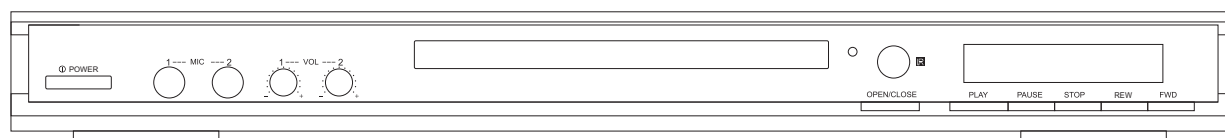


SERVICE MANUAL

DV964S



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1. SAFETY PREAUTIONS

1.1 GENERAL GUIDELINES

1. When servicing, observe the original lead dress. if a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barrier, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

2.PREVENTION OF ELECTRO STATIC DISCHARGE(ESD)TO ELECTROSTATICALLY SENSITIVE(ES)DEVICES

Some semiconductor(solid state)devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive(ES)Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge(ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially availabel discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices,place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as anti-static (ESD protected)can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

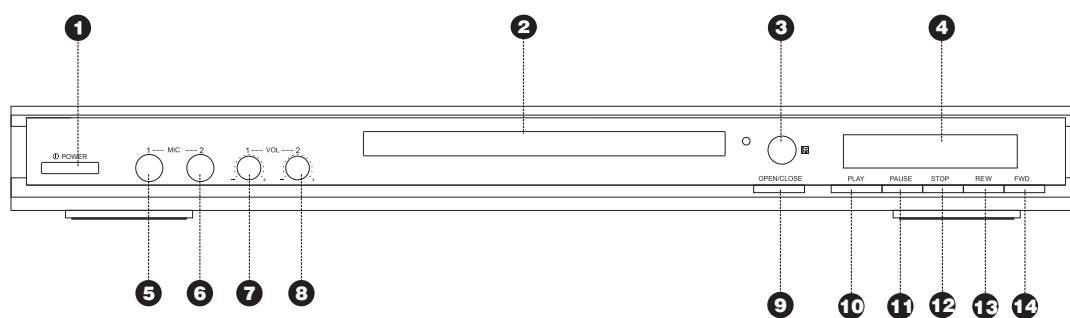
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity(ESD).

notice (1885x323x2 tiff)

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety. These parts are marked by $\triangle$ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

■ Front Panel Illustration



❶ POWER switch

❻ MIC 2 jack

❸ PAUSE button

❷ Disc tray

❼ MIC VOLUME 1 knob

❹ STOP button

❸ IR SENSOR

❸ MIC VOLUME 2 knob

❸ REW button

❹ Display window

❹ OPEN/CLOSE button

❹ FWD button

❺ MIC 1 jack

❺ PLAY button

4. PREVENTION OF STATIC ELECTRICITY DISCHARGE

The laser diode in the traverse unit (optical pickup) may break down due to static electricity of clothes or human body. Use due caution to electrostatic breakdown when servicing and handling the laser diode.

4.1. Grounding for electrostatic breakdown prevention

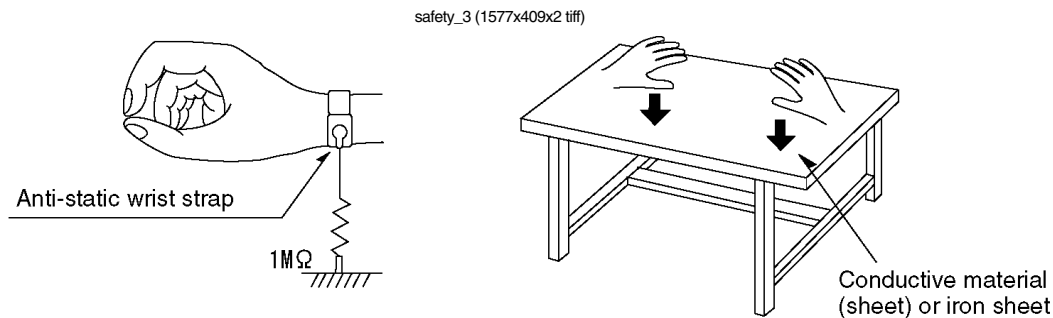
Some devices such as the DVD player use the optical pickup (laser diode) and the optical pickup will be damaged by static electricity in the working environment. Proceed servicing works under the working environment where grounding works is completed.

4.1.1. Worktable grounding

1. Put a conductive material (sheet) or iron sheet on the area where the optical pickup is placed, and ground the sheet.

4.1.2. Human body grounding

- 1 Use the anti-static wrist strap to discharge the static electricity from your body.



4.1.3. Handling of optical pickup

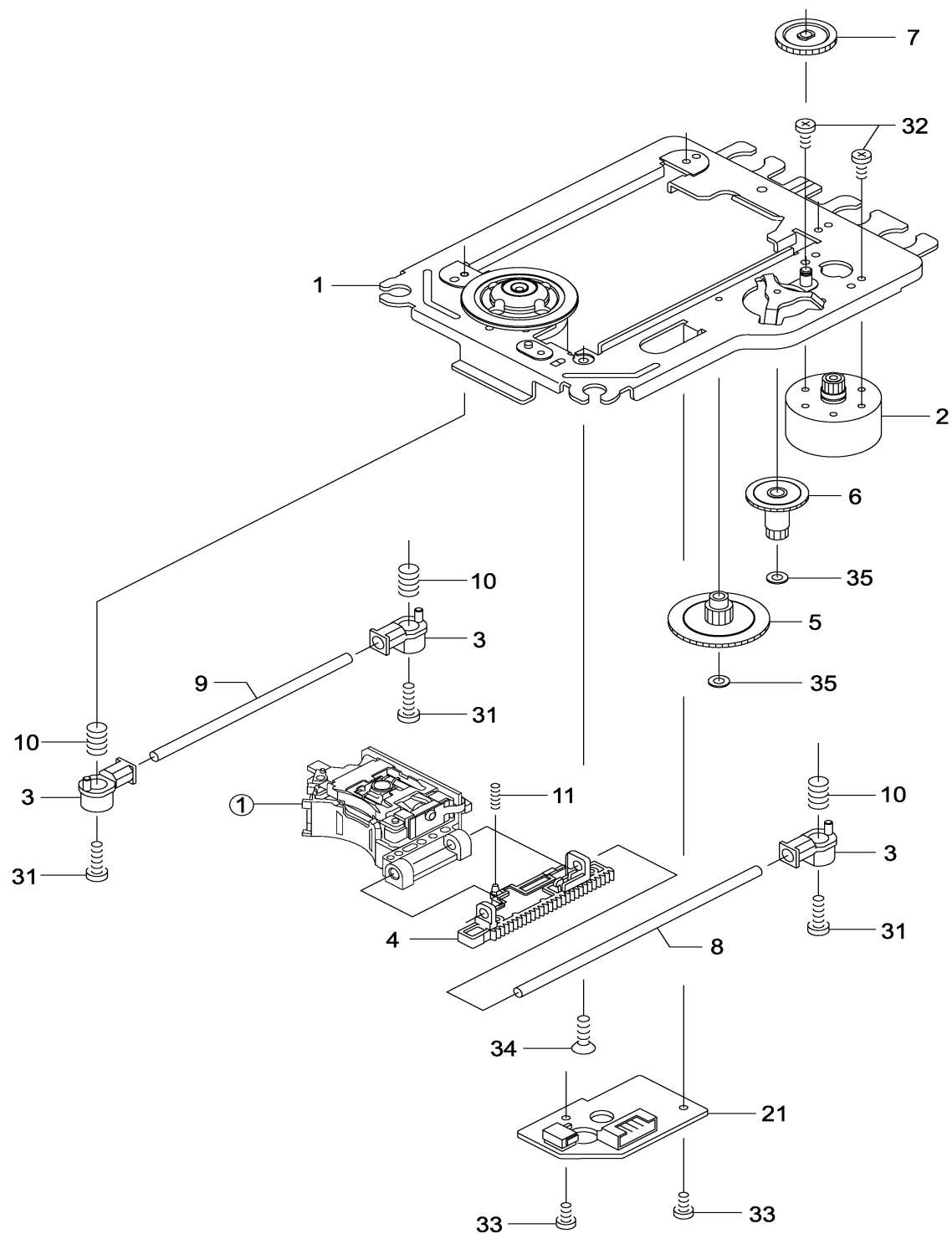
1. To keep the good quality of the optical pickup maintenance parts during transportation and before installation, the both ends of the laser diode are short-circuited. After replacing the parts with new ones, remove the short circuit according to the correct procedure. (See this Technical Guide).
2. Do not use a tester to check the laser diode for the optical pickup. Failure to do so will damage the laser diode due to the power supply in the tester.

4.2. Handling precautions for Traverse Unit (Optical Pickup)

1. Do not give a considerable shock to the traverse unit (optical pickup) as it has an extremely high-precision structure.
2. When replacing the optical pickup, install the flexible cable and cut its short lead with a nipper. See the optical pickup replacement procedure in this Technical Guide. Before replacing the traverse unit, remove the short pin for preventing static electricity and install a new unit. Connect the connector as short times as possible.
3. The flexible cable may be cut off if an excessive force is applied to it. Use caution when handling the cable.
4. The half-fixed resistor for laser power adjustment cannot be adjusted. Do not turn the resistor.

5. Assembling and disassembling the mechanism unit

5.1 Optical pickup Unit Exploded View and Part List



Pic (1)

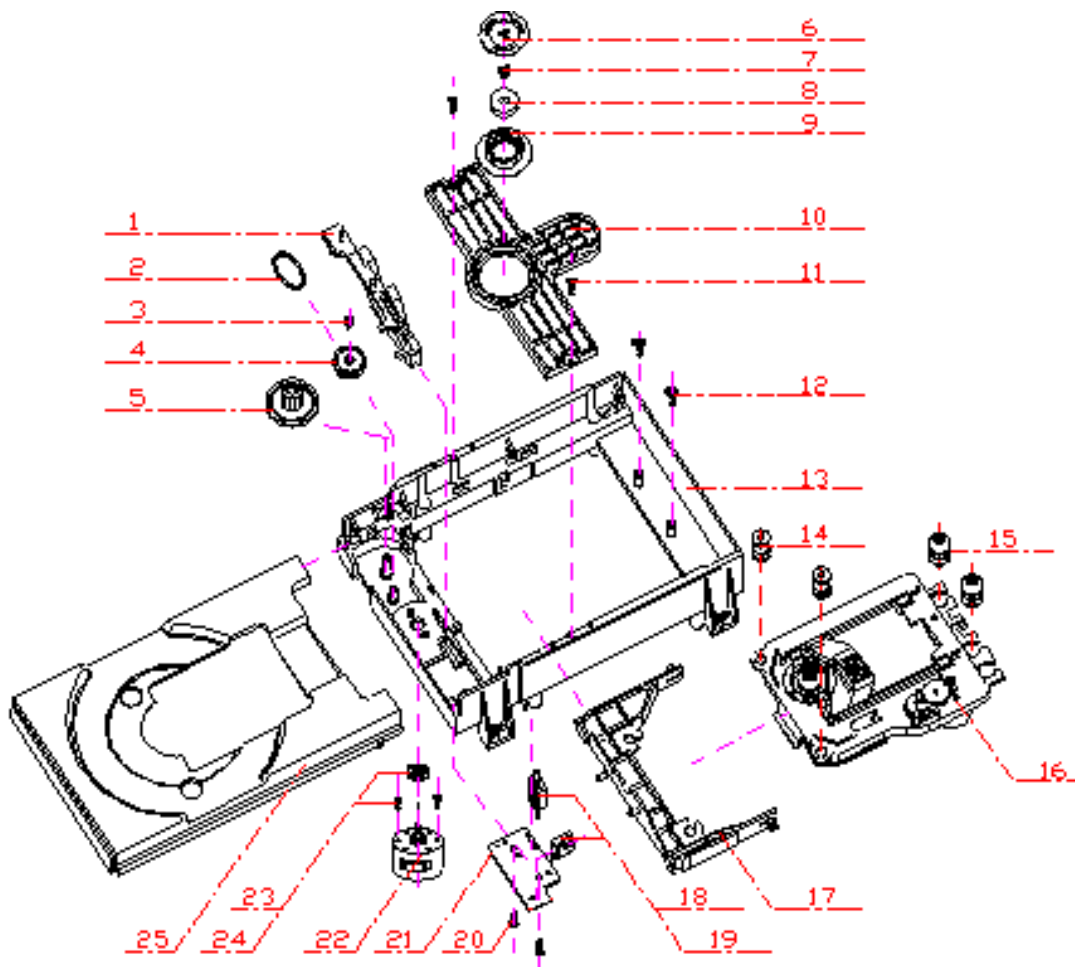
Materials to Pic (1)

No.	PARTS CODE	PARTS NAME	Q' ty
①	14692200	SF-HD60	1
1	1EA0311A06300	ASSY, CHASSIS, COMPLETE	1
2	1EA0M10A15500	ASSY, MOTOR, SLED	1
Or	1EA0M10A15501	ASSY, MOTOR, SLED	1
3	1EA2451A24700	HOLDER, SHAFT	3
4	1EA2511A29100	GEAR, RACK	1
5	1EA2511A29200	GEAR, DRIVE	1
6	1EA2511A29300	GEAR, MIDDLE, A	1
7	1EA2511A29400	GEAR, MIDDLE, B	1
8	1EA2744A03000	SHAFT, SLIDE	1
9	1EA2744A03100	SHAFT, SLIDE, SUB	1
10	1EA2812A15300	SPRING, COMP, TYOUSEI	3
11	1EA2812A15400	SPRING, COMP, RACK	1
21	1EA0B10B20100	ASSY, PWB	1
Or	1EA0B10B20200	ASSY, PWB	1
31	SEXEA25700---	SPECIAL SCREW BIN+-M2X11	3
32	SEXEA25900---	SPECIAL SCREW M1.7X2.2	2
33	SFBPN204R0SE-	SCR S-TPG PAN 2X4	2
34	SFSFN266R0SE-	SCR S-TPG FLT 2.6X6	1
35	SWXEA15400---	SPECIAL WASHER 1.8X4 X0.25	2

[illegible]

Note : This parts list is not for service parts supply.

5.2 Bracket Exploded View and Part List



Pic (2)

Materials to Pic(2)

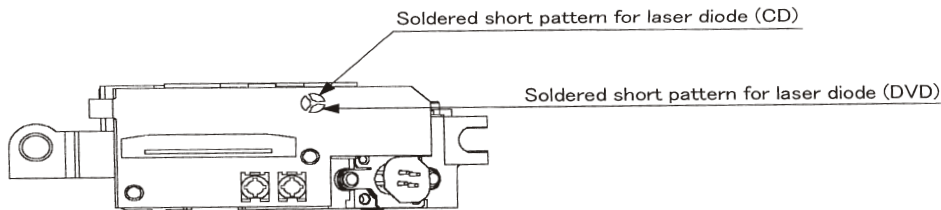
- | | |
|-----------------------------------|--------------------------|
| 1.bracket | 14. front silicon rubber |
| 2.belt | 15. Back silicon rubber |
| 3.screw | 16. Pick-up |
| 4.belt wheel | 17. Pick-up |
| 5.gearwheel | 18. switch |
| 6.iron chip | 19. Five-pin flat plug |
| 7. Immobility mechanism equipment | 20. screw |
| 8. Magnet | 21. PCB |
| 9. Platen | 22. motor |
| 10. Bridge bracket | 23. Motor wheel |
| 11. screw | 24. screw |
| 12. screw | 25.tray |
| 13. Big bracket | |

Before going process with disassembly and installation, please carefully both peruse the chart and confirm the materials.

5.3 MISCELLANEOUS

5.3.1 Protection of the LD(Laser diode)

Short the parts of LD circuit pattern by soldering.



5.3.2 Cautions on assembly and adjustment

Make sure that the workbenches, jigs, tips, tips of soldering irons and measuring instruments are grounded, and that personnel wear wrist straps for ground.

Open the LD short lands quickly with a soldering iron after a circuit is connected.

Keep the power source of the pick-up protected from internal and external sources of electrical noise.

Refrain from operation and storage in atmospheres containing corrosive gases (such as H_2S , SO_2 , NO_2 and Cl_2) or toxic gases or in locations containing substances (especially from the organic silicon, cyan, formalin and phenol groups) which emit toxic gases. It is particularly important to ensure that none of the above substances are present inside the unit. Otherwise, the motor may no longer run.

6.Electrical Confirmation

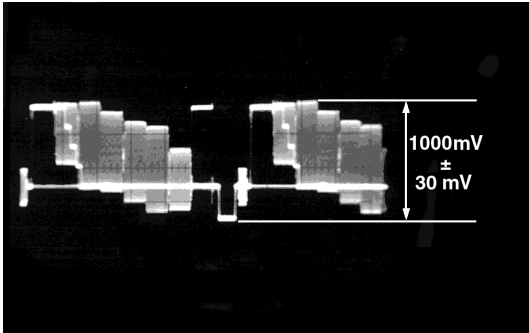
6.1. Video Output (Luminance Signal) Confirmation

DO this confirmation after replacing a P.C.B.

Measurement point	Mode	Disc
Video output terminal	Color bar 75% PLAY(Title 46):DVDT-S15 PLAY(Title 12):DVDT-S01	DVDT-S15 or DVDT-S01
Measuring equipment,tools	Confirmation value	
200mV/dir,10 μ sec/dir	1000mVp-p±30mV	

Purpose:To maintain video signal output compatibility.

- 1.Connect the oscilloscope to the video output terminal and terminate at 75 ohms.
- 2.Confirm that luminance signal(Y+S)level is 1000mVp-p±30mV



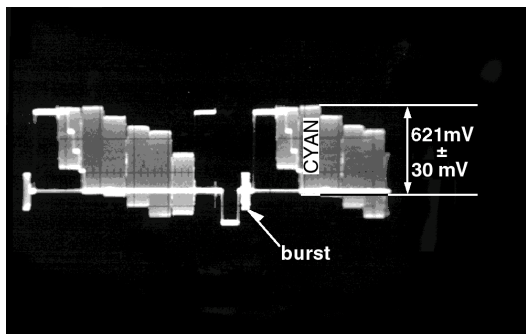
6.2 Video Output(Chrominance Signal) Confirmation

Do the confirmation after replacing P.C.B.

Measurement point	Mode	Disc
Video output terminal	Color bar 75% PLAY(Title 46):DVDT-S15 PLAY(Title 12):DVDT-S01	DVDT-S15 or DVDT-S01
Measuring equipment,tools	Confirmation value	
Screwdriver,Oscilloscope 200mV/dir,10 μ sec/dir	621mVp-p $\pm$ 30mV	

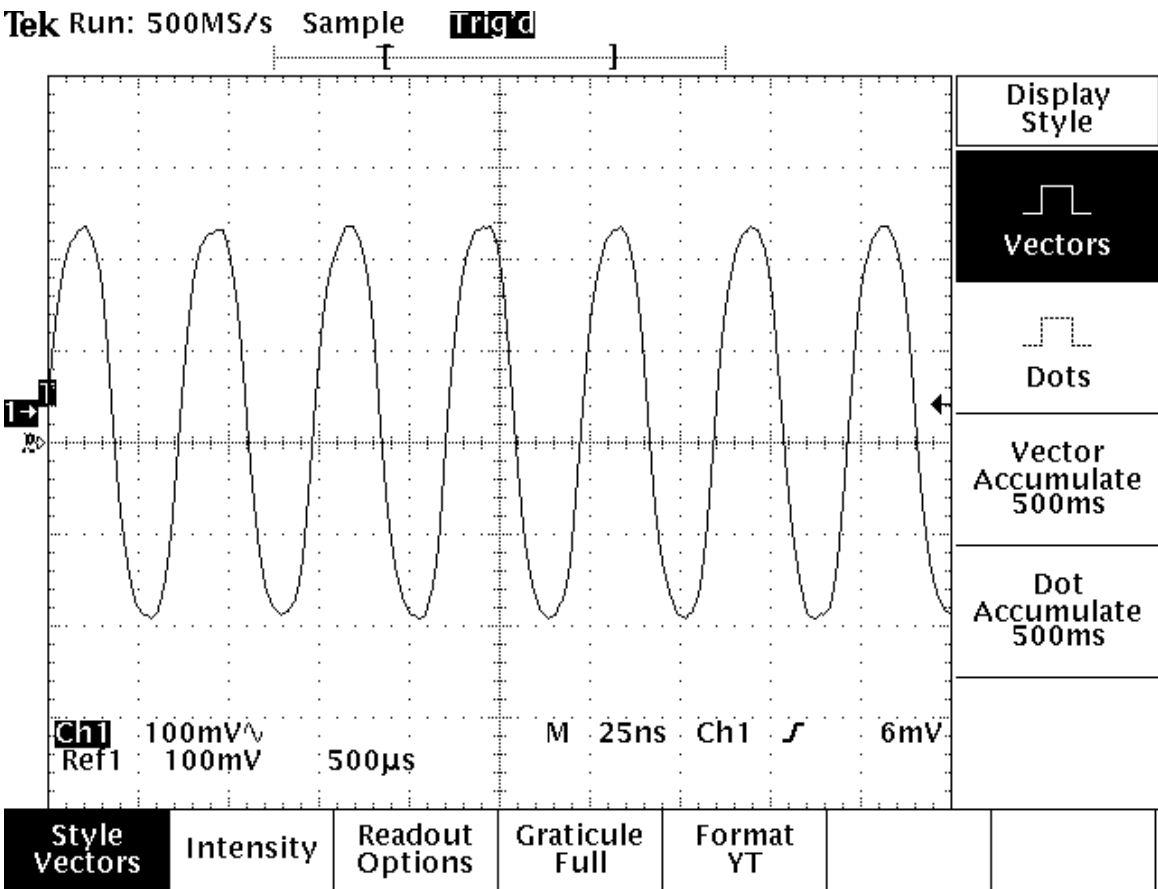
Purpose:To maintain video signal output compatibility.

- 1.Connect the oscilloscope to the video output terminal and terminate at 75 ohme.
- 2.Confirm that the chrominance signal(C)level is 621 mVp-p $\pm$ 30mV

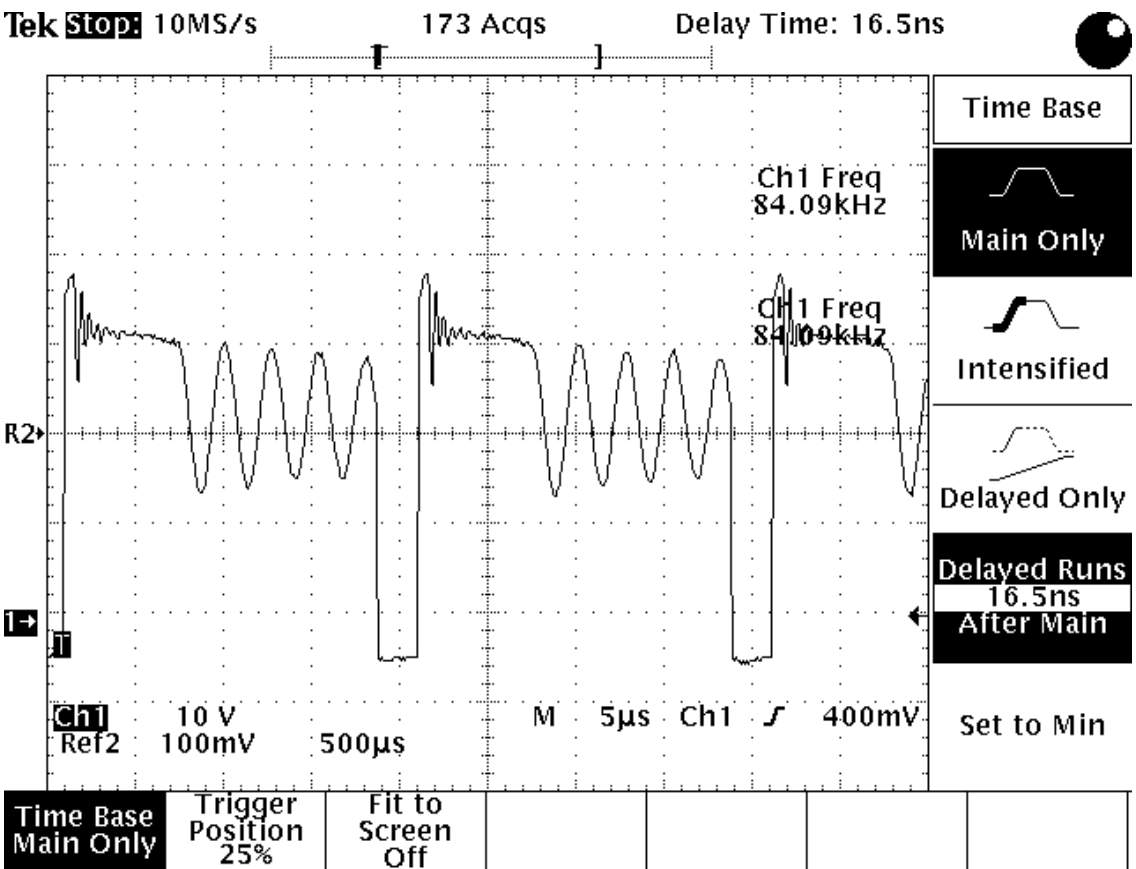


7.MPEG BOARD CHECK WAVEFORM

7.1 27MHz WAVEFORM



7.2 IC5L0380R PIN.2 WAVEFORM DIAGRAM



8. Am29LV160D

16 Megabit (2 M x 8-Bit/1 M x 16-Bit) CMOS 3.0 Volt-only Boot Sector Flash Memory

DISTINCTIVE CHARACTERISTICS

■ Single power supply operation

- Full voltage range: 2.7 to 3.6 volt read and write operations for battery-powered applications
- Regulated voltage range: 3.0 to 3.6 volt read and write operations and for compatibility with high performance 3.3 volt microprocessors

■ Manufactured on 0.23 μ m process technology

- Fully compatible with 0.32 μ m Am29LV160B device

■ High performance

- Access times as fast as 70 ns

■ Ultra low power consumption (typical values at 5 MHz)

- 200 nA Automatic Sleep mode current
- 200 nA standby mode current
- 9 mA read current
- 20 mA program/erase current

■ Flexible sector architecture

- One 16 Kbyte, two 8 Kbyte, one 32 Kbyte, and thirty-one 64 Kbyte sectors (byte mode)
- One 8 Kword, two 4 Kword, one 16 Kword, and thirty-one 32 Kword sectors (word mode)
- Supports full chip erase
- Sector Protection features:
 - A hardware method of locking a sector to prevent any program or erase operations within that sector
 - Sectors can be locked in-system or via programming equipment
 - Temporary Sector Unprotect feature allows code changes in previously locked sectors

■ Unlock Bypass Program Command

- Reduces overall programming time when issuing multiple program command sequences

■ Top or bottom boot block configurations available

■ Embedded Algorithms

- Embedded Erase algorithm automatically preprograms and erases the entire chip or any combination of designated sectors
- Embedded Program algorithm automatically writes and verifies data at specified addresses

■ Minimum 1,000,000 write cycle guarantee per sector

■ 20-year data retention at 125°C

- Reliable operation for the life of the system

■ Package option

- 48-ball FBGA
- 48-pin TSOP
- 44-pin SO

■ CFI (Common Flash Interface) compliant

- Provides device-specific information to the system, allowing host software to easily reconfigure for different Flash devices

■ Compatibility with JEDEC standards

- Pinout and software compatible with single-power supply Flash
- Superior inadvertent write protection

■ Data# Polling and toggle bits

- Provides a software method of detecting program or erase operation completion

■ Ready/Busy# pin (RY/BY#)

- Provides a hardware method of detecting program or erase cycle completion (not available on 44-pin SO)

■ Erase Suspend/Erase Resume

- Suspends an erase operation to read data from, or program data to, a sector that is not being erased, then resumes the erase operation

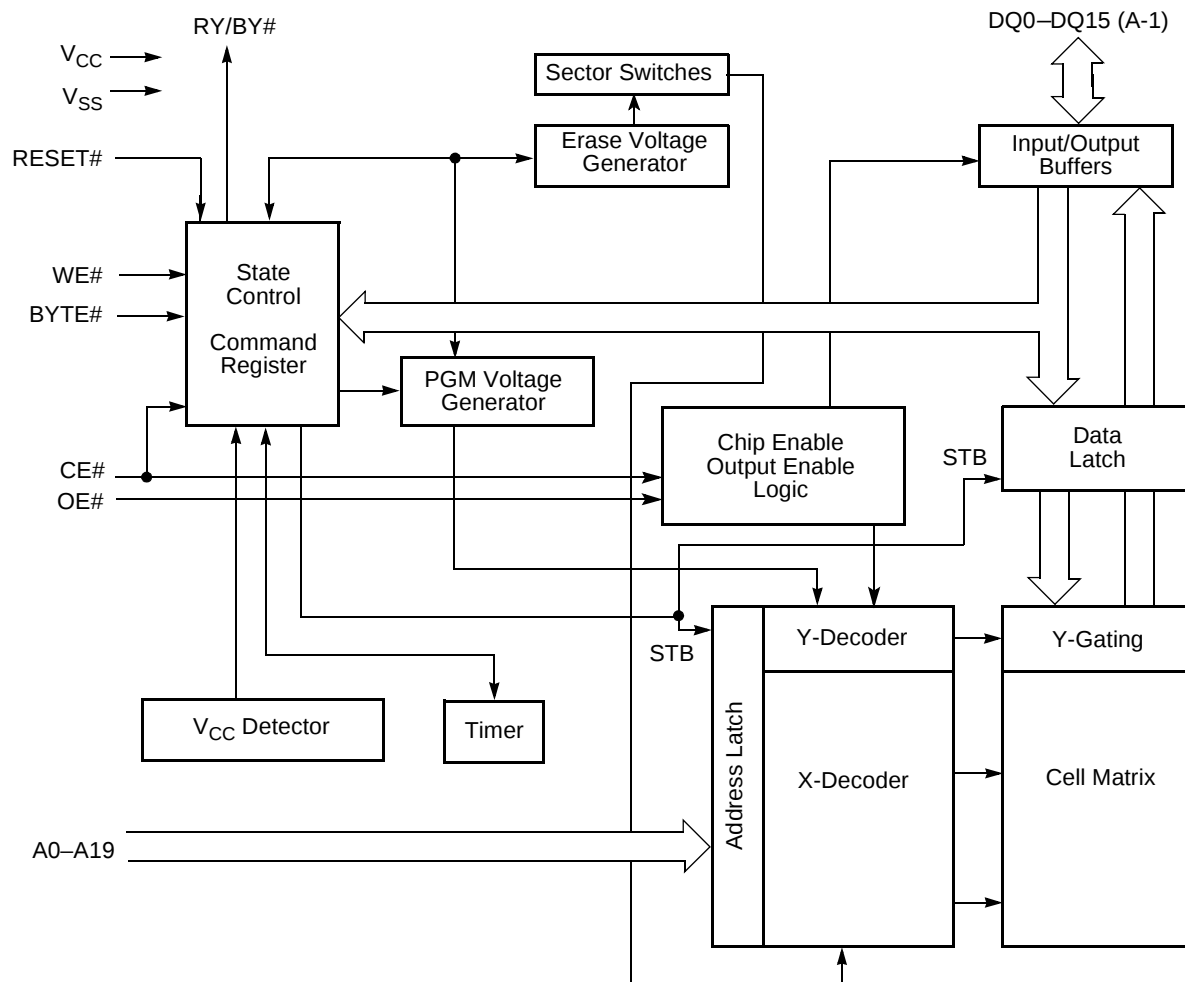
■ Hardware reset pin (RESET#)

- Hardware method to reset the device to reading array data

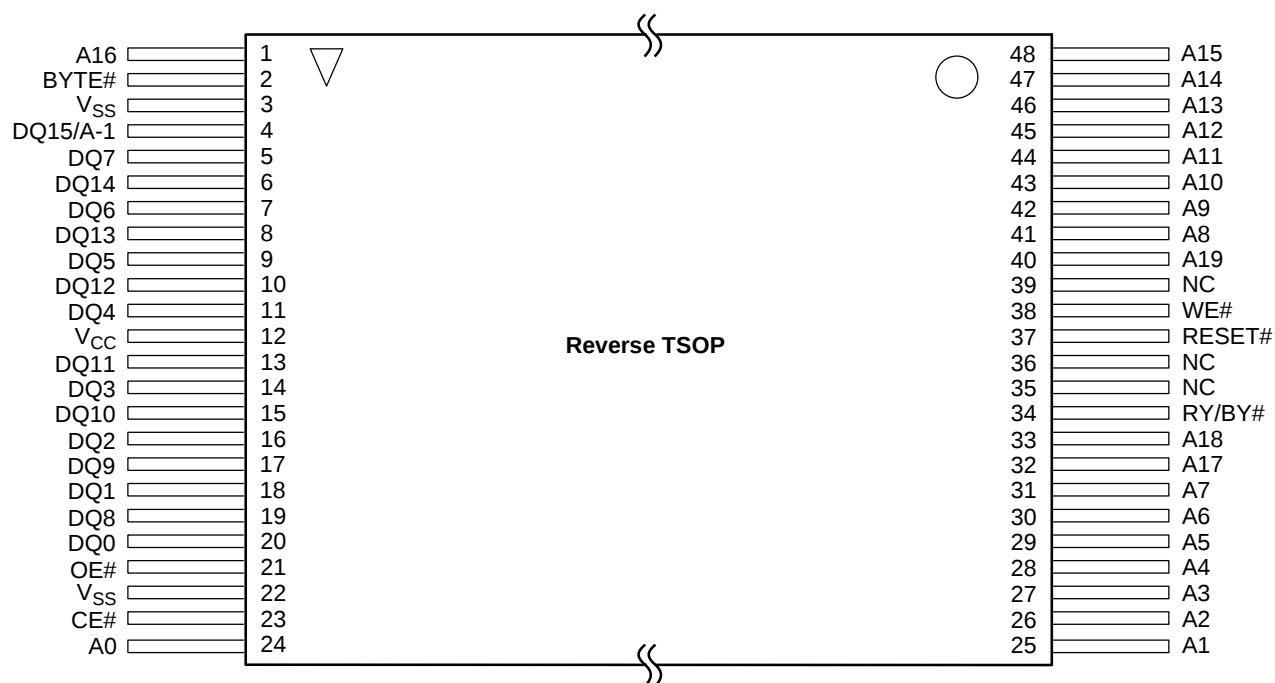
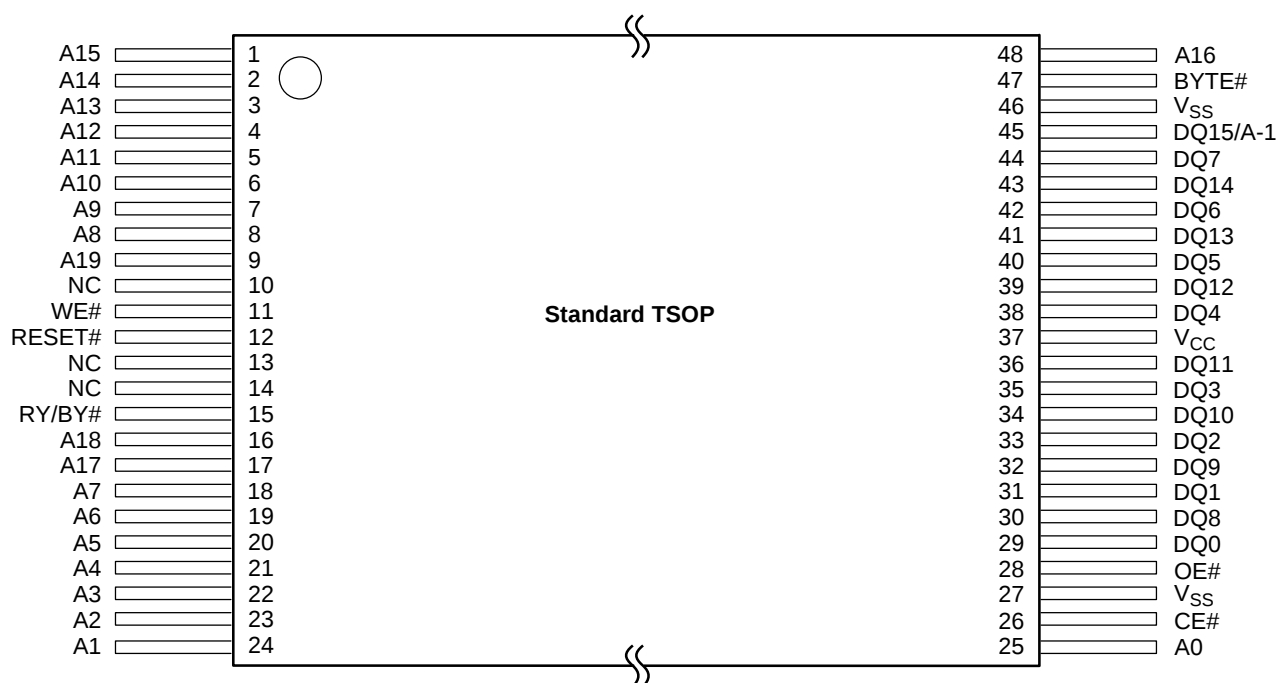
PRODUCT SELECTOR GUIDE

Family Part Number		Am29LV160D		
Speed Option	Voltage Range: $V_{CC} = 2.7\text{--}3.6\text{ V}$	-70	-90	-120
Max access time, ns (t_{ACC})		70	90	120
Max CE# access time, ns (t_{CE})		70	90	120
Max OE# access time, ns (t_{OE})		30	35	50

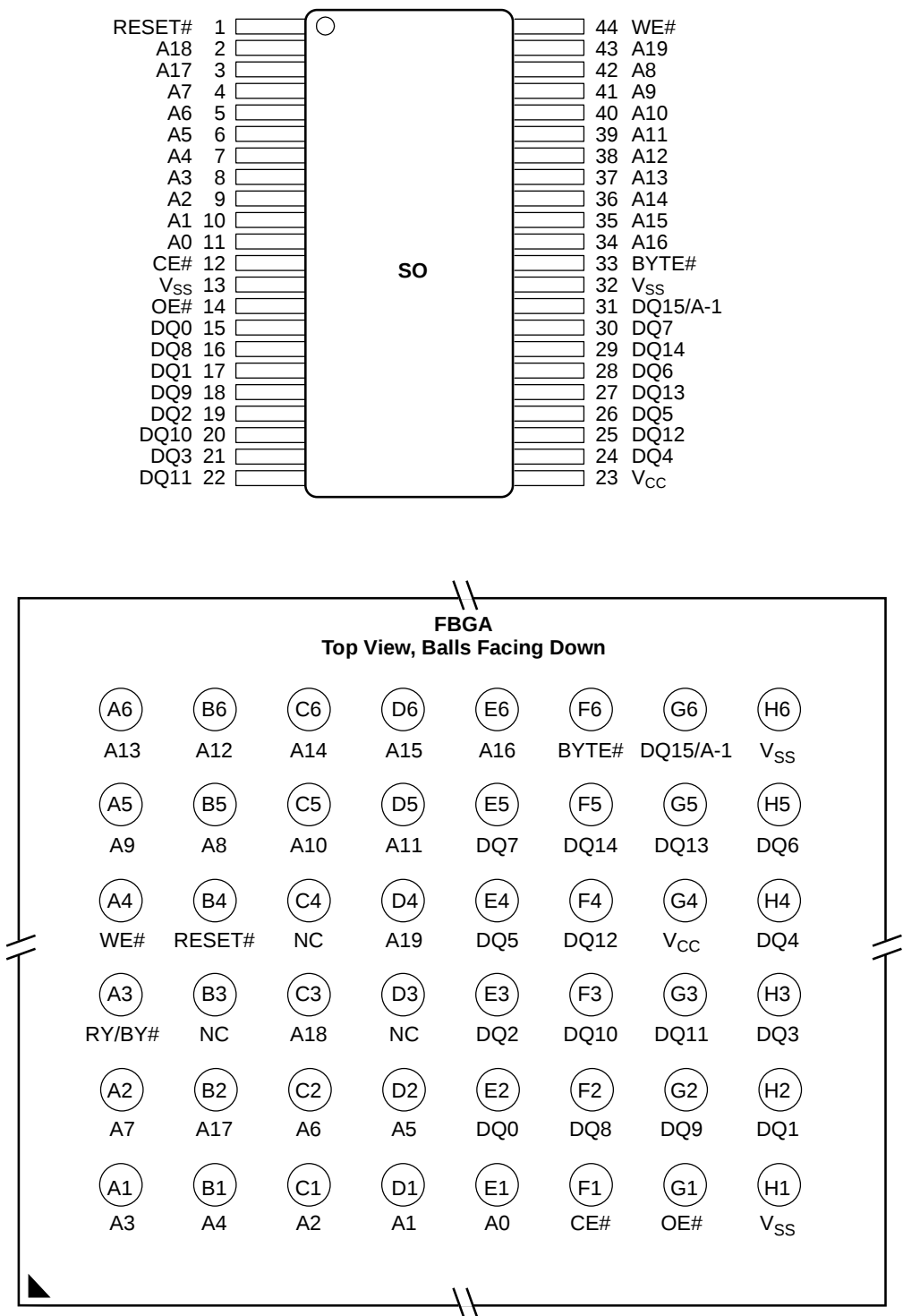
Note: See “AC Characteristics” for full specifications.

BLOCK DIAGRAM


CONNECTION DIAGRAMS



CONNECTION DIAGRAMS



Special Handling Instructions

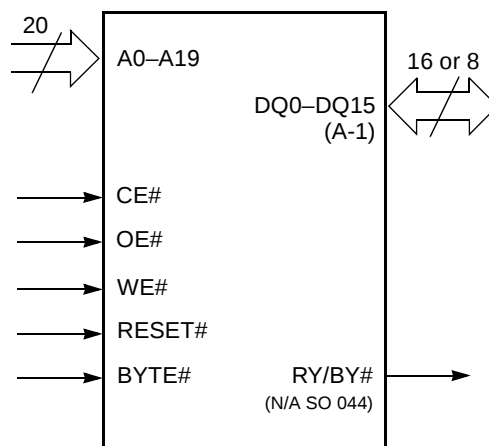
Special handling is required for Flash Memory products in FBGA packages.

Flash memory devices in FBGA packages may be damaged if exposed to ultrasonic cleaning methods. The package and/or data integrity may be compromised if the package body is exposed to temperatures above 150°C for prolonged periods of time.

PIN CONFIGURATION

A0–A19	=	20 addresses
DQ0–DQ14	=	15 data inputs/outputs
DQ15/A-1	=	DQ15 (data input/output, word mode), A-1 (LSB address input, byte mode)
BYTE#	=	Selects 8-bit or 16-bit mode
CE#	=	Chip enable
OE#	=	Output enable
WE#	=	Write enable
RESET#	=	Hardware reset pin
RY/BY#	=	Ready/Busy output (N/A SO 044)
V _{CC}	=	3.0 volt-only single power supply (see Product Selector Guide for speed options and voltage supply tolerances)
V _{SS}	=	Device ground
NC	=	Pin not connected internally

LOGIC SYMBOL



8.1 HY57V641620HG

DESCRIPTION

The Hyundai HY57V641620HG is a 67,108,864-bit CMOS Synchronous DRAM, ideally suited for the main memory applications which require large memory density and high bandwidth. HY57V641620HG is organized as 4banks of 1,048,576x16.

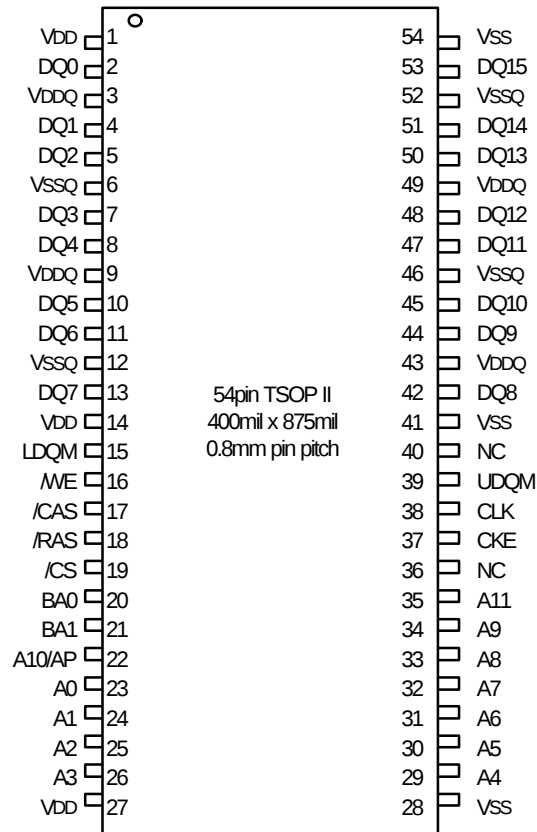
HY57V641620HG is offering fully synchronous operation referenced to a positive edge of the clock. All inputs and outputs are synchronized with the rising edge of the clock input. The data paths are internally pipelined to achieve very high bandwidth. All input and output voltage levels are compatible with LVTTL.

Programmable options include the length of pipeline (Read latency of 2 or 3), the number of consecutive read or write cycles initiated by a single control command (Burst length of 1,2,4,8 or Full page), and the burst count sequence(sequential or interleave). A burst of read or write cycles in progress can be terminated by a burst terminate command or can be interrupted and replaced by a new burst read or write command on any cycle. (This pipelined design is not restricted by a `2N` rule.)

FEATURES

- | | |
|--|--|
| • Single 3.3±0.3V power supply ^{Note)} | • Auto refresh and self refresh |
| • All device pins are compatible with LVTTL interface | • 4096 refresh cycles / 64ms |
| • JEDEC standard 400mil 54pin TSOP-II with 0.8mm of pin pitch | • Programmable Burst Length and Burst Type |
| • All inputs and outputs referenced to positive edge of system clock | - 1, 2, 4, 8 or Full page for Sequential Burst |
| • Data mask function by UDQM or LDQM | - 1, 2, 4 or 8 for Interleave Burst |
| • Internal four banks operation | • Programmable $\overline{\text{CAS}}$ Latency ; 2, 3 Clocks |

PIN CONFIGURATION

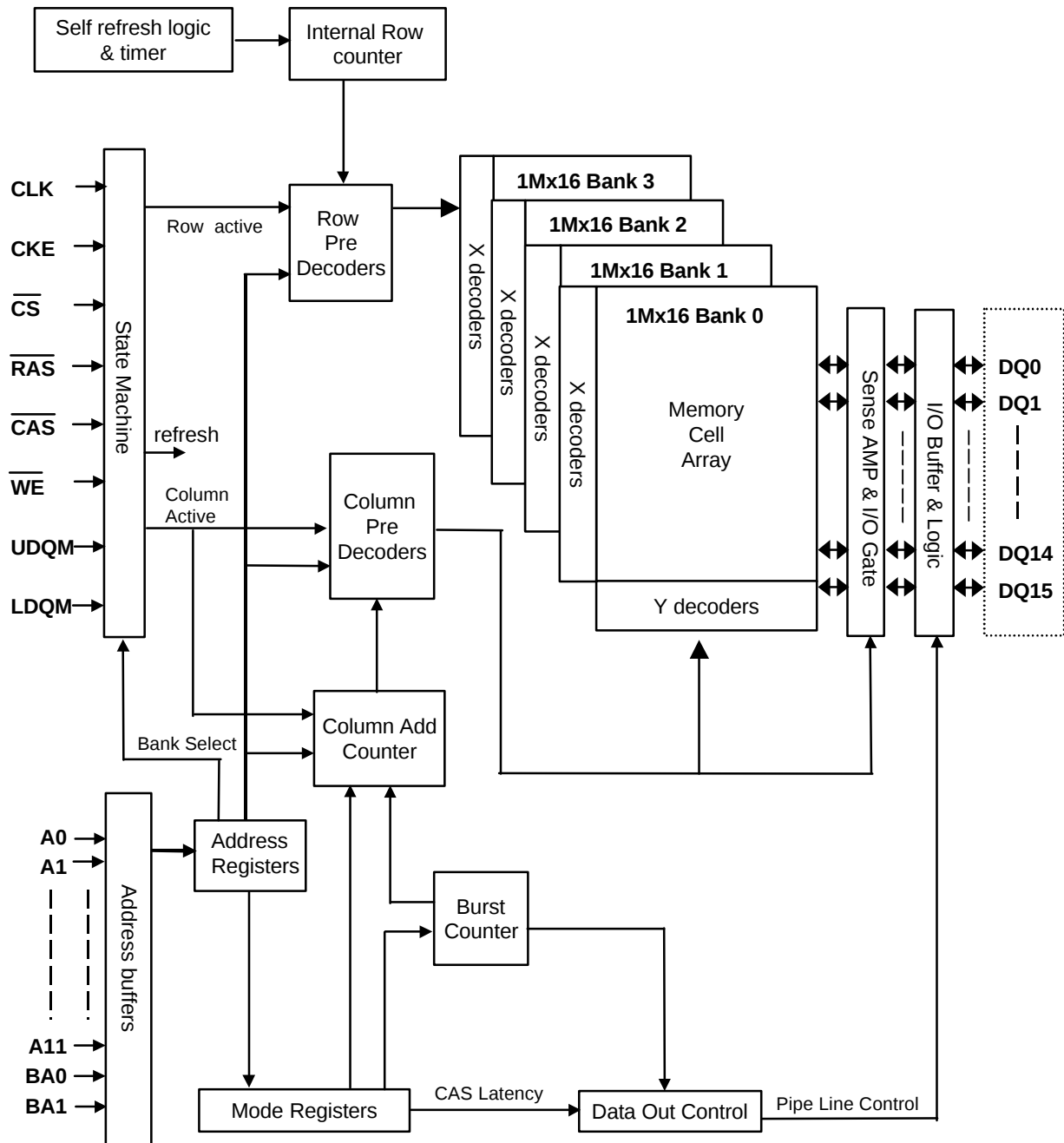


PIN DESCRIPTION

PIN	PIN NAME	DESCRIPTION
CLK	Clock	The system clock input. All other inputs are registered to the SDRAM on the rising edge of CLK
CKE	Clock Enable	Controls internal clock signal and when deactivated, the SDRAM will be one of the states among power down, suspend or self refresh
$\overline{CS}$	Chip Select	Enables or disables all inputs except CLK, CKE and DQM
BA0,BA1	Bank Address	Selects bank to be activated during $\overline{RAS}$ activity Selects bank to be read/written during CAS activity
A0 ~ A11	Address	Row Address : RA0 ~ RA11, Column Address : CA0 ~ CA7 Auto-precharge flag : A10
$\overline{RAS}$, $\overline{CAS}$, $\overline{WE}$	Row Address Strobe, Column Address Strobe, Write Enable	$\overline{RAS}$, $\overline{CAS}$ and $\overline{WE}$ define the operation Refer function truth table for details
LDQM, UDQM	Data Input/Output Mask	Controls output buffers in read mode and masks input data in write mode
DQ0 ~ DQ15	Data Input/Output	Multiplexed data input / output pin
VDD/VSS	Power Supply/Ground	Power supply for internal circuits and input buffers
VDDQ/VSSQ	Data Output Power/Ground	Power supply for output buffers
NC	No Connection	No connection

FUNCTIONAL BLOCK DIAGRAM

1Mbit x 4banks x 16 I/O Synchronous DRAM



8.2 MT1389

MT1389

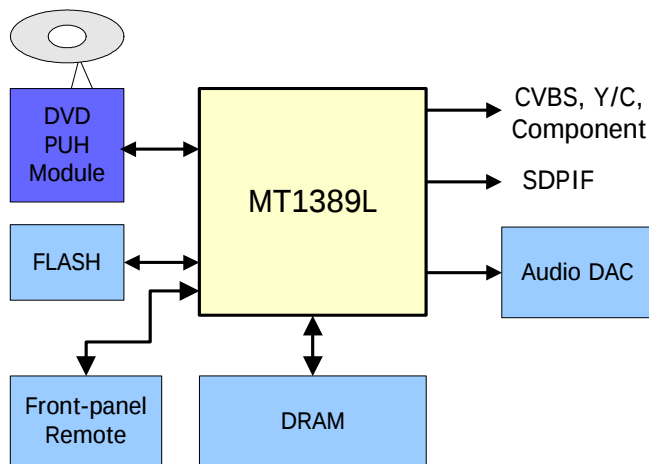
Progressive-Scan DVD Player SOC

Specifications are subject to change without notice

MediaTek MT1389 is a DVD player system-on-chip (SOC) which incorporates advanced features like high quality TV encoder and state-of-art de-interlace processing. The MT1389 enables consumer electronics manufacturers to build high quality, cost-effective DVD players, portable DVD players or any other home entertainment audio/video devices.

Based on MediaTek's world-leading DVD player SOC architecture, the MT1389 is the 3rd generation of the DVD player SOC. It integrates the MediaTek 2nd generation front-end analog RF amplifier and the Servo/MPEG AV decoder.

The progressive scan of the MT1389 utilized a proprietary advanced motion-adaptive de-interlace algorithm to achieve the best movie/video playback. It can easily detect 3:2/2:2 pull down source and restore the correct original pictures. It also supports a patent-pending edge-preserving algorithm to remove the saw-tooth effect.



DVD Player System Diagram Using MT1389

Key Features

- RF/Servo/MPEG Integration
- High Performance Audio Processor
- Motion-Adaptive, Edge-Preserving De-interlace
- 108MHz/12-bit, 6 CH TV Encoder

Applications

- Standard DVD Players
- Portable DVD Players

General Feature List

- Super Integration DVD player single chip
 - High performance analog RF amplifier
 - Servo controller and data channel processing
 - MPEG-1/MPEG-2/JPEG video
 - Dolby AC-3/DTS/DVD-Audio
 - Unified memory architecture
 - Versatile video scaling & quality enhancement
 - OSD & Sub-picture
 - 2-D graphic engine
 - Built-in clock generator
 - Built-in high quality TV encoder
 - Built-in progressive video processor
 - Audio effect post-processor
 - Audio input port
- High Performance Analog RF Amplifier
 - Programmable fc
 - Dual automatic laser power control
 - Defect and blank detection
 - RF level signal generator
- Speed Performance on Servo/Channel Decoding
 - DVD-ROM up to 4XS
 - CD-ROM up to 24XS
- Channel Data Processor
 - Digital data slicer for small jitter capability
 - Built-in high performance data PLL for channel data demodulation
 - EFM/EFM+ data demodulation
 - Enhanced channel data frame sync protection & DVD-ROM sector sync protection
- Servo Control and Spindle Motor Control
 - Programmable frequency error gain and phase error gain of spindle PLL to control spindle motor on CLV and CAV mode
 - Built-in ADCs and DACs for digital servo control
 - Provide 2 general PWM
 - Tray control can be PWM output or digital output
- Embedded Micro controller
 - Built-in 8032 micro controller
 - Built-in internal 373 and 8-bit programmable lower address port
- 1024-bytes on-chip RAM
- Up to 4M bytes FLASH-programming interface
- Supports 5/3.3-Volt. FLASH interface
- Supports power-down mode
- Supports additional serial port
- DVD-ROM/CD-ROM Decoding Logic
 - High-speed ECC logic capable of correcting one error per each P-codeword or Q-codeword
 - Automatic sector Mode and Form detection
 - Automatic sector Header verification
 - Decoder Error Notification Interrupt that signals various decoder errors
 - Provide error correction acceleration
- Buffer Memory Controller
 - Supports 16Mb/32Mb/64Mb/128Mb SDRAM
 - Supports 16-bit SDRAM data bus
 - Provide the self-refresh mode SDRAM
 - Block-based sector addressing
 - Support 3.3 Volt. DRAM Interface
- Video Decode
 - Decodes MPEG1 video and MPEG2 main level, main profile video (720/480 and 720x576)
 - Smooth digest view function with I, P and B picture decoding
 - Baseline, extended-sequential and progressive JPEG image decoding
 - Support CD-G titles
- Video/OSD/SPU/HLI Processor
 - Arbitrary ratio vertical/horizontal scaling of video, from 0.25X to 256X
 - 65535/256/16/4/2-color bitmap format OSD,
 - 256/16 color RLC format OSD
 - Automatic scrolling of OSD image
 - Slide show transition as DVD-Audio Specification
- 2-D Graphic Engine
 - Support decode Text and Bitmap
 - Support line, rectangle and gradient fill
 - Support bitblt
 - Chroma key copy operation
 - Clip mask

■ Audio Effect Processing

- Dolby Digital (AC-3)/EX decoding
- DTS/DTS-ES decoding
- MLP decoding for DVD-Audio
- MPEG-1 layer 1/layer 2 audio decoding
- MPEG-2 layer1/layer2 2-channel audio
- High Definition Compatible Digital (HDCD)
- Windows Media Audio (WMA)
- Advanced Audio Coding (AAC)
- Dolby ProLogic II
- Concurrent multi-channel and downmix out
- IEC 60958/61937 output
 - PCM / bit stream / mute mode
 - Custom IEC latency up to 2 frames
- Pink noise and white noise generator
- Karaoke functions
 - Microphone echo
 - Microphone tone control
 - Vocal mute/vocal assistant
 - Key shift up to +/- 8 keys
 - Chorus/Flanger/Harmony/Reverb
- Channel equalizer
- 3D surround processing include virtual surround and speaker separation

■ TV Encoder

- Six 108MHz/12bit DACs
- Support NTSC, PAL-BDGHINM, PAL-60
- Support 525p, 625p progressive TV format
- Automatically turn off unconnected channels
- Support PC monitor (VGA)
- Support Macrovision 7.1 L1, Macrovision 525P and 625P
- CGMS-A/WSS
- Closed Caption

■ Progressive Output

- Automatic detect film or video source
- 3:2 pull down source detection
- Advanced Motion adaptive de-interlace
- Edge Preserving
- Minimum external memory requirement

■ Audio Input

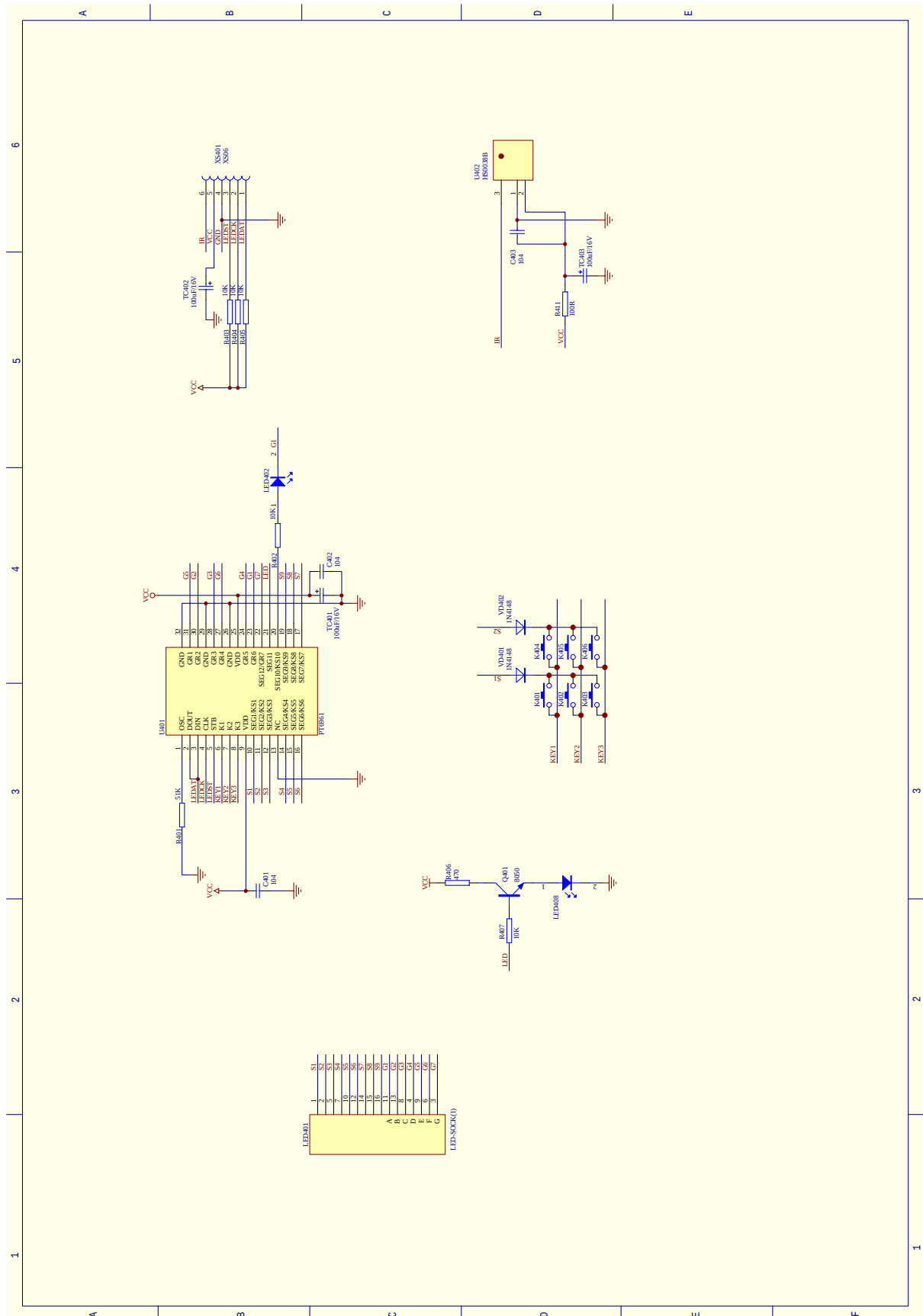
- Line-in/SPDIF-in for versatile audio processing

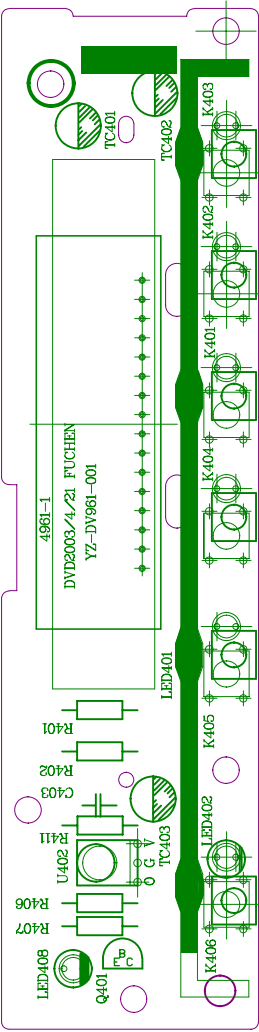
■ Outline

- 256-pin LQFP package
- 3.3/1.8-Volt. Dual operating voltages

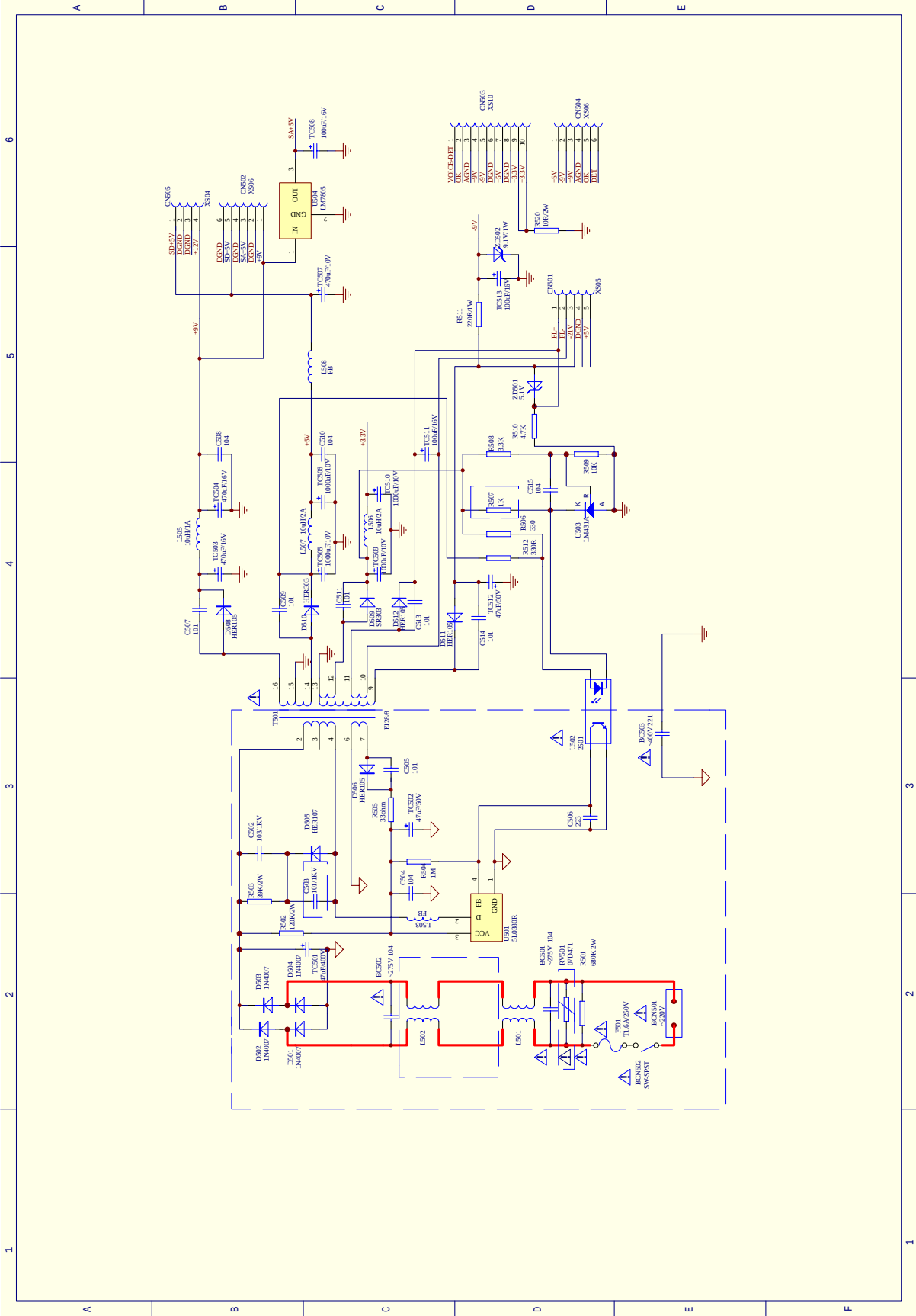
9. SCHEMATIC & PCB WIRING DIAGRAM

FRONT SCHEMATIC DIAGRAM

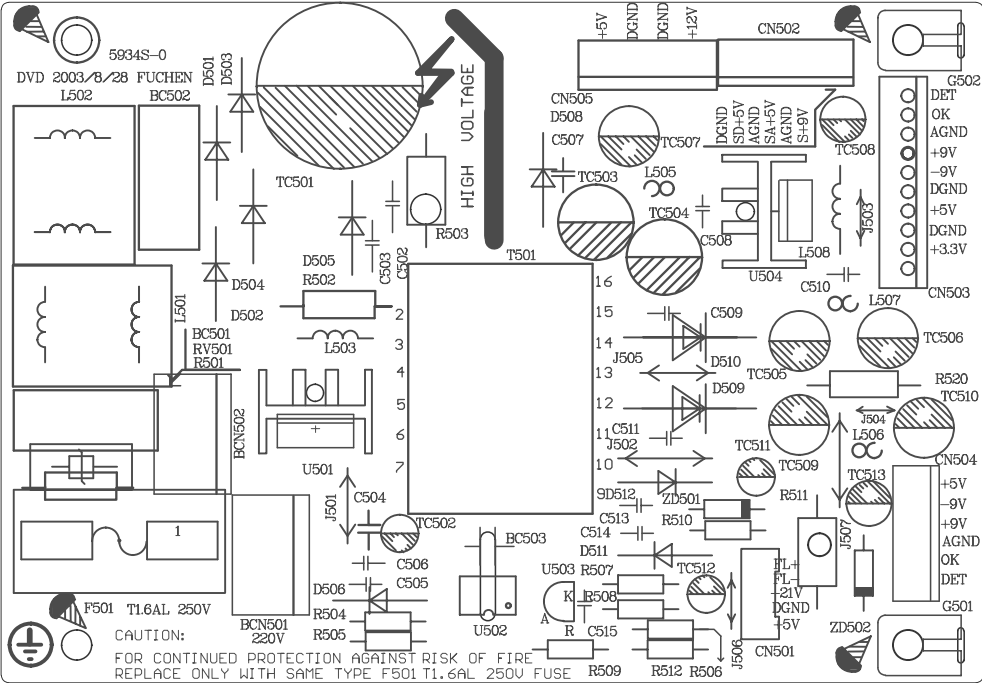




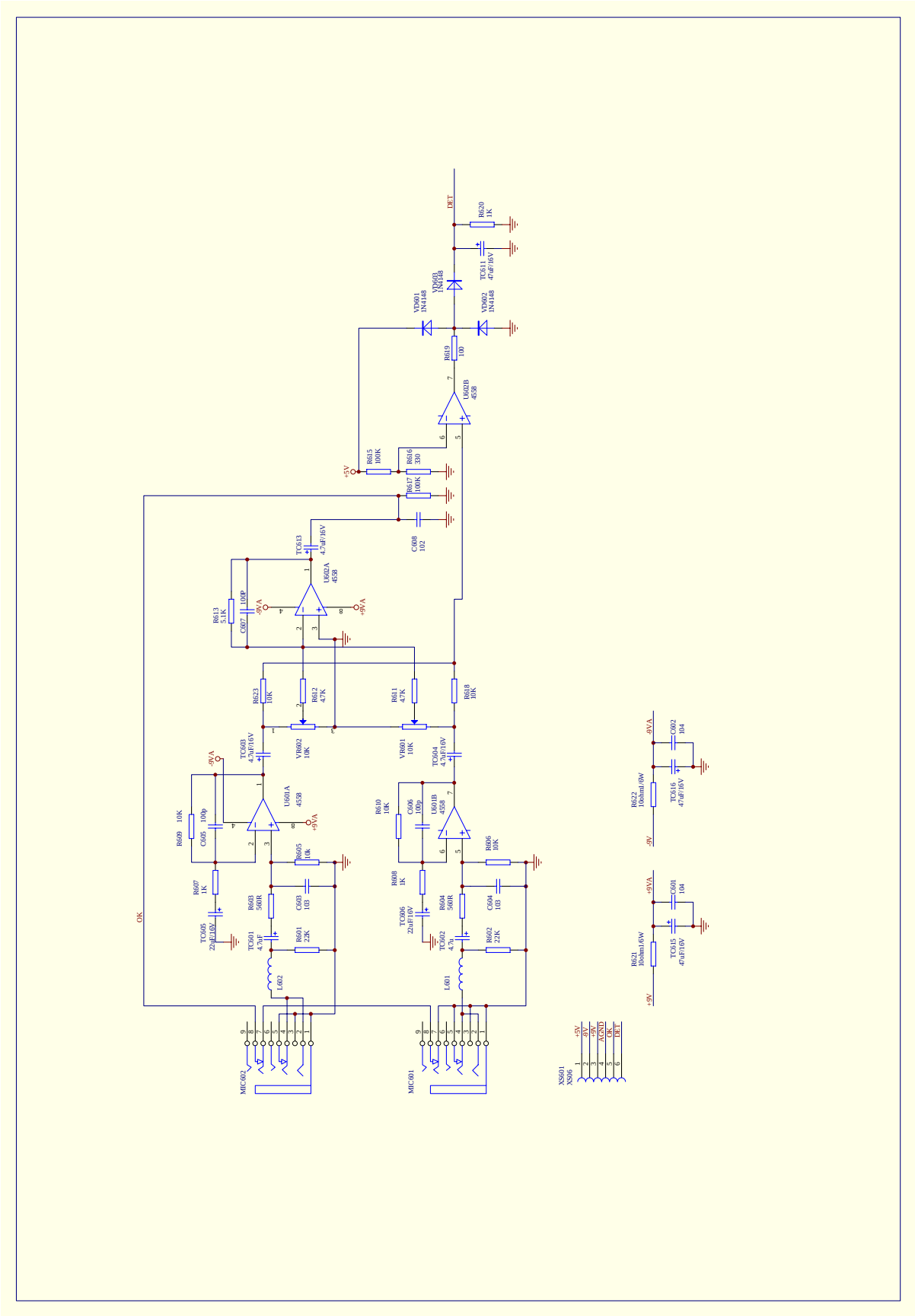
POWER BOARD SCHEMATIC DIAGRAM



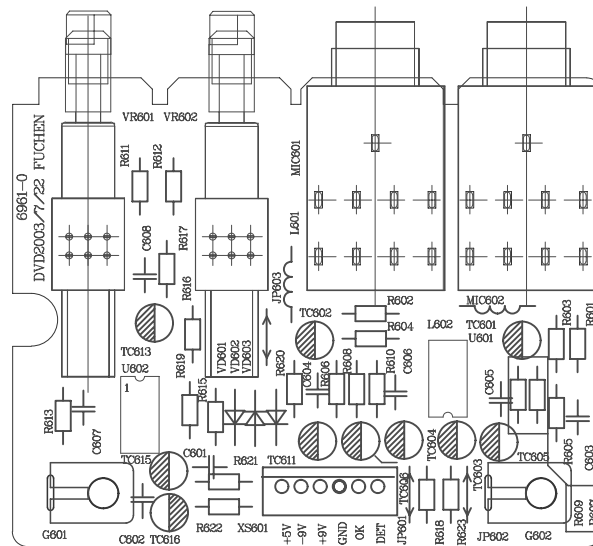
POWER BOARD SCHEMATIC DIAGRAM



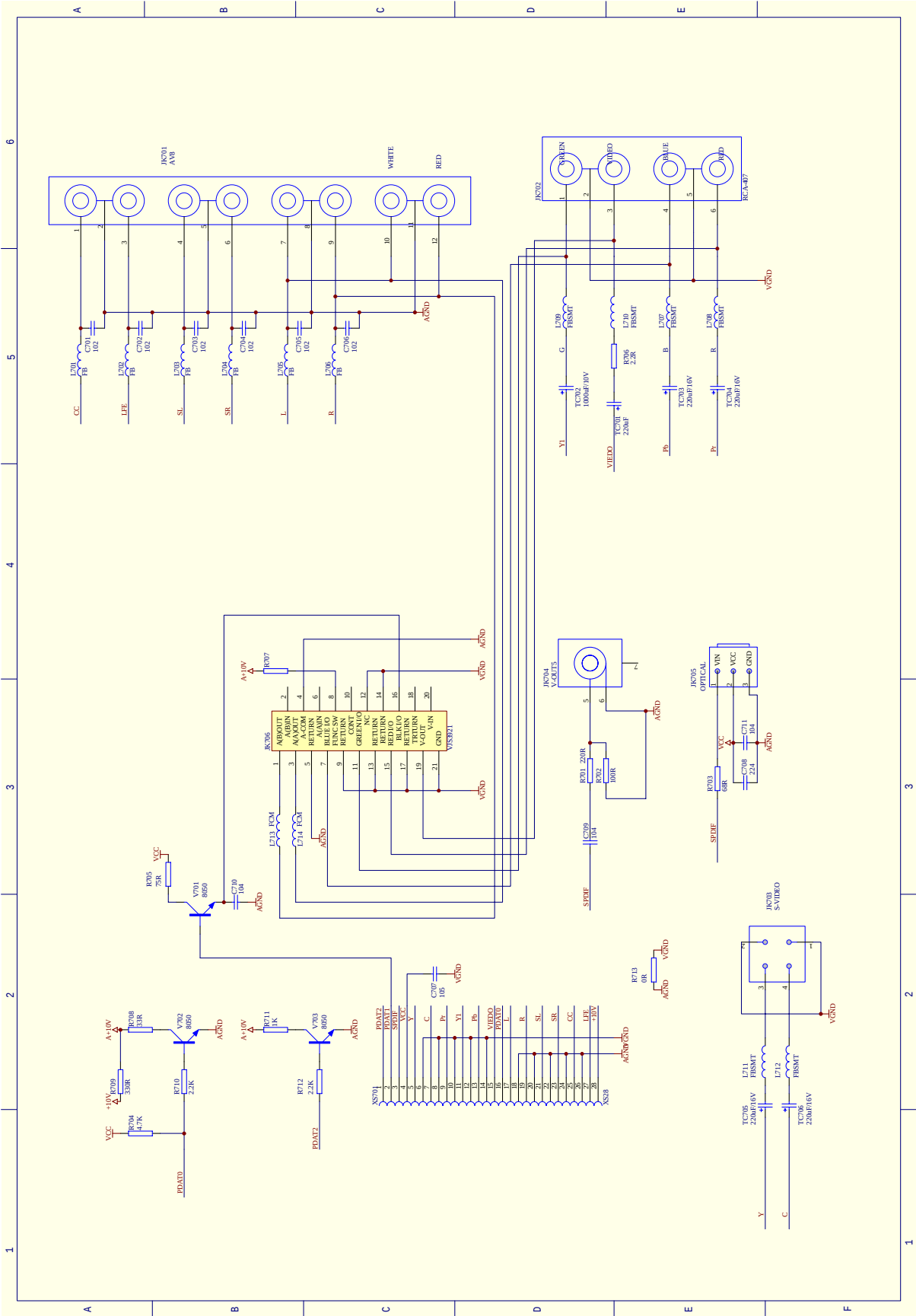
OK SCHEMATIC DIAGRAM



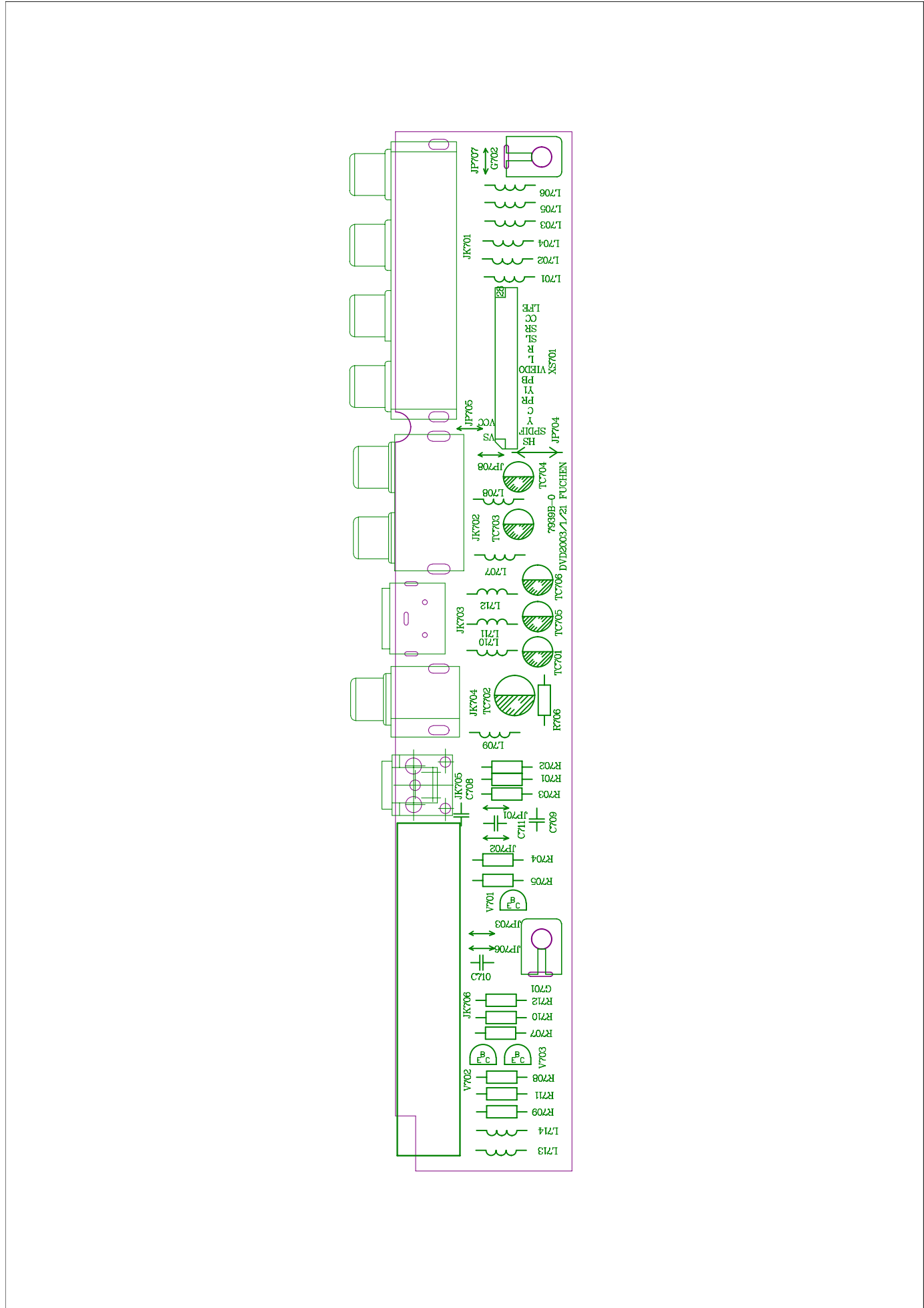
OK SCHEMATIC DIAGRAM



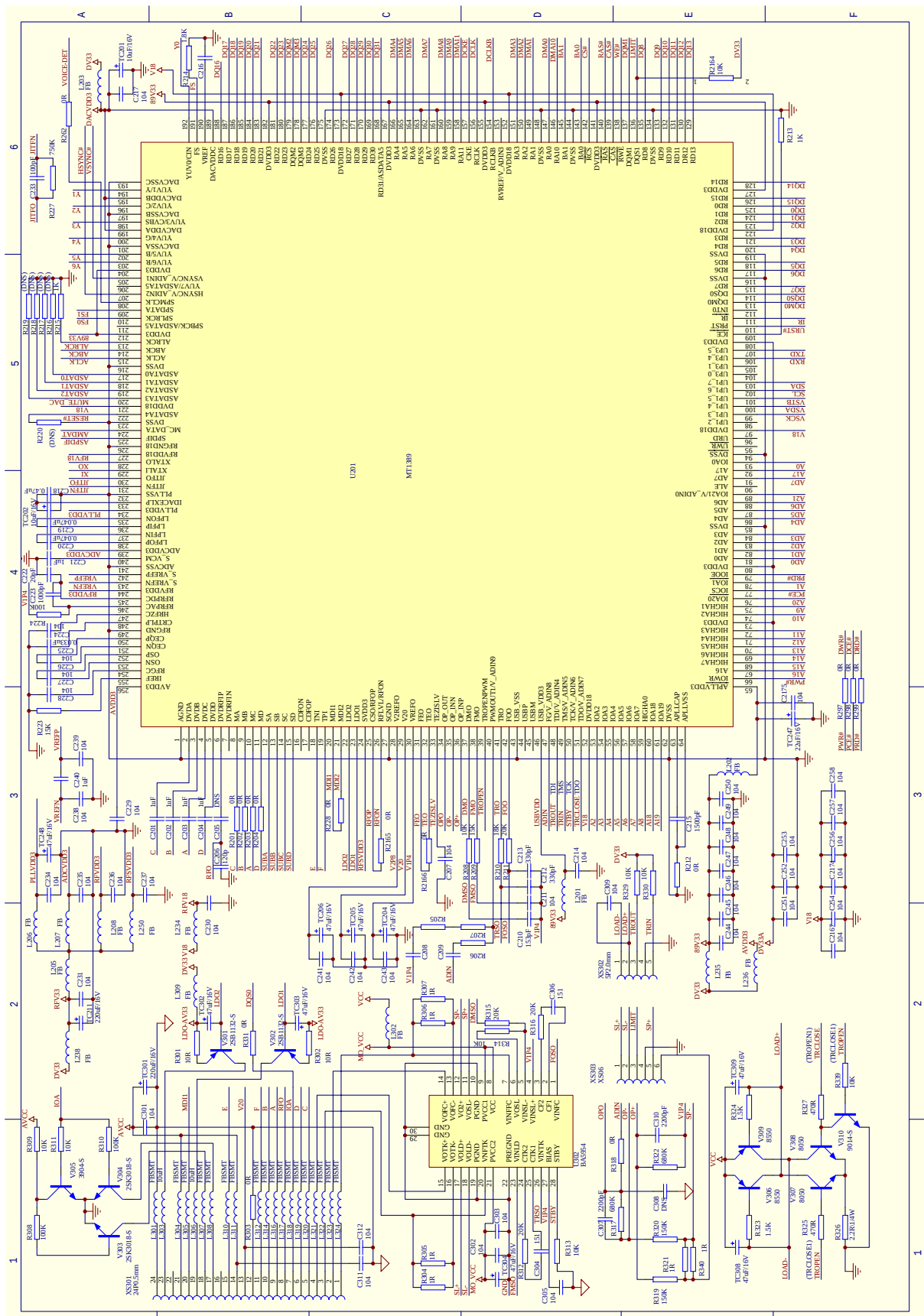
OUTPUT BOARD SCHEMATIC DIAGRAM



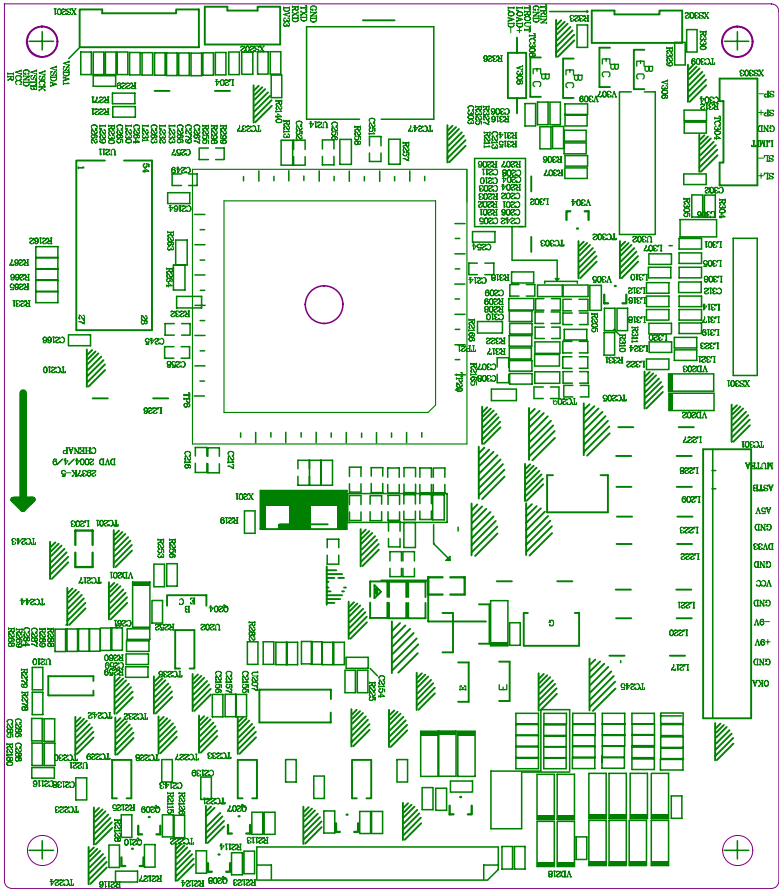
OUTPUT BOARD SCHEMATIC DIAGRAM



MIAN SCHEMATIC DIAGRAM



MIAN SCHEMATIC DIAGRAM



10. SPARE PARTS LIST

DV964s MATERIAL LIST

1. DECODE BOARD

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		SMD RESISTOR	1/16W 0Ω ±5%	36	C2119,C2128,C2131,L210~L215,R201~R204,R212,R221,R226,R228,R234,R236,R245,R247,R222,R251,R255,R257,R258,R282,R297,R298,R299,R303,R318,R331,R2159,R268,R279
2		SMD RESISTOR	1/16W 75Ω ±5%	7	R233,R261,R270,R273,R274,R276,R280
3		CARBON FILM RESISTOR	1/4W2.2Ω±5%	1	R326
4		SMD RESISTOR	1/16W1Ω±5%	6	R304~R307,R321,R340
5		SMD RESISTOR	1/16W 10Ω ±5%	2	R301,R302
6		SMD RESISTOR	1/16W 33Ω ±5%	16	R231,R232,R256,R263~R267,R291~R296,R2162 ,L202
7		SMD RESISTOR	1/16W 150Ω ±5%	2	R2109,R2180
8		SMD RESISTOR	1/16W 330Ω ±5%	1	R2105
9		SMD RESISTOR	1/16W 470Ω ±5%	2	R325,R327
10		SMD RESISTOR	1/16W 680Ω ±5%	2	R259,R260
11		SMD RESISTOR	1/16W 1K ±5%	20	L225,R213,R215,R2101~R2104,R2117,R2118~R2128 ,R254
13		SMD RESISTOR	1/16W 1.5K ±5%	3	R323,R324,R243
14		SMD RESISTOR	1/16W 510Ω ±5%	1	R214
15		SMD RESISTOR	1/16W 3.3K ±5%	1	R242
16		SMD RESISTOR	1/16W 4.7K ±5%	16	R238~R240,R2130,R2131,R2134,R2135,R2138~R2140,R2142,R2143,R2146,R2147,R2150,R2151
17		SMD RESISTOR	1/16W 6.8K ±5%	6	R2136,R2148,R2152~R2155
18		SMD RESISTOR	1/16W 10K ±5%	12	R208,R229,R252,R309,R311,R313,R314,R329,R330,R339,R2164,R2106
19		SMD RESISTOR	1/16W 15K ±5%	2	R209,R223
20		SMD RESISTOR	1/16W 20K ±5%	4	R211,R312,R315,R316
21		SMD RESISTOR	1/16W24K±5%	6	R2129,R2133,R2137,R2141,R2145,R2149
22		SMD RESISTOR	1/16W 18K ±5%	1	R210
23		SMD RESISTOR	1/16W 47K ±5%	1	R289
24		SMD RESISTOR	1/16W 150K ±5%	2	R319,R320
25		PRECISION SMD RESISTOR	1/16W 680K ±1%	2	R317,R322
26		PRECISION SMD RESISTOR	1/16W 750K ±1%	1	R227
27		SMD RESISTOR	1/16W 100K ±5%	10	R224,R308,R310,R2111~R2116 ,R246
28		CD	CD11 16V10U±20%5×11 2	20	TC201,TC202,TC217,TC221~TC233,TC236, TC240,TC241 ,TC244
29		CD	CD11 16V1U±20%5×11 2	2	TC242,TC243
30		CD	CD11 16V220U±20%6×12 2.5	8	TC207~TC209,TC211,TC213,TC235,TC245,TC301
31		CD	CD11 16V47U±20%5×11 2	13	TC204~TC206,TC210,TC234,TC237,TC302~TC304,TC308,TC309 ,TC247,TC248
32		SMD CAPACITOR	50V 20P ±5% NPO 0603	1	C222
33		SMD CAPACITOR	50V 27P ±5% NPO 0603	2	C275,C276

34		SMD CAPACITOR	50V 47P ±5% NPO 0603	17	C262~C266,C289,C290,C292,C293,C295,C296,C298,C299,C2101,C2102,C2104,C2105
35		SMD CAPACITOR	50V 101 ±5% NPO 0603	8	C233,C2111,C2114,C2117,C2120,C2123,C2126,C206
36		SMD CAPACITOR	50V 331 ±5% NPO 0603	2	C212,C213
37		SMD CAPACITOR	50V 151 ±5% NPO 0603	2	C304,C306
38		SMD CAPACITOR	50V 104 +80%-20% 0603	74	C207,C211,C214,C216,C217,C224,C226~C231,C234~C239,C241~C254,C256~C259,C267~C274,C279,C2170~C2171,C301~C303,C305,C309,C311,C312,C2138~C2143,C2153~C2157,C2161,C2163,C2166,C2174,C2175,C2169,C2168,C284,C287
	38.1	SMD CAPACITOR	25V 104 +80%-20% 0603	74	C207,C211,C214,C216,C217,C224,C226~C231,C234~C239,C241~C254,C256~C259,C267~C274,C279,C2170~C2171,C301~C303,C305,C309,C311,C312,C2138~C2143,C2153~C2157,C2161,C2163,C2166,C2174,C2175,C2169,C2168,C284,C287
39		SMD CAPACITOR	16V 105 +80%-20% 0603	8	C201~C204,C221,C240,C285,C286
40		SMD CAPACITOR	50V 102 ±10% 0603	9	C2112,C2115,C288,C2118,C2121,C2124,C2127,C223,C278
41		SMD CAPACITOR	50V 122 ±10% 0603	6	C2122,C2129,C2130,C2133,C2135,C2136
42		SMD CAPACITOR	50V 152 ±10% 0603	1	C215
43		SMD CAPACITOR	50V 222 ±10% 0603	2	C307,C310
44		SMD CAPACITOR	50V 153 ±10% 0603	1	C210
45		SMD CAPACITOR	16V 333 ±10% 0603	1	C225
46		SMD CAPACITOR	16V 473 ±10% 0603	2	C219,C220
47		SMD CAPACITOR	16V474 +80%-20% 0603	1	C218
48		SMD INDUCTOR	10UH ±10% 2012	2	L303,L306
49		SMD INDUCTOR	1.8UH ±10% 1608	6	L243~L248
50		MAGNETIC BEADS INDUCTOR	RH354708	11	L205,L209,L217,L220,L221,L222,L223,L227,L228,L226,L302
51		SMD MAGNETIC BEADS	FCM1608K-221T05	36	L201,L203,L207~L208,L224,L234~L236,L238,L250,L309,L218,L219,L229~L233,L301,L304,L305,L307,L308,L310~L312,L314,L316~L324
52		SMD RESISTOR	1/16W 4.7Ω ±5%	1	L206
53		SMD DIODE	1N4148	18	VD201,VD205~VD221
	53.1	SMD DIODE	LS4148	18	VD201,VD205~VD221
	53.2	SMD DIODE	LL4148	18	VD201,VD205~VD221
54		TRIODE	C8050	2	V307,V308
55		TRIODE	8550C	2	V306,V309
56		SMD TRIODE	9014C	1	V310
57		TRIODE	9015C	1	Q204
58		TRIODE	C1815Y	1	Q212

59		SMD TRIODE	C1815	6	Q205~Q210
60		TRIODE	2SA1015	3	Q211,Q218,Q219
61		SMD TRIODE	3904	1	V305
62		SMD TRIODE	2SK3018	2	V303,V304
63		SMD TRIODE	2SB1132	2	V301,V302
64		IC	NJM4558M SOP	3	U219 , U220 , U221
	64.1	IC	RC4558D SOP	3	U219 , U220 , U221
65		IC	MM74HCU04M SOP	1	U205
	65.1	IC	HCU04 SOP	1	U205
66		IC	HY57V641620HGT-7 TSOP	1	U211
	66.1	IC	KSV464P4JA-70 TSOP	1	U211
67		IC	LM1117MP-ADJ SOT-223	1	U209
68		IC	CS4360 SSOP	1	U207
69		IC	24C02N SOP	1	U202
70		IC	MT1389EE QFP	1	U201
71		IC	BA5954FP HSOP	1	U302
72		IC	CS5333 SSOP	1	U210
73		CRYSTAL OSCILLATOR	27.00MHz 49-S	1	X201
74		CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLU	1	XS204
75		PCB	2937K-5	1	
76		SOCKET	5P 2.0mm	1	XS302
77		SOCKET	6P 2.0mm	1	XS303
78		SOCKET	7P 2.0mm	1	XS201
79		SOCKET	13P 2.5mm	1	XS203
80		CABLE SOCKET	24P 0.5mm SMD WITH CLASP	1	XS301

2. POWER BOARD

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		CARBON FILM RESISTOR	1/4W33 $\Omega \pm 5\%$ SHAPED 10	1	R505
2		CARBON FILM RESISTOR	1/4W330 $\Omega \pm 5\%$ SHAPED 10	1	R506
3		METAL OXIDE FILM RESISTOR	1W330 $\Omega \pm 5\%$ SHAPED R 15×8	1	R511
4		CARBON FILM RESISTOR	1/4W10K $\pm 5\%$ SHAPED 10	1	R507
5		CARBON FILM RESISTOR	1/4W1M $\Omega \pm 5\%$ SHAPED 10	1	R504
6		METAL FILM RESISTOR	1/4W4.7K $\pm 1\%$	1	R508
7		METAL FILM RESISTOR	1/4W12K $\pm 1\%$ SHAPED 10	1	R509
8		METAL OXIDE FILM RESISTOR	2W39K $\pm 5\%$ SHAPED FLAT 15×9	1	R503
	8.1	METAL OXIDE FILM RESISTOR	2W39K $\pm 5\%$ SHAPED FLAT 15×7	1	R503
9		METAL OXIDE FILM RESISTOR	2W120K $\pm 5\%$ SHAPED FLAT 15×7	1	R502
10		HIGH VOLTAGE RESISTOR	1/2W680K $\pm 5\%$	1	R501
11		PORCELAIN CAPACITOR	50V 100P $\pm 10\%$ 5mm	5	C505,C507,C509,C511,C514
12		PORCELAIN CAPACITOR	50V 104 $\pm 20\%$ 5mm	4	C504,C508,C510,C515
13		PORCELAIN CAPACITOR	1000V 101 $+80\%-20\%$ 7.5mm	1	C503
	13.1	PORCELAIN CAPACITOR	1000V 101 $\pm 10\%$ 7.5mm	1	C503
14		PORCELAIN CAPACITOR	1000V 103 $+80\%-20\%$ 7.5mm	1	C502
15		CERAMIC CAPACITOR	CT81 400V 221 $\pm 20\%$ 10mm	1	BC503
	15.1	CERAMIC CAPACITOR	CT81 400V 221 $\pm 10\%$ 10mm	1	BC503
16		TERYLENE CAPACITOR	100V 223 $\pm 10\%$ 5mm	1	C506
17		TERYLENE CAPACITOR	275V 104 $\pm 20\%$ 15mm	1	BC501
	17.1	TERYLENE CAPACITOR	275V 104 $\pm 10\%$ 15mm	1	BC501
18		CD	CD11T 16V100u $\pm 20\%$ 6×12 2.5	2	TC508,TC513
19		CD	CD11T 25V470u $\pm 20\%$ 10×16 5	2	TC503,TC504
20		CD	CD11T 50V47u $\pm 20\%$ 6×12 2.5	2	TC502,TC512

21		CD	CD11T 10V1000 μ $\pm$ 20%8 $\times$ 16 3.5	4	TC505,TC506,TC509,TC510
22		CD	CD288H 400V47U $\pm$ 20%22 $\times$ 25 10	1	TC501
23		MAGNETIC BEADS INDUCTOR	RH354708	1	L503
24		CHOKE COIL	VERTICAL 10UH 1A 5mm	1	L505
25		CHOKE COIL	VERTICAL 10UH 2A 5mm	2	L506,L507
26		SWITCHING POWER TRANSFORMER	BCK-28-0286	1	T501
	26.1	SWITCHING POWER TRANSFORMER	BCK2801-624	1	T501
27		DIODE	HER105	3	D506,D508,D511
28		DIODE	HER306	1	D510
29		SCHOTTKY DIODE	SR360	1	D509
30		DIODE	HER107	1	D505
31		DIODE	1N4007	4	D501~D504
32		VOLTAGE REGULATOR DIODE	9.1V 1W	1	ZD502
33		IC	5L0380R YDTU	1	U501
34		IC	LM431ACZ TO-92	1	U503
	34.1	IC	TL431C TO-226AA(LP)	1	U503
	34.2	IC	431L TO-92	1	U503
	34.3	IC	KA431AZ TO-92	1	U503
35		POWER GRID FILTER	UT-20 40mH $\pm$ 20% 10 $\times$ 13	1	L501
36		PHOTOELECTRIC COUPLER	HS817	1	U502
37		IC	LM7805 GOLD SEALED TO-220	1	U504
38		PCB	5934S-0	1	
39		SOCKET	9P 2.5mm	1	CN503
40		SOCKET	2P 2.5mm	1	CN502
41		SOCKET	6P 2.5mm	1	CN504
42		SOCKET	2P 8.0mm 2#	2	BCN501,BCN502
43		CONNECTION CORDS	Φ 0.6 SHAPED 7.5mm	2	J506,J503
44		CONNECTION CORDS	Φ 0.6 SHAPED 10mm	4	L502,J501,J505
45		CONNECTION CORDS	Φ 0.6 SHAPED 12.5mm	2	J507,J502
46		CONNECTION CORDS	Φ 0.6 SHAPED 5mm	1	J504
47		FUSE	T1.6AL 250V	1	F501
48		FUSE	BLX-2	1	FOR F501
49		HEAT RADIATION BOARD	11 $\times$ 15 $\times$ 25 AB009K	2	U501,U504 FOR HEAT RADIATION
	49.1	HEAT RADIATION BOARD	11 $\times$ 15 $\times$ 25 白 AB905	2	U501,U504 FOR HEAT RADIATION
50		GROUND CHIP OF POWER BOARD	AB903	2	G501~G502
51		TAPPING SCREW	BT 3 $\times$ 8 BLACK	2	FIXED HEAT RADIATION BOARD

3. OK BOARD

NO	MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1	CARBON FILM RESISTOR	1/6W10 Ω $\pm$ 5% SHAPED 7.5	2	R621,R622
2	CARBON FILM RESISTOR	1/6W100 Ω $\pm$ 5% SHAPED 7.5	1	R619
3	CARBON FILM RESISTOR	1/6W330 Ω $\pm$ 5% SHAPED 7.5	1	R616
4	CARBON FILM RESISTOR	1/6W560 Ω $\pm$ 5% SHAPED 7.5	2	R603,R604
5	CARBON FILM RESISTOR	1/6W1K $\pm$ 5% SHAPED 7.5	3	R607,R608,R620
6	CARBON FILM RESISTOR	1/6W5.1K $\pm$ 5% SHAPED 7.5	1	R613
7	CARBON FILM RESISTOR	1/6W10K $\pm$ 5% SHAPED 7.5	6	R605,R606,R618, R623,R609,R610
8	CARBON FILM RESISTOR	1/6W22K $\pm$ 5% SHAPED 7.5	2	R601,R602

9		CARBON FILM RESISTOR	1/6W100K±5% SHAPED 7.5	2	R615,R617
10		CARBON FILM RESISTOR	1/6W4.7K±5% SHAPED 7.5	2	R611,R612
11		ROTATED POTENTIOMETER	WH09NTX-1C-A10K-F30	2	VR601,VR602
12		PORCELAIN CAPACITOR	50V 47P ±5% NPO 5mm	2	C605,C606
	12.1	PORCELAIN CAPACITOR	50V 47P ±5% 5mm	2	C605,C606
	12.2	PORCELAIN CAPACITOR	50V 47P ±10% 5mm	2	C605,C606
13		PORCELAIN CAPACITOR	50V 100P ±10% 5mm	1	C607
14		PORCELAIN CAPACITOR	50V 103 ±10% 5mm	2	C603,C604
15		PORCELAIN CAPACITOR	50V 104 ±20% 5mm	2	C601,C602
16		PORCELAIN CAPACITOR	50V 102 ±20% 5mm	1	C608
17		CD	CD110 16V47U±20%5×11 2	3	TC611,TC615,TC616
	17.1	CD	CD11 16V47U±20%5×11 2	3	TC611,TC615,TC616
	17.2	CD	CD11C 16V47U±20%5×7 2	3	TC611,TC615,TC616
18		CD	CD11 16V4.7U±20%5×11 2	5	TC601~TC604, TC613
19		CD	CD11 16V22U±20%5×11 2	2	TC605,TC606
	19.1	CD	CD11 25V22U±20%5×11 2	2	TC605,TC606
20		MAGNETIC BEADS INDUCTOR	RH354708	2	L601,L602
21		DIODE	1N4148	3	VD601~VD603
22		IC	NJM4558D DIP	2	U601,U602
	22.1	IC	KA4558 DIP	2	U601,U602
23		PCB	6961-0	1	
24		FLAT CABLE	6P80 2.5 2 SOCKET WITH NEEDLE	1	XS601
25		MICROPHONE SOCKET	CK3-6.35-106	2	MIC601,MIC602
26		CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	3	JP601,JP602,JP603

4. OUTPUT BOARD

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		CARBON FILM RESISTOR	1/4W68Ω±5%	1	R703
2		CARBON FILM RESISTOR	1/4W100Ω±5%	1	R702
3		CARBON FILM RESISTOR	1/4W220Ω±5%	1	R701
4		CARBON FILM RESISTOR	1/4W330Ω±5%	1	R709
5		CARBON FILM RESISTOR	1/4W2.2 Ω±5% SHAPED 10	1	R706
6		CARBON FILM RESISTOR	1/4W1K±5%	1	R711
7		CARBON FILM RESISTOR	1/4W33Ω±5%	1	R708
8		CARBON FILM RESISTOR	1/4W2.2K±5%	2	R710,R712
9		CARBON FILM RESISTOR	1/4W4.7K±5%	1	R704
10		CARBON FILM RESISTOR	1/4W75Ω±5%	1	R705
11		SMD CAPACITOR	50V 102 ±10% 0603	6	C701~C706
12		SMD CAPACITOR	16V 105 +80%-20% 0603	1	C707
13		PORCELAIN CAPACITOR	50V 104 ±20% 5mm	3	C709,C710,C711
	13.1	PORCELAIN CAPACITOR	50V 104 +80%-20% 5mm	3	C709,C710,C711
14		MONOSOLIC CAPACITOR	50V 224 ±20% 5mm	1	C708
	14.1	MONOSOLIC CAPACITOR	50V 224 ±10% 5mm	1	C708
15		TRIODE	S8050D	3	V701~V703
16		CONNECTION CORDS	Φ0.6 SHAPED 2.5mm	5	TC701,TC703~TC706
17		CONNECTION CORDS	Φ0.6 SHAPED 3.5mm	1	TC702
18		MAGNETIC BEADS INDUCTOR	RH354708	12	L701~L712
19		ELECTRO-OPTIC TRANSFORMER	TX179ATW	1	JK705

	19.1	ELECTRO-OPTIC TRANSFORMER	TX179AT	1	JK705
20		TERMINAL SOCKET	AV4-8.4-6G-5	1	JK702
21		TERMINAL SOCKET	AV8-8.4-6G-3	1	JK701
22		SCART SOCKET	SCART-01	1	JK706
23		PCB	7939B-0	1	
24		CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLU	1	XS701
25		TERMINAL SOCKET	AV1-8.4-5G-2 BLACK	1	JK704
26		TERMINAL SOCKET	S-VIDEO	1	JK703
27		CONNECTION CORDS	Φ0.6 SHAPED 5mm	7	JP701~JP703,JP705--JP708
28		CONNECTION CORDS	Φ0.6 SHAPED 10mm	3	R707,L713,L714
4. MAIN PANEL					
NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		SOFT SPONGE	10×10×6 DOUBLE-FACED, HARD	1	FOR IR SENSOR
2		CARBON FILM RESISTOR	1/4W100Ω±5%	1	R411
3		CARBON FILM RESISTOR	1/4W51K±5%	1	R401
4		LIGHT TOUCH RESTORE SWITCH	HORIZONTAL 6×6×1	6	K401~K406
5		PORCELAIN CAPACITOR	50V 104 +80%-20% 5mm	1	C403
6		CD	CD11C 10V100U±20%5×7 2	3	TC401,TC402,TC403
7		DISPLAY SCREEN	LTG-0275G	1	LED401
8		IR SENSOR	HS0038B3V	1	U402
9		IC	PT6961 SOP	1	U401
10		FLAT CABLE	6P80 2.0 2 SOCKET WITH NEEDLE REVERSE	1	XS401
11		SMD RESISTOR	1/16W 10K ±5%	3	R403,R404,R405
12		SMD DIODE	1N4148	2	VD401,VD402
13		SMD CAPACITOR	50V 104 +80%-20% 0603	2	C401,C402
14		PCB	4961-1	1	