LCD TELEVISION
SERVICE MANUAL

CHASSIS LS03

Please read this manual carefully before service.

CONTENTS

PartⅠ**:** Specification , feature and Composition

Ⅰ. Main feature

1、Radio frequency input

It can receive CATV signal.

2、AV input

Convenient for watching a DVD player,VCR,pickup camera or other playback devices.

3、Scart input

Convenient of receiving a high quality component signal from a DVD player.

4、YPbPr input

Capable of receiving the high definition YPbPr signal in 480i, 480P, 576i, 576P, 720P, 1080i, and 1080P formats.

5、Scart output

6、VGA input

a. Convenient to connect with a host computer.

b. Use as a data display terminal.

c. Connect the 3.5mm(diameter)audio jack to your computer's soundcard to listen to stereo sound transmitted from your home computer.

7、Program & child lock function

Capable of locking any program of the TV and the function button of the front panel.

8、Timer function

9、Blue background with noise reduction

In AV、Scart and YPbPr modes, screen displays soft blue background , if there is no signal input.

10、 Multi Language on-screen display menu

Text and graphical user interface makes the menu operation user-friendly.

11、 Power energy Saving mode(power management mode)

When used as PC display terminal without PC signal output, the LCD TV will automatically power off within 30 Seconds and enter Power Energy Saving Mode. It will automatically startup again when it receives a signal from the PC.To start the TV manually with no signal press the number buttons or【 】/【P+】/【P-】 on the remote control.

12、Plug-and-play

No additional software is needed when the product is used as computer terminal display.

13、Automatic picture's quality adjustment

14、No flicker, no radiation, greenness and health

15、Auto on as time is set

16、Zoom mode（for19",22"）

Full-screen 、16:9、cinema、Subtitle

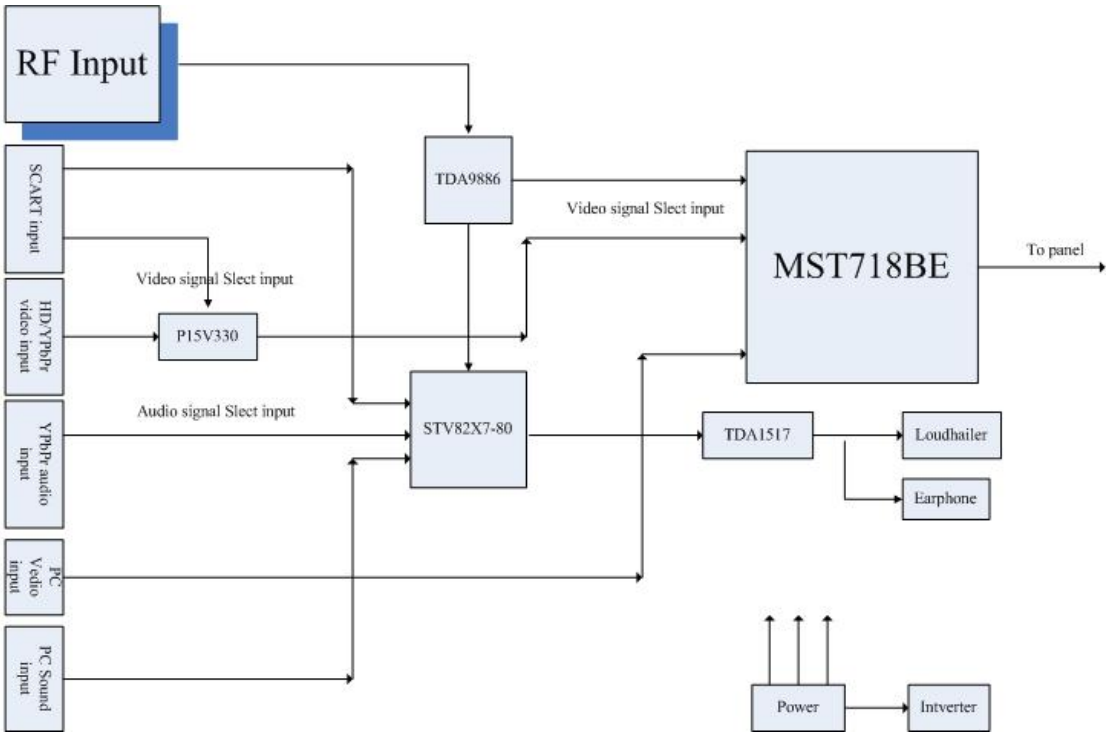
17、Legerity, convenient, low power consumption

18、Picture quality enhancement function

Dynamic skin color correct: improve distort color in picture, make it near to real

color.
Black level extension: darken the large part of black section to enhance pictures contrast in the dim background Color edge adjustment: increase the steep of color signal edge, make the edge of color transition more clearly. Brightness edge adjustment: increase edge gradient of brightness signal, make the edge of picture more clearer
19、Super definition display panel
20、Dynamic comb filter
21、Headphones output(not conclude 02 series)
22、8 page teletext

Ⅱ. Circuit composition of the TV
The Europe LS03 chassis LCD TV is composed of regulating voltage Circuit, inverter Circuit, RF circuit, video enhancement circuit, video Processing circuit, Power amplifier circuit, VGA circuit, system control circuit and key control circuit. The block diagram of circuit composition is below:



Ⅲ. PCB assembly introduction
All the Signal Processing are in Main board.
1、 Main board assembly
Main board Module is the main part of Signal Processing in LCD TV. The input signal is converted into uniform digital signal which can be identified by TFT under the control of system control circuit.
2、 Key board assembly
It is composed of 7 function keys. the user can operate the LCD TV conveniently by

using this assembly.

3、 Remote control receiving board assembly

It is composed of a work indicator light and a remote receive head. The user use the remote control box by this module can operate the LCD TV conveniently and know the LCD TV work condition.

4、 Earphone output board assembly(not conclude 02 series)

It is composed of a earphone outlet, user can Listen by earphoneconveniently.

5、 Inverter board assembly(include inverter circuit)

The function of the inverter is supply power to light tube in TFT , and lighten the back lamp Unit of TFT module, so the user can see the image on TFT.

PartⅡ**:** Function introduction about the main integrated circuit

Ⅰ. Main ICs and components

Serial number	**Name**	**model**	**Main function**
1	U4	MP1430DN-LF-Z	Liner voltage IC
2	U8	PI5V330SQEX	Video switch
3	U9	24LC21AT/SN	EEPROM(save display parameter information)
4	U23	24LC32AT/SN	EEPROM（save user control information）
5	U11	STV-8217	Audio processor
6	U15	TDA1517P	Audio power amplifier
7	U19	TDA9886TS/V4	single and multistandard alignment-free IF-PLL demodulators
8	U17	TDA5-E2I21RW2	RF tuner
9	U22	MST718BE-LF	Processor with Video Decoder

Ⅱ. The function introduction of main IC

1 The MST718BE is a high quality ASIC for NTSC/PAL/SECAM LCD-TV application. It receives analog NTSC/PAL/SECAM CVBS and S-Video inputs from TV tuners, DVD or VCR sources, including weak and distorted signals, as well as analog RGB input from GPS systems. Automatic gain control (AGC) and 10-bit 3-channel A/D converters provide high resolution video quantization. With automatic video source and mode detection,users can easily switch and adjust variety of signal sources. Multiple internal adaptive PLLs precisely extract pixel clock from video source and perform sharp color demodulation. Built-in line-buffer supports adaptive 2-D comb-filter, 2-D sharpening, and synchronization stabler in a condense manner. The output format of MST718BE supports 8-bit TTL or LVDS digital TFT-LCD modules.

MST718 FEATURES:

Video Decoder

· Supports NTSC, PAL and SECAM video input formats

·2D NTSC and PAL comb-filter for Y/C separation of CVBS input

·Multiple CVBS and S-video inputs Supports Closed-caption and V-chip

·Supports Teletext 1.5

·ACC, AGC, and DCGC (Digital Chroma GainControl)

Analog Input

.·Supports RGB input format from PC,camcorders and GPS
.·Supports YCbCr inputs from conventional videosource and HDTV
.·Supports SCART – RGB + Fast Blank
.·Supports video input 480i, 480p, 576i, 576p,720p, 1080i; RGB input resolution in 640x480,800x480, 800x600, 1024x768, and 1280x1024(SXGA)
.·3-channel low-power 10-bit ADCs integration for YCbCr and RGB
.·Supports RGB composite sync input (CSYNC),SOY, SOG, HSYNC, and VSYNC
.·On-chip clock synthesizer and PLL
.·Auto-position adjustment, auto-phase adjustment, auto-gain adjustment, and auto-mode detection

Color Engine

.·Brightness, contrast, saturation, and hue adjustment
.·9-tap programmable multi-purpose FIR (Finite Impulse Response) filter
.·Differential 3-band peaking engine
.·Vertical peaking
.·Spatial noise reduction
.·Luminance Transient Improvement (LTI)
.·Chrominance Transient Improvement (CTI)
.·Black Level Extension (BLE)
.·White Level Extension (WLE)
.·Favor Color Compensation (FCC)
.·3-channel gamma curve adjustment
.·Independent 6 color of saturation, hue, and brightness control

Scaling Engine/Panel Interface

.·Supports digital panels up to 1366x768, and 1440x900
.·Supports single/dual 8-bit LVDS panel outputs
.·Supports 8-bit TTL panel output
.·Supports various displaying modes
.·Supports horizontal panorama scaling

Miscellaneous

.·Built-in MCU
.·3-wire serial bus interface for configuration setup
.·Built-in step-down PWM circuits for input 2.5V
.·Built-in internal OSD with 512 programmable fonts, 1、2 or 4 bit per pixel color,16-color palettes, and 12-bit color resolution
.·Supports external OSD
.·Support CVBS out
.·Spread spectrum clocks
.·Optional 3.3V / 5V output pads with programmable driving current
.·128-pin PQFP package

MST718 pin function:

Analog Interface

Pin Name	Pin Type	Function	Pin

VMID		Mid-Scale Voltage Bypass	2
VCLAMP		CVBS/YC Mode Clamp Voltage Bypass	3
REFM		Internal ADC Bottom De-coupling Pin	4
REFP		Internal ADC Top De-coupling Pin	5
PRINP	Analog Input	Analog Pr Input of HDTV	7
PRINM	Analog Input	Reference Ground for Analog Pr Input of HDTV	8
PBINP	Analog Input	Analog Pb Input of HDTV	9
PBINM	Analog Input	Reference Ground for Analog Pb Input of HDTV	10
SOY	Analog Input	Sync-on-Y slicer input	11
YINP	Analog Input	Analog Y Input of HDTV	12
YINM	Analog Input	Reference Ground for Analog Y Input of HDTV	13
BINP	Analog Input	Analog B Input of VGA	14
BINM	Analog Input	Reference Ground for Analog B Input of VGA	15
SOGIN	Analog Input	Sync-on-Green slicer input	16
GINP	Analog Input	Analog G Input of VGA	17
GINM	Analog Input	Reference Ground for Analog G Input of VGA	18
RINP	Analog Input	Analog R Input of VGA	19
RINM	Analog Input	Reference Ground for Analog R Input of VGA	20
C1INP	Analog Input	Analog Chroma Input for TV S-Video1 / Analog Composite Input of TV CVBS4	22
C1INM	Analog Input	Reference Ground for Analog Chroma Input of TV S-Video1 / Analog Composite Input of TV CVBS4	23
YS1INP	Analog Input	Analog Luma Input of TV S-Video1 / Analog Composite Input of TV CVBS3	24
YS1INM	Analog Input	Reference Ground for Analog Luma Input of TV S-Video1 / Analog Composite Input of TV CVBS3	25
C2INP	Analog Input	Analog Chroma Input for TV S-Video2	26
C2INM	Analog Input	Reference Ground for Analog Chroma Input of TV S-Video2	27
YS2INP	Analog Input	Analog Luma Input of TV S-Video2	28
YS2INM	Analog Input	Reference Ground for Analog Luma Input of TV S-Video2	29
CVBS1P	Analog Input	Analog Composite Input for TV CVBS1	30
CVBS1M	Analog Input	Reference Ground for Analog Composite	31

		Input of TV CVBS1	
CVBS2P	Analog Input	Analog Composite Input for TV CVBS2	32
CVBS2M	Analog Input	Reference Ground for Analog Composite Input of TV CVBS2	33

Pin Name	Pin Type	Function	Pin
VREXT_CDAC	Analog Input	Reference Current Generator, 820 ohm to Ground	116
HSYNCIN1	Schmitt Trigger Input w/ 5V-tolerant	HSYNC / Composite Sync for VGA Input 1	125
VSYNCIN1	Schmitt Trigger Input w/ 5V-tolerant	VSYNC for VGA Input 1	124
HSYNCIN2	Schmitt Trigger Input w/ 5V-tolerant	HSYNC / Composite Sync for VGA Input 2	123
VSYNCIN2	Schmitt Trigger Input w/ 5V-tolerant	VSYNC for VGA Input 2	122

Digital Panel Output Interface

Pin Name	Pin Type	Function	Pin
CLKO	Output	Display Clock Output	77
DEO	Output	Display Enable Output	78
VSYNCO	Output	Vertical Sync Output	79
HSYNCO	Output	Horizontal Sync Output	80
BOUT[7]/LVB 0M	Output	Blue channel Output [7] / LVDS B-Link Channel 0 Negative Differential Data Output	108
BOUT[6]/LVB 0P	Output	Blue channel Output [6] / LVDS B-Link Channel 0 Positive Differential Data Output	107
BOUT[5]/LVB 1M	Output	Blue channel Output [5] / LVDS B-Link Channel 1 Negative Differential Data Output	106
BOUT[4]/LVB 1P	Output	Blue channel Output [4] / LVDS B-Link Channel 1 Positive Differential Data Output	105
BOUT[3]/LVB 2M	Output	Blue channel Output [3] / LVDS B-Link Channel 2 Negative Differential Data Output	104
BOUT[2]/LVB 2P	Output	Blue channel Output [2] / LVDS B-Link Channel 2 Positive Differential Data Output	103
BOUT[1]/LVB CKM	Output	Blue channel Output [1] / LVDS B-Link Negative Differential Clock Output	102

BOUT[0]/LVBCKP	Output	Blue channel Output [0] / LVDS B-Link Positive Differential Clock Output	101
GOUT[7]/LVB3M	Output	Green channel Output [7] / LVDS B-Link Channel 3 Negative Differential Data Output	99
GOUT[6]/LVB3P	Output	Green channel Output [6] / LVDS B-Link Channel 3 Positive Differential Data Output	98
GOUT[5:4]	Output	Green channel Output [5:4]	97, 96

Pin Name	Pin Type	Function	Pin
GOUT[3]/LVA0M	Output	Green channel Output [3] / LVDS A-Link Channel 0 Negative Differential Data Output	95
GOUT[2]/LVA0P	Output	Green channel Output [2] / LVDS A-Link Channel 0 Positive Differential Data Output	94
GOUT[1]/LVA1M	Output	Green channel Output [1] / LVDS A-Link Channel 1 Negative Differential Data Output	93
GOUT[0]/LVA1P	Output	Green channel Output [0] / LVDS A-Link Channel 1 Positive Differential Data Output	92
ROUT[7:6]	Output	Red channel Output [7:6]	91, 90
ROUT[5]/LVA2M	Output	Red channel Output [5] / LVDS A-Link Channel 2 Negative Differential Data Output	89
ROUT[4]/LVA2P	Output	Red channel Output [4] / LVDS A-Link Channel 2 Positive Differential Data Output	88
ROUT[3]/LVACKM	Output	Red channel Output [3] / LVDS A-Link Negative Differential Clock Output	87
ROUT[2]/LVACKP	Output	Red channel Output [2] / LVDS A-Link Positive Differential Clock Output	86
ROUT[1]/LVA3M	Output	Red channel Output [2] / LVDS A-Link Channel 3 Negative Differential Data Output	85
ROUT[0]/LVA3P	Output	Red channel Output [0] / LVDS A-Link Channel 3 Positive Differential Data Output	84

External OSD Interface

Pin Name	Pin Type	Function	Pin
OSDR/GPIO_P30	I/O w/ 5V-tolerant	External OSD R-channel Input / General Purpose Input/Output; 4mA driving strength	73
OSDG/GPIO_P31	I/O w/ 5V-tolerant	External OSD G-channel Input / General Purpose Input/Output; 4mA driving strength	74
OSDB/GPIO_P32	I/O w/ 5V-tolerant	External OSD B-channel Input / General Purpose Input/Output; 4mA driving strength	75

FB/GPIO_P33	I/O w/ 5V-tolerant	External Fast-Blank Input / General Purpose Input/Output; 4mA driving strength	76

Switching Power and PWM Interface

Pin Name	Pin Type	Function	Pin
PWMOUT2	Output	Switching Pulse Output for DC-DC Converter	38
FB2	Analog Input	Error Voltage Feedback Input Pin for PWM2; voltage = 1.2V	39
SENSE2	Analog Input	Sense Circuit Connection for PWM2	40
PWMOUT1	Output	Switching Pulse Output for DC-DC Converter	41
FB1	Analog Input	Error Voltage Feedback Input Pin for PWM1; voltage = 1.2V	42
SENSE1	Analog Input	Sense Circuit Connection for PWM1	43
PGOOD	Output	Power Good Indicator	44

Internal MCU Interface with Serial Flash Memory

Pin Name	Pin Type	Function	Pin
SAR2	Analog Input	SAR Low Speed ADC Input 2	49
SAR1	Analog Input	SAR Low Speed ADC Input 1	48
SAR0	Analog Input	SAR Low Speed ADC Input 0	47
SCK	Output	SPI Interface Sampling Clock	52
SDI	Output	SPI Interface Data-In	53
SDO	Input w/ 5V-tolerant	SPI Interface Data-Out	54
CSN	Output	SPI Interface Chip Select	55
GPIO_P00-GPIO_P07	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	58-64, 83
INT	Input	Interrupt Input for IR Receiver	65
SDA	I/O w/ 5V-tolerant	3-Wire Serial Bus Data	66
SCL	Input w/ 5V-tolerant	3-Wire Serial Bus Clock	67
POWER_ON_RSTN/CS	Input w/ 5V-tolerant	Power On Reset Signal/Chip Selection for 3-wire Serial	68

Misc. Interface

Pin Name	Pin Type	Function	Pin
RESET	Schmitt Trigger Input w/	Hardware Reset; active high	72

	5V-tolerant		
XIN	Analog Input	Crystal Oscillator Input	121
XOUT	Analog Output	Crystal Oscillator Output	120
GPIO_P24 /PWMD3	Output	General Purpose Input/Output; 4mA driving strength/ Pulse Width Modulation Output; 4mA driving strength	56

Pin Name	Pin Type	Function	Pin
GPIO_P25 /PWMD4	Output	General Purpose Input/Output; 4mA driving strength/ Pulse Width Modulation Output; 4mA driving strength	57
PWMD2	Output	Pulse Width Modulation Output; 4mA driving strength	70
PWMD1	Output	Pulse Width Modulation Output; 4mA driving strength	71
INT_OUT	Output	Mode Detection Interrupt Output	100
CVBSO1 /CVBSO2	Output	Analog Composite Output for TV CVBS1/CVBS2	34, 115
MCUSEL	Input	Embedded MCU selection. 0: MCU on. 1: MCU off.	109

Power Pins

Pin Name	Pin Type	Function	Pin
AVDD_ADC	2.5V Power	ADC Power	6, 21
AVDD_GMC	5V Power	GMC Power	35
AVDD_PWM	5V Power	PWM Power	37
AVDD_OPLL	2.5V Power	OPLL Power	113
AVDD_CDAC	2.5V Power	Current DAC Power	117
AVDD_XTAL	5V Power	XTAL Power	118
AVDD_MPLL	2.5V Power	MPLL Power	127
VDDC	2.5V Power	Digital Core Power	50, 110
VDDP	3.3V/5V Power	Digital Input/Output Power	46, 82
GND	Ground	Ground	1, 36, 45, 51, 69, 81, 111, 112, 114, 119, 126, 128

2 TDA9886 introduction:

The TDA9885 is an alignment-free multistandard (PAL and NTSC) vision and sound IF signal PLL demodulator for negative modulation only and

FM processing.The TDA9886 is an alignment-free multistandard (PAL, SECAM and NTSC) vision and sound IF signal PLL demodulator for positive and negative modulation,including sound AM and FM processing.

FEATURES

· 5 V supply voltage
· Gain controlled wide-band Vision Intermediate Frequency (VIF) amplifier, AC-coupled
· Multistandard true synchronous demodulation with active carrier regeneration: very linear demodulation,good intermodulation figures, reduced harmonics, and excellent pulse response
· Gated phase detector for L and L-accent standard
· Fully integrated VIF Voltage Controlled Oscillator(VCO), alignment-free, frequencies switchable for all negative and positive modulated standards via I2C-bus
· Digital acquisition help, VIF frequencies of 33.4, 33.9,38.0, 38.9, 45.75, and 58.75 MHz
· 4 MHz reference frequency input: signal from Phase-Locked Loop (PLL) tuning system or operating as crystal oscillator
· VIF Automatic Gain Control (AGC) detector for gain control, operating as peak sync detector for negative modulated signals and as a peak white detector for positive modulated signals
· External AGC setting via pin OP1
· Precise fully digital Automatic Frequency Control (AFC) detector with 4-bit digital-to-analog converter, AFC bits readable via I2C-bus
· TakeOver Point (TOP) adjustable via I2C-bus or alternatively with potentiometer
· Fully integrated sound carrier trap for 4.5, 5.5, 6.0, and 6.5 MHz, controlled by FM-PLL oscillator
· Sound IF (SIF) input for single reference Quasi Split Sound (QSS) mode, PLL controlled
· SIF-AGC for gain controlled SIF amplifier, single reference QSS mixer able to operate in high performance single reference QSS mode and in intercarrier mode, switchable via I2C-bus
· AM demodulator without extra reference circuit
· Alignment-free selective FM-PLL demodulator with high linearity and low noise
· I2C-bus control for all functions
· I2C-bus transceiver with pin programmable Module Address (MAD)
· Four I2C-bus addresses via MAD.

TDA9886 pin function:

SYMBOL	PIN	DESCRIPTION

VIF1	1	VIF differential input 1
VIF2	2	VIF differential input 2
n.c.	-	not connected
OP1	3	output port 1; open-collector
FMPLL	4	FM-PLL for loop filter
DEEM	5	de-emphasis output for capacitor
AFD	6	AF decoupling input for capacitor
DGND	7	digital ground
n.c.	-	not connected
AUD	8	audio output
TOP	9	tuner AGC TakeOver Point (TOP) for resistor adjustment
SDA	10	I2C-bus data input and output
SCL	11	I2C-bus clock input
SIOMAD	12	sound intercarrier output and MAD select with resistor
n.c.	-	not connected
n.c.	13	not connected
n.c.	-	not connected
TAGC	14	tuner AGC output
REF	15	4 MHz crystal or reference signal input
VAGC	16	VIF-AGC for capacitor
n.c.	-	not connected
CVBS	17	composite video output
n.c.	-	not connected
AGND	18	analog ground
VPLL	19	VIF-PLL for loop filter
VP	20	supply voltage
AFC	21	AFC output
OP2	22	output port 2; open-collector
n.c.	-	not connected
SIF1	23	SIF differential input 1 and MAD select with resistor
SIF2	24	SIF differential input 2 and MAD select with resistor
n.c.	-	not connected
n.c.	-	not connected

3 STV82x7 introduction

The STV82x7 is a multistandard TV sound demodulator and audio processor.This chip performs automatic multistandard analog TV stereo sound identification and demodulation (no specific I²C programming is required). It offers various audio processing functions such as equalization, loudness, beeper, volume, balance, and surround effects. It provides a cost-effective solution for analog and digital TV designs. The STV82x7 is perfectly suited to current and future digital TV platforms, based on audio/video digital chips (STD2000, (DTV100 platform) and the future WorldWide iDTV one chip) which include an internal digital decoder (MPEG, Dolby ˛ Digital...). In the case where a Dolby ˛ Digital decoder is embedded in the audio/video digital chip, Virtual Dolby ˛ Digital could be obtained. For the CTV100/120 platform, the device is offered as an alternative solution to the first-generation chassis that uses the STV82x6.

Features

● Single audio source processing:

— IF source and/or analog stereo input (SCART)

— one digital source with a maximum of 6 synchronous channels (5.1 is obtained across three

I²S)

● SIF input signal with Automatic Gain Control (AGC)

● Digital Demodulator with automatic standard detection and demodulation for AM, FM mono,

FM 2 carriers (German or Korean FM 2-carrier) and NICAM

Analog matrix with:

— five external inputs:

four SCART inputs (2 VRMS capable)

one analog mono input (0.5 VRMS)

— one internal input from a digital matrix via a DAC

— three external outputs (2 VRMS capable)

— one internal output for the digital matrix (using an internal ADC)

● Digital matrix with:

— three input modes (Demodulator/SCART, SCART only and I²S)

— three stereo outputs (Loudspeakers, Headphone and SCART)

● High-end audio DAC

● S/PDIF output for connection with an external amplifier/decoder

● Internal multiplexer for the S/PDIF output (to share the internal S/PDIF output and the S/PDIF

output generated by the external decoder of the digital broadcast)

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● Specific stand-by mode (Loop-through)

● Control by I²C bus (two I²C addresses)

● System PLL and Clock Generation using either a single quartz oscillator or a differential clock

4 TDA1517 introduction:

The TDA1517 is an integrated class-B dual output amplifier in a plastic single in-line medium power package with fin (SIL9MPF), a plastic rectangular-bent single in-line medium power package with fin (RBS9MPF) or a plastic heat-dissipating dual in-line package (HDIP18). The device is primarily developed for multi-media applications.

FEATURES

· Requires very few external components
· High output power
· Fixed gain
· Good ripple rejection
· Mute/standby switch
· AC and DC short-circuit safe to ground and VP
· Thermally protected
· Reverse polarity safe
· Capability to handle high energy on outputs (VP = 0 V)
· No switch-on/switch-off plop
· Electrostatic discharge protection.

TDA1517 pin function:

SYMBOL	**PIN**	**DESCRIPTION**
-INV1	1	non-inverting input 1
SGND	2	signal ground
SVRR	3	supply voltage ripple rejection output
OUT1	4	output 1
PGND	5	power ground
OUT2	6	output 2
VP	7	supply voltage
M/SS	8	mute/standby switch input
-INV2	9	non-inverting input 2

PartⅢ**:** Signal Processing Flow chart

This chapter mainly introduces analog signals process、video intensify process、TV system control process、TV supply system.

1、 IF/RF process

Completed by TAF5-E2I21RW2 RF tuner, output IF signal.

The Function of RF tuner is below:

Pin	symbol	function
1	AGC	Auto gain control voltage
2	TU	The TV do not connect
3	ADD	ground
4	SCL	I2C bus（clock ）
5	SDA	I2C bus（data ）
6	BM	+5V power supply
7	BM	+5V power supply
8	NC	Not connected
9	BTL	+32V power supply，form 0～32V tune voltage
10	NC	Not connected
11	IF	IF signal output

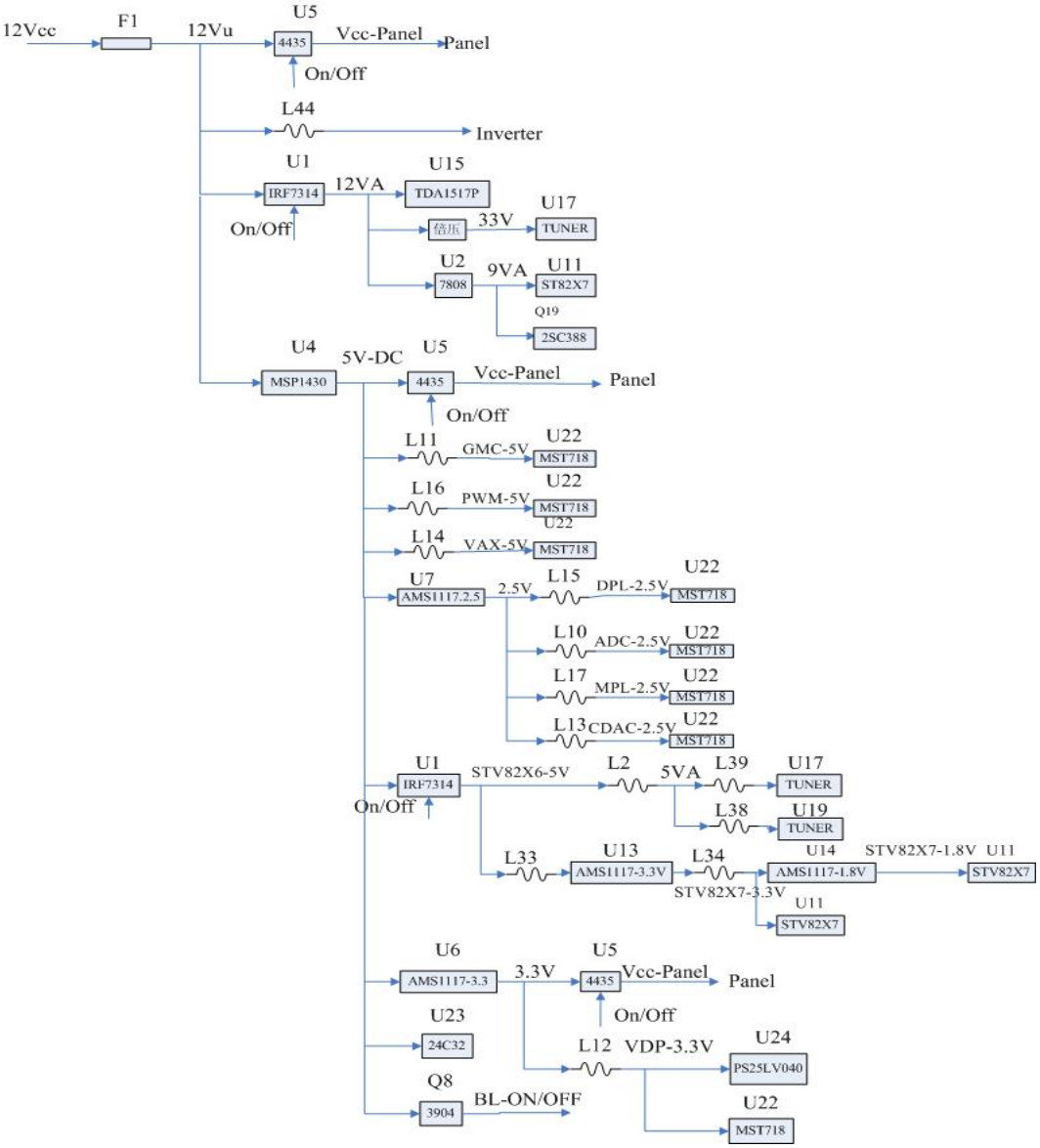
2、 Image and sound process

TDA9886 chip receives the IF signal separated from SAW filter, detects and decodes. Output CVBS analog signals from the 17 pin. Output TV-SIFP signal from 12 pin. CVBS analog signals is decoded inside of MST718BE chip. TV-SIFP signal is decoded inside of STV82x7 chip,then output the main channel L、R audio signal from 28,29 pin.

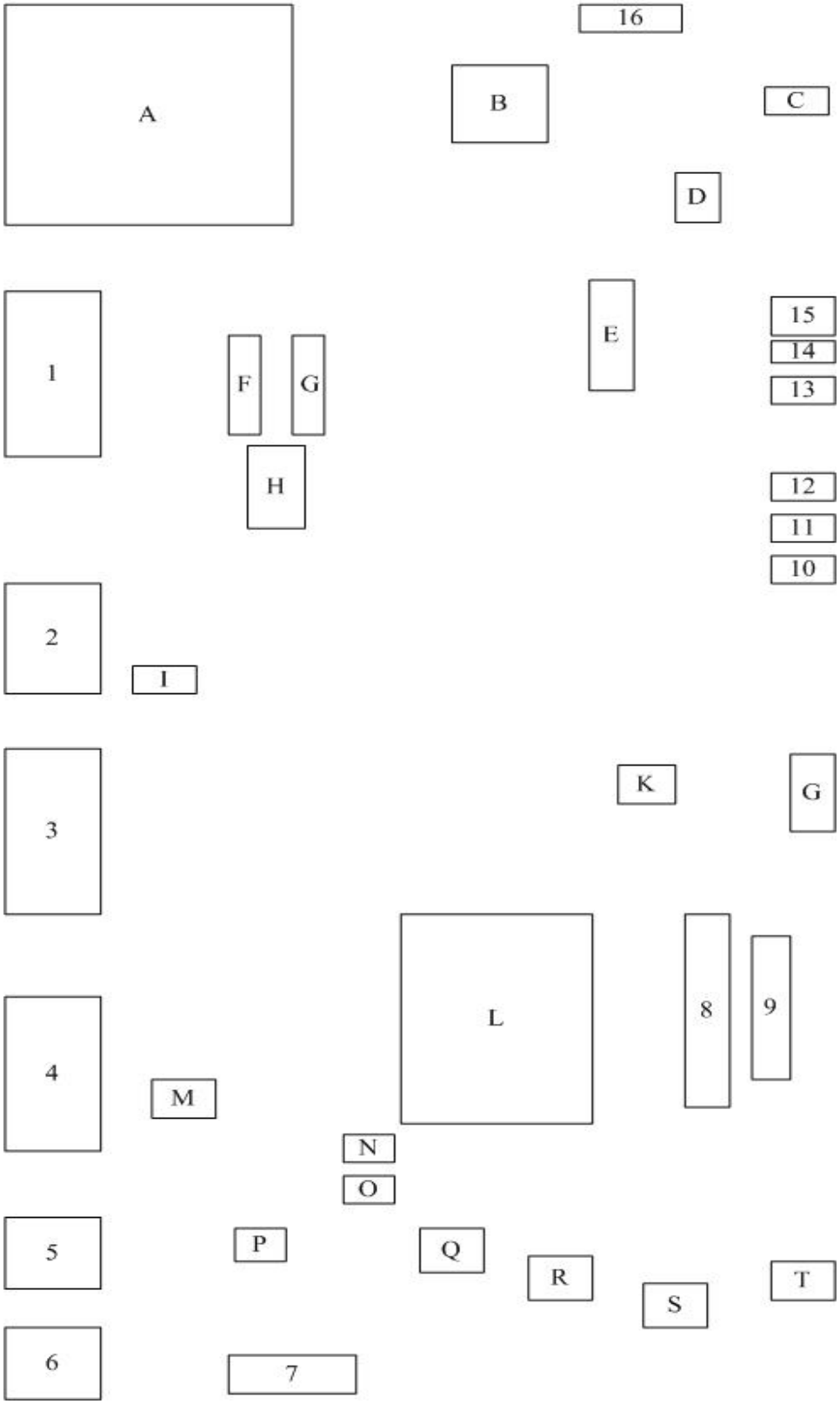
3、 Digital signal process

The MST718BE receives analog NTSC/PAL/SECAM CVBS and S-Video inputs. It finishes the pixels ratio converting of input video signal、the image auto optimization process ,then process via memory buffer, scaler, chroma matrix circuitm, chroma look-up table, chroma space gain, etc. Output corresponding standard physical resolution digital color signal and corresponding sync, clock signal to TFT, control the TFT to display image correctly.

4、TV power supply system:



5、The location of main components and socket on mainboard and definition



Socket definition

NO.	Name	Connect object	Function description
1		Connect outside SCART signal input	
2		Connect outside HD audio input	
3		Connect outside HD-YPbPr input	
4		Connect outside VGA input	
5		Connect outside VGA audio input	
6		Connect adapter outside power	
7		Connect inside supply power board module	
8		Connect display screen	
9		Connect display screen	
10		MST718 debug socket	Not used
11		Connect remote control receiving board	Look circuit diagram，the fifth pin is 3.3V
12		Connect TV K board	Look circuit diagram ，the second pin is 3.3V
13		Connect speaker	
14		Connect speaker	
15		Connect earphone output board	
16		Connect inverter	+12V, +12V, backlight switch，GND, GND,GND

Description of Main component

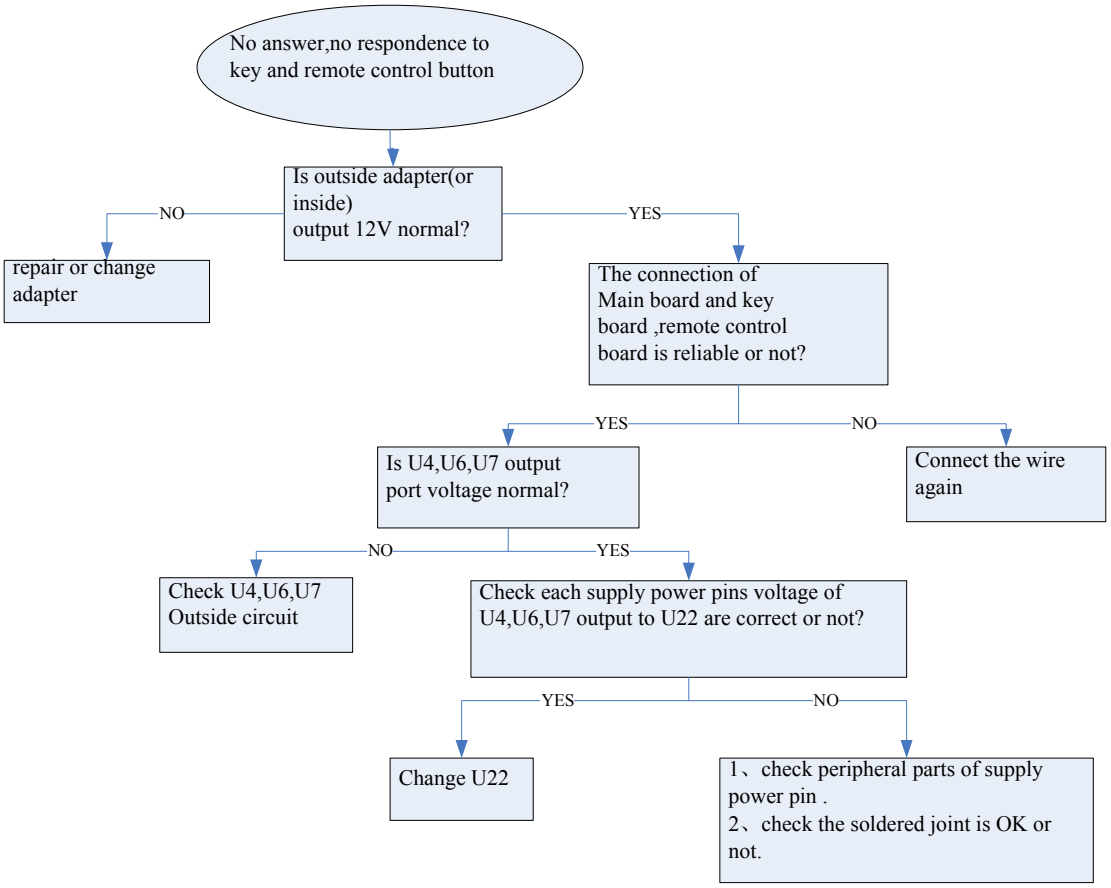
No.	Name	Element	Function description
A	U17	TDA5-E2I21RW2	RF input, IF output
B	U11	STV82x7	Audio processor
C	U14	Ams1117-1.8	Low dropout voltage regulator
E	U15	TDA1517	Audio power amplifier
F	U20	K3953M	IF Filter for Video Applications
G	U18	K9656M	IF Filter for Audio Applications
H	U19	TDA9886	Analog signal processor
I	U8	P15V330	Video switch
G	U13	Ams1117-3.3	Low dropout voltage regulator
K	U2	7808	THREE TERMINAL POSITIVE VOLTAGE REGULATORS
L	U22	MST718BE	AD converter and format transformer
M	U9	24C21	EEPROM(save display parameter information)

N	U24	PS25LV040	Serial Flash Memory
O	U23	24C32	EEPROM(save display parameter information)
P	U4	MSP1430	Liner voltage IC
Q	U7	Ams1117-2.5	Low dropout voltage regulator
R	U6	Ams1117-3.3	Low dropout voltage regulator
S	U5	4435(9435)	ARX4435 Transceiver for Macair H009 Specification
T	U1	IRF7314	HEXFET Power MOSFET

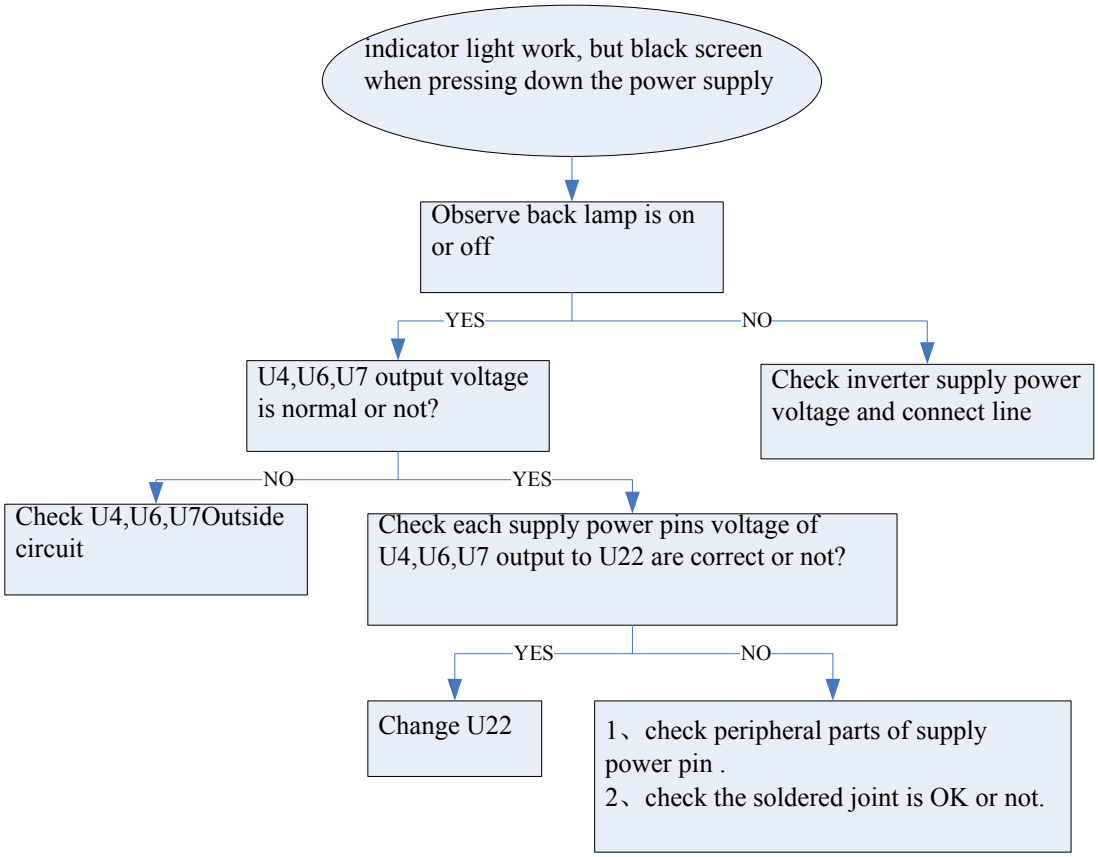
PartⅣ**:** Typical troubleshooting processing flowchart

Ⅰ. Typical troubleshooting flowchart

1、No anything(haven't sound ,haven't picture, haven't indicator light),and no respondence to key， remote control.



2、 Have sound no picture, indicator light work normally



3、White screen: The reason of the troubleshoot is the signal electrode electrode haven't working voltage. The TFT is always in transparent condition, so the whole screen is in white raster.