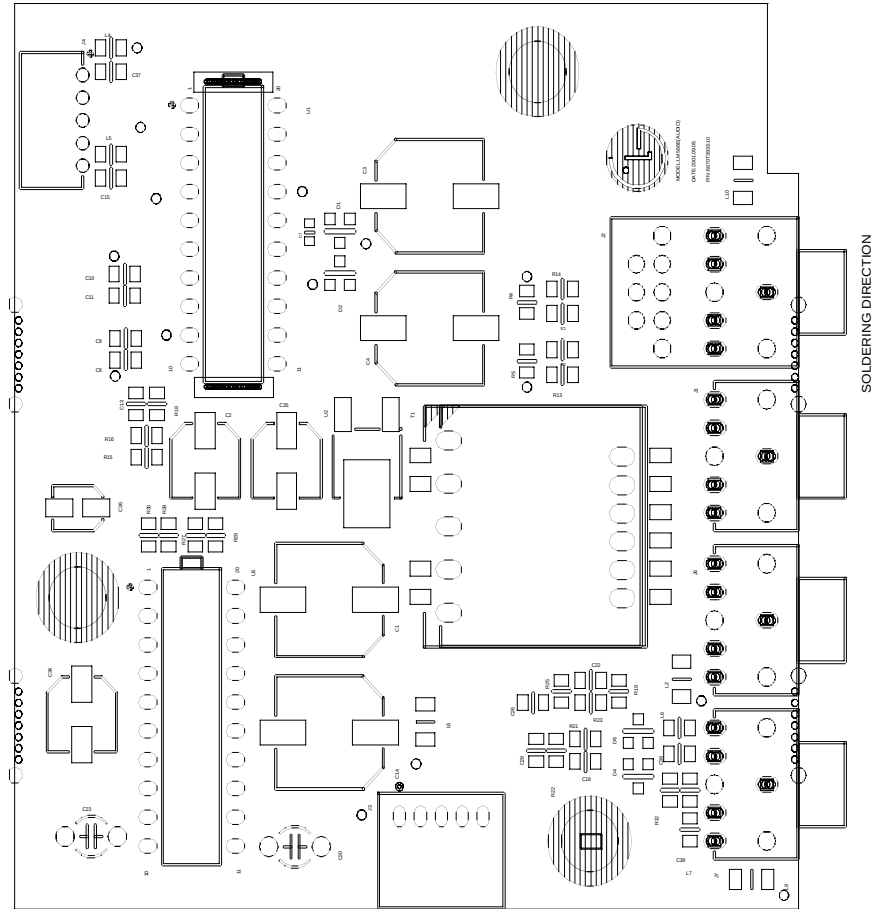


SOLDERING DIRECTION

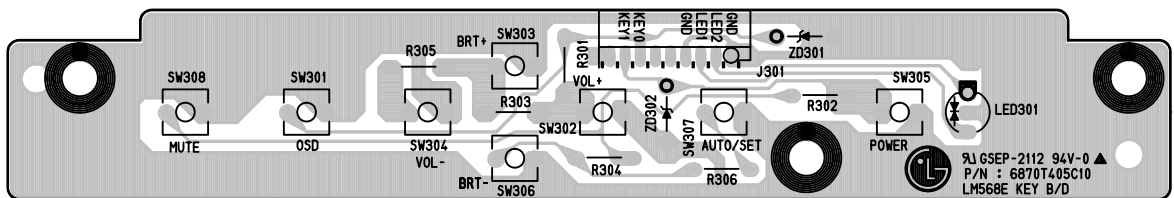
2. MAIN BOARD (Solder Side)



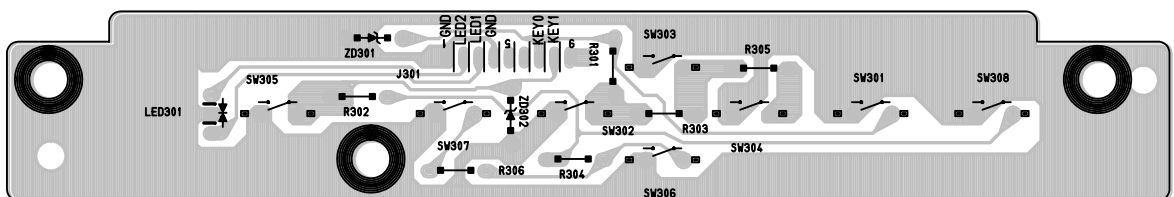
3. AUDIO BOARD



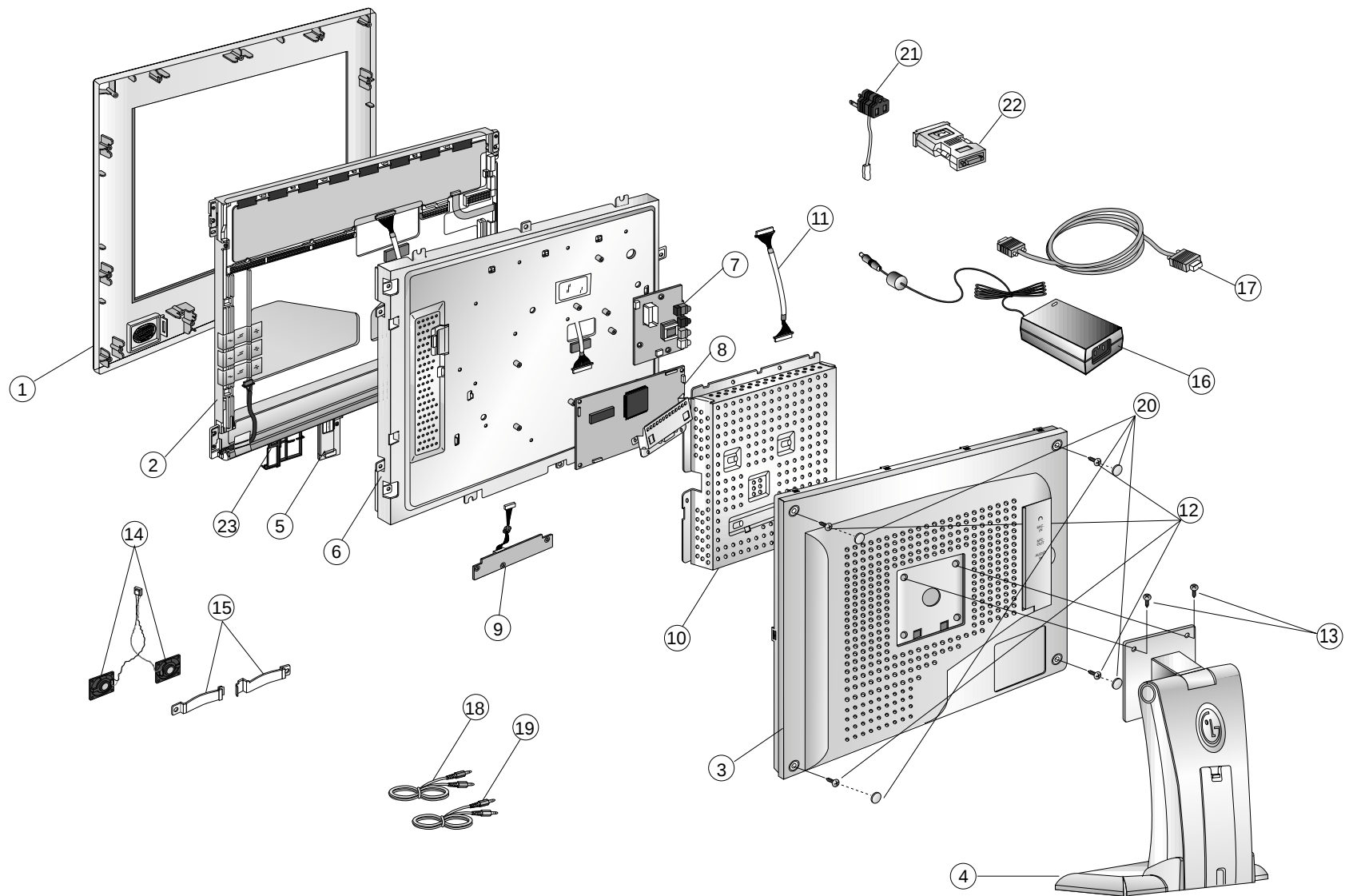
4. CONTROL BOARD(Component Side)



5. CONTROL BOARD(Solder Side)



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL030B	CABINET ASSEMBLY, LM568E BRAND 3090TKL029A ONLY TCO95 LABEL -For Europe
	3091TKL030E	CABINET ASSEMBLY, LM568E BRAND 3090TKL029A TCO95, SILVER SPRAY -For Japan
2	6304FTS001A	LCD, LTM15C443L TOSHIBA 15.0 INCH XGA(1024 X 768) TFT COLOR W/O INVERTER
3	3809TKL020B	BACK COVER ASSEMBLY, LM568E 3808TKL023 ADD ADAPTOR LABEL
4	3043TKK057M	TILT SWIVEL ASSEMBLY, LM568E (BUILT-IN SPEAKER) SPRAY -For Europe
	3043TKK057Q	TILT SWIVEL ASSEMBLY, LM568E . BOTTOM(BLUE SPRAY) -For Japan
5	6633TZA003G	INVERTER ASSEMBLY, SAMSUNG LG1511 LB565C
6	4951TKS072D	METAL ASSEMBLY, "FRAME MAIN, LB568"
7	6871TST257A	PWB(PCB) ASSEMBLY, SUB, LM568E SOUND TOTAL BRAND XAGC
8	6871TMT315A	PWB(PCB) ASSEMBLY, MAIN, LM568E ATEUG BRAND CL-18 TOTAL
9	6871TST256A	PWB(PCB) ASSEMBLY, SUB, LM568E CONTROL TOTAL BRAND XAGC
10	4951TKS077C	METAL ASSEMBLY, "REAR FRAME, LM568(TOSHIBA)"
11	6631T11012N	CONNECTOR ASSEMBLY, 20P H-H 120MM UL20276 LM568E INTERFACE,UNIXSTAR
12	332-068T	SCREW, PPB+3*10(MSWR/FZMW)
13	332-105F	SCREW, PVS+4*10(MSWR/FZMW)
14	6401TZZ025A	SPEAKER ASSEMBLY, LM568E T401SX154K14 SPEAKER ASSY 1W 4OHM
15	4950TKK337A	METAL, FIX SPEAKER (LM568E)
16	6634TBZ016A	ADAPTER, AC-DC, ADP-36UB DELTA 12V 3.0A FOR LG
	or 6634B00046A	ADAPTER, AC-DC, LSE0107A1236 LISHIN 12V 3.0A FOR LG
	or 6634TBZ014A	ADAPTER, AC-DC, PSCV360104A SAMSUNG 12V 3.0A FOR LG
17	6866TD9001F	SIGNAL CABLE, UL 2990-9C(7.5) DT 1870MM GRAY(85964) LB500 DM
	or 6866TD9001G	CABLE, D-SUB, UL 2990-9C(7.5)DT 1870MM PANTONE BLUE(661C)LV501A DM
18	6852TAZ006E	CORD, A/V, AUDIO UL 2851 #28-2C 1500MM QUARTZ KSD
19	6852TAZ006F	CORD, A/V, A/V DH-1560SP-BL UL 2851 #28 1560MM GRAY(85964)
20	5410TKK015D	INSULATION, PVC SHEET LM568E(89483)
21	381-240A	ADAPTER, AC, KPR-24 KAWASAKI 125V 15A BLACK -Only Japan
22	6634TFZ002A	ADAPTER, SIGNAL, LIBERTY ENHANCE MAC 6-DIP -Only Japan
23	4810TKK173A	BRACKET, LB565C SUPPOTER INVERTER

REPLACEMENT PARTS LIST

CAUTION: BEFORE REPLACING ANY OF THESE COMPONENTS,
READ CAREFULLY THE **SAFETY PRECAUTIONS** IN THIS MANUAL.

* NOTE : **S** SAFETY Mark 
AL ALTERNATIVE PARTS

DATE: 2002. 04. 25.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
MAIN BOARD				
CAPACITORS				
		C201	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C202	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C203	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C204	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C205	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C206	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C207	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C208	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C209	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C210	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C211	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C212	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C214	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C215	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C220	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C223	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C224	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C225	0CC100CK41A	10PF 1608 50V 5% R/TP NP0
		C226	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C230	0CC150CK41A	15PF 1608 50V 5% R/TP NP0
		C232	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C235	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C236	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C254	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C255	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C256	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C257	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C258	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C259	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C261	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C262	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C269	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C270	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C271	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C401	DCH3104K946	DCH3104K946
		C402	DCH3104K946	DCH3104K946
		C403	DCH3104K946	DCH3104K946
		C404	DCH3104K946	DCH3104K946
		C405	DCH3104K946	DCH3104K946
		C501	DCH3104K946	DCH3104K946
		C502	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C503	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C504	DCH3104K946	DCH3104K946
		C505	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C506	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C507	DCH3104K946	DCH3104K946
		C508	DCH3104K946	DCH3104K946
		C509	DCH3104K946	DCH3104K946
		C512	0CC330CK41A	33PF 1608 50V 5% R/TP NP0
		C513	0CC330CK41A	33PF 1608 50V 5% R/TP NP0
		C514	0CH8106F611	10UF 16V M 85STD(CYL) R/TP
		C515	0CC680CK41A	68PF 1608 50V 5% R/TP NP0

DATE: 2002. 04. 25.				
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C516	DCH3104K946	DCH3104K946
		C518	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C530	DCH3104K946	DCH3104K946
		C701	0CC030CK01A	3PF 1608 50V 0.25 PF R/TP
		C702	0CC030CK01A	3PF 1608 50V 0.25 PF R/TP
		C703	0CC030CK01A	3PF 1608 50V 0.25 PF R/TP
		C704	0CC030CK01A	3PF 1608 50V 0.25 PF R/TP
		C705	0CC030CK01A	3PF 1608 50V 0.25 PF R/TP
		C706	DCH3104K946	DCH3104K946
		C708	DCH3104K946	DCH3104K946
		C709	DCH3104K946	DCH3104K946
		C710	DCH3104K946	DCH3104K946
		C711	DCH3104K946	DCH3104K946
		C712	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C713	DCH3104K946	DCH3104K946
		C716	0CE107CH610	100UF SHL,SD 25V 20% BULK
		C717	DCH3104K946	DCH3104K946
		C718	DCH3104K946	DCH3104K946
		C719	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C720	DCH3104K946	DCH3104K946
		C721	DCH3104K946	DCH3104K946
		C722	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C723	DCH3104K946	DCH3104K946
		C724	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C725	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C726	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C727	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C728	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C731	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C801	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C802	DCH3104K946	DCH3104K946
		C803	0CE477CF610	470UF SHL,SD 16V 20% FL BU
		C804	0CE477CF610	470UF SHL,SD 16V 20% FL BU
		C805	0CK223CK51A	0.022UF 1608 50V 10% R/TP
		C806	DCH3104K946	DCH3104K946
		C807	0CK152CK51A	1500PF 1608 50V 10% R/TP B
		C808	DCH3104K946	DCH3104K946
		C809	0CE477EF610	470UF KMG,RD 16V 20% BULK
		C810	0CE477EF610	470UF KMG,RD 16V 20% BULK
		C811	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C812	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C813	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C814	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C815	DCH3104K946	DCH3104K946
		C816	DCH3104K946	DCH3104K946
		C817	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C818	DCH3104K946	DCH3104K946
		C819	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C820	0CE107CF610	100UF SHL,SD 16V 20% BULK
		C821	DCH3104K946	DCH3104K946
		C822	DCH3104K946	DCH3104K946
		C823	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C824	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C827	0CC102CK41A	1000PF 1608 50V 5% R/TP NP

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		C828	DCH3104K946	DCH3104K946
		C829	0CC102CK41A	1000PF 1608 50V 5% R/TP NP
		C830	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C831	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C832	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C833	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C835	DCH3104K946	DCH3104K946
		C836	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C837	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7
		C840	DCH3104K946	DCH3104K946
		C841	DCH3104K946	DCH3104K946
DIODEs				
		D701	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D702	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D703	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D704	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D705	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D706	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D810	0DS181009AA	KDS181 TP KEC SOT-23 80V
		ZD501	0DZ910009FE	UDZS 9.1B TP ROHM - - 9.1V
		ZD701	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD32
		ZD702	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD32
		ZD801	0DRSG00028A	STPS340U SGS-THOMSON R/TP
ICs				
		U201	0IPRPGA002A	GMZAN2-160P GENESIS MICRO
		U401	0ITH638300B	THC63LVDM83R THINE 56P,TSS
		U501	0IZZTSZ186A	MYSON 42PIN BK OTP LM568E-
		U502	0ICS240813B	CAT24WC08J-TE13 8P,SOIC R/
		U701	0IMO741420B	MC74HCT14ADR2 14P,SOIC TP
		U801	0IPMGSG008A	L4978D SGS-THOMSON 16P,SOI
		U802	0IRH033200A	BA033FP-E2 MOLD-3 TP REGUL
		U803	0ISS780500H	KA78M05-R 3P,D-PAK TP 5V 0
		U804	0TF632509AA	FDC6325L TP FAIRCHILD 8V 2
		U805	0IRH033000A	BA033SFP P/MOLD-5 TP REGUL
		U806	0IPMGON007A	NCP1117ST25T3 ON SEMI SOT2
COILS & COREs				
		L201	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L202	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L203	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L204	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L701	6210TCE001S	HU-1M2012-121 CERATECH 201
		L702	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L703	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L704	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L705	6210TCE001P	HB-1S2012-121JT CERATECH 2
		L708	6210TCE001S	HU-1M2012-121 CERATECH 201
		L709	6210TCT002C	HF50ACC575018-T TDK ,MM CH
		L710	6210TCE001G	HH-1M3216-501 CERATEC 3216
		L802	6140TBZ016E	LX31 GET DR10*7,0.45*37TS,
		L803	6210TCE001G	HH-1M3216-501 CERATEC 3216
		L804	6210TCE001G	HH-1M3216-501 CERATEC 3216
		L805	6210TCE001G	HH-1M3216-501 CERATEC 3216
		BA201	6210TCE002B	HB-4M3216-121JT CERATECH 3
		BA202	6210TCE002B	HB-4M3216-121JT CERATECH 3
		BA203	6210TCE002B	HB-4M3216-121JT CERATECH 3
		BA204	6210TCE002B	HB-4M3216-121JT CERATECH 3

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		BA205	6210TCE002B	HB-4M3216-121JT CERATECH 3
		BA206	6210TCE002B	HB-4M3216-121JT CERATECH 3
TRANSISTOR				
		Q501	0IKE704200J	KIA7042AF SOT-89 TP 4.2V V
		Q502	0TR390409AE	FAIRCHILD KST3904(LGEMTF)
		Q505	0TR162309CA	KSC1623 TP SAMSUNG SOT23
		Q506	0TR162309CA	KSC1623 TP SAMSUNG SOT23
		Q701	0TR390409AE	FAIRCHILD KST3904(LGEMTF)
		Q710	0TR162309CA	KSC1623 TP SAMSUNG SOT23
		Q711	0TR162309CA	KSC1623 TP SAMSUNG SOT23
RESISTORs				
		R201	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R202	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R203	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R204	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R205	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R206	0RJ2701D677	2.7K OHM 1/10 W 5% 1608 R/
		R207	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R208	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R209	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R210	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R401	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R403	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R404	0RJ5601D477	5.6K OHM 1/10 W 1% 1608 R/
		R501	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R502	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R503	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R504	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R505	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R506	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R507	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R508	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R509	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R510	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R511	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R512	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R513	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/
		R515	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R516	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R517	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R518	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R519	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R520	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R521	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R522	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T
		R523	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R524	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R525	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R526	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R527	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R528	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R529	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R530	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R531	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R532	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/
		R533	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T
		R534	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T
		R535	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/

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		R536	0RJ1004D677	1000000 OHM 1/10 W 5% 1608
		R537	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R538	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/T
		R539	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R541	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R551	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R560	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/T
		R561	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R562	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R563	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/T
		R570	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R571	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R572	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R576	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R577	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R702	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R704	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R705	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/T
		R706	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R707	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R708	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R709	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R711	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R712	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R713	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R714	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R715	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R716	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R717	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R722	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R723	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/T
		R733	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/
		R734	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/
		R801	0RJ1003D677	100K OHM 1/10 W 5% 1608 R/
		R802	0RJ9101D677	9.1K OHM 1/10 W 5% 1608 R/
		R803	0RJ4701D477	4.7K OHM 1/10 W 1% 1608 R/
		R804	0RJ2701D477	2.7K OHM 1/10 W 1% 1608 R/
		R805	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/T
		R806	0RJ2002D677	20000 OHM 1/10 W 5% 1608 R
		R807	0RJ1003D677	100K OHM 1/10 W 5% 1608 R/
		R809	0RJ0221D677	2.2 OHM 1/10 W 5% 1608 R/T
		R810	0RJ0221D677	2.2 OHM 1/10 W 5% 1608 R/T
		R811	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/T
		R812	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/T
		R820	0RJ1003D677	100K OHM 1/10 W 5% 1608 R/
		RA501	0RHZTCZ001A	100 OHM 1/16 W 5% 3215 R/T
		RA502	0RHZTCZ001A	100 OHM 1/16 W 5% 3215 R/T
OTHERS				
		J704	6612TAH003A	DJ-023 KSD R/ANGLE LB563B
		X201	6202TST003F	HC-49/SM5H KONY 20.0MHZ +/
		X501	6202TST003D	HC-49/SM5H KONY CHIP 12 MH
CONTROL BOARD				
		R301	0RN1001F409	1K 1/6W 1% TA52
		R302	0RN1001F409	1K 1/6W 1% TA52
		R303	0RN1601F409	1.60K 1/6W 1% TA52
		R304	0RN1601F409	1.60K 1/6W 1% TA52

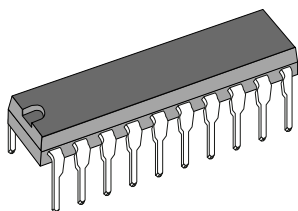
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		R305	0RN3001F409	3K 1/6W 1% TA52
		R306	0RN3001F409	3K 1/6W 1% TA52
		SW301	140-058E	SKHV10910B LGEC NON 12V 20
		SW302	140-058E	SKHV10910B LGEC NON 12V 20
		SW303	140-058E	SKHV10910B LGEC NON 12V 20
		SW304	140-058E	SKHV10910B LGEC NON 12V 20
		SW305	140-058E	SKHV10910B LGEC NON 12V 20
		SW306	140-058E	SKHV10910B LGEC NON 12V 20
		SW307	140-058E	SKHV10910B LGEC NON 12V 20
		SW308	140-058E	SKHV10910B LGEC NON 12V 20
		ZD301	0DZ560009CE	MTZJ5.6B TP ROHM-K DO34 5
		ZD302	0DZ560009CE	MTZJ5.6B TP ROHM-K DO34 5
		LED301	0DL305029BA	LTL-305DJ-0C2 TP LITEON GR
SOUND BOARD				
		C1	0CH8477F611	470UF 16V M 85STD(CYL) R/T
		C2	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C3	0CH8477F691	470UF 16V M 105STD (CYL) R
		C4	0CH8477F691	470UF 16V M 105STD (CYL) R
		C5	0CH3105F946	1UF 16V Z F 2012 R/TP
		C6	0CH3105F946	1UF 16V Z F 2012 R/TP
		C7	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C8	0CH6121K416	120PF 50V J NP0 2012 R/TP
		C9	0CH3105F946	1UF 16V Z F 2012 R/TP
		C10	0CH6121K416	120PF 50V J NP0 2012 R/TP
		C11	0CH3105F946	1UF 16V Z F 2012 R/TP
		C12	DCH3104K946	DCH3104K946
		C13	DCH3104K946	DCH3104K946
		C14	0CH8477F611	470UF 16V M 85STD(CYL) R/T
		C15	0CH6101K416	100PF 50V J NP0 2012 R/TP
		C18	0CH6102K406	1000PF 50V J SL 2012 R/TP
		C19	DCH3104K946	DCH3104K946
		C20	181-288D	MKT 100V 473JTR PHS26473
		C21	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C22	0CH6102K406	1000PF 50V J SL 2012 R/TP
		C23	181-288D	MKT 100V 473JTR PHS26473
		C24	0CH3154K946	0.15UF 50V Z F 2012 R/TP
		C25	0CH3334K946	0.33UF 50V Z F(Y5V) 2012 R
		C26	0CH3224K946	0.22UF 50V Z F 2012 R/TP
		C27	0CH3334K946	0.33UF 50V Z F(Y5V) 2012 R
		C28	0CH3224K946	0.22UF 50V Z F 2012 R/TP
		C29	0CH3154K946	0.15UF 50V Z F 2012 R/TP
		C30	0CK562CK51A	5600PF 1608 50V 10% R/TP B
		C31	DCH3104K946	DCH3104K946
		C32	0CK562CK51A	5600PF 1608 50V 10% R/TP B
		C33	0CK103CK51A	0.01UF 1608 50V 10% R/TP B
		C34	0CH8107F611	100UF 16V M 85STD(CYL) R/T
		C35	0CH8476F611	47UF 16V M 85STD(CYL) R/TP
		C36	0CH8106F611	10UF 16V M 85STD(CYL) R/TP
		C37	0CH6101K416	100PF 50V J NP0 2012 R/TP
		C38	0CH6101K416	100PF 50V J NP0 2012 R/TP
		C39	0CH6101K416	100PF 50V J NP0 2012 R/TP
		D1	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D2	0DS226009AA	KDS226 TP KEC SOT-23 80V
		D3	0DS181009AA	KDS181 TP KEC SOT-23 80V
		J1	6612F00001A	DJ-S360P KSD STEREO R/A PI
		J2	6612F00005D	DJ-SW3P-LM KSD STEREO R/A L
		J6	6612F00001A	DJ-S360P KSD STEREO R/A PI
		J7	6612F00001C	DJ-S360LB KSD STEREO R/A LI
		L1	6210TCE001H	HB-1T2012-301JT CERATEC 20
		L10	6210TCE001G	HH-1M3216-501 CERATEC 3216

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		L2	6210TCE001G	HH-1M3216-501 CERATEC 3216
		L3	6210TCE001H	HB-1T2012-301JT CERATEC 20
		L4	6210TCE001H	HB-1T2012-301JT CERATEC 20
		L5	6210TCE001H	HB-1T2012-301JT CERATEC 20
		L6	6210TCE001H	HB-1T2012-301JT CERATEC 20
		L7	6210TCE001H	HB-1T2012-301JT CERATEC 20
		L8	6210TCE001G	HH-1M3216-501 CERATEC 3216
		L9	6210TCE001G	HH-1M3216-501 CERATEC 3216
		Q1	0TR387500AA	CHIP 2SC3875S(ALY) KEC
		R1	0RH2202D622	22K 1/10W 5 D.R/TP
		R10	0RH2701D622	2.7K 1/10W 5 D.R/TP
		R11	0RH1002D622	10K OHM 1 / 10 W 2012 5.00
		R12	0RH2202D622	22K 1/10W 5 D.R/TP
		R13	0RH1000D622	100 1/10W 5 D.R/TP
		R14	0RH1000D622	100 1/10W 5 D.R/TP
		R15	0RH2002D622	20K OHM 1 / 10 W 2012 5.00
		R16	0RH1202D622	12K 1/10W 5 D.R/TP
		R17	0RH2202D622	22K 1/10W 5 D.R/TP
		R18	0RH1000D622	100 1/10W 5 D.R/TP
		R19	0RH2202D622	22K 1/10W 5 D.R/TP
		R21	0RH2702D622	27K 1/10W 5 D.R/TP
		R22	0RH1002D622	10K OHM 1 / 10 W 2012 5.00
		R23	0RH2702D622	27K 1/10W 5 D.R/TP
		R24	0RH2001D622	2.0K 1/10W 5 D.R/TP
		R25	0RH1002D622	10K OHM 1 / 10 W 2012 5.00
		R26	0RH2001D622	2.0K 1/10W 5 D.R/TP
		R27	0RH2002D622	20K OHM 1 / 10 W 2012 5.00
		R28	0RH4701D622	4.7K 1/10W 5 D.R/TP
		R29	0RH2002D622	20K OHM 1 / 10 W 2012 5.00
		R30	0RH4701D622	4.7K 1/10W 5 D.R/TP
		R31	0RH1000D622	100 1/10W 5 D.R/TP
		R32	0RH1000D622	100 1/10W 5 D.R/TP
		R4	0RH0471D622	4.7 1/10W 5 D.R/TP
		R5	0RH0471D622	4.7 1/10W 5 D.R/TP
		R9	0RH4701D622	4.7K 1/10W 5 D.R/TP
		T1	6140TBZ039A	LX31 GET 0.4*150TS,11 PIN,
		U1	0ISG749600A	TDA7496L 20DIP BK 2W+2W AM
		U3	0ISG744900B	TDA7449 20DIP ST TONE CONT
		U2	0ISS780800J	KA78M08R 3P,D-PAK TP VOL.

Table 1: Summary of Data				
Category	Sub-category	Value 1	Value 2	Value 3
A	A1	10	20	30
	A2	15	25	35
	A3	20	30	40
	A4	25	35	45
B	B1	30	40	50
	B2	35	45	55
	B3	40	50	60
	B4	45	55	65
C	C1	50	60	70
	C2	55	65	75
	C3	60	70	80
	C4	65	75	85

PIN CONFIGURATION

TDA7496L SGS-THOMOSN 2W+2W AMPLIFIER WITH DC VOLUME CONTROL



Powerdip(14+3+3)

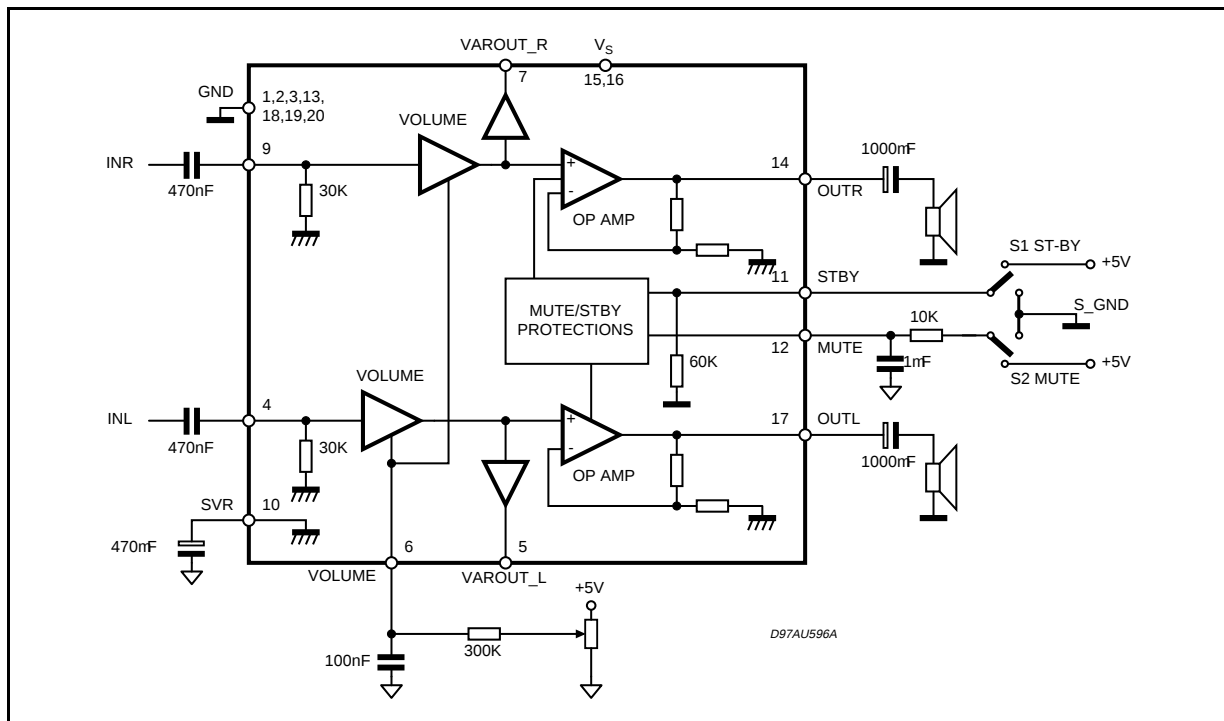
ORDERING NUMBER: TDA7496L

Pin Configuration

GND	1	20	GND
GND	2	19	GND
GND	3	18	GND
INL	4	17	OUTL
VAROUT_L	5	16	V _S
VOLUME	6	15	V _S
VAROUT_R	7	14	OUTR
N.C.	8	13	GND
INR	9	12	MUTE
SVR	10	11	STBY

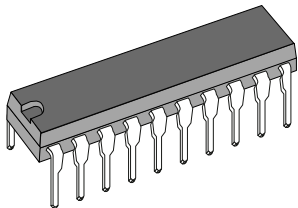
D97AU597A

BLOCK DIAGRAM



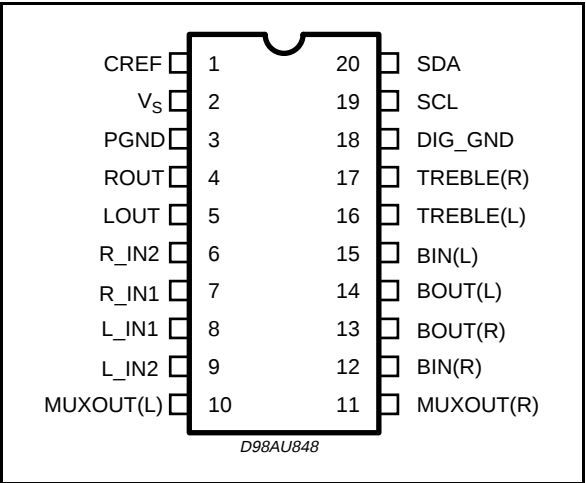
TDA7449 SGS-THOMSON TONE CONTROL DIGITALLY CONT. AUDIO PROCESSOR

Pin Configuration

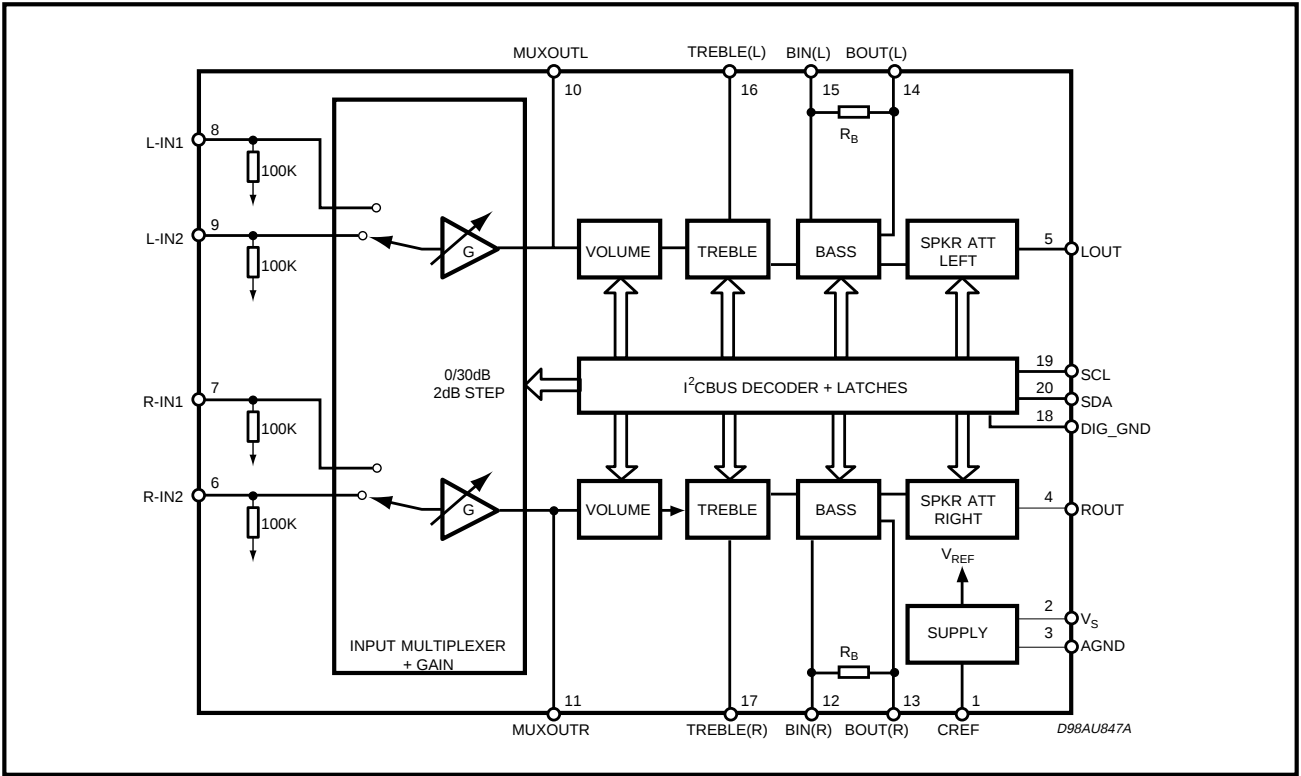


DIP20

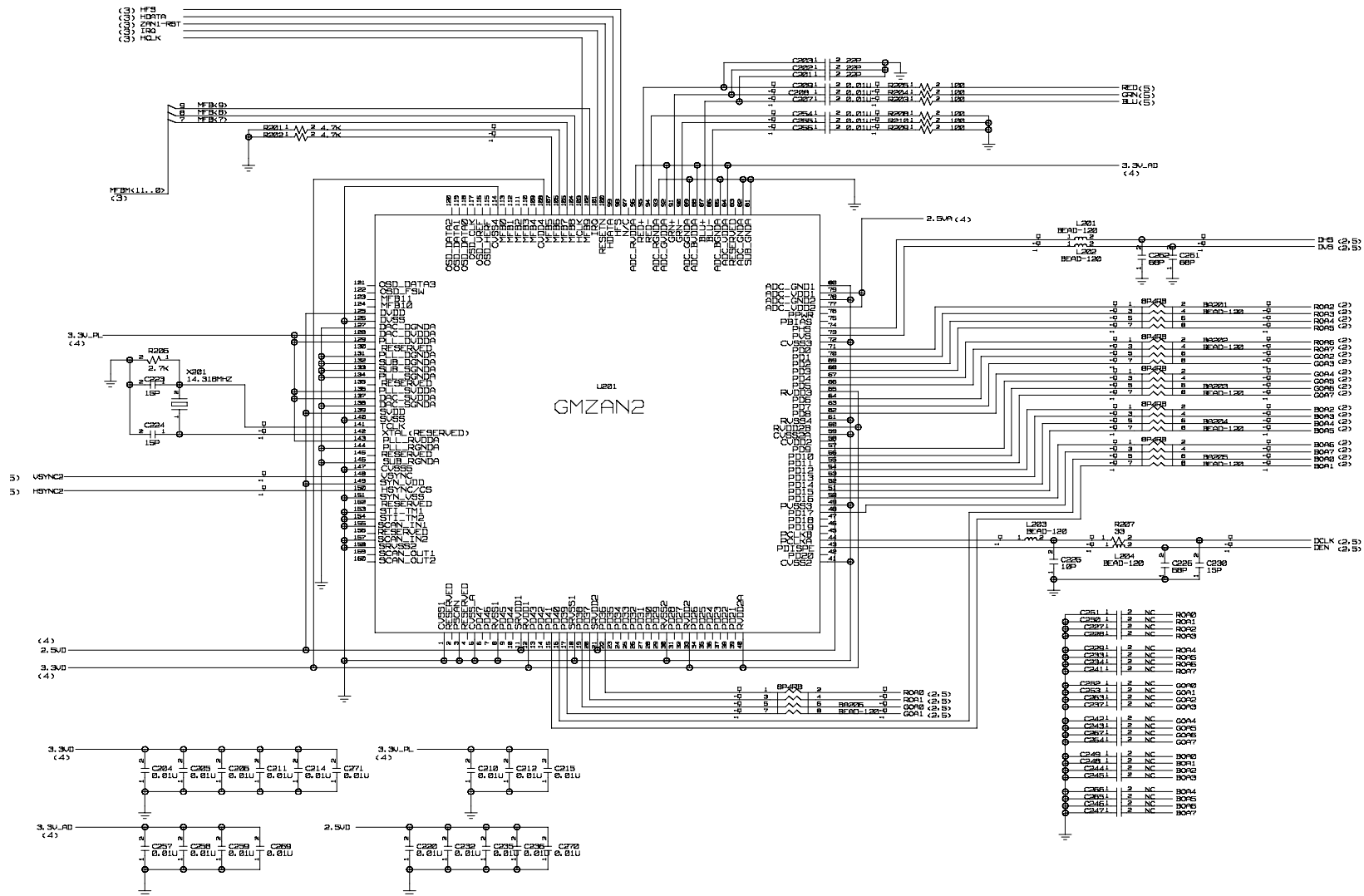
ORDERING NUMBER: TDA7449



BLOCK DIAGRAM



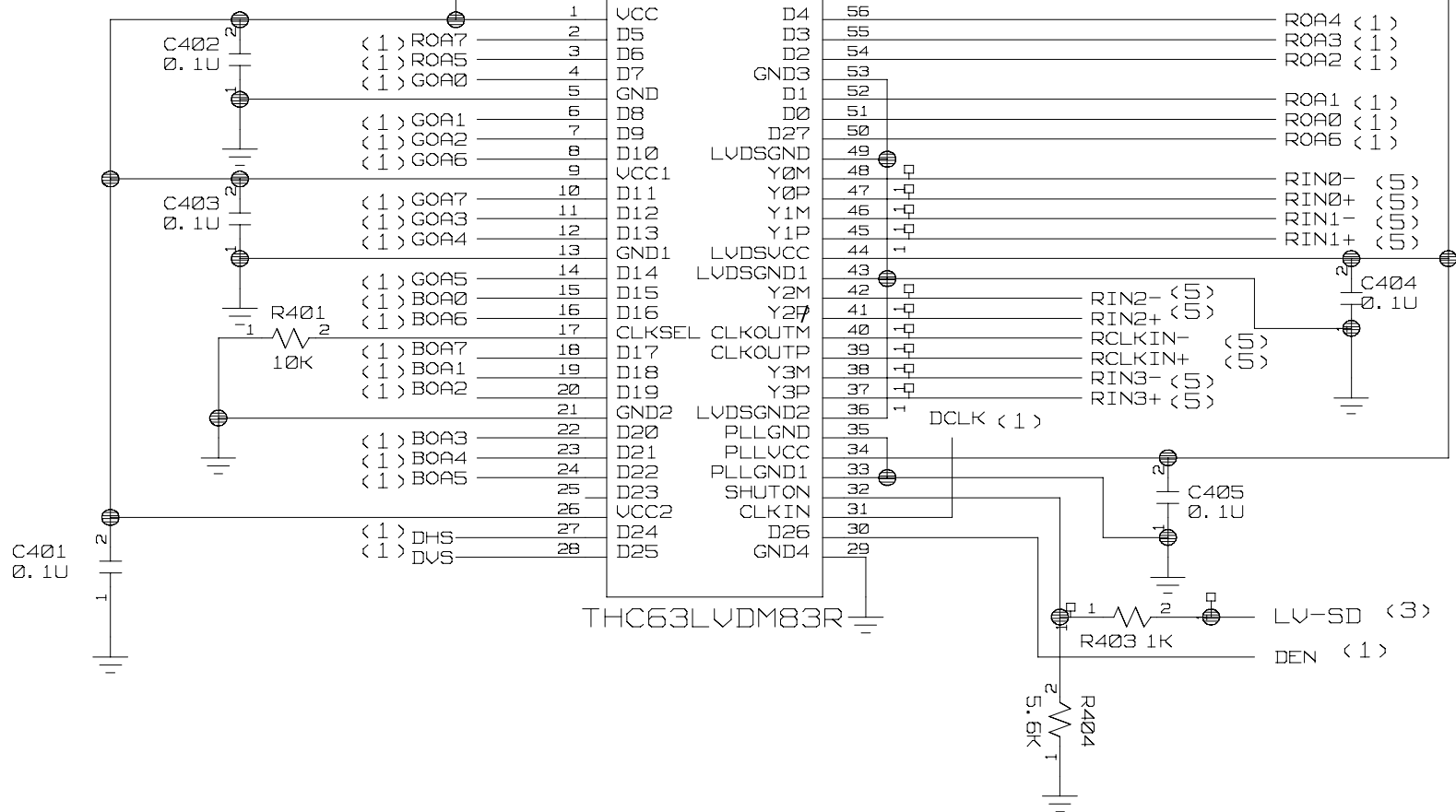
1 LM568E. ATEUG
GMZAN2



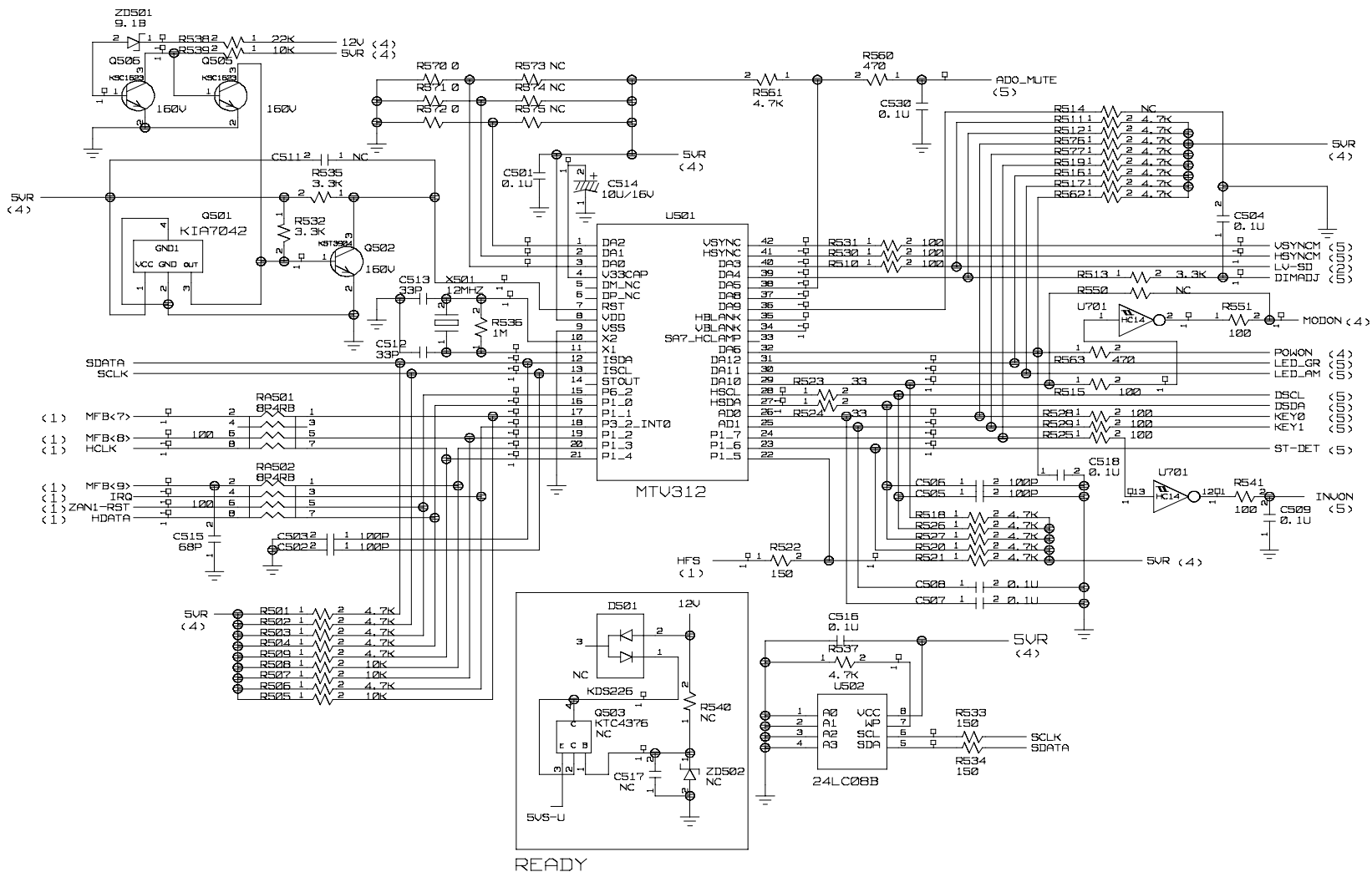
#2 LM568E. ATEUG LVDS

3.3VD
(4)

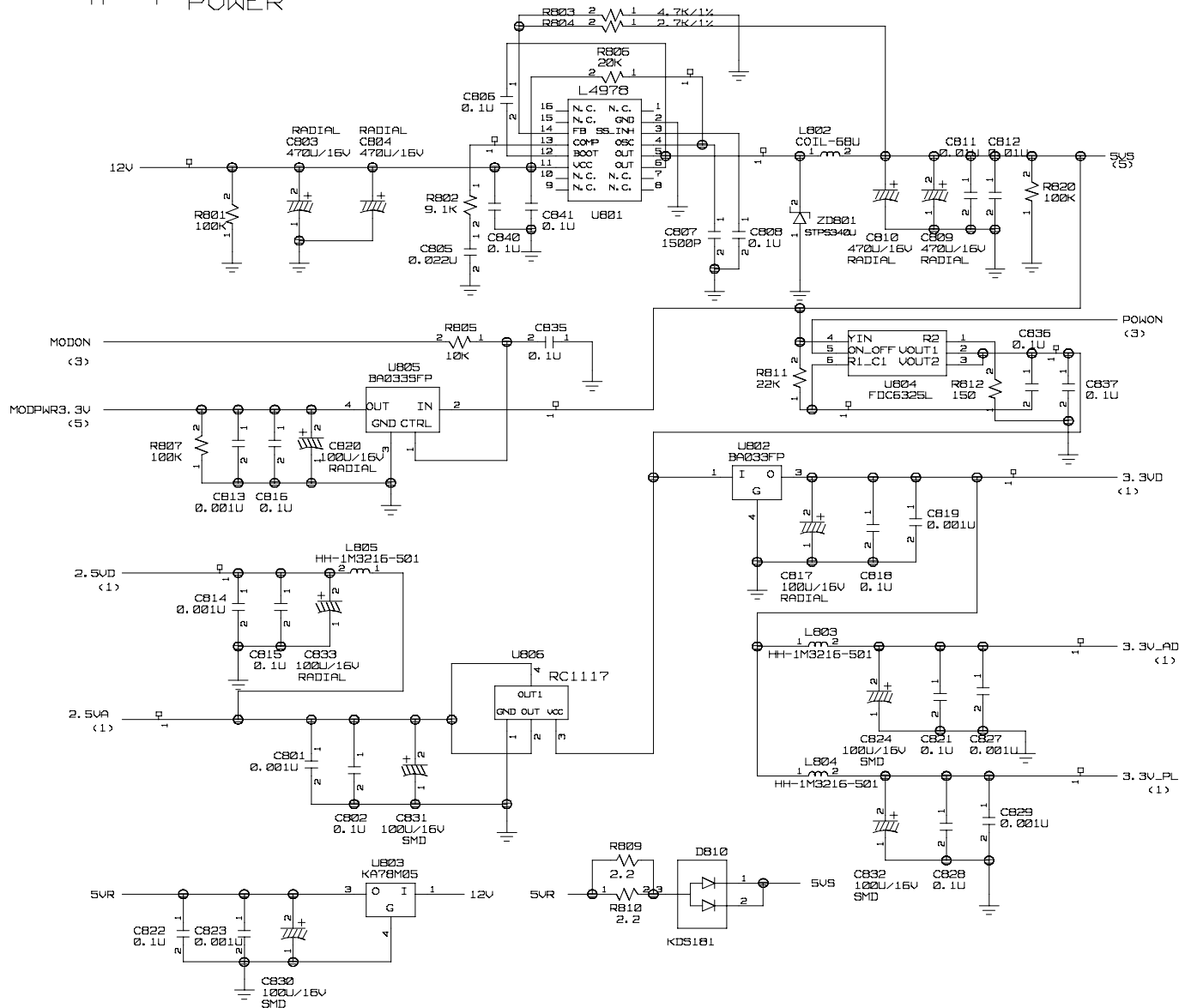
U401

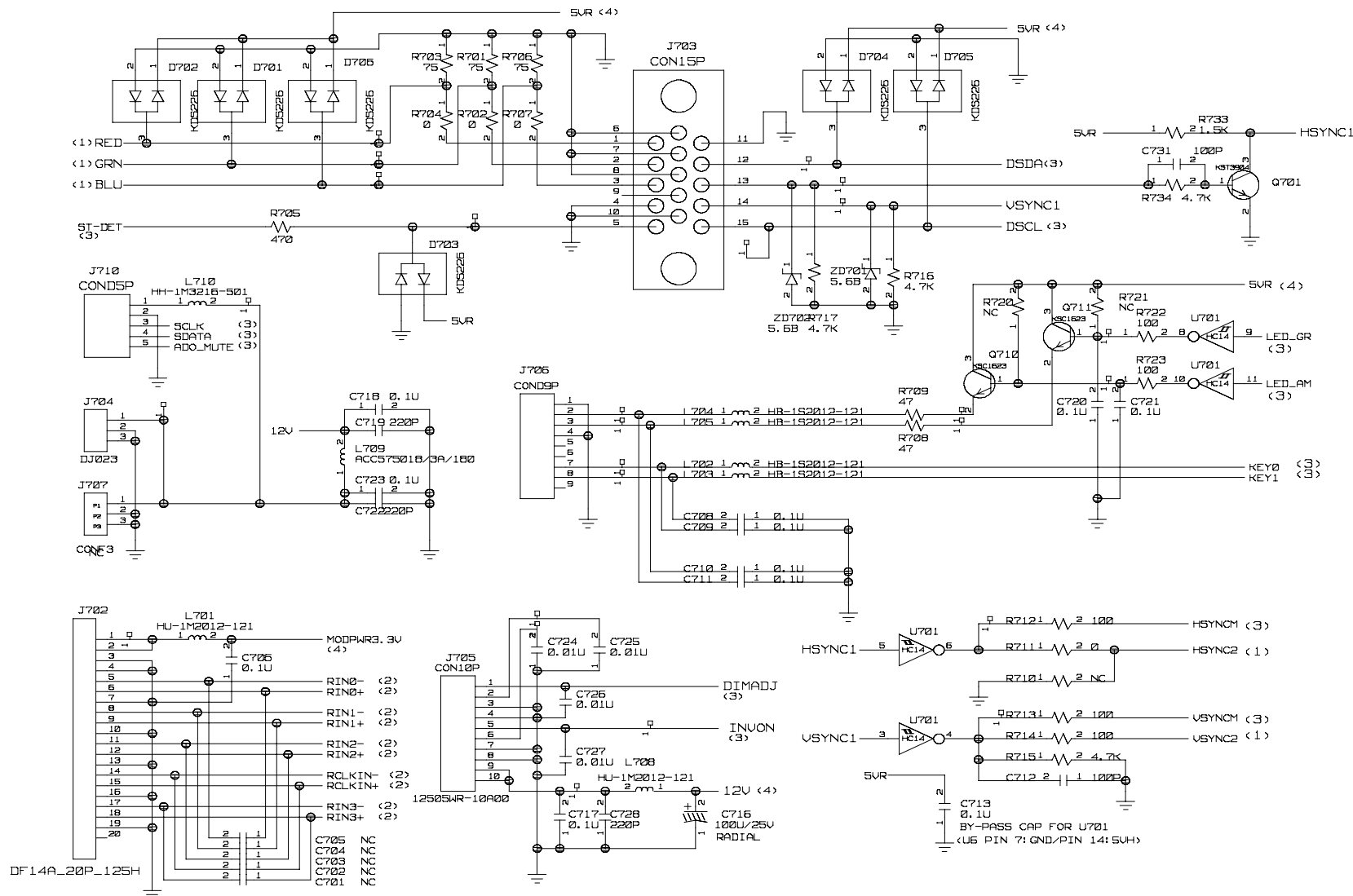


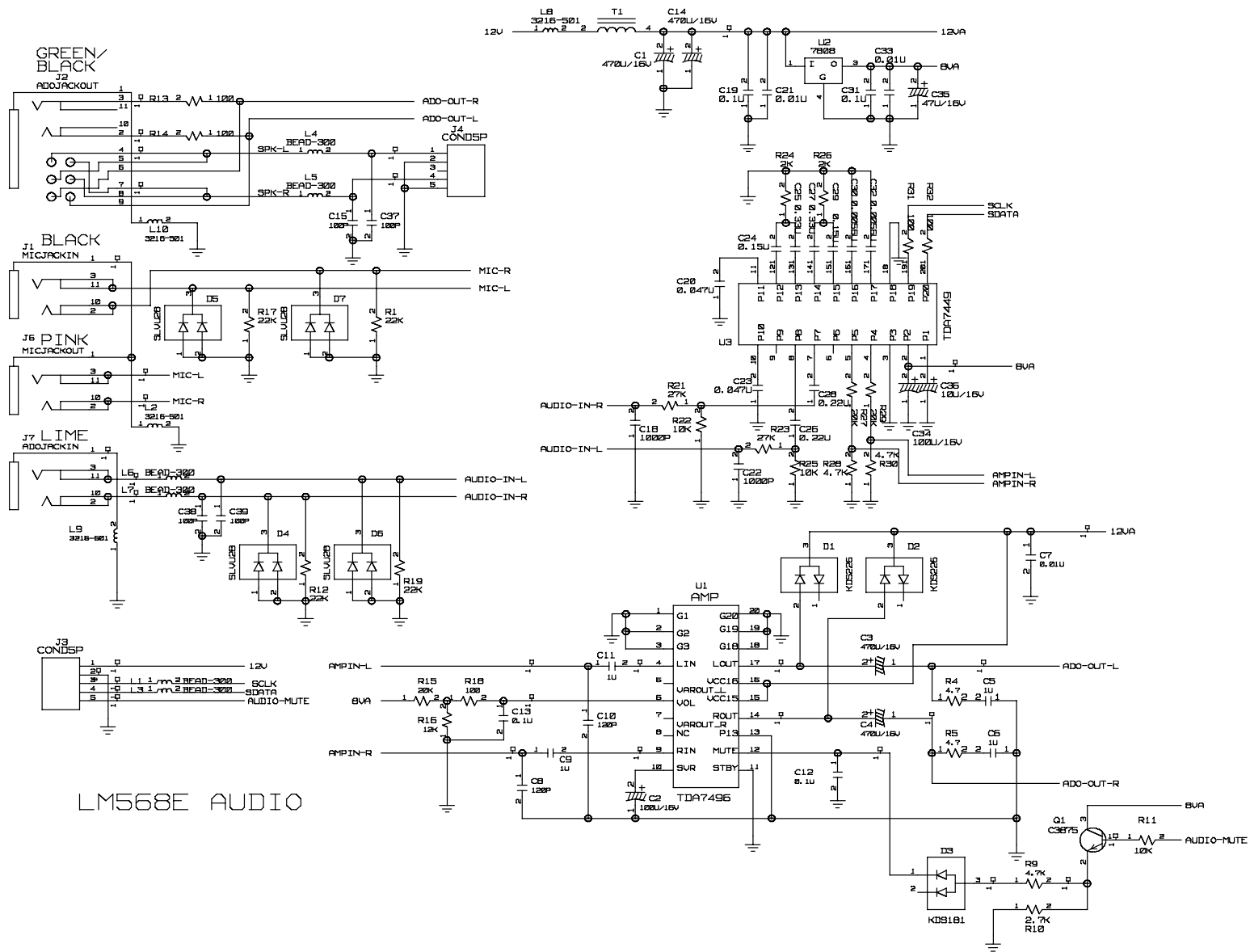
3. MICOM



#4 LM568E. ATEUG POWER



#5 LM568E. ATEUG
CONNECTOR & JACKS



KEY PART LM568E 2001.05.16

