SERVICE MANUAL

ABS551T

CONTENTS

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.

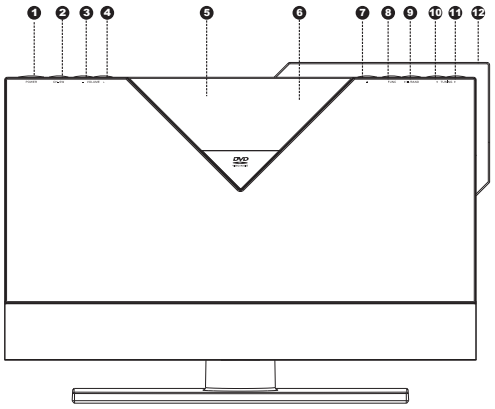
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity(ESD).

notice (1885x323x2 tiff)

IMPORTANT SAFETY NOTICE

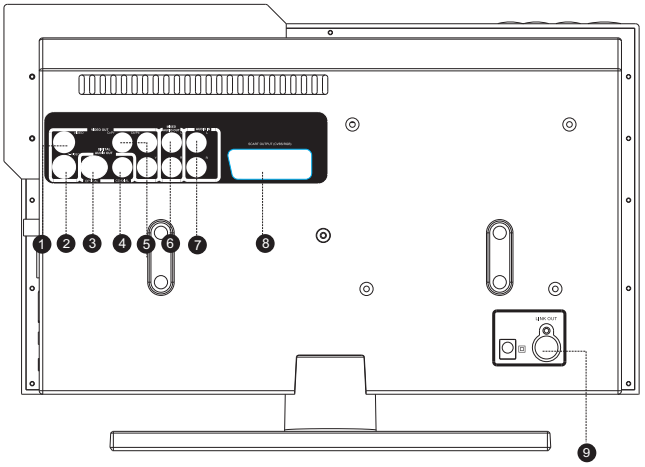
There are special components used in this equipment which are important for safety.
These parts are marked by ⚠ in the schematic diagrams, exploded views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without obtaining written permission from manufacturer.

■ Front panel illustration



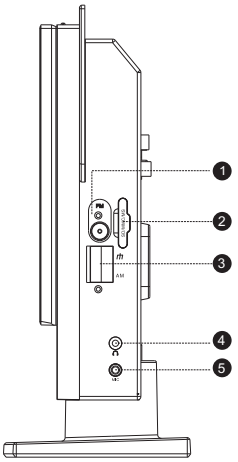
❶ POWER button
❷ Channel Switch Button
❸ VOL- button
❹ VOL+ button
❺ Display window
❻ IR sensor
❼ OPEN/CLOSE button
❽ FUNCTION button
❾ PLAY/STOP button
BAND button
❿ PREV button
TUNING<< button
⓫ NEXT button
TUNING>> button
⓬ Glass

■ Rear panel illustration



❶ Video out terminal
❷ S-video
❸ Optical out terminal for digital audio
❹ Coaxial out terminal for digital audio
❺ Component video/Y Pb Pr out terminal
❻ Front amplifying audio out terminal
❼ External audio in terminal 1
❽ SCART Out jack
❾ I-LINK out terminal

■ Side panel illustration



❶ FM antenna input terminal
❷ Card reader port
❸ AM antenna input terminal
❹ Headphone jack
❺ MIC jack

4.PREVENTION OF STATIC ELECTRICITY DISCHARGE

The laser diode in the traverse unit (optical pickup)may brake 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.

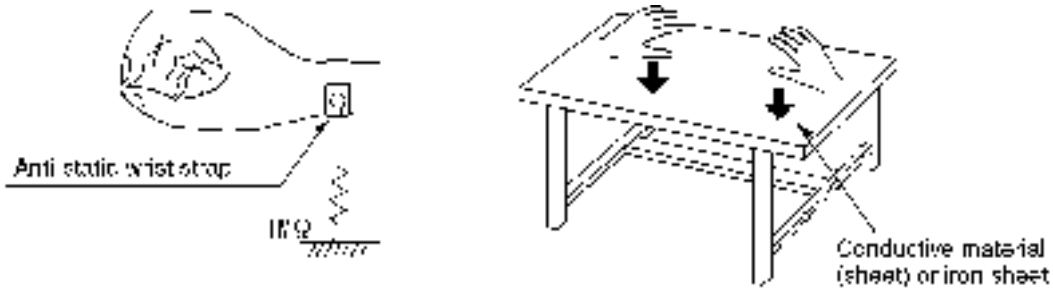
4.1.1. Worktable grounding

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.

safety_3 (1577x409x2 tiff)



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 willdamage the laser diode due to the power supply in the tester.

4.2. Handling precautions for Traverse Unit (Optical Pickup)

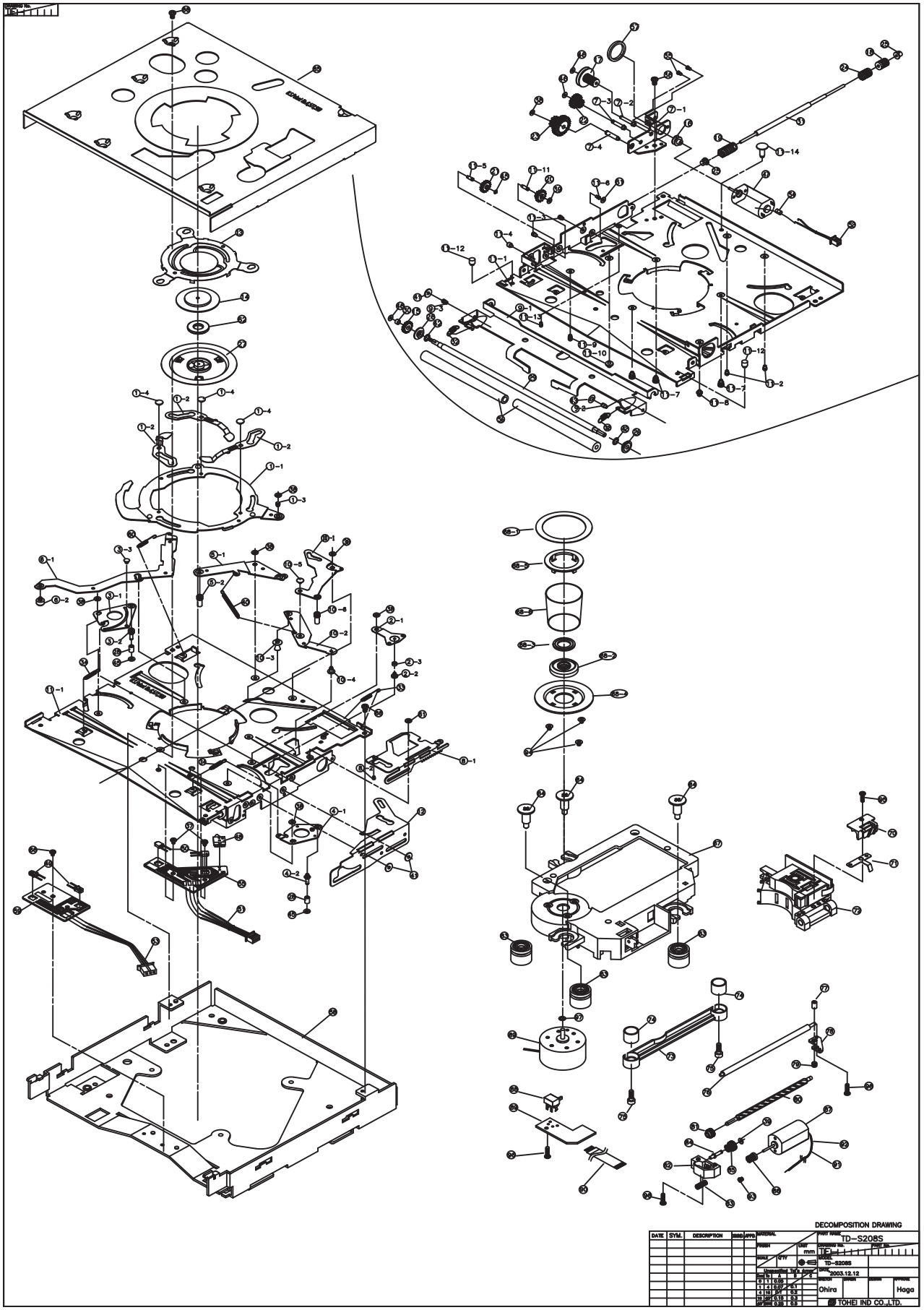
1. Do not give a considerable shock to the traverse unit(optical pickup)as it has an extremely high-precise structure.

2. When replacing the optical pickup, install the flexible cable and cut is short land with a nipper. See the optical pickup replacement procedure in this Technical Guide. Before replacing the traverse unit, remove the short pin for preventingstatic 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 EXPLOSED VIEW AND PART LIST

[illegible]電子[illegible]有限公司 [illegible]

Parts List

NO.	PART CODE	PART NAME	DRAWING	Q'ty	NOTE
1	C3A001	AS-CLAMPER-PLATE	TB-L0048	(1)	
1-1	C3P001	CLAMPER-PLATE	TB-L0050	1	
1-2	C3P002	LIFTING CAM	TB-L4051	3	
1-3	C3E001	CL PLATE SP	TB-L4053	1	
1-4	C3E002	LIFTING CAM SFT	TB-L4054	3	
2	C3A002	AS-LIFTING LEVER	TB-L4049	(1)	
2-1	C3P003	LIFTING LEVER	TB-L4052	1	
2-2	C3E003	LIFTING SHAFT	TB-L4055	1	
2-3	C3E004	LIFTING COLLAR	TB-L4056	1	
3	C3A003	AS-[illegible]-LEVER-L	TB-L4030	(1)	
3-1	C3P004	D-GUIDE-LEVER-L	TB-L4057	1	
3-2	C3E005	DISC-OPEN-SFT-L	TB-L0058	1	
3-3	C3E040	CLP-GUIDE-SFT	TB-L4070	1	
4	C3A004	AS-[illegible]-LEVER-R	TB-L4031	(1)	
4-1	C3P005	D-GUIDE-LEVER-R	TB-L4059	1	
4-2	C3E006	DISC-OPEN-SFT-R	TB-L4002	1	
5	C3A005	AS-LINK-LEVER-L	TB-L4032	(1)	
5-1	C3P006	LINK-LEVER	TB-L4060	1	
5-2	C3E007	D-SELECT-SHAFT	TB-L4005	1	
6	C3A006	AS-DISK-CAT-LEVER	TB-L4034	(1)	
6-1	C3P007	DISC-SK-CAT-LEVER	TB-L4061	1	
6-2	C3E008	D-SELECT-SFT-A	TB-L4006	1	
7	C3A007	AS-GEAR-BASE	TB-L4034	(1)	
7-1	C3P008	GEAR-BASE	TB-L0062	1	
7-2	C3E009	TWIN GEAR-SHAFT	TB-L4007	1	
7-3	C3E010	C-GEAR-A-SHAFT	TB-L4008	1	
7-4	C3E011	C-GEAR-B-SHAFT	TB-L4009	1	
8	C3A008	AS-RACK-PLATE	TB-L4035	(1)	
8-1	C3P009	RACK-PLATE	TB-L0063	1	
8-2	C3E012	RACK-PLATE-SHAFT	TB-L4010	1	
9	C3A009	AS-ROLLER-BASE	TB-L4036	(1)	
9-1	C3P010	ROLLER BASE	TB-L0064	1	
9-2	C3E013	R-B-SHAFT-L	TB-L4011	1	
9-3	C3E014	R-B-SHAFT-R	TB-L4012	1	
10	C3A010	AS-LINK-CHANGE	TB-L4037	(1)	
10-1	C3P011	LINK-LEVER-B	TB-L4065	1	
10-2	C3P012	CHANGE-LEVER	TB-L4066	1	
10-3	C3E015	C-LEVER-SFT-A	TB-L4013	1	
10-4	C3E016	C-LEVER-SFT-B	TB-L4014	1	
10-5	C3E017	C-LEVER-SFT-C	TB-L4015	1	
10-6	C3E007	D-SELECT-SHAFT	TB-L4005	1	
11	C3A015	AS-LOADER-BASE	TB-L4038	(1)	
11-1	C3P013	LOADING-BASE	TB-L4067	1	
11-2	C3E019	LEVER-SHAFT	TB-L4017	2	

NO.	PART CODE	PART NAME	DRAW NO.	Q'TY	NOTE
11-3	C3E020	CAM-SHAFT	DB-L0013	2	
11-4	[illegible]	[illegible]	[illegible]	1	
11-5	[illegible]	[illegible]	[illegible]	1	
11-6	[illegible]	[illegible]	[illegible]	1	
11-7	[illegible]	[illegible]	[illegible]	[illegible]	
11-8	C3E025	D-G-A-SHAFT-L	DB-L0020	1	
11-9	C3E026	D-G-A-SHAFT-R	DB-L0021	1	
11-10	C3H021	TIMING-LVR-SFT-N	DB-L0085	1	
11-11	[illegible]	[illegible]	[illegible]	1	
11-12	[illegible]	[illegible]	[illegible]	[illegible]	
11-13	[illegible]	[illegible]	[illegible]	1	
11-14	C3H025	EJECT-GUIDE-SFT	DB-L0182	1	
12	C3P014	CAM-R	DB-L0083	1	
13	C3P015	CLAMPER-TOP	DB-L0080	1	
14	[illegible]	[illegible]	[illegible]	1	
15	[illegible]	[illegible]	[illegible]	1	
16	[illegible]	[illegible]	[illegible]	1	
17	[illegible]	[illegible]	[illegible]	1	
18	C3G001	HERICAL-GEAR	DB-L0002	1	
19	C3G005	WORM-LOAD	DB-L0003	1	
20	C3G006	GEAR-LOAD-A	DB-L0004	1	
21	[illegible]	[illegible]	[illegible]	1	
22	[illegible]	[illegible]	[illegible]	1	
23	[illegible]	[illegible]	[illegible]	1	
24	C3G010	WORM-CHUCK	DB-L0008	1	
25	C3G011	SHAFT-CAP	DB-L0009	2	
26	C3G012	BEARING-ROLLER	DB-L0010	2	
27	C3G022	CLAMPER-LO	DB-L0122	1	
28	[illegible]	[illegible]	[illegible]	[illegible]	
29	[illegible]	[illegible]	[illegible]	1	
30	[illegible]	[illegible]	[illegible]	1	
31	C3H020	WORM-SHAFT	DB-L0003	1	
32	C3S006	ROLLER-SPRING	DB-L0101	2	
33	C3S008	LEVER-SPRING	DB-L0106	1	
34	C3S005	D-GUIDE-SP	DB-L0100	2	
35	[illegible]	[illegible]		[illegible]	
36	[illegible]	[illegible]		1	
37	[illegible]	[illegible]		[illegible]	
38	P16C027	PSW1.6 2.7×0.250(BK)		[illegible]	
39	P120R20	PSW1.2 2.2×0.250(RED)		2	
40	C3S007	C-LEVER-SPRING	DB-L0105	1	
41	[illegible]	[illegible]		[illegible]	
42	[illegible]	[illegible]		[illegible]	
43	[illegible]	[illegible]	[illegible]	1	
45	P120200	PSW1.2 2.0×0.250		3	
46	P120004	PSW1.2 4 0 40		3	
47	MC1T275	XT M1X10FB10X		1	or [illegible]
48	SC1W207	BSE2002F20		1	
49	[illegible]	[illegible]		[illegible]	
50	[illegible]	[illegible]		[illegible]	
51	[illegible]	[illegible]	[illegible]	1	
52	[illegible]	[illegible]	[illegible]	1	
53	C3G025	CMSP-TL-S	DB-L0041	1	

NO.	PART CODE	PART NAME	DRAWING No.	Q'ty	NOTE
54	C5C002	φ2.5×5 [illegible] TUBE(BK)	TD 15480	1	
55	[illegible]	[illegible]	[illegible]	1	
56	C8C002	ROLLER	TD 14280	2	
57	C8C017	LOADING BELT B	TD 14102	1	
58	[illegible]	[illegible]	[illegible]	1	
59	[illegible]	[illegible]	[illegible]	1	
60	C8S003	LEVER SPRING D	TD 14358	1	
61	F12[illegible]K02	PSW1.2×3.2×0.2[illegible]		2	
62	[illegible]	[illegible]	[illegible]	1	
63	C2C083	DAMPER [illegible]	TD 14380	3	
64	C1D011	SCW DAMPER	TD 15324	3	
65	[illegible]	[illegible]	[illegible]	1	
66	[illegible]	[illegible]		2	
67	D4C005	HEAD PT 25	TD 14917	1	
68	D4A002	T/T BL ASSY		(1)	
68-1	[illegible]	[illegible]	[illegible]	1	
68-2	D4D005	T.T BUSH [illegible]	TD 15232	1	
68-3	C8P042	YOKE B	TD 14931	1	
68-4	[illegible]	[illegible]	[illegible]	1	
68-5	[illegible]	[illegible]	[illegible]	1	
68-6	C8S010	ELEVATOR SPG	TD 14902	1	
69	M001305	DC MT 300P 12350		1	
70	[illegible]	[illegible]	[illegible]	1	
71	D4P001	RACK SPG 25	TD 14907	1	
72	D4C010A	ST [illegible]		1	
73	[illegible]	[illegible]	[illegible]	1	
74	[illegible]	[illegible]	[illegible]	2	
75	D4D003	M2×5 SCREW	TD 14907	2	
76	D4D002	STT MAIN 25	TD 14906	1	
77	[illegible]	[illegible]	[illegible]	1	
78	D1P001	PLATE MAIN CUT	TD 14384	1	
79	D1D012	M2.6×3 [illegible] SCREW	TD 14585	1	
80	[illegible]	[illegible]	[illegible]	1	
81	[illegible]	[illegible]	[illegible]	1	
82	D4C004	HOLDER 25	TD 14916	1	
83	D1S001	SPG LEAD	TD 14380	1	
84	[illegible]	[illegible]	[illegible]	1	
85	[illegible]	[illegible]	[illegible]	1	
86	D1C002	GEAR MOTOR	TD 14931	1	
87	[illegible]	[illegible]		1	
88	[illegible]	[illegible]		1	[illegible]
89	D4P002	SW PCB 25	TD 14908	1	
90	D3P004	FFC [illegible]	TD 14653	1	
91	[illegible]	[illegible]	[illegible]	1	
92	[illegible]	[illegible]	[illegible]	1	
93	D1[illegible]K005	M1.4×3 PRECISION SCREW TYPE 5		1	
94	[illegible]	[illegible] SCREW		2	
95	[illegible]	[illegible]		1	
96	[illegible]	M1.7×5 PRECISION SCREW TYPE [illegible]		3	
97	F10W325	PCW1.65×3.5×0.25		1	

5.2 MISCELLANEOUS

5.2.1 Protection of the LD(Laser diode)

Short the parts of LD circuit pattern by soldering.

5.2.2 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 shortlands 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 H2S,SO2, NO2 and Cl2)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

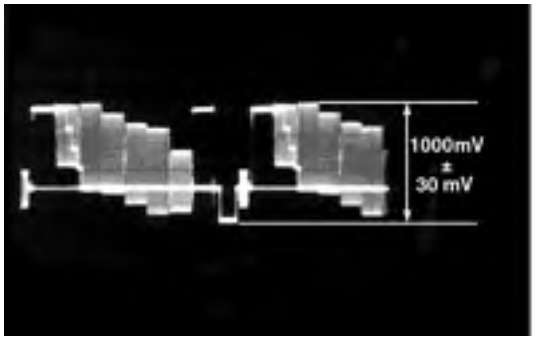
DO this confirmation after replacing a P.C.B.

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

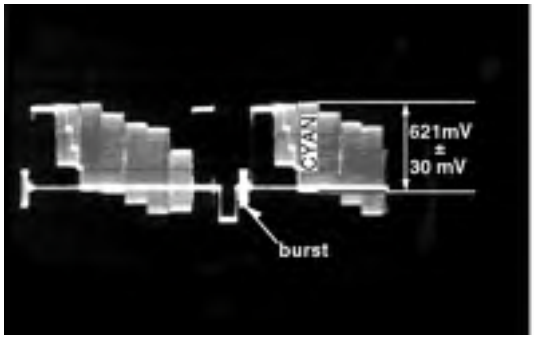
Do the confirmation after replacing P.C.B.

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±30mV	

Purpose:To maintain video signal output compatibility.

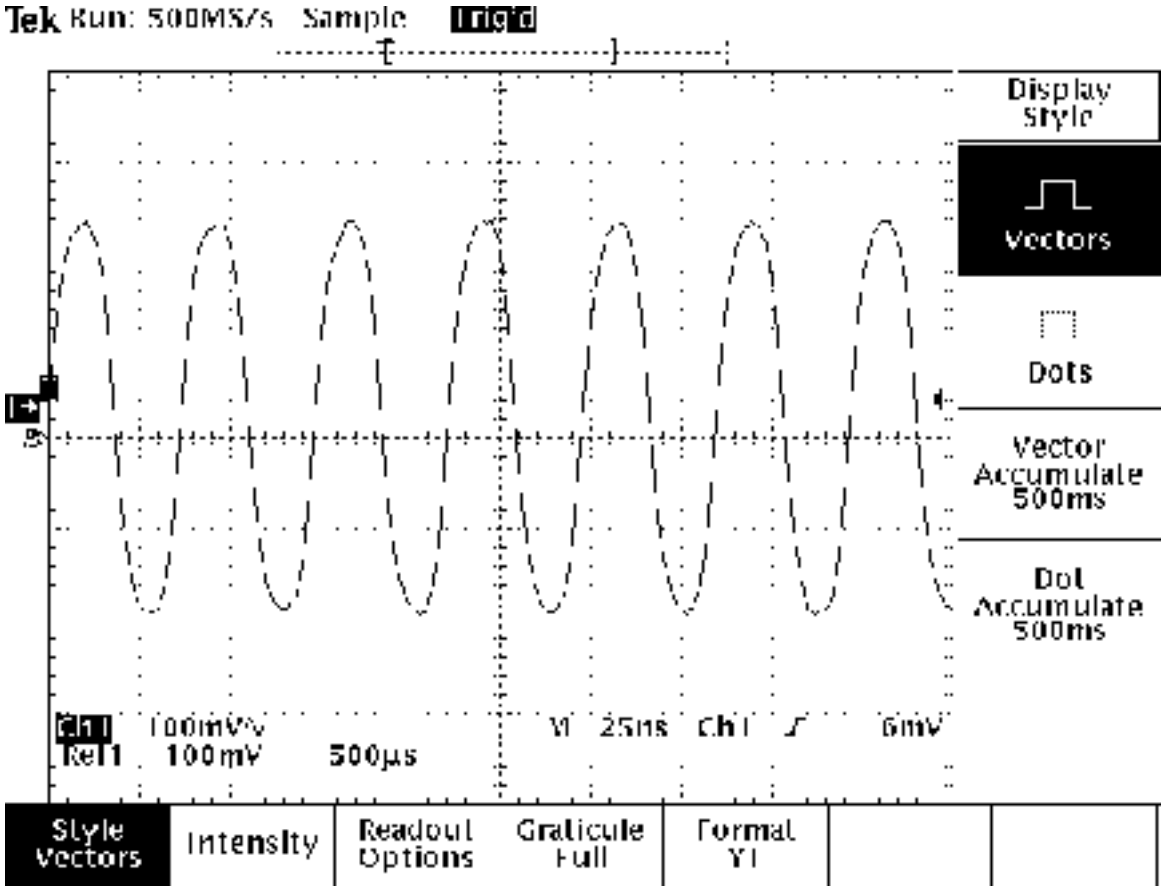
1.Connect the oscilloscope to the video output terminal and terminate at 75 ohme.

2.Confirm that the chrominance signal(C)level is 621 mVp-p±30mV

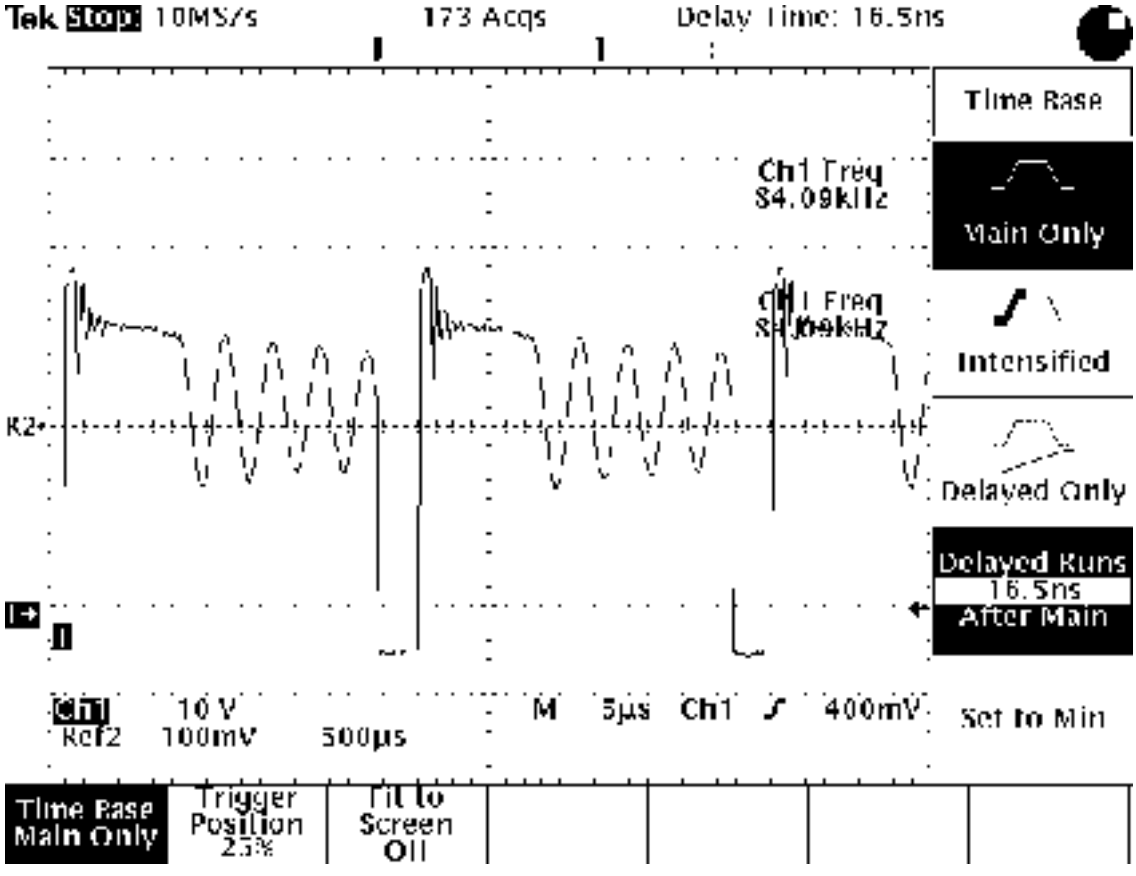


7.MPEG BOARD CHECK WAVEFORM

7.1 27MHz WAVEFORM



7.2 IC TEA1523 PIN.8 WAVEFORM DIAGRAM



MT1389

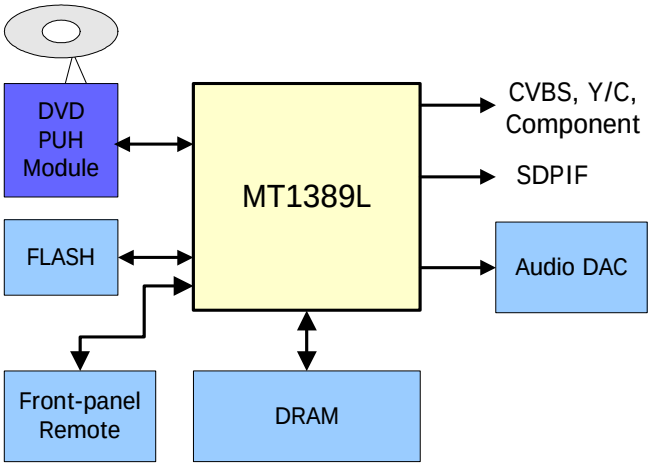
Progressive-Scan DVD Player SOC

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

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 µm process technology**
  - — Fully compatible with 0.32 µm 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

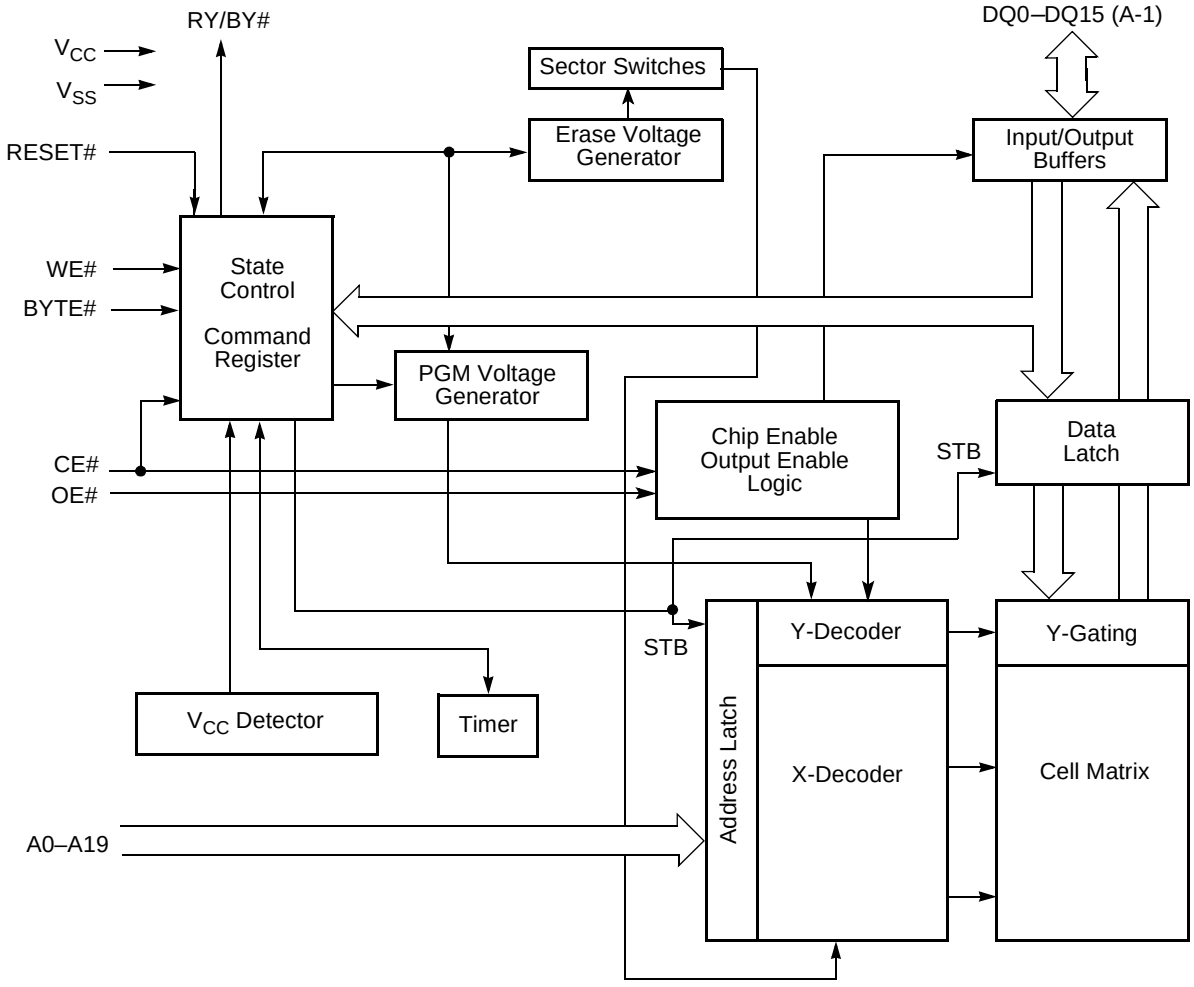
Publication# **22358** Rev: **B** Amendment/**+3**
Issue Date: **November 10, 2000**

PRODUCT SELECTOR GUIDE

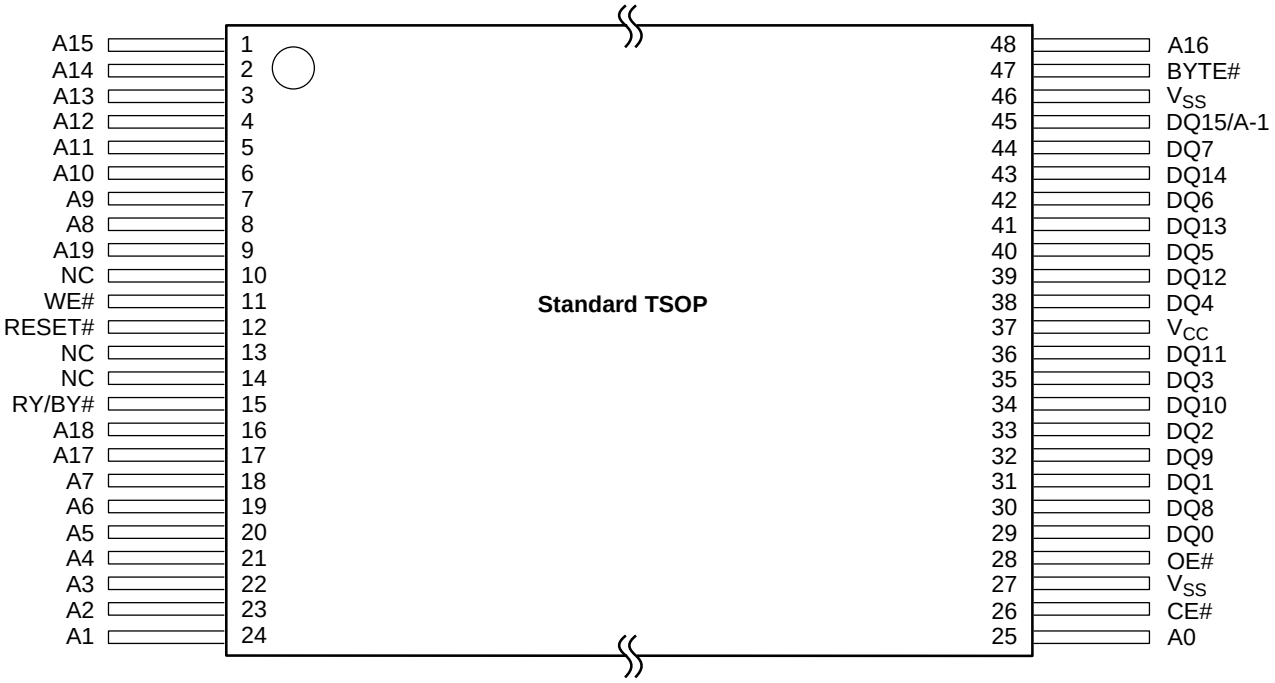
Family Part Number		Am29LV160D		
Speed Option	Voltage Range: V_{CC} = 2.7–3.6 V	**-70**	**-90**	**-120**
Max access time, ns (t_{ACC})		70	90	120
Max CE# access time, ns (t_{CE})		70	90	120
Max OE# access time, ns (t_{OE})		30	35	50

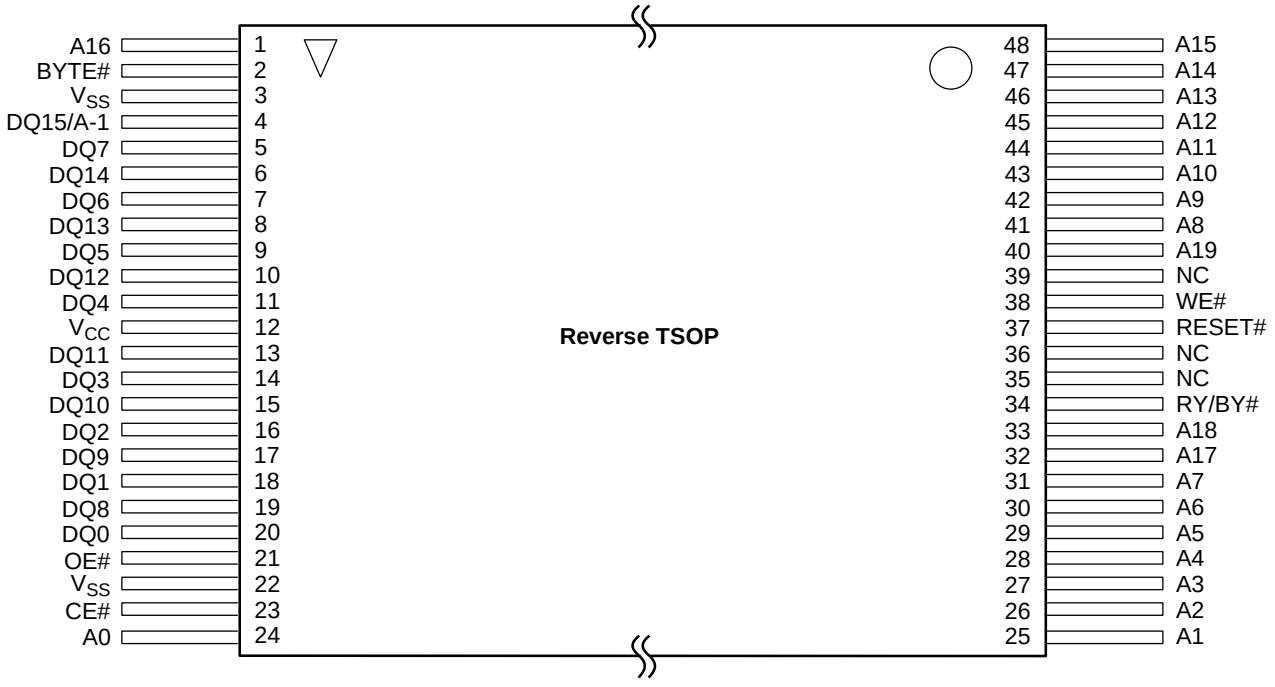
Note: *See "AC Characteristics" for full specifications.*

BLOCK DIAGRAM

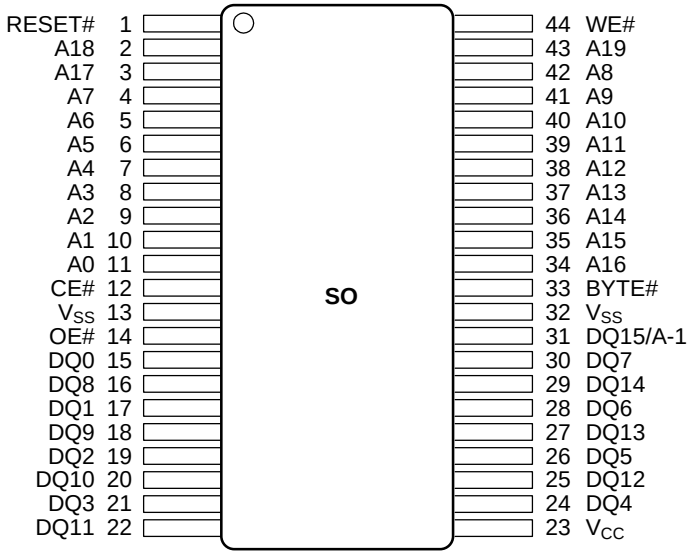


CONNECTION DIAGRAMS





CONNECTION DIAGRAMS



FBGA
Top View, Balls Facing Down

A6	B6	C6	D6	E6	F6	G6	H6
A13	A12	A14	A15	A16	BYTE#	DQ15/A-1	V_{SS}
A5	B5	C5	D5	E5	F5	G5	H5
A9	A8	A10	A11	DQ7	DQ14	DQ13	DQ6
A4	B4	C4	D4	E4	F4	G4	H4
WE#	RESET#	NC	A19	DQ5	DQ12	V_{CC}	DQ4
A3	B3	C3	D3	E3	F3	G3	H3
RY/BY#	NC	A18	NC	DQ2	DQ10	DQ11	DQ3
A2	B2	C2	D2	E2	F2	G2	H2
A7	A17	A6	A5	DQ0	DQ8	DQ9	DQ1
A1	B1	C1	D1	E1	F1	G1	H1
A3	A4	A2	A1	A0	CE#	OE#	V_{SS}

Special Handling Instructions

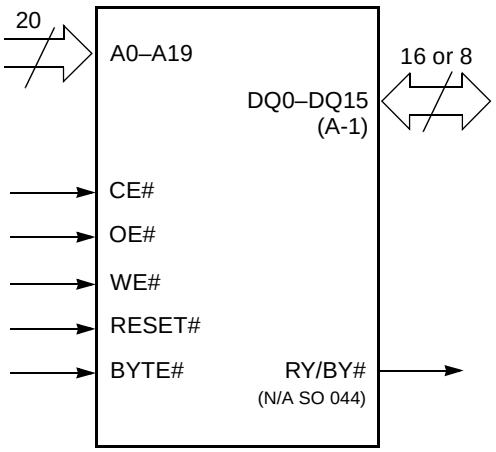
Special handling is required for Flash Memory products in FBGA packages.

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



8.4 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.

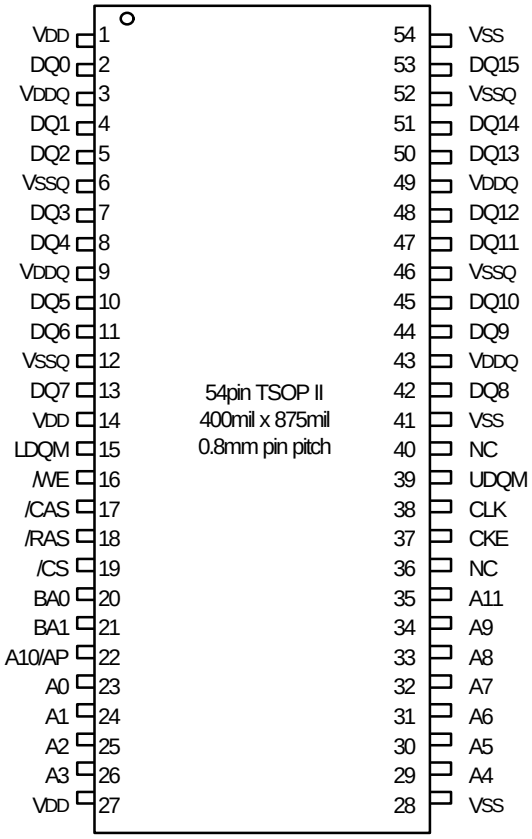
HY57V641620HG is offering fully synchronous operation referenced to a positive edge of the clock. All inputs and outputs are synchronized with the rising edge of the clock input. The data paths are internally pipelined to achieve very high bandwidth. All input and output voltage levels are compatible 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)
- All device pins are compatible with LVTTL interface
- JEDEC standard 400mil 54pin TSOP-II with 0.8mm of pin pitch
- All inputs and outputs referenced to positive edge of system clock
- Data mask function by UDQM or LDQM
- Internal four banks operation
- Auto refresh and self refresh
- 4096 refresh cycles / 64ms
- Programmable Burst Length and Burst Type
  - 1, 2, 4, 8 or Full page for Sequential Burst
  - 1, 2, 4 or 8 for Interleave Burst
- Programmable $\overline{\text{CAS}}$ Latency ; 2, 3 Clocks

PIN CONFIGURATION

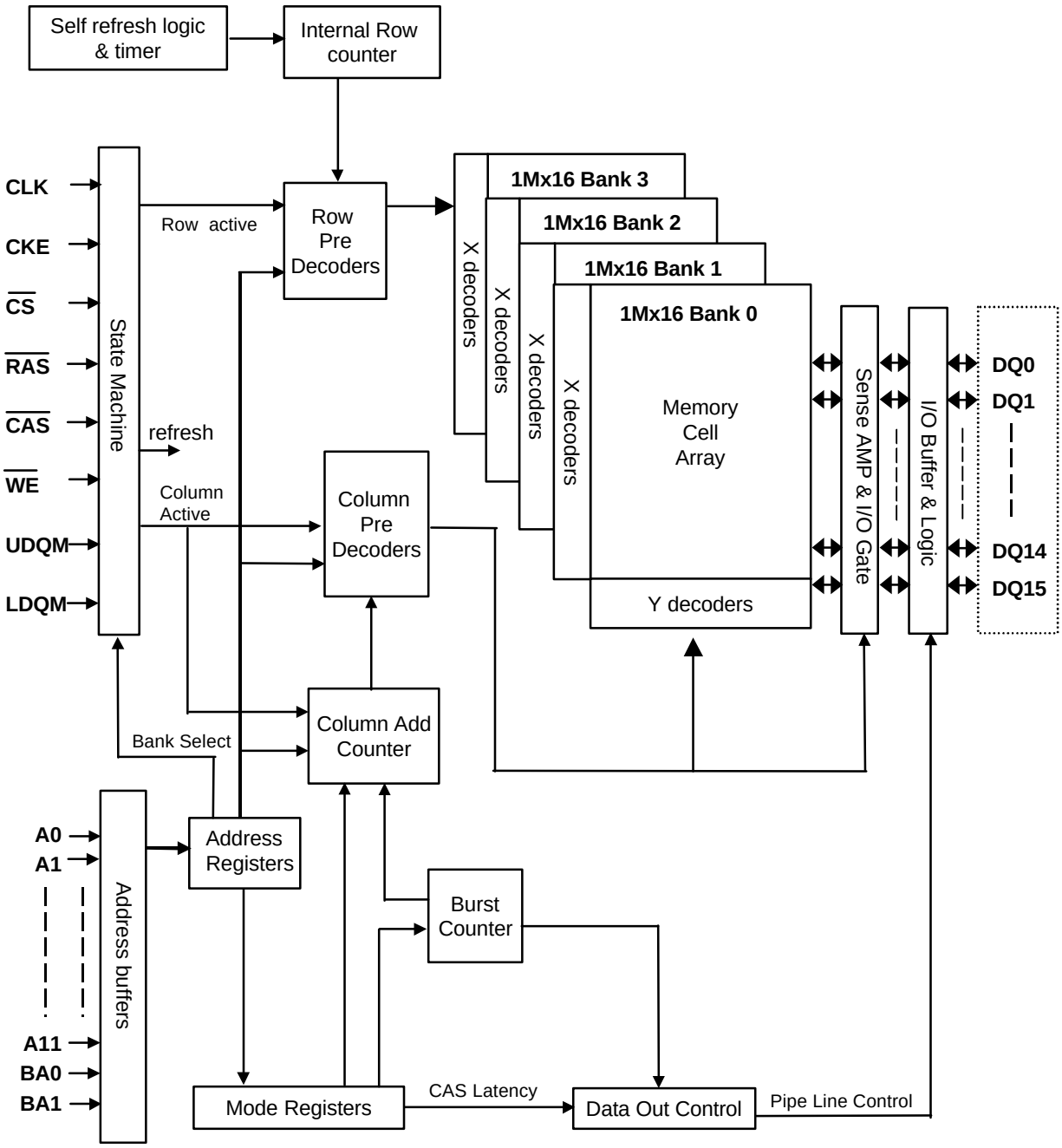


PIN DESCRIPTION

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 $\overline{CAS}$ 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

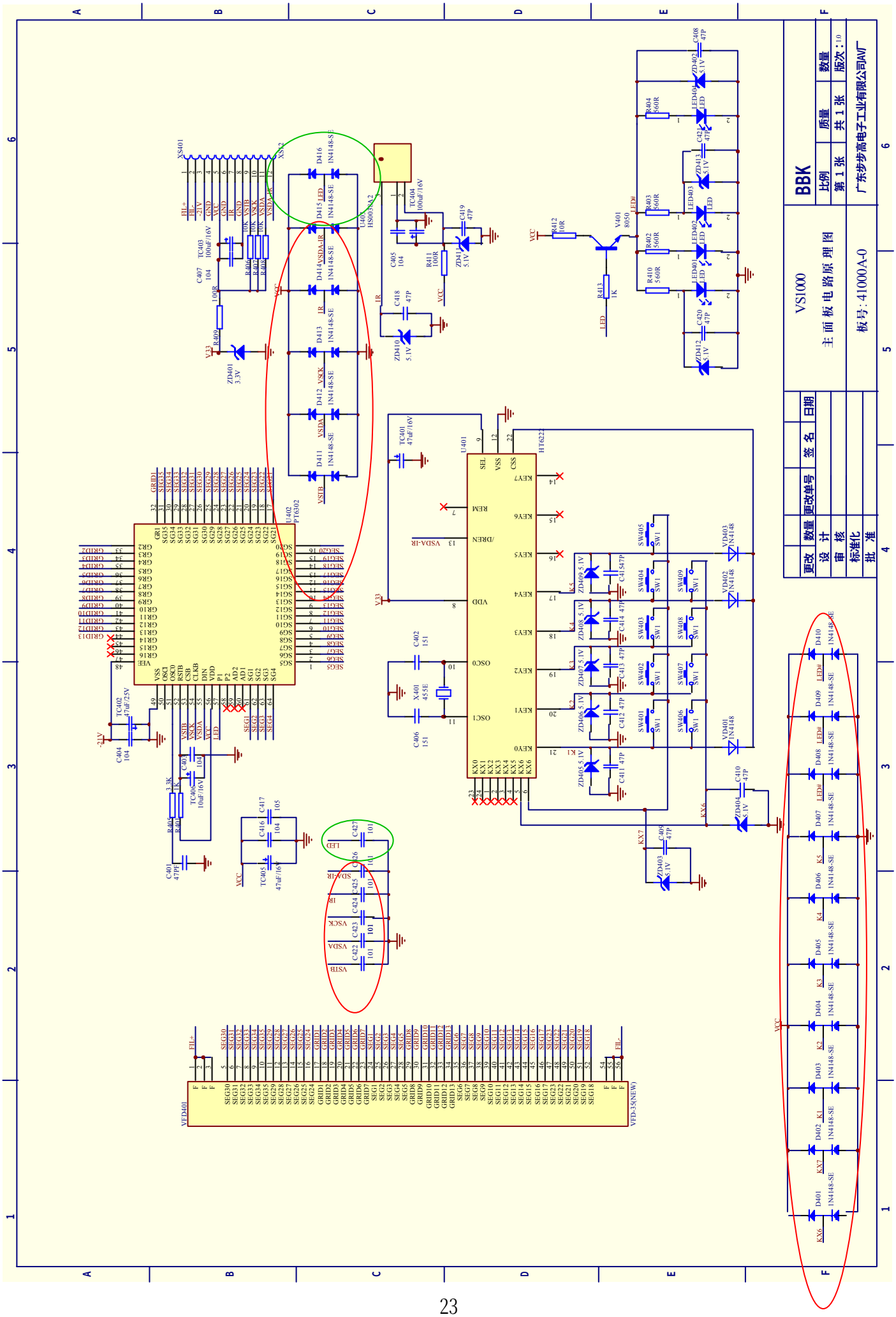
FUNCTIONAL BLOCK DIAGRAM

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

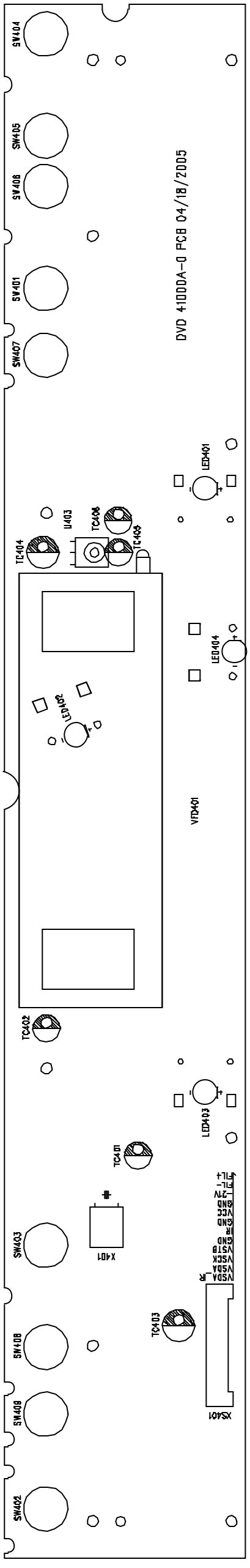


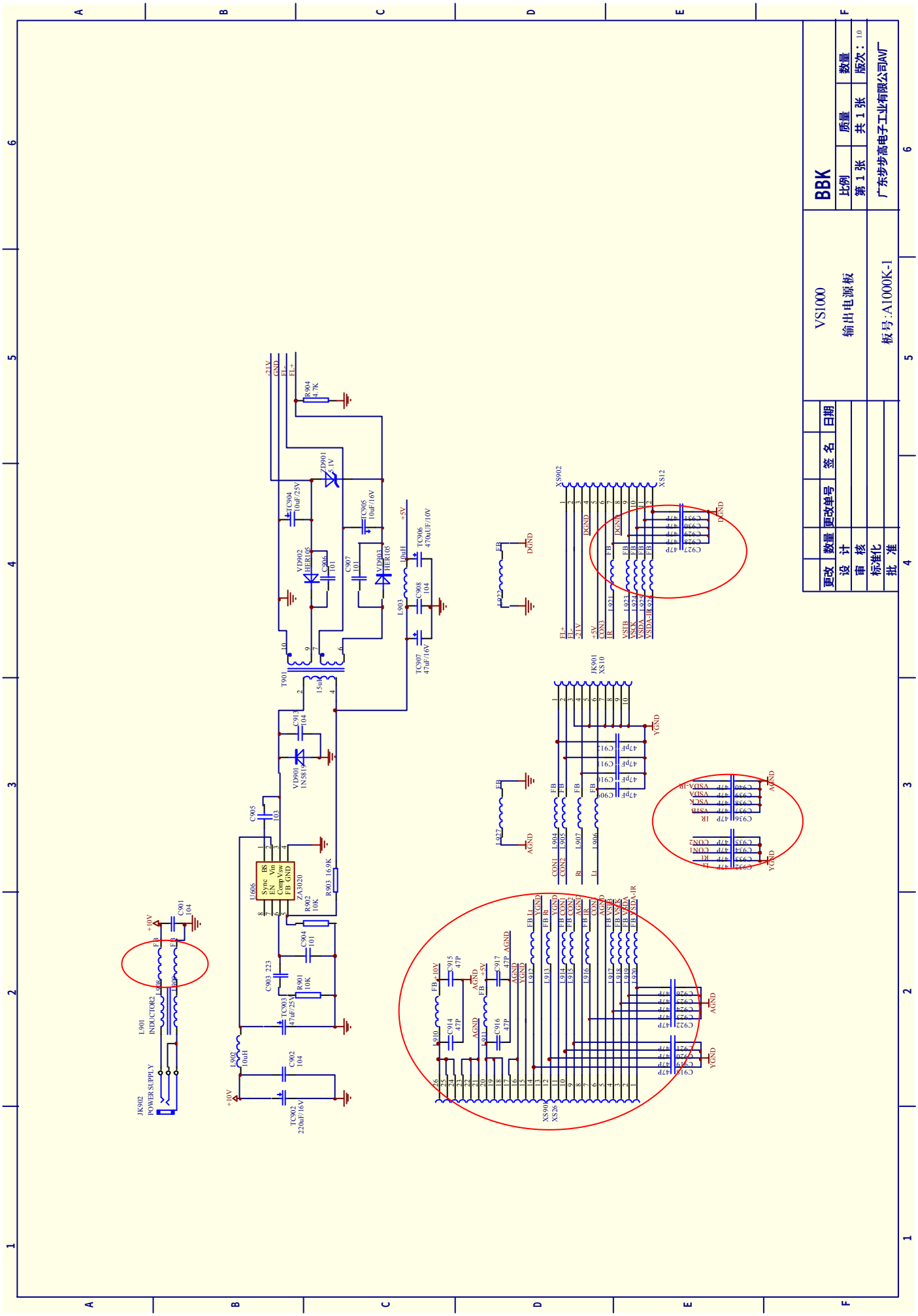
9. SCHEMATIC & PCB WIRING DIAGRAM SCHEMATIC & PCB WIRING DIAGRAM

FRONT SCHEMATIC DIAGRAM



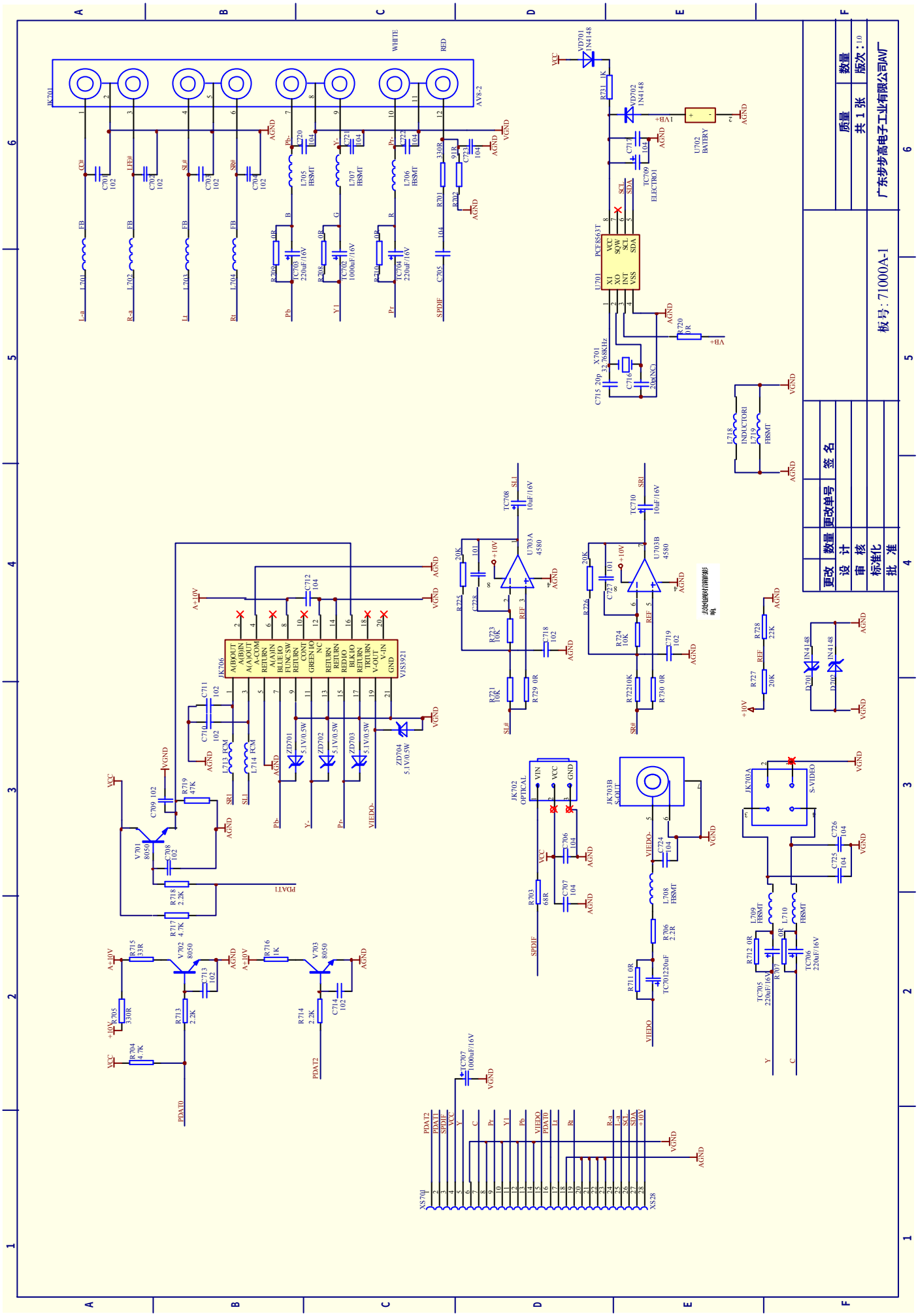
FRONT SCHEMATIC DIAGRAM




VS1000
输出电源板
BBK
广东步步高电子工业有限公司AVF
板号:A1000K-1
比例
质量
数量
第 1 张
共 1 张
版次: 1.0
更改
数量
更改单号
签 名
日期
设 计
审 核
标准化
批 准
JK902
POWER SUPPLY
L901
INDUCTOR2
C901
104
+10V
L902
10uH
C902
104
TC902
220uF/16V
T901
15uH
VD901
1N5819
C913
104
C905
103
U606
Sync
EN
Comp
FB
BS
Vin
Vsw
GND
ZA3020
R902
10K
R903
169K
C904
101
C903
223
TC903
47uF/25V
R901
10K
21V
GND
FL+
R904
4.7K
VD901
21V
TC904
10uF/25V
TC905
10uF/16V
VD902
HER106
C906
101
C907
101
VD903
HER106
L903
10uH
+5V
TC906
470uF/10V
C908
104
TC907
47uF/16V
L922
FB
DGND
XS902
XS12
FL+
21V
+5V
IR
VSTB
VSCK
VSDA
VSDA-IR
L921
L923
L924
L925
C931
C932
C933
C934
C935
C936
C937
C938
C939
C940
47P
47PF
AGND
YGND
JK901
XS10
CON1
CON2
IR
L1
L904
L905
L907
L906
L927
L910
L911
L912
L913
L914
L915
L916
L917
L918
L919
L920
C914
C915
C916
C917
XS905
XS26
FB L1
FB IR
FB VSTB
FB VSCK
FB VSDA
FB VSDA-IR

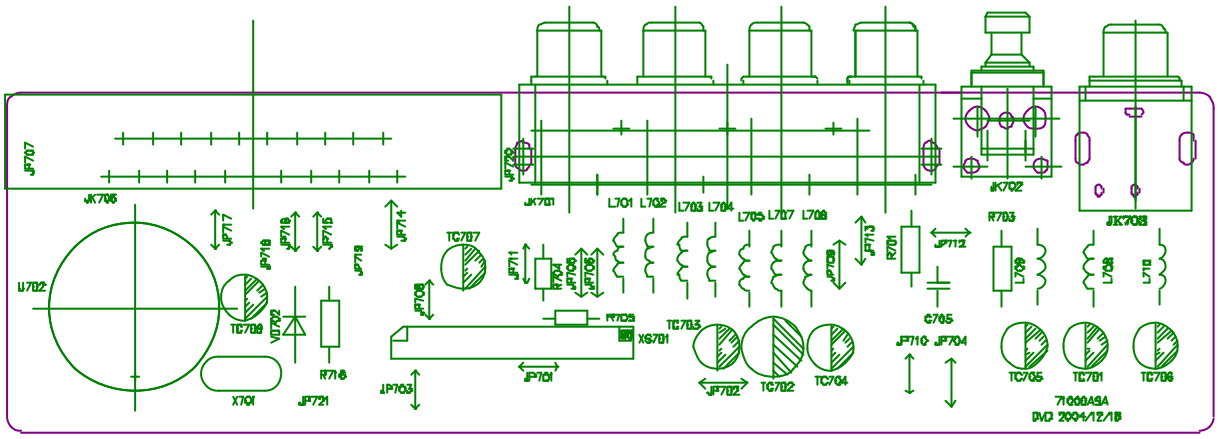
SUBSIDIARY OUTPUT BOARD

OUTPUT BOARD SCHEMATIC DIAGRAM

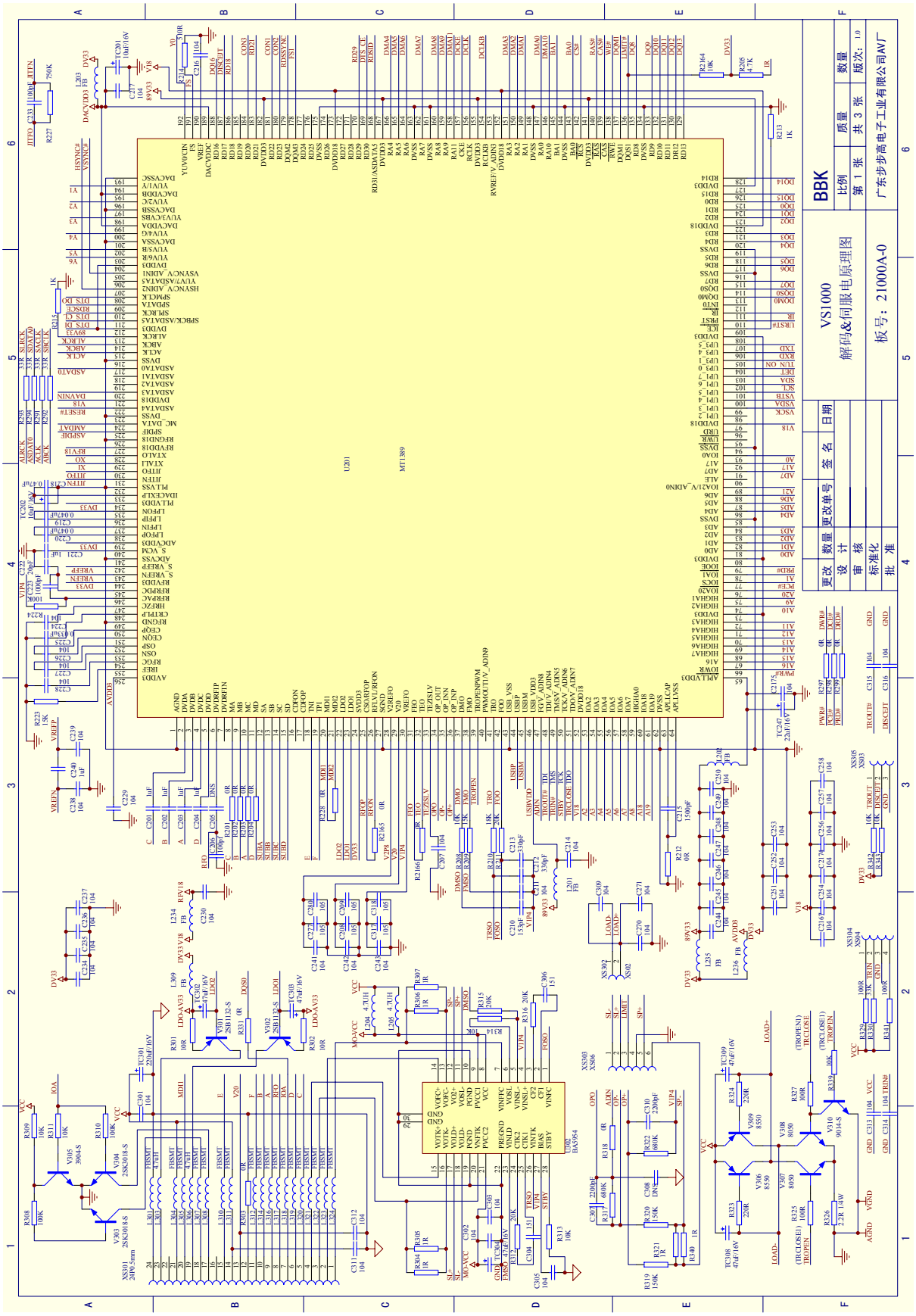


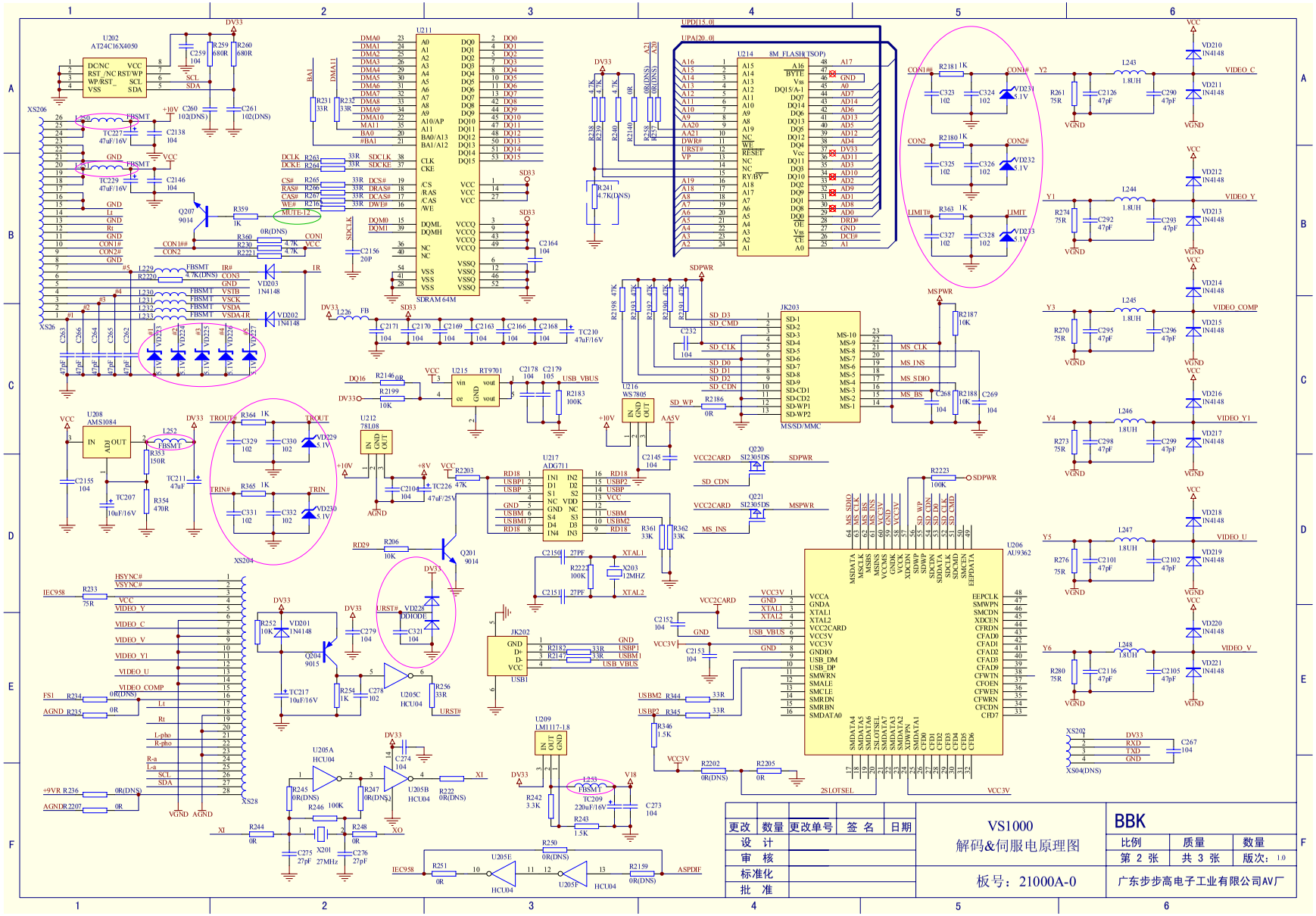
X

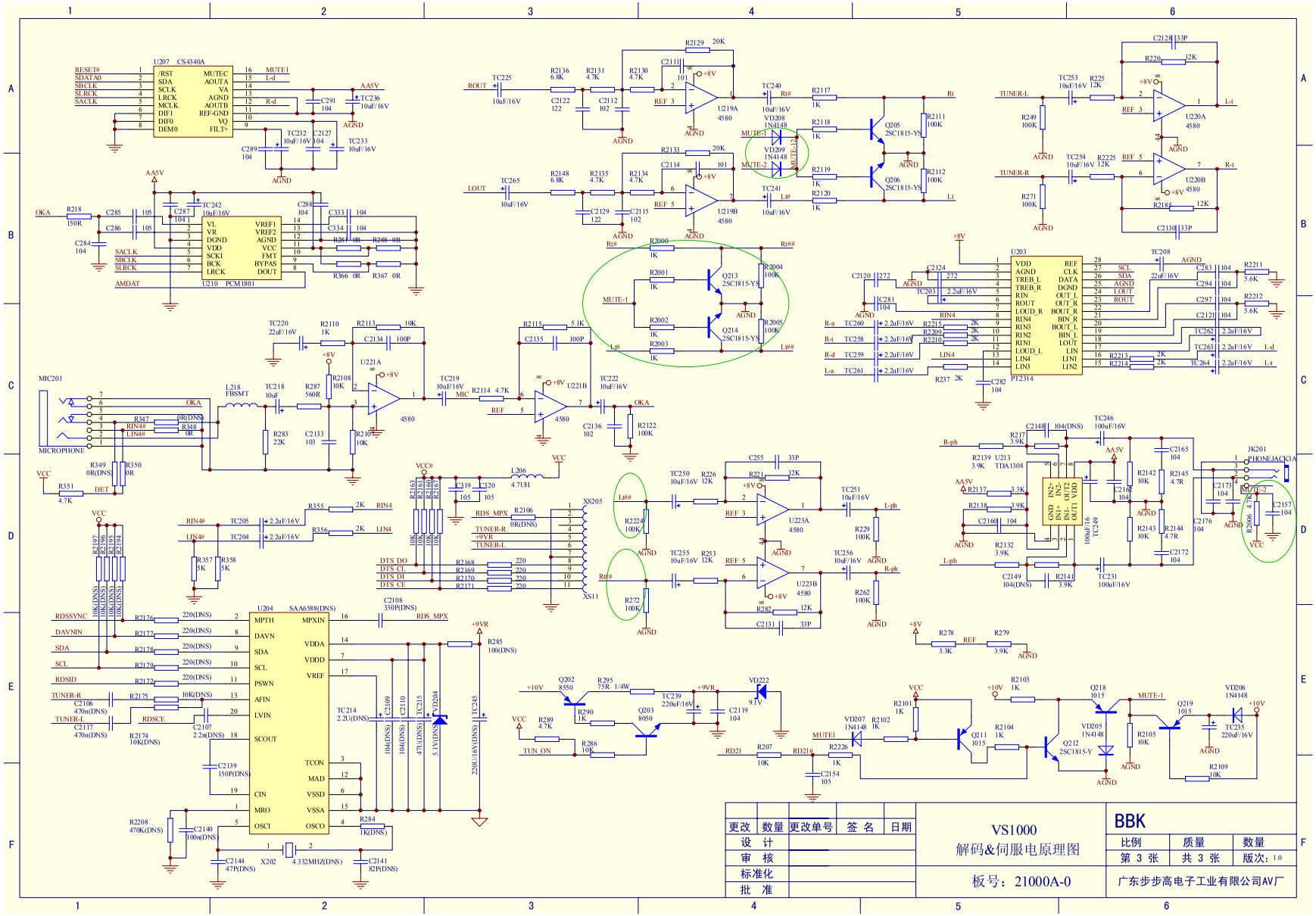
OUTPUT BOARD SCHEMATIC DIAGRAM



MIAN SCHEMATIC DIAGRAM




VS1000
解码&伺服电原理图
板号：21000A-0
BBK
广东步步高电子工业有限公司AV厂
比例
质量
数量
第 2 张
共 3 张
版次：1.0
更改
数量
更改单号
签 名
日期
设 计
审 核
标准化
批 准


U207 CS4340A
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SDA
SCLK
LRCK
MCLK
DIF1
DIF0
DEM0
MUTEC
AOUTA
VA
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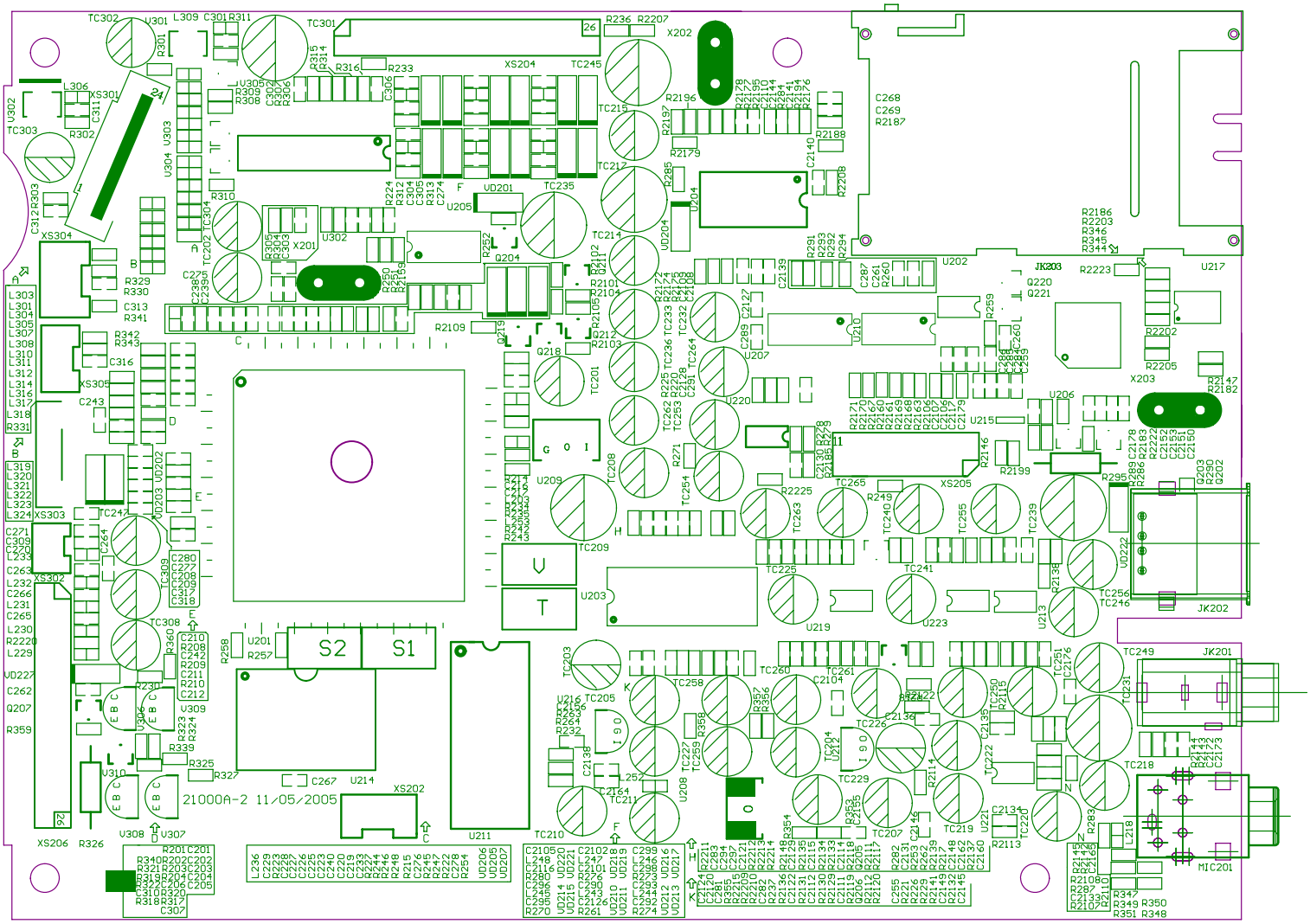
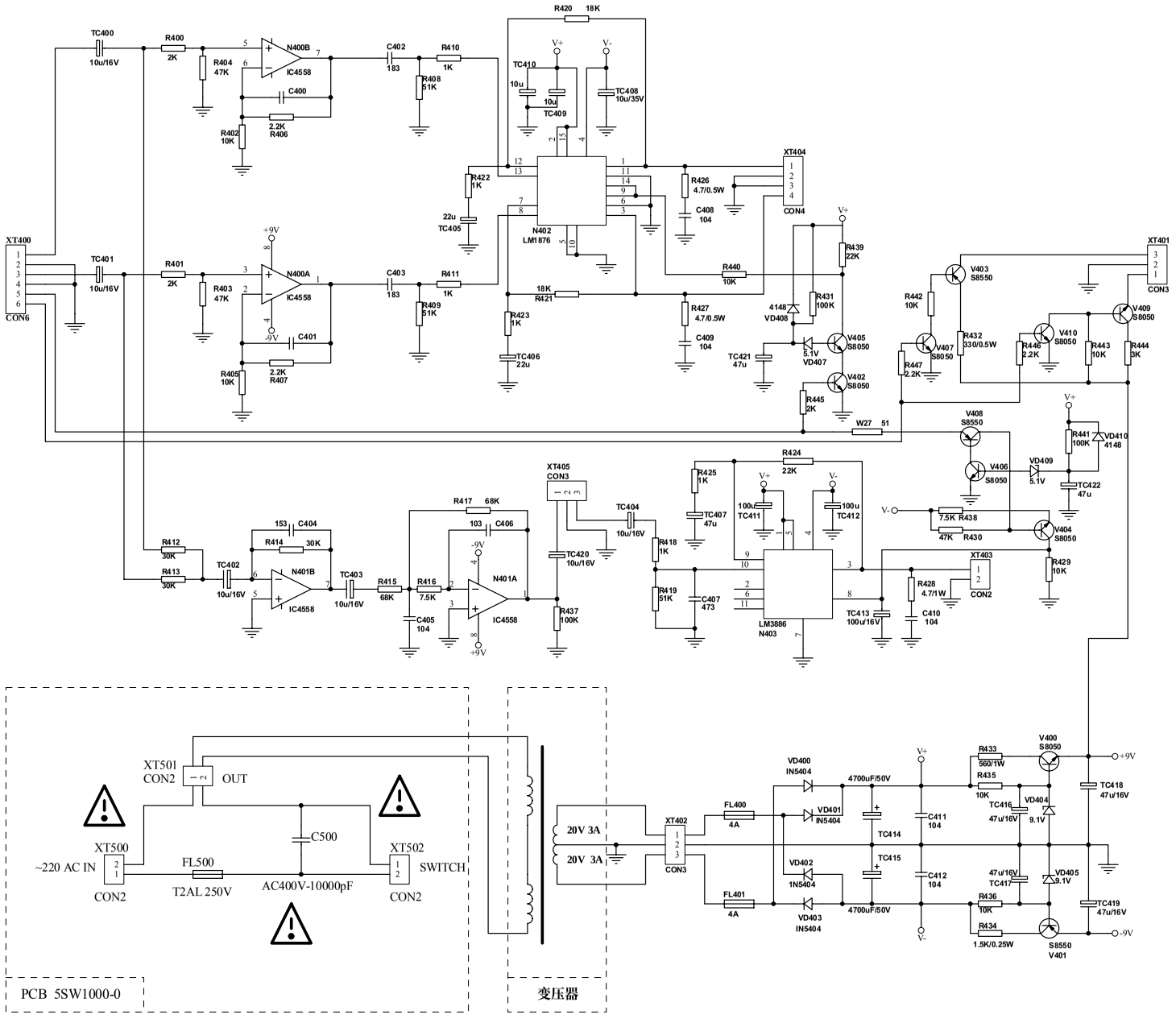
AOUTB
REF-GND
VQ
FILT+
U210 PCM1801
VL
VR
DGND
VDD
SCKI
BCK
LRCK
VREF1
VREF2
AGND
VCC
FMT
BYPAS
DOUT
U219A 4580
U219B 4580
U220A 4580
U220B 4580
U221A 4580
U221B 4580
U223A 4580
U223B 4580
U203
VDD
AGND
TREB_L
TREB_R
RIN
ROUT
LOUD_R
RIN4
RIN3
RIN2
RIN1
LOUD_L
LIN4
LIN3
REF
CLK
DATA
DGND
OUT_L
OUT_R
BOUT_R
BIN_R
BOUT_L
BIN_L
LOUT
LIN
LIN1
LIN2
SCL
SDA
AGND
LOUT
ROUT
PT2314
U204 SAA6588(DNS)
MPTH
DAVN
SDA
SCL
PSWN
AFIN
LVIN
SCOUT
CIN
MRO
OSCI
MPXIN
VDDA
VDDD
VREF
TCON
MAD
VSSD
VSSA
OSCO
U213 TDA1308
MIC201
MICROPHONE
JK201 PHONEJACK3A
XS205
XS11
X202 4.332MHZ(DNS)
VCC
AA5V
+8V
+9VR
+10V
MUTE-1
MUTE-2
TUNER-L
TUNER-R
RDSSYNC
DAVNIN
SDA
SCL
RDSID
TUNER-R
TUNER-L
RDSCE
DTS_DO
DTS_CL
DTS_DI
DTS_CE
RDS_MPX
TUNER-R
+9VR
TUNER-L
L-ph
R-ph
TUN_ON
VS1000
解码&伺服电原理图
板号：21000A-0
BBK
广东步步高电子工业有限公司AV厂
更改 数量 更改单号 签 名 日期
设 计
审 核
标准化
批 准
比例 质量 数量
第 3 张 共 3 张 版次：1.0

MIAN SCHEMATIC DIAGRAM





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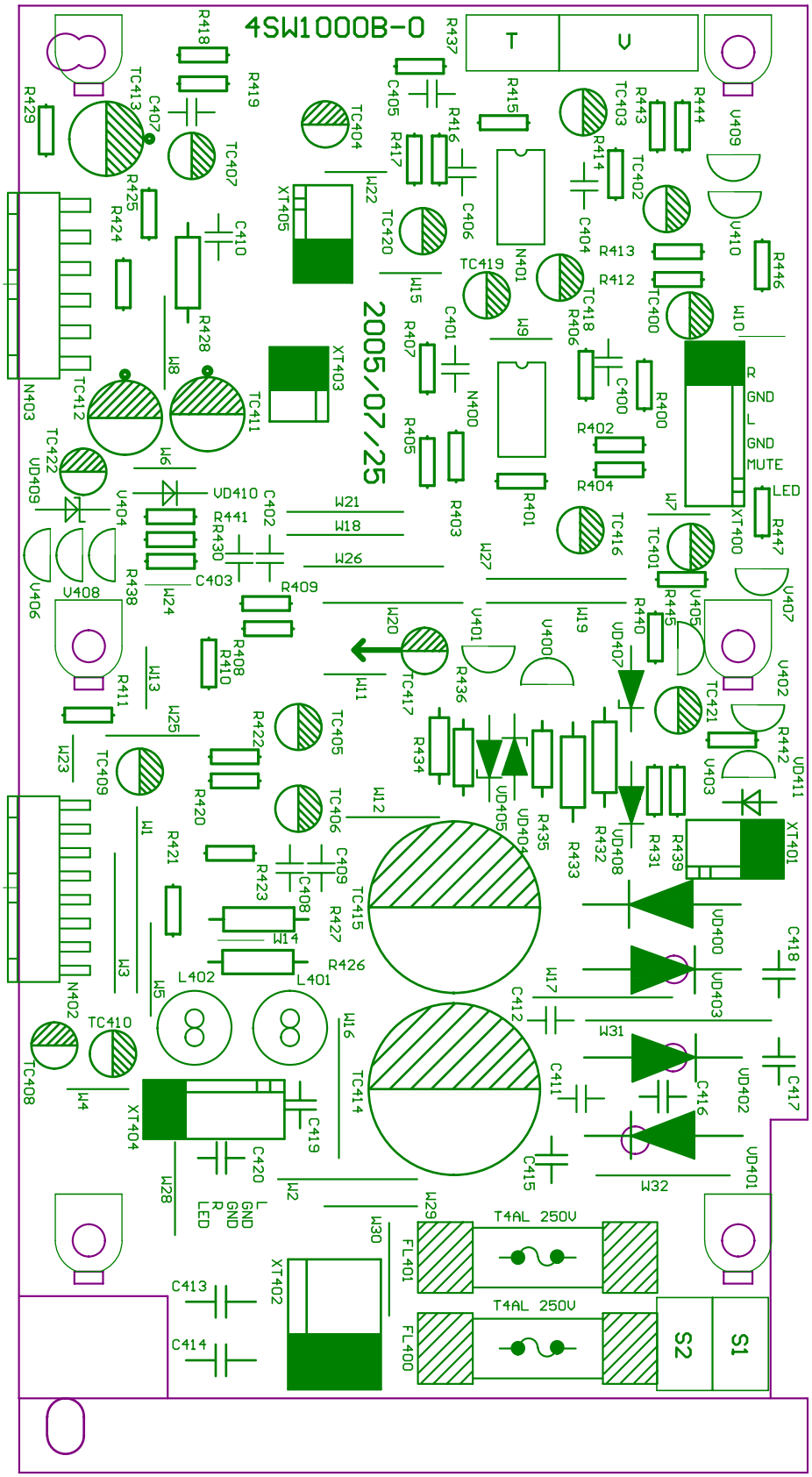
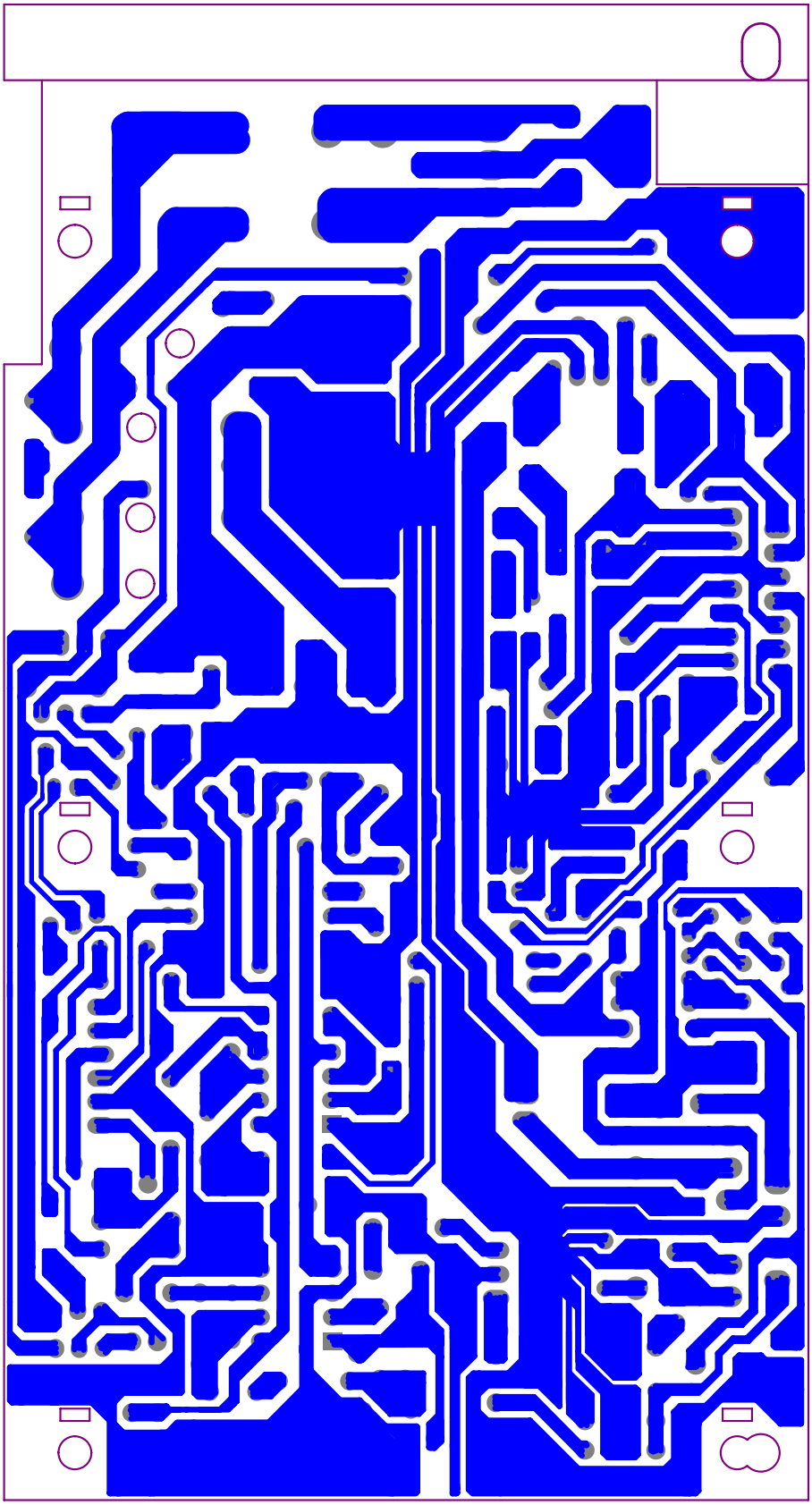
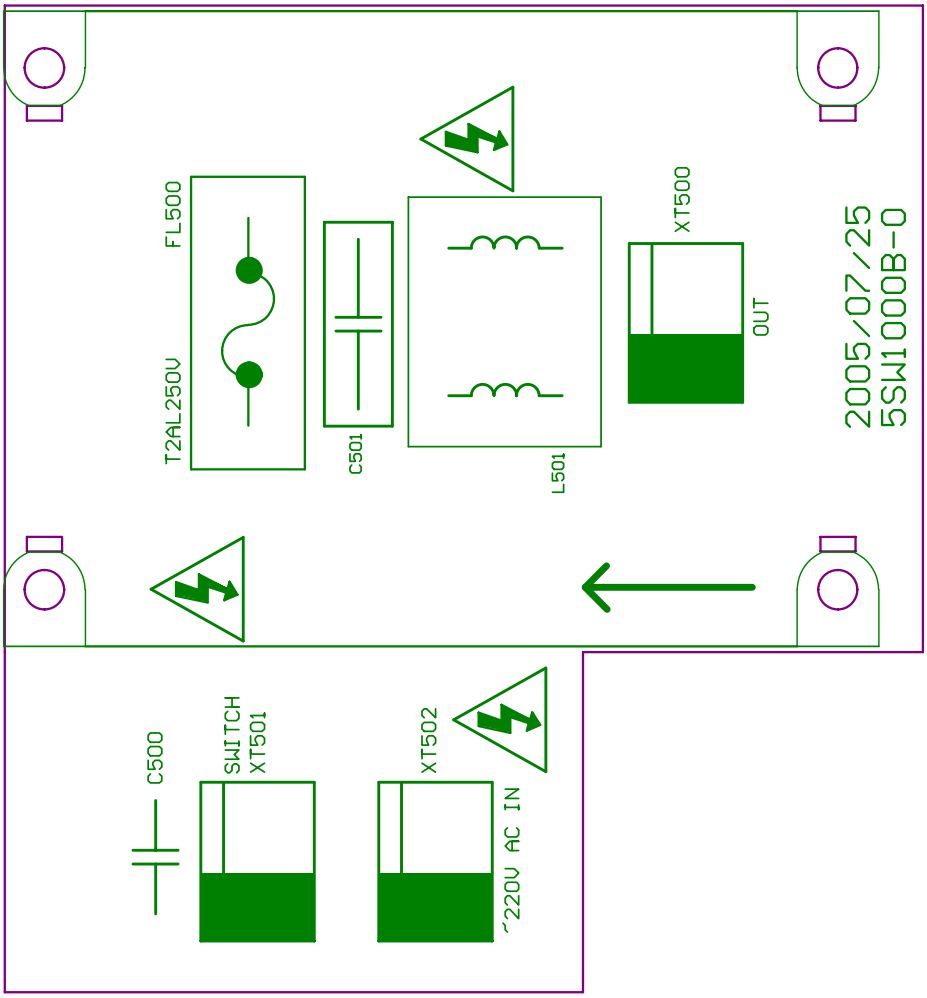
Size: A0	Number: VS1000音箱部分功放、电源	Revision
Date: 9-Aug-2005		Sheet of
File: E:\work\VS1000\SW1000\SW1000.Ddb		Drawn By:


4SW1000B-0
2005/07/25
T
U
S1
S2
T4AL 250V
T4AL 250V
GND
GND
MUTE
LED
L
GND
GND
R
LED

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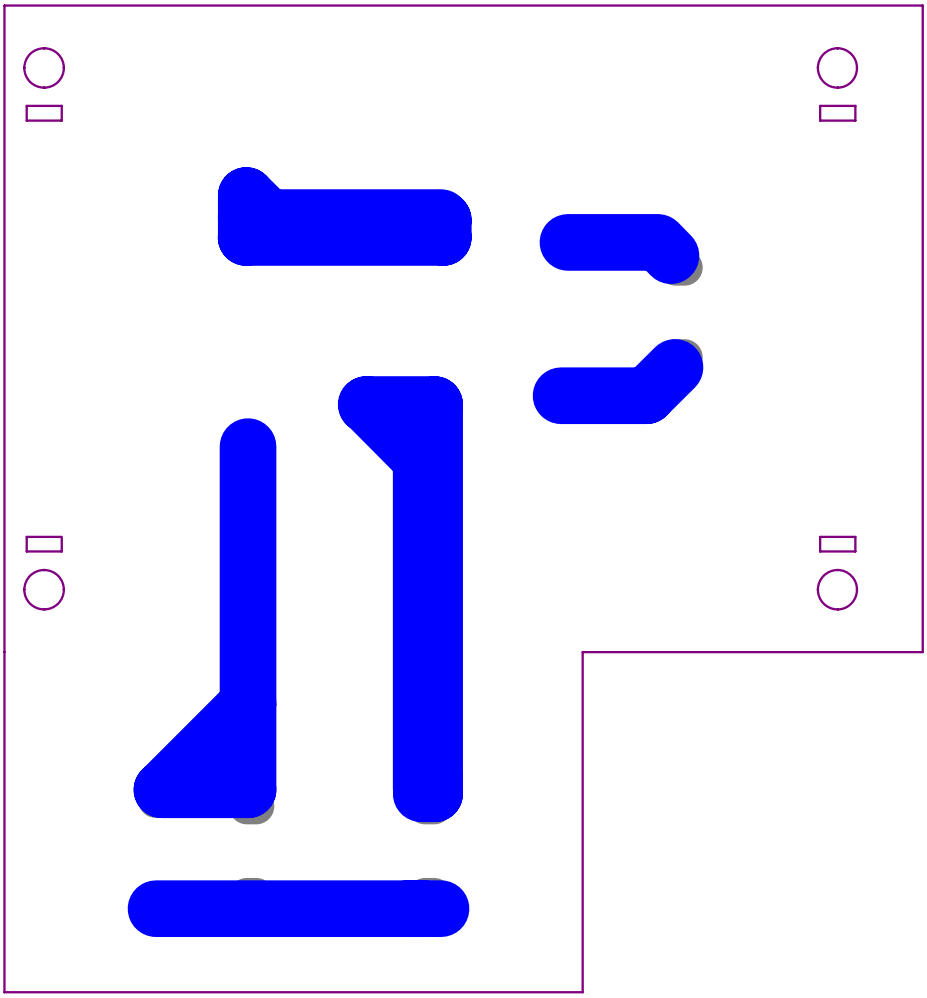
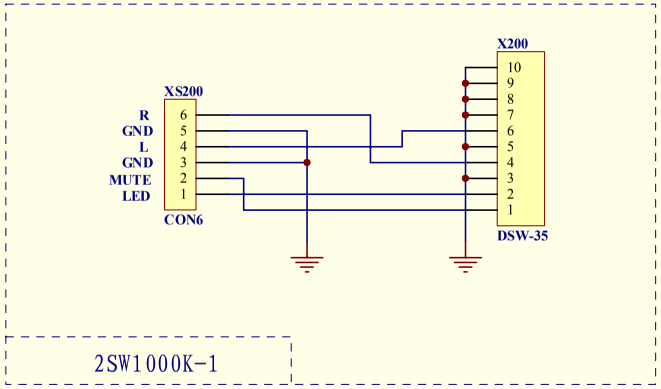
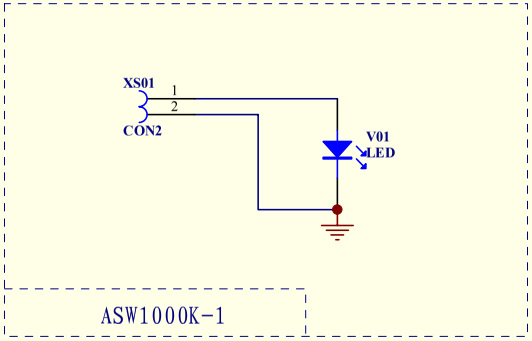
T2AL250V
C501
L501
XT500
OUT
2005/07/25
5SW1000B-0
C500
SWITCH
XT501
XT502
~220V AC IN

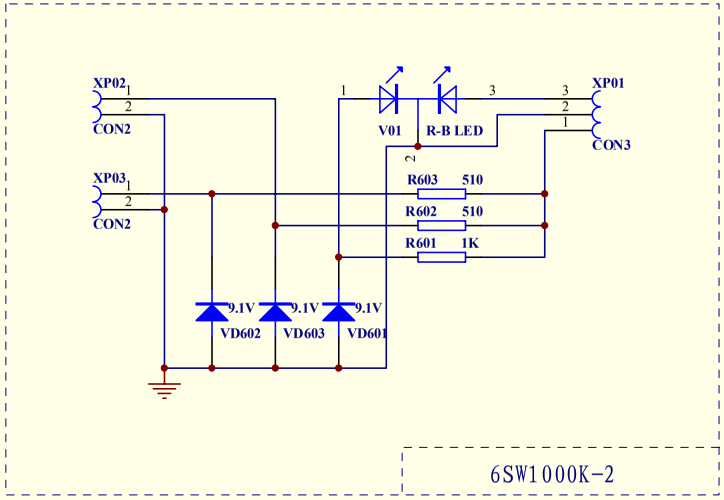




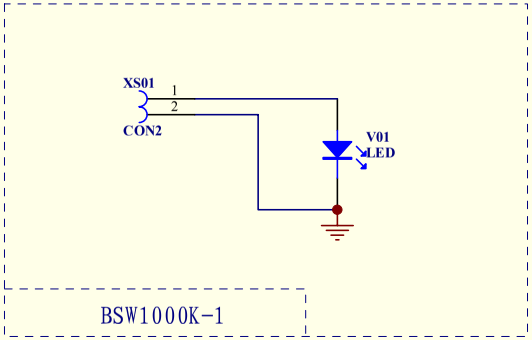
2SW1000K-1



ASW1000K-1

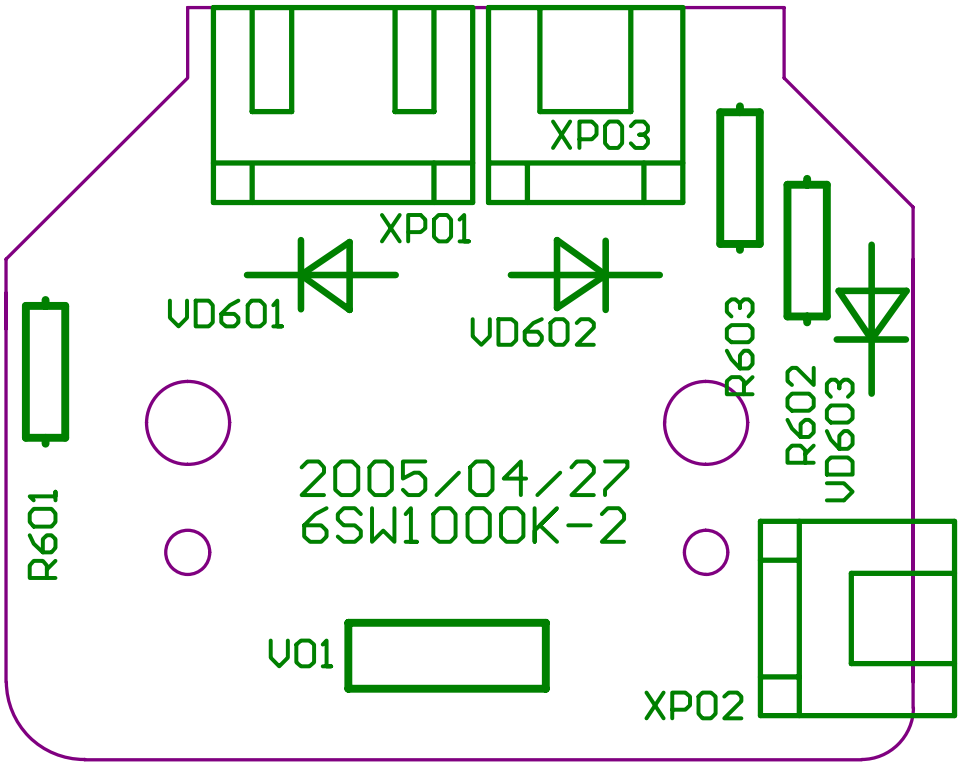


6SW1000K-2



BSW1000K-1

Title: 东莞步步高视听电子		
Size: A4	Number: VS1000K 音箱部分输入板、电源指示灯板	Revision:
Date: 8-Nov-2005	Sheet of	
File: D:\维修手册\杂件\新建文件夹\SW1000K.DDB	Drawn By:	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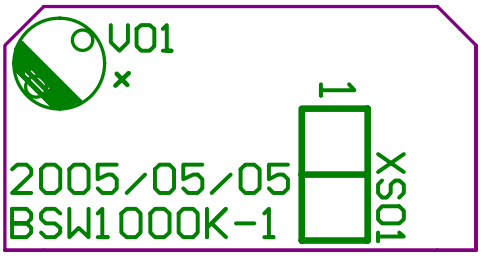
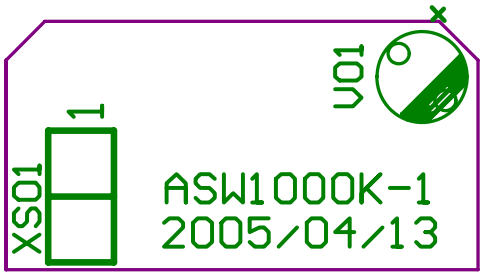
XP01
VD601
VD602
R603
R602
VD603
R601
2005/04/27
6SW1000K-2
VO1
XP02


VO1
1
2005/05/05
BSW1000K-1
XSO1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XSO1
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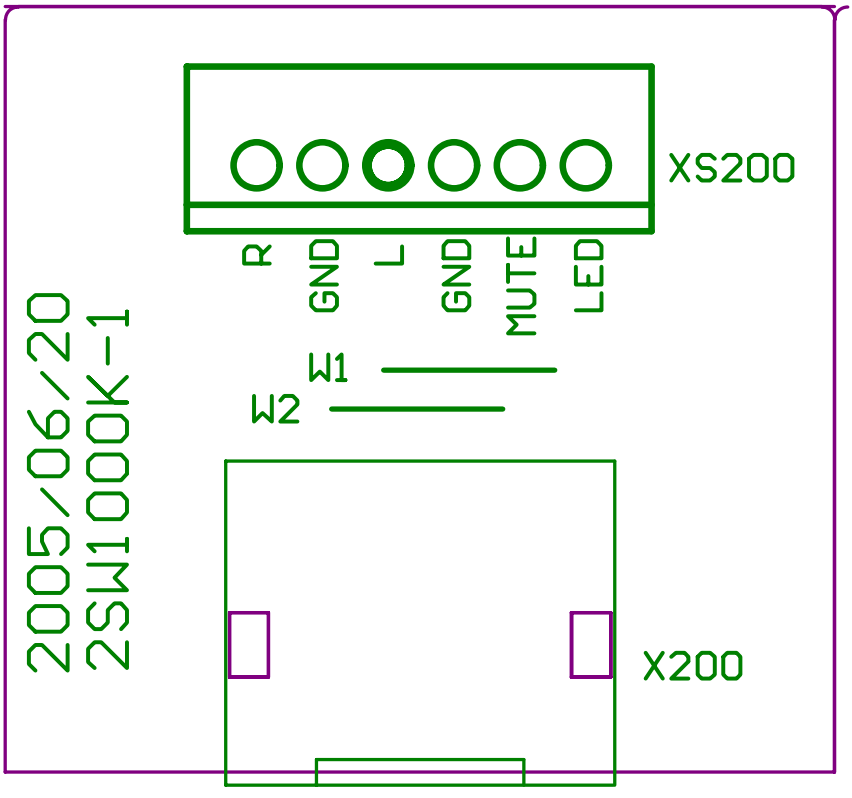
2005/04/13


XS200
R
GND
L
GND
MUTE
LED
W1
W2
X200
2005/06/20
2SW1000K-1

10. SPARE PARTS LIST

ABS551T MATERIAL LIST

1. AV BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
90001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	6	R707~R712
0090002	SMD RESISTOR	1/16W 2.2Ω ±5% 0603	PCS	1	R706
0310044	SMD CAPACITOR	50V 33P ±5% NPO 0603	PCS	1	C715
0090005	SMD RESISTOR	1/16W 33Ω ±5% 0603	PCS	1	R715
0000013	CARBON FILM RESISTOR	1/6W330Ω±5%	PCS	1	R705
90181	SMD RESISTOR	1/16W 100Ω ±5% 0603	PCS	1	R702
0000171	CARBON FILM RESISTOR	1/4W68Ω±5%	PCS	1	R703
0000181	CARBON FILM RESISTOR	1/4W220Ω±5%	PCS	1	R701
0000195	CARBON FILM RESISTOR	1/4W1K±5%	PCS	1	R716
0090192	SMD RESISTOR	1/16W 51K ±5% 0603	PCS	4	R723,R724,C727,C728
0090018	SMD RESISTOR	1/16W 3.3K ±5% 0603	PCS	1	R727
0090017	SMD RESISTOR	1/16W 2.2K ±5% 0603	PCS	4	R713,R714,R718,R731
0090240	SMD RESISTOR	1/16W 3.6K ±5% 0603	PCS	1	R728
0090029	SMD RESISTOR	1/16W 47K ±5% 0603	PCS	1	R719
310234	SMD CAPACITOR	16V 105 +80%-20% Y5V 0603	PCS	2	R721,R722
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	1	R717
0000034	CARBON FILM RESISTOR	1/6W4.7K±5%	PCS	1	R704
310066	SMD CAPACITOR	50V 102 ±10% 0603	PCS	10	C701~C704,C708~C711,C713,C714
310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	4	C706,C707 ,C712,C717
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	PCS	4	C706,C707 ,C712,C717
0260198	CD	CD11C 50V10U±20%5×7 2	PCS	3	TC708~TC710
0200139	PORCELAIN CAPACITOR	50V 104 +80%-20% 5mm	PCS	1	C705
0960017	CRYSTAL OSCILLATOR	32.768KHz 3×9	PCS	1	X701
260352	CD	GS 10V1000U±20%8×14 3.5	PCS	1	TC707
0260237	CD	CD11 10V1000U±20%8×14 3.5	PCS	1	TC707
0260252	CD	GS 10V1000U±20%8×16 3.5	PCS	1	TC707
0260015	CD	CD11 10V1000U±20%8×16 3.5	PCS	1	TC707
3630185	BATTERY HOLDER	1403G6-GBK4B	PCS	1	U702
3630281	BATTERY HOLDER	1403G7-GBK4B	PCS	1	U702
0881080	IC	PCF8563T SO8	PCS	1	U701
0880185	IC	NJM4558M SOP	PCS	1	U703
0880562	IC	4580 SOP	PCS	1	U703
880361	IC	4558 SOP	PCS	1	U703
0780085	SMD TRIODE	8050D	PCS	3	V701~V703
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	PCS	2	L713,L714
390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	10	L701~L710
1090045	ELECTRO-OPTIC TRANSFORMER	TX179ATW	PCS	1	JK702
1090024	ELECTRO-OPTIC TRANSFORMER	TX179AT	PCS	1	JK702
1860029	SCART SOCKET	SCART-01	PCS	1	JK706
1910059	TERMINAL SOCKET	CS-09	PCS	1	JK703
1910196	TERMINAL SOCKET	AV8-8.4-13/PB-7	PCS	1	JK701
1940140	CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLUG	PCS	1	XS701
1632235	PCB	71000A-1	PCS	1	
0700004	SMD VOLTAGE REGULATOR DIODE	5.1V ±5% 1/2W	PCS	4	ZD701~ZD704
0570036	DIODE	1N4148 SHAPED 10mm	PCS	1	VD702
0700007	SMD DIODE	1N4148	PCS	3	VD701,D701,D702

2. MAIN PANEL

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
5230348	SOFT SPONGE SPACER	20×13×2 DOUBLE-FACED HARD	PCS	2	VFD支撑用
5233184	SOFT SPONGE SPACER	13×7×5 DOUBLE-FACED HARD	PCS	1	遥控接收头用
3029998	LED BRACKET	H=8.85mm VS1000	PCS	2	LED401,LED403
3029999	LED BRACKET	H=5.65mm VS1000	PCS	2	LED402,LED404
0090003	SMD RESISTOR	1/16W 10Ω ±5% 0603	PCS	1	R412
0090181	SMD RESISTOR	1/16W 100Ω ±5% 0603	PCS	6	R402~R404,R409~R411
90014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	2	R401,R413
0090018	SMD RESISTOR	1/16W 3.3K ±5% 0603	PCS	1	R405
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	3	R406~R408
310045	SMD CAPACITOR	50V 47P ±5% NPO 0603	PCS	9	C401,C408~C415
0310048	SMD CAPACITOR	50V 151 ±5% NPO 0603	PCS	2	C402,C406
0310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	4	C404,C405,C407,C416
310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	6	C422~C427
0310169	SMD CAPACITOR	50V 105 +80%-20% 0805	PCS	1	C417
260201	CD	CD11C 16V100U±20%6×7 2.5	PCS	3	TC401,TC403,TC404

0260198	CD	CD11C 50V10U±20%5×7 2	PCS	1	TC402
0260196	CD	CD11C 16V10U±20%4×7 1.5	PCS	2	TC405,TC406
0700007	SMD DIODE	1N4148	PCS	3	VD401~VD403
0700001	SMD DIODE	LS4148	PCS	3	VD401~VD403
700002	SMD DIODE	LL4148	PCS	3	VD401~VD403
0700056	SMD DUAL DIODE	MMBD4148SE SOT-23	PCS	16	D401~D416
0700148	SMD VOLTAGE REGULATOR DIODE	3.3V ±5% 1/2W	PCS	1	ZD401
0700004	SMD VOLTAGE REGULATOR DIODE	5.1V ±5% 1/2W	PCS	12	ZD402~ZD413
0620076	LIGHT RADIATION DIODE	3B3HC COLORLESS WITH BLUE	PCS	4	LED401,LED402,LED403,LED404
0780085	SMD TRIODE	8050D	PCS	1	V401
0970003	CERAMIC RESONATOR	455E	PCS	1	X401
1340064	LIGHT TOUCH RESTORE SWITCH	KFC-A06-2WB L3.8	PCS	9	SW401~SW409
2360016	RECEIVING HEAD	HS0038B3V	PCS	1	U403
1200701	DISPLAY SCREEN	VFD30-1301F GREEN 2#	PCS	1	VFD401
0881587	IC	PT2222A SOP	PCS	1	U401
0882474	IC	PT6302 LQFP	PCS	1	U402
2121699	SOFT FLAT CABLE	12P 180 2.0 2PLUG WITH L NEEDLE REVERSE	PCS	1	XS401
1632198	PCB	41000A-0	PCS	1	

3. SUBSIDIARY OUTPUT BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	2	L922,L927
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	1	R904
90023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	2	R901,R902
0090189	SMD RESISTOR	1/16W 30K ±5% 0603	PCS	1	R903
0310045	SMD CAPACITOR	50V 47P ±5% NPO 0603	PCS	27	C909~C912,C918~C940
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	3	C904,C906,C907
0310066	SMD CAPACITOR	50V 102 ±10% X7R 0603	PCS	1	C913
0310033	SMD CAPACITOR	50V 103 ±10% X7R 0805	PCS	1	C905
0310202	SMD CAPACITOR	50V 223 ±10% X7R 0603	PCS	1	C903
0310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	7	C901,C902,C908,C914~C917
0260075	CD	CD11 50V10U±20%5×11 2	PCS	2	TC904,TC905
260039	CD	CD11 25V47U±20%5×11 2	PCS	2	TC903,TC907
0260041	CD	CD11 25V220U±20%8×12 3.5	PCS	2	TC902,TC906
0460483	SWITCHING POWER TRANSFORMER	BCK-19-0234	PCS	1	T901
881304	IC	ZA3020 SO8	PCS	1	U606
680013	SCHOTTKY DIODE	1N5819	PCS	1	VD901
700004	SMD VOLTAGE REGULATOR DIODE	5.1V ±5% 1/2W	PCS	1	ZD901
0570013	DIODE	HER105	PCS	2	VD902,VD903
0390394	SMD MAGNETIC BEADS	PZ2012U221	PCS	4	L908~L911
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	PCS	18	L912~L921,L923~L926,L904~L907
0410011	CHOKE COIL	VERTICAL 10UH 2A 5mm	PCS	2	L902,L903
1940120	CABLE SOCKET	13P 1.0mm STRAIGHT DUAL LINE PLUG TOUCH POINT	PCS	1	XS901
1940175	SOCKET	12P 2.0mm STRAIGHT PLUG	PCS	1	XS902
1910192	TERMINAL SOCKET	DSW-35	PCS	1	JK901
0410118	CHOKE COIL	JLB0904	PCS	1	L901
1632236	PCB	A1000A-0	PCS	1	
1870030	POWER SOCKET	DC-005	PCS	1	JK902

4. LED BOARD OF SUBWOOFER

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
1563734	PCB	ASW1000K-1	PCS	1	
0620089	LIGHT RADIATION DIODE	3B3SC COLORLESS WITH BLUE BRIGHTNESS 2300MCD	PCS	1	V01
2121776	FLAT CABLE	2P230 2.0 2PLUG WITH NEEDLE THE SAME DIRECTION	PCS	1	XS01

5. LED BOARD 2 OF SUBWOOFER

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
1563774	PCB	BSW1000K-1	PCS	1	
0620089	LIGHT RADIATION DIODE	3B3SC COLORLESS WITH BLUE BRIGHTNESS 2300MCD	PCS	1	V01
2121776	FLAT CABLE	2P230 2.0 2PLUG WITH NEEDLE THE SAME DIRECTION	PCS	1	XS01

6. AI OF POWER AMPLIFIER BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
01564002	PCB	4SW1000B-1	PCS	1	
00000229	CARBON FILM RESISTOR	1/6W1K±5%	PCS	6	R410,R411,R418,R422,R423,R425
5800099	VOLTAGE REGULATOR DIODE	9.1V ±5% 1/2W	PCS	1	VD411
00000269	CARBON FILM RESISTOR	1/6W2K±5%	PCS	3	R400,R401,R445
00003609	CARBON FILM RESISTOR	1/6W 7.5K±5%	PCS	2	R416,R438
00000409	CARBON FILM RESISTOR	1/6W10K±5%	PCS	6	R405,R429,R440,R442,R402,R443
00000279	CARBON FILM RESISTOR	1/6W2.2K±5%	PCS	5	R406,R407,R447,R446,W27
0000299	CARBON FILM RESISTOR	1/6W3K±5%	PCS	1	R444
00000449	CARBON FILM RESISTOR	1/6W18K±5%	PCS	2	R420,R421
00000469	CARBON FILM RESISTOR	1/6W22K±5%	PCS	2	R424,R439
00000499	CARBON FILM RESISTOR	1/6W30K±5%	PCS	3	R412,R413,R414
00000529	CARBON FILM RESISTOR	1/6W47K±5%	PCS	3	R404,R403,R430
00000539	CARBON FILM RESISTOR	1/6W 51K±5%	PCS	3	R408,R409,R419
00000569	CARBON FILM RESISTOR	1/6W68K±5%	PCS	2	R415,R417
00000599	CARBON FILM RESISTOR	1/6W100K±5%	PCS	3	R437,R431,R441
00002169	CARBON FILM RESISTOR	1/4W10K±5%	PCS	2	R435,R436
00001989	CARBON FILM RESISTOR	1/4W1.5K±5%	PCS	1	R434
00006549	CARBON FILM RESISTOR	1/2W 4.7Ω±5%	PCS	2	R426,R427
02003309	PORCELAIN CAPACITOR	50V151±10% SHAPED 5mm	PCS	2	C400,C401
02003199	PORCELAIN CAPACITOR	50V 104 ±10% SHAPED 5mm Φ8	PCS	2	C411,C412
02101599	TERYLENE CAPACITOR	100V 103 ±10% SHAPED 5mm	PCS	5	C406,C415~C418
02101449	TERYLENE CAPACITOR	100V 153 ±10% C5	PCS	1	C404
02100519	TERYLENE CAPACITOR	50V 183 ±10% 5mm	PCS	2	C402,C403
2101759	TERYLENE CAPACITOR	100V 102 ±10% SHAPED 5mm	PCS	2	C419,C420
02101489	TERYLENE CAPACITOR	100V 473 ±10% SHAPED 5mm	PCS	1	C407
02101459	METAL POLYESTER FILM CAPACITOR	CL21X 100V 104K C5	PCS	4	C405,C408,C409,C410
02604379	CD	CD11 16V10U±20%5×11C5	PCS	5	TC400,TC401,TC402,TC403,TC404
2100319	TERYLENE CAPACITOR	100V 224 ±10% 8mm	PCS	2	C413,C414
02606119	CD	CD11 50V10U±20%5×11C5	PCS	3	TC408,TC409,TC410
02600039	CD	CD11 25V22U±20%5×11 C5	PCS	2	TC405,TC406
02601849	CD	CD11 25V47U±20%5×11 C5	PCS	7	TC407,TC416,TC417,TC418,TC419,TC421,TC422
02605249	CD	CD11 35V100U±20% 8×12 C5	PCS	3	TC411,TC412,TC413
05700069	DIODE	1N4148	PCS	2	VD408,VD410
05800069	VOLTAGE REGULATOR DIODE	5.1V 1/2W	PCS	2	VD407,VD409
05800549	VOLTAGE REGULATOR DIODE	9.1V 1W	PCS	2	VD404,VD405
07800499	TRIODE	S8550D	PCS	3	V401,V403,V408
07800509	TRIODE	S8050D	PCS	8	V400,V402,V407,V405,V404,V406,V409,V410
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	4	W10,W14,W23,W24
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	7	W4,W6,W7,W9,W11,W13,W22
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	8	W30,W5,W8,W12,W25,W28,W29,R432
2100006	CONNECTION CORDS	Φ0.6 SHAPED 12.5mm	PCS	2	W18,W21
2100007	CONNECTION CORDS	Φ0.6 SHAPED 15mm	PCS	8	W3,W16,W17,W19,W20,W26,W2,W32
2100017	CONNECTION CORDS	Φ0.6 SHAPED 20mm	PCS	2	W1,W31

7. POWER BOARD OF SUBWOOFER

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
1940074	SOCKET	2P 7.92mm	PCS	3	XT500,XT501,XT502
3020402	FUSE HOLDER	BLX-2	PCS	1	FL500
1000046	POWER GRID FILTER	@JLB2081 4.5mH +∞-0% UL	PCS	1	L501
210204	ANTI-DISTURBANCE CAPACITOR	@MKP61 X2 275VAC 104M 15 UL	PCS	1	C501
210206	TERYLENE CAPACITOR	@275V104±10%15mm VDE	PCS	1	C501
2300035	FUSE	@T2AL 250V VDE	PCS	1	FL500
0200356	CERAMIC CAPACITOR	@CT7 400V103±20% 10mm VDE	PCS	1	C500
0200355	CERAMIC CAPACITOR	@CT81 400V103±20% 12mm VDE	PCS	1	C500
1563806	PCB	@5SW1000B-0 UL	PCS	1	

8. INPUT BOARD OF SUBWOOFER

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
1910192	TERMINAL SOCKET	DSW-35	PCS	1	X200

2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	2	W1,W2
2150233	FLAT CABLE	6P180 2.5 2PLUG 5P SCREEN-SHIELDED WITH L NEEDLE	PCS	1	XS200
1563697	PCB	2SW1000K-0	PCS	1	

9. POWER INDICATOR LIGHT BOARD OF SUBWOOFER

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
2121746	FLAT CABLE	3P500 2.5 2PLUG WITH L NEEDLE REVERSE	PCS	1	XP01
1940170	SOCKET	2P 2.0mm RIGHT-ANGLED	PCS	2	XP02,XP03
620054	DUAL COLOR LIGHT RADIATION DIODE	3RB9HW-A COMMON CATHODE RED/BLUE	PCS	1	V01
5800099	VOLTAGE REGULATOR DIODE	9.1V ±5% 1/2W	PCS	3	VD601~VD603
129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	PCS	1	R601
0000125	CARBON FILM RESISTOR	1/6W510Ω±5% SHAPED 7.5	PCS	2	R602,R603
1563773	PCB	6SW1000K-2	PCS	1	

10. DECODE BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	UANTIT	LOCATION
0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	30	R201~R204,R212,R228,R234,R244,R248,R251,R257,R258,R297~R299,R303,R318,R331,R2146,R2165,R2166,R2186,R2205,R236,R2159,L252,L253,R2106,R288,R367
0390394	SMD MAGNETIC BEADS	PZ2012U221	PCS	2	L250,L251
0700004	SMD VOLTAGE REGULATOR DIODE	5.1V ±5% 1/2W	PCS	11	VD223~VD227,VD229~VD233,VD204
0700056	SMD DUAL DIODE	MMBD4148SE SOT-23	PCS	1	VD228
1030017	SMD VOLTAGE DEPENDENT RESISTOR	SFI0603-ML220C	PCS	1	C321
0090272	SMD RESISTOR	1/16W1Ω±5% 0603	PCS	6	R304~R307,R321,R340
0090106	SMD RESISTOR	1/16W 4.7Ω ±5% 0603	PCS	2	R2144,R2145
0090003	SMD RESISTOR	1/16W 10Ω ±5% 0603	PCS	2	R301,R302
90005	SMD RESISTOR	1/16W 33Ω ±5% 0603	PCS	15	R231,R232,R256,R263,R264,R265,R266,R267,R291~R294,R2162,R344,R345
0090006	SMD RESISTOR	1/16W 75Ω ±5% 0603	PCS	7	R233,R261,R270,R273,R274,R276,R280
0006359	CARBON FILM RESISTOR	1/2W33Ω±5%	PCS	1	R295
90232	SMD RESISTOR	1/16W 150Ω ±5% 0603	PCS	1	R218
0090181	SMD RESISTOR	1/16W 100Ω ±5% 0603	PCS	6	R325,R327,R329,R341,R2181,R285
90008	SMD RESISTOR	1/16W 220Ω ±5% 0603	PCS	11	R2168~R2171,R323,R324,R2176~R2179,R2172
90249	SMD RESISTOR	1/16W 510Ω ±5% 0603	PCS	1	R214
0090014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	24	R213,R215,R254,R290,R2101,R2102,R2103,R2104,R2117~R2120,R2180,R2226,R359,R363~R365,R284,R2000~R2003,R2110
0090015	SMD RESISTOR	1/16W 1.2K ±5% 0603	PCS	2	R353,R346
0090223	SMD RESISTOR	1/16W 2K ±5% 0603	PCS	8	R237,R2209,R2210,R2213~R2215 ,R354,R230
0090018	SMD RESISTOR	1/16W 3.3K ±5% 0603	PCS	2	R278,R2137
90224	SMD RESISTOR	1/16W 3.9K ±5% 0603	PCS	6	R217,R279,R2132,R2138,R2139,R2141
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	13	R205,R238~R240,R289,R2130,R2131,R2134,R2135,R2140,R2221,R2006,R2114
0090020	SMD RESISTOR	1/16W 5.1K ±5% 0603	PCS	1	R2115
0090225	SMD RESISTOR	1/16W 5.6K ±5% 0603	PCS	2	R2211,R2212
0090021	SMD RESISTOR	1/16W 6.8K ±5% 0603	PCS	2	R2136,R2148

0090023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	37	R206,R207,R208,R252,R286,R309,R311,R313,R314,R339,R342,R343,R2109,R2142,R2143,R2160,R2161,R2163,R2164,R2167,R2187,R2188,R2199,R259,R260,R2190~R2193,R2198,R2194~R2197,R2107,R2108,R2113
0090187	SMD RESISTOR	1/16W 12K ±5% 0603	PCS	8	R220,R221,R282,R2185,R225,R226,R253,R2225
0090024	SMD RESISTOR	1/16W 15K ±5% 0603	PCS	2	R209,R223
0090188	SMD RESISTOR	1/16W 18K ±5% 0603	PCS	1	R210
90025	SMD RESISTOR	1/16W 20K ±5% 0603	PCS	6	R211,R312,R315,R316,R2129,R2133
0090026	SMD RESISTOR	1/16W 22K ±5% 0603	PCS	1	R283
0090028	SMD RESISTOR	1/16W 33K ±5% 0603	PCS	3	R330,R361,R362
90029	SMD RESISTOR	1/16W 47K ±5% 0603	PCS	1	R2203
90034	SMD RESISTOR	1/16W 100K ±5% 0603	PCS	18	R224,R229,R246,R249,R262,R271,R272,R308,R310,R2111,R2112,R2222~R2224,R2183,R2004,R2005,R2122
0090197	SMD RESISTOR	1/16W 150K ±5% 0603	PCS	2	R319,R320
0090211	SMD RESISTOR	1/16W 680K ±5% 0603	PCS	2	R317,R322
0090317	PRECISION SMD RESISTOR	1/16W91Ω±1% 0603	PCS	1	R243
0090626	PRECISION SMD RESISTOR	1/16W 200 Ω ±1% 0603	PCS	1	R242
90012	SMD RESISTOR	1/16W 560Ω ±5% 0603	PCS	1	R287
0090208	SMD RESISTOR	1/16W 470K ±5% 0603	PCS	1	R2208
0090319	PRECISION SMD RESISTOR	1/16W 750K ±1% 0603	PCS	1	R227
00003759	CARBON FILM RESISTOR	1/4W2.2 Ω ±5%	PCS	1	R326
02605529	CD	CD11 16V2.2U±20%5×11 C5	PCS	9	TC203,TC258~TC264,TC214
02604379	CD	CD11 16V10U±20%5×11C5	PCS	20	TC201,TC202,TC207,TC217,TC225,TC232,TC233,TC236,TC240,TC241,TC250,TC251,TC253~TC256,TC265,TC218,TC219,TC222
02601819	CD	CD11 16V220U±20%6×12 C5	PCS	5	TC209,TC235,TC239,TC301,TC245
02600029	CD	CD11 16V47U±20%5×11 C5	PCS	13	TC210,TC227,TC229,TC302~TC304,TC308,TC309,TC208,TC247,TC211,TC226,TC215
02601889	CD	CD11 16V100U±20%6×12 C5	PCS	3	TC231,TC246,TC249
2600019	CD	CD11 16V22U±20%5×11 C5	PCS	1	TC220
0310085	SMD CAPACITOR	50V 20P ±5% NPO 0603	PCS	1	C222
0310190	SMD CAPACITOR	50V 27P ±5% NPO 0603	PCS	4	C275,C276,C2150,C2151
310044	SMD CAPACITOR	50V 33P ±5% NPO 0603	PCS	4	C255,C2128,C2130,C2131
310045	SMD CAPACITOR	50V 47P ±5% NPO 0603	PCS	28	C262~C266,C290,C292,C293,C295,C296,C298,C299,C2101,C2102,C2105,C2116,C2126,C323~C332,C2144
0310046	SMD CAPACITOR	50V 82P ±5% NPO 0603	PCS	1	C2141
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	6	C206,C233,C2111,C2114,C2135,C2134
0310048	SMD CAPACITOR	50V 151 ±5% NPO 0603	PCS	3	C304,C306,C2139
0310051	SMD CAPACITOR	50V 331 ±5% NPO 0603	PCS	3	C212,C213,C2108
310066	SMD CAPACITOR	50V 102 ±10% X7R 0603	PCS	5	C278,C2112,C2115,C223,C2136
0310072	SMD CAPACITOR	50V 103 ±10% X7R 0603	PCS	1	C2133
0310231	SMD CAPACITOR	50V 122 ±10% X7R 0603	PCS	2	C2122,C2129
0310067	SMD CAPACITOR	50V 152 ±10% X7R 0603	PCS	1	C215
0310068	SMD CAPACITOR	50V 222 ±10% X7R 0603	PCS	3	C307,C310,C2107
0310069	SMD CAPACITOR	50V 272 ±10% X7R 0603	PCS	2	C2120,C2124
0310201	SMD CAPACITOR	50V 153 ±10% X7R 0603	PCS	1	C210
0310055	SMD CAPACITOR	16V 333 ±10% X7R 0603	PCS	1	C225
0310056	SMD CAPACITOR	16V 473 ±10% X7R 0603	PCS	2	C219,C220

310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	92	C207,C211,C214,C216,C217,C224,C226~C230,C232,C234~C239,C241~C254,C256~C259,C267,C268,C270,C271,C273,C274,C279,C281~C283,C289,C291,C294,C297,C301~C303,C305,C309,C311~C316,C2104,C2119,C2121,C2127,C2138,C2145,C2146,C2152,C2153,C2160,C2162~C2176,C2178,C2140,C2109,C2110,C287,C288
0310362	SMD CAPACITOR	16V 474 +80%-20% Y5V 0603	PCS	1	C218
0310234	SMD CAPACITOR	16V 105 +80%-20% Y5V 0603	PCS	21	C201~C204,C221,C240,C2179,C208,C209,C277,C280,C317,C318,C2154,C319,C320,C285,C286,C333,C334,TC242
390355	SMD INDUCTOR	4.7UH ±10% 1608	PCS	5	L303,L306,L204,L205,L206
390096	SMD INDUCTOR	1.8UH ±10% 1608	PCS	6	L243~L248
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	PCS	32	L229~L233,L301,L304,L305,L307,L308,L310~L312,L314,L316~L324,L201~L203,L226,L234~L236,L309,L218
0700007	SMD DUAL DIODE	1N4148	PCS	20	VD201~VD203,VD205~VD207,VD210~VD221,VD208,VD209
0700001	SMD DUAL DIODE	LS4148	PCS	20	VD201~VD203,VD205~VD207,VD210~VD221,VD208,VD209
0700002	SMD DUAL DIODE	LL4148	PCS	20	VD201~VD203,VD205~VD207,VD210~VD221,VD208,VD209
700113	SMD VOLTAGE REGULATOR DIODE	9.1V ±5% 1/2W	PCS	1	VD222
0780085	SMD TRIODE	8050D	PCS	1	Q203
0780129	SMD TRIODE	8550D(160-300) SOT-23	PCS	1	Q202
07800509	TRIODE	S8050D	PCS	2	V307,V308
07800499	TRIODE	S8550D	PCS	2	V306,V309
0780063	SMD TRIODE	9015C	PCS	1	Q204
0780062	SMD TRIODE	9014C	PCS	3	Q201,V310,Q207
0780197	SMD TRIODE	C1815	PCS	5	Q205,Q206,Q212,Q213,Q214
0780198	SMD TRIODE	2SA1015	PCS	3	Q211,Q218,Q219
780040	SMD TRIODE	3904(100-300) SOT-23	PCS	1	V305
1980079	HEADPHONE SOCKET	ST-0302	PCS	1	JK201
0780193	SMD TRIODE	2SK3018	PCS	2	V303,V304
780115	SMD TRIODE	2SB1132	PCS	2	V301,V302
790041	FIELD EFFECT TUBE	SI2305DS SOT-23	PCS	2	Q220,Q221
0880185	IC	NJM4558M SOP	PCS	4	U219,U220,U223,U221
0880562	IC	4580 SOP	PCS	4	U219,U220,U223,U221
0880361	IC	4558 SOP	PCS	4	U219,U220,U223,U221
0880322	IC	MM74HCU04M SOP	PCS	1	U205
880513	IC	HCU04 SOP	PCS	1	U205
0881415	IC	HY57V641620HGT-7 TSOP	PCS	1	U211
0881872	IC	KSV464P4JA-70 TSOP	PCS	1	U211
0881182	IC	LM1117MP-ADJ SOT-223	PCS	1	U209
0882022	IC	CS4340A SOP	PCS	1	U207
0881031	IC	24C02N SOP	PCS	1	U202
0881994	IC	MT1389FE QFP	PCS	1	U201
0881897	IC	MT1389EE QFP	PCS	1	U201
0881378	IC	BA5954FP HSOP	PCS	1	U302
881537	IC	TDA1308 SOP	PCS	1	U213
0881914	IC	RT9701CB SOT25	PCS	1	U215
0882758	IC	PT2314A SOP	PCS	1	U203
882202	IC	AU9362A21-MCL QFP	PCS	1	U206
882425	IC	ADG713 TSSOP	PCS	1	U217
08816129	IC	UTC78L09 TO-92M	PCS	1	U212
0881501	IC	AMS1084CD TO-252	PCS	1	U208
08806989	IC	HA178L05PA TO-92M	PCS	1	U216

0881456	IC	SAA6588 SO20	PCS	1	U204
881263	IC	PCM1801U SOP	PCS	1	U210
0960226	CRYSTAL OSCILLATOR	4.332MHz 49-s	PCS	1	X202
0960020	CRYSTAL OSCILLATOR	27.00MHz 49-S	PCS	1	X201
0960019	CRYSTAL OSCILLATOR	12.00MHz 49-S	PCS	1	X203
1940140	CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLUG	PCS	1	XS204
1940120	CABLE SOCKET	13P 1.0mm STRAIGHT DUAL LINE PLUG	PCS	1	XS206
1940073	CABLE SOCKET	6/5P 1.25mm DUAL LINE HORIZONTAL RIGHT-ANGLED	PCS	1	XS205
1990027	3 IN 1 CARD HOLDER	SD/MS/MMC 23P H=4.2 TOP	PCS	1	JK203
1980048	MIC SOCKET	ST-403-070-100	PCS	1	MIC201
1940281	CABLE SOCKET	24P 0.5mm SMD VERTICAL REVERSE CONNECTION INNER CLASP	PCS	1	XS301
1940027	SOCKET	2P 2.0mm	PCS	1	XS302
1940198	POWER SOCKET	6P 1.0mm SMD WITH CLASP	PCS	1	XS303
1940026	SOCKET	3P 2.0mm	PCS	1	XS305
1940022	SOCKET	4P 2.0mm	PCS	1	XS304
1632751	PCB	21000A-2	PCS	1	