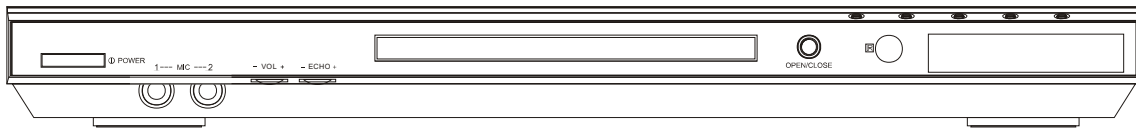


SERVICE MANUAL

DV324S



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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).

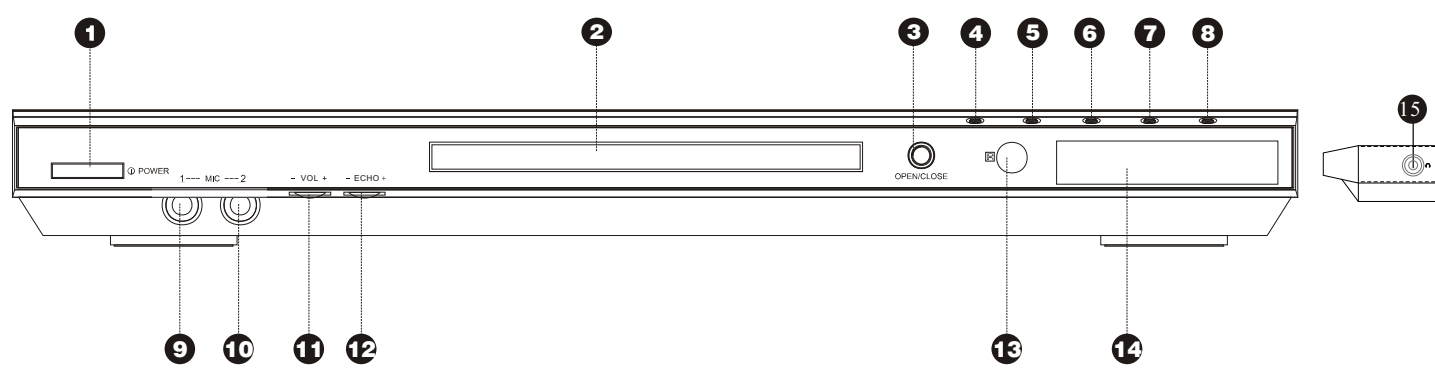
notice (1885x323x2 tiff)

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.

3.Control Button Locations and Explanations

■ Front Panel Illustration



- | | | |
|---------------------|---------------|-------------------------|
| 1 POWER switch | 6 STOP button | 11 MIC VOLUME knob |
| 2 Disc tray | 7 REV button | 12 ECHO adjustment knob |
| 3 OPEN/CLOSE button | 8 FWD button | 13 IR SENSOR |
| 4 PLAY button | 9 MIC 1 jack | 14 LED display window |
| 5 PAUSE button | 10 MIC 2 jack | 15 Headphone jack |

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

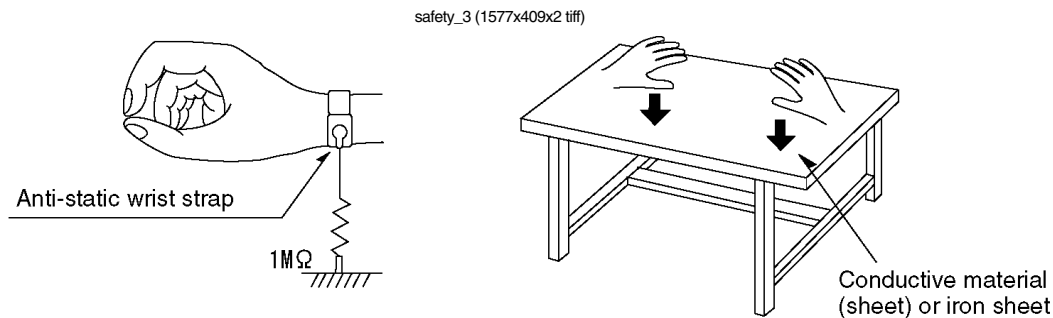
Some devices such as the DVD player use the optical pickup (laser diode) and the optical pickup will be damaged by static electricity in the working environment. Proceed servicing works under the working environment where grounding works is completed.

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

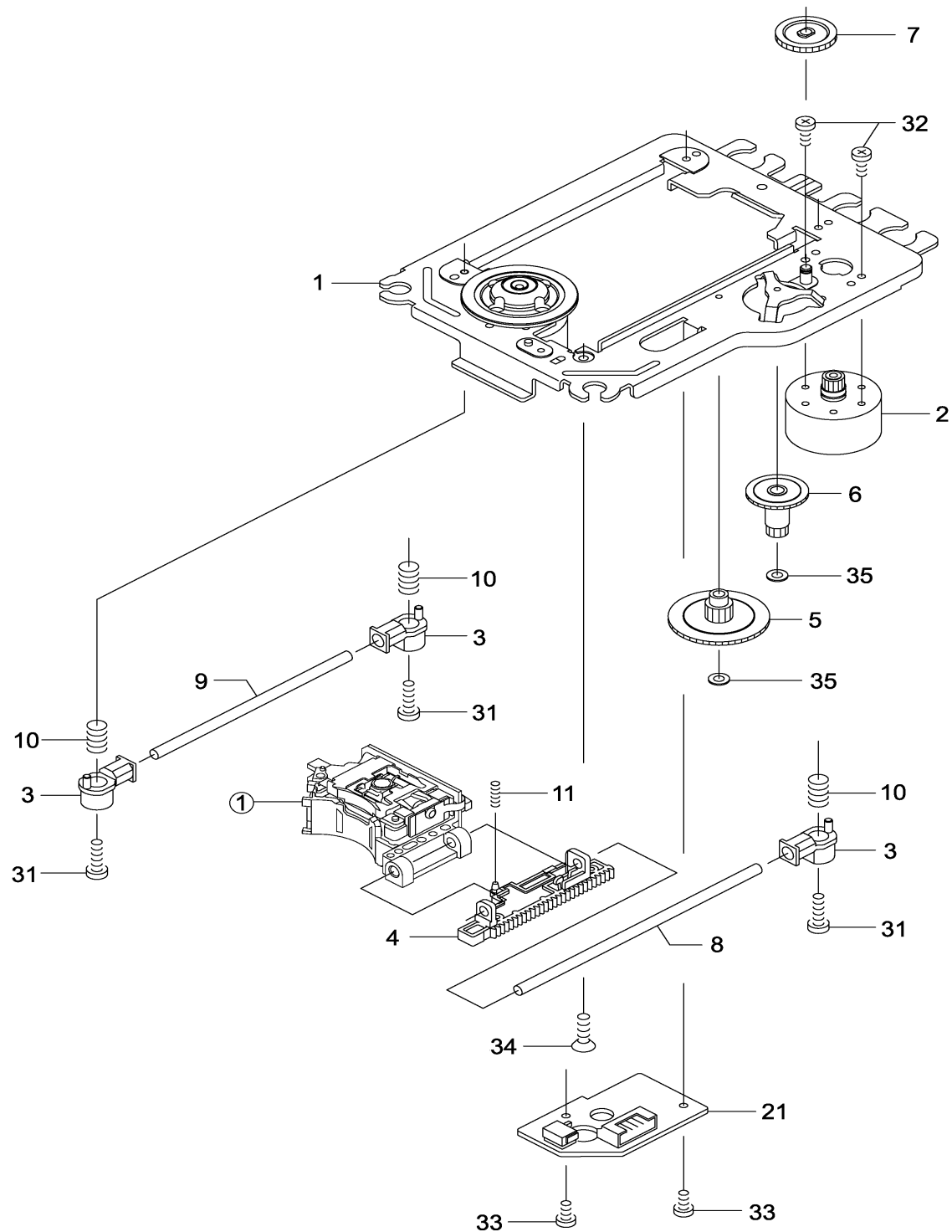
1. To keep the good quality of the optical pickup maintenance parts during transportation and before installation, the both ends of the laser diode are short-circuited. After replacing the parts with new ones, remove the short circuit according to the correct procedure. (See this Technical Guide).
2. 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)

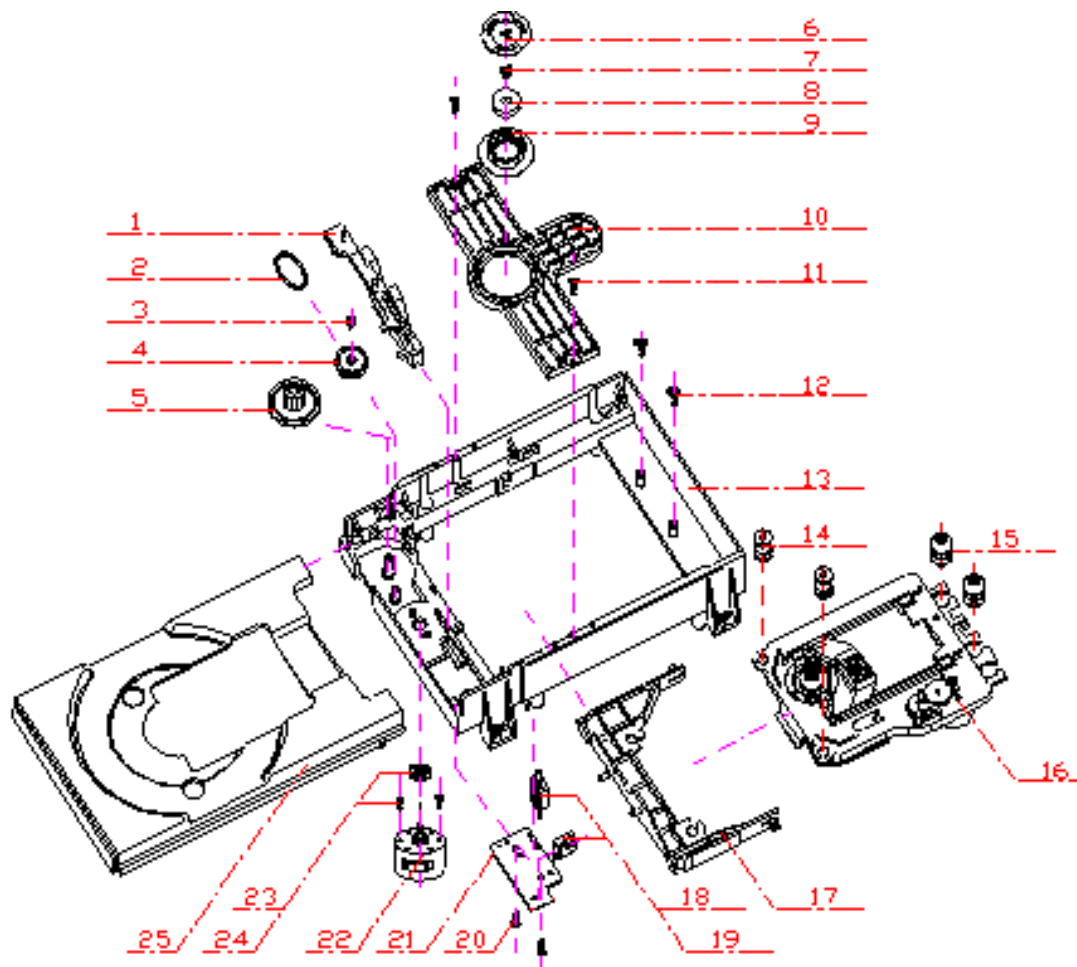
Materials to Pic (1)

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

□ □

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

5.2 Bracket Exploded View and Part List



Pic (2)

Materials to Pic(2)

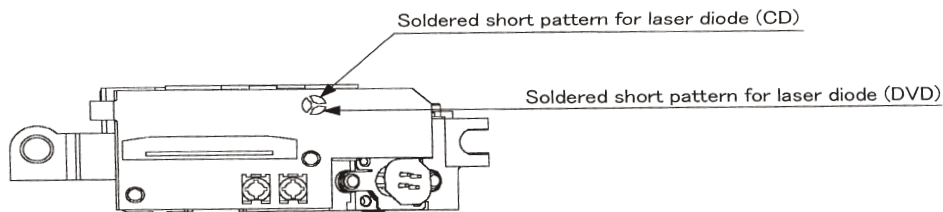
- | | |
|-----------------------------------|--------------------------|
| 1.bracket | 14. front silicon rubber |
| 2.belt | 15. Back silicon rubber |
| 3.screw | 16. Pick-up |
| 4.belt wheel | 17. Pick-up |
| 5.gearwheel | 18. switch |
| 6.iron chip | 19. Five-pin flat plug |
| 7. Immobility mechanism 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

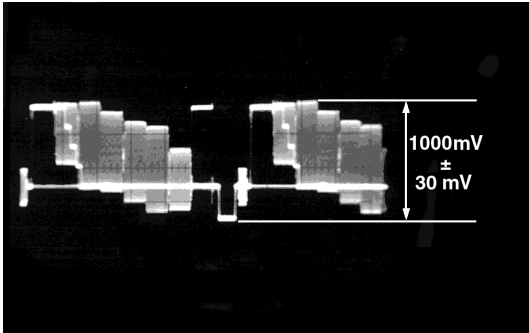
6.1. Video Output (Luminance Signal) Confirmation

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



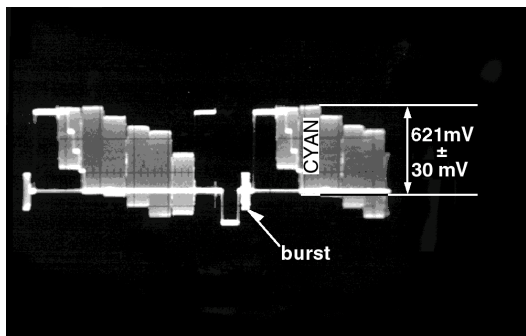
6.2 Video Output(Chrominance Signal) Confirmation

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	

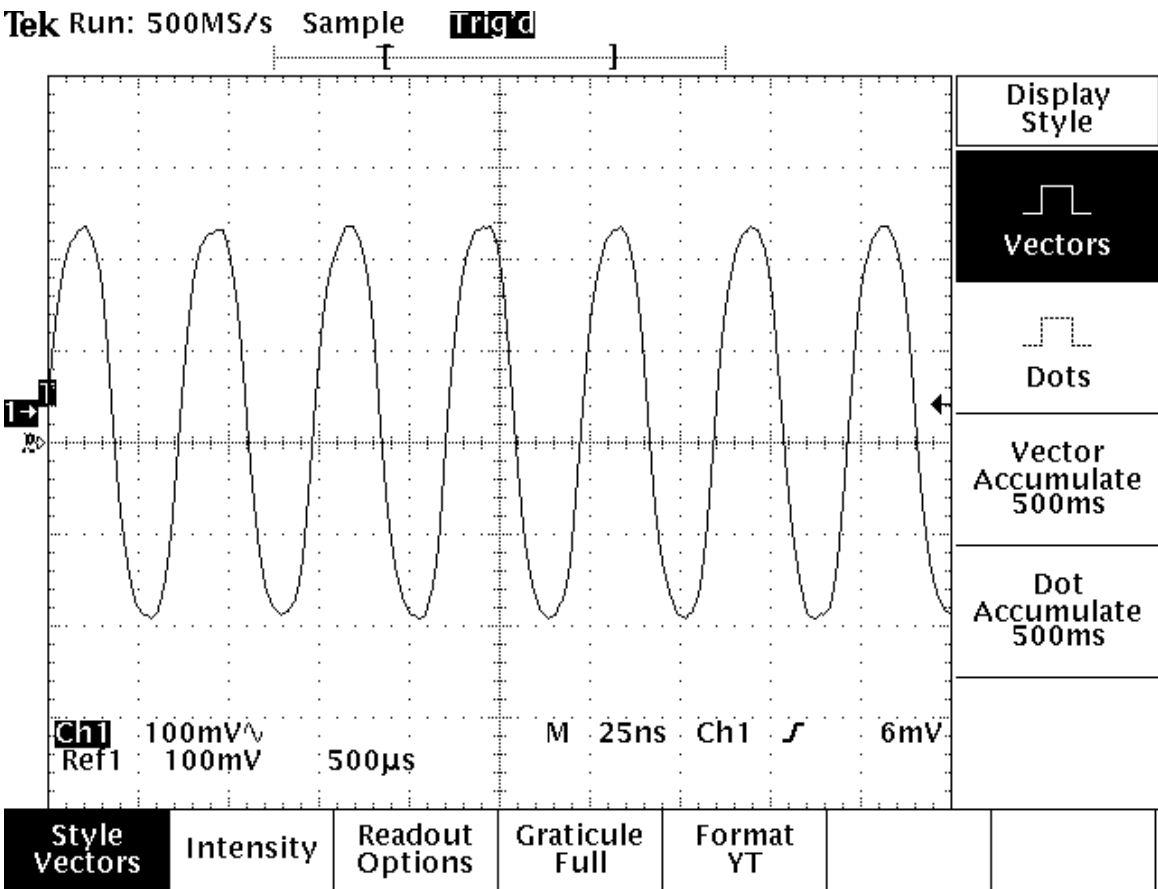
Purpose:To maintain video signal output compatibility.

- 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

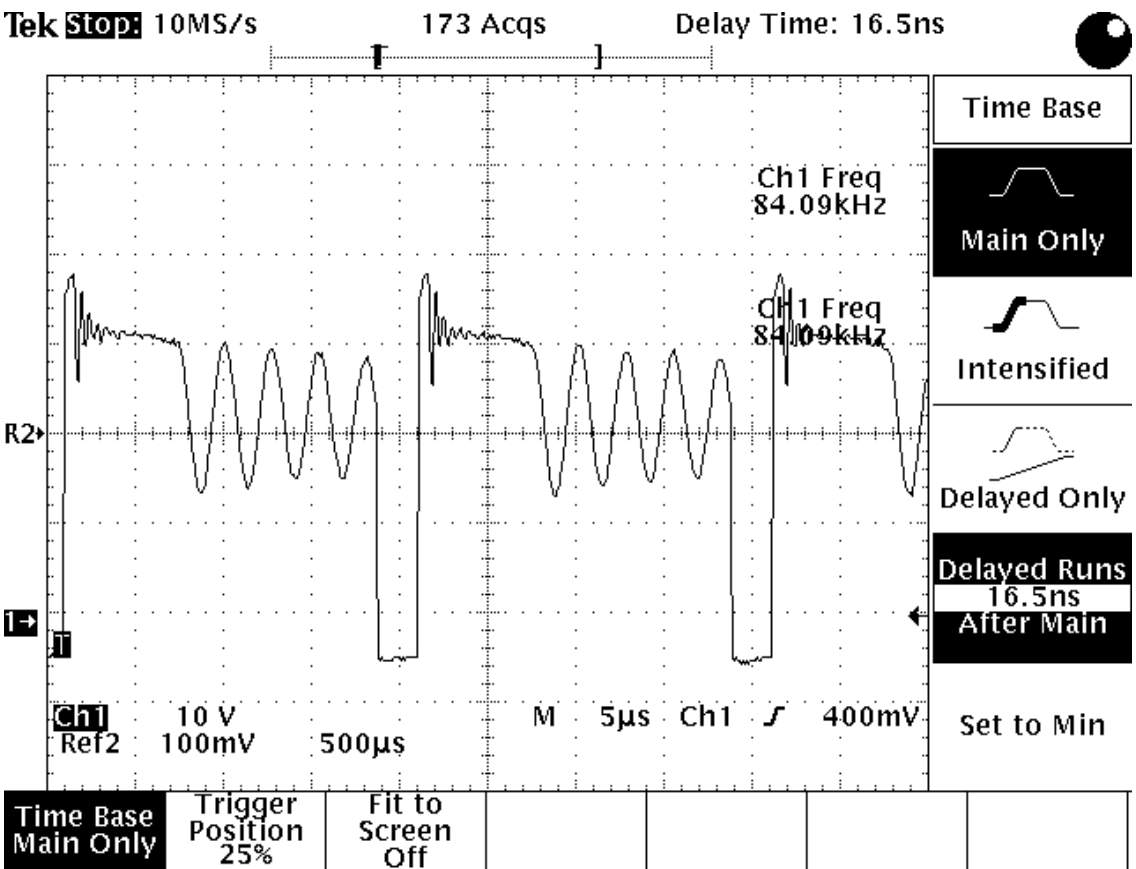


7.MPEG BOARD CHECK WAVEFORM

7.1 27MHz WAVEFORM



7.2 IC5L0380R PIN.2 WAVEFORM DIAGRAM

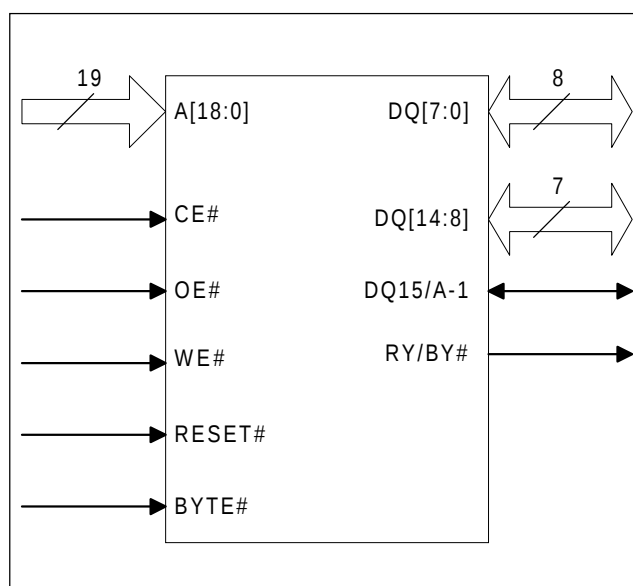


8. HY29LV800

KEY FEATURES

- **Single Power Supply Operation**
 - Read, program and erase operations from 2.7 to 3.6 volts
 - Ideal for battery-powered applications
- **High Performance**
 - 65, 90 and 120 ns access time versions
- **Ultra-low Power Consumption (Typical Values At 5 Mhz)**
 - Automatic sleep mode current: 0.2 μ A
 - Standby mode current: 0.2 μ A
 - Read current: 7 mA
 - Program/erase current: 15 mA
- **Flexible Sector Architecture:**
 - One 16 KB, two 8 KB, one 32 KB and fifteen 64 KB sectors in byte mode
 - One 8 KW, two 4 KW, one 16 KW and fifteen 32 KW sectors in byte mode
 - Top or bottom boot block configurations available
- **Sector Protection**
 - Allows locking of a sector or sectors to prevent program or erase operations within that sector
 - Sectors lockable in-system or via programming equipment
 - Temporary Sector Unprotect allows changes in locked sectors (requires high voltage on RESET# pin)
- **Fast Program and Erase Times**
 - Sector erase time: 0.7 sec typical for each sector
 - Chip erase time: 14 sec typical
 - Byte program time: 9 μ s typical
- **Unlock Bypass Program Command**
 - Reduces programming time when issuing multiple program command sequences
- **Automatic Erase Algorithm Preprograms and Erases Any Combination of Sectors or the Entire Chip**
- **Automatic Program Algorithm Writes and Verifies Data at Specified Addresses**
- **Compliant With Common Flash Memory Interface (CFI) Specification**
 - Flash device parameters stored directly on the device
 - Allows software driver to identify and use a variety of different current and future Flash products
- **Minimum 100,000 Write Cycles per Sector**
- **Compatible With JEDEC standards**
 - Pinout and software compatible with single-power supply Flash devices
 - Superior inadvertent write protection
- **Data# Polling and Toggle Bits**
 - Provide software confirmation of completion of program and erase operations
- **Ready/Busy# Pin**
 - Provides hardware confirmation of completion of program and erase operations
- **Erase Suspend/Erase Resume**
 - Suspends an erase operation to allow reading data from, or programming data to, a sector that is not being erased
 - Erase Resume can then be invoked to complete suspended erasure
- **Hardware Reset Pin (RESET#) Resets the Device to Reading Array Data**
- **Space Efficient Packaging**
 - 44-pin PSOP, 48-pin TSOP and 48-ball FBGA packages

LOGIC DIAGRAM



GENERAL DESCRIPTION

The HY29LV800 is an 8 Mbit, 3 volt-only, CMOS Flash memory organized as 1,048,576 (1M) bytes or 524,288 (512K) words that is available in 44-pin PSOP, 48-pin TSOP and reverse TSOP and 48-ball FBGA packages. Word-wide data (x16) appears on DQ[15:0] and byte-wide (x8) data appears on DQ[7:0].

The HY29LV800 can be programmed and erased in-system with a single 3 volt V_{CC} supply. Internally generated and regulated voltages are provided for program and erase operations, so that the device does not require a higher voltage V_{PP} power supply to perform those functions. The device can also be programmed in standard EPROM programmers. Access times as low as 65 ns over the full operating voltage range of 2.7 - 3.6 volts are offered for timing compatibility with the zero wait state requirements of high speed microprocessors. To eliminate bus contention, the HY29LV800 has separate chip enable (CE#), write enable (WE#) and output enable (OE#) controls.

The device is compatible with the JEDEC single-power-supply Flash command set standard. Commands are written to the command register using standard microprocessor write timings. They are then routed to an internal state-machine that controls the erase and programming circuits. Device programming is performed a byte/word at a time by executing the four-cycle Program Command write sequence. This initiates an internal algorithm that automatically times the program pulse widths and verifies proper cell margin. Faster programming times can be achieved by placing the HY29LV800 in the Unlock Bypass mode, which requires only two write cycles to program data instead of four.

The HY29LV800's sector erase architecture allows any number of array sectors to be erased and re-programmed without affecting the data contents of other sectors. Device erasure is initiated by executing the Erase Command sequence. This initiates an internal algorithm that automatically preprograms the array (if it is not already programmed) before executing the erase operation. As during programming cycles, the device automatically times the erase pulse widths and verifies proper cell margin. Hardware Sector Protection optionally disables both program and erase operations in any combination of the sectors of

the memory array, while Temporary Sector Unprotect allows in-system erasure and code changes in previously protected sectors. Erase Suspend enables the user to put erase on hold for any period of time to read data from, or program data to, any sector that is not selected for erasure. True background erase can thus be achieved. The device is fully erased when shipped from the factory.

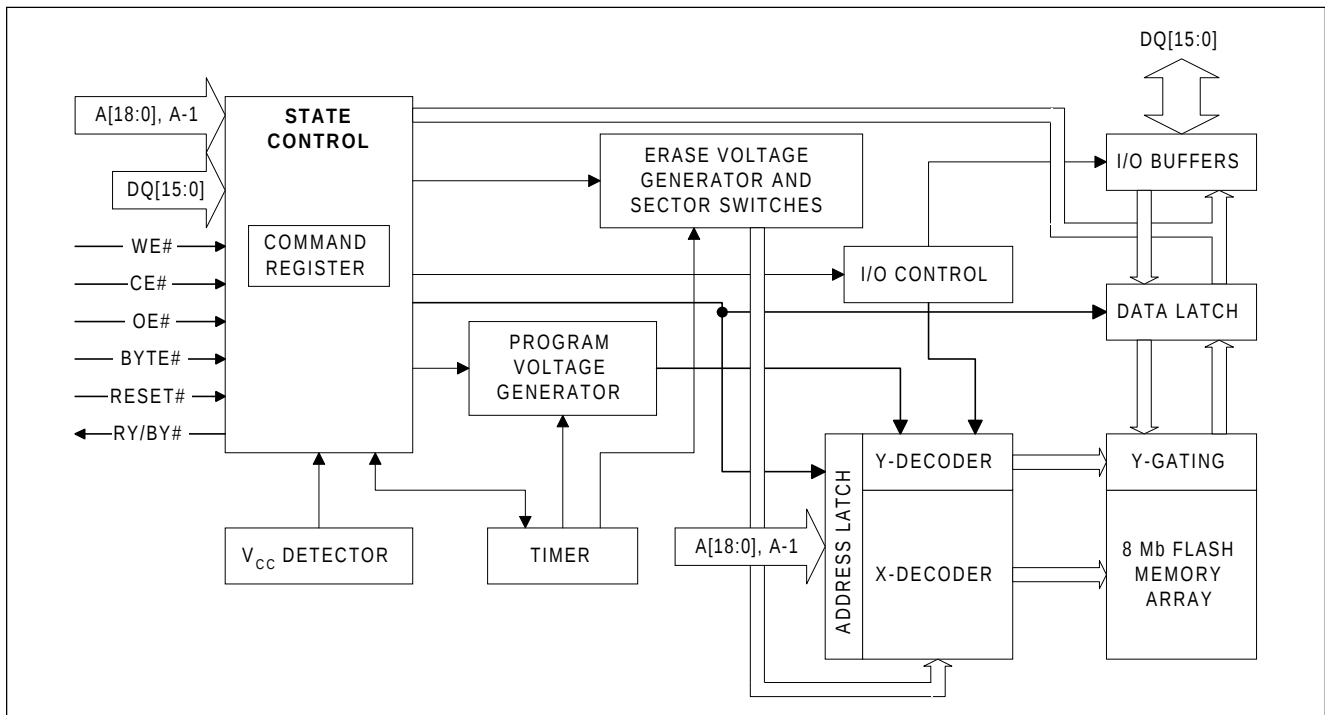
Addresses and data needed for the programming and erase operations are internally latched during write cycles, and the host system can detect completion of a program or erase operation by observing the RY/BY# pin, or by reading the DQ[7] (Data# Polling) and DQ[6] (toggle) status bits. Hardware data protection measures include a low V_{CC} detector that automatically inhibits write operations during power transitions.

After a program or erase cycle has been completed, or after assertion of the RESET# pin (which terminates any operation in progress), the device is ready to read data or to accept another command. Reading data out of the device is similar to reading from other Flash or EPROM devices.

Two power-saving features are embodied in the HY29LV800. When addresses have been stable for a specified amount of time, the device enters the automatic sleep mode. The host can also place the device into the standby mode. Power consumption is greatly reduced in both these modes.

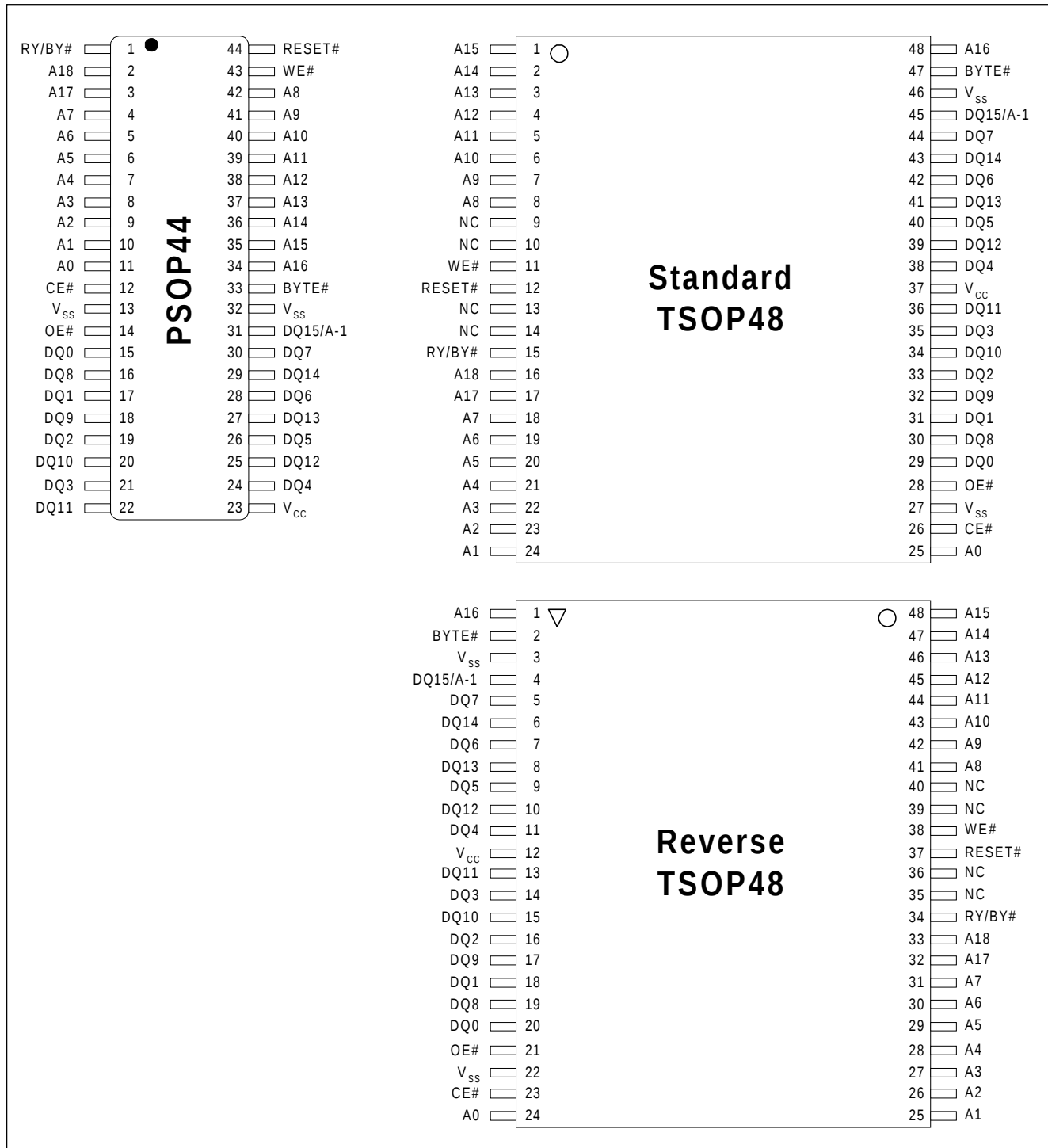
Common Flash Memory Interface (CFI)

To make Flash memories interchangeable and to encourage adoption of new Flash technologies, major Flash memory suppliers developed a flexible method of identifying Flash memory sizes and configurations in which all necessary Flash device parameters are stored directly on the device. Parameters stored include memory size, byte/word configuration, sector configuration, necessary voltages and timing information. This allows one set of software drivers to identify and use a variety of different, current and future Flash products. The standard which details the software interface necessary to access the device to identify it and to determine its characteristics is the Common Flash Memory Interface (CFI) Specification. The HY29LV800 is fully compliant with this specification.

BLOCK DIAGRAM**SIGNAL DESCRIPTIONS**

Name	Type	Description
A[18:0]	Inputs	Address, active High. These 19 inputs, combined with the DQ15/A-1 input (LSB) in byte mode, select one location within the array for read or write operations.
DQ[15]/A[-1], DQ[14:0]	Inputs/Outputs Tri-state	Data Bus, active High. These pins provide an 8- or 16-bit data path for read and write operations. In byte mode, DQ15/A-1 is used as the LSB of the 20-bit byte address input. DQ[14:8] are unused and remain tri-stated in byte mode.
BYTE#	Input	Byte Mode, active Low. Low selects byte mode, High selects word mode.
CE#	Input	Chip Enable, active Low. This input must be asserted to read data from or write data to the HY29LV800. When High, the data bus is tri-stated and the device is placed in the Standby mode.
OE#	Input	Output Enable, active Low. Asserted for read operations and negated for write operations. BYTE# determines whether a byte or a word is read during the read operation.
WE#	Input	Write Enable, active Low. Controls writing of commands or command sequences in order to program data or erase sectors of the memory array. A write operation takes place when WE# is asserted while CE# is Low and OE# is High.
RESET#	Input	Hardware Reset, active Low. Provides a hardware method of resetting the HY29LV800 to the read array state. When the device is reset, it immediately terminates any operation in progress. While RESET# is asserted, the device will be in the Standby mode.
RY/BY#	Output Open Drain	Ready/Busy Status. Indicates whether a write or erase command is in progress or has been completed. Remains Low while the device is actively programming data or erasing, and goes High when it is ready to read array data.
V _{CC}	--	3-volt power supply.
V _{SS}	--	Power and signal ground.

PIN CONFIGURATIONS



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512K x 16 Bits x 2 Banks (16-MBIT) SYNCHRONOUS DYNAMIC RAM

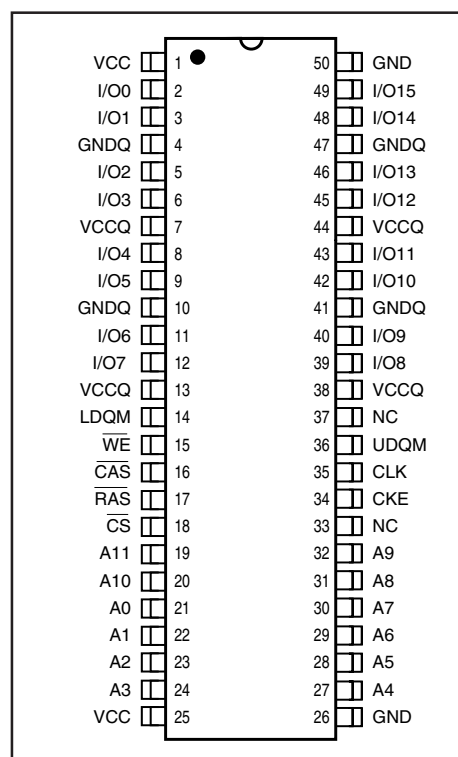
FEATURES

- Drive Strength for low capacitive bus loading
- Clock frequency: 166, 143, 125 MHz
- Fully synchronous; all signals referenced to a positive clock edge
- Two banks can be operated simultaneously and independently
- Dual internal bank controlled by A11 (bank select)
- Single 3.3V power supply
- LVTTL interface
- Programmable burst length
– (1, 2, 4, 8, full page)
- Programmable burst sequence:
Sequential/Interleave
- Auto refresh, self refresh
- 4096 refresh cycles every 64 ms
- Random column address every clock cycle
- Programmable $\overline{\text{CAS}}$ latency (2, 3 clocks)
- Burst read/write and burst read/single write operations capability
- Burst termination by burst stop and precharge command
- Byte controlled by LDQM and UDQM
- Package 400mil 50-pin TSOP-2

DESCRIPTION

ICSI's 16Mb Synchronous DRAM IC42S16101 is organized as a 524,288-word x 16-bit x 2-bank for improved performance. The synchronous DRAMs achieve high-speed data transfer using pipeline architecture. All inputs and outputs signals refer to the rising edge of the clock input.

PIN CONFIGURATIONS 50-Pin TSOP-2



PIN DESCRIPTIONS

A0-A11	Address Input
A0-A10	Row Address Input
A11	Bank Select Address
A0-A7	Column Address Input
I/O0 to I/O15	Data I/O
CLK	System Clock Input
CKE	Clock Enable
$\overline{\text{CS}}$	Chip Select
$\overline{\text{RAS}}$	Row Address Strobe Command

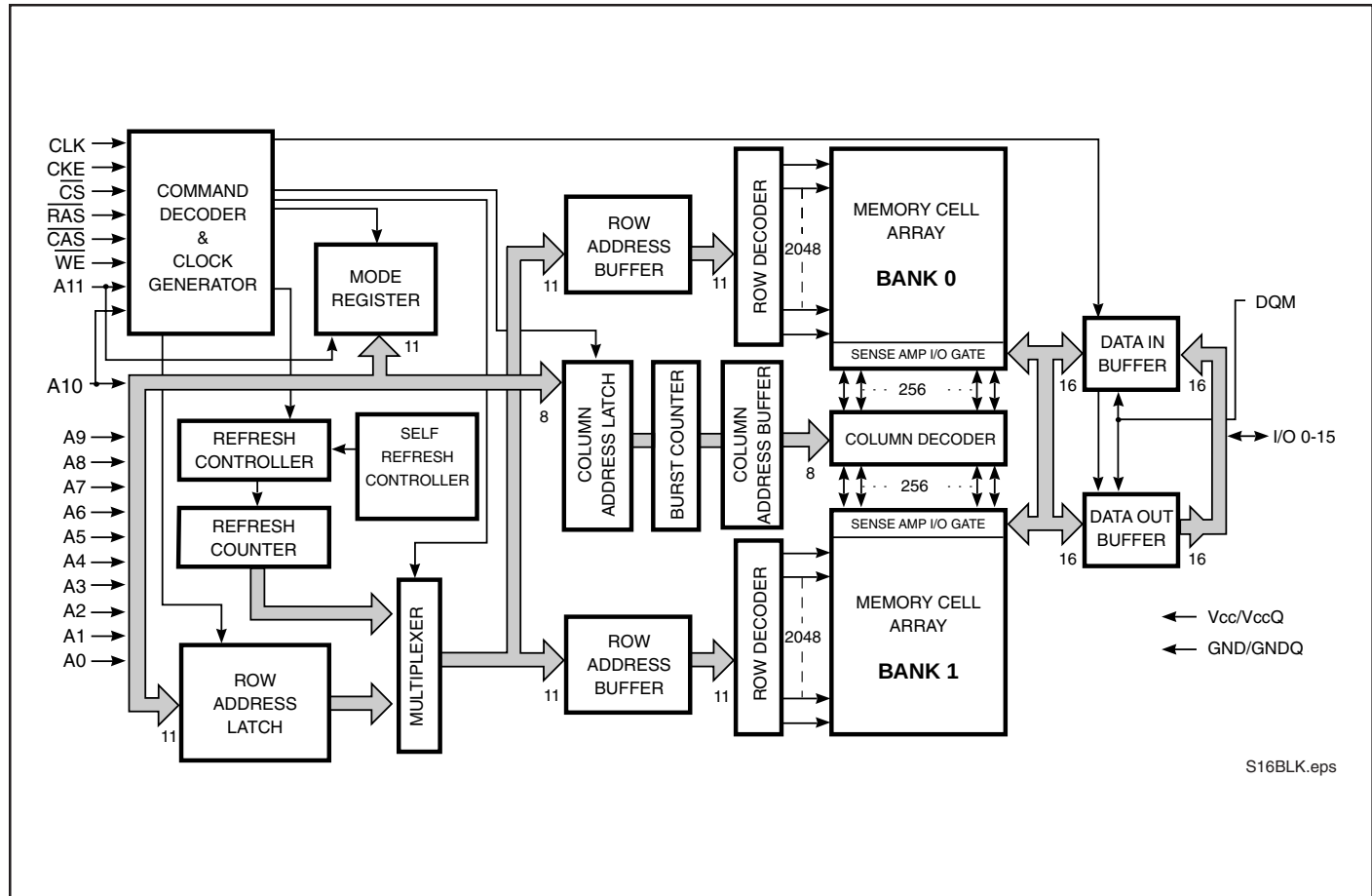
$\overline{\text{CAS}}$	Column Address Strobe Command
$\overline{\text{WE}}$	Write Enable
LDQM	Lower Byte, Input/Output Mask
UDQM	Upper Byte, Input/Output Mask
Vcc	Power
GND	Ground
VccQ	Power Supply for I/O Pin
GNDQ	Ground for I/O Pin
NC	No Connection

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PIN FUNCTIONS

Pin No.	Symbol	Type	Function (In Detail)
20 to 24 27 to 32	A0-A10	Input Pin	A0 to A10 are address inputs. A0-A10 are used as row address inputs during active command input and A0-A7 as column address inputs during read or write command input. A10 is also used to determine the precharge mode during other commands. If A10 is LOW during precharge command, the bank selected by A11 is precharged, but if A10 is HIGH, both banks will be precharged. When A10 is HIGH in read or write command cycle, the precharge starts automatically after the burst access. These signals become part of the OP CODE during mode register set command input.
19	A11	Input Pin	A11 is the bank selection signal. When A11 is LOW, bank 0 is selected and when high, bank 1 is selected. This signal becomes part of the OP CODE during mode register set command input.
16	$\overline{\text{CAS}}$	Input Pin	CAS, in conjunction with the $\overline{\text{RAS}}$ and $\overline{\text{WE}}$, forms the device command. See the "Command Truth Table" item for details on device commands.
34	CKE	Input Pin	The CKE input determines whether the CLK input is enabled within the device. When is CKE HIGH, the next rising edge of the CLK signal will be valid, and when LOW, invalid. When CKE is LOW, the device will be in either the power-down mode, the clock suspend mode, or the self refresh mode. The CKE is an asynchronous input.
35	CLK	Input Pin	CLK is the master clock input for this device. Except for CKE, all inputs to this device are acquired in synchronization with the rising edge of this pin.
18	$\overline{\text{CS}}$	Input Pin	The $\overline{\text{CS}}$ input determines whether command input is enabled within the device. Command input is enabled when $\overline{\text{CS}}$ is LOW, and disabled with $\overline{\text{CS}}$ is HIGH. The device remains in the previous state when $\overline{\text{CS}}$ is HIGH.
2, 3, 5, 6, 8, 9, 11 12, 39, 40, 42, 43, 45, 46, 48, 49	I/O0 to I/O15	I/O Pin	I/O0 to I/O15 are I/O pins. I/O through these pins can be controlled in byte units using the LDQM and UDQM pins.
14, 36	LDQM, UDQM	Input Pin	LDQM and UDQM control the lower and upper bytes of the I/O buffers. In read mode, LDQM and UDQM control the output buffer. When LDQM or UDQM is LOW, the corresponding buffer byte is enabled, and when HIGH, disabled. The outputs go to the HIGH impedance state when LDQM/UDQM is HIGH. This function corresponds to $\overline{\text{OE}}$ in conventional DRAMs. In write mode, LDQM and UDQM control the input buffer. When LDQM or UDQM is LOW, the corresponding buffer byte is enabled, and data can be written to the device. When LDQM or UDQM is HIGH, input data is masked and cannot be written to the device.
17	$\overline{\text{RAS}}$	Input Pin	RAS, in conjunction with $\overline{\text{CAS}}$ and $\overline{\text{WE}}$, forms the device command. See the "Command Truth Table" item for details on device commands.
15	$\overline{\text{WE}}$	Input Pin	WE, in conjunction with $\overline{\text{RAS}}$ and $\overline{\text{CAS}}$, forms the device command. See the "Command Truth Table" item for details on device commands.
7, 13, 38, 44	VccQ	Power Supply Pin	VccQ is the output buffer power supply.
1, 25	Vcc	Power Supply Pin	Vcc is the device internal power supply.
4, 10, 41, 47	GNDQ	Power Supply Pin	GNDQ is the output buffer ground.
26, 50	GND	Power Supply Pin	GND is the device internal ground.

FUNCTIONAL BLOCK DIAGRAM



8.2 MT1389

MT1389

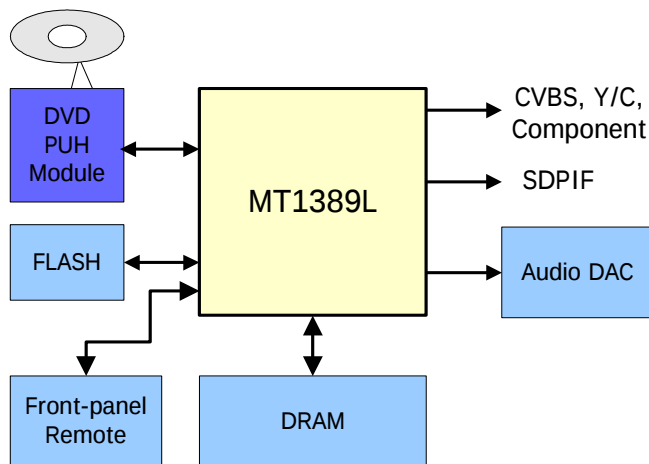
Progressive-Scan DVD Player SOC

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

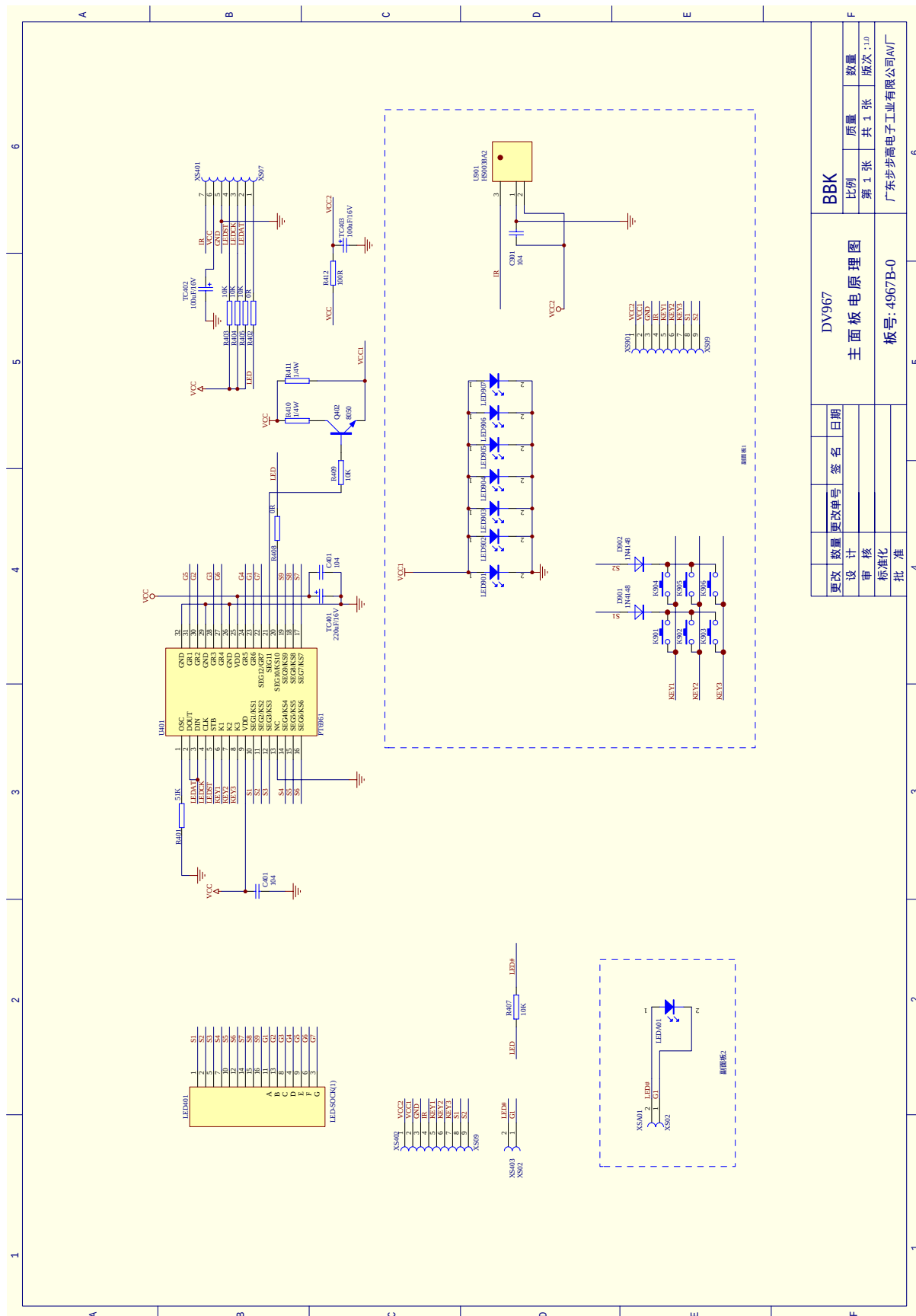
General Feature List

- 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

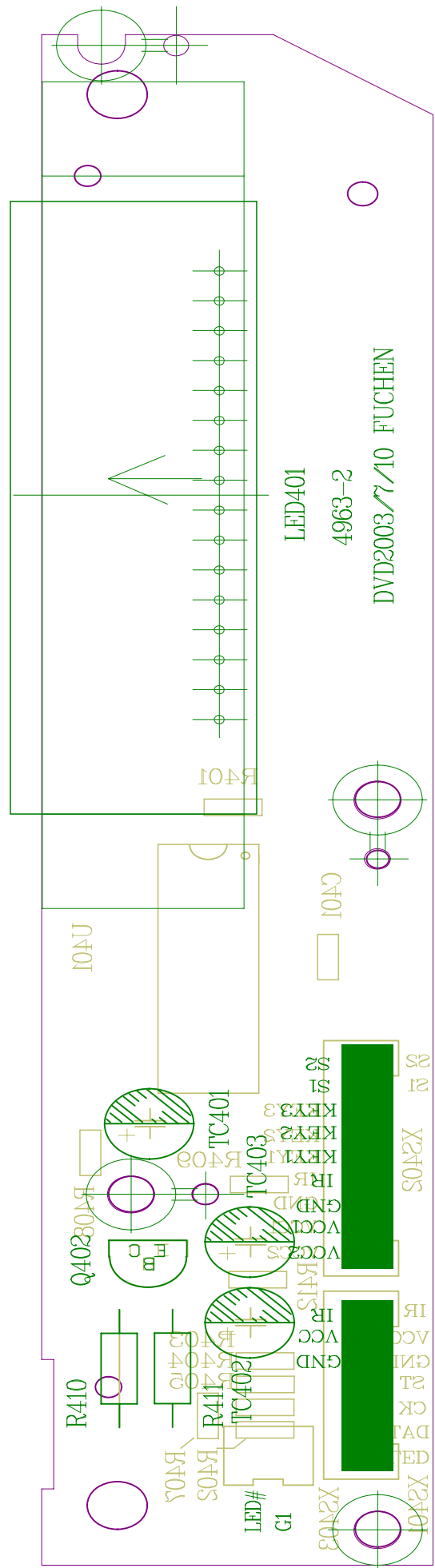
- Audio Effect Processing
 - Dolby Digital (AC-3)/EX decoding
 - DTS/DTS-ES decoding
 - MLP decoding for DVD-Audio
 - MPEG-1 layer 1/layer 2 audio decoding
 - MPEG-2 layer1/layer2 2-channel audio
 - High Definition Compatible Digital (HDCD)
 - Windows Media Audio (WMA)
 - Advanced Audio Coding (AAC)
 - 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

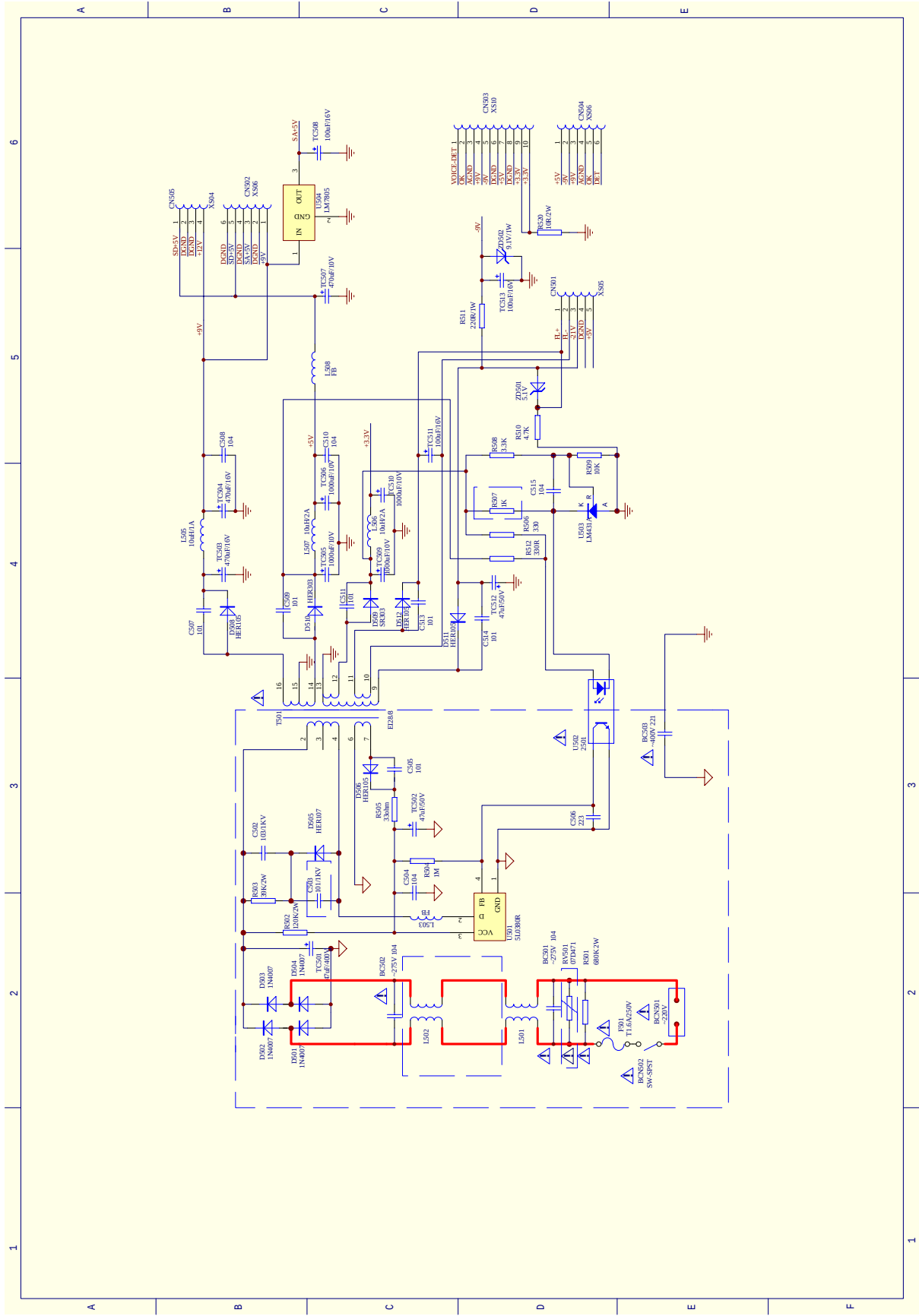
FRONT SCHEMATIC DIAGRAM



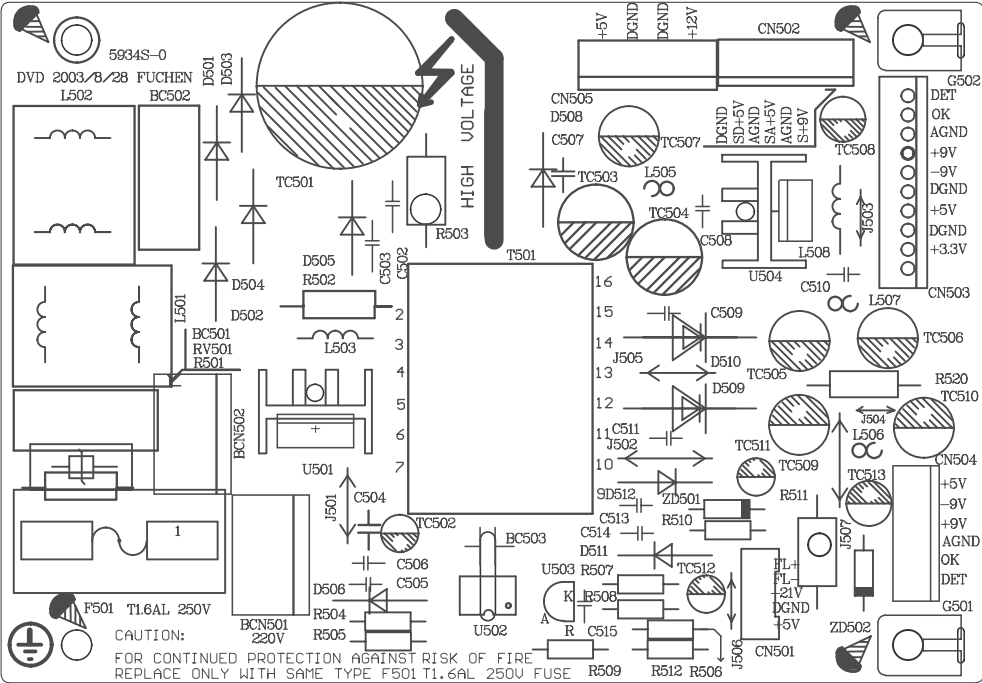
FRONT SCHEMATIC DIAGRAM



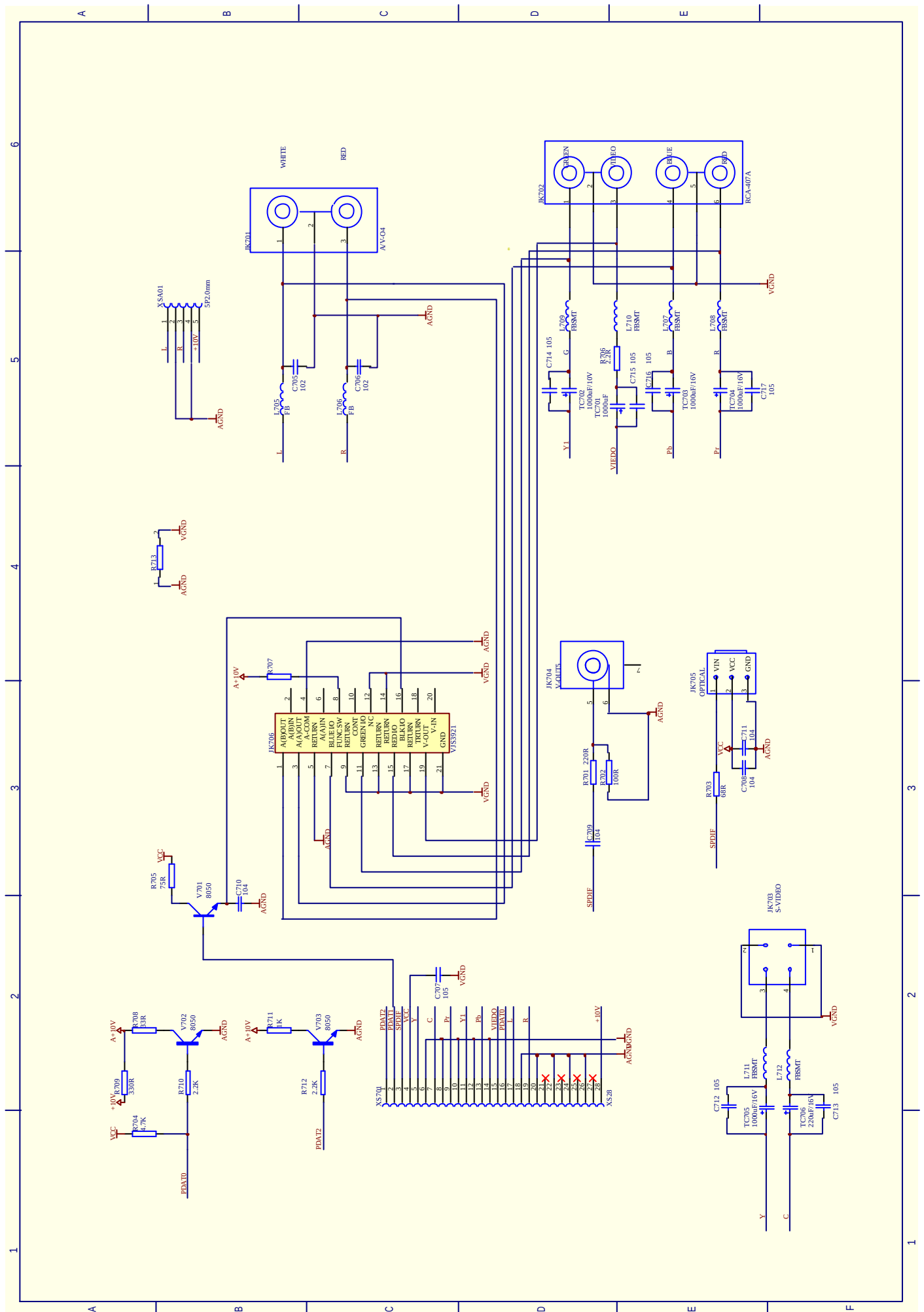
POWER BOARD SCHEMATIC DIAGRAM



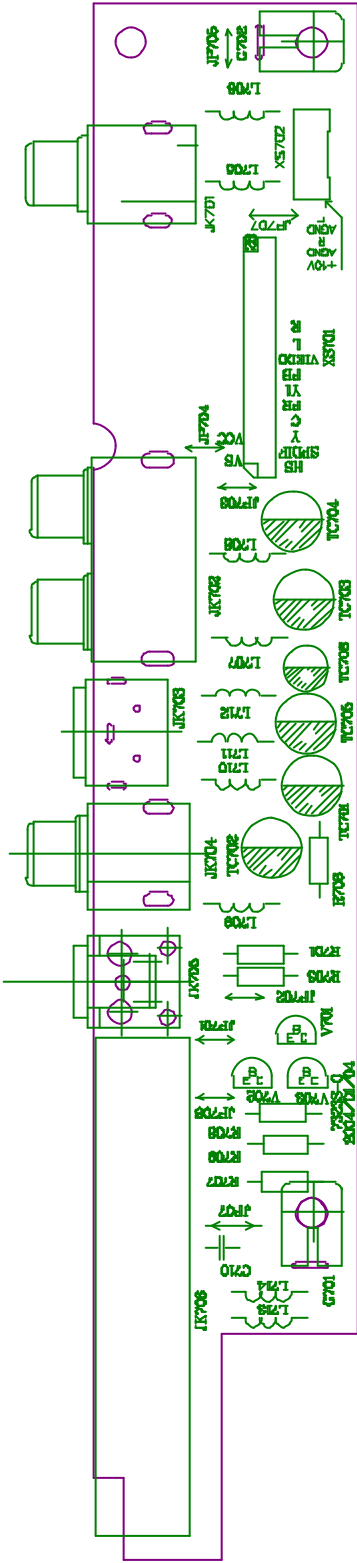
POWER BOARD SCHEMATIC DIAGRAM

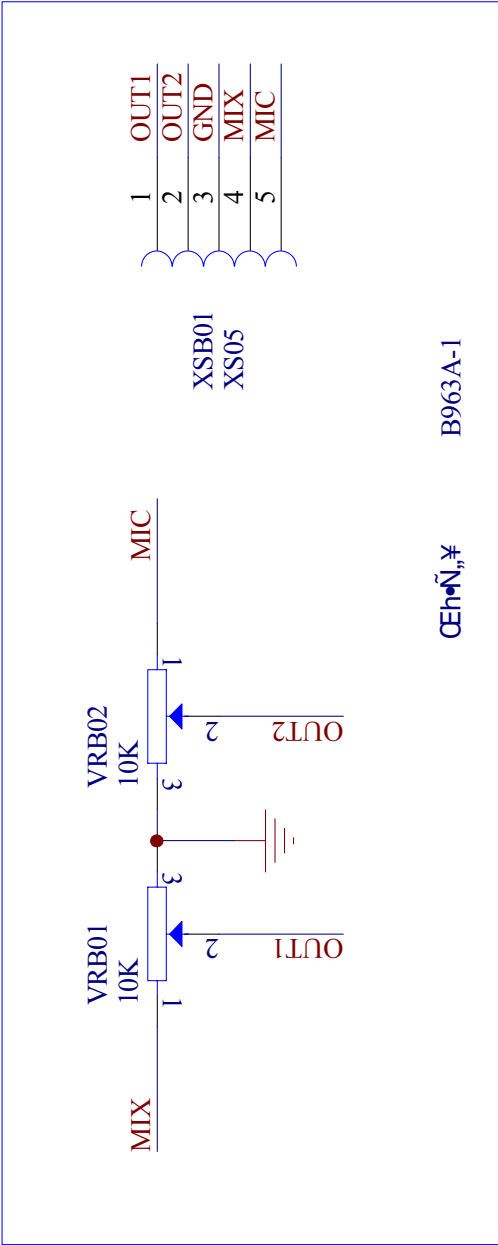


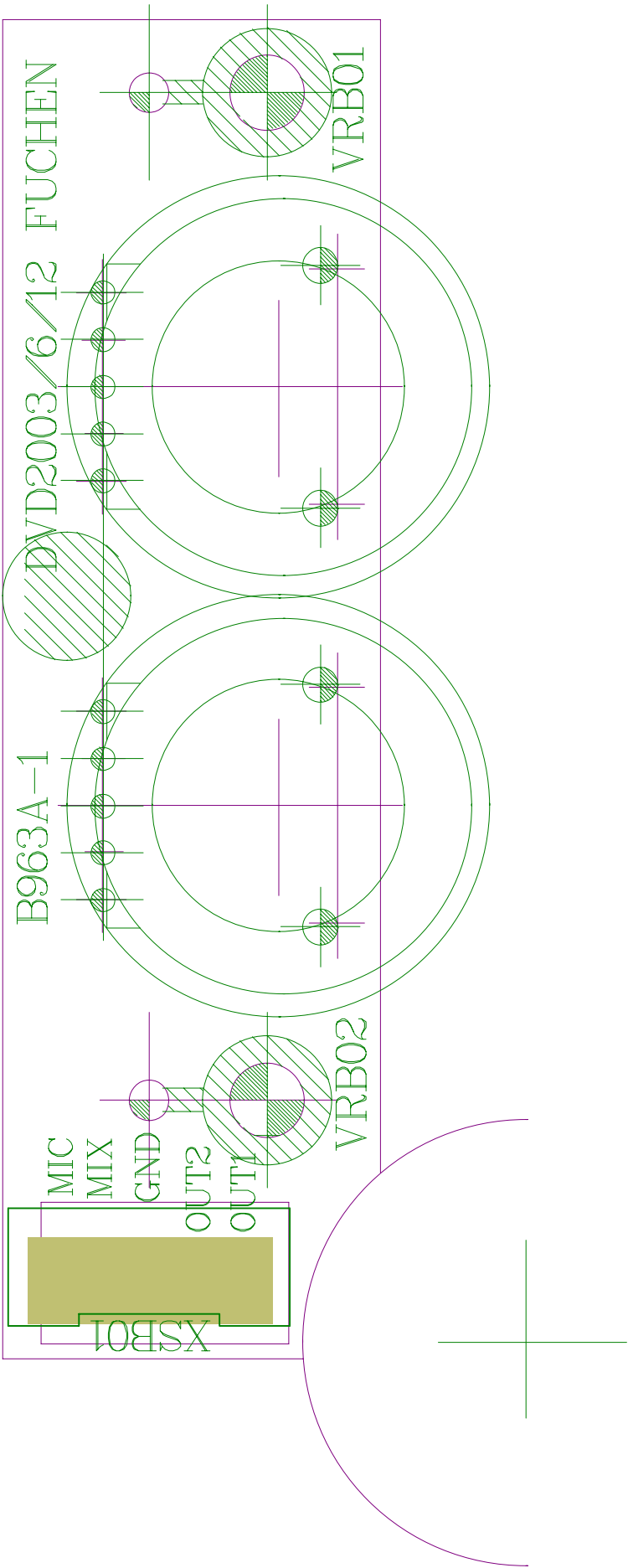
OUTPUT BOARD SCHEMATIC DIAGRAM



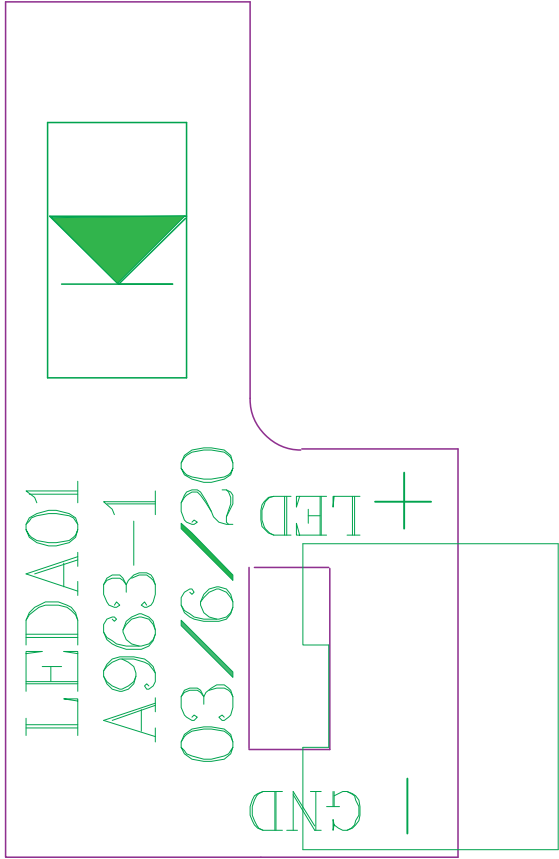
OUTPUT BOARD SCHEMATIC DIAGRAM



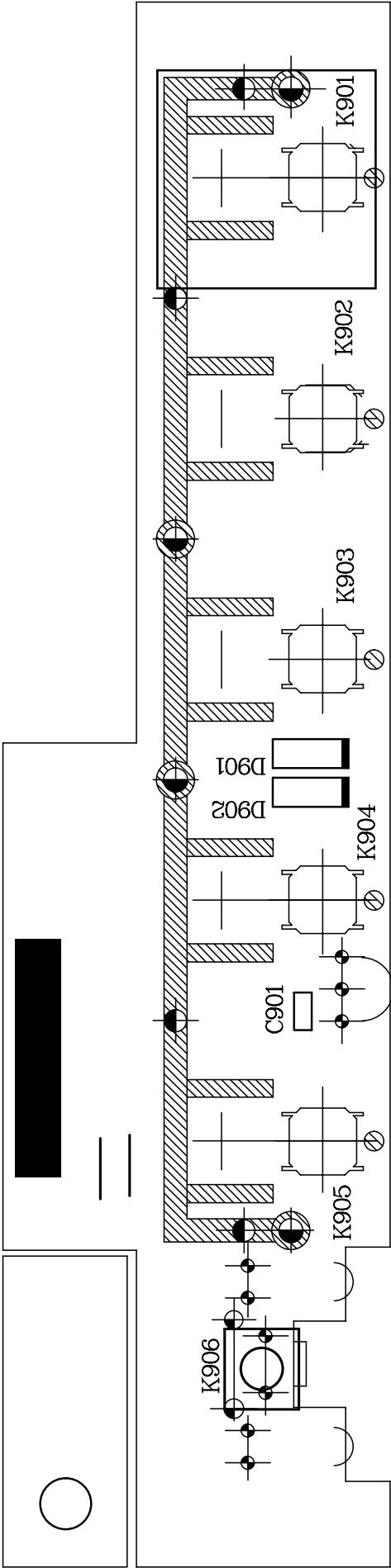


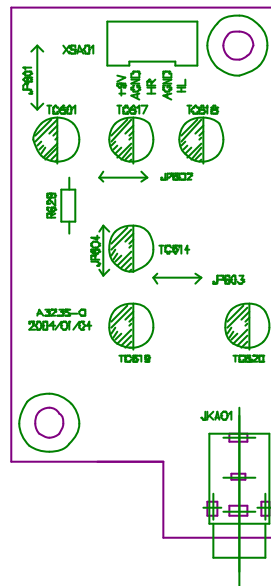


A963-1
Material:FR4
T=1.0mm

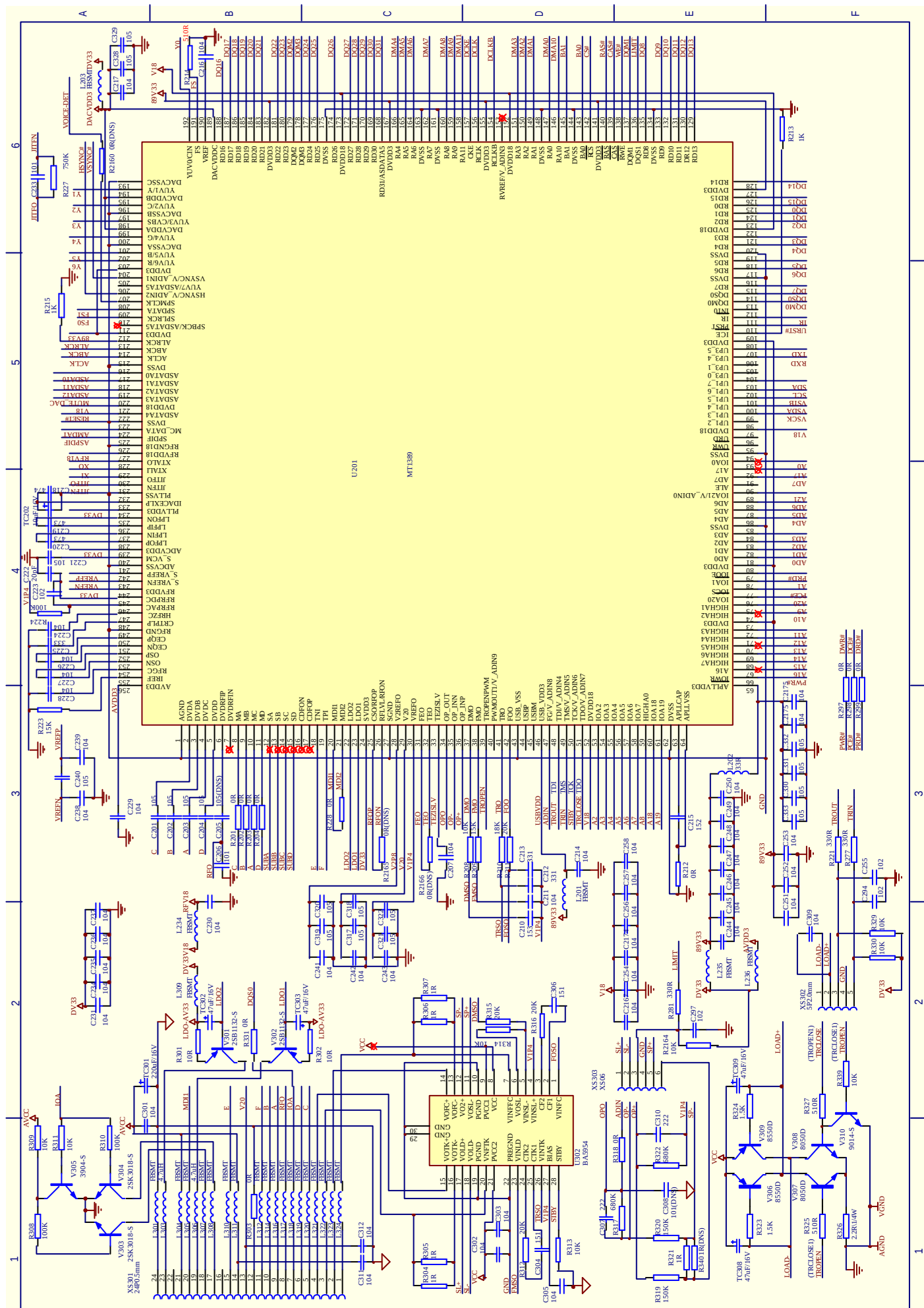


SUBSIDIARY BOARD 2

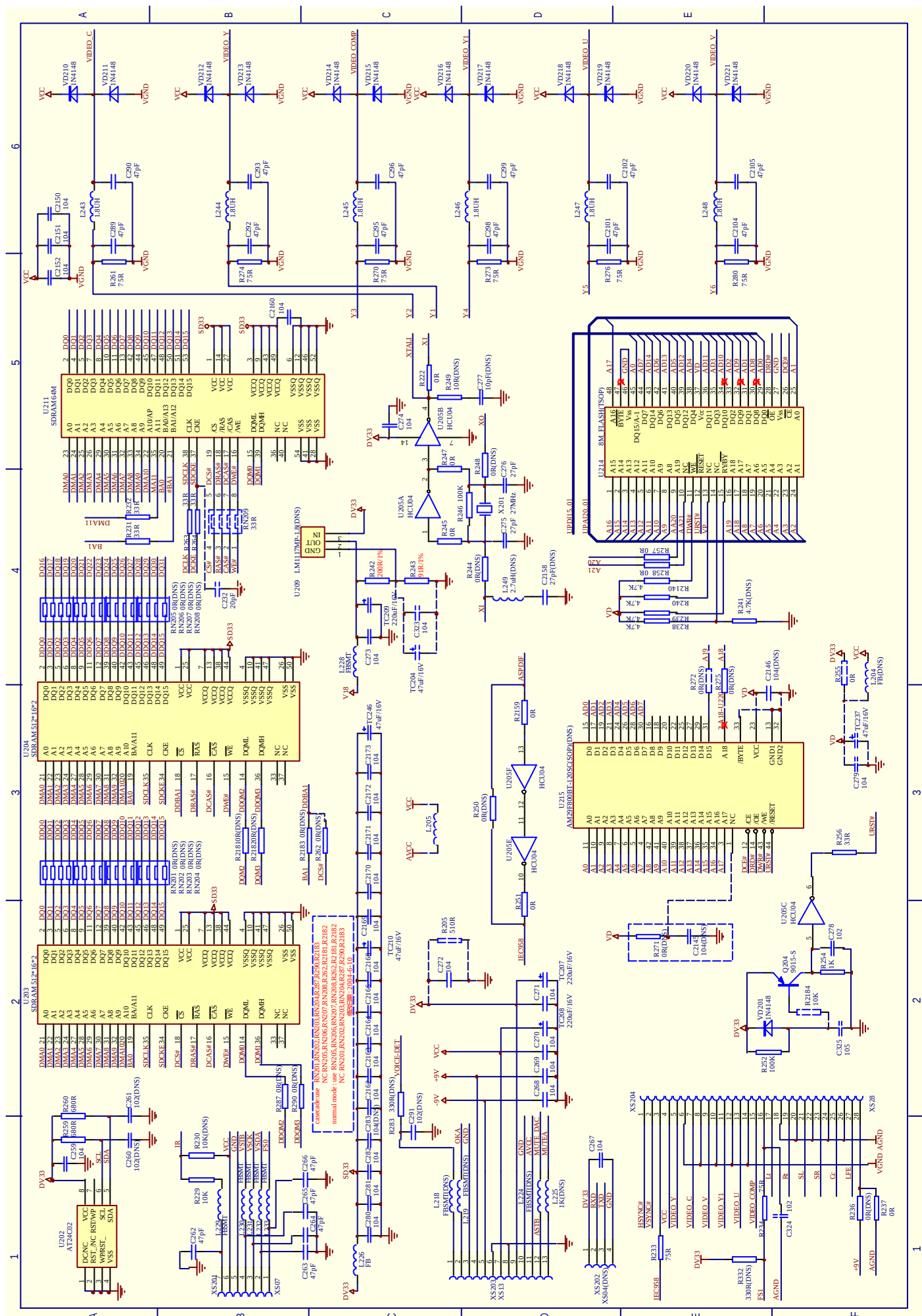




MIAN SCHEMATIC DIAGRAM



MIAN SCHEMATIC DIAGRAM



10. SPARE PARTS LIST

DV324S MATERIAL LIST

1. MAIN PANEL

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
5231783	SOFT SPONGE SPACER	16×8×4 DOUBLE-FACED HARD	PCS	2	CONNECT DISPLAY SCREEN AND PANEL PCB
0260206	CD	CD11C 10V100U±20%5×7 2	PCS	3	TC401,TC402,TC403
1200415	DISPLAY SCREEN	LTG-0275G	PCS	1	LED401
0881426	IC	PT6961 SOP	PCS	1	U401
1940027	SOCKET	2P 2.0mm	PCS	1	XS403
1940044	SOCKET	9P 2.0mm	PCS	1	XS402
1940005	SOCKET	6P 2.0mm	PCS	1	XS401
0090181	SMD RESISTOR	1/16W 100Ω ±5%	PCS	1	R412
0090002	SMD RESISTOR	1/16W 2.2Ω ±5%	PCS	1	R408
0090023	SMD RESISTOR	1/16W 10K ±5%	PCS	3	R403,R404,R405
0090192	SMD RESISTOR	1/16W 51K ±5%	PCS	1	R401
0310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	1	C401
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	PCS	1	C401
1631138	PCB	4963-2	PCS	1	

1. POWER BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
0000273	CARBON FILM RESISTOR	1/4W33Ω±5% SHAPED 10	PCS	1	R505
0000278	CARBON FILM RESISTOR	1/4W330Ω±5% SHAPED 10	PCS	1	R506
0010134	METAL OXIDE FILM RESISTOR	1W330Ω±5% SHAPED R 15×8	PCS	1	R511
0000294	CARBON FILM RESISTOR	1/4W10K±5% SHAPED 10	PCS	1	R507
0000310	CARBON FILM RESISTOR	1/4W1MΩ±5% SHAPED 10	PCS	1	R504
0010128	METAL FILM RESISTOR	1/4W 3.9K ±1% SHAPED 10	PCS	1	R508
0010101	METAL FILM RESISTOR	1/4W12K±1% SHAPED 10	PCS	1	R509
0010135	METAL OXIDE FILM RESISTOR	2W39K±5% SHAPED FLAT 15×9	PCS	1	R503
0010159	METAL OXIDE FILM RESISTOR	2W39K±5% SHAPED FLAT 15×7	PCS	1	R503
10148	METAL OXIDE FILM RESISTOR	2W120K±5% SHAPE DFLAT 15×7	PCS	1	R502
0070001	HIGH VOLTAGE RESISTOR	1/2W680K±5%	PCS	1	R501
0200105	PORCELAIN CAPACITOR	50V 100P ±10% 5mm	PCS	5	C505,C507,C509,C511,C514
0200138	PORCELAIN CAPACITOR	50V 104 ±20% 5mm	PCS	4	C504,C508,C510,C515
200223	PORCELAIN CAPACITOR	1000V 101 +80%-20% 7.5mm	PCS	1	C503
0200228	PORCELAIN CAPACITOR	1000V 101 ±10% 7.5mm	PCS	1	C503
0200224	PORCELAIN CAPACITOR	1000V 103 +80%-20% 7.5mm	PCS	1	C502
0200267	CERAMIC CAPACITOR	CT81 250VAC221±20% 10mm	PCS	1	BC503
0200268	CERAMIC CAPACITOR	CT81 250VAC221±10% 10mm	PCS	1	BC503
210023	TERYLENE CAPACITOR	100V 223 ±10% 5mm	PCS	1	C506
0210066	TERYLENE CAPACITOR	275V 104 ±20% 15mm	PCS	1	BC501
0210070	TERYLENE CAPACITOR	275V 104 ±10% 15mm	PCS	1	BC501
0260557	CD	CD11T 16V100u±20%6×12 2.5	PCS	2	TC508,TC513
0260558	CD	CD11T 25V470u±20%10×16 5	PCS	2	TC503,TC504
0260559	CD	CD11T 50V47u±20%6×12 2.5	PCS	2	TC502,TC512
0260560	CD	CD11T 10V1000u±20%8×16 3.5	PCS	4	TC505,TC506,TC509,TC510
0260527	CD	CD294 400V47U±20%22×25 10	PCS	1	TC501
0390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	1	L503
0410010	CHOKE COIL	VERTICAL 10UH 1A 5mm	PCS	1	L505
0410011	CHOKE COIL	VERTICAL 10UH 2A 5mm	PCS	2	L506,L507
0460282	SWITCHING POWER TRANSFORMER	BCK-28-0286	PCS	1	T501
0460283	SWITCHING POWER TRANSFORMER	BCK2801-624	PCS	1	T501
0570013	DIODE	HER105	PCS	3	D506,D508,D511
0570028	DIODE	HER306	PCS	1	D510
680007	SCHOTTKY DIODE	SR360	PCS	1	D509
0570014	DIODE	HER107	PCS	1	D505
0570005	DIODE	1N4007	PCS	4	D501~D504
0580054	VOLTAGE REGULATOR DIODE	9.1V 1W	PCS	1	ZD502
880765	IC	5L0380R YDTU	PCS	1	U501
0880553	IC	LM431ACZ TO-92	PCS	1	U503

0880581	IC	TL431C TO-226AA(LP)	PCS	1	U503
0880800	IC	431L TO-92	PCS	1	U503
0880888	IC	KA431AZ TO-92	PCS	1	U503
1000004	POWER GRID FILTER	UT-20 40mH ±20% 10×13	PCS	1	L501
1080011	PHOTOELECTRIC COUPLER	HS817	PCS	1	U502
0880379	IC	LM7805 GOLD SEALED TO-220	PCS	1	U504
1562710	PCB	5934S-0	PCS	1	
1940029	SOCKET	9P 2.5mm	PCS	1	CN503
1940001	SOCKET	2P 2.5mm	PCS	1	CN502
1940006	SOCKET	6P 2.5mm	PCS	1	CN504
1940045	SOCKET	2P 8.0mm 2#	PCS	2	BCN501,BCN502
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	2	J506,J503
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	4	L502,J501,J505
2100006	CONNECTION CORDS	Φ0.6 SHAPED 12.5mm	PCS	2	J507,J502
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	1	J504
2300007	FUSE	T1.6AL 250V	PCS	1	F501
3020402	FUSE	BLX-2	PCS	1	FOR F501
3580039	HEAT RADIATION BOARD	11×15×25 AB009K	PCS	2	U501,U504 FOR HEAT RADIATION
3580054	HEAT RADIATION BOARD	11×15×25 WHITE AB905	PCS	2	U501,U504 FOR HEAT RADIATION
3870115	GROUND CHIP OF POWER BOARD	AB903	PCS	2	G501~G502
4000073	TAPPING SCREW	BT 3×8 BLACK	PCS	2	FIXED HEAT RADIATION BOARD

1. HEADPHONE BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
0090009	SMD RESISTOR	1/16W 330Ω ±5% 0603	PCS	1	R601
90014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	2	R625,R626
0090018	SMD RESISTOR	1/16W 3.3K ±5% 0603	PCS	1	R630
0090224	SMD RESISTOR	1/16W 3.9K ±5% 0603	PCS	2	R631, R632
0090184	SMD RESISTOR	1/16W 4.3K ±5% 0603	PCS	2	R633, R634
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	2	R635,R636
0090030	SMD RESISTOR	1/16W 56K ±5% 0603	PCS	2	R627,R628
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	2	C616, C617
0310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	3	C604,C605,C623
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	PCS	3	C604,C605,C623
0310222	SMD CAPACITOR	25V 104 ±20% X7R 0603	PCS	3	C604,C605,C623
0000339	CARBON FILM RESISTOR	1/6W3.3K±5% SHAPED 7.5	PCS	1	R629
0260094	CD	CD110 16V47U±20%5×11 2	PCS	3	TC614,TC617,TC618
0260025	CD	CD11 16V47U±20%5×11 2	PCS	3	TC614,TC617,TC618
0260200	CD	CD11C 16V47U±20%5×7 2	PCS	3	TC614,TC617,TC618
260327	CD	GZ16V100U±20%6×12 2.5	PCS	2	TC619, TC620
0260027	CD	CD11 16V100U±20%6×12 2.5	PCS	2	TC619, TC620
0260096	CD	CD110 16V100U±20%6×12 2.5	PCS	2	TC619, TC620
0260175	CD	CD11C 16V100U±20%-15%6×7 2.5	PCS	2	TC619, TC620
260201	CD	CD11C 16V100U±20%6×7 2.5	PCS	2	TC619, TC620
0260237	CD	CD11 10V1000U±20%8×14 3.5	PCS	1	TC601
0260352	CD	GS 10V1000U±20%8×14 3.5	PCS	1	TC601
0700020	SMD VOLTAGE REGULATOR DIODE	6.2V ±5% 1/2W	PCS	1	ZD601
0780085	SMD TRIODE	8050D	PCS	1	Q601
881537	IC	TDA1308 SOP	PCS	1	U603
2121744	FLAT CABLE	5P200 2.0 2PLUG WITH L NEEDLE THE SAME DIRECTION	PCS	1	XSA01
1563579	PCB	A323S-0	PCS	1	
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	1	JP601
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	3	JP602 ~ JP604
1980046	HEADPHONE SOCKET	ST-301-030-100	PCS	1	JKA01

1. SUBSIDIARY OK BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
0160159	ROTATED POTENTIOMETER	WHE101N-2-B10K±20%	PCS	1	VRB02
0160160	ROTATED POTENTIOMETER	WHE101N-2-B50K±20%	PCS	1	VRB01
2120397	FLAT CABLE	5P100 2.0 2PLUG WITH L NEEDLE REVERSE	PCS	1	XSB01

1562556	PCB	B963A-1	PCS	1	

1. OK BOARD P

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
18	CARBON FILM RESISTOR	1/6W560Ω±5%	PCS	2	R603,R604
0090014	SMD RESISTOR	1/16W 1K ±5%	PCS	3	R607,R608,R619
0000022	CARBON FILM RESISTOR	1/6W1K±5%	PCS	2	R611,R626
0000133	CARBON FILM RESISTOR	1/6W4.7K±5% SHAPED 7.5	PCS	2	R622,R628
0090020	SMD RESISTOR	1/16W 5.1K ±5%	PCS	1	R616
90023	SMD RESISTOR	1/16W 10K ±5%	PCS	5	R605,R606,R617,R621,R624
0000040	CARBON FILM RESISTOR	1/6W10K±5%	PCS	2	R612,R620
0090026	SMD RESISTOR	1/16W 22K ±5%	PCS	2	R602,R601
0000118	CARBON FILM RESISTOR	1/6W10Ω±5% SHAPED 7.5	PCS	2	R632,R633
0090024	SMD RESISTOR	1/16W 15K ±5%	PCS	2	R614,R618
0090188	SMD RESISTOR	1/16W 18K ±5%	PCS	1	R615
0000048	CARBON FILM RESISTOR	1/6W27K±5%	PCS	1	R629
0090189	SMD RESISTOR	1/16W 30K ±5%	PCS	3	R613,R609,R610
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	4	C607,C620,C605,C606
0310197	SMD CAPACITOR	50V 561 ±10% 0603	PCS	2	C610,C612
0310072	SMD CAPACITOR	50V 103 ±10% 0603	PCS	4	C603,C604,C616,C619
0310207	SMD CAPACITOR	50V104 ±20% 0603	PCS	7	C601,C602,C609,C622,C623,C613,C614
0310323	SMD CAPACITOR	50V 392 ±10% 0603	PCS	2	C608,C615
0260021	CD	CD11 16V22U±20%5×11 2	PCS	2	TC605,TC606
260258	CD	CD11 10V47U±20%5×7 2	PCS	1	TC609
0260200	CD	CD11C 16V47U±20%5×7 2	PCS	1	TC609
0260040	CD	CD11 25V100U±20%6×12 2.5	PCS	3	TC615,TC616,TC608
0260127	CD	CD11 16V4.7U±20%5×11 2	PCS	9	TC601~TC604,TC610,TC611,TC613,TC621,TC607
390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	2	L601,L602
0880124	IC	NJM4558D DIP	PCS	2	U601,U602
0880230	IC	PT2399 DIP	PCS	1	U603
1562466	PCB	6963A-1	PCS	1	
2120807	FLAT CABLE	6P90 2.5 2PLUG WITH L NEEDLE REVERSE	PCS	1	XS601
1940024	SOCKET	5P 2.0mm	PCS	1	XS602
1980034	MIC SOCKET	CK3-6.35-4	PCS	2	MIC601,MIC602
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	4	JP601~JP604

1. AV BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	6	C712~C717
0000171	CARBON FILM RESISTOR	1/4W68Ω±5%	PCS	1	R703
0090181	SMD RESISTOR	1/16W 100Ω ±5% 0603	PCS	1	R702
0000181	CARBON FILM RESISTOR	1/4W220Ω±5%	PCS	1	R701
0000185	CARBON FILM RESISTOR	1/4W330Ω±5%	PCS	1	R709
0000268	CARBON FILM RESISTOR	1/4W2.2Ω±5% SHAPED 10	PCS	1	R706
0090014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	1	R711
0000167	CARBON FILM RESISTOR	1/4W33Ω±5%	PCS	1	R708
90017	SMD RESISTOR	1/16W 2.2K ±5% 0603	PCS	2	R710,R712
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	1	R704
0090006	SMD RESISTOR	1/16W 75Ω ±5% 0603	PCS	1	R705
0310066	SMD CAPACITOR	50V 102 ±10% 0603	PCS	2	C705,C706
310234	SMD CAPACITOR	16V 105 +80%-20% 0603	PCS	1	C707
0200138	SMD CAPACITOR	50V 104 ±20% 5mm	PCS	1	C710
0200139	SMD CAPACITOR	50V 104 +80%-20% 5mm	PCS	1	C710
0310057	SMD CAPACITOR	16V 104 ±10% 0603	PCS	2	C708,C709
0780050	TRIODE	S8050D	PCS	3	V701~V703
390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	8	L705~L712
1090045	ELECTRO-OPTIC TRANSFORMER	TX179ATW	PCS	1	JK705
1090024	ELECTRO-OPTIC TRANSFORMER	TX179AT	PCS	1	JK705
1910094	TERMINAL SOCKET	AV4-8.4-6G-5	PCS	1	JK702
1910062	TERMINAL SOCKET	AV2-8.4--6G	PCS	1	JK701
1860029	SCART SOCKET	SCART-01	PCS	1	JK706
1940140	CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLUG	PCS	1	XS701

1910095	TERMINAL SOCKET	AV1-8.4-5G-2 BLACK	PCS	1	JK704
1910006	TERMINAL SOCKET	S-VIDEO	PCS	1	JK703
1940024	SOCKET	5P 2.0mm	PCS	1	XS702
1563578	PCB	7323S-0	PCS	1	
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	6	JP701~JP706
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	2	JP707 , JP07
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	3	R707,L713,L714

1. A SUBSIDIARY BOARD 1

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
0700061	SMD RADIATION DIODE	LTST-C930TBKT	PCS	1	LEDA01
2121171	FLAT CABLE	2P100 2.0 1PLUG RED AND BLACK 28#PIN	PCS	1	XSA01
1631119	PCB	A963-1	PCS	1	

1. A SUBSIDIARY BOARD 2

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
0310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	1	C901
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	PCS	1	C901
0700007	SMD DIODE	1N4148	PCS	2	D901,D902
1340001	LIGHT TOUCH RESTORE SWITCH	VERTICAL 6×7×1	PCS	1	K906
1340050	SMD LIGHT TOUCH SWITCH	TSCCD-3 (260 GRAM FORCE)	PCS	5	K901~K905
2121114	SOFT FLAT CABLE	9P70 2.0 2PLUG WITH L NEEDLE THE SAME DIRECTION	PCS	1	XS901
2360016	RECEIVING HEAD	HS0038B3V	PCS	1	U901
3025897	BUTTON SUPPORT BOARD	DV963 GRAY	PCS	1	
4000376	TAPPING SCREW	CB 1.7×4.2 BLACK	PCS	4	4PCS FOR FUNCTION BUTTON, FUNCTION PCB AND SUPPORT BOARD
3025891	FUNCTION BUTTON	DV963 TRANSPARENT	PCS	1	
1630989	PCB	9963-0	PCS	1	

1. A DECODE BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	ANTI	LOCATION
0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	30	R201~R204,R212,R222,R228, R234,R236,R245,R247,R251, R255,R257,R258,R297~R299, R303,R318,R331,R2159,R283 ~R286,R2107,R287,R290,R21 83
0090006	SMD RESISTOR	1/16W 75Ω ±5% 0603	PCS	7	R233,R261,R270,R273,R274, R276,R280
0090272	SMD RESISTOR	1/16W 1Ω±5% 0603	PCS	5	R304~R307,R321
90003	SMD RESISTOR	1/16W 10Ω ±5% 0603	PCS	2	R301,R302
0090005	SMD RESISTOR	1/16W 33Ω ±5% 0603	PCS	8	R231,R232,R256,R263,R264, R294,R295,L202
0090009	SMD RESISTOR	1/16W 330Ω ±5% 0603	PCS	3	R221,R277,R281
0090013	SMD RESISTOR	1/16W 680Ω ±5% 0603	PCS	2	R259,R260
0090014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	10	R213,R215,R254,R2102~R21 04,R2117~R2120
90016	SMD RESISTOR	1/16W 1.5K ±5% 0603	PCS	2	R323,R324
0090249	SMD RESISTOR	1/16W 510Ω ±5% 0603	PCS	4	R205,R214,R325,R327
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	8	R238~R240,R2130,R2131,R2 134,R2135,R2140
0090021	SMD RESISTOR	1/16W 6.8K ±5% 0603	PCS	2	R2136,R2148
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	16	R208,R229,R309,R311,R313, R314,R329,R330,R339,R2101 ,R2106,R2108,R2109,R2164, R2184,R2105
0090024	SMD RESISTOR	1/16W 15K ±5% 0603	PCS	2	R209,R223
0090025	SMD RESISTOR	1/16W 20K ±5% 0603	PCS	4	R211,R312,R315,R316
0090255	SMD RESISTOR	1/16W 24K±5% 0603	PCS	4	R2129,R2133,R2132,R2156
0090188	SMD RESISTOR	1/16W 18K ±5% 0603	PCS	1	R210
0090197	SMD RESISTOR	1/16W 150K ±5% 0603	PCS	2	R319,R320
0090211	SMD RESISTOR	1/16W 680K ±5% 0603	PCS	2	R317,R322

0090609	PRECISION SMD RESISTOR	1/16W 100Ω ±1% 0603	PCS	1	R243
0090626	PRECISION SMD RESISTOR	1/16W 200Ω±1% 0603	PCS	1	R242
0090319	PRECISION SMD RESISTOR	1/16W 750K ±1% 0603	PCS	1	R227
0090034	SMD RESISTOR	1/16W 100K ±5% 0603	PCS	7	R224,R246,R252,R308,R310, R2111,R2112
0100019	SMD RESISTOR NETWORKS	1/16W33Ω ±5% 8P	PCS	2	RN209,RN210
0100034	SMD RESISTOR NETWORKS	1/16W0Ω±5% 0603×4 8P	PCS	4	RN201~RN204
00003759	CARBON FILM RESISTOR	1/4W2.2Ω±5%	PCS	1	R326
02604379	CD	CD11 16V10U±20%5×11C5	PCS	7	TC202,TC225,TC226,TC232, TC233,TC240,TC241
02601819	CD	CD11 16V220U±20%6×12 C5	PCS	4	TC207~TC209,TC301
02600029	CD	CD11 16V47U±20%5×11 C5	PCS	8	TC204,TC210,TC237,TC246, TC302,TC303,TC308,TC309
02601889	CD	CD11 16V100U±20%6×12 C5	PCS	2	TC235,TC238
310085	SMD CAPACITOR	50V 20P ±5% NPO 0603	PCS	2	C222,C232
0310190	SMD CAPACITOR	50V 27P ±5% NPO 0603	PCS	2	C275,C276
0310045	SMD CAPACITOR	50V 47P ±5% NPO 0603	PCS	16	C262~C265,C289,C290,C292, C293,C295,C296,C298,C299, C2101,C2102,C2104,C2105
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	4	C206 ,C233,C2111,C2114
0310051	SMD CAPACITOR	50V 331 ±5% NPO 0603	PCS	2	C212,C213
310048	SMD CAPACITOR	50V 151 ±5% NPO 0603	PCS	2	C304,C306
0310084	SMD CAPACITOR	50V 104 +80%-20% 0603	PCS	82	C207,C211,C214,C216,C217, C224,C226~C231,C234~C239 ,C241~C254,C256~C259,C26 7~C274,C279~C282,C301~C3 03,C305,C309,C311,C312,C3 23,C2138~C2143,C2150~C21 52,C2155~C2157,C2160,C216 2~C2164,C2166~C2175
0310058	SMD CAPACITOR	25V 104 +80%-20% 0603	PCS	82	C207,C211,C214,C216,C217, C224,C226~C231,C234~C239 ,C241~C254,C256~C259,C26 7~C274,C279~C282,C301~C3 03,C305,C309,C311,C312,C3 23,C2138~C2143,C2150~C21 52,C2155~C2157,C2160,C216 2~C2164,C2166~C2175
0310234	SMD CAPACITOR	16V 105 +80%-20% 0603	PCS	19	C201~C204,C221,C240,C317 ~C322,C325,C328~C333
0310066	SMD CAPACITOR	50V 102 ±10% 0603	PCS	8	C223,C255,C278,C294,C297, C2112,C2115,C2116
0310231	SMD CAPACITOR	50V 122 ±10% 0603	PCS	2	C2122,C2129
0310067	SMD CAPACITOR	50V 152 ±10% 0603	PCS	1	C215
0310068	SMD CAPACITOR	50V 222 ±10% 0603	PCS	2	C307,C310
0310201	SMD CAPACITOR	50V 153 ±10% 0603	PCS	1	C210
0310055	SMD CAPACITOR	16V 333 ±10% 0603	PCS	1	C225
0310056	SMD CAPACITOR	16V 473 ±10% 0603	PCS	2	C219,C220
0310362	SMD CAPACITOR	16V474 +80%-20% 0603	PCS	1	C218
0390355	SMD INDUCTOR	4.7UH ±10% 1608	PCS	2	L303,L306
0390096	SMD INDUCTOR	1.8UH ±10% 1608	PCS	6	L243~L248
03900579	MAGNETIC BEADS INDUCTOR	RH354708	PCS	1	L226
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	PCS	31	L201,L203,L228~L232,L234~ L236,L301,L304,L305,L307~ L312,L314,L316~L324 ,L218,L219
0960020	CRYSTAL OSCILLATOR	27.00MHz 49-S	PCS	1	X201
1632287	PCB	2967B-5	PCS	1	
0700007	SMD DIODE	1N4148	PCS	16	VD201,VD205~VD207,VD21 0~VD221
0700001	SMD DIODE	LS4148	PCS	16	VD201,VD205~VD207,VD21 0~VD221

0700002	SMD DIODE	LL4148	PCS	16	VD201,VD205~VD207,VD210~VD221
07800509	TRIODE	S8050D	PCS	2	V307,V308
07800499	TRIODE	S8550D	PCS	2	V306,V309
0780062	SMD TRIODE	9014C	PCS	1	V310
0780063	SMD TRIODE	9015C	PCS	1	Q204
780197	SMD TRIODE	C1815	PCS	3	Q205,Q206,Q212
0780198	SMD TRIODE	2SA1015	PCS	3	Q211,Q218,Q219
0780040	SMD TRIODE	3904	PCS	1	V305
0780193	SMD TRIODE	2SK3018	PCS	2	V303,V304
0780115	SMD TRIODE	2SB1132	PCS	2	V301,V302
880185	IC	NJM4558M SOP	PCS	1	U219
0880562	IC	4580 SOP	PCS	1	U219
0880361	IC	4558 SOP	PCS	1	U219
0880322	IC	MM74HCU04M SOP	PCS	1	U205
0880513	IC	HCU04 SOP	PCS	1	U205
0881275	IC	IC42S16100-7T SOP	PCS	2	U203,U204
0881182	IC	LM1117MP-ADJ SOT-223	PCS	1	U209
0881124	IC	CS4340-KS SOP	PCS	1	U206
0881031	IC	24C02N SOP	PCS	1	U202
0882257	IC	MT1389FE/C (C VERSION) QFP	PCS	1	U201
0881378	IC	BA5954FP HSOP	PCS	1	U302
1940140	CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLUG	PCS	1	XS204
1940024	SOCKET	5P 2.0mm	PCS	1	XS302
1940005	SOCKET	6P 2.0mm	PCS	1	XS303
1940171	SOCKET	13P 2.5mm	PCS	1	XS203
1940023	SOCKET	7P 2.0mm	PCS	1	XS201
1940094	CABLE SOCKET	24P 0.5mm SMD WITH CLASP	PCS	1	XS301