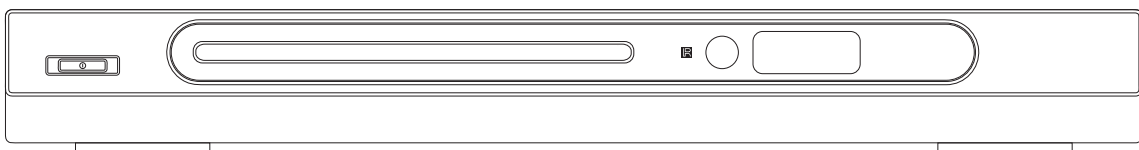


SERVICE MANUAL

DV962S



CONTENTS

1.	SAFETY PRECAUTIONS	1
2.	PREVENTION OF ELECTRO STATIC DISCHARGE(ESD)TO ELECTROSTATICALLY SENSITIVE(ES)DEVICES	1
3.	CONTROL BUTTON LOCATIONS AND EXPLANATIONS	2
4.	PREVENTION OF STATIC ELECTRICITY DISCHARGE	3
5.	ASSEMBLING AND DISASSEMBLING THE MECHANISM UNIT	4
5.1	OPTICAL PICKUP UNIT EXPLODED VIEW AND PART LIST	4
5.2	BRACKET EXPLODED VIEW AND PART LIST	6
5.3	MISCELLANEOUS	7
6.	ELECTRICAL CONFIRMATION	8
6.1	VIDEO OUTPUT (LUMINANCE SIGNAL) CONFIRMATION	8
6.2	VIDEO OUTPUT(CHROMINANCE SIGNAL) CONFIRMATION	9
7.	MPEG BOARD CHECK WAVEFORM	10
8.	AM29LV160D	11
8.1	K4S161622H_REV14	16
8.2	MT1389	19
9.	SCHEMATIC & PCB WIRING DIAGRAM	22
10.	SPARE PARTS LIST	32

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.

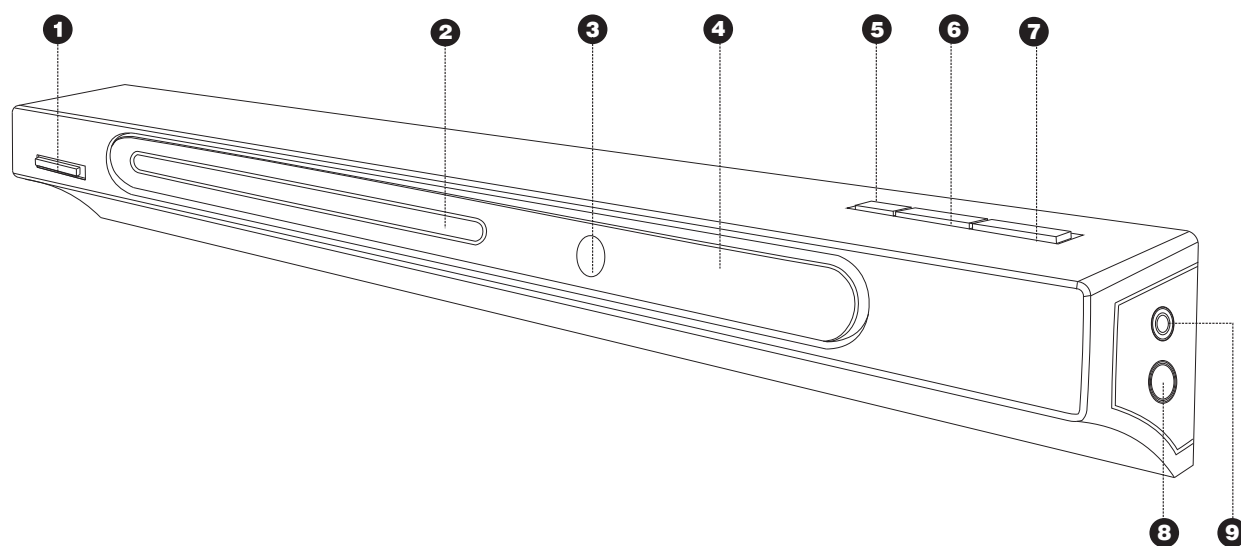
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity(ESD).

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

❷ Disc tray

❸ IR SENSOR button

❹ Display window

❺ OPEN/CLOSE button

❻ PLAY/PAUSE button

❼ STOP button

❽ MIC VOLUME knob

❾ MIC 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

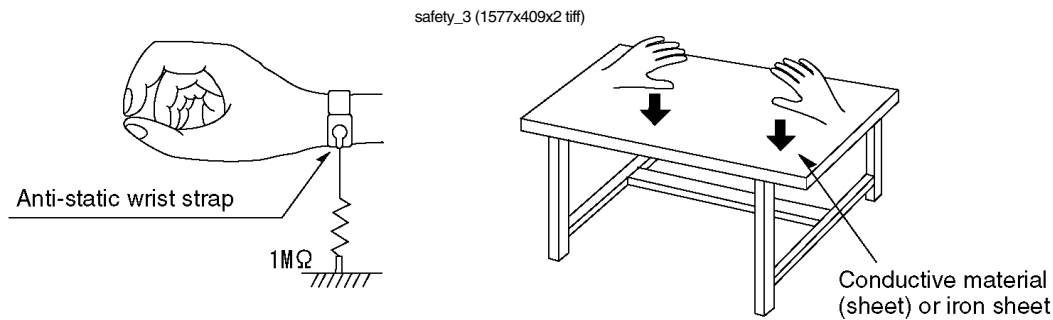
Some devices such as the DVD player use the optical pickup (laser diode) and the optical pickup will be damaged by static electricity in the working environment. Proceed servicing works under the working environment where grounding works is completed.

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

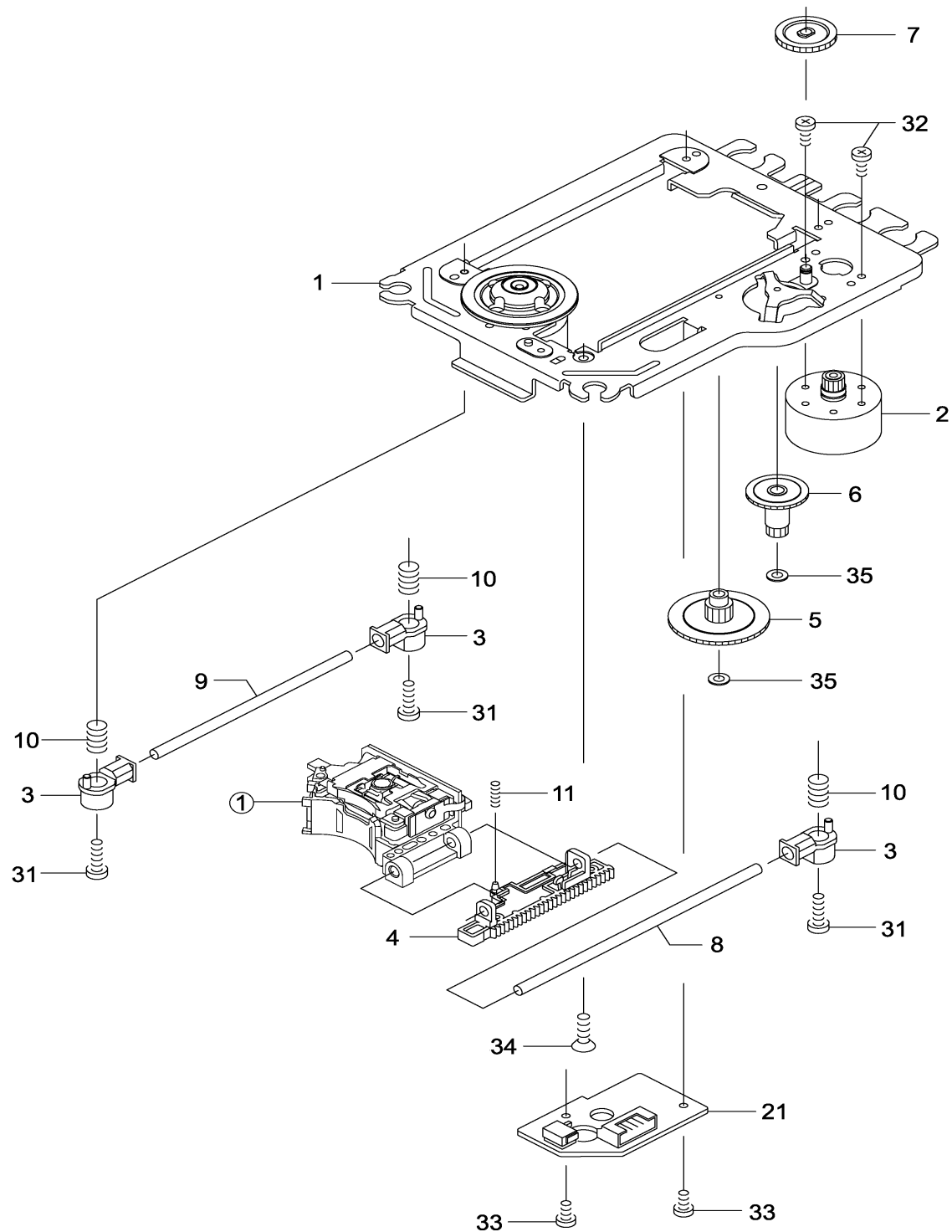
1. To keep the good quality of the optical pickup maintenance parts during transportation and before installation, the both ends of the laser diode are short-circuited. After replacing the parts with new ones, remove the short circuit according to the correct procedure. (See this Technical Guide).
2.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

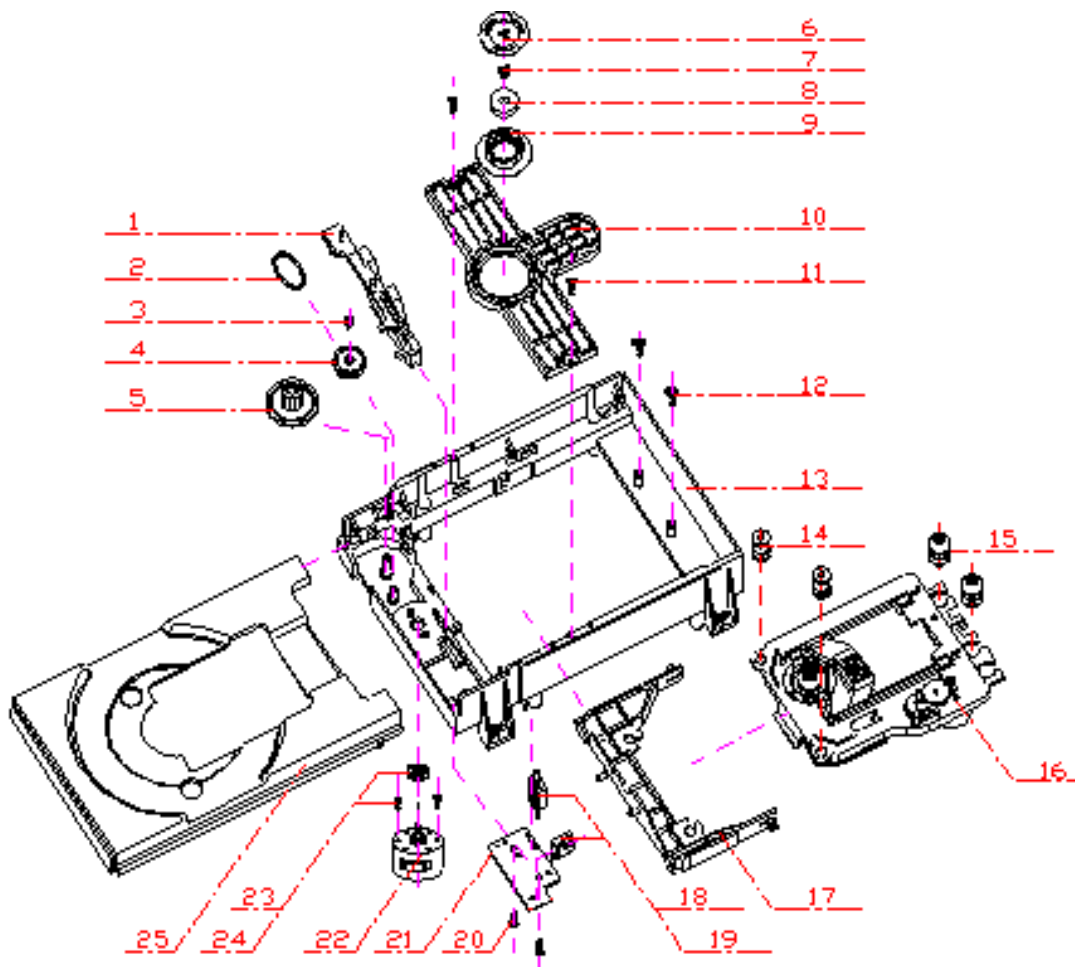
Materials to Pic (1)

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

[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)

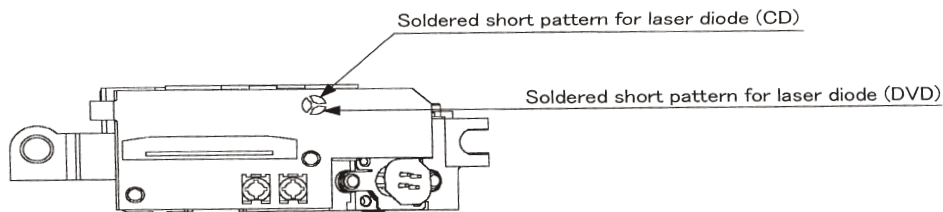
- | | |
|-----------------------------------|--------------------------|
| 1.bracket | 14. front silicon rubber |
| 2.belt | 15. Back silicon rubber |
| 3.screw | 16. Pick-up |
| 4.belt wheel | 17. Pick-up |
| 5.gearwheel | 18. switch |
| 6.iron chip | 19. Five-pin flat plug |
| 7. Immobility mechanism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

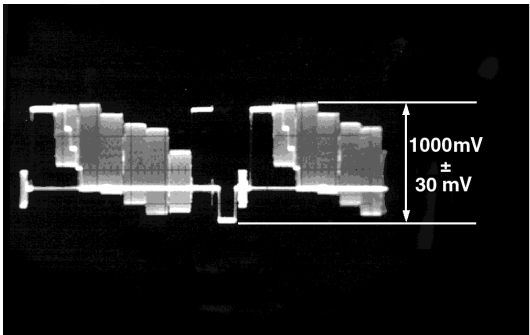
6.1. Video Output (Luminance Signal) Confirmation

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



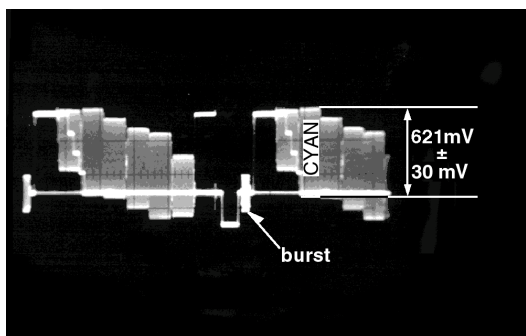
6.2 Video Output(Chrominance Signal) Confirmation

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	

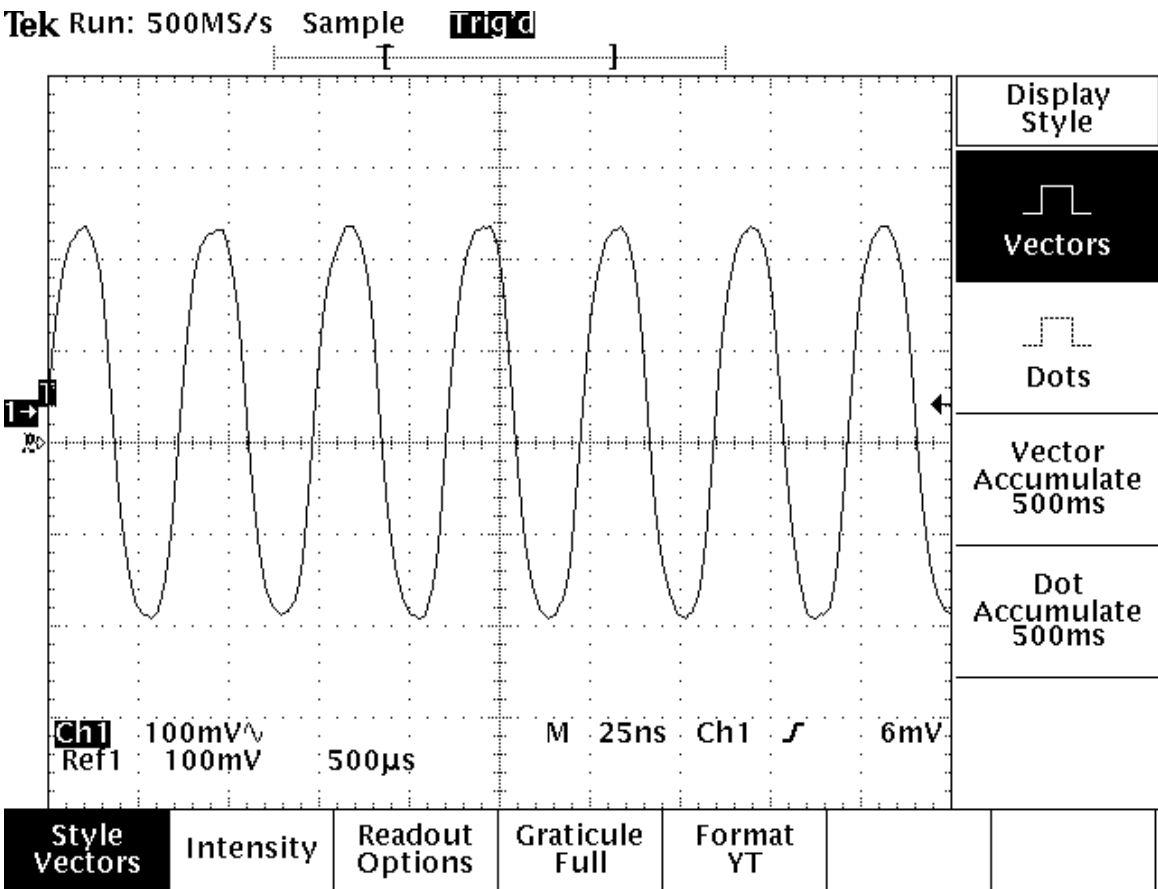
Purpose:To maintain video signal output compatibility.

- 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

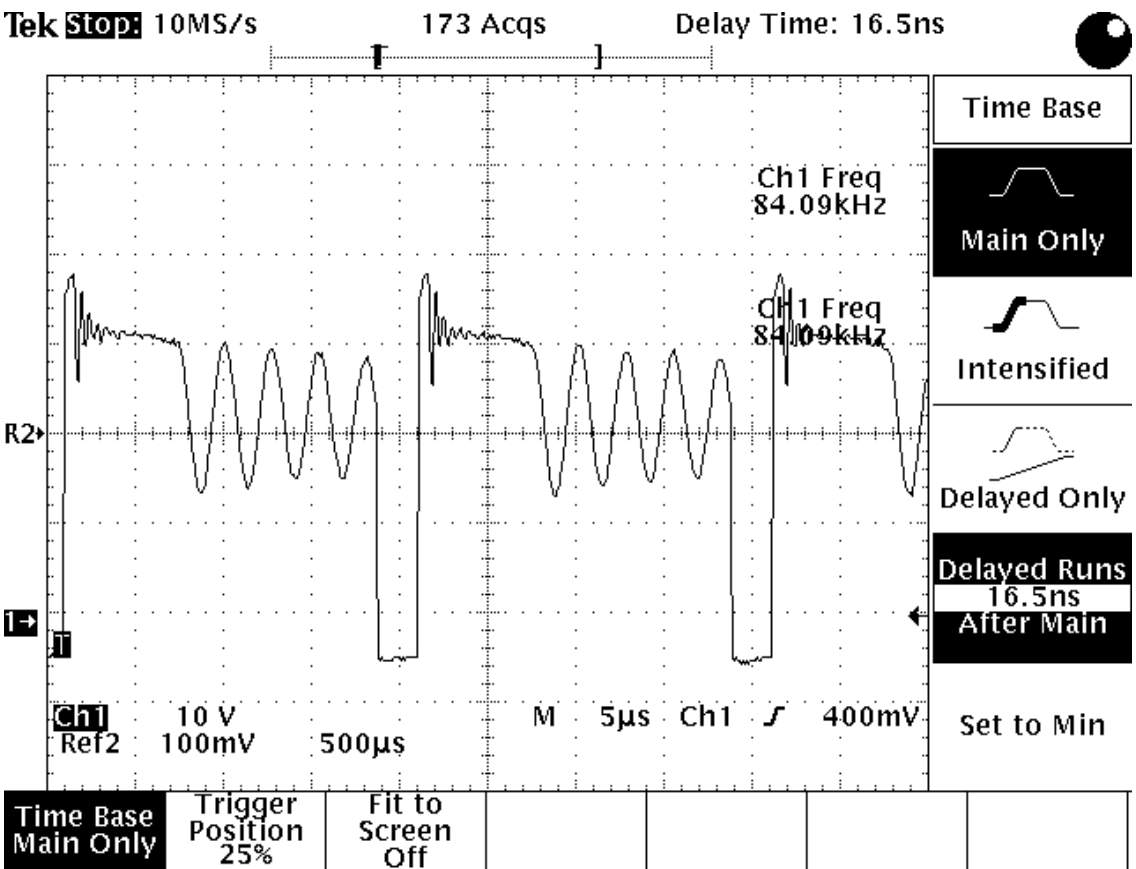


7.MPEG BOARD CHECK WAVEFORM

7.1 27MHz WAVEFORM



7.2 IC VIPER22 PIN.5 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

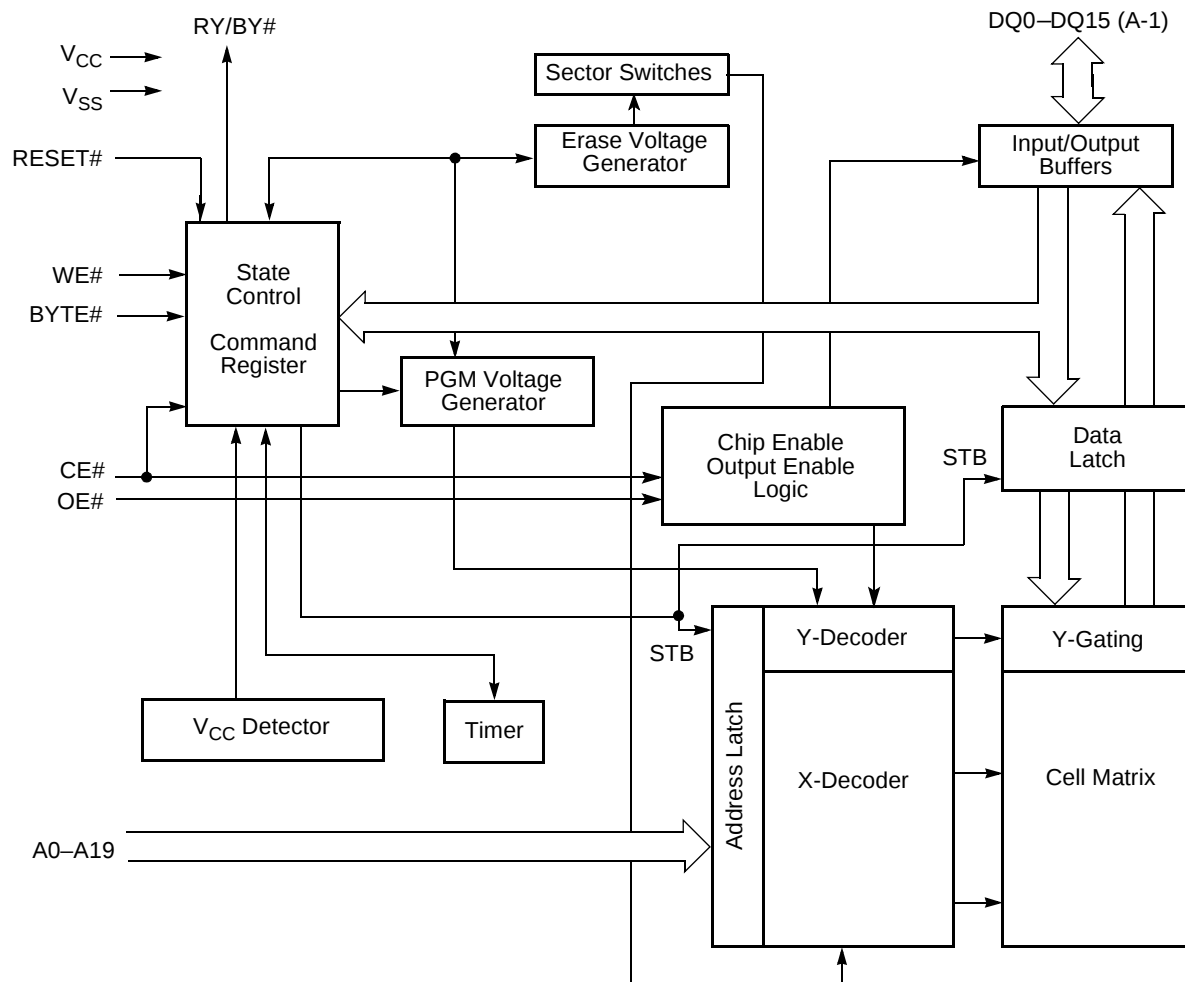
■ Hardware reset pin (RESET#)

- Hardware method to reset the device to reading array data

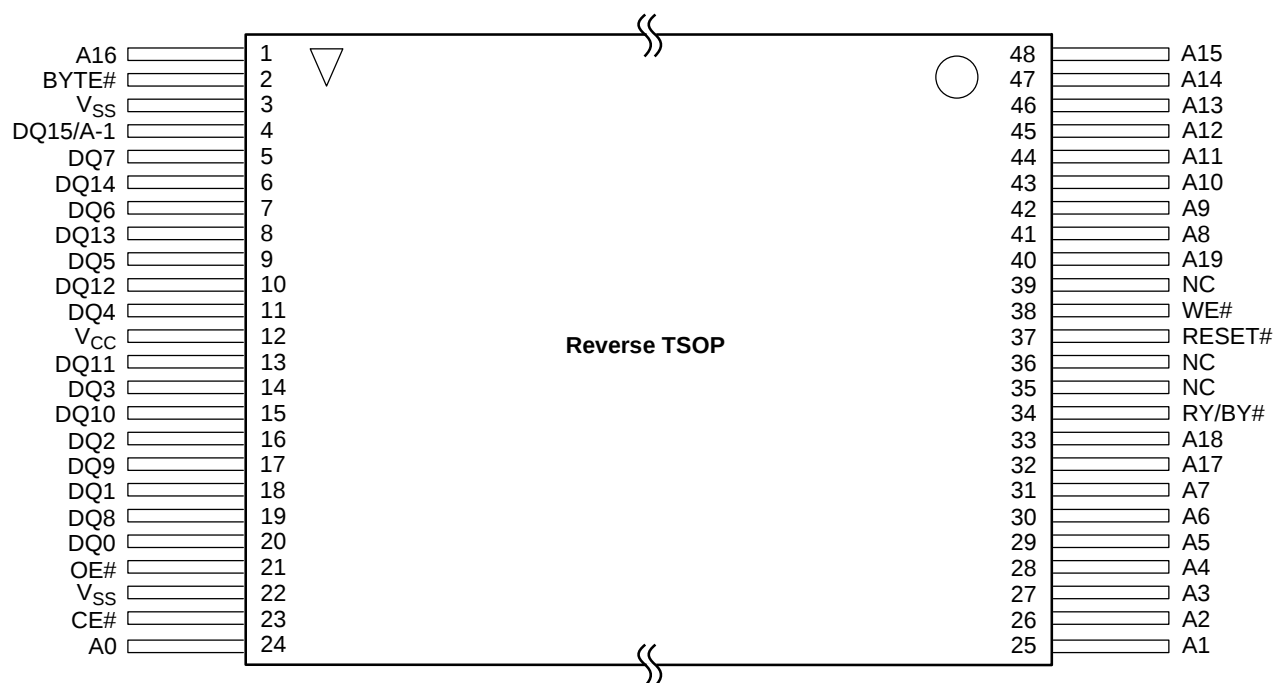
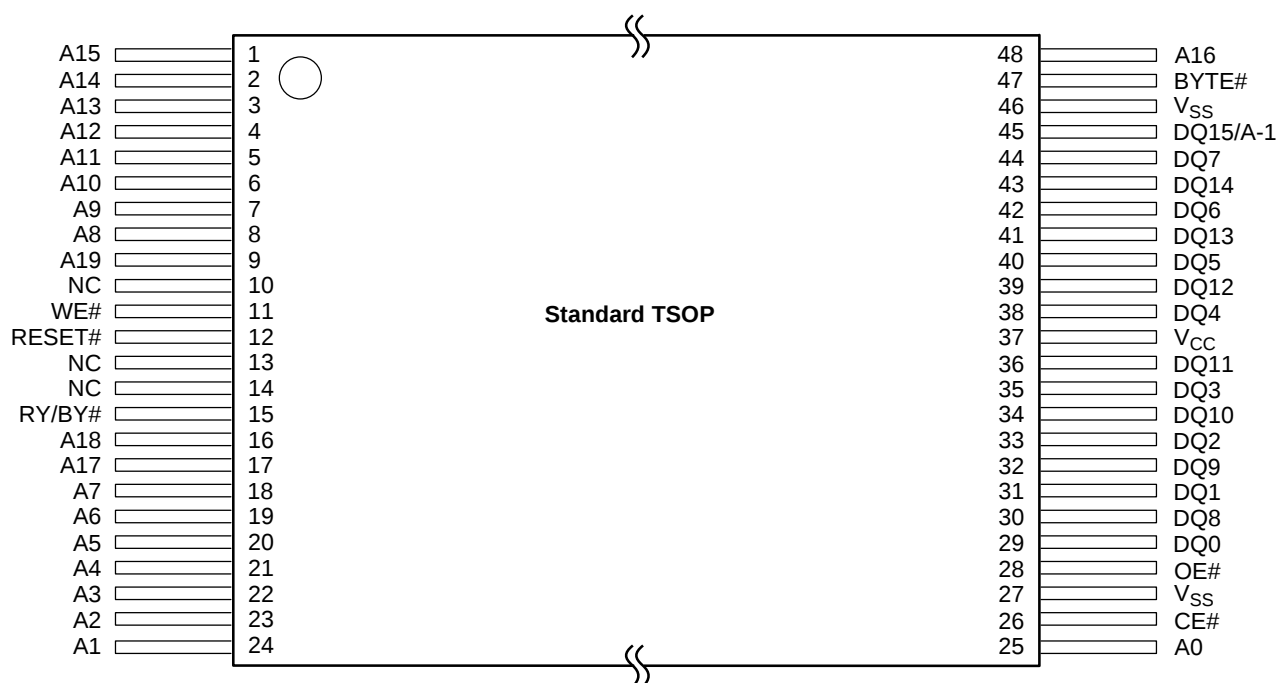
PRODUCT SELECTOR GUIDE

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

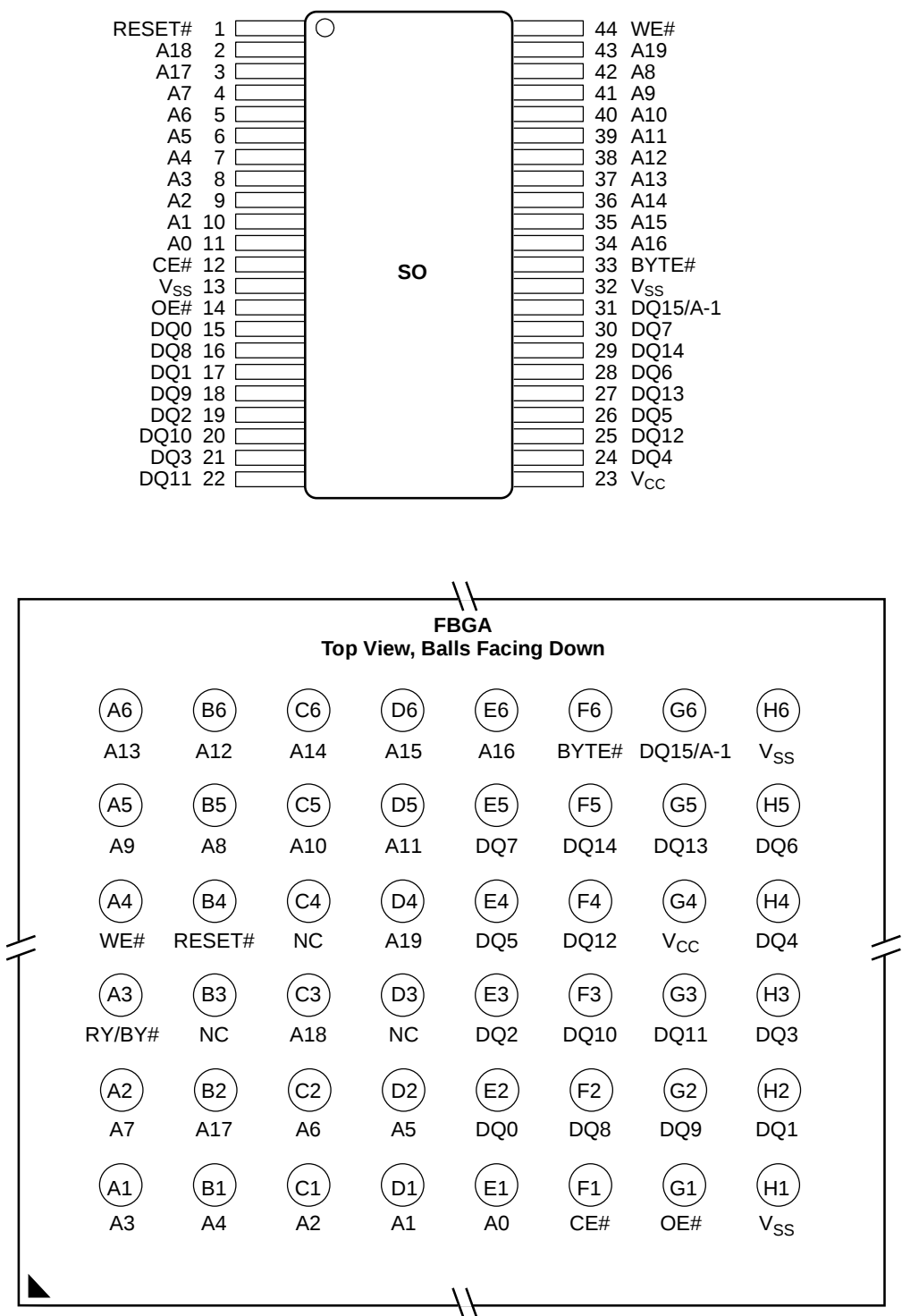
Note: See “AC Characteristics” for full specifications.

BLOCK DIAGRAM


CONNECTION DIAGRAMS



CONNECTION DIAGRAMS



Special Handling Instructions

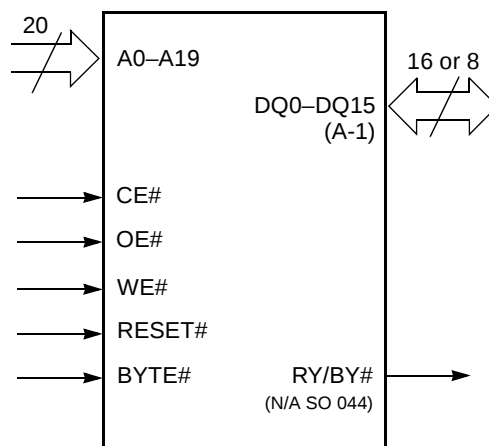
Special handling is required for Flash Memory products in FBGA packages.

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



512K x 16Bit x 2 Banks SDRAM**FEATURES**

- 3.3V power supply
- LVTTL compatible with multiplexed address
- two banks operation
- MRS cycle with address key programs
 - CAS Latency (2 & 3)
 - Burst Length (1, 2, 4, 8 & full page)
 - Burst Type (Sequential & Interleave)
- All inputs are sampled at the positive going edge of the system clock
- Burst Read Single-bit Write operation
- DQM for masking
- Auto & self refresh
- 32ms refresh period (2K cycle)

GENERAL DESCRIPTION

The K4S161622H is 16,777,216 bits synchronous high data rate Dynamic RAM organized as 2 x 524,288 words by 16 bits, fabricated with SAMSUNG's high performance CMOS technology. Synchronous design allows precise cycle control with the use of system clock I/O transactions are possible on every clock cycle. Range of operating frequencies, programmable burst length and programmable latencies allow the same device to be useful for a variety of high bandwidth, high performance memory system applications.

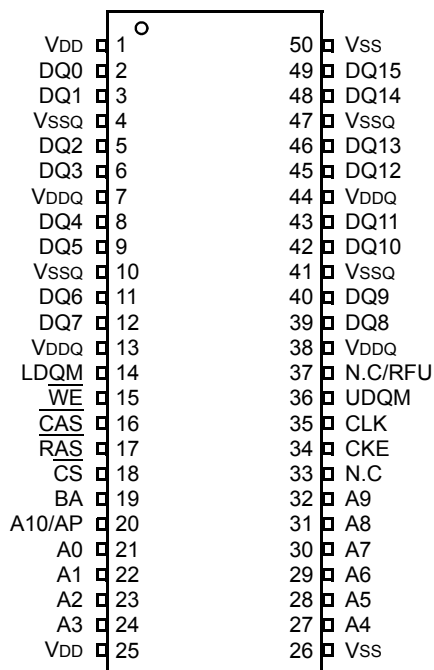
ORDERING INFORMATION

Part NO.	MAX Freq.	Interface	Package
K4S161622H-TC55	183MHz	LVTTL	50pin TSOP(II)
K4S161622H-TC60	166MHz		
K4S161622H-TC70	143MHz		
K4S161622H-TC80	125MHz		

Organization	Row Address	Column Address
1Mx16	A0~A10	A0-A7

Row & Column address configuration

PIN CONFIGURATION (TOP VIEW)



50PIN TSOP (II)
(400mil x 825mil)
(0.8 mm PIN PITCH)

PIN FUNCTION DESCRIPTION

Pin	Name	Input Function
CLK	System Clock	Active on the positive going edge to sample all inputs.
$\overline{\text{CS}}$	Chip Select	Disables or enables device operation by masking or enabling all inputs except CLK, CKE and L(U)DQM
CKE	Clock Enable	Masks system clock to freeze operation from the next clock cycle. CKE should be enabled at least one cycle prior to new command. Disable input buffers for power down in standby.
A ₀ ~ A ₁₀ /AP	Address	Row / column addresses are multiplexed on the same pins. Row address : RA ₀ ~ RA ₁₀ , column address : CA ₀ ~ CA ₇
BA	Bank Select Address	Selects bank to be activated during row address latch time. Selects bank for read/write during column address latch time.
$\overline{\text{RAS}}$	Row Address Strobe	Latches row addresses on the positive going edge of the CLK with $\overline{\text{RAS}}$ low. Enables row access & precharge.
$\overline{\text{CAS}}$	Column Address Strobe	Latches column addresses on the positive going edge of the CLK with $\overline{\text{CAS}}$ low. Enables column access.
$\overline{\text{WE}}$	Write Enable	Enables write operation and row precharge. Latches data in starting from CAS, WE active.
L(U)DQM	Data Input/Output Mask	Makes data output Hi-Z, tSHZ after the clock and masks the output. Blocks data input when L(U)DQM active.
DQ ₀ ~ 15	Data Input/Output	Data inputs/outputs are multiplexed on the same pins.
VDD/VSS	Power Supply/Ground	Power and ground for the input buffers and the core logic.
VDDQ/VSSQ	Data Output Power/Ground	Isolated power supply and ground for the output buffers to provide improved noise immunity.
N.C/RFU	No Connection/ Reserved for Future Use	This pin is recommended to be left No Connection on the device.

The block diagram illustrates the internal architecture of the 512K x 16-bit SRAM. At the bottom, a **Timing Register** receives external control signals: $\overline{\text{CLK}}$, $\overline{\text{CKE}}$, $\overline{\text{CS}}$, $\overline{\text{RAS}}$, $\overline{\text{CAS}}$, $\overline{\text{WE}}$, and L(U)DQM . The $\overline{\text{CLK}}$ signal is also connected to an **Address Register** and a **Row Buffer Refresh Counter**. The **Address Register** also receives an **ADD** input and provides **LCKE** to the **Col. Buffer**. The **Row Buffer Refresh Counter** is controlled by **LRAS** and **LCBR**. The **Bank Select** block receives inputs from the **Address Register** and the **Row Decoder**. The **Row Decoder** and **Col. Buffer** are connected to the **512K x 16** memory array. The **Col. Buffer** also receives **LCAS** and provides **LWCBR** to the **Programming Register**. The **Programming Register** is connected to the **Latency & Burst Length** block, which in turn controls the **Col. Buffer** and the **Output Buffer**. The **Output Buffer** is connected to the **Sense AMP** and the **I/O Control** block. The **I/O Control** block receives **LWE** and **LDQM** signals and provides **DQi** to the **Output Buffer**. The **Data Input Register** is connected to the **512K x 16** memory array and the **I/O Control** block.



8.2 MT1389

MT1389

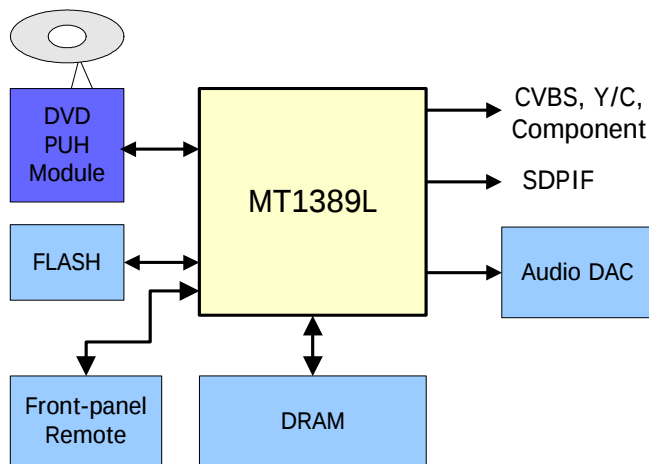
Progressive-Scan DVD Player SOC

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

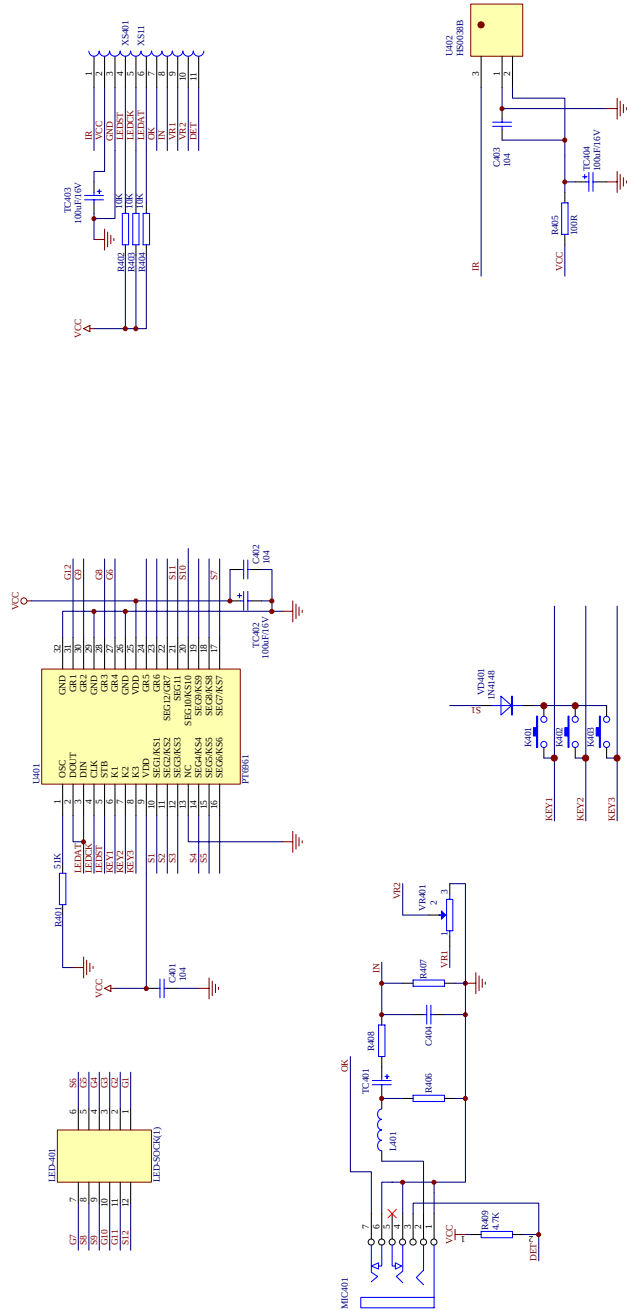
General Feature List

- 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

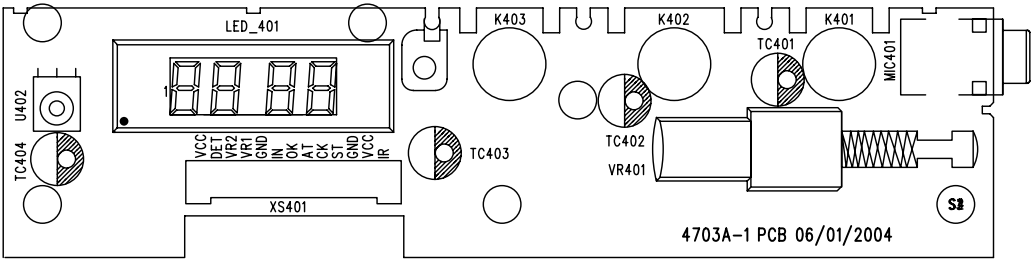
- Audio Effect Processing
 - Dolby Digital (AC-3)/EX decoding
 - DTS/DTS-ES decoding
 - MLP decoding for DVD-Audio
 - MPEG-1 layer 1/layer 2 audio decoding
 - MPEG-2 layer1/layer2 2-channel audio
 - High Definition Compatible Digital (HDCD)
 - Windows Media Audio (WMA)
 - Advanced Audio Coding (AAC)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

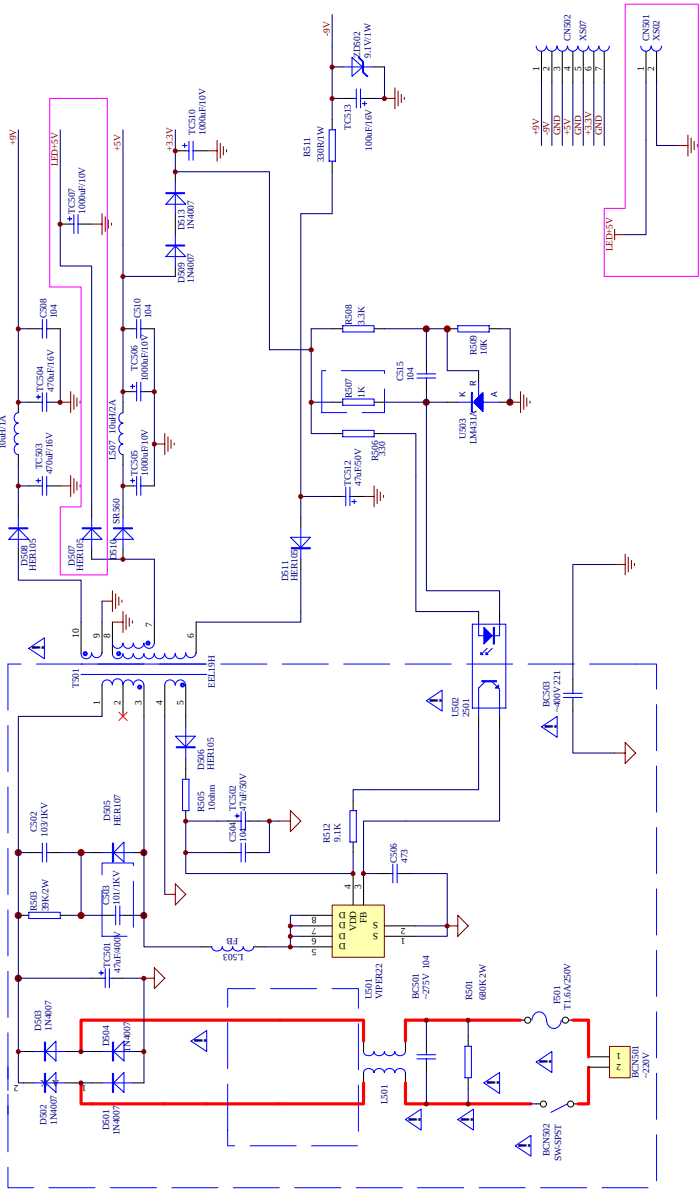
FRONT SCHEMATIC DIAGRAM



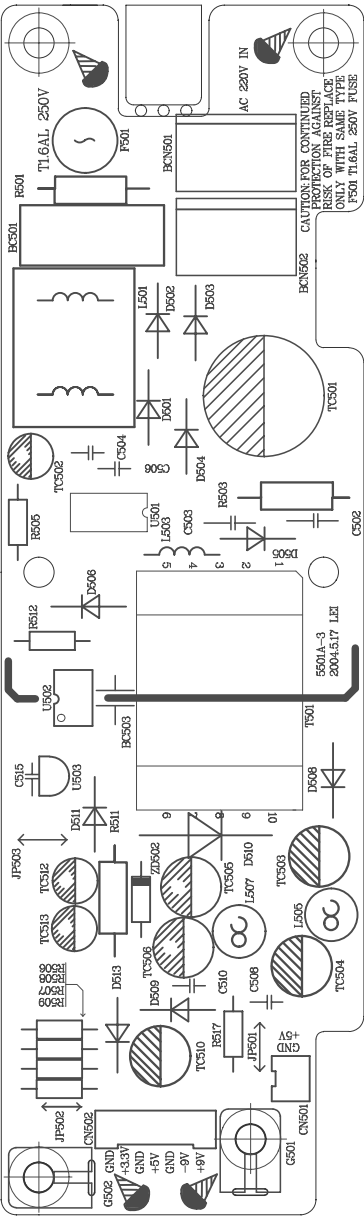
FRONT SCHEMATIC DIAGRAM



POWER BOARD SCHEMATIC DIAGRAM



POWER BOARD SCHEMATIC DIAGRAM

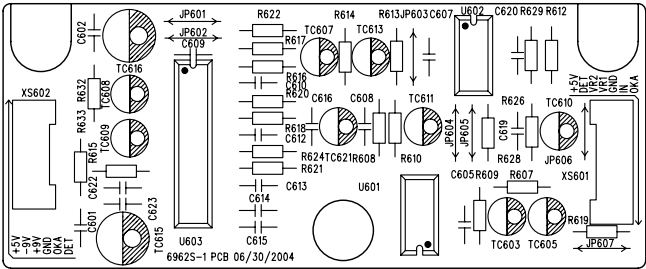


The schematic diagram illustrates the ADXL045 evaluation board. The central component is the ADXL045 digital accelerometer. It is interfaced with a microcontroller (MCU) through a 4-wire I2C interface (pins 1, 2, 3, 4). The board includes a power supply section with a 5V regulator (7805) and a -5V regulator (LMC332). The board is populated with various passive components and is connected to a J1 connector.

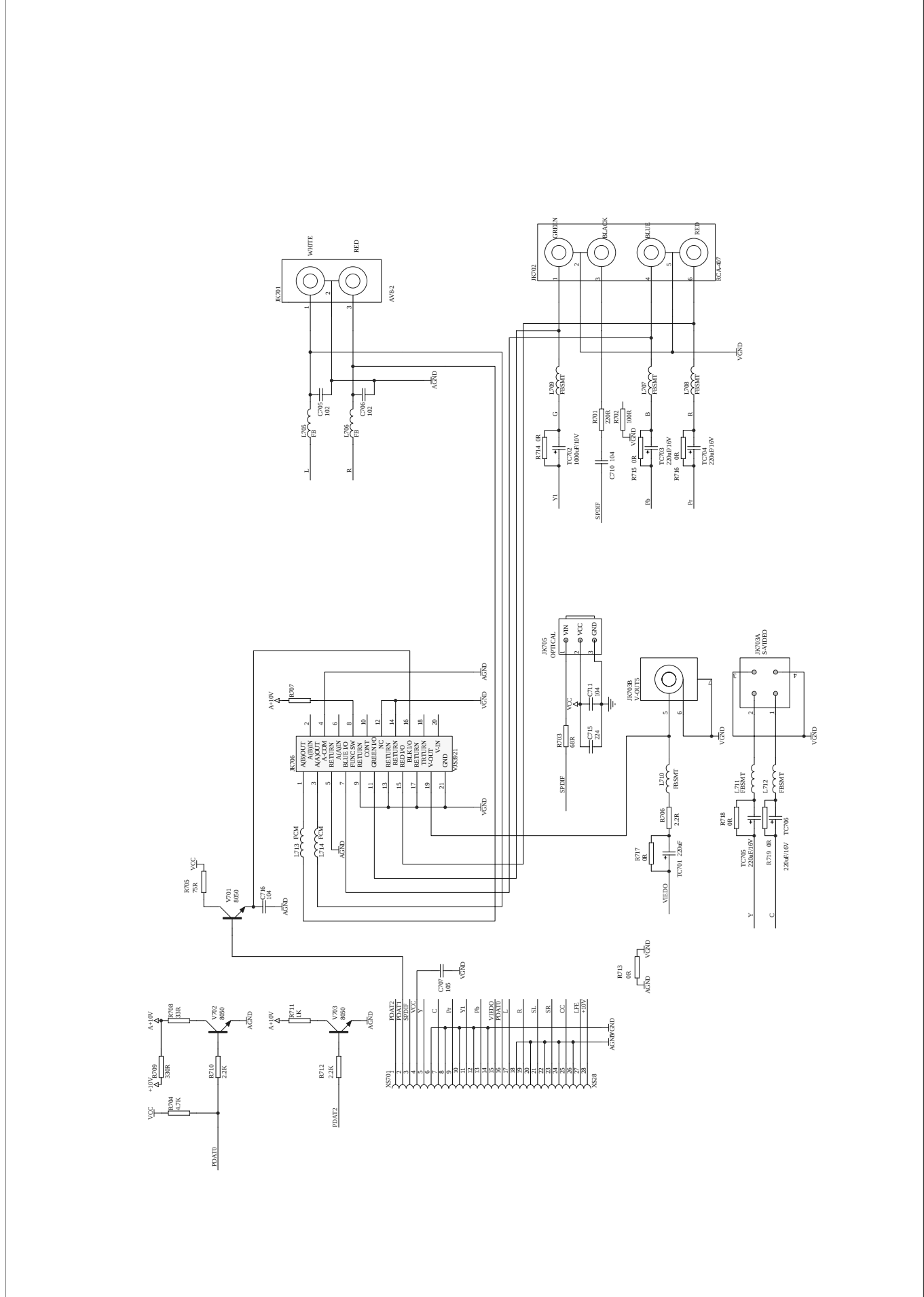
Key Components:

- ADXL045:** Digital accelerometer IC.
- Power Supply:** 5V regulator (7805) and -5V regulator (LMC332).
- Operational Amplifiers:** TC601, TC602, TC603.
- Resistors:** R600, R601, R602, R603, R604, R605, R606, R607, R608, R609, R610, R611, R612, R613, R614, R615, R616, R617, R618, R619, R620, R621, R622, R623, R624.
- Capacitors:** C501, C502, C503, C504, C505, C506.
- Connectors:** J1.

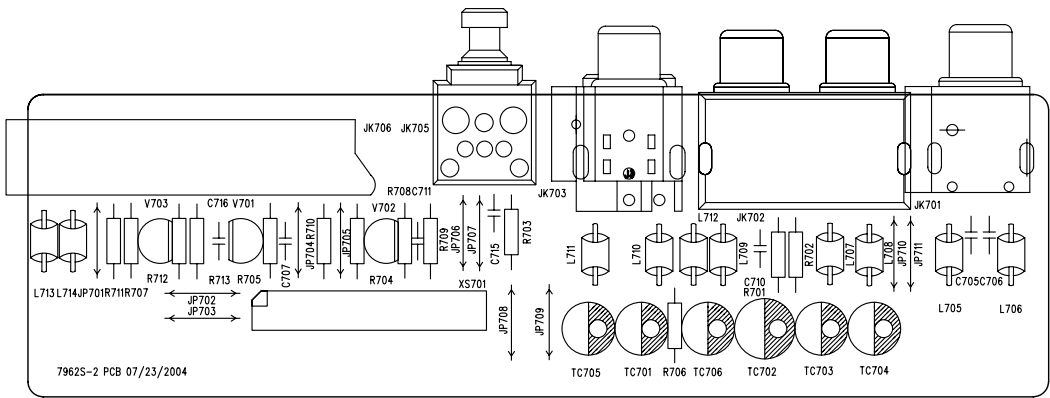
OK SCHEMATIC DIAGRAM



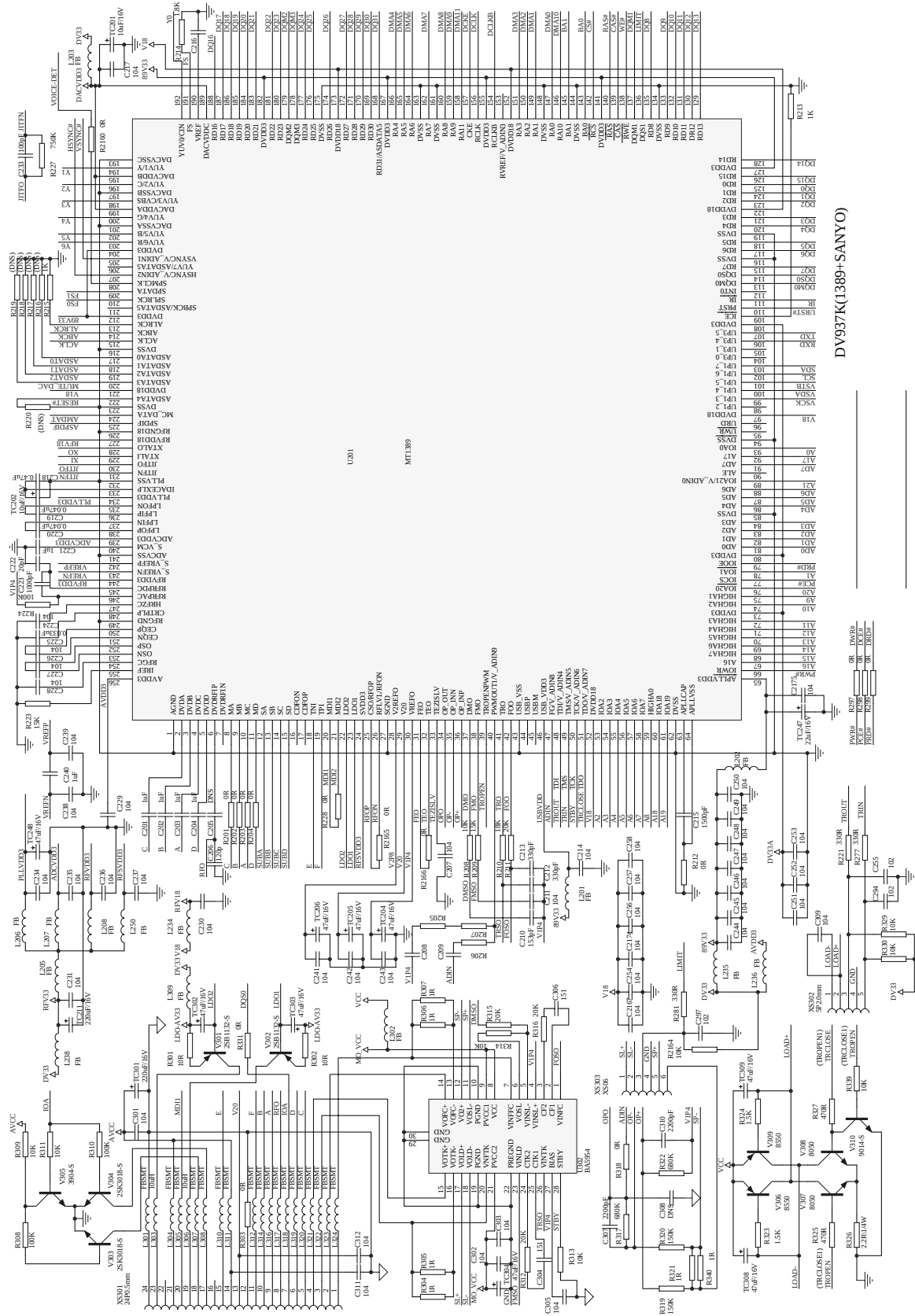
OUTPUT BOARD SCHEMATIC DIAGRAM



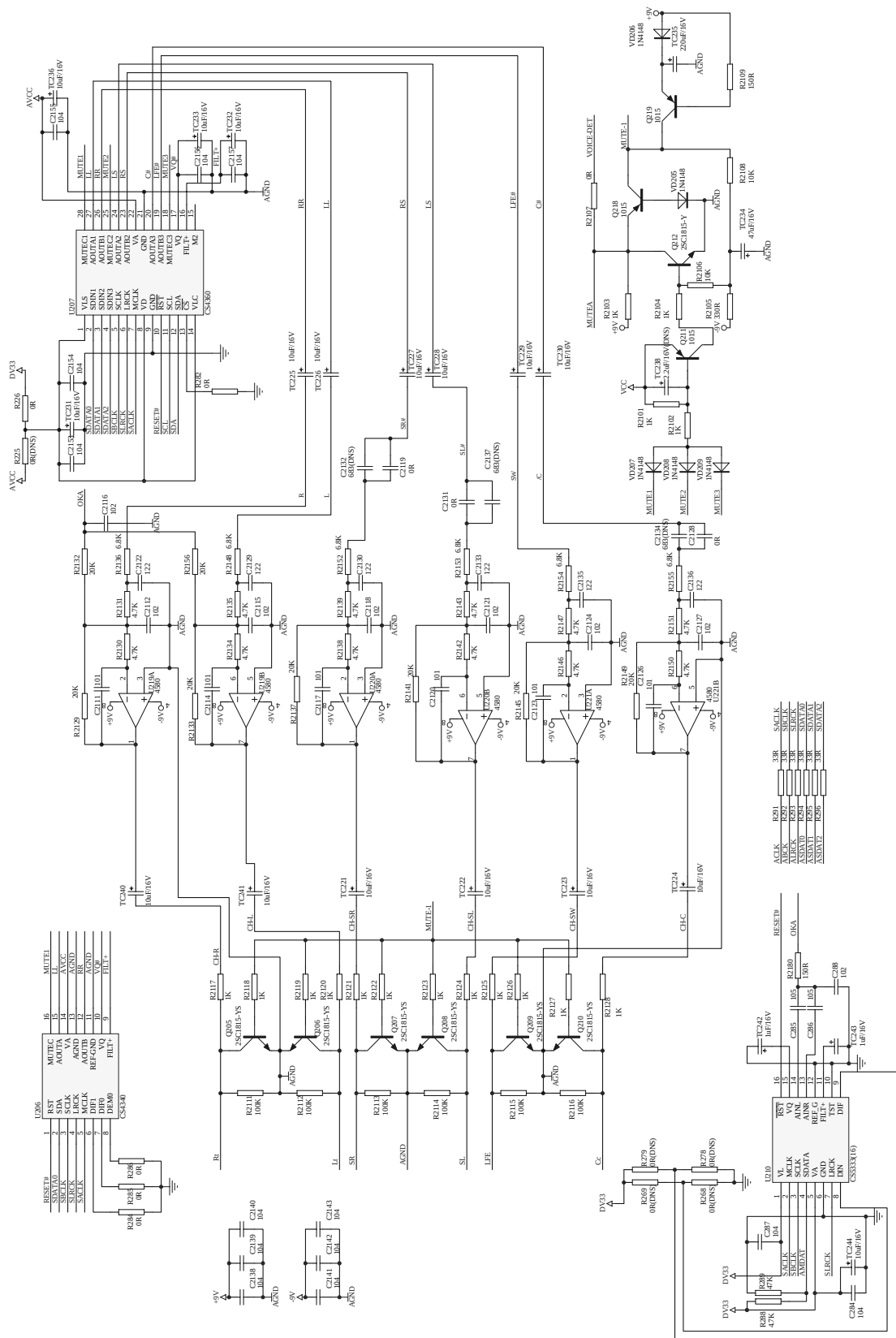
OUTPUT BOARD SCHEMATIC DIAGRAM



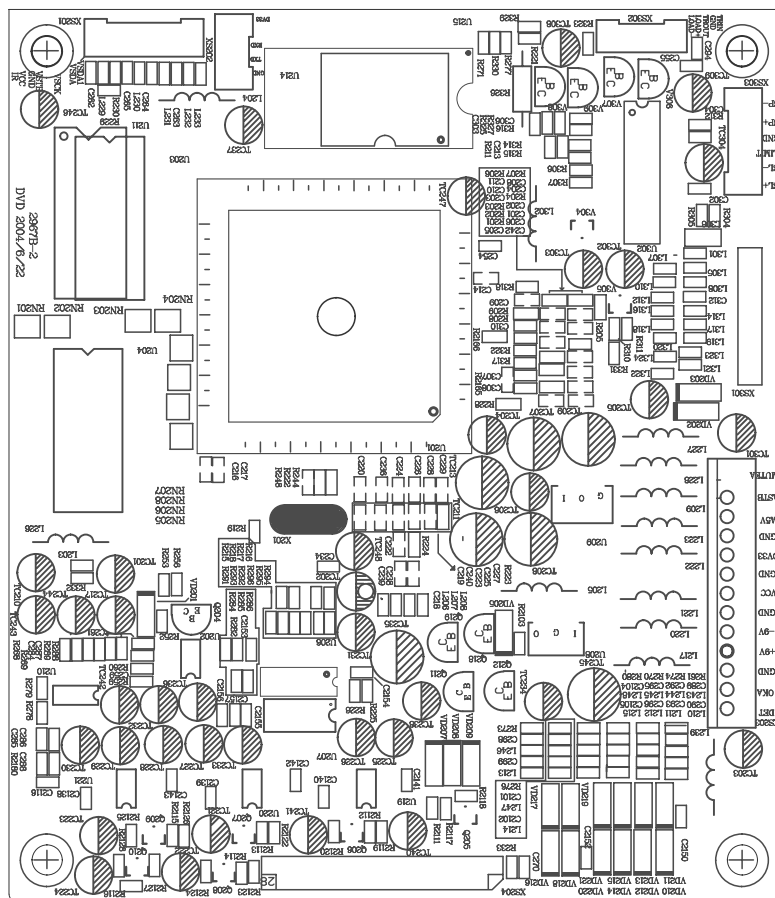
MIAN SCHEMATIC DIAGRAM



MIAN SCHEMATIC DIAGRAM



MIAN SCHEMATIC DIAGRAM



10. SPARE PARTS LIST

DV962s MATERIAL LIST

1. DECODE BOARD

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		SMD RESISTOR	1/16W 0Ω ±5% 0603	36	L210~L215,R201~R204,R212,R228,R234,R236,R245,R247,R222,R251,R255,R257,R258,R298,R299,R303,R318,R331,R2159,R297,R284~R286,R262,R2181,R2182,R2107,R283
2		SMD RESISTOR	1/16W 75Ω ±5% 0603	7	R233,R261,R270,R273,R274,R276,R280
3		SMD RESISTOR NETWORKS	1/16W0Ω±5% 0603×4 8P	4	RN205~RN208
4		CARBON FILM RESISTOR	1/4W2.2Ω±5%	1	R326
5		SMD RESISTOR	1/16W1Ω±5% 0603	6	R304~R307,R321,R340
6		SMD RESISTOR	1/16W 10Ω ±5% 0603	2	R301,R302
7		SMD RESISTOR	1/16W 33Ω ±5% 0603	14	R231,R232,R256,R263~R267,R291~R294,R2162,L202
8		SMD RESISTOR	1/16W 150Ω ±5% 0603	2	R2109,R2180
9		SMD RESISTOR	1/16W 330Ω ±5% 0603	4	R2105,R221,R277,R281
10		SMD RESISTOR	1/16W 470Ω ±5% 0603	2	R325,R327
11		SMD RESISTOR	1/16W 680Ω ±5% 0603	2	R259,R260
12		SMD RESISTOR	1/16W 1K ±5% 0603	11	R213,R215,R2101~R2104,R2117~R2120,R254
13		SMD RESISTOR	1/16W 1.5K ±5% 0603	3	R323,R324,R243
14		SMD RESISTOR	1/16W 510Ω ±5% 0603	1	R214
15		SMD RESISTOR	1/16W 3.3K ±5% 0603	1	R242
16		SMD RESISTOR	1/16W 4.7K ±5% 0603	8	R238~R240,R2130,R2131,R2134,R2135,R2140
17		SMD RESISTOR	1/16W 6.8K ±5% 0603	2	R2136,R2148
18		SMD RESISTOR	1/16W 10K ±5% 0603	12	R208,R229,R252,R309,R311,R313,R314,R329,R330,R339,R2164,R2106
19		SMD RESISTOR	1/16W 15K ±5% 0603	2	R209,R223
20		SMD RESISTOR	1/16W 20K ±5% 0603	6	R211,R312,R315,R316,R2129,R2133
21		SMD RESISTOR	1/16W24K±5% 0603	2	R2132,R2156
22		SMD RESISTOR	1/16W 18K ±5% 0603	1	R210
23		SMD RESISTOR	1/16W 150K ±5% 0603	2	R319,R320
24		PRECISION SMD RESISTOR	1/16W 680K ±1% 0603	2	R317,R322
25		PRECISION SMD RESISTOR	1/16W 750K ±1% 0603	1	R227
26		SMD RESISTOR	1/16W 100K ±5% 0603	6	R224,R308,R310,R2111,R2112,R246
27		CD	CD11 16V10U±20%5×11 2	10	TC201,TC202,TC217,TC232,TC233,TC236,TC240,TC241,TC225,TC226
28		CD	CD11 16V220U±20%6×12 2.5	8	TC207~TC209,TC211,TC213,TC235,TC245,TC301
29		CD	CD11 16V47U±20%5×11 2	14	TC204~TC206,TC210,TC234,TC237,TC302~TC304,TC308,TC309,TC247,TC248,TC246
30		SMD CAPACITOR	50V 20P ±5% NPO 0603	2	C222,C232
31		SMD CAPACITOR	50V 27P ±5% NPO 0603	2	C275,C276
32		SMD CAPACITOR	50V 47P ±5% NPO 0603	17	C262~C265,C266,C289,C290,C292,C293,C295,C296,C298,C299,C2101,C2102,C2104,C2105

33		SMD CAPACITOR	50V 101 ±5% NPO 0603	4	C233,C2111,C2114,C206
34		SMD CAPACITOR	50V 331 ±5% NPO 0603	2	C212,C213
35		SMD CAPACITOR	50V 151 ±5% NPO 0603	2	C304,C306
36		SMD CAPACITOR	50V 104 +80%-20% 0603	77	C207,C211,C214,C216,C217,C224,C226~C231,C234~C239,C241~C254,C256~C259,C267~C274,C279,C280~C282,C301~C303,C305,C309,C311,C312,C2138~C2143,C2155~C2157,C2160,C2161,C2163,C2164,C2168,C2169,C2166,C2170~C2175
	36.1	SMD CAPACITOR	25V 104 +80%-20% 0603	77	C207,C211,C214,C216,C217,C224,C226~C231,C234~C239,C241~C254,C256~C259,C267~C274,C279,C280~C282,C301~C303,C305,C309,C311,C312,C2138~C2143,C2155~C2157,C2160,C2161,C2163,C2164,C2168,C2169,C2166,C2170~C2175
37		SMD CAPACITOR	16V 105 +80%-20% 0603	6	C201~C204,C221,C240
38		SMD CAPACITOR	50V 102 ±10% 0603	9	C2112,C2115,C223,C278,C255,C291,C294,C297,C2116
39		SMD CAPACITOR	50V 122 ±10% 0603	2	C2122,C2129
40		SMD CAPACITOR	50V 152 ±10% 0603	1	C215
41		SMD CAPACITOR	50V 222 ±10% 0603	2	C307,C310
42		SMD CAPACITOR	50V 153 ±10% 0603	1	C210
43		SMD CAPACITOR	16V 333 ±10% 0603	1	C225
44		SMD CAPACITOR	16V 473 ±10% 0603	2	C219,C220
45		SMD CAPACITOR	16V474 +80%-20% 0603	1	C218
46		SMD INDUCTOR	10UH ±10% 2012	2	L303,L306
47		SMD INDUCTOR	1.8UH ±10% 1608	6	L243~L248
48		MAGNETIC BEADS INDUCTOR	RH354708	11	L205,L217,L220,L221,L222,L223,L227,L228,L226,L302,l239
49		SMD MAGNETIC BEADS	FCM1608K-221T05	35	L201,L203,L207~L208,L234~L236,L238,L250,L309,L229~L233,L301,L304,L305,L307,L308,L310~L312,L314,L316~L324,L218,L219
50		SMD RESISTOR	1/16W 4.7Ω ±5% 0603	1	L206
51		SMD DIODE	1N4148	16	VD201,VD205~VD207,VD210~VD221
	51.1	SMD DIODE	LS4148	16	VD201,VD205~VD207,VD210~VD221
	51.2	SMD DIODE	LL4148	16	VD201,VD205~VD207,VD210~VD221
52		TRIODE	C8050	2	V307,V308
53		TRIODE	8550C	2	V306,V309
54		SMD TRIODE	9014C	1	V310
55		TRIODE	9015C	1	Q204
56		TRIODE	C1815Y	1	Q212
57		SMD TRIODE	C1815	2	Q205,Q206
58		TRIODE	2SA1015	3	Q211,Q218,Q219
59		SMD TRIODE	3904	1	V305

60		SMD TRIODE	2SK3018	2	V303,V304
61		SMD TRIODE	2SB1132	2	V301,V302
62		IC	NJM4558M SOP	1	U219
	62.1	IC	4580 SOP	1	U219
	62.2	IC	4558 SOP	1	U219
63		IC	MM74HCU04M SOP	1	U205
	63.1	IC	HCU04 SOP	1	U205
64		IC	IC42S16100-7T SOP	2	U203,U204
65		IC	LM1117MP-ADJ SOT-223	1	U209
66		IC	CS4340-KS SOP	1	U206
67		IC	24C02N SOP	1	U202
68		IC	MT1389EE QFP	1	U201
	68.1	IC	MT1389FE QFP	1	U201
69		IC	BA5954FP HSOP	1	U302
70		CRYSTAL OSCILLATOR	27.00MHz 49-S	1	X201
71		CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLU	1	XS204
72		PCB	2967B-2	1	
73		SOCKET	5P 2.0mm	1	XS302
74		SOCKET	6P 2.0mm	2	XS303,XS201
75		SOCKET	10P 2.5mm	1	XS203
76		CABLE SOCKET	24P 0.5mm SMD WITH CLASP	1	XS301

2. MAIN PANEL

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		SOFT SPONGE	10×10×15 DOUBLE FACED, HARD	1	IR SENSOR 1PCS
2		SOFT SPONGE	13×6×14.5 DOUBLE FACED, HARD	2	LED AND PANEL 2PCS
3		LIGHT TOUCH RESTORE SWITCH	KFC-A06-2WB L3.8	3	K401~K403
4		CD	CD11C 16V4.7U±20%4×7 1.5	1	TC401
5		CD	CD11C 10V100U±20%5×7 2	3	TC402,TC403,TC404
6		DISPLAY SCREEN	TOF-2482AG-B18	1	LED401
7		IR SENSOR	LTOP-4338	1	U402
	7.1	IR SENSOR	HS0038B	1	U402
	7.2	IR SENSOR	9052-4	1	U402
8		IC	PT6961 SOP	1	U401
9		MOCROPHONE SOCKET	ST-403-070-100	1	MIC401
10		ROTATED POTENTIOMETER	WH09JTC1Z11-A10K-F30	1	VR401
11		FLAT CABLE	12-6/6P150/100 2.0 T3 WITH L NEEDLE REVERSE	1	XS401
12		SMD RESISTOR	1/16W 100Ω ±5% 0603	1	R405
13		SMD RESISTOR	1/16W 51K ±5% 0603	1	R401
14		SMD RESISTOR	1/16W 10K ±5% 0603	4	R402,R403,R404,R407
15		SMD RESISTOR	1/16W 4.7K ±5% 0603	1	R409
16		SMD RESISTOR	1/16W 560Ω ±5% 0603	1	R408
17		SMD RESISTOR	1/16W 22K ±5% 0603	1	R406
18		SMD CAPACITOR	50V 104 +80%-20% 0603	3	C401,C402,C403
19		SMD CAPACITOR	50V 103 ±10% 0603	1	C404
20		SMD MAGNETIC BEADS	FCM1608K-221T05	2	L401,L402
21		SMD DIODE	1N4148	1	VD401
22		PCB	4703A-1	1	

3. POWER BOARD

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		CARBON FILM RESISTOR	1/4W10K±5% SHAPED 10	1	R507
2		METAL FILM RESISTOR	1/4W3.6K±1% SHAPED 10	1	R508
3		CARBON FILM RESISTOR	1/4W9.1K±5% SHAPED 10	1	R512
4		METAL FILM RESISTOR	1/4W10K±1% SHAPED 10	1	R509
5		CARBON FILM RESISTOR	1/4W75Ω±5% SHAPED 10	1	R505
6		METAL OXIDE FILM RESISTOR	2W39K±5% SHAPED FLAT 15×9	1	R503
7		VOLTAGE REGULATOR DIODE	9.1V 1W	1	ZD502
8		METAL OXIDE FILM RESISTOR	1W22Ω±5% SHAPED R 15×8	1	R511
9		CARBON FILM RESISTOR	1/4W510Ω±5% SHAPED 10	1	R506
10		HIGH VOLTAGE RESISTOR	1/2W680K±5%	1	R501
11		DIODE	1N4007	4	D501~D504
12		PORCELAIN CAPACITOR	50V 104 ±20% 5mm	4	C504,C508,C510,C515
13		PORCELAIN CAPACITOR	1000V 103 +80%-20% 7.5mm	1	C502
14		PORCELAIN CAPACITOR	1000V 101 +80%-20% 7.5mm	1	C503
	14.1	PORCELAIN CAPACITOR	1000V 101 ±10% 7.5mm	1	C503
15		TERYLENE CAPACITOR	50V 473 ±10% 6mm	1	C506
16		CD	CD11T 50V47u±20%6×12 2.5	2	TC502,TC512
17		CD	KM 400V47U±20%18×20 7.5	1	TC501
18		CD	CD11T 16V100u±20%6×12 2.5	1	TC513
19		CD	CD11T 25V220U±20%8×12 3.5	2	TC503,TC504
20		CD	CD11T 10V1000u±20%8×16 3.5	3	TC505,TC506,TC510
21		MAGNETIC BEADS INDUCTOR	RH354708	1	L503
22		CHOKE COIL	VERTICAL 10UH 1A 5mm	1	L505
23		CHOKE COIL	VERTICAL 10UH 2A 5mm	1	L507
24		PHOTOELECTRIC COUPLER	HS817	1	U502
	24.1	PHOTOELECTRIC COUPLER	PC817	1	U502
25		DIODE	RL202	2	D513,D509
26		DIODE	HER105	3	D506,D508,D511
27		DIODE	HER107	1	D505
28		SCHOTTKY DIODE	SR560 DO-27	1	D510
29		IC	LM431ACZ TO-92	1	U503
	29.1	IC	TL431C TO-226AA(LP)	1	U503
	29.2	IC	431L TO-92	1	U503
	29.3	IC	MIK431C TO-92	1	U503
30		TERYLENE CAPACITOR	275V 104 ±20% 15mm	1	BC501
	30.1	TERYLENE CAPACITOR	275V 104 ±10% 15mm	1	BC501
31		CERAMIC CAPACITOR	CT81 250VAC221±20% 10mm	1	BC503
	31.1	CERAMIC CAPACITOR	CT81 250VAC221±10% 10mm	1	BC503
32		SWITCHING POWER TRANSFORMER	BCK-19-0179	1	T501
33		POWER GRID	UT-20 40mH ±20% 10×13	1	L501
34		PCB	5501A-3	1	
35		CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	2	JP501,JP503
36		CONNECTION CORDS	Φ0.6 SHAPED 5mm	1	JP502
37		FUSE	T1.6AL 250V WITH LEADS	1	F501
38		SOCKET	2P 8.0mm 2#	2	BCN501,BCN502
39		SOCKET	7P 2.0mm	1	CN502
40		IC	VIPER22A DIP8	1	U501
41		GROUND CHIP OF POWER BOARD	AB903	2	G501,G502

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	3	R607,R619,R626
2		CARBON FILM RESISTOR	1/6W4.7K±5% SHAPED 7.5	2	R622,R628
3		CARBON FILM RESISTOR	1/6W5.1K±5% SHAPED 7.5	1	R616
4		CARBON FILM RESISTOR	1/6W10K±5% SHAPED 7.5	5	R617,R621,R620,R624,R612
5		CARBON FILM RESISTOR	1/6W10Ω±5% SHAPED 7.5	2	R632,R633
6		CARBON FILM RESISTOR	1/6W15K±5% SHAPED 7.5	2	R614,R618
7		CARBON FILM RESISTOR	1/6W18K±5% SHAPED 7.5	1	R615
8		CARBON FILM RESISTOR	1/6W47K±5% SHAPED 7.5	1	R608
9		CARBON FILM RESISTOR	1/6W27K±5% SHAPED 7.5	1	R629
10		CARBON FILM RESISTOR	1/6W33K±5% SHAPED 7.5	2	R609,R613
11		CARBON FILM RESISTOR	1/6W3.3K±5% SHAPED 7.5	1	R610
12		CD	CD11 16V4.7U±20%5×11 2	6	TC603,TC607,TC610,TC611,TC613,TC621
13		CD	CD11 16V22U±20%5×11 2	1	TC605
14		CD	CD11 10V47U±20%5×7 2	1	TC609
	14.1	CD	CD11C 16V47U±20%5×7 2	1	TC609
15		CD	CD11 25V100U±20%6×12 2.5	3	TC608,TC615,TC616
16		PORCELAIN CAPACITOR	50V 101 +80%-20% 5mm	3	C607,C605,C620
17		PORCELAIN CAPACITOR	50V 102 +80%-20% 5mm	1	C619
18		PORCELAIN CAPACITOR	50V 103 +80%-20% 5mm	1	C616
19		PORCELAIN CAPACITOR	50V 104 +80%-20% 5mm	7	C601,C602,C622,C609,C613,C614,C623
20		PORCELAIN CAPACITOR	50V 392 ±20% 5mm	2	C608,C615
21		PORCELAIN CAPACITOR	50V 561 +80%-20% 5mm	2	C610,C612
22		IC	NJM4558D DIP	2	U601,U602
23		SOCKET	6P 2.0mm	2	XS601,XS602
24		CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	7	JP601~JP607
25		PCB	6962S-1	1	
26		IC	PT2399 DIP	1	U603

5. OUTPUT BOARD

NO		MATERIAL	SPECIFICATIONS/PART NUMBER	QUANTITY	LOCATION
1		CARBON FILM RESISTOR	1/4W68Ω±5%	1	R703
2		CARBON FILM RESISTOR	1/4W220Ω±5% SHAPED 10	1	R701
3		CARBON FILM RESISTOR	1/4W330Ω±5% SHAPED 10	1	R709
4		CARBON FILM RESISTOR	1/4W33Ω±5% SHAPED 10	1	R708
5		CARBON FILM RESISTOR	1/4W100Ω±5% SHAPED 10	1	R702
6		CARBON FILM RESISTOR	1/4W2.2Ω±5% SHAPED 10	1	R706
7		CARBON FILM RESISTOR	1/4W4.7K±5% SHAPED 10	1	R704
8		CARBON FILM RESISTOR	1/4W1K±5% SHAPED 10	1	R711
9		CARBON FILM RESISTOR	1/4W2.2K±5% SHAPED 10	2	R710,R712
10		CARBON FILM RESISTOR	1/4W75Ω±5% SHAPED 10	1	R705
12		PORCELAIN CAPACITOR	50V 102 +80%-20% 5mm	2	C705,C706
13		PORCELAIN CAPACITOR	50V 104 +80%-20% 5mm	4	C707,C710,C711,C716
14		PORCELAIN CAPACITOR	50V 224 ±10% 5mm	1	C715
	14.1	PORCELAIN CAPACITOR	50V 224±20% 5mm	1	C715
15		SMD RESISTOR	1/16W 0Ω ±5% 0603	6	R714~R719
16		TRIODE	S8050D	3	V701~V703
17		MAGNETIC BEADS INDUCTOR	RH354708	10	L713,L714,L705~L712
18		ELECTRO-OPTIC TRANSFORMER	TX179ATW	1	JK705

	18.1	ELECTRO-OPTIC TRANSFORMER	TX179AT	1	JK705
19		TERMINAL SOCKET	AV4-8.4-6G-3	1	JK702
20		TERMINAL SOCKET	SA-001-012 BLACK METAL SCREEN SHIELD	1	JK703
21		TERMINAL SOCKET	AV2-8.4--6G	1	JK701
22		CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLU	1	XS701
23		CONNECTION CORDS	Φ0.6 SHAPED 10mm	12	JP701~JP711,R707
24		SCART SOCKET	SCART-01	1	JK706
25		PCB	7962S-2	1	