LVD-1502 SERVICE MANUAL

CONTENT

Part 1 Brief Introduction Of The 1510CB

standard features

This product incorporates a DVD player, LCD display and TV receiver in one system, which is commonly referred to as a "combo."

multi mode:
TV mode
SCART mode
COMPOSITE mode
S-VIDEO mode
COMPONENT mode
VGA mode
DVD mode

high performance design:

high resolution:
Adopts MPEG2 decoding format to
achieve horizontal resolution of more than 500 lines.

superior sound:
Built-in Dolby Digital decoder to achieve superior audio performance (when available).

LCD (liquid crystal display):
The 15" color TFT liquid crystal display supports high-quality WXGA viewing mode and 16.7 million colors.

stereo amplifier:
Built-in 3 watt speakers (X2) provide high quality sound at varying volume levels.

A/V and VGA inputs:
Can be connected external audio and video signal sources and/or a PC.

multi-audio and multi-video modes:
Supports multi-audio and multi-video modes; providing greater usage flexibility.

special functions:
Sleep mode allows for programmed shut off.

advanced playing features:

Auto DVD Function

Whether it is in DVD mode, when inserting a disc into the disc tray, the unit will shift to DVD mode and start playback automatically; when ejecting the disc, it will return to the prior mode automatically.

compatibility:

DVD, CD, CD-R, CD-RW and JPEG-type discs are all compatible with this product.

all playback functions:

Fast forward and reverse, slow playback and repeat playback are all standard.

special playback:

This LCDTV-DVD player supports multi-angle, language & subtitle playback for full use of the range of a DVD features.

PLEASE NOTE:

Occasionally, light or dark pixels can appear on LCD panels as part of the manufacturing process, and is considered norma

Schematic Diagram

SCART-YPBPR

AV-CVBS ──── AV-CVBS ────

AV-L/R

TV-RF ──── TUNER FQ1236

TV-CVBS

S-VIDEO ──── S-VIDEC

DVD-L/R

SCART-L/R

DVD-YPBPR ──── FSAV330/74LVS125

YPBPR ──── YPBPR

AV-L/R
SCART-L/R

YPBPR-L/R

PC-L/R

FLI8125

FLASH/ROM

LVDS ──── SVA552 LCD PANEL

EEPROM

I2C

IR

TV-SIF

TV-MONO

DVD-L/R

MSP3425

YPBPR

CD4052-L/R

CD4052

TDA1517

L

R
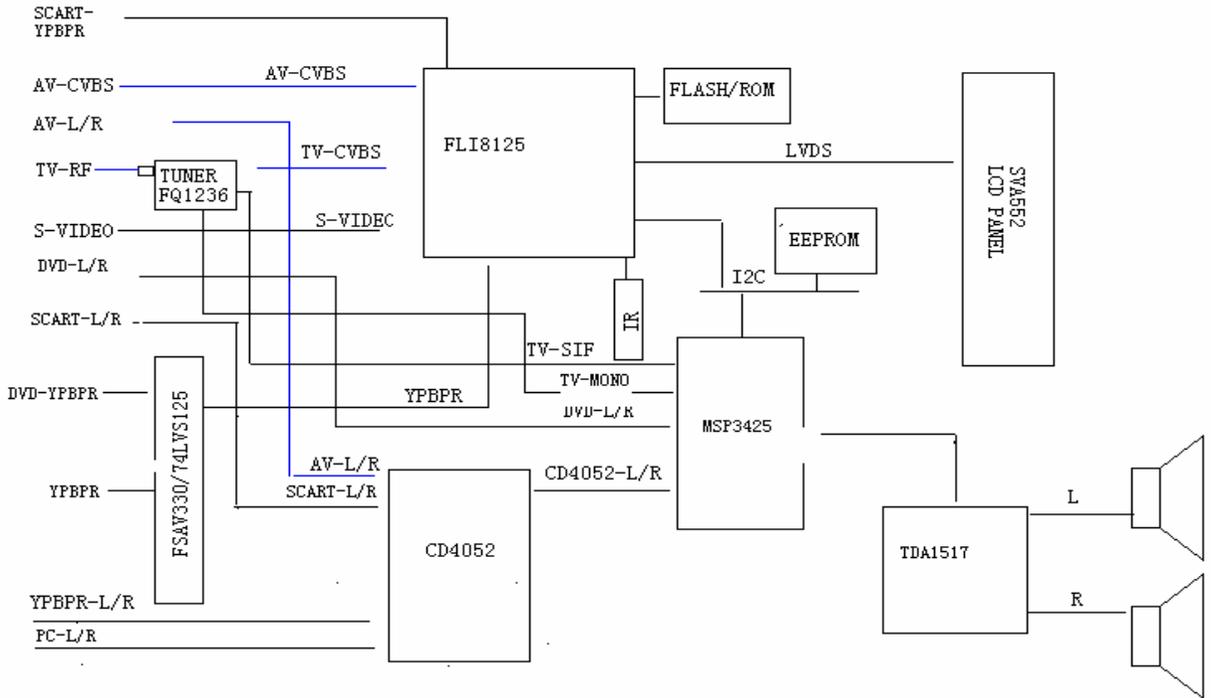
Printde circuit

Main board 2973C(Top layer view)
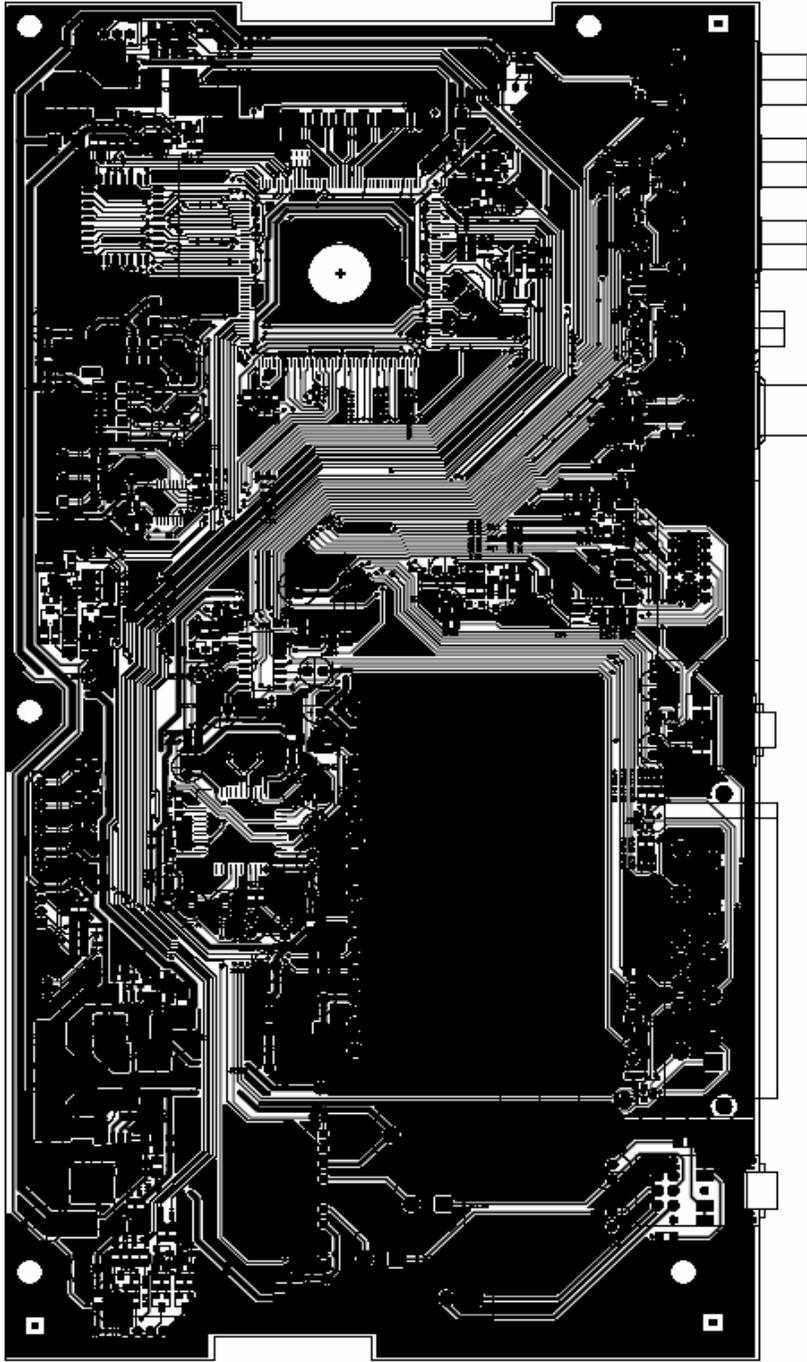
Main board 2973C(Bottom layer view)
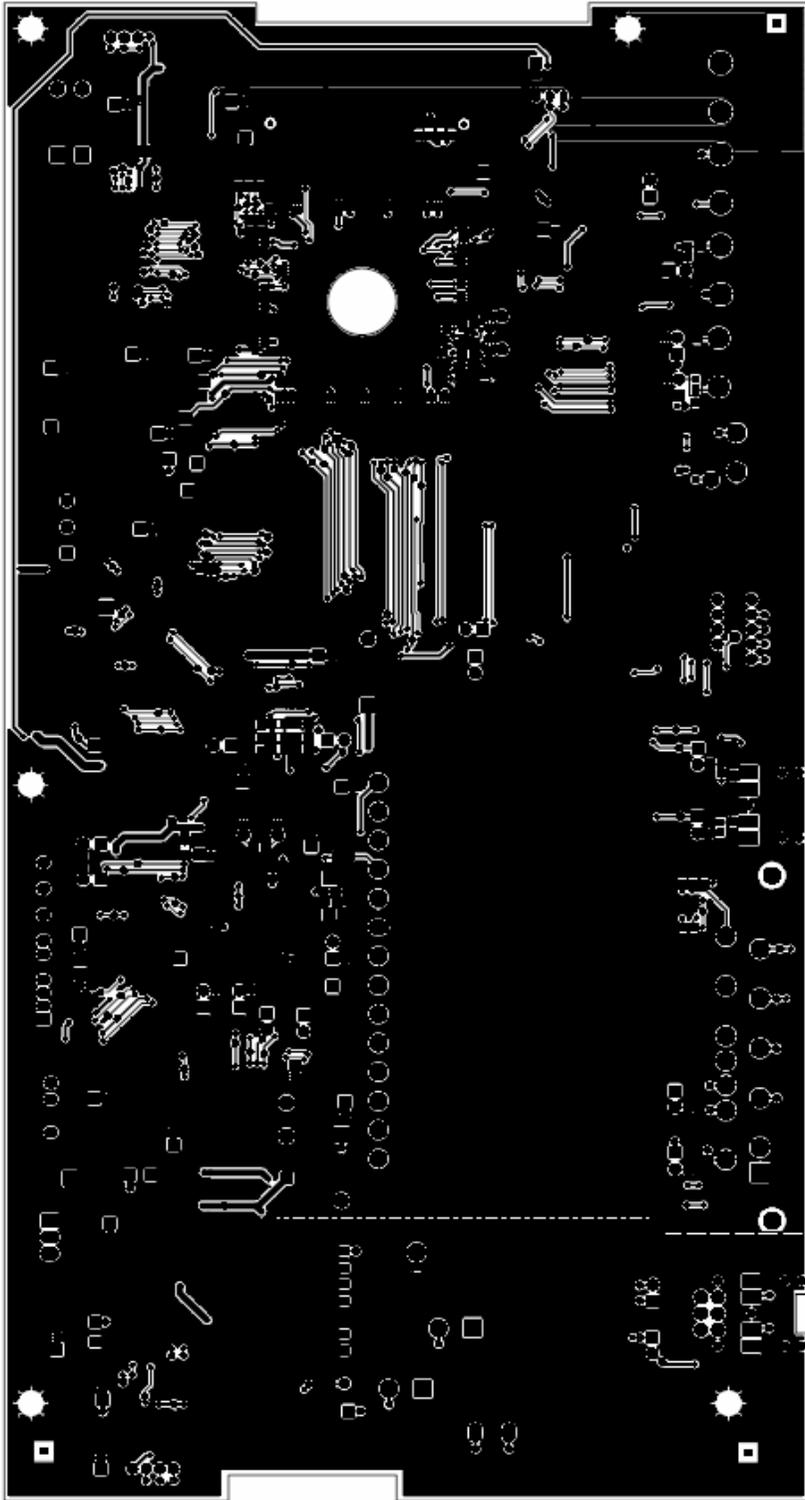
DVD Board 3446C(Top layer view)
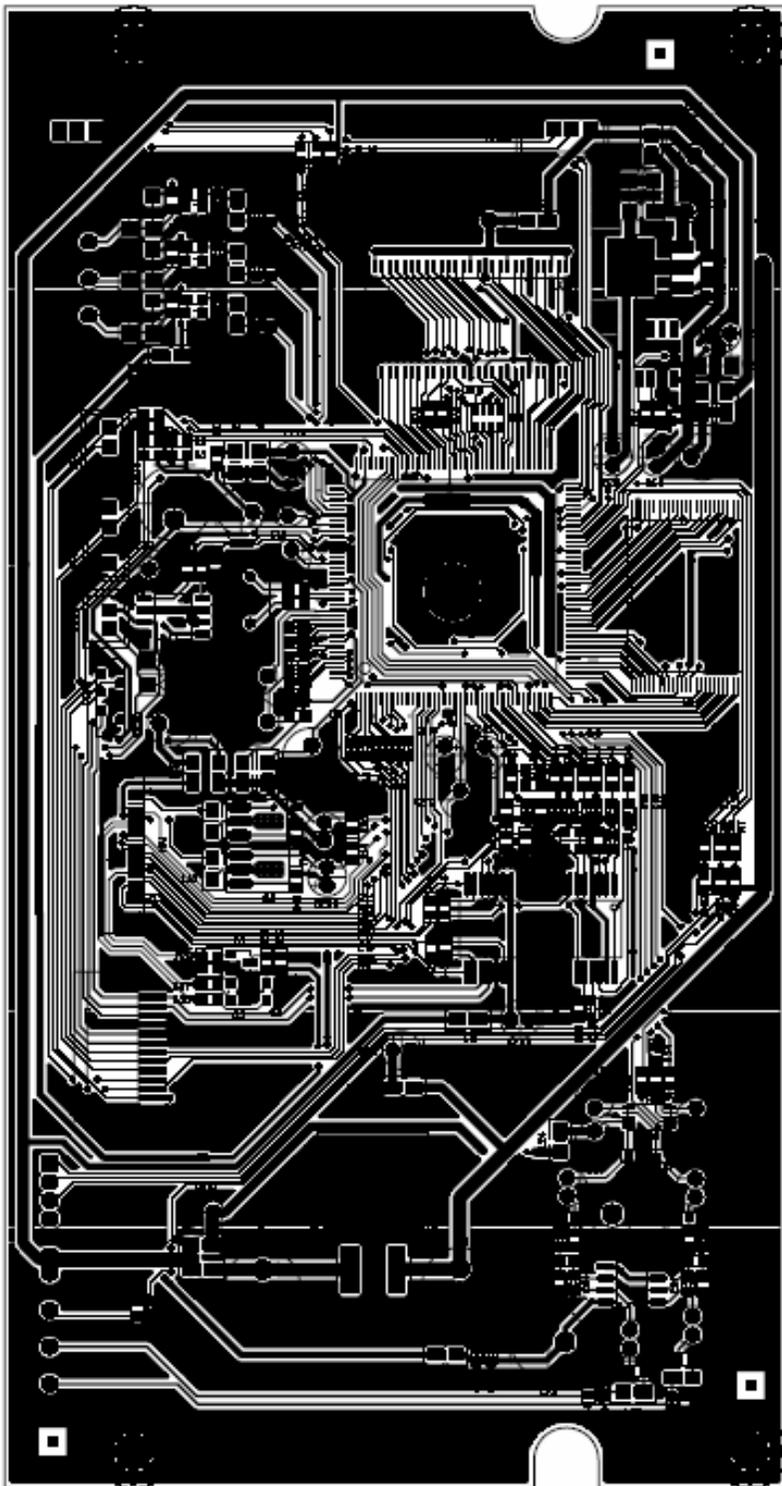
DVD Board 3446C(Bottom layer view)
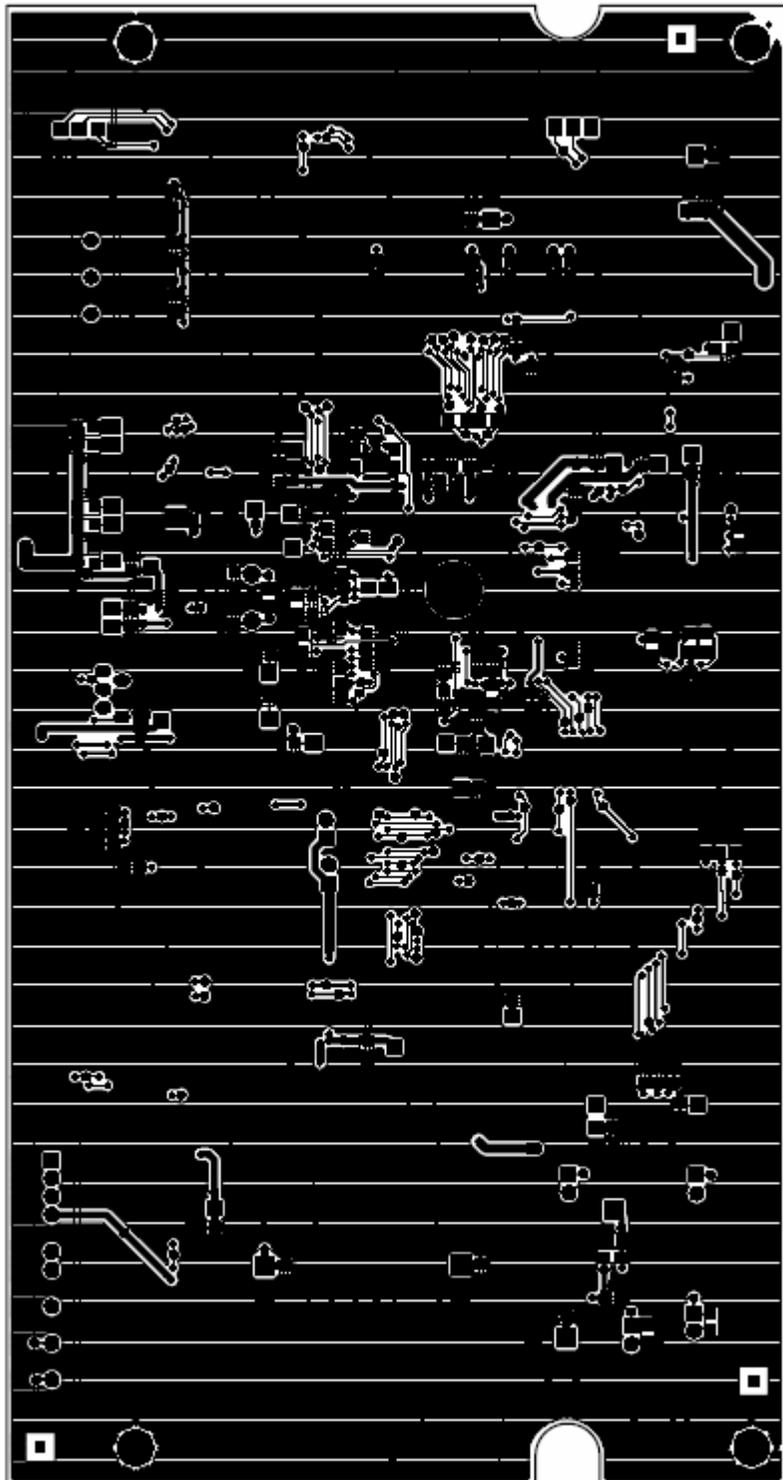
Power Board 2956C (Top Layer View)
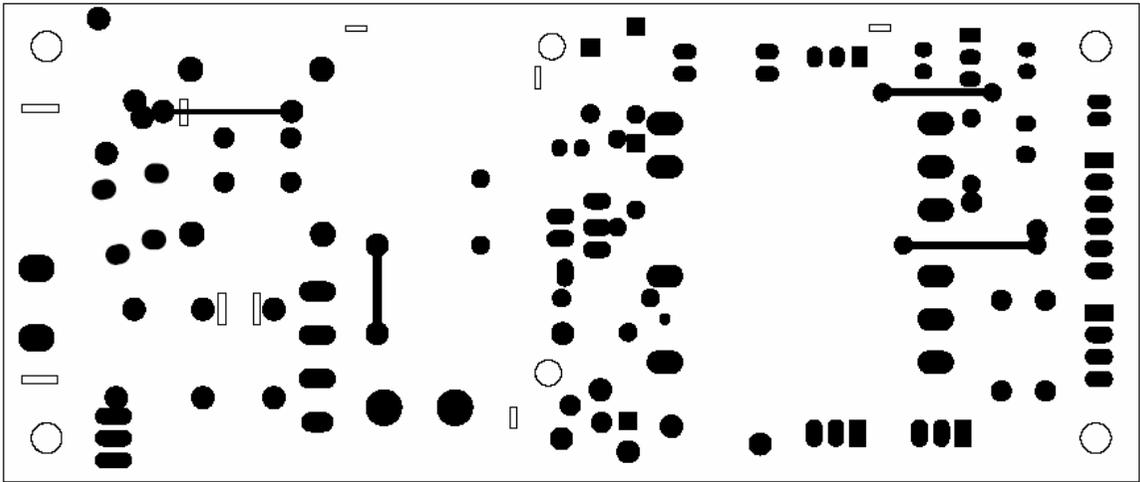
Power Board 2956C (Bottom Layer View)
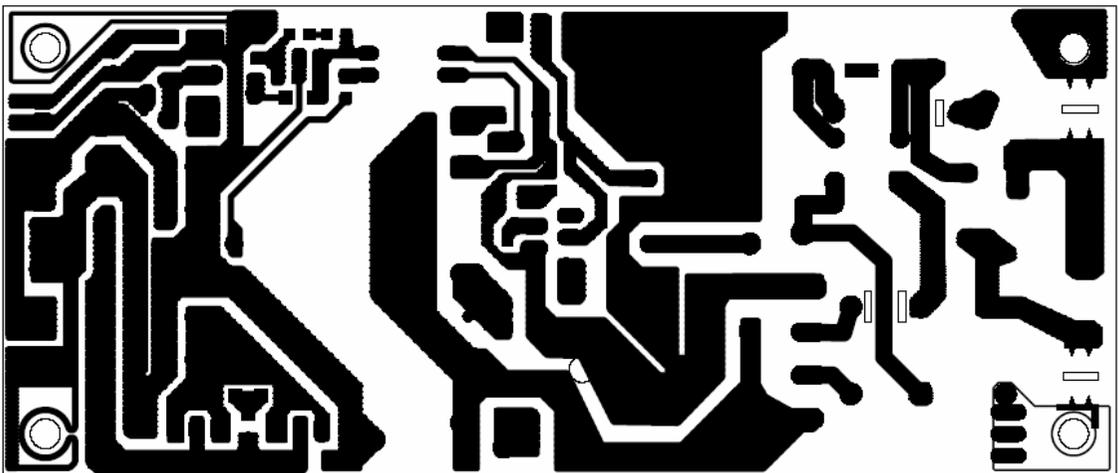
Remote Control Board 2541C(Top layer view)
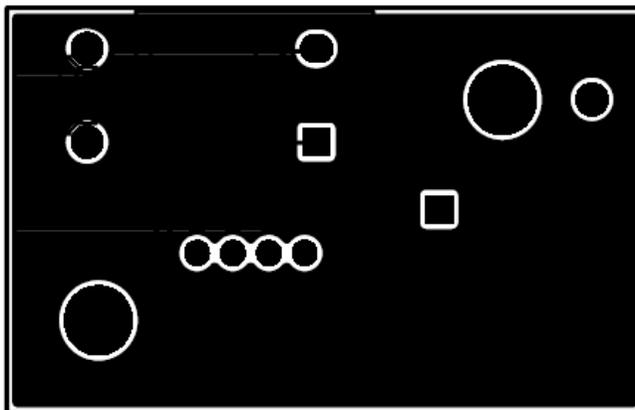
Remote Control Board 2541C(Bottom layer view)
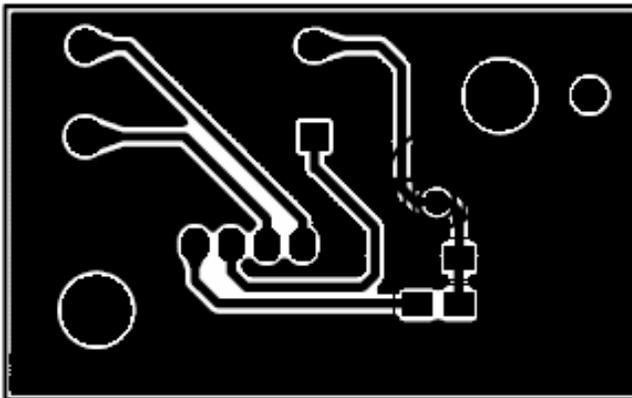
Inverter board 2827C(Top layer view)
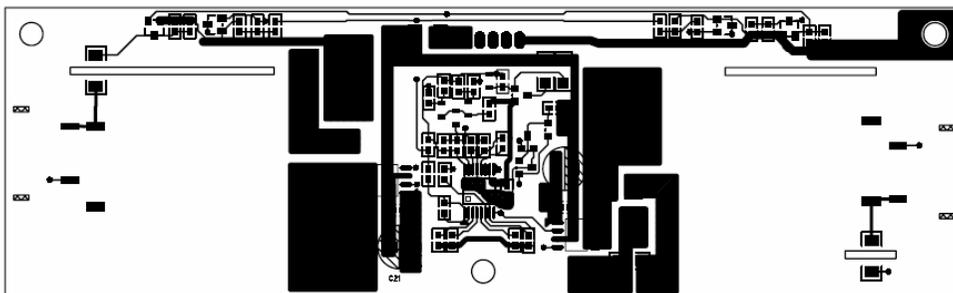

Inverter board 2827C(Bottom layer view)
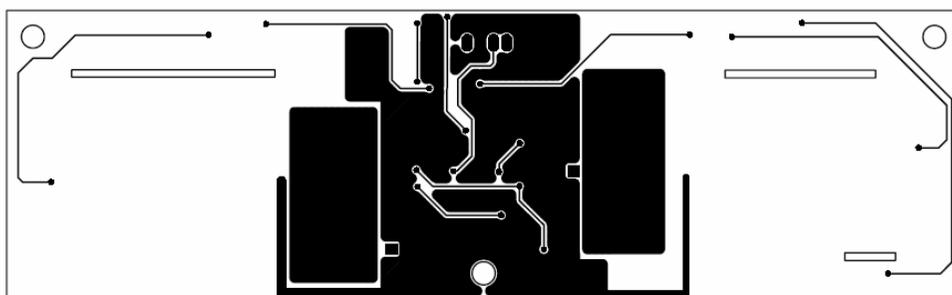
Keypad board 3479C(Top layer view)

Keypad board 3479C(Bottom layer view)
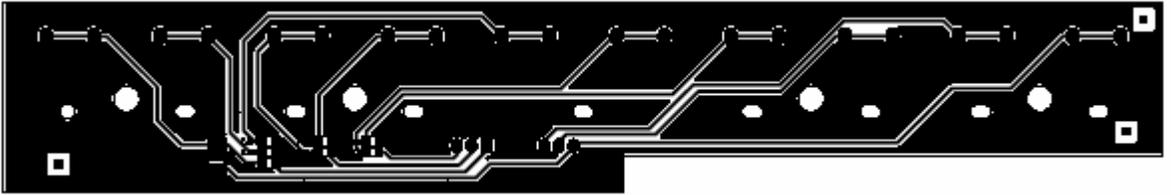
PART 2   Exploded view

Exploded view

LVD-1502
Exploded View
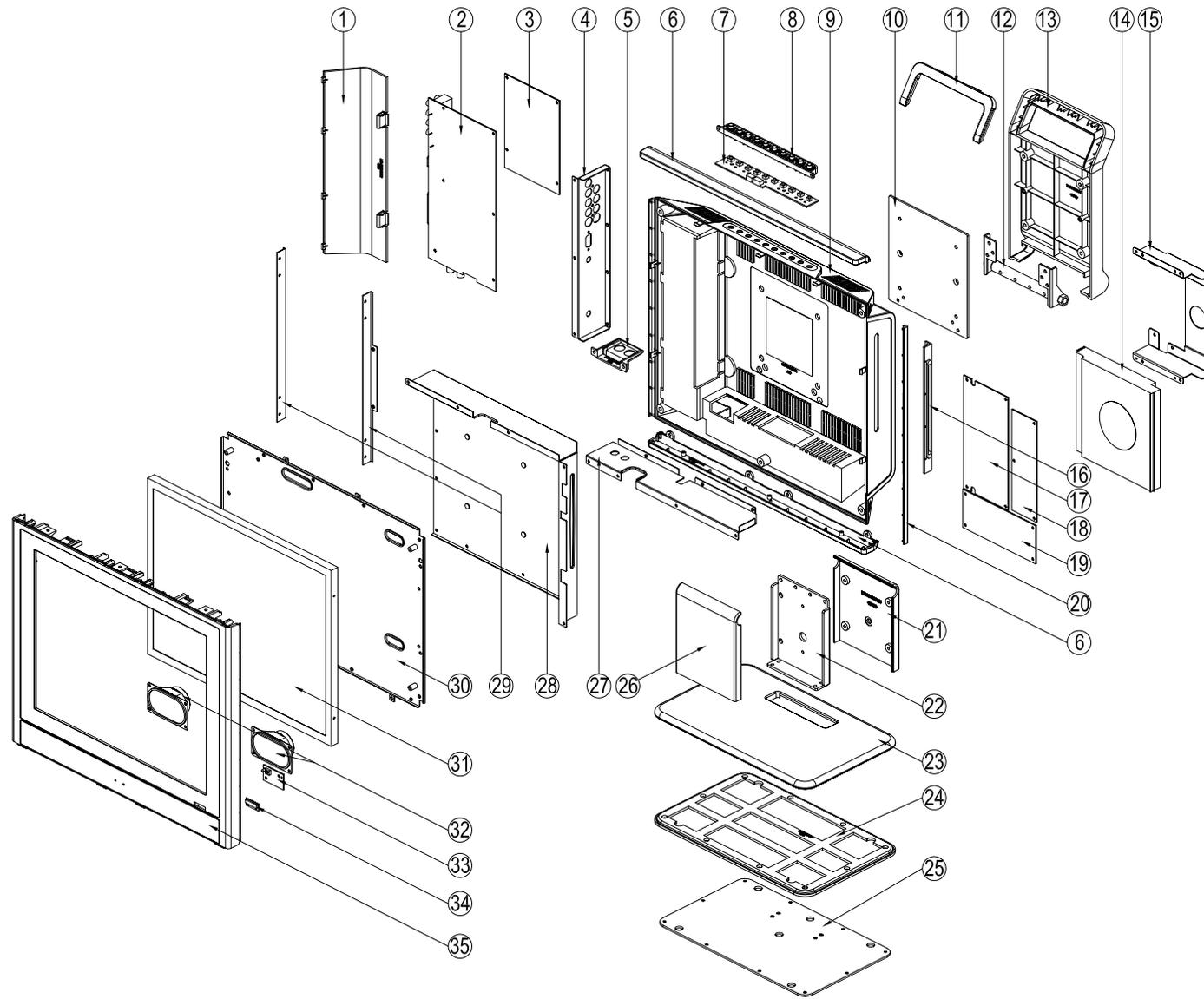
Item	SPECIFICATION	Qty	Parts No.
35	Fornt frame	1	LTD-61502-RE001
34	Remote control eyeglass	1	LTD-51702-RE012
33	Remote control board 2541C	1	same as LTD-51702
32	Speaker	2	
31	15 Inch LCD	1	15' (SVA-NEC)
30	LCD shield board	1	LTD-61502-PT01
29	LCD fixing frame	2	LTD1510-PT16
28	Shield cover	1	LTD-61502-PT04
27	Underside board of shield cover	1	LTD-61502-PT03
26	Former rotate shaft cover	1	LTD-51702-RE008
25	Soleplate	1	LTD-51702-PT09
24	Lower cover of pedestal	1	LTD-51702-RE011
23	Upper cover of pedestal	1	LTD-51702-RE010
22	Hardware bracket	1	LTD-51702-PT08
21	Back rotate shaft cover	1	LTD-51702-RE009
20	Left and right adornment bar	2	LTD-61502-RE004
19	Power board 2956C01	1	
18	Hi-voltage board	1	
17	DVD board 3466C01	1	
16	Decorative border of disc cover	1	LTD-51702-RE013
15	Fixing frame for loader	1	LTD1520PT-05
14	Module of loader	1	
13	Handle	1	LTD-51702-RE007
12	Damp rotate shaft	1	
11	U type silica gel pad	1	
10	Handle fixing board	1	LTD-51702-PT07
9	Back frame	1	LTD-61502-RE002
8	Button	1	LTD-51702-RE005
7	Kyepad board 3479C01	1	
6	Upper and lower adornment bar	2	LTD-61502-RE003
5	Baffle of connecting caput	1	LTD-61502-RE006
4	Right-hand board of shield cover	1	LTD-61502-PT02
3	Digital TV board	1	
2	Main board 2973C01	1	
1	Outlet cover	1	LTD-61502-RE005

Exploded
View

Spare Parts List (LVD-1502)

Item	Description	QTY	Part № (Код ЗЧД=Номер ЗЧД)	Remark
1	Outlet cover	1	LTD-61502-RE005	
2	Main board 2973C01	1	LVD-1502-2	
3	Digital TV board	1	LVD-1502-3	
4	Right-hand board of shield cover	1	LTD-61502-PT02	
5	Baffle of connecting caput	1	LTD-61502-RE006	
6	Upper and lower adornment bar	2	LTD-61502-RE003	
7	Keypad board 3479C01	1	LVD-1502-7	
8	Button	1	LTD-51702-RE005	
9	Back frame	1	LTD-61502-RE002	
10	Handle fixing board	1	LTD-51702-PT07	
11	U type silica gel pad	1	LVD-1502-11	
12	Damp rotate shaft	1	LVD-1502-12	
13	Handle	1	LTD-51702-RE007	
14	Module of loader	1	DL-05FS-L40P	
15	Fixing frame for loader	1	LTD1520PT-05	
16	Decorative border of disc cover	1	LTD-51702-RE013	
17	DVD board 3466C01	1	LVD-1502-17	
18	Hi-voltage board	1	LVD-1502-18	
19	Power board 2956C01	1	LVD-1502-19	
20	Left and right adornment bar	2	LTD-61502-RE004	
21	Back rotate shaft cover	1	LTD-51702-RE009	
22	Hardware bracket	1	LTD-51702-PT08	
23	Upper cover of pedestal	1	LTD-51702-RE010	
24	Lower cover of pedestal	1	LTD-51702-RE011	
25	Soleplate	1	LTD-51702-PT09	
26	Former rotate shaft cover	1	LTD-51702-RE008	
27	Underside board of shield cover	1	LTD-61502-PT03	
28	Shield cover	1	LTD-61502-PT04	
29	LCD fixing frame	2	LTD1510-PT16	
30	LCD shield board	1	LTD-61502-PT01	
31	15 Inch LCD SVA	1	LVD-1502-31	
32	Speaker	2	LVD-1502-32	
33	Remote control board 2541C	1	LVD-1502-33	
34	Remote control eyeglass	1	LTD-51702-RE012	
35	Front frame	1	LTD-61502-RE001	
	TUNER ASS'Y MPE05-1-E	1	LVD-1502-77	тюнер
	REMOTE CONTROL RC-6024	1	RC-6024	ПДУ

Part 3 Key ICs And Assemblies

| On Main Board			On DVD board		
Serial No	Position	Type	Serial no	Position	Type
1	3U4	CD4052	1	U2	BA033
2	4U1	AT24C32AN	2	U3	AZ1117H-1.8
3	2U4	24C02	3	U6	MT1389DE/E
4	3U6	MSP3415G	4	U4	BA5954
5	1U1 1U3	AP1513S	5	U5	BA6287
6	4U2	AT49BV040B	6	U7	24C16
7	1U2	FDS9435	7	U8	IS42S16400B-7T
8	4U3	FLI8125-LF	8	U9	MX29LV160BBTC-70
9	2U7	FSAV330	9	U11	NJM4558
10	1U4	LM1117DTX-1.8V	10	U10	CS4344
11	3U2	L7808C-V			
12	2U1 2U2 2U3 2U5 2U6	PESD5V0L5	On Power board		
13	3U5	TDA1517P	1	U5	FSCM0765RGWDTU
			2	U2	PC817
			3	U3	KA431AZ
On HI-voltage Board					
1	U1	BIT3193			
2	Q2,Q6	AP4511M			

ICS ON MAIN BOARD

1. AP1513

■ Features

- Input voltage: 3.6V to 18V.
- Output voltage: 0.8V to V_{CC}.
- Duty ratio: 0% to 100% PWM control
- Oscillation frequency: 300KHz typ.
- Soft-start, Current limit, Enable function
- Thermal Shutdown function
- Built-in internal SW P-channel MOS
- SOP-8L **Pb-Free** Package.

■ Applications

- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD-Video Player
- Telecom Equipment
- ADSL Modem
- Printer and other Peripheral Equipment
- Microprocessor core supply
- Networking power supply
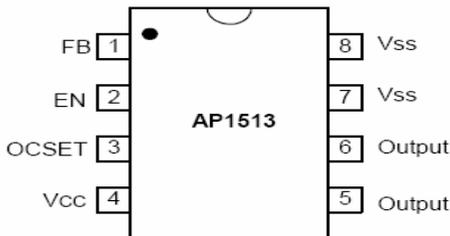
■ General Description

AP1513 consists of step-down switching regulator with PWM control. These devices include a reference voltage source, oscillation circuit, error amplifier, internal PMOS and etc.

AP1513 provides low-ripple power, high efficiency, and excellent transient characteristics. The PWM control circuit is able to very the duty ratio linearly from 0 up to 100%. This converter also contains an error amplifier circuit as well as a soft-start circuit that prevent s overshoot at startup. An enable function, an over current protect function and a short circuit protect function are built inside, and when OCP or SCP happens, the operation frequency will be reduced from 300KHz to 30KHz. Also, an internal compensation block is built in to minimum external component count.

With the addition of an internal P-channel Power MOS, a coil, capacitors, and a diode connected externally, these ICs can function as step-down switching regulators. They serve as ideal power supply units for portable devices when coupled with the SOP–8L mini-package, providing such outstanding features as low current consumption. Since this converter can accommodate an input voltage of up to 18V, it is also ideal when operating via an AC adapter.

■ Pin Assignments

■ Pin Descriptions

Name	Pin	Description
FB	1	Feedback pin.

EN	2	Power-off pin
		H: Normal operation
		   (Step-down operation)
		L: Step-down operation stopped
		   (All circuits deactivated)

OCSET	3	Add an external resistor to set max output current.
Vcc	4	IC power supply pin
Output	5、6	Switch Pin. Connect external inductor/diode here. Minimize trace area at this pin to reduce EMI.
Vss	7、8	GND Pin

・**Block Diagram**
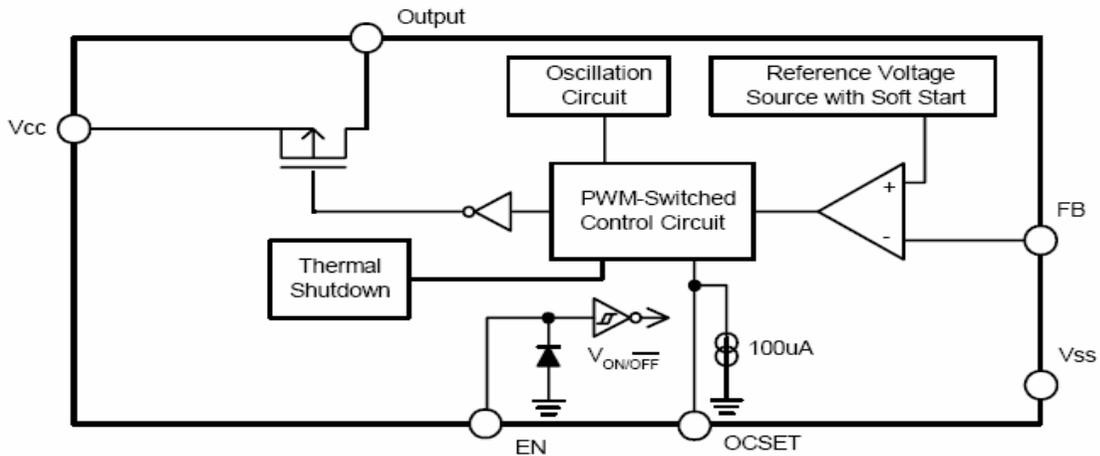
2. CD4052

The CD4052B is a differential 4-Channel multiplexer having two binary control inputs, A and B, and an inhibit input. The two binary signals select 1 of 4 pairs of channels to be turned on and connect the analog inputs to the outputs.

Features

- Wide Range of Digital and Analog Signal Levels
  - Digital . . . . 3V to 20V
  - Analog. . . . . $\leq 20V_{P-P}$
- Low ON Resistance, 125Ω (Typ) Over $15V_{P-P}$ Signal Input Range for $V_{DD}-V_{EE} = 18V$
- High OFF Resistance, Channel Leakage of $\pm 100pA$ (Typ) at $V_{DD}-V_{EE} = 18V$
- Logic-Level Conversion for Digital Addressing Signals of 3V to 20V ($V_{DD}-V_{SS}$ = 3V to 20V) to Switch Analog Signals to $20V_{P-P}$ ($V_{DD}-V_{EE}$ = 20V)
- Matched Switch Characteristics, $r_{ON} = 5\Omega$ (Typ) for $V_{DD}-V_{EE} = 15V$
- Very Low Quiescent Power Dissipation Under All Digital-Control Input and Supply Conditions, $0.2\mu W$ (Typ) at $V_{DD}-V_{SS} = V_{DD}-V_{EE} = 10V$
- Binary Address Decoding on Chip
- 5V, 10V and 15V Parametric Ratings
- 10% Tested for Quiescent Current at 20V
- Maximum Input Current of $1\mu A$ at 18V Over Full Package Temperature Range, 100nA at 18V and 25°C
- Break-Before-Make Switching Eliminates Channel Overlap

Applications

- Analog and Digital Multiplexing and Demultiplexing
- A/D and D/A Conversion
- Signal Gating

・**Pinputs**

CD4052B (PDIP, CDIP, TSSOP)
TOP VIEW

Pin	Label	Pin	Label
1	Y CHANNELS IN/OUT 0	16	V_{DD}
2	Y CHANNELS IN/OUT 2	15	2 X CHANNELS IN/OUT
3	COMMON "Y" OUT/IN	14	1 X CHANNELS IN/OUT
4	Y CHANNELS IN/OUT 3	13	COMMON "X" OUT/IN
5	Y CHANNELS IN/OUT 1	12	0 X CHANNELS IN/OUT
6	INH	11	3 X CHANNELS IN/OUT
7	V_{EE}	10	A
8	V_{SS}	9	B

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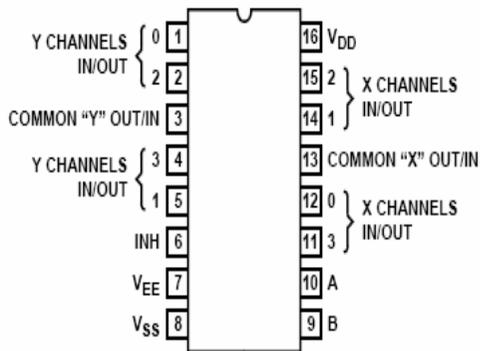
3. **FLI8125**

    The FLI8125 is a cost-effective, highly-integrated, mixed signal solution for TV and Digital Video applications. It incorporates a multi-standard video decoder, high-speed triple 8-bit Analog-to-Digital Converter(ADC),and front end switching. An integrated VBI Slicer adds Closed Captioning(CC) and Teletext service support, and the built-in microprocessor enables full system control without external devices.

Features

INTEGRATED TRIPLE ADC

- RGB / YPbPr support up to 135MHz
- SCART – RGB + Fast Blank support
- Interlaced and progressive scan
- External OSD support

DIGITAL INPUT PORT

- 24-bit re-configurable input port

INTEGRATED 2D VIDEO DECODER

- Worldwide NTSC/PAL/SECAM support
- Macrovision / VCR trick mode support

EMBEDDED MICROPROCESSOR

- Turbo 186 core
- Internal RAM / ROM
- Serial Flash / Parallel ROM support
- 2-wire slave controller, UART support
- Internal RESET Controller
- GPIOs , Low Bandwidth ADC – 6 input
- Infra-red Interface

SCALING ENGINE

- Independent H & V scaling factors
- 4:2:2 YPbPr or 4:4:4 RGB scaling
- Anamorphic scaling (non-linear)

FAROUDJA DCDI – EDGE™

- Edge Correction
  - Eliminates objectionable stair-casing
  - Enhances clarity and realism
- Horizontal Enhancement
- Adaptive Contrast and Color (ACC)
- Active Color Management - II (ACM-II)

DIGITAL OUTPUT

- 18/24-bit 85Mhz TTL output
- Dual LVDS up to SXGA
- Energy Spectrum Management for reducing EMI
- Programmable CLUT for gamma correction

OSD CONTROLLER

- Up to 4 windows: 1, 2 or 4-bits per pixel color
- Programmable Font scalar to meet Teletext requirements

VBI SLICER

- V-Chip, Closed Captioning, XDS, CGMS, WSS decode
- Teletext 1.5 support

JTAG SUPPORT

- Boundary Scan support

• **Pinput**

Genesis FLI8125 — DISPLAY PERFECTION

Left side (pins 1–52):

1 VDDA33_LBADC
2 LBADC_IN1
3 LBADC_IN2
4 LBADC_IN3
5 LBADC_IN4
6 LBADC_IN5
7 LBADC_IN6
8 LBADC_RTN
9 VSAA33_LBADC
10 RESETn
11 GND_RPLL
12 VDD_RPLL_18
13 V5UFC_RPLL
14 AGND_RPLL
15 XTAL
16 TCLK
17 AVDD_RPLL_33
18 CVDD_1.8
19 CRVSS
20 TEST
21 GPIO15
22 HSYNC2
23 VSYNC2
24 HOST_SCLK
25 HOST_SDATA
26 DDC_SCLK
27 DDC_SDATA
28 CVDD_1.8
29 CRVSS
30 MSTR_SCLK
31 MSTR_SDATA
32 RVDD_3.3
33 CRVSS
34 TCK
35 TDI
36 TMS
37 TRST
38 GPIO6/IRIn
39 CVDD_1.8
40 CRVSS
41 GPIO7/IRQin
42 GPIO8/IRQout
43 GPIO9/SIPC_SCLK
44 GPIO10/SIPC_SDATA/A18
45 CVDD_1.8
46 CRVSS
47 GPIO11/PWM0
48 GPIO12/PWM1
49 RVDD_3.3
50 CRVSS
51 GPIO13/PWM2
52 GPIO14/PWM3/SCART16

Right side (pins 156–105):

156 HSYNC1
155 CRVSS
154 RVDD_3.3
153 VID_CLK_1
152 VID_DATA_IN_15/GPIO23
151 VID_DATA_IN_14/GPIO22
150 VID_DATA_IN_13/GPIO21
149 VID_DATA_IN_12/GPIO20
148 VID_DATA_IN_11/GPIO19
147 VID_DATA_IN_10/GPIO18
146 VID_DATA_IN_9/GPIO17
145 VID_DATA_IN_8/GPIO16
144 CRVSS
143 CVDD_1.8
142 VID_DATA_IN_7
141 VID_DATA_IN_6
140 VID_DATA_IN_5
139 VID_DATA_IN_4
138 VID_DATA_IN_3
137 VID_DATA_IN_2
136 VID_DATA_IN_1
135 VID_DATA_IN_0
134 CRVSS
133 CVDD_1.8
132 VID_DATA_IN_23/D7/PD46
131 VID_DATA_IN_22/D6/PD45
130 VID_DATA_IN_21/D5/PD44
129 VID_DATA_IN_20/D4/PD43
128 VID_DATA_IN_19/D3/PD42
127 CRVSS
126 CVDD_1.8
125 VID_DATA_IN_18/D2/PD41
124 VID_DATA_IN_17/D1/PD40
123 VID_DATA_IN_16/D0/PD39
122 GPIO4/VIDIN_HS
121 GPIO5/VIDIN_VS
120 CRVSS
119 CVDD_1.8
118 VID_CLK2/ROM_OEN/PD47
117 CRVSS
116 RVDD_3.3
115 VID_DE/FLD/A0/PD24
114 A1/PD25
113 A2/PD26
112 A3/PD27
111 A4/PD28
110 A5/PD29
109 A6/PD30
108 A7/PD31
107 A8/PD32
106 A9/PD33
105 A10/PD34

Top side (pins 208–157):

208 GND18_SC
207 VDD18_SC
206 VOUT2
205 VO_GND
204 SVN
203 AVDD_SC
202 C4P
201 GNDS
200 B4P
199 GNDS
198 A4P
197 GNDS
196 SV4P
195 AGND
194 CN
193 AVDD_C
192 C3P
191 GNDS
190 B3P
189 GNDS
188 A3P
187 GNDS
186 SV3P
185 AGND
184 BN
183 AVDD_B
182 C2P
181 GNDS
180 B2P
179 GNDS
178 A2P
177 GNDS
176 SV2P
175 AGND
174 AN
173 AVDD_A
172 C1P
171 GNDS
170 B1P
169 GNDS
168 A1P
167 GNDS
166 SV1P
165 AGND
164 AGND
163 AVDD_ADC
162 ADC_TEST
161 VDD18_C
160 GND18_C
159 NC
158 VDD18_AB
157 VSYNC1

Bottom side (pins 53–104):

53 PBIAS
54 PPWR
55 TDO
56 AVDD_LV_33
57 VCO_LV
58 AVSS_LV
59 AVDD_OUT_LV_33
60 CH3P_LV_E/R0
61 CH3N_LV_E/R1
62 CLKP_LV_E/R2
63 CH2P_LV_E/R4
64 CH2N_LV_E/R5
65 CH1P_LV_E/R6
66 CH1N_LV_E/R7
67 CH0P_LV_E/G0
68 CH0N_LV_E/G1
69 AVSS_LV_11
70 AVDD_LV_33
71 CH3P_LV_OVG2
72 CH3N_LV_OVG3
73 CLKP_LV_OVG4
74 CLKN_LV_OVG5
75 CH2P_LV_OVG6
76 CH2N_LV_OVG7
77 CH1P_LV_O/B0
78 CH1N_LV_O/B1
79 CH0P_LV_O/B2
80 CH0N_LV_O/B3
81 AVSS_OUT_LV
82 AVDD_OUT_LV_33
83 CVDD_1.8
84 CRVSS
85 PD20/B4GPIO0
86 PD21/B5/GPIO1
87 PD22/B6/GPIO2
88 PD23/B7/GPIO3
89 DEN
90 DHS
91 DVS
92 DCLK
93 CRVSS
94 RVDD_3.3
95 ROM_SCSN/ROM_CSN
96 ROM_SCLK/A17
97 ROM_SDO/A16
98 ROM_SDI/ROM_WEN
99 RVDD_3.3
100 CRVSS
101 ADC_CLAMP/A15
102 XOSD_CLK/A14/PD38
103 XOSD_HS/A13/PD37
104 XOSD_VS/A12/PD36
XOSD_FLD/A11/PD35

4. **FDS9435**

Single P-Channel Enhancement Mode Field Effect Transistor

SO-8 P-Channel enhancement mode power field effect transistors are produced using Fairchild's proprietary, high cell density, DMOS technology. This very high density process is especially tailored to minimize on-state Resistor and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where fast switching, low in-line power loss, and Resistor to transients are needed.

• **Features**

-5.3 A, -30 V, $R_{DS(ON)}$ = 0.045 Ω @ V_{GS} = -10 V,
$R_{DS(ON)}$ = 0.075 Ω @ V_{GS} = - 4.5 V.
High density cell design for extremely low RDS(ON).
High power and current handling capability in a widely used surface mount package.
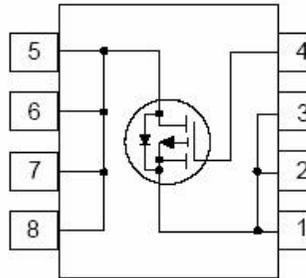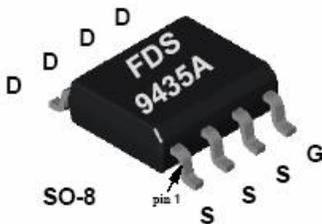
Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter		FDS9435A	Units
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		-20	V
I_D	Drain Current - Continuous	(Note 1a)	- 5.3	A
	- Pulsed		-50	
P_D	Maximum Power Dissipation	(Note 1a)	2.5	W
		(Note 1b)	1.2	
		(Note 1c)	1	
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to 150	°C
THERMAL CHARACTERISTICS				
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1a)		50	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case (Note 1)		25	°C/W

ICS ON DVD BOARD

1. BA5954

The AM5954 is a four-channel BTL driver IC for driving the motors and actuators such as used in CD-ROM drives. Two of the channels use current feedback to minimize the current phase shift caused by the influence of loading inductance.

● **Applications**

BTL driver for CD, CD-ROM and DVD.

● **Features**

1) Two channels are current-type BTL drivers for actuators for tracking and focus, two channels are voltage-type BTL driver for sled and loading motors.
2) Wide dynamic range [9.0V(*typ*) when Vcc=PVcc=12V, at R_L=8 Ω load].
3) Separating power of Vcc and PVcc to improve power efficiency by a low supply voltage for tracking and focus.
4) Level shift circuit built-in.
5) Thermal shut down circuit built-in.
6) Standby mode built-in.

7) **Dual actuator drivers:**
The drivers use current feedback to minimize the current phase shift caused by the influence of the load inductance. The output structure are two power OPAMPS in bridge configuration.
8) **Sled motor driver:**
A general purpose input OP provides differential input for signal addition. The output structure are two power OPAMPS in bridge configuration.
9) **Loading driver:**
Single input linear BTL driver. The output structure are two power OPAMPS in bridge configuration.

● **Block diagram**
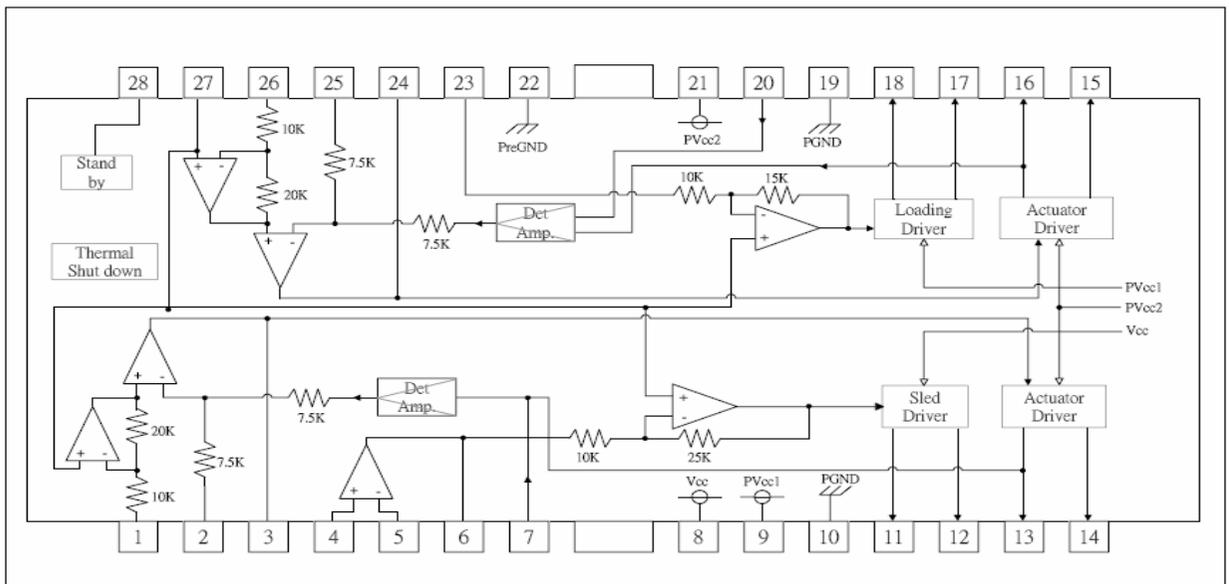
● Pin description

PIN No	Pin Name	Function
1	VINFC	Input for focus driver
2	CFCerr1	Connection of capacitor for the error amp filter
3	CFCerr2	Connection of capacitor for the error amp filter
4	VINSL+	OPAMP input (+) for the sled driver
5	VINSL-	OPAMP input (-) for the sled driver
6	VOSL	OPAMP output for the sled driver
7	VNFFC	Focus driver feedback pin
8	Vcc	Vcc for pre-drive block and power block of sled
9	PVcc1	Vcc for power block of loading
10	PGND	GND for power block
11	VOSL-	Sled driver output (-)
12	VOSL+	Sled driver output (+)
13	VOFC-	Focus driver output (-)
14	VOFC+	Focus driver output (+)
15	VOTK+	Tracking driver output (+)
16	VOTK-	Tracking driver output (-)
17	VOLD+	Loading driver output (+)
18	VOLD-	Loading driver output (-)
19	PGND	GND for power block
20	VNFTK	Feedback for tracking driver
21	PVcc2	Vcc for power block of tracking and focus
22	GND	GND for pre-drive block
23	VINLD	Input for loading driver
24	CTKerr2	Connection of capacitor for the error amp filter
25	CTKerr1	Connection of capacitor for the error amp filter
26	VINTK	Input for tracking driver
27	BIAS	Input for reference voltage
28	STBY	Input for standby control

● Pin configuration

AM5954

Top row pins (left to right): 28 STBY, 27 BIAS, 26 VINTK, 25 CTKerr1, 24 CTKerr2, 23 VINLD, 22 GND, 21 PVcc2, 20 VNFTK, 19 PGND, 18 VOLD-, 17 VOLD+, 16 VOTK-, 15 VOTK+

Bottom row pins (left to right): 1 VINFC, 2 CFCerr1, 3 CFCerr2, 4 VINSL+, 5 VINSL-, 6 VOSL, 7 VNFFC, 8 Vcc, 9 PVcc1, 10 PGND, 11 VOSL-, 12 VOSL+, 13 VOFC-, 14 VOFC+
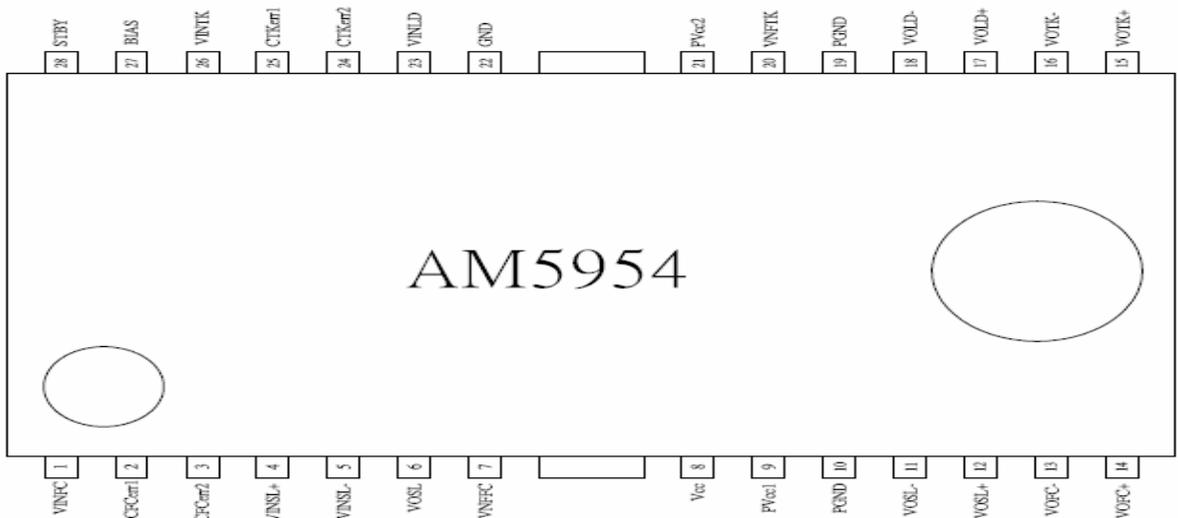
2. MT1389DE/E

Abbr. :
SR : Slew Rate
PU : Pull Up
PD : Pull Down
SMT : Schmitt Trigger
2MA~16MA : Output buffer driving strength.

Pin	Main	Alt.	Type	Description
			RF Interface (26)	
231	RFGND18		Ground	Analog ground
232	RFVDD18		Power	Analog power 1.8V
252	OSP		Analog output	RF Offset cancellation capacitor connecting
253	OSN		Analog output	RF Offset cancellation capacitor connecting
254	RFGC		Analog output	RF AGC loop capacitor connecting for DVD-ROM
255	IREF		Analog Input	Current reference input. It generates reference current for RF path. Connect an external 15K resistor to this pin and AVSS.
256	AVDD3		Power	Analog power 3.3V
1	AGND		Ground	Analog ground
2	DVDA		Analog Input	AC coupled input path A
3	DVDB		Analog Input	AC coupled input path B
4	DVDC		Analog Input	AC coupled input path C
5	DVDD		Analog Input	AC coupled input path D
6	DVDRFIP		Analog Input	AC coupled DVD RF signal input RFIP
7	DVDRFIN		Analog Input	AC coupled DVD RF signal input RFIN
8	MA		Analog Input	DC coupled main-beam RF signal input A
9	MB		Analog Input	DC coupled main-beam RF signal input B
10	MC		Analog Input	DC coupled main-beam RF signal input C
11	MD		Analog Input	DC coupled main-beam RF signal input D
12	SA		Analog Input	DC coupled sub-beam RF signal input A
13	SB		Analog Input	DC coupled sub-beam RF signal input B
14	SC		Analog Input	DC coupled sub-beam RF signal input C
15	SD		Analog Input	DC coupled sub-beam RF signal input D
16	CDFON		Analog Input	CD focusing error negative input
17	CDFOP		Analog Input	CD focusing error positive input
18	TNI		Analog Input	3 beam satellite PD signal negative input
19	TPI		Analog Input	3 beam satellite PD signal positive input
			ALPC (4)	
Pin	Main	Alt.	Type	Description
20	MDI1		Analog Input	Laser power monitor input
21	MDI2		Analog Input	Laser power monitor input
22	LDO2		Analog Output	Laser driver output
23	LDO1		Analog Output	Laser driver output

ADC Power (2)				
244	ADCVDD3		Power	Analog 3.3V Power for ADC
245	ADCVSS		Ground	Analog ground for ADC

VPLL (3)				
43	VPLLVSS		Ground	Analog ground for VPLL
44	CAPPAD		Analog Input	VPLL External Capacitor connection
45	VPLLVDD3		Power	Analog 3.3V Power for VPLL

Reference Voltage (3)				
28	V2REFO		Analog output	Reference voltage 2.8V
29	V20		Analog output	Reference voltage 2.0V
30	VREFO		Analog output	Reference voltage 1.4V

Analog Monitor Output (7)				
24	SVDD3		Power	Analog power 3.3V
25	CSO	RFOP	Analog output	1) Central servo Positive main beam summing 2) output
26	RFLVL	RFON	Analog output	1) RFRP low pass, or Negative main beam 2) summing output
27	SGND		Ground	Analog ground
31	FEO		Analog output	Focus error monitor output
32	TEO		Analog output	Tracking error monitor output
33	TEZISLV		Analog output	TE Slicing Level

Analog Servo Interface (6)				
246	RFVDD3		Power	Analog Power
247	RFRPDC		Analog output	RF ripple detect output
248	RFRPAC		Analog Input	RF ripple detect input(through AC-coupling)
249	HRFZC		Analog Input	High frequency RF ripple zero crossing
250	CRTPLP		Analog output	Defect level filter capacitor connecting
251	RFGND		Ground	Analog Power

RF Data PLL Interface (9)				
Pin	Main	Alt.	Type	Description
235	JITFO		Analog output	The output terminal of RF jitter meter.
236	JITFN		Analog Input	The input terminal of RF jitter meter.
237	PLLVSS		Ground	Ground pin for data PLL and related analog circuitry.
238	IDACEXLP		Analog output	Data PLL DAC Low-pass filter
239	PLLVDD3		Power	Power pin for data PLL and related analog circuitry.
240	LPFON		Analog Output	The negative output of loop filter amplifier
241	LPFIP		Analog Input	The positive input terminal of loop filter amplifier.
242	LPFIN		Analog Input	The negative input terminal of loop filter amplifier.

243	LPFOP		Analog Output	The positive output of loop filter amplifier

Motor and Actuator Driver Interface (10)

Pin	Main	Alt.	Type	Description
34	OP_OUT		Analog output	Op amp output.
35	OP_INN		Analog input	Op amp negative input
36	OP_INP		Analog input	Op amp positive input
37	DMO		Analog Output	Disk motor control output. PWM output.
38	FMO		Analog Output	Feed motor control. PWM output.
39	TROPENPWM		Analog Output	Tray PWM output / Tray open output.
40	PWMOUT1	V_ADIN9	Analog Output	1) 1st General PWM output, or 2) Version AD input 9
41	TRO		Analog Output	Tracking servo output. PDM output of tracking servo compensator.
42	FOO		Analog Output	Focus servo output. PDM output of focus servo compensator
50	FG (Digital pin)	V_ADIN8	LVTTL 3.3V Input, Schmitt Input, pull up , with analog input path for V_ADIN8	1) Motor Hall sensor input, or 2) Version AD input 8

General Power/Ground (18)

Pin	Main	Alt.	Type	Description
55,93, 142,160, 174, 213	DVDD18		Power	1.8V power pin for internal digital circuitry
81,178	DVSS		Ground	1.8V Ground pin for internal digital circuitry
65,96,118, 131,145,156, 170, 208	DVDD3		Power	3.3V power pin for internal digital circuitry
90, 148	DVSS		Ground	3.3V Ground pin for internal digital circuitry

Micro Controller and Flash Interface (48)

Pin	Main	Alt.	Type	Description
62	HIGHA0		Input 2~16MA, SR PU	Microcontroller address 8
74	HIGHA1		Input 2~16MA, SR PU	Microcontroller address 9
73	HIGHA2		Input 2~16MA, SR PU	Microcontroller address 10
72	HIGHA3		Input 2~16MA, SR PU	Microcontroller address 11

Pin	Main	Alt.	Type	Description
71	HIGHA4		Input 2~16MA, SR PU	Microcontroller address 12
70	HIGHA5		Input 2~16MA, SR PU	Microcontroller address 13
69	HIGHA6		Input 2~16MA, SR PU	Microcontroller address 14
68	HIGHA7		Input 2~16MA, SR PU	Microcontroller address 15
89	AD7		Input 2~16MA, SR	Microcontroller address/data 7
86	AD6		Input 2~16MA, SR	Microcontroller address/data 6
85	AD5		Input 2~16MA, SR	Microcontroller address/data 5
84	AD4		Input 2~16MA, SR	Microcontroller address/data 4
83	AD3		Input 2~16MA, SR	Microcontroller address/data 3
82	AD2		Input 2~16MA, SR	Microcontroller address/data 2
80	AD1		Input 2~16MA, SR	Microcontroller address/data 1
79	AD0		Input 2~16MA, SR	Microcontroller address/data 0
92	IOA0		Input 2~16MA, SR PU	Microcontroller address 0 / IO
Pin	Main	Alt.	Type	Description
77	IOA1		Input 2~16MA, SR PU	Microcontroller address 1 / IO
56	IOA2		Input 2~16MA, SR PU	Microcontroller address 2 / IO

57	IOA3		Input 2~16MA, SR PU	Microcontroller address 3 / IO
58	IOA4		Input 2~16MA, SR PU	Microcontroller address 4 / IO
59	IOA5		Input 2~16MA, SR PU	Microcontroller address 5 / IO
60	IOA6		Input 2~16MA, SR PU	Microcontroller address 6 / IO
61	IOA7		Input 2~16MA, SR PU	Microcontroller address 7 / IO
67	A16		Output 2~16MA, SR	Flash address 16
91	A17		Output 2~16MA, SR	Flash address 17
63	IOA18		Input 2~16MA, SR SMT	Flash address 18 / IO
64	IOA19		Input 2~16MA, SR SMT	Flash address 19 / IO
75	IOA20		Input 2~16MA, SR SMT	Flash address 20 / IO

Pin	Main	Alt.	Type	Description
87	IOA21		Input 2~16MA, SR SMT	1) Flash address 21 / IO 2) While External FLASH size <= 2MB: I) GPIO
88	ALE		Input 2~16MA, SR PU, SMT	Microcontroller address latch enable
Pin	Main	Alt.	Type	Description
78	IOOE#		Input 2~16MA, SR SMT	Flash output enable, active low / IO
66	IOWR#		Input 2~16MA, SR SMT	Flash write enable, active low / IO
76	IOCS#		Input 2~16MA, SR PU, SMT	Flash chip select, active low / IO
94	UWR#		Input 2~16MA, SR PU, SMT	Microcontroller write strobe, active low
95	URD#		Input 2~16MA, SR PU, SMT	Microcontroller read strobe, active low
97	UP1_2		Input 4MA, SR PU, SMT	Microcontroller port 1-2

98	UP1_3		Input 4MA, SR PU, SMT	Microcontroller port 1-3
99	UP1_4		Input 4MA, SR PU, SMT	Microcontroller port 1-4
100	UP1_5		Input 4MA, SR PU, SMT	Microcontroller port 1-5
101	UP1_6	SCL	Inout 4MA, SR PU, SMT	1) Microcontroller port 1-6 2) I2C clock pin
102	UP1_7	SDA	Input 4MA, SR PU, SMT	1) Microcontroller port 1-7 2) I2C data pin
103	UP3_0	RXD	Input 4MA, SR PU, SMT	1) Microcontroller port 3-0 2) 8032 RS232 RXD
104	UP3_1	TXD	Inout 4MA, SR PU, SMT	1) Microcontroller port 3-1 2) 8032 RS232 TXD
105	UP3_4	RXD SCL	Input 4MA, SR PU, SMT	1) Microcontroller port 3-4 2) Hardwired RD232 RXD 3) I2C clock pin
106	UP3_5	TXD SDA	Input 4MA, SR PU, SMT	1) Microcontroller port 3-5 2) Hardwired RD232 TXD 3) I2C data pin

Pin	Main	Alt.	Type	Description
109	IR		Input SMT	IR control signal input
110	INT0#		Input 4MA, SR PU, SMT	Microcontroller external interrupt 0, active low

<table>
<tbody>
<tr><td colspan="5" align="center">Audio interface (28)</td></tr>
</tbody>
</table>

Pin	Main	Alt.	Type	Description
204	SPMCLK	SCLK0	Input Non-pull	1) Audio DAC master clock of SPDIF input 2) While SPDIF input is not used: I) Serial interface port 0 clock pin II) GPIO
205	SPDATA	SDIN0	Input Non-pull	1) Audio data of SPDIF input 2) While SPDIF input is not used: I) Serial interface port 0 data-in II) GPIO
206	SPLRCK	SDO0	Input Non-pull	1) Audio left/right channel clock of SPDIF input 2) While SPDIF input is not used: I) Serial interface port 0 data-out II) GPIO
207	SPBCK	SDCS0 ASDATA5	Input Non-pull	1) Audio bit clock of SPDIF input 2) While SPDIF input is not used: I) Serial interface port 0 chip select II) Audio serial data 5 part I : DSD data sub-woofer channel or Microphone output III) GPIO
209	ALRCK		Input 4MA, PD, SMT	1) Audio left/right channel clock Trap value in power-on 2) reset: I) 1 : use external 373 II) 0: use internal 373
210	ABCK	Fs64	Output 4MA Non-pull	1) Audio bit clock 2) Phase de-modulation
211	ACLK		Input 4MA Non-pull	Audio DAC master clock

197	ASDATA0		Input 4MA PD SMT	1) Audio serial data 0 (Front-Left/Front-Right) 2) DSD data left channel 3) Trap value in power-on reset : I) 1 : manufactory test mode II) 0 : normal operation 4) While using external channels: I) GPO_2
202	ASDATA1		Input 4MA PD SMT	1) Audio serial data 1 (Left-Surround/Right-Surround) 2) DSD data right channel 3) Trap value in power-on reset : I) 1 : manufactory test mode II) 0 : normal operation 4) While using external channels: I) GPO_1
203	ASDATA2		Input 4MA PD SMT	1) Audio serial data 2 (Center/LFE) DSD data left surround 2) channel Trap value in power-on reset : I) 1 : manufactory 3) test mode II) 0 : normal operation While using external 4) channels: I) GPO_0
212	ASDATA3		Input 4MA PD SMT	1) Audio serial data 3 (Center-back/ Center-left-back/Center-right-back, in 6.1 or 7.1 mode) 2) DSD data right surround channel 3) Trap value in power-on reset : I) 1 : manufactory test mode II) 0 : normal operation 4) While only 2 channels output: I) GPO_0
214	ASDATA4	INT1#	Input 4MA PD SMT	1) Audio serial data 4 (Down-mixed Left/Right) 2) DSD data center channel 3) Trap value in power-on reset : I) 1 : manufactory test mode II) 0 : normal operation 4) While only 2 channels output: I) Microcontroller external interrupt 1 II) GPO_0
215	MC_DATA	INT2#	Input PD SMT	1) Microphone serial input 2) While not support Microphone: I) Microcontroller external interrupt 2 II) GPO_0
216	SPDIF		Output 2~16MA, SR : ON/OFF Non-pull	SPDIF output

217	APLLVDD3		Power	3.3V Power pin for audio clock circuitry
218	APLLCAP		Analog Input	APLL External Capacitor connection
219	APLLVSS		Ground	Ground pin for audio clock circuitry
220	ADACVSS2		Ground	Ground pin for AUDIO DAC circuitry
221	ADACVSS1		Ground	Ground pin for AUDIO DAC circuitry
222	ARF	GPIO	Output	1) AUDIO DAC Sub-woofer channel output While internal 2) AUDIO DAC not used: GPIO
223	ARS	GPIO	Output	1) AUDIO DAC Right Surround channel output 2) While internal AUDIO DAC not used: a. SDATA3 b. GPIO
224	AR	GPIO	Output	1) AUDIO DAC Right channel output 2) While internal AUDIO DAC not used: a. SDATA1 b. GPIO
225	AVCM		Analog	AUDIO DAC reference voltage
226	AL	GPIO	Output	1) AUDIO DAC Left Surround channel output 2) While internal AUDIO DAC not used: a. SDATA2 b. GPIO
227	ALS	GPIO	Output	1) AUDIO DAC Left Surround channel output 2) While internal AUDIO DAC not used: a. SDATA0 b. GPIO
228	ALF	GPIO	Output	1) AUDIO DAC Center channel output 2) While internal AUDIO DAC not used:GPIO

229	ADACVDD1		Power	3.3V power pin for AUDIO DAC circuitry
230	ADACVDD2		Power	3.3V power pin for AUDIO DAC circuitry
Video Interface (18)				
196	DACVDDC		Power	3.3V power pin for VIDEO DAC circuitry
195	VREF		Analog	Bandgap reference voltage
194	FS		Analog	Full scale adjustment
193	YUV0	CIN	Output 4MA, SR	1) Video data output bit 0 2) Compensation capacitor
192	DACVSSC		Ground	Ground pin for VIDEO DAC circuitry
191	YUV1	Y	Output 4MA, SR	1) Video data output bit 1 2) Analog Y output
190	DACVDDB		Power	3.3V power pin for VIDEO DAC circuitry
189	YUV2	C	Output 4MA, SR	1) Video data output bit 2 2) Analog chroma output
188	DACVSSB		Ground	Ground pin for VIDEO DAC circuitry
187	YUV3	CVBS	Output 4MA, SR	1) Video data output bit 3 2) Analog composite output
186	DACVDDA		Power	3.3V power pin for VIDEO DAC circuitry
185	YUV4	Y/G	Output 4MA, SR	1) Video data output bit 4 2) Green or Y
184	DACVSSA		Ground	Ground pin for VIDEO DAC circuitry
183	YUV5	B/Cb/Pb	Output 4MA, SR	1) Video data output bit 5 2) Blue or CB
182	YUV6	R/Cr/Pr	Output 4MA, SR	1) Video data output bit 6 2) Red or CR
181	VSYN	V_ADIN1	Input 4MA, SR SMT Non-pull	1) Vertical sync input/output 2) While no External TV-encoder: I) Vertical sync for video-input II) Version AD input port 1 III) GPIO
180	YUV7	INT3# ASDATA5	Input 4MA, SR SMT Non-pull	1) Video data output bit 7 2) While no External TV-encoder: I) Microcontroller external interrupt 3 II) Audio serial data 5 part II : DSD data sub-woofer channel or Microphone output III) GPIO
179	HSYN	INT4# V_ADIN2	Input 4MA, SR SMT Non-pull	1) Horizontal sync input/output 2) While no External TV-encoder: I) Horizontal sync for video-input II) Microcontroller external interrupt 4 III) Version AD input port 2 IV) GPIO
MISC (12)				
46	USB_VSS		USB Ground	USB ground pin
47	USBP		Analog Input	USB port DPLUS analog pin
48	USBM		Analog Input	USB port DMINUS analog pin
49	USB_VDD3		USB Power	USB Power pin 3.3V
108	PRST#		Input PU, SMT	Power on reset input, active low

107	ICE		Input PD, SMT	Microcontroller ICE mode enable
233	XTALO		Output	27M crystal out
234	XTALI		Input	27M crystal in
201	GPIO_3		Input Pull-Down	GPIO
200	GPIO_4		Input Pull-Down	GPIO
199	RCLKB	GPIO_5	Input Pull-Up	GPIO
198	RVREF	GPIO_6	Input Pull-Up	GPIO
Dram Interface (58) (Sorted by position)				
176	C_0	IO_0 (RD16)	Input Non-pull	1) Digital Video output C bit 0 2) GPIO
175	C_1	IO_1 (RD17)	Input Non-pull	1) Digital Video output C bit 1 2) GPIO
173	C_2	IO_2 (RD18)	Input Non-pull	1) Digital Video output C bit 2 2) GPIO
172	C_3	IO_3 (RD19)	Input Non-pull	1) Digital Video output C bit 3 2) GPIO
171	C_4	IO_4 (RD20)	Input Non-pull	1) Digital Video output C bit 4 2) GPIO
169	C_5	IO_5 (RD21)	Input Non-pull	1) Digital Video output C bit 5 2) GPIO
168	C_6	IO_6 (RD22)	Input Non-pull	1) Digital Video output C bit 6 2) GPIO
167	C_7	IO_7 (RD23)	Input Non-pull	1) Digital Video output C bit 7 2) GPIO
177	IO_17	(DQM2)	Input Non-pull	GPIO
166	YUVCLK	IO_8 (DQM3)	Input Non-pull	1) Digital Video output Clock 2) GPIO
165	Y_0	IO_9 (RD24)	Input Non-pull	1) Digital Video output Y bit 0 2) GPIO
164	Y_1	IO_10 (RD25)	Input Non-pull	1) Digital Video output Y bit 1 2) GPIO
163	Y_2	IO_11 (RD26)	Input Non-pull	1) Digital Video output Y bit 2 2) GPIO
162	Y_3	IO_12 (RD27)	Input Non-pull	1) Digital Video output Y bit 3 2) GPIO
161	Y_4	IO_13 (RD28)	Input Non-pull	1) Digital Video output Y bit 4 2) GPIO
159	Y_5	IO_14 (RD29)	Input Non-pull	1) Digital Video output Y bit 5 2) GPIO
158	Y_6	IO_15 (RD30)	Input Non-pull	1) Digital Video output Y bit 6 2) GPIO
157	Y_7	IO_16 (RD31)	Input Non-pull	1) Digital Video output Y bit 7 2) GPIO

155	RA4		Input	DRAM address 4
154	RA5		Input	DRAM address 5
153	RA6		Input	DRAM address 6
152	RA7		Input	DRAM address 7
151	RA8		Input	DRAM address 8
150	RA9		Input	DRAM address 9
149	RA11		Input Pull-Down	DRAM address bit 11
147	CKE		output	DRAM clock enable
146	RCLK		Input	Dram clock
144	RA3		Input	DRAM address 3
143	RA2		Input	DRAM address 2
141	RA1		Input	DRAM address 1
140	RA0		Input	DRAM address 0
139	RA10		Input	DRAM address 10
138	BA1		Input	DRAM bank address 1
137	BA0		Input	DRAM bank address 0
136	RCS#		output	DRAM chip select, active low
135	RAS#		output	DRAM row address strobe, active low
134	CAS#		output	DRAM column address strobe, active low
133	RWE#		output	DRAM Write enable, active low
132	DQM1		Input	Data mask 1
130	IO_18	(DQS1)	Input Non-pull	GPIO
129	RD8		Input	DRAM data 8
128	RD9		Input	DRAM data 9
127	RD10		Input	DRAM data 10
126	RD11		Input	DRAM data 11

125	RD12		Input	DRAM data 12
124	RD13		Input	DRAM data 13
123	RD14		Input	DRAM data 14
122	RD15		Input	DRAM data 15
121	RD0		Input	DRAM data 0
120	RD1		Input	DRAM data 1
119	RD2		Input	DRAM data 2
117	RD3		Input	DRAM data 3
116	RD4		Input	DRAM data 4
115	RD5		Input	DRAM data 5
114	RD6		Input	DRAM data 6
113	RD7		Input	DRAM data 7
112	IO_19	(DQS0)	Input Non-pull	GPIO
111	DQM0		Input	Data mask 0
JTAG Interface(4)				
51	TDI	V_ADIN4	Input Non-pull	1) Serial interface port 3 data-out 2) Version AD input port 4 3) GPIO
52	TMS	V_ADIN5	Input Non-pull	1) Serial interface port 3 data-in 2) Version AD input port 5 3) GPIO
53	TCK	V_ADIN6	Input Non-pull	1) Serial interface port 3 clock pin 2) Version AD input port 6 3) GPIO
54	TDO	V_ADIN7	Input Non-pull	1) Serial interface port 3 chip-select 2) Version AD input port 7 3) GPO

3. 24C16

## 2-Wire Serial CMOS E^{2}PROM   16k (2048 x 8)

The AT24C16 provides 16384 bits of serial electrically erasable and programmable read only memory (EEPROM) organized as 2048 words of 8 bits each. The device is optimized for use in many industrial and commercial applications where low power and low voltage operation are essential. The AT24C16 is available in space saving 8-pin PDIP, 8-pin and 14-pin SOIC packages and is accessed via a 2-wire serial interface. In addition, the entire family is available in 5.0V(4.5V to 5.5V), 2.7V(2.7V to 5.5V) and 1.8V(1.8V to 5.5V) versions.

Features

- Low Voltage and Standard Voltage Operation
    - 5.0 (Vcc = 4.5V to 5.5V)
    - 2.7 (Vcc = 2.7V to 5.5V)
    - 2.5 (Vcc = 2.5V to 5.5V)
    - 1.8 (Vcc = 1.8V to 5.5V)
- Internally Organized 128 x 8 (1K), 256 x 8 (2K), 512 x 8 (4K), 1024 x 8 (8K) or 2048 x 8 (16K)
- 2-Wire Serial Interface
- Bidirectional Data Transfer Protocol
- 100 kHz (1.8V, 2.5V, 2.7V) and 400 kHz (5V) Compatibility
- Write Protect Pin for Hardware Data Protection
- 8-Byte Page (1K, 2K), 16-Byte Page (4K, 8K, 16K) Write Modes
- Partial Page Writes Are Allowed
- Self-Timed Write Cycle (10 ms max)
- High Reliability
    - Endurance: 1 Million Cycles
    - Data Retention: 100 Years
- Automotive Grade and Extended Temperature Devices Available
- 8-Pin and 14-Pin JEDEC SOIC and 8-Pin PDIP Packages

Pin Configurations

Pin Name	Function
A$_0$ to A$_2$	Address Inputs
SDA	Serial Data
SCL	Serial Clock Input
WP	Write Protect
NC	No Connect

8-Pin PDIP

A0	1	8 VCC
A1	2	7 WP
A2	3	6 SCL
GND	4	5 SDA

14-Pin SOIC

NC	1	14 NC
A0	2	13 VCC
A1	3	12 WP
NC	4	11 NC
A2	5	10 SCL
GND	6	9 SDA
NC	7	8 NC

8-Pin SOIC

A0	1	8 VCC
A1	2	7 WP
A2	3	6 SCL
GND	4	5 SDA
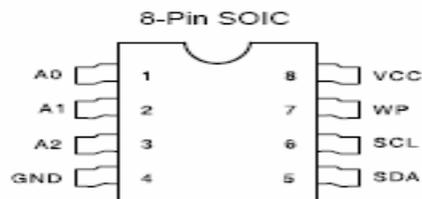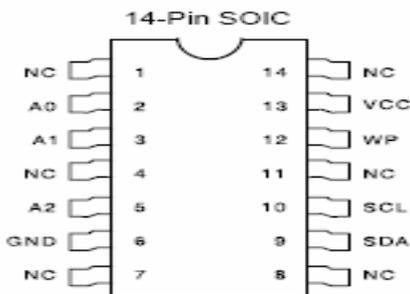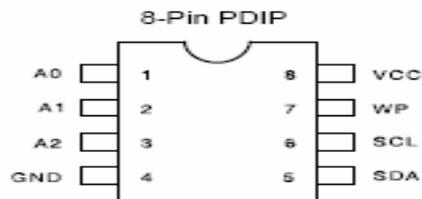
Pin Capacitance [1]

Applicable over recommended operating range from $T_A = 25°C$, $f = 1.0$ MHz, $V_{CC} = +1.8V$.

Symbol	Test Condition	Max	Units	Conditions
$C_{I/O}$	Input/Output Capacitance (SDA)	8	pF	$V_{I/O} = 0V$
C_{IN}	Input Capacitance (A0, A1, A2, SCL)	6	pF	$V_{IN} = 0V$

Note: 1. This parameter is characterized and is not 100% tested.

DC Characteristics

Applicable over recommended operating range from: $T_{AI} = -40°C$ to $+85°C$, $V_{CC} = +1.8V$ to $+5.5V$, $T_{AC} = 0°C$ to $+70°C$, $V_{CC} = +1.8V$ to $+5.5V$ (unless otherwise noted).

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{CC1}	Supply Voltage		1.8		5.5	V
V_{CC2}	Supply Voltage		2.5		5.5	V
V_{CC3}	Supply Voltage		2.7		5.5	V
V_{CC4}	Supply Voltage		4.5		5.5	V
I_{CC}	Supply Current $V_{CC} = 5.0V$	READ at 100 kHz		0.4	1.0	mA
I_{CC}	Supply Current $V_{CC} = 5.0V$	WRITE at 100 kHz		2.0	3.0	mA
I_{SB1}	Standby Current $V_{CC} = 1.8V$	$V_{IN} = V_{CC}$ or V_{SS}		0.6	3.0	μA
I_{SB2}	Standby Current $V_{CC} = 2.5V$	$V_{IN} = V_{CC}$ or V_{SS}		1.4	4.0	μA
I_{SB3}	Standby Current $V_{CC} = 2.7V$	$V_{IN} = V_{CC}$ or V_{SS}		1.6	4.0	μA
I_{SB4}	Standby Current $V_{CC} = 5.0V$	$V_{IN} = V_{CC}$ or V_{SS}		8.0	18.0	μA
I_{LI}	Input Leakage Current	$V_{IN} = V_{CC}$ or V_{SS}		0.10	3.0	μA
I_{LO}	Output Leakage Current	$V_{OUT} = V_{CC}$ or V_{SS}		0.05	3.0	μA
V_{IL}	Input Low Level [1]		-1.0		$V_{CC} \times 0.3$	V
V_{IH}	Input High Level [1]		$V_{CC} \times 0.7$		$V_{CC} + 0.5$	V
V_{OL2}	Output Low Level $V_{CC} = 3.0V$	$I_{OL} = 2.1$ mA			0.4	V
V_{OL1}	Output Low Level $V_{CC} = 1.8V$	$I_{OL} = 0.15$ mA			0.2	V

Note: 1. V_{IL} min and V_{IH} max are reference only and are not tested.

AC Characteristics

Applicable over recommended operating range from $T_A = -40°C$ to $+85°C$, $V_{CC} = +1.8V$ to $+5.5V$, $CL = 1$ TTL Gate and 100 pF (unless otherwise noted).

Symbol	Parameter	2.7-, 2.5-, 1.8-volt		5.0-volt		Units
		Min	Max	Min	Max	
f_{SCL}	Clock Frequency, SCL		100		400	kHz
t_{LOW}	Clock Pulse Width Low	4.7		1.2		μs
t_{HIGH}	Clock Pulse Width High	4.0		0.6		μs
t_I	Noise Suppression Time [1]		100		50	ns
t_{AA}	Clock Low to Data Out Valid	0.1	4.5	0.1	0.9	μs
t_{BUF}	Time the bus must be free before a new transmission can start [1]	4.7		1.2		μs
$t_{HD.STA}$	Start Hold Time	4.0		0.6		μs
$t_{SU.STA}$	Start Set-up Time	4.7		0.6		μs
$t_{HD.DAT}$	Data In Hold Time	0		0		μs
$t_{SU.DAT}$	Data In Set-up Time	200		100		ns
t_R	Inputs Rise Time [1]		1.0		0.3	μs
t_F	Inputs Fall Time [1]		300		300	ns
$t_{SU.STO}$	Stop Set-up Time	4.7		0.6		μs
t_{DH}	Data Out Hold Time	100		50		ns
t_{WR}	Write Cycle Time		10		10	ms

Note: 1. This parameter is characterized and is not 100% tested.

# 4. NJM4558   DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM4558/4559 integrated circuit is a dual high-gain operational amplifier internally compensated and constructed on a single silicon chip using an advanced epitaxial process.

Combining the features of the NJM741 with the close parameter matching and tracking of a dual device on a monolithic chip results in unique performance characteristics.Excellent channel separation allow the use of the dual device in single NJM741 operational amplifier applications providing density.It is especially well suited for applications in differential-in,defferential-out as well as in potentiometric amplifiers and where gain and phase matched channels are mandatory.

■ FEATURES

- Operating Voltage   (±4V~±18V)
- High Voltage Gain   (100dB typ.)
- High Input Resistance   (5MΩ typ.)
- Package Outline   DIP8,DMP8,SIP8,SSOP8
- Bipolar Technology

■ PACKAGE OUTLINE

NJM4558D
NJM4559D

NJM4558M
NJM4559M

NJM4558V
NJM4559V

NJM4558L
NJM4559L

■ PIN CONFIGURATION
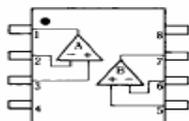
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NJM4559D,NJM4559M,NJM4559V
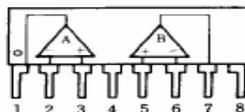
NJM4558L
NJM4559L

PIN FUNCTION
1.A OUTPUT
2.A −INPUT
3.A +INPUT
4.V
5.B +INPUT
6.B −INPUT
7.B OUTPUT
8.V⁻
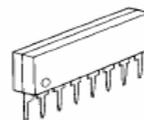
■ ELECTRICAL CHARACTERISTICS

(V⁺/V⁻=±15V,Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leq 10k\Omega$	-	0.5	6	mV
Input Offset Current	I_{IO}		-	5	200	nA
Input Bias Current	I_B		-	25	500	nA
Input Resistance	R_{IN}		0.3	5	-	MΩ
Large Signal Voltage Gain	A_V	$R_L \geq 2k\Omega, V_O = \pm 10V$	86	100	-	dB
Maximum Output Voltage Swing 1	V_{OM1}	$R_L \geq 10k\Omega$	± 12	± 14	-	V
Maximum Output Voltage Swing 2	V_{OM2}	$R_L \geq 2k\Omega$	± 10	± 13	-	V
Input Common Mode Voltage Range	V_{ICM}		± 12	14	-	V
Common Mode Rejection Ratio	CMR	$R_S \leq 10k\Omega$	70	90	-	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10k\Omega$	76.5	90	-	dB
Operating Current	I_{CC}		-	3.5	5.7	mA
Slew Rate						
NJM4558	SR		-	1	-	V/μs
NJM4559	SR		-	2	-	V/μs
Equivalent Input Noise Voltage	V_{NI}	RIAA,R_S=2.2kΩ,30kHz LPF	-	1.4	-	μVrms
Gain Bandwidth Product	GB					
NJM4558				3		MHz
NJM4559				6		MHz

ICS ON HI-VOLTAGE BOARD

1. BIT3193 High Performance PWM Controller

BIT3193 integrated circuit provides the essential features for general purpose PWM controller in a small low cost 16-pin package. BIT3193 has built-in a low frequency PWM generator for any specified application. BIT3193 includes latched off protection feature may make the system more reliable while compare to other similar products.

• Features
- • 4.5V ～ 8V operation
- • Fixed High Frequency, Voltage Mode PWM Control
- • Latched Off Protection
- • Build-In Low Frequency PWM Generator
- • Build-in UVLO
- • Low Power CMOS Process
- • Totem Pole Output
- • 16 Pin Package

• Applications
- • DC/DC Converters
- • LCD TV
- • LCD Monitor
- • Notebook Computer
- • Tablet PC
- • Personal Digital Assistants
- • Navigation Phone/ Door Phone
- • Portable consumer product

• Recommended Operating Condition:
Supply Voltage	4.5～8V
Operating Ambient Temperature	0～70 °C
Operating Frequency	50K～400K Hz

• Pin Layout:

1		16
INN		MODSEL
CMP		ISEN
LOAD		CLAMP
CTOSC		PWMDC
TIMER		CTPWM
ONOFF		PWMOUT
GND		VDD
NOUT2		NOUT1
8		9
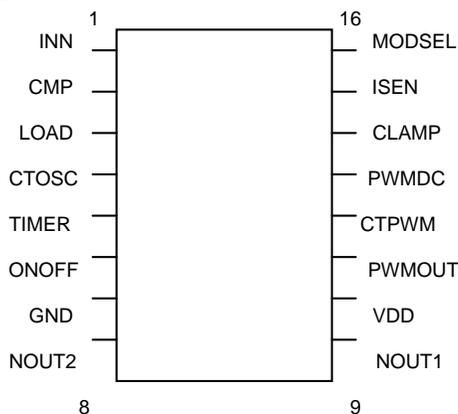
Pin No.	Symbol	I/O	Descriptions
1	INN	I/O	The inverting input of the error amplifier.
2	CMP	O	Output of the error amplifier.
3	LOAD	I/O	A switch that connected to the high frequency triangle wave generator. This switch is open while ISEN pin <1.3V. An external resistor connected here may change the operation frequency of CTOSC in open load situation.
4	CTOSC	I/O	An external capacitor connected here can set the frequency of high frequency PWM controller.
5	TIMER	I/O	With internal reference current and an external capacitor connected here can set the required period of starting and the timing of initialization. The controller is forced to reset mode while TIMER<0.3V. During reset mode, a~60uA current will flow into the INN pin to reduce the output level of the error amplifier CMP to turn off the controller. The latched off protection function will be enable after this node is charged to>2.5V. System is latched off if any abnormal operation is detected if pin TIMER>2.5V. The output current of this pin is 20uA when TIMER<0.3V. The output current becomes to 1uA when TIMER>0.3V.
6	ONOFF	I	The control pin of turning on or off the IC.1V threshold with an internal 80K$\pm$15% ohm pull-low resistor.
7	GND	I/O	The ground pin of the device.
8	NOUT2	O	The number 2 output driver for driving the NMOSFET switch.
9	NOUT1	O	The number 1 output driver for driving the NMOSFET switch.
10	VDD	I	The power supplies pin of the device.
11	PWMOUT	O	The output pin of low frequency PWM generator. A 2.5V or floating two state output is provided through this pin. The internal circuit limits the max. Duty-cycle to ~92%.
12	CTPWM	I/O	With the internal reference current and an external capacitor connected here can set the operation frequency of low frequency PWM generator with 1.0V~2.5V triangle wave output.
13	PWMDC	I	Low frequency PWM controlling input. A PWM output comes out by comparing this DC input and the 1.0~2.5V triangle wave that is generated by CTPWM.
14	CLAMP	I	Over voltage clamping. If a>2.0V voltage is detected. A~60uA current will flow into the INN pin to reduce the output of the error amplifier pin CMP to regulate the output voltage.
15	ISEN	I	Load current detection pin, the open load situation is detected if a less than 1.3V input is sensed.
16	MODSEL	O	To set the output polarity of the low frequency PWM controller.

• **Pin Description**

2. **AP4511M** N AND P-CHANNEL ENHANCEMENT MODE POWER

▼ Simple Drive Requirement

▼ Low On-resistance

▼ Fast Switching Performance

SO-8
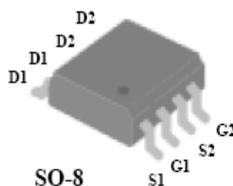
N-CH	BV_{DSS}	35V
	$R_{DS(ON)}$	25mΩ
	I_D	7A
P-CH	BV_{DSS}	-35V
	$R_{DS(ON)}$	40mΩ
	I_D	-6.1A

Description

The Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The SO-8 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.
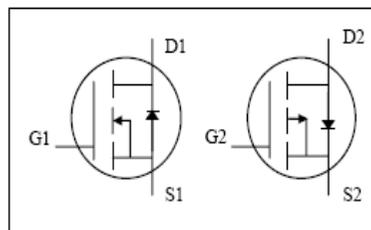
MO

Absolute Maximum Ratings

Symbol	Parameter	Rating		Units
		N-channel	P-channel	
V_{DS}	Drain-Source Voltage	35	-35	V
V_{GS}	Gate-Source Voltage	±20	±20	V
I_D@T_A=25℃	Continuous Drain Current[3]	7	-6.1	A
I_D@T_A=70℃	Continuous Drain Current[3]	5.7	-5	A
I_{DM}	Pulsed Drain Current[1]	30	-30	A
P_D@T_A=25℃	Total Power Dissipation	2.0		W
	Linear Derating Factor	0.016		W/℃
T_{STG}	Storage Temperature Range	-55 to 150		℃
T_J	Operating Junction Temperature Range	-55 to 150		℃

Thermal Data

Symbol	Parameter		Value	Unit
Rthj-a	Thermal Resistance Junction-ambient[3]	Max.	62.5	℃/W

Part 4   Detailed Circuit

MAIN BOARD

DVD BOARD

POWER BOAD

HI-VOLTAGE BOAD

SLOTIN89E_ToHei_(TD-S208S-A62)

MT1389E (LQFP216) DVD MP Board for SANYO HD62PUH
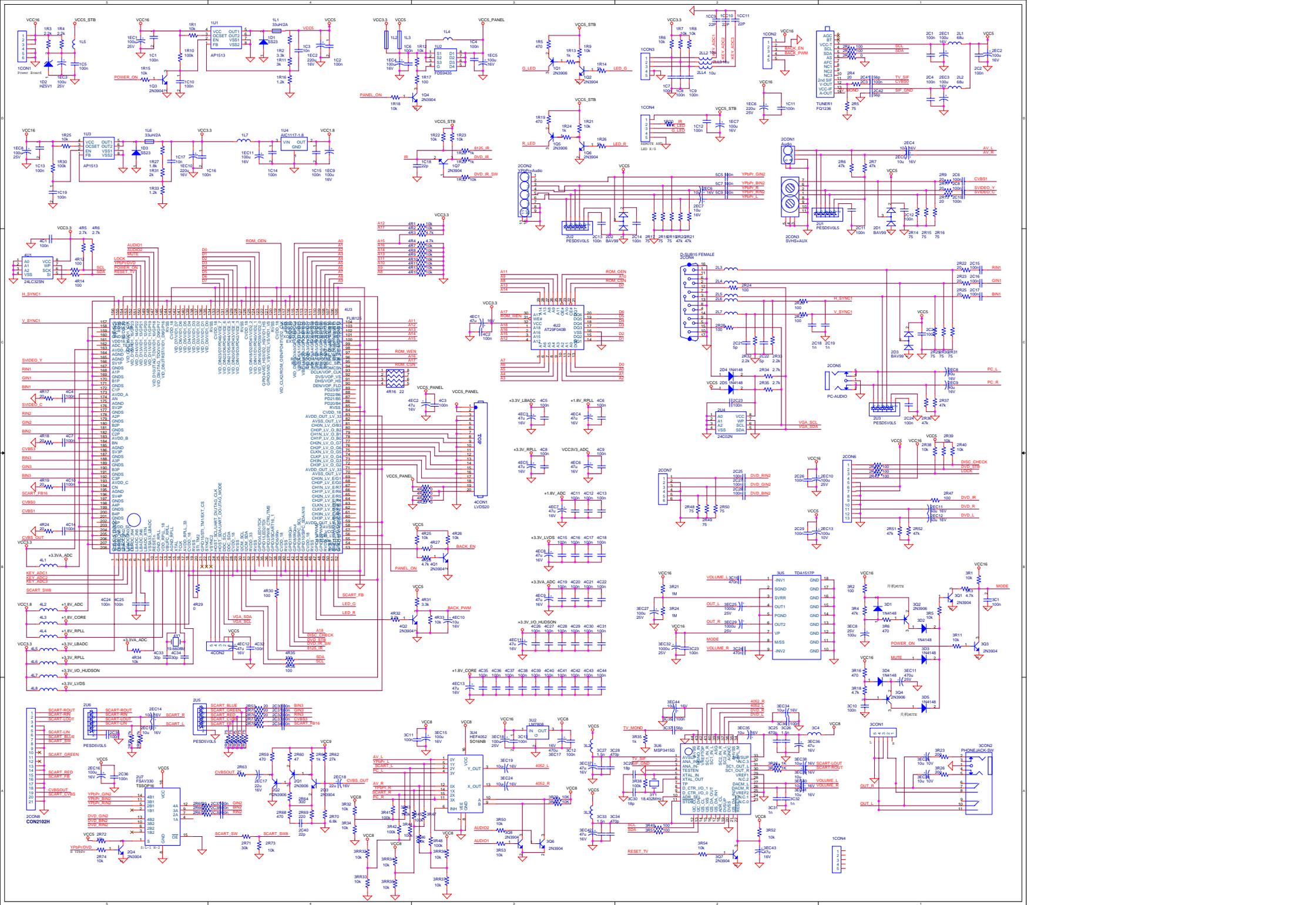
1 INDEX & POWER, RESET
2 MT1389E
3 SDRAM & FLASH
4 VIDEO OUT & AV-CON
5 AUDIO OUT - WM8766
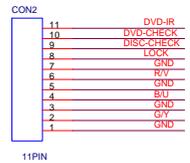
NAME	TYPE	DEVICE
VCC	Digital 5V	SUPPLY
DV33	Digital 3.3V	MT1389E
RFV33	Servo 3.3V	MT1389E
AV33	Laser Diode 3.3V	
V18	Digital 1.8V	MT1389E
SD33	Digital 3.3V	SDRAM
+12V	Audio +12V	OP AMP.
-12V	Audio -12V	OP AMP.
AVDD5	Audio 5V	Audio DAC
DVDD3	Audio 3.3V	Audio DAC

CON2
11 DVD-IR
10 DVD-CHECK
9 DISC-CHECK
8 LOCK
7 GND
6 R/V
5 GND
4 B/U
3 GND
2 G/Y
1 GND
11PIN

[5] G/Y   G/Y
[5] B/U   B/U
[5] R/V   R/V

VCC   VCC [2,3]
URST#   URST# [2]
IR   IR [2]
DV33   DV33 [2,3,5]
AVCC   AVCC [2,4,5]
GND   GND [2,3,4,5]

IR R1 10 DVD-IR
C1
100pF

[2] DVD-CHECK   DVD-CHECK
[2] DISC-CHECK   DISC-CHECK
[2] LOCK   LOCK

[5] DVD-L   DVD-L
[5] DVD-R   DVD-R

CON1
9 DVD-R
8 GND
7 DVD-L
6 GND
5 GND
4 VCC
3 VCC
2 GND
1 +P12V
9PIN

Reserved for testing

VCC
U1
3 IN OUT 2
1 ADJ/GND
CE12
10uF/10v
CD4.0/2.0
CB1
0.1uF
C0603
AZ1117H-3.3/NC
SOT-223
L1
10uH/N.C.
L0805
ADACVDD3
ADACVDD3
R2
R/NC
R0603
R3
0
R0603

L2 L0805
VCC
U2
1 IN OUT 3
GND
2
BA033
SOT_223
V33
V33
CB7
104
50
CB5
104
CE4
CDV220uF/25V
CB3
104
CE1
CDV220uF/25V

+P12V
L4
FB
CE5
100uF/25v
CB6
0.1uF
+12V
+12V

V33
V33
CB2
0.1uF
D1
1N4001 / NC
D2
1N4001 / NC
L3
FB
DV33
DV33
CE2
220uF/6.3v
CE3
47uF/6.3v
CB4
0.1uF

V33
CE6
10uF/6.3v
CB8
0.1uF
U3
1 IN OUT 2
ADJ/GND
AZ1117H-1.8
SOT-223
Ra
R5
R/NC
R0603
Rb
R6
0
R0603
V18
V18
CE7
220uF/6.3v
CE8
47uF/6.3v
CB9
0.1uF

VCC
L5
FB
AVCC
AVCC
CE10
47uF/10v
CB10
0.1uF

DV33
L6
FB
RFV33
RFV33
CE11
47uF/6.3v
CB11
0.1uF

RESET Circuit

DV33
DV33
D3
1N4148
R4
10k
TP1
URST#
CE9
10uF/6.3v
CD4.0/2.0

AZ1117	Rb	Ra
Fix regulator	0 ohm	OFF
Adj regulator	300 1%	680 1%

1.25x(1+Rb/Ra)

Note for Fix or Adj Regulator

Ra = 680 FOR 1.8V
Ra = 560 FOR 1.92V
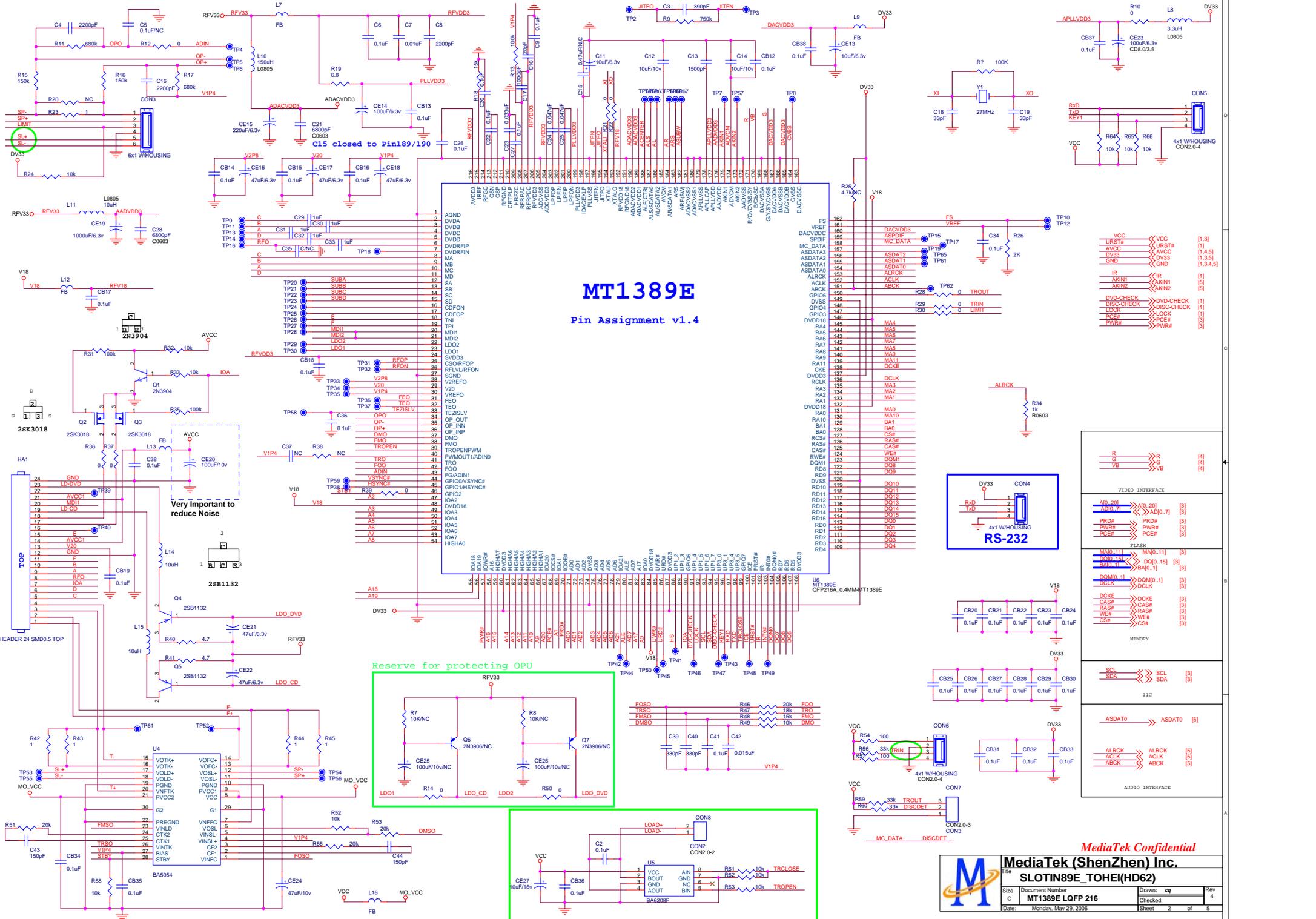
MT1389E

Pin Assignment v1.4
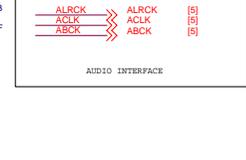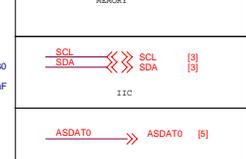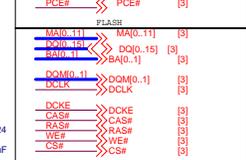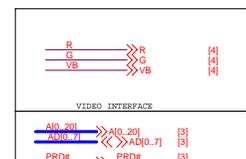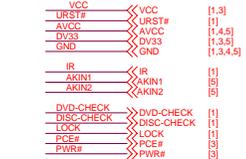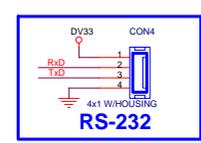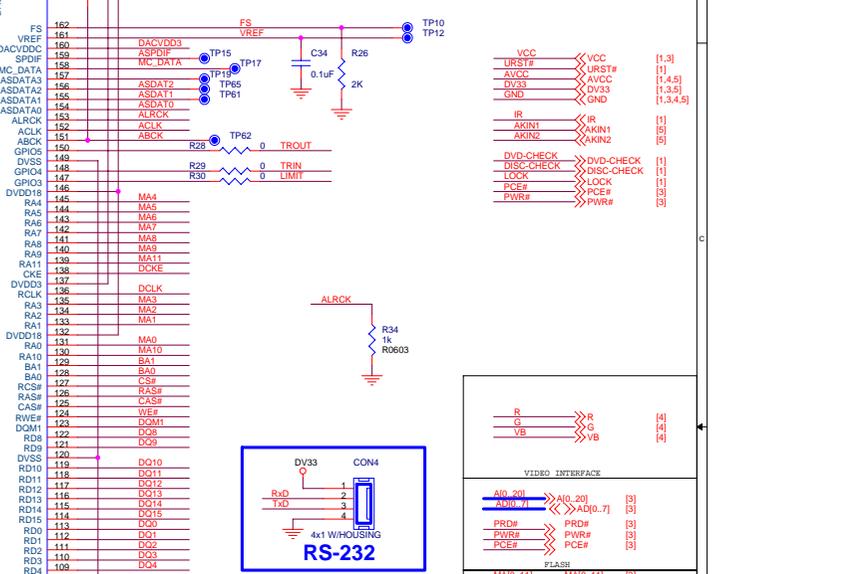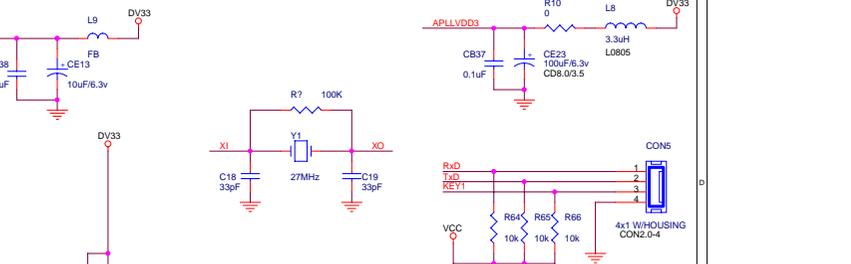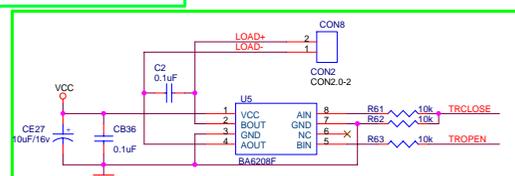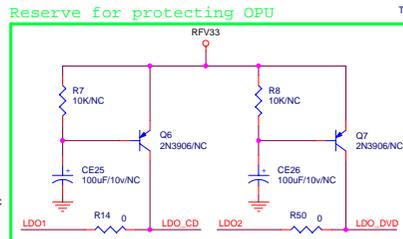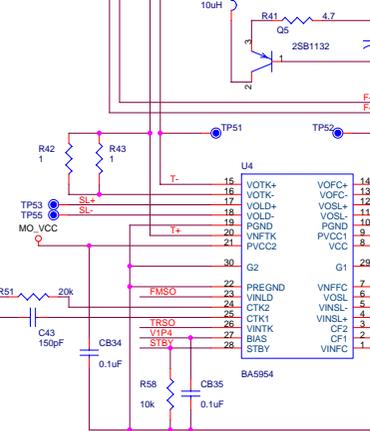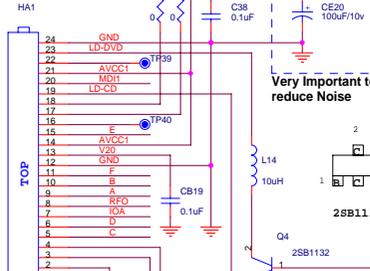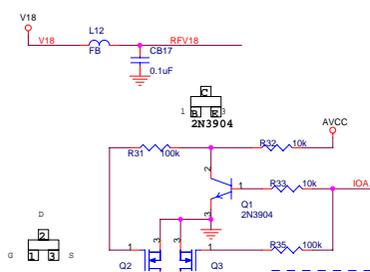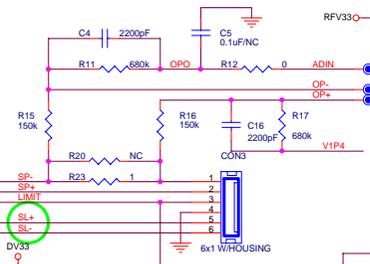
C15 closed to Pin189/190

Very Important to reduce Noise

Reserve for protecting OPU

RS-232

MediaTek (ShenZhen) Inc.

Title: SLOTIN89E_TOHEI(HD62)

Size	Document Number	Rev
C	MT1389E LQFP 216	4

Drawn: cq
Checked:
Date: Monday, May 29, 2006
Sheet 2 of 5

VIDEO INTERFACE

FLASH

MEMORY

IIC

AUDIO INTERFACE

U6
MT1389E
QFP216A_0.4MM-MT1389E

HEADER 24 SMD0.5 TOP

BA5954

BA6208F

[1]	AVCC	AVCC
[2]	GND	GND
[2]	ACLK	ACLK
[2]	ABCK	ABCK
[2]	ALRCK	ALRCK
[2]	ASDAT0	ASDAT0
[1]	+12V	+12V

ABCK R93 0 SBCLK
ALRCK R95 0 SLRCK
ACLK R96 0 SACLK

AVCC
L24 FB
C56 10uF/25V
C57 100n

U10
ASDAT0	1	SDIN	AOUTR	10	MR
SBCLK	2	DEM/SCLK	VA	9	
SLRCK	3	LRCK	AGND	8	
SACLK	4	MCLK	AOUTL	7	ML
	5	VQ	FILT	6	

CS4344

C60 3.3uF/10V
C58 100n
C59 10uF/25V

2 Channel out Only

ML
CE30
R105 9k
R106 12k
C61 220p
R86 OPEN

R87 180K
CDV100uF/25V
100K
R89 5.1k
C62 2000p

U11A
NJM4558
SOP8

CE31 R90
CDV10uF/25V
L25 10uH
C63 22p
R91 100K
DVD-L

VER R92 10K +12V
CE32 R94
CDV100uF/25V 8K2
CB51 0.1uF

R97 12k
R100 5.1k
C64 220p
R98 OPEN

MR
CE33
R99 9k
R102 100K

R103 180K
CDV10uF/25V
C54 1000p

VER
U11B
NJM4558
SOP8
+12V

CE34 R101
CDV10uF/25V
L26 10uH
C55 22p
R104 100K
DVD-R

+12V
CB48 0.1uF
CB49 0.1uF
CB50 0.1uF

[1] DVD-L DVD-L
[1] DVD-R DVD-R

[1,2,5] AVCC — AVCC
[1,2,3,5] GND — GND

[2] R — R
[2] G — G
[2] VB — VB

G/Y — G/Y [1]
B/U — B/U [1]
R/V — R/V [1]

+5VV +5VV L20
C48 C49 C50 FB — AVCC
0.1uF 1uF 10uF/10v

3906

+5VV +5VV
R77 D4
75,1% 1N4148
R78 0/NC — G/Y
L21 1.8uH Q9 D6
G 3906 1N4148
R79 C45 C46
150,1% 100P 100P

+5VV +5VV
R80 D8
75,1% 1N4148
R81 0/NC SC B/U
L23 1.8uH Q8 D5
VB 3906 1N4148
R82 C47 C51
150,1% 100P 100P

+5VV +5VV
R83 D7
75,1% 1N4148
R84 0/NC SY R/V
L22 1.8uH Q10 D9
R 3906 1N4148
R85 C52 C53
150,1% 100P 100P
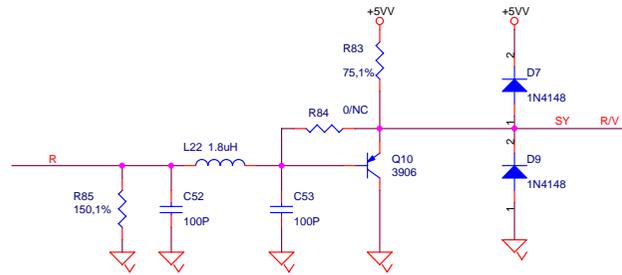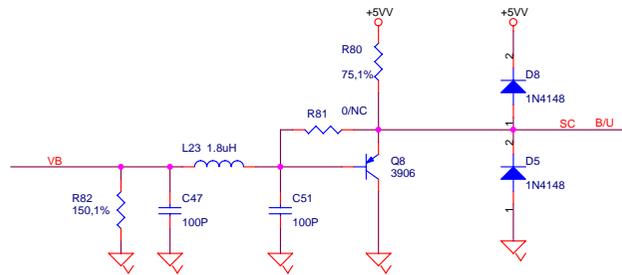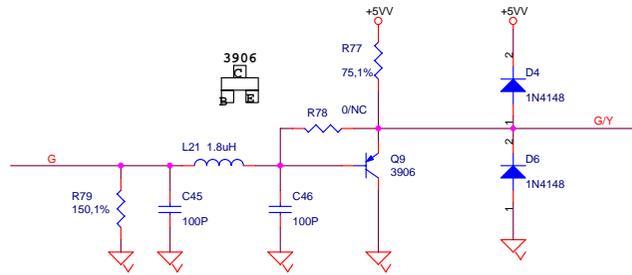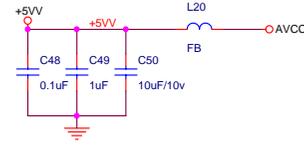
Note:Video is the high resistance output

MediaTek (ShenZhen) Inc.
Title
SLOTIN89E_TOHEI(HD62)
Size Document Number   Drawn: cq   Rev
Custom   VIDEO OUT   Checked: 4
Date: Monday, May 29, 2006   Sheet 4 of 5
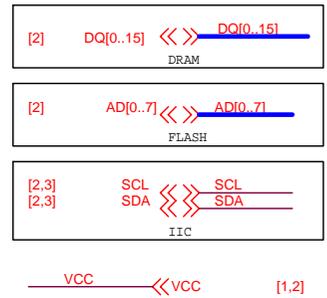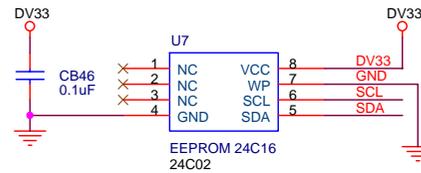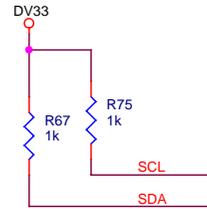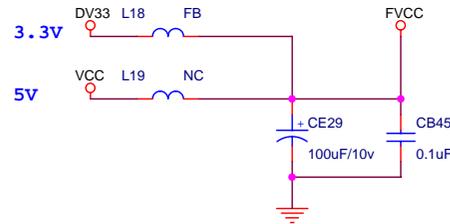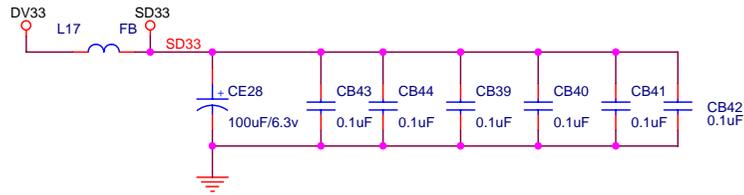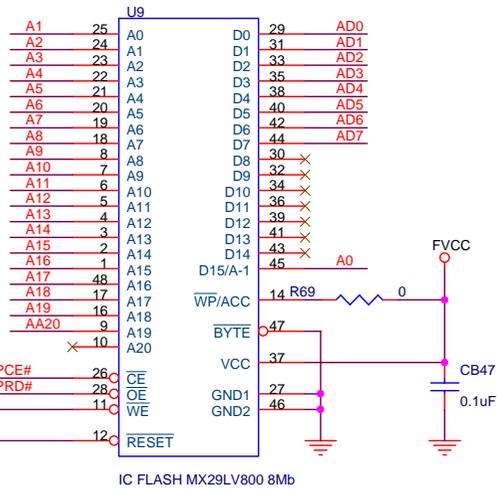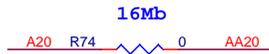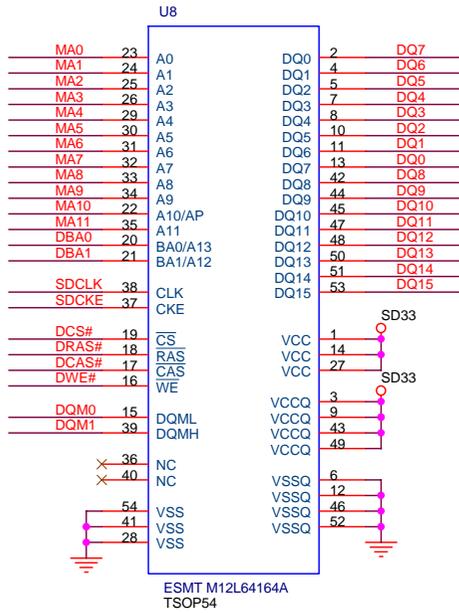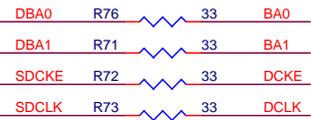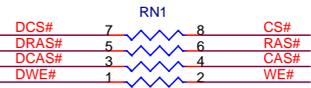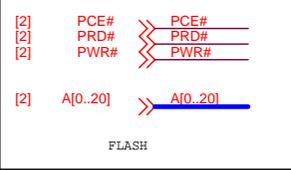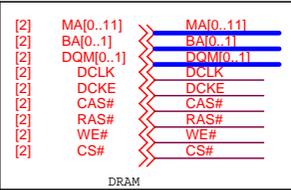
MediaTek (ShenZhen) Inc.

Title
SLOTIN89E_TOHEI(HD62)

Size	Document Number		Drawn:	*cq*	Rev
Custom	SDRAM&FLASH		Checked:		4
Date:	Monday, May 29, 2006		Sheet	3 of 5	

DRAM

FLASH

IIC

RN1
33x4

16Mb

ESMT M12L64164A
TSOP54

U8

U9

IC FLASH MX29LV800 8Mb

EEPROM 24C16
24C02

U7

HOT! Risk Of Electric Shook!

CAUTION:
For Continued Protection Against Risk Of Fire,
Replace Only With Same Type and Rating Of Fuse.

FUSE RATING:
"T2A L 250V"

T2AL250V

HOT! Risk Of Electric Shook!

POWER SWITCH   POWER INPUT

L   N

DRAWN:	LvRenLiang	DATED:	2005.12.08	COMPANY:	WAN LI DA GROUP CO. LTD.
CHECKED:		DATED:		TITLE:	
STANDARDIZED:		DATED:			Schematic sheet for LCD-TV inside SMPS
APPROVED:		DATED:		SHEET: 1 OF 1	SIZE: B	NO: 2956C	REV: Ver1.0

J1
PH05-2A
F1
3A
R1 1206-102
R2 471
C1 220uF/25V
R3 202
Q1 2N3904
Q3
C24 105
D1 7.5B
IC_VCC
2N3904
C6 105
2N3906
Q4
Q5 2N7002
C23
105
C22
105
Q2
AP4511
Q6
AP4511
R8 103
NIA19LES018

T1
T2

C2 10pF/3KV
C3 106
C4 472
C5 102
CR2
BAV99
C9 10pF/3KV
C10 106
C12 472
C13 102
CR4
BAV99

J2
8.0-2A
CR1
BAV99
OP1
R4 681
R5 223
R6 560

J3
8.0-2A
CR3
BAV99
OP2
R10 681
R11 223
R14 560

U1
BIT3193

MODSEL 16
ISEN 15
CLAMP 14
PWMDC 13
CTPWM 12
PWMOUT 11
VDD 10
NOUT1 9
INN 1
CMP 2
LOAD 3
CTOSC 4
TIMER 5
ON/OFF 6
GND 7
NOUT2 8

C7 223
C8 100
R7 683
C11 222
R12 NC
C14 821
C15 105
C16 104
R15 683
IC_VCC
R9 104
D2 1SS355
R13 153
C17 222
OP1
D3 1SS355
D4 1SS355
R16 153
C18 222
OP2
C19 474
R17 474
R18 203
C20 NC
R19 103

CR2
CR4

Beyond Innovation Technology Co., LTD.
5F,No.136, Sec.3, Nanjing E. Road,Taipei,Taiwan,R.O.C.
Tel 886-2-2778-5939   Fax 886-2-2778-1050

The circuits shown are intended to explain typical application of the products concerned.
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rights that may arise from the use of these circuits.

Title   BIT3193 2 LAMPS 2 TX H.B VER0.1FOR E-MAX
Size Custom
Document Number INV537001020
Task Code <Number>
Rev 0.3
Date: Friday, March 17, 2006   Sheet   1   of   1

Part 5   Parts List

Bom NO.	Part NO.	Part Name	Qty	
LTD-51702-2541C	02.03.116.2541C	Remote control board	1	
Part NO.	Name	Specification	Qty	LOCA NO.
01.54.CS.3.E105Y	SMD capacitor	0805-105 Y5V-20+80%/16V	1	C2
01.57.R.3.E101J	SMD resistor	0805-100Ω±5%	1	R1
01.41.D.FD.E3RB	Radiation diode	φ3	1	D1
01.44.IC.D38B04	IC	ERM38B-04 DIP	1	U1
01.40.CON.DPH.E058	Jack	PH-5A lie paste	1	CON1
01.37.PCB.2.E2541C3	Circuit board	Inverter board 2541C-V3.0	1	
Bom NO.	Part No.	Part Name	Qty	
LTD06K-3479C01	02.15.LTD06K3479C01	Key board	1	
Part NO.	Name	Specification	Qty	LOCA NO.
01.57.R.2.E102J	SMD resistor	0603-1KΩ±5%	2	KR1 KR6
01.57.R.2.E202J	SMD resistor	0603-2KΩ±5%	3	KR2 KR4 KR7
01.57.R.2.E332J	SMD resistor	0603-3.3KΩ±5%	2	KR3 KR5
01.39.SW.QC.ED665	Touch switch	6*6*5（DIP）	10	SW1 SW2 SW3 SW4 SW5 SW6 SW7 SW8 SW9 SW10
01.40.CON.DPH.E058	Jack	PH-5A(Lie paste)	1	CN1
01.40.CON.DPH.E055	Jack	PH-4A (lie paste)	1	CN2
01.37.PCB.2.E3479C2	Circuit board	Key board 3479C-V2.0	1	
Bom NO.	Part NO.	Part Name	Qty	
LTD06V-3466C01	02.23.LTD06V3466C01	DVD board	1	
Part NO.	Name	Specification	Qty	LOCA NO.
01.57.R.2.E000J	SMD resistor	0603-0Ω ±5%	23	R6 R10 R12 R14 R21 R22 R28 R29 R30 R39 R50 R69 R74 R93 R95 R96 R7 R8 R107 R2 R78 R81 R84
01.57.R.3.E1R0J	SMD resistor	0805-1Ω±5%	5	R23 R42 R43 R44 R45
01.57.R.2.E4R7J	SMD resistor	0603-4.7Ω±5%	4	R40 R41 R36 R37

01.57.R.2.E6R8J	SMD resistor	0603-6.8Ω±5%	1	R19
01.57.R.2.E100J	SMD resistor	0603-10Ω±5%	1	R1
01.57.R.2.E330J	SMD resistor	0603-33Ω±5%	4	R71 R72 R73 R76
01.57.R.2.E101J	SMD resistor	0603-100Ω±5%	4	R54 R57 R90 R101
01.57.R.2.E750F	SMD resistor	0603-75Ω±1%	3	R79 R82 R85
01.57.R.2.E102J	SMD resistor	0603-1KΩ±5%	3	R34 R67 R75
01.57.R.2.E561J	SMD resistor	0603-560Ω±5%	1	R26
01.57.R.2.E472J	SMD resistor	0603-4.7KΩ±5%	4	R108 R109 R110 R3
01.57.R.2.E512J	SMD resistor	0603-5.1KΩ±5%	2	R100 R89
01.57.R.2.E822J	SMD resistor	0603-8.2KΩ±5%	1	R94
01.57.R.2.E912J	SMD resistor	0603-9.1KΩ±5%	2	R99 R105
01.57.R.2.E103J	SMD resistor	0603-10KΩ±5%	16	R4 R24 R32 R33 R49 R52 R58 R61 R62 R63 R64 R65 R66 R68 R70 R92
01.57.R.2.E153J	SMD resistor	0603-15KΩ±5%	4	R18 R48 R97 R106
01.57.R.2.E183J	SMD resistor	0603-18KΩ±5%	1	R47
01.57.R.2.E203J	SMD resistor	0603-20KΩ±5%	4	R46 R51 R53 R55
01.57.R.2.E333J	SMD resistor	0603-33KΩ±5%	3	R56 R59 R60
01.57.R.2.E104J	SMD resistor	0603-100KΩ±5%	8	R13 R31 R35 R88 R91 R102 R104 R27
01.57.R.2.E154J	SMD resistor	0603-150KΩ±5%	2	R16 R15
01.57.R.2.E684J	SMD resistor	0603-680KΩ±5%	2	R17 R11
01.57.R.2.E754J	SMD resistor	0603-750KΩ±5%	1	R9
01.57.R.8.EP3304	SMD resistor row	33Ω*4 ±5%	1	RN1
01.54.CS.2.E180N	SMD capacitor	0603-18P NPO±5%/50V	1	CB54
01.54.CS.2.E200N	SMD capacitor	0603-20P NPO±5%/50V	1	C10
01.54.CS.2.E220N	SMD capacitor	0603-22P NPO±5%/50V	2	C63 C55
01.54.CS.2.E330N	SMD capacitor	0603-33P NPO±5%/50V	2	C18C19
01.54.CS.2.E101N	SMD capacitor	0603-100P NPO±5%/50V	9	C1 C45 C46 C47 C51 C52 C53 CB55 CB56
01.54.CS.2.E151N	SMD capacitor	0603-150P NPO±5%/50V	2	C43 C44
01.54.CS.2.E221N	SMD capacitor	0603-220P NPO±5%/50V	2	C64 C61
01.54.CS.2.E331Y	SMD capacitor	0603-330P X7R±10%/50V	2	C40 C39
01.54.CS.2.E391N	SMD capacitor	0603-390P NPO±5%/50V	1	(C3)

01.54.CS.2.E102X	SMD capacitor	0603-102 X7R±10%/50V	2	C17 C54
01.54.CS.2.E222X	SMD capacitor	0603-222 X7R±10%/50V	3	C4 (C8) C16
01.54.CS.2.E152X	SMD capacitor	0603-152 X7R±10%/50V	1	(C13)
01.54.CS.2.E202X	SMD capacitor	0603-202 X7R±10%/50V	1	C62
01.54.CS.2.E682X	SMD capacitor	0603-682 X7R±10%/50V	2	(C21) (C28)
01.54.CS.2.E103Y	SMD capacitor	0603-103 Y5V-20+80%/50V	1	C7
01.54.CS.2.E153Y	SMD capacitor	0603-153 Y5V-20+80%/50V	1	C42
01.54.CS.2.E333X	SMD capacitor	0603-333 X7R±10%/50V	1	(C23)
01.54.CS.2.E473Y	SMD capacitor	0603-473 Y5V-20+80%/50V	2	C24 C25
01.54.CS.2.E104Y	SMD capacitor	0603-104 Y5V-20+80%/50V	70	CB1 CB2 C2 CB4 CB6 C6 CB8 CB9 C9 CB10 CB11 CB12 CB13 CB14 CB15 CB16 CB17 CB18 CB19 CB20 C20 CB21 CB22 C22 CB23 CB24 CB25 CB26 C26 CB27 C27 CB28 CB29 CB30 CB31 CB32 CB33 CB34 C34 CB35 CB36 C36 CB37 CB38 C38 CB39 CB40 CB41 C41 CB42 CB43 CB44 CB45 CB46 CB47 CB48 C48 CB49 CB50 CB51 CB3 CB5 CB7 C58 C57 CB52 CB53 C15 C50 C67
01.54.CS.2.E105Y16V	SMD capacitor	0603-105 Y5V-20+80%/16V	6	C29 C30 C31 C32 C33 C49
01.34.CL.D.EV3U350VA	Electrolyse capacitor	CDV-3.3UF/50V 4*5	1	C60
01.34.CL.D.E10U6V3A	Electrolyse capacitor	CDV-10UF/6.3V 4*5	4	CE6 CE9 C11 CE13
01.34.CL.D.E10U10VA	Electrolyse capacitor	CDV-10UF/10V 4*5	2	C12 C14
01.34.CL.D.E10U16VA	Electrolyse capacitor	CDV-10UF/16V 4*5	1	CE27

01.34.CL.D.E10U25VA	Electrolyse capacitor	CDV-10UF/25V 4*5	6	CE30 CE31 CE33 CE34 C59 C56
01.34.CL.D.EV47U6V3A	Electrolyse capacitor	CDV-47UF/6.3V 4*5	8	CE3 CE8 CE11 CE16 CE17 CE18 CE21 CE22
01.34.CL.D.E47U10VA	Electrolyse Capacitor	CDV-47UF/10V 4*5	2	CE24 CE10
01.34.CL.D.E100U6V3A	Electrolyse capacitor	CDV-100UF/6.3V 5*5	3	CE14 CE23 CE28
01.34.CL.D.E100U10VA	Electrolyse capacitor	CDV-100UF/10V 5*5	2	CE29 CE20
01.34.CL.D.E100U25VA	Electrolyse capacitor	CDV-100UF/25V 8*5	2	CE5 CE32
01.34.CL.D.E220U6V3A	Electrolyse capacitor	CDV-220UF/6.3V 6*5	2	CE2 CE15
01.34.CL.D.EV220U25VA	Electrolyse capacitor	CDV-220UF/25V 8*9	2	CE1 CE4
01.34.CL.D.EV220U16VA1	Electrolyse capacitor	CDV-220UF/16V 8*5	1	CE19
01.13.L.Z.ESB50	SMD Magnetism bead	0805-50Ω	14	L2 L3 L4 L5 L6 L7 L9 L12 L13 L16 L17 L18 L20 L24
01.13.L.Z.ESB120	SMD Magnetism bead	0805-120Ω	1	L10
01.13.L.L.S.E001	SMD inductance	0603-1.8UH	3	L21 L22 L23
01.13.L.L.S.E011	SMD inductance	0805-3.3UH	1	L8
01.13.L.L.S.E007	SMD inductance	0805-10UH	5	L11 L14 L15 L25 L26
01.41.D.PS.ELL4148	Diode	LL4148 SMD	1	D3
01.42.Q.S.E2N3904	Audion	2N3904 SMD	1	Q1
01.42.Q.S.E1132	Audion	2SB1132 SMD	2	Q5 Q4
01.42.Q.S.E3018	Transistor	2SK3018T106 SMD	2	Q2 Q3
01.00.JZ.E27000	DIP oscillator	27.000MHZ-49S-20P	1	Y1
01.44.IC.S.EBA033	IC	BA033 SMD	1	U2
01.44.IC.S.EA11171V8	IC	AZ1117H-1.8 SMD	1	U3
01.46.IC.EMT1389DEE	IC	MT1389DE/E SMD	1	U6
01.44.IC.S.E5954	IC	BA5954 SMD	1	U4
01.44.IC.S.E6287	IC	BA6287 SMD	1	U5
01.46.IC.E24C16	IC	24C16 SMD	1	U7
01.46.IC.E16400	IC	IS42S16400B-7T SMD	1	U8
01.46.IC.E29LV160BBTC	IC	MX29LV160BBTC-70 SMD	1	U9
01.44.IC.S.E4558	IC	NJM4558 SMD	1	U11

Part NO.	Name	Specification	Qty	LOCA NO.
01.44.IC.S.E4344	IC	CS4344 SMD	1	U10
01.40.CON.DPH.E020	Jack	PH-4A	2	CON4 CON5
01.40.CON.DPH.E047	Jack	PH-13A	1	CON1
01.40.CON.DPH.E028	Jack	PH-6A	1	CON2
01.40.CON.S05.E007	SMD Jack	FPC-0.5-24P upper connection	1	HA1
01.40.CON.S10.FPC1.E016	SMD Jack	FPC-1.0-12P down connection	1	J1
01.37.PCB.2.E3466C3	Circuit board	DVD board 3466C-V3.0	1	

Bom NO.	Part NO.	Part Name	Qty	
LTD06M-2973C01	02.11.LTD06M2973C01	Main board	1	

Part NO.	Name	Specification	Qty	LOCA NO.
01.57.R.2.E000J	SMD resistor	0603-0Ω ±5%	8	2R3 4R22 4R23 4R27 4R29 2C25 2C27 2C28
01.57.R.2.E200J	SMD resistor	0603-20Ω±5%	20	2R4 2R9 1R20 2R11 2R13 2R22 2R23 2R25 2R53 2R65 2R66 2R67 2R75 2R76 2R77 2R78 4R17 4R18 4R19 4R24
01.57.R.2.E470F	SMD resistor	0603-47Ω±1%	1	2R60
01.57.R.2.E750J	SMD resistor	0603-75Ω±5%	1	2R5
01.57.R.2.E750F	SMD resistor	0603-75Ω±1%	18	2R14 2R15 2R16 2R17 2R18 2R19 2R29 2R30 2R31 2R48 2R49 2R50 2R54 2R55 2R56 2R57 2R58 2R63
01.57.R.2.E101J	SMD resistor	0603-100Ω±5%	21	2R1 2R2 3R2 1R17 2R24 2R26 2R27 2R28 2R41 2R42 2R43 2R47 3R49 3R51 4R12 4R14 4R30 4R35 4R36 1R28 1R29
01.57.R.2.E221J	SMD resistor	0603-220Ω±5%	1	2R69
01.57.R.2.E301F	SMD resistor	0603-300Ω±1%	1	2R64
01.57.R.2.E391J	SMD resistor	0603-390Ω±5%	1	(4C3)
01.57.R.2.E471J	SMD resistor	0603-470Ω±5%	6	1R5 3R6 1R19 2R59 2R68 3R16

01.57.R.2.E102J	SMD resistor	0603-1KΩ±5%	7	1R13 1R14 1R24 1R26 2R61 3R36 3R37
01.57.R.2.E222J	SMD resistor	0603-2.2KΩ±5%	5	1R3 1R4 2R32 2R33 4R32
01.57.R.2.E332J	SMD resistor	0603-3.3KΩ±5%	1	4R31
01.57.R.2.E472J	SMD resistor	0603-4.7KΩ±5%	11	3R3 4R3 4R4 3R18 4R5 4R6 2R34 2R35 1R6 1R7 1R8
01.57.R.2.E682J	SMD resistor	0603-6.8KΩ±5%	1	2R70
01.57.R.2.E103J	SMD resistor	0603-10KΩ±5%	53	1R1 1R9 3R1 3R5 4R1 4R2 4R7 4R84R9 1R12 1R15 1R18 1R21 1R23 1R25 1R32 2R38 2R39 2R40 2R72 2R73 2R74 3R11 3R32 3R34 3R39 3R40 3R50 3R52 3R53 3R54 4R10 4R11 4R13 4R15 4R33 4R34 3RR32 3RR33 3RR343RR35 3RR36 3RR37 2R8 2R10 3R41 3R42 3R43 3R44 3R45 3R46 3R47 3R48
01.57.R.2.E273J	SMD resistor	0603-27KΩ±5%	1	2R62
01.57.R.2.E303J	SMD resistor	0603-30KΩ±5%	1	2R71
01.57.R.2.E473J	SMD resistor	0603-47KΩ±5%	11	2R6 2R7 3R4 2R20 2R21 2R36 2R37 2R51 2R52 2R79 2R80
01.57.R.2.E104J	SMD resistor	0603-100KΩ±5%	3	1R10 1R30 3R38
01.57.R.3.E201J	SMD resistor	0805-200Ω±5%	2	3R26 3R23
01.57.R.3.E122J	SMD resistor	0805-1.2K±5%	2	1R33 1R16
01.57.R.3.E182J	SMD resistor	0805-1.8K±5%	1	1R27
01.57.R.3.E202J	SMD resistor	0805-2KΩ±5%	1	1R31
01.57.R.3.E302J	SMD resistor	0805-3KΩ±5%	1	1R11
01.57.R.3.E332J	SMD resistor	0805-3.3K±5%	1	1R2
01.57.R.4.E105J	SMD resistor	1206-1MΩ±5%	2	3R21 3R24
01.54.CS.2.E5P0N	SMD capacitor	0603-5P NPO±0.25PF/50V	4	2C22 2C21 2C19 2C18
01.54.CS.2.E180N	SMD capacitor	0603-18P NPO±5%/50V	2	3C30 3C29
01.54.CS.2.E220N	SMD capacitor	0603-22P NPO±5%/50V	5	1C18 2C40 1CC9 1CC10 1CC11

01.54.CS.2.E300N	SMD capacitor	0603-30P NPO±5%/50V	2	(4C34) (4C33)
01.54.CS.2.E560N	SMD capacitor	0603-56P NPO±5%/50V	2	(2C41) (2C42)
01.54.CS.2.E101N	SMD capacitor	0603-100P NPO±5%/50V	8	2C43 2C9 2C72C5 2C44 2C45 2C46 2C47
01.54.CS.2.E102X	SMD capacitor	0603-102 X7R±10%/50V	2	(3C31) (3C32)
01.54.CS.2.E103Y	SMD capacitor	0603-103 Y5V-20+80%/50V	2	1C3 1C17
01.54.CS.2.E152N	SMD capacitor	0603-152 NPO±5%/50V	3	(3C26) (3C27) (3C33)
01.54.CS.2.E104Y	SMD capacitor	0603-104 Y5V-20+80%/50V	97	1C1 1C2 1C4 1C5 1C6 1C7 1C8 1C9 2C1 2C2 2C3 2C4 2C6 2C8 3C1 4C1 4C2 4C4 4C5 4C6 4C7 4C8 4C9 5C5 5C7 5C9 1C10 1C11 1C12 1C13 1C14 1C15 1C16 1C19 2C10 2C11 2C12 2C13 2C14 2C15 2C16 2C17 2C20 2C23 2C24 2C26 2C29 2C30 2C31 2C32 2C33 2C34 2C35 2C36 2C37 2C38 2C39 3C10 3C11 3C12 3C13 3C23 3C35 3C36 4C10 4C11 4C12 4C13 4C14 4C15 4C16 4C17 4C18 4C19 4C20 4C21 4C22 4C24 4C25 4C26 4C27 4C28 4C29 4C30 4C31 4C32 4C35 4C36 4C37 4C38 4C39 4C40 4C41 4C42 4C43 4C44 3C37
01.54.CS.2.E471N	SMD capacitor	0603-470P NPO±5%/50V	3	3C25 3C28 3C34
01.54.CS.2.E474Y	SMD capacitor	0603-474 Y5V+80-20%/50V	2	3C16 3C24

01.34.CL.D.E10U16VC	Electrolyse capacitor	CD110-10UF/16V 5*11	22	2EC4 2EC5 2EC6 2EC7 2EC8 2EC9 2EC11 2EC12 2EC14 2EC15 3EC19 3EC24 3EC26 3EC30 3EC34 3EC35 3EC38 3EC39 3EC40 3EC41 3EC44 4EC10
01.34.CL.D.E22U16VC	Electrolyse capacitor	CD110-22UF/16V 5*11	2	2EC18 2EC17
01.34.CL.D.E47U16VC	Electrolyse capacitor	CD110-47UF/16V 5*11	14	3EC36 3EC37 3EC42 4EC1 4EC3 4EC4 4EC5 4EC6 4EC7 4EC8 4EC9 4EC11 4EC12 4EC13
01.34.CL.D.E100U16VC	Electrolyse capacitor	CD110-100UF/16V 5*11	19	1EC1 1EC3 1EC4 1EC5 1EC7 1EC8 1EC9 2EC1 2EC2 2EC3 3EC8 1EC11 2EC10 2EC13 2EC16 3EC17 3EC15 3EC18 3EC27
01.34.CL.D.E1000U25V G1	Electrolyse capacitor	CD110-1000uF/25V 10*20	3	3EC25 3EC29 3EC32
01.34.CL.D.E220U16VD	Electrolyse capacitor	CD110-220UF/16V 6.3*12	3	1EC2 1EC6 1EC10
01.34.CL.D.E470U25VE	Electrolyse capacitor	CD110-470UF/25V 8*14	1	3EC11
01.13.L.Z.ESA50	SMD Magnetism bead	0603-50Ω	16	2L3 2L4 2L5 2L6 2L7 3R7 3R8 2L8 2L9 2L10 2L11 3RR1 2L12 2L13 2L14 2L15
01.13.L.Z.ESB50	SMD Magnetism bead	0805-50Ω	5	1L5 1L7 3L2 3L3 3C4
01.13.L.Z.ESC50	SMD Magnetism bead	1206-50Ω	8	4L1 4L2 4L3 4L4 4L5 4L6 4L7 4L8
01.13.L.Z.ED50A	DIP Magnetism bead	50Ω（3.5*6.0*0.8）	1	1L2
01.13.L.L.D.E150	DIP inductance	LH0608-33UH	2	1L1　1L6
01.13.L.L.D.E038	Color code inductance	33UH	2	2L1 2L2
01.13.L.L.S.E002	SMD inductance	0603-10UH	3	2LL2 2LL3 2LL4
01.41.D.PS.ELL4148	Diode	LL4148 SMD	7	2D4 2D5 3D1 3D2 3D3 3D4 3D5
01.41.D.PS.ESS24	Diode	SS24　SMD	2	1D1 1D3
01.42.Q.S.E3904	Audion	SMBT3904　SMD	13	1Q2 1Q3 1Q4 1Q6 1Q7 2Q3 2Q4 3Q1 3Q3 3Q6 3Q7 3Q8 4Q2

01.42.Q.S.E3906	Audion	SMBT3906 SMD	6	1Q1 1Q5 2Q1 2Q2 3Q2 3Q4
01.41.D.PS.EBAV99	Diode	BAV99LT1 SMD	3	2D1 2D2 2D3
01.41.D.WS.E5V1	SMD Zener diode	5.1V	1	1D2
01.00.JZ.E18432A	DIP oscillator	18.432MHZ-49S-12P	1	3Y1
01.00.JZ.E196608A	DIP oscillator	19.6608MHZ-49S-20P	1	4Y1
01.40.CON.DCZ.E167	Same core jack	AV2-8.4-13/PB	1	2CON1
01.40.CON.DCZ.E301	Same core jack	AV5-13/PB-06/A	1	2CON2
01.40.CON.DCZ.E007	VGA Jack	EV-015FC/15 core	1	2C0N4
01.40.CON.DCZ.E001	Jack	DASW-8	1	2CON3
01.31.GPT.E063	Tuner	MPE05-1-E	1	TUNER1
01.40.CON.DCZ.E102	Perch jack	CKX-3.5-02(without switch)	1	2CON5
01.40.CON.DCZ.E066	Horizontal double row jack	CKX-3.5-02K(with switch)	1	3CON2
01.40.CON.DCZ.E331	SCART Jack	CS112	1	2CON8
01.40.CON.DTJ.E008	Jack	TJC3-4A	1	3CON1
01.40.CON.DTJ.E011	Jack	TJC3-5A	1	1CON2
01.40.CON.DTJ.E012	Jack	TJC3-6A	1	1CON1
01.40.CON.DPH.E020	Jack	PH-4A	1	4CON2
01.40.CON.DPH.E024	Jack	PH-5A	2	1CON3 1CON4
01.40.CON.DPH.E028	Jack	PH-6A	1	2CON7
01.40.CON.DPH.E047	Jack	PH-13A	1	2CON6
01.40.CON.S13.AY.E002	SMD Jack	1.25-20A(lie paste)	1	4CON1
01.44.IC.S.E4052	IC	CD4052 SMD	1	3U4
01.44.IC.S.E24C32	IC	AT24C32AN SMD	1	4U1
01.46.IC.E24C02	IC	24C02 SMD	1	2U4
01.44.IC.S.E3415	IC	MSP3415G SMD	1	3U6
01.44.IC.S.E1513S	IC	AP1513S SMD	2	1U1 1U3
01.46.IC.EAT49BV	IC	AT49BV040B SMD	1	4U2
01.44.IC.S.ES9435	IC	FDS9435 SMD	1	1U2
01.44.IC.S.E8125	IC	FLI8125-LF SMD	1	4U3
01.44.IC.S.EV330	IC	FSAV330 SMD	1	2U7
01.44.IC.S.ELM1117DTX18V	IC	LM1117DTX-1.8V SMD	1	1U4
01.44.IC.D.EL7808	IC	L7808C-V DIP	1	3U2

Part NO.	Name	Specification	Qty	LOCA NO.
01.44.IC.S.EPESD5V0L5	IC	PESD5V0L5 SMD	5	2U1 2U2 2U3 2U5 2U6
01.44.IC.D.ETDA1517P	IC	TDA1517P DIP	1	3U5
01.37.PCB.2.E2973C2	Circuit board	Main board 2973C-V2.0	1	
Bom NO.	Part NO.	Part Name	Qty	
LTD06P-2956C01	02.19.LTD06P2956C01	Power board	1	
Part NO.	Name	Specification	Qty	LOCA NO.
01.57.R.3.E681J	SMD resistor	0805-680Ω±5%	1	R9
01.57.R.3.E472J	SMD resistor	0805-4.7KΩ±5%	1	R13
01.57.R.3.E222J	SMD resistor	0805-2.2KΩ±5%	1	R12
01.57.R.3.E123J	SMD resistor	0805-12KΩ±5%	2	R3 R11
01.57.R.4.E4R7J	SMD resistor	1206-4.7Ω±5%	1	R6
01.57.R.4.E390J	SMD resistor	1206-39Ω±5%	2	R7 R8
01.57.R.4.E222J	SMD resistor	1206-2.2KΩ±5%	1	R10
01.57.R.4.E514J	SMD resistor	1206-510KΩ±5%	2	R1 R2
01.57.R.4.E392J	SMD resistor	1206-3.9KΩ±5%	1	R15
01.57.R.C.EC105	Carbon film resistor	RT1/6W-1MΩ	1	R4
01.57.R.C.EG563	Carbon film resistor	RT2W-56KΩ	1	R5
01.57.R.R.E5D11	Hot quick resistor	NTC-5D-11	1	TH1
01.57.R.Y.E10K	Press quick Resistor	10K.471	1	VR1
01.54.CS.3.E104X	SMD capacitor	0805-104 X7R±10%/50V	2	C13 C10
01.54.CS.3.E473X	SMD capacitor	0805-473 X7R±10%/50V	1	C5
01.54.CS.4.E102X200V	SMD capacitor	1206-102 X7R±10%/200V	1	C6
01.34.CL.D.E150U400V	Electrolyse capacitor	150uF/400V 18*36 ±20% 105 ESR	1	C1
01.34.CL.D.E1000U25V	Electrolyse capacitor	1000uF/25V 10*20 ±20% 105 ESR	2	C7 C8
01.34.CL.D.E470U25V	Electrolyse capacitor	470uF/25V 8*20 ±20% 105 ESR	1	C9
01.00.CD.CP.E1031KV	Porcelain piece capacitor	103/1KV(feet distance7.5/feet length16)	1	C2
01.00.CD.CP.E2221KVA	Porcelain piece capacitor	222/1KV (feet distance7.5/feet length16)	1	C3

01.00.CD.GY.E104275V	Hi-voltage capacitor	104/275V X2(feet distance15/feet length4)	1	CX2
01.00.CD.GY.E224275V	Hi-voltage capacitor	224/275V X2(feet distance15/feet length5.5)	1	CX1
01.00.CD.GY.E471400V	Hi-voltage capacitor	471/400V Y1(feet distance10/feet length16)	2	CY1 CY2
01.00.CD.GY.E222400V	Hi-voltage Capacitor	222/400V Y1(feet distance10/feet length16)	1	CY3
01.34.CL.D.E22U35VB	Electrolyse capacitor	CD11X-22UF/35V 5*7(105	1	C4
01.13.L.L.D.E155	Filter	LCL-401	1	Lc1
01.13.L.L.D.E180	Filter	LCL-203B DIP	1	Lc2
01.13.L.L.D.E181	Inductance	L620-3uH DIP	1	L1
01.13.L.Z.ED50B	DIP Magnetism bead	50Ω（3.5*4.7*0.8）	1	L2
01.41.D.PD.E1U08	Diode	1U08 DIP	1	D1
01.41.D.PD.EFR107	Diode	FR107 DIP	1	D1
01.41.D.PD.EFR104	Diode	FR104 DIP	1	D2
01.41.D.PD.ESF20NC15	Diode	SF20NC15M DIP	2	D3 D4
01.41.D.PD.E2015CT	Diode	MBRF20150CT DIP	2	D3 D4
01.41.D.WD.E10V	DIP Zener diode	10V	1	ZD1
01.41.D.WD.E20V	DIP Zener diode	20V	1	ZD2
01.44.IC.D.EM0765	IC	FSCM0765RGWDTU DIP	1	U5
01.44.IC.D.EPC817	IC	PC817 DIP	1	U2
01.44.IC.D.EKA431A	IC	KA431AZ DIP	1	U3
01.41.D.PD.EUS4K80	Diode	US4K 80R DIP	1	BD1
01.41.D.PD.EGBU406	Diode	GBU406 DIP	1	BD1
01.41.D.PD.EGBU408	Diode	GBU408 DIP	1	BD1
01.41.D.PD.EPQ322001	Transformer	BCK-PQ3220-01 DIP	1	TR1
01.40.CON.DCZ.E129	Linker	VH	1	CN1
01.40.CON.DTJ.E008	Jack	TJC3-4A	1	CN3
01.40.CON.DTJ.E012	Jack	TJC3-6A	1	CN4

01.38.FUSE.D.E32S315	Fuse	32S 3.15A 250V DIP	1	F1
01.00.FZ.ZZ.E010	J line	15mm	2	J1 J5
01.00.FZ.ZZ.E003	J line	10mm	2	J2 J3
01.00.FZ.ZZ.E007	J line	12.5mm	1	J4
01.37.PCB.1.E2956C2	Circuit board	Power board 2956C-V2.0	1	
Bom NO.	Part NO.	Part Name	Qty	
MINV15-07SVA1B01	02.07.MINV1507SVA1B01	Inverter	1	
Part NO.	Name	Specification	Qty	LOCA NO.
01.57.R.4.E471J	SMD resistor	1206-470Ω±5%	1	R2
01.57.R.2.E561F	SMD resistor	0603-560Ω±1%	2	R6,R14
01.57.R.2.E681J	SMD resistor	0603-680Ω±5%	2	R4,R10
01.57.R.4.E152J	SMD resistor	1206-1.5KΩ±5%	1	R1
01.57.R.2.E202J	SMD resistor	0603-2KΩ±5%	1	R3
01.57.R.2.E103J	SMD resistor	0603-10KΩ±5%	2	R19 R8
01.57.R.2.E153J	SMD resistor	0603-15KΩ±5%	2	R13,R16
01.57.R.2.E203J	SMD resistor	0603-20KΩ±5%	1	R18
01.57.R.2.E223J	SMD resistor	0603-22KΩ±5%	2	R5,R11
01.57.R.2.E683J	SMD resistor	0603-68KΩ±5%	2	R7,R15
01.57.R.2.E104J	SMD resistor	0603-100KΩ±5%	1	R9
01.57.R.2.E474J	SMD resistor	0603-470KΩ±5%	1	R17
01.54.CS.2.E101N	SMD capacitor	0603-100P NPO±5%/50V	1	C8
01.54.CS.2.E821N	SMD capacitor	0603-820P NPO±5%/50V	1	C14
01.54.CS.2.E222X	SMD capacitor	0603-222 X7R±10%/50V	3	C11,C17,C18
01.54.CS.2.E472X	SMD capacitor	0603-472 X7R±10%/50V	2	C12,C4
01.54.CS.2.E102X	SMD capacitor	0603-102 X7R±10%/50V	2	C5,C13
01.54.CS.2.E223X	SMD capacitor	0603-223 X7R±10%/50V	1	C7
01.54.CS.2.E104X	SMD capacitor	0603-104 X7R±10%/50V	1	C16
01.54.CS.2.E474Y	SMD capacitor	0603-474 Y5V+80-20%/50V	1	C19
01.54.CS.2.E105Y16V	SMD capacitor	0603-105 Y5V-20+80%/16V	4	C6,C15 C22 C23

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01.54.CS.2.E225Y	SMD capacitor	0603-225 Y5V-20+80%/10V	1	C24
01.35.CC.E120610U16V	SMD chinaware Capacitor	1206-10UF-16V	2	C10,C3
01.54.CS.6.E100	SMD capacitor	1808-10P/3KV NPO±5%	2	C2,C9
01.34.CL.D.EKW220U25VO	Electrolyse capacitor	KW-220UF/25V 8*9	2	C1 C21
01.41.D.WS.EUDZ7V5B	SMD Zener diode	UDZ7V5B(7.5V)	1	D1
01.41.D.PS.E1SS355	Diode	1SS355 SMD	3	D2,D3,D4
01.41.D.PS.EBAV99	Diode	BAV99LT1 SMD	4	CR1,CR2,CR3,CR4
01.42.Q.S.E2N3904	Audion	2N3904 SMD	2	Q3,Q1
01.42.Q.S.E2N3906	Audion	2N3906 SMD	1	Q4
01.42.Q.S.E2N7002	Transistor	2N7002 SMD	1	Q5
01.44.IC.S.E3193	IC	Bit3193 SMD	1	U1
01.44.IC.S.E4511	Transistor	AP4511 SMD	2	Q2,Q6
01.13.L.R.E112	Transformer	NIA19LES018	2	T1,T2
01.00.YS.TZ.T.E747	Transformer brands	Label001	2	label
01.38.FUSE.S.E025	Fuse	CCP2E63	1	F1
01.40.CON.DPH.E024	Jack	PH-5A	1	CN1
01.40.CON.S80.E001	SMD perch jack	BHR-2VS	2	CN2,CN3
01.37.PCB.2.E2872C3	Circuit board	Inverter board 2872C-V3.0	1	

Elenberg LVD-1502, LVD-1902

To enter the factory menu, pls do as below:

Press "menu" on RC---Select "Audio" (OSD)---Select "Auto volume" (OSD)---press "PAUSE" (on the first line) on RC .

按键为蓝紫色
PANTONE 2727C
按键上印刷为红色
PANTONE 185C

POWER

PLAY　PAUSE　STOP　EJECT
▶　‖　■　⏏

FB　FF　PREV　NEXT
◀◀　▶▶　|◀◀　▶▶|
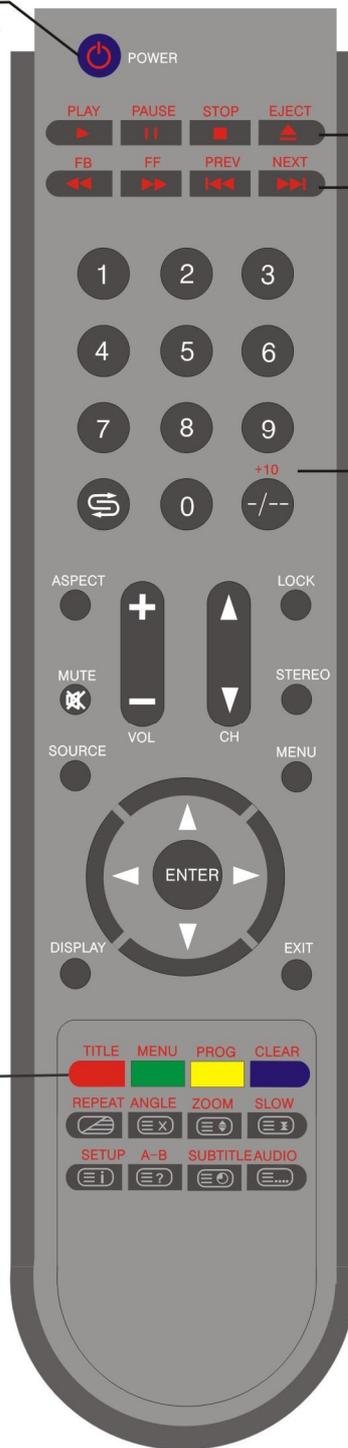
2行8个按键上印刷为红色
PANTONE 185C
外壳上印刷为红色
PANTONE 185C

1　2　3

4　5　6

7　8　9

↺　0　+10 -/--

"+10"印刷为红色
PANTONE 185C

ASPECT　LOCK

＋ ▲

MUTE　STEREO
🔇

VOL　CH

SOURCE　MENU

▲
◀　ENTER　▶
▼

DISPLAY　EXIT

技术要求
1.外壳注塑为黑色
外壳上未注明印刷为冷灰6C
PANTONE COOL GRAY 6C
2.导电胶未注明按键为亚黑色MAT BALCK
导电压条B为431U,PANTONE 431U
按键上未注明印刷为冷灰6C
PANTONE COOL GRAY 6C
3.标牌底色为黑色(同前壳)
标牌上未注明印刷为红色
PANTONE 185C
4.所有材料均要求环保

按键从左到右依次为:
红色PANTONE 485C
绿色PANTONE 355C
黄色PANTONE YELLOW C
蓝色PANTONE PROCESS BLUE C

TITLE　MENU　PROG　CLEAR

REPEAT ANGLE ZOOM SLOW

SETUP A-B SUBTITLE AUDIO

哈隆物料号	HOF-54B-WL54N3591
客户型号	1766遥控器(RC-6024)
导电胶物料号	1200400679/1200600003
标牌物料号	
前壳物料号	
后壳/电池门物料号	