

**21 SYSTEM**  
**COLOR TELEVISION**  
**SERVICE MANUAL**

**CPU: TDA9341**

**CHASSIS NO. PH03**

**In the interests of user-safety(Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.**

Please read this manual carefully before service.

# **WARNING**

**The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis. To prevent electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.**

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## MAIN SPECIFICATIONS

CHASSIS NO.	PH03
RF system	PAL DK/BG/I □ SECAM
Video system	PAL/NTSC
Receiving Channels	CH 1~57 + 470MHZ CATV
Antenna input	75 Ohm Coaxial Cable
Picture tube	37cm~86cm(14''~34'') diagonal
Audio Power Output Rating	Mono: 3.0W (MAXIMUM) Stereo: 2×4.5W (MAXIMUM)
Power source	AC90V~260V
Weight(Approx)	14''(11Kg), 21''(24Kg), 25''(30Kg),29''(38Kg)
Dimensions (W×H×D) (Approx)	14'' 450(W)×410(D)×378(H)mm 21'' 580(W)×515(D)×520(H)mm 25'' 750(W)×528(D)×560(H)mm 29'' 840(W)×570(D)×650(H)mm
Power Consumption	34'' □ ≤180W (Standard status) 29'' □ ≤150W (Standard status) 25'' □ ≤110W (Standard status) 21'' □ ≤75W (Standard status) 14'' □ ≤60W (Standard status)

**Designs and specifications are subject to change without notice.**

# **SAFETY INSTRUCTIONS AND MAINTENANCE**

**WARNING: BEFORE SERVICING THIS CHASSIS, READ THE “X-RAY RADIATION PRECAUTION”, “SAFETY PRECAUTION” AND “PRODUCT SAFETY NOTICE” INSTRUCTION BELOW.**

## **1. X-Ray Radiation Precaution**

1. The EHT must be checked every time the TV is serviced to ensure that the CRT does not emit X-ray radiation as result of excessive EHT voltage. The maximum EHT voltage permissible in any operating circumstances must not exceed the rated value. When checking the EHT, use the High Voltage Check procedure in this manual using an accurate EHT voltmeter.
2. The only source of X-RAY radiation in this TV is the CRT. The TV minimizes X-RAY radiation, which ensures safety during normal operation. To prevent X-RAY radiation, the replacement CRT must be identical to the original fitted as specified in the parts list.
3. Some components used in this TV have safety related characteristics preventing the CRT from emitting X-ray radiation. For continued safety, replacement component should be made after referring the PRODUCT SAFETY NOTICE below.
4. Service and adjustment of the TV may result in changes in the nominal EHT voltage of the CRT anode. So ensure that the maximum EHT voltage does not exceed the rated value after service and adjustment.

## **2. Safety Precaution**

**Warning: Refer Servicing to Qualified Service Personnel Only.**

1. The TV has a nominal working EHT voltage of 21” 24.5kV, 25” 26KV, 29”

28KV, 34" 30KV. Extreme caution should be exercised when working on the TV with the back removed.

- 1.1 Do not attempt to service this TV if you are not conversant with the precautions and procedures for working on high voltage equipment.
- 1.2 When handling or working on the CRT, always discharge the anode to the TV chassis before removing the anode cap in case of electric shock.
- 1.3 The CRT, if broken, will violently expel glass fragments. Use shatterproof goggles and take extreme care while handling.
- 1.4 Do not hold the CRT by the neck as this is a very dangerous practice.
2. It is essential that to maintain the safety of the customer all power cord forms be replaced exactly as supplied from factory.
3. Voltage exists between the hot and cold ground when the TV is in operation. Install a suitable isolating transformer of beyond rated overall power when servicing or connecting any test equipment for the sake of safety.
4. When replacing ICs, use specific tools or a static-proof electric iron with small power (below 35W).
5. Do not use a magnetized screwdriver when tightening or loosening the deflection yoke assembly to avoid electronic gun magnetized and attenuation in convergence of the CRT.
6. When remounting the TV chassis, ensure that all guard device, such as nonmetal control buttons, switch, insulation sleeve, shielding cover, isolating resistors and capacitors, are installed on the original place.
7. Replace blown fuses within the TV with the fuse specified in the parts list.
8. When replacing wires or components to terminals or tags, wind the leads around the terminal before soldering. When replacing safety components identified by the international hazard symbols on the circuit diagram and parts list, it must be the company-approved type and must be mounted as the original.
9. Keep wires away from high temperature components.

### **3. Product Safety Notice**

**Caution: For Your Protection, the Following Product Safety Notice Should Be Read Carefully Before Operating and Servicing This TV Set.**

1. Many electrical and mechanical components in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-ray radiation protection afforded by them cannot necessarily be obtained by using replacements rated at higher voltages or wattage, etc. Components which have these special safety characteristics in this manual and its supplements are identified by the international hazard symbols on the circuit diagram and parts list. Before replacing any of these components read the parts list in this manual carefully. Substitute replacements components which do not have the same safety characteristics as specified in the parts list may create X-ray radiation.
2. Do not slap or beat the cabinet or CRT, since this may result in fire or explosion.
3. Never allow the TV sharing a plug or socket with other large-power equipment. Doing so may result in too large load, causing fire.
4. Do not allow anything to rest on or roll over the power cord. Protect the power cord from being walked on, modified, cut or pinched, particularly at plugs.
5. Do not place any objects, especially heavy objects and lightings, on top of the TV set. Do not install the TV near any heat sources such as radiators, heat registers, stove, or other apparatus that produce heat.
6. Service personnel should observe the SAFETY INSTRUCTIONS in this manual during use and servicing of this TV set. Otherwise, the resulted damage is not protected by the manufacturer.

#### **4. Maintenance**

1. Install the TV set on a stable and level surface. Do not place the set near or over a radiator or heat register, or where it is exposed to direct sunlight.
2. Do not install the TV set in a place exposed to rain, water, excessive dust, mechanical vibration or impacts.
3. Allow enough space (at least 10cm) between the TV and wall or enclosures for proper ventilation.
4. Slots and openings in the cabinet should never be blocked by clothes or other objects.
5. Please power off the TV set and disconnect it from the wall immediately if any abnormal phenomenon occurs, such as bad smell, belching smoke, sparkling, abnormal sound, no picture/sound/raster. Hold the plug firmly when disconnecting the power cord.
6. Unplug the TV set from the wall outlet cleaning or polishing it. Use a dry soft cloth for cleaning the exterior of the TV set or CRT screen. Do not use liquid cleaners or aerosol cleaners.



# ADJUSTMENTS

## 1. Set-up Adjustments

The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

Perform the adjustments in the following order:

1. Color purity
2. Convergence
3. White balance

### Notes:

- The purity/convergence magnet assembly and rubber wedges need mechanical positioning.
- For some picture tubes,purity/convergence adjustments are not required.

## 1). Color Purity Adjustment

Preparation:

Before starting this adjustment,adjust the vertical sync,horizontal sync,vertical amplitude and focus.

- 1.1 Face the TV set north or south.
- 1.2 Connect the power plug into the wall outlet and turn on the main power switch of the TV set.
- 1.3 Operate the TV for at least 15 minutes.
- 1.4 Degauss the TV set using a specific degaussing coil.
- 1.5 Set the brightness and contrast to maximum.
- 1.6 Counter clockwise rotate the R/B low brightness potentiometers to the end and rotate the green low brightness potentiometer to center.
- 1.7 Receive green raster pattern signals.
- 1.8 Loosen the clamp screw holding the deflection yoke assembly and slide it forward or backward to display a vertical green zone on the screen.Rotate and spread the tabs of the purity magnet around the neck of the CRT until the green zone is located vertically at the center of the screen.

- 1.9 Slowly move the deflection yoke assembly forward or backward until a uniform green screen is obtained.
- 1.10 Tighten the clamp screw of the assembly temporarily. Check purity of the red raster and blue raster until purities of the three rasters meet the requirement.

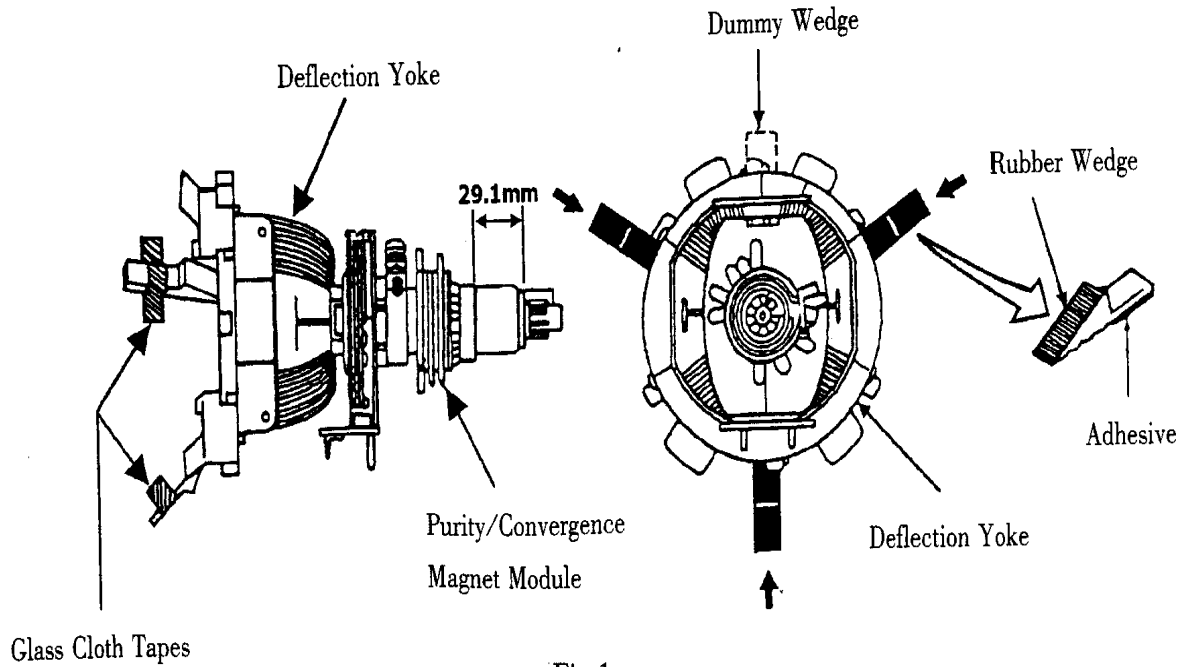


Fig.1

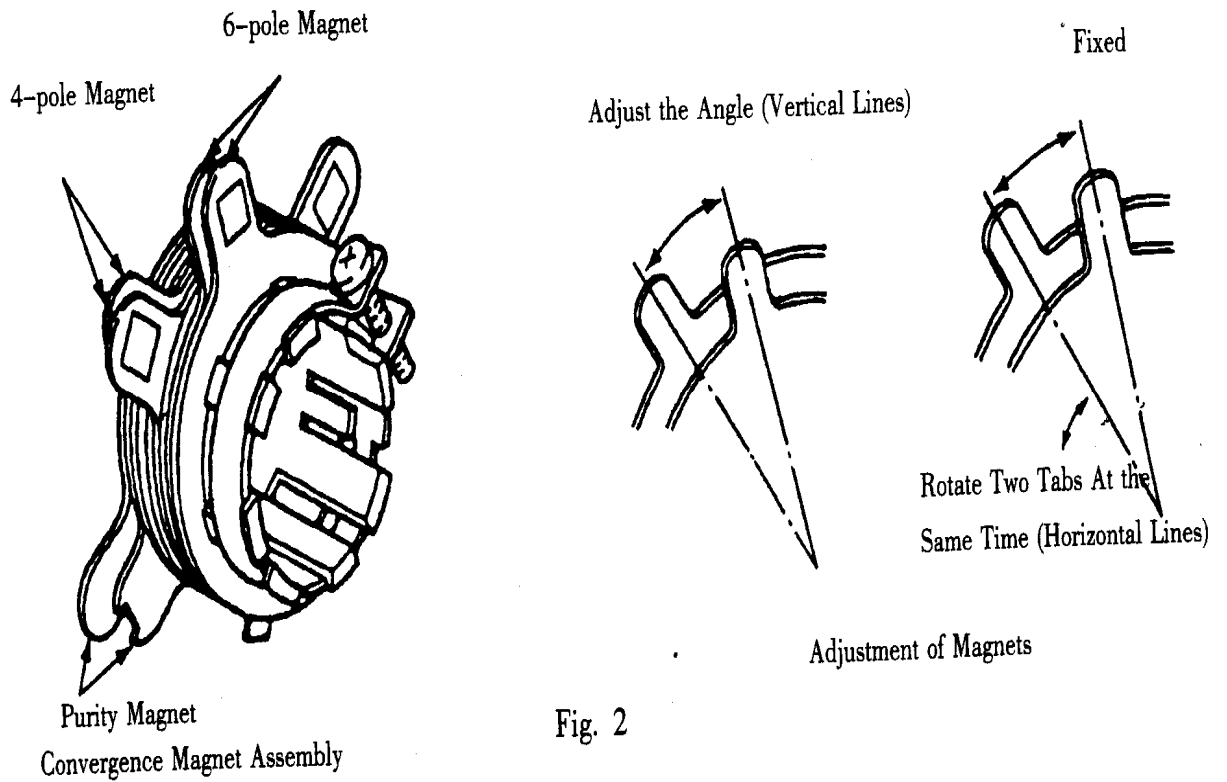


Fig. 2

## 2). Convergence Adjustment

Preparation:

Before attempting any convergence adjustment, the TV should be operated for at least 15 minutes.

### 2.1 Center convergence adjustment

2.1.1 Receive dot pattern.

2.1.2 Adjust the brightness/contrast controls to obtain a sharp picture.

2.1.3 Adjust two tabs of the 4-pole magnet to change the angle between them and red and blue vertical lines are superimposed each on the center of the screen.

2.1.4 Turn both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines on the center of the screen.

2.1.5 Adjust two tabs of the 6-pole magnet to superimpose red/blue lines and green line.

2.1.6 Remember red and blue movement. Repeat steps 2.13~2.15 until optimal convergence is obtained.

### 2.2 Circumference convergence adjustment

2.2.1 Loosen the clamp screw holding the deflection yoke assembly and allow it tilting.

2.2.2 Temporarily put the first wedge between the picture tube and deflection yoke assembly. Move front of the deflection yoke up or down to obtain better convergence in circumference. Push the mounted wedge in to fix the yoke temporarily.

2.2.3 Put the second wedge into bottom.

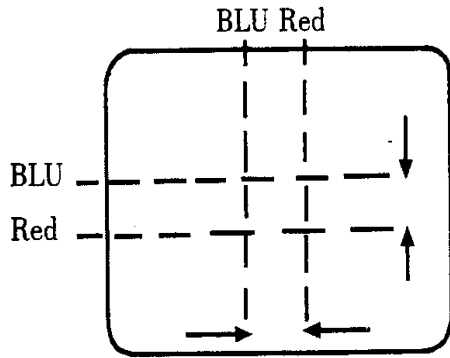
2.2.4 Move front of the deflection yoke to the left or right to obtain better convergence in circumference.

2.2.5 Fix the deflection yoke position and put the third wedge in either upper space. Fasten the deflection yoke assembly on the picture tube.

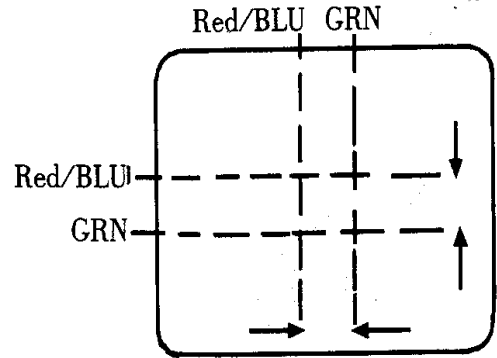
2.2.6 Detach the temporarily mounted wedge and put it in either upper space. Fasten

the deflection yoke assembly on the picture tube.

2.2.7 After fastening the three wedges, recheck overall convergence and ensure to get optimal convergence. Tighten the lamp screw holding the deflection yoke assembly.

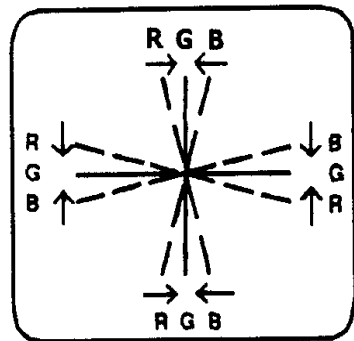


4-pole Magnet Movement

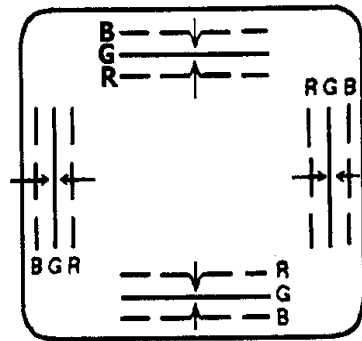


6-pole Magnet Movement

Center Convergence by Convergence Magnets



Incline the Yoke Up (or Down)



Incline the Yoke Right (or Left)

Circumference Convergence by DEF Yoke

Fig.3

### 3). White Balance Adjustment

Generally, white balance adjustment is made with professional equipment. It's not practical to get good white balance only through manual adjustment. For TVs with I<sup>2</sup> C bus control, change the bus data to adjust white balance.

## 2. Circuit Adjustments

Preparation:

Circuit adjustments should be made only after completion of set-up adjustments.

Circuit adjustments can be performed using the adjustable components inside the TV set. For TVs with I<sup>2</sup> C bus control, first change the bus data.

### 1). Degaussing

A degaussing coil is built inside the TV set. Each time the TV is powered on, the degaussing coil will automatically degauss the TV. If the TV is magnetized by external strong magnetic field, causing color spot on the screen, use a specific degausser to demagnetize the TV in the following ways. Otherwise, color distortion will exist on the screen.

- 1.1 Power on the TV set and operate it for at least 15minutes.
- 1.2 Receive red full-field pattern.
- 1.3 Power on the specific degausser and face it to the TV screen.
- 1.4 Turn on the degausser.Slowly move it around the screen and slowly take it away from the TV.
- 1.5 Repeat the above steps until the TV is degaussed completely.

### 2). Supply Voltage Adjustment

**Caution: +B voltage has close relation to high voltage. To prevent X-ray radiation, set +B voltage to the rated voltage.**

- 1.1 Make sure that the supply voltage is within the range of the rated value.
- 1.2 Connect a digital voltmeter to the +B voltage output terminal of the TV set. Power on the TV and set the brightness and sub-brightness to minimum.

1.3 Regulate voltage adjustment components on the power PCB to make the voltmeter read  $110 \pm 0.5V$  (21”).

### 3). High Voltage Inspection

**Caution: No high voltage adjustment components inside the chassis. Please perform high voltage inspection in the following ways.**

1.1 Connect a precise static high voltmeter to the second anode ( inside the high voltage cap ) of the picture tube.

1.2 Plug in the supply socket (220V, AC) and turn on the TV. Set the brightness and contrast to minimum(0uA).

1.3 The high voltage reading should be less than the maximum EHT voltage permissible.

1.4 Change the brightness from minimum to maximum, and ensure high voltage not beyond the limitation in any case.

### 4). Focus Adjustment

**Caution: Dangerously high voltages are present inside the TV. Extreme caution should be exercised when working on the TV with the back removed.**

1.1 After removing the back cover, look for the FBT on the main PCB. There should be a FCB on the FBT.

1.2 Power on the TV and preheat it for 15 min.

1.3 Receive a normal TV signal. Rotate knob of the FCB until you get a sharp picture.

### 5). Safety Inspection

1.1 Inspection for insulation and voltage-resistant

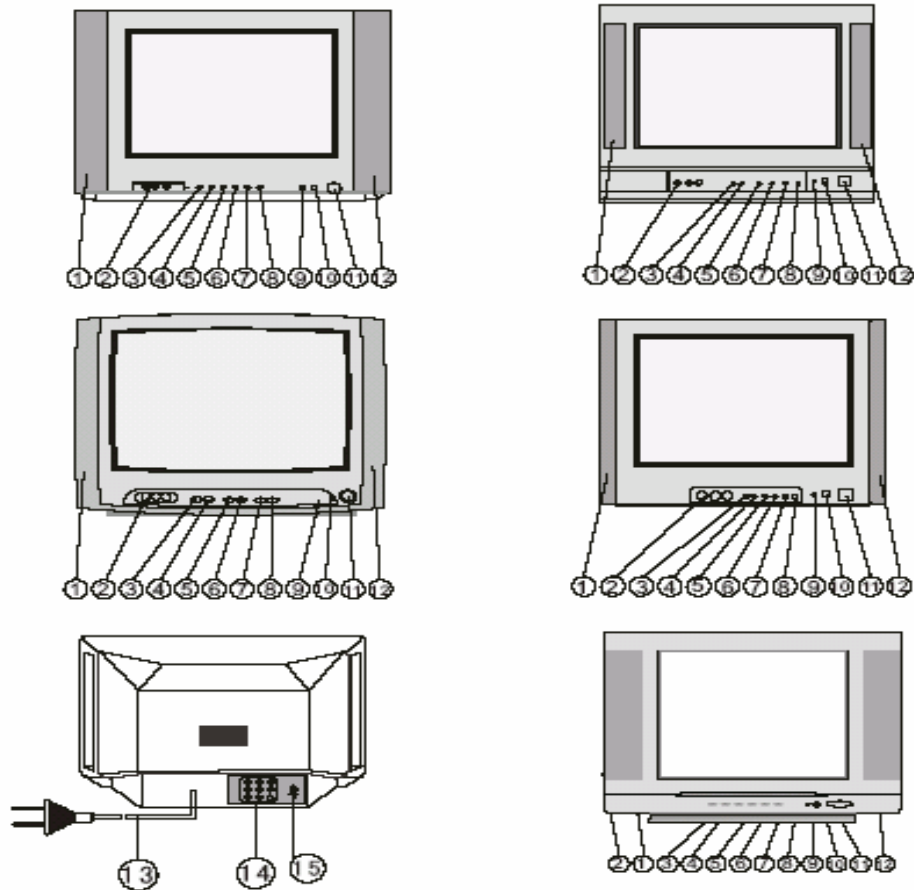
Perform safety test for all naked metal of the TV. Supply high voltage of 3000V AC, 50Hz (limit current of 10mA) between all naked metal and cold ground. Test every point for 3 sec. And ensure no arcing and sparking.

1.2 Requirements for insulation resistance

Measure resistance between naked metal of the TV and feed end of the power cord to be infinity with a DC-500 high resistance meter and insulation resistance between the naked metal and degaussing coil to be over 20MΩ.

## CONTROL BUTTONS

### 1. Control Buttons



1. Speaker

2. Front AV In (Option)

3. AV/TV Button

4. Menu Button

8. Program Up Button

9. Power Indicator

10. Remote Sensor

11. Main Switch

12. Speaker

5. Volume Down Button

6. Volume Up Button

7. Program Down Button

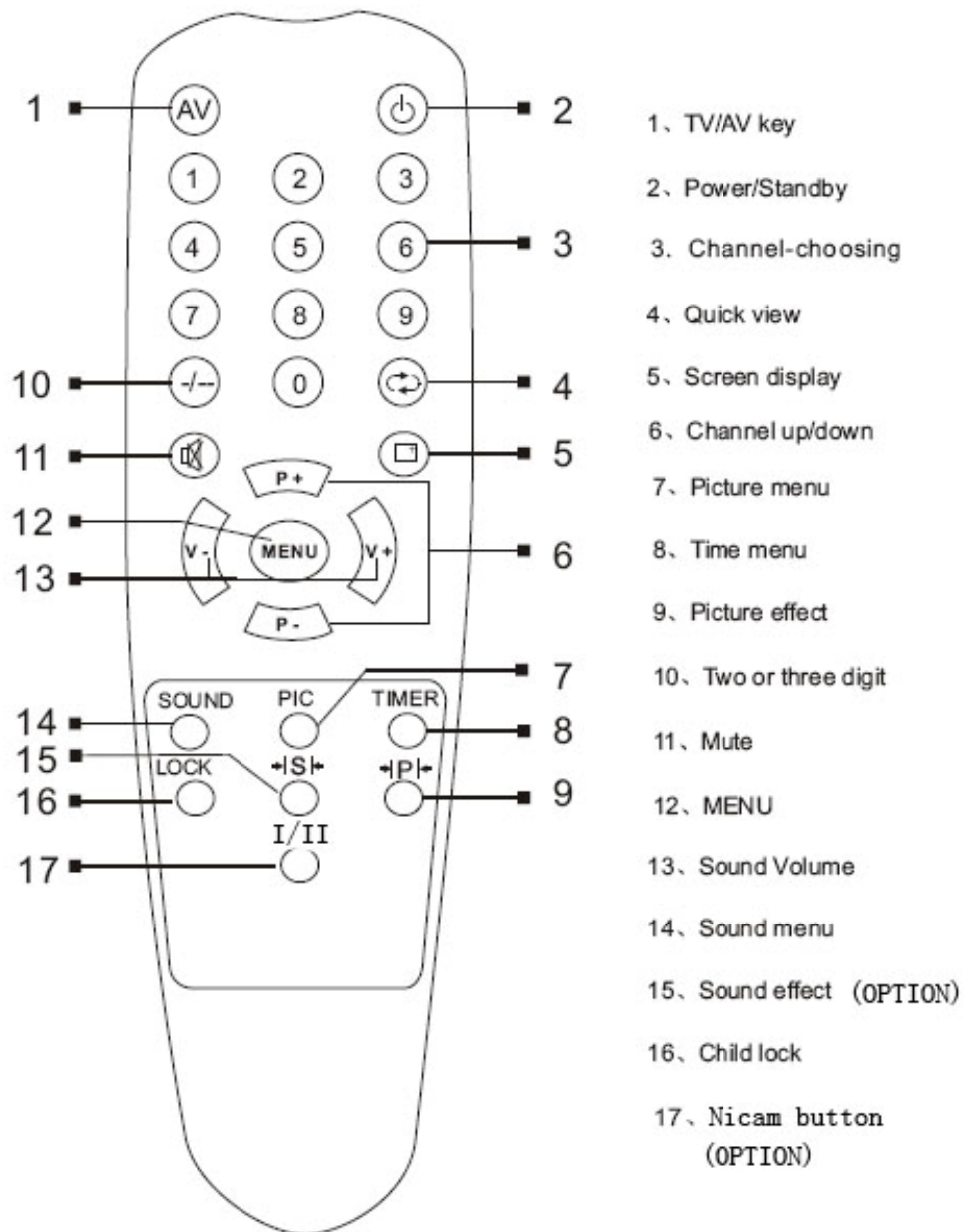
13. AC power Cord

14. Audio/Video-in/out

15. Terminal Antenna(75 Ohm)

## 2. Remote Control

### 1.1 Remote Control





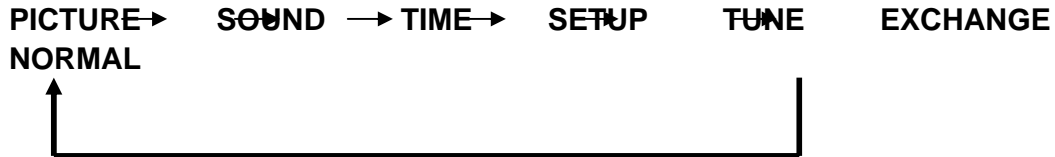
Notes:

- . When in operation, please point your remote control directly to the infrared sensor.
- . Do not expose the remote control to impacts, water or disassemble it.
- . Do not repeatedly press the buttons on the remote control. Allow interval of no less than two seconds.

## 1.2 Tuning in by the remote control

### Menus

Push [MENU] key continuously, to scroll through the MENU selection, as follows.



Press the P+/P- buttons to select an adjustment, and press V+/V- buttons to adjust.

### Tuning in

This section gives descriptions about adjustment of items in the TUNE menu.

#### 1). Auto search

After select “Auto search” in the TUNE menu, press the V+ button. The TV will search automatically in sequence. After auto search, the TV will store receivable channels. Unused position number is automatically set to Skip on.



#### 2).

Frequency fine-tuning

After select “Fine Tune” in the TUNE menu, press and hold down the V+ or V-

button until you get the best sound and picture effect.

### 3).Skip

After Auto Program, there may be some repeated program or inferior signals received. Skipping the undesired program position can dramatically quicken channel selection. After select “Skip” in the TUNE menu, press the V+/V- buttons to set “Skip on”. When the TUNE menu has disappeared, press the P+/P- buttons and you will find the channel number skipped. If you select the channel by the Direct Select buttons, the channel number has changed from green to yellow.

To resume the channel number that has been skipped, repeat the operations mentioned above. Then set “Skip Off”.

## **Setup Selection**

To perform the following operation, press the MENU button repeatedly to select the SETUP menu.

### 1).Language selection



You may switch the language for the OSD to English, Spanish,, French an so on.

### 2).Blue background

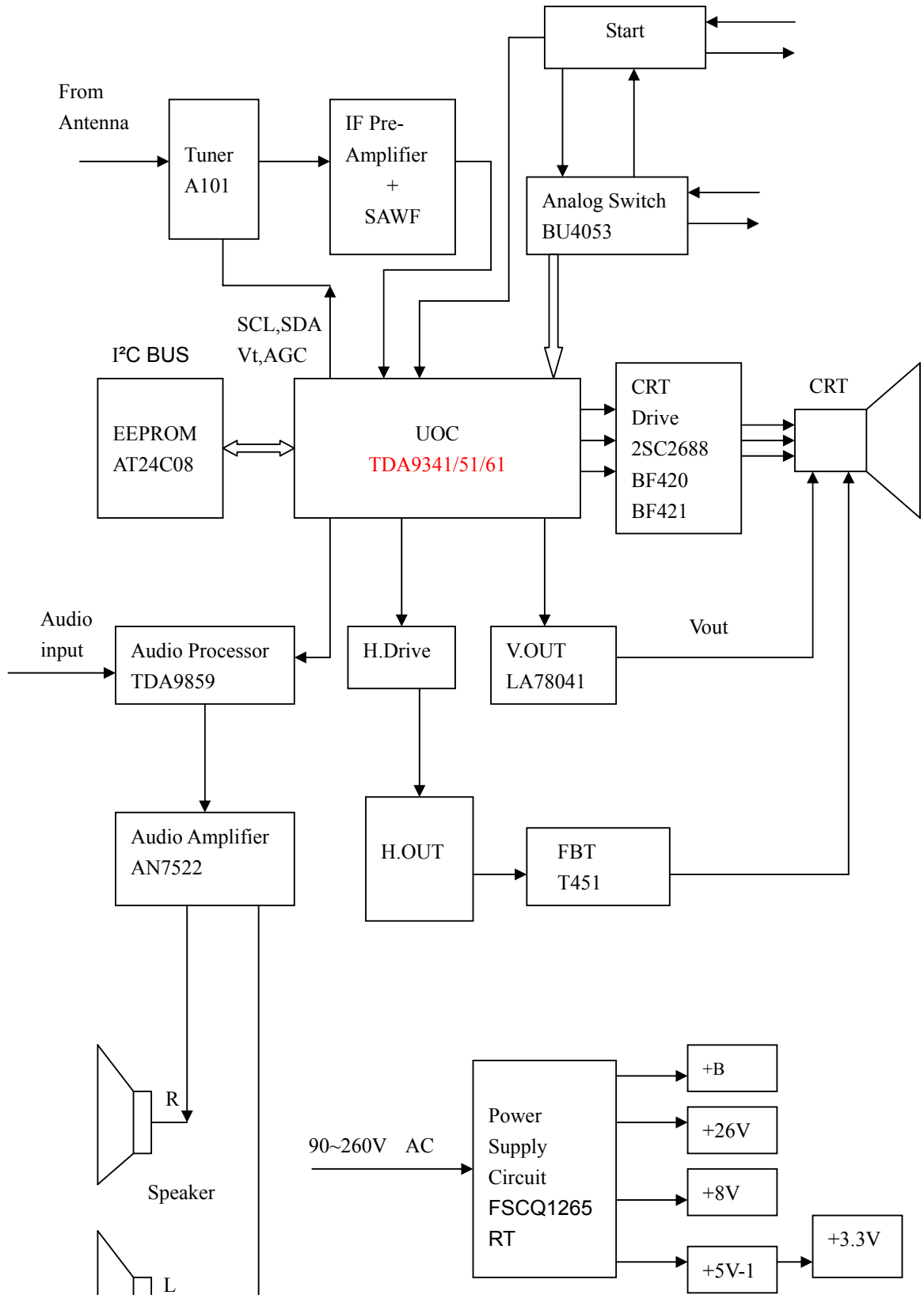
With this function on, the screen will display a mild blue background and mute automatically when no signal is received.

### 3).AVL(Auto Volume Leveling)

When the AVL is activated,it automatically stabilizes the audio output signal to a certain level.

## **STRUCTURE AND CHASSIS FUNCTION DESCRIPTION**

### **1. Structure Block Diagram**



**Fig.4 Structure Block Diagram**

**2. Block Diagram For Supply Voltage System**

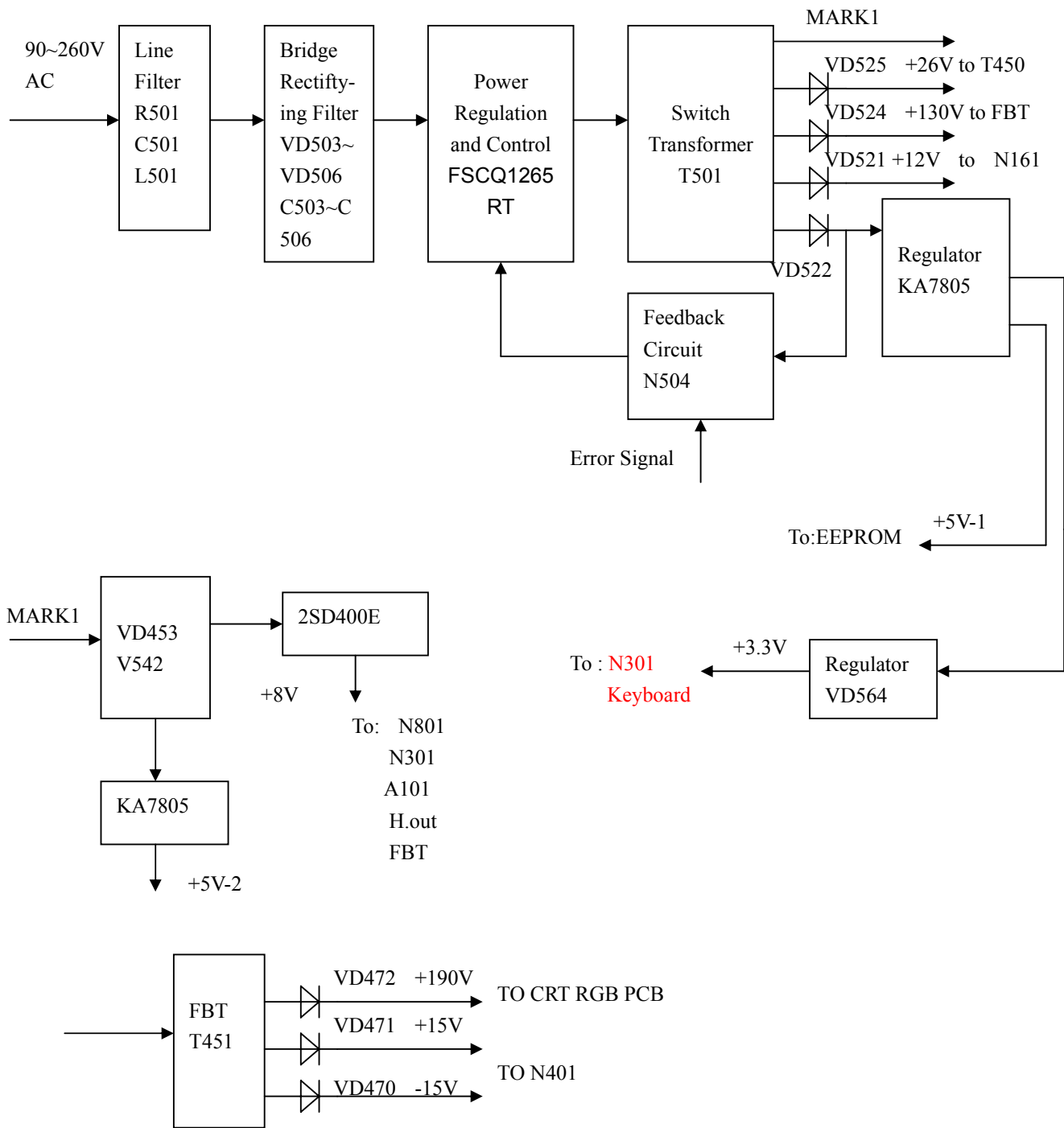


Fig.5 Block Diagram

### 3. Chassis Description

#### 1.General Description

PH03 chassis is applied in 14”~34” picture tube. They uses mainly Philips’ advanced UOC-ultimate chip TDA93XX and I<sup>2</sup> C-bus controlled IC. With combination of microcontroller and small signal processor, the TDA93XX feature high-integration , high-performance-to -price ratio and high-reliability and advanced functions with fewer external components, which provide much convenience for manufacturing and technical service.

The following features are available in the chassis series:

- PAL DK/BG/I□SECAM reception
- Various input/output terminals including SCARTand S-VIDEO
- Selectable picture/sound modes
- Multilingual on screen display
- Audio effect processing
- Blue background and mute
- User logo

#### 1. The PH03 chassis mainly use the following ICs and assemblies.

Serial No.	Position	Type	Function Description
1	N301	TDA93XX	Microcontroller and small signal processor
2	N702	A24C08	EEPROM
3	N121	TDA9859	Audio processor
4	N401	LA78040	Vertical scan output stage circuit
5	N161	AN7522N	Sound power amplifier
6	N501	FSCQ0765RT OR FSCQ1265RT	Power supply circuit
7	N801	HEF4053	Analog switch
8	A101	ET-5EE-KO4	Tuner

Table 1 Key ICs and Assemblies

# TDA9341 ADJUSTMENT METHOD

## 1. Main Specifications:

- 1.1 **Power Input:** AC90V~260V(for PH01 chassis) OR AC130~265V(for PH02 chassis)
- 1.2 **Receiving Channels :** CH 1~57 + 470MHZ CATV
- 1.3 **Program Selection :** 250
- 1.4 **SYSTEM:** Rf: PAL --D/K□I □BG ; AV NTSC 4.43+3.58 MHz
- 1.5 **OSD Language:** sixteen Language
- 1.6 **Audio Power Output Rating :** Mono: 3.0W  
Stereo: 2×4.5W
- 1.7 **AV Terminal:** Two AV input □ One S-VIDEO input □ One YUV input and One AV output
- 1.8 **SIZE:** 14/21/25/29/34 INCH

## 2. TV set adjustment method

### 2.1 Main power +B setting

Receive standard color pattern RF signal, set picture to “Standard Mode”. Adjust VR501 to get +B voltage =110 ±0.5V 14”/21”  
=130 ±0.5V 25”~34”

### 2.2 AFT on NICAM PCB Adjustment

- a) Receive standard color pattern RF signal (PAL/BG).
- b) Measure the voltage at TP1 (Pin 13 of N3101),
- c) Adjust L3101 to get  $V_{TP1} = 2.5 \pm 0.1V$ .

### 2.3 CRT cut off adjustment

- A. When at the **B/W BALANCE** mode, push [mute] key to stop vertical scan.
- B. Adjust SCREEN control on Flyback transformer to get the darkest single horizontal line (red, green, or blue, sometimes shows more yellow □ more purple or more white).
- C. At this status there are four keys can be used:

	Red Cut	Green Cut
Key name	1	2
Function	CUT R+	CUT G+
Key name	4	5
Function	CUT R-	CUT G-

- D. And then push [mute] key again ,vertical scan work repeat.

### 2.4 FOCUS Adjustment

- A. Receive standard color pattern RF signal
- B. Adjust the FOCUS VR of the FBT so that the OSD and picture is clear and sharp.

**2.5 I<sup>2</sup>C bus control adjustment method:**

**A. enter and exit factory mode**

- 1) By remote controller for factory, push [factory]key continually, the TV mode will change as follows:

Normal →FACTORY →B/W BALANCE →ADJUST→Normal

- 2) For remote controller of user
  - a) Push [menu] key -> display picture menu -> push digital keys 6483 -> display FACTORY.
  - b) And then at the FACTORY mode ,push digital keys 6483 to enter the B/W BALANCE mode.
  - c) At the B/W BALANCE mode, push [menu] key to enter the ADJUST mode.
  - d) At the ADJUST mode, push [menu] key again to return to Normal mode.

**B. explanation**

**Adjustment mode including:** FACTORY□B/W BALANCE□ADJUST

- 1) FACTORY mode:This mode is used for “heat run”.And at this mode there is no blue screen when there is no signal.
- 2) B/W BALANCE mode: for White Balance Adjustment

**Manual Adjustment**

- Push [factory] key twice to enter the B/W BALANCE mode
- Push [P+]/[P-] key to selecte the item which you want
- Push [V+]/[V-] key to change the value of the item
- Repeat □□□, till the picture effect which you want is good
- Push [factory] key again to quit the B/W BALANCE mode
- Option as follows:

OSD Display	Explanation:
DRI R	Red gun drive□0□63□
DRI G	Green gun drive□0□63□
DRI B	Blue gun drive□0□63□
CUT R	Red gun cutoff 0□63□
CUT G	Green gun cutoff□0□63□
BT	Brightness Adjustment for White Balance (0-63)
CT	Contrast Adjustment for White Balance (0-63)

**AUTO Adjustment**

- At the B/W BALANCE mode,push [recall] key to enter the BUS OPEN mode
- Using the machine for white balance to adjust the white balance
- When the white balance adjustment is finished,push [recall] key again to return to the B/W BALANCE mode.
- And then push [factory] key to quit the B/W BALANCE mode.

### 3) ADJUST mode

#### a. Operation

- At the B/W BALANCE mode, and then push [factory] key again to enter the ADJUST mode.
- Using the [mute] key to page down or using the 0~7 keys to select the adjustment paper directly .
- Push [P+]/[P- ] key to selecte the item.
- Push [V+]/[V- ]key to change the value of the item
- And then push [factory] key again to quit the ADJUST mode

#### b. Adjustment items and explanation

##### SERVICE0

Items	Name	Default	Preset	Instruction
0	FREQUENCY			FREQUENCY DISPLAY
1	H PH	31		Horizontal Center □0~63□
2	V SL	24		Vertical Slope □0~63□
3	V SH	21		Vertical Center □0~63□
4	V SI	33		Vertical Size □0~63□
5	V SC	27		Vertical S Correction □0~63□
6	YUV HS			YUV OR RGB Horizontal Center

##### SERVICE 1

Items	Name	Default	Preset	Instruction
0	AGC	24		RF.AGC (0~63)
1	AGC SPEED	1		AGC SPEED (0~3)
2	AV OPT	ON		ON:NEW LOGIC; OFF:OLD LOGIC
3	AV CFG	3		0~9
4	WOOFER	OFF		ON/OFF
5	VIDEO OUT	CVBS		IF/CVBS
6	PIN 5	NTSC		PIN FUNCTION
7	PIN 7	VOL 1		PIN FUNCTION
8	PIN 8	MUTE		PIN FUNCTION
9	YUV-RB	32		YUV Red cutoff
10	YUV-GB	32		YUV green cutoff
11	BAND	2		BAND selection

##### SERVICE 2

Items	Name	Default	Preset	Instruction
0	AVL	ON		AVL OPT :ON/OFF
1	UOC VOL SW	OFF		UOC VOL SW :ON/OFF
2	UOC/PWM VOL	63		UOC/PWM VOL :0~63



3	TDA9874GAIN	20		0~30
4	VOL 10	25		The adjustment point at the 10% of volume control (0~100)
5	VOL 25	50		The adjustment point at the 25% of volume control (0~100)
6	VOL50	75		The adjustment point at the 50% of volume control (0~100)
7	VOL100	100		The adjustment point at the 100% of volume control (0~100)
8	FMWS	0		FM search window width□0~2

### SERVICE 3

Items	Name	Default	Preset	Instruction
0	ENGLISH	ON		ON/OFF
1	PERSIAN	ON		ON/OFF
2	ARABIC	ON		ON/OFF
3	RUSSIA	ON		ON/OFF
4	TURKISH	ON		ON/OFF
5	FRANCE	ON		ON/OFF
6	SPANISH	ON		ON/OFF
7	HUNGARY	ON		ON/OFF
8	CROATIA	ON		ON/OFF
9	GREECE	ON		ON/OFF
10	PORTUGAL	ON		ON/OFF
11	BULGARIA	ON		ON/OFF
12	SERBIAN	ON		ON/OFF
13	ITALY	ON		ON/OFF
14	ROUMANIA	ON		ON/OFF
15	POLAND	ON		ON/OFF

### SERVICE 4

Items	Name	Default	Preset	Instruction
0	VP	38		OSD Vertical Position :7~63
1	HP	12		
2	YUV OSD HS	12		YUV OSD Horizontal Position□0~30
3	WIDE	17		0~63
4	ZOOM	50		0~63
5	MENU TITLE	3		OSD Horizontal Position :0~30
6	OSD L	0		OSD Contrast□0~3
7	HALFTONE	1		HALFTONE MENU : <b>0: OFF; 1: 50%; 2: 75%</b>

## SERVICE 5

Items	Name	Default	Preset	Instruction
0	IF	38.9M		IF: 38.0MHZ□38.9MHZ□45.75MHZ□58.75MHZ
1	DF	ON		ON/OFF
2	I	ON		ON/OFF
3	M	OFF		ON/OFF
4	BG	ON		ON/OFF
5	AUTO SOUND	ON		ON/OFF
6	SIF PREFER	BG		BG/DK/I/M
7	VP CORR	15		0~15
8	HP CORR	15		0~15
9	SC .BRI	8		Original Value Adjustment of Horizontal Line□0~63

## SERVICE 6

Items	Name	Default	Preset	Instruction
0	POW	1		POW :0~2
1	LOGO	OFF		LOGO :ON/OFF
2	DRCS LOAD	OFF		ON/OFF
3	RECALL L/R	OFF		ON/OFF
4	SAVER	OFF		SAVER :ON/OFF
5	POWER ON TIM	8		POWER ON TIM :6~15
6	AKB	ON		AKB :ON/OFF
7	NBL	ON		NBL :ON/OFF

## SERVICE 7

Items	Name	Default	Preset	Instruction
0	SUB CON	15		Sub Contrast□0~63
1	SUB BRI	18		Sub Brightness□0~63
2	SUB COL	30		Sub Colour□0~63
3	SUB SHA	32		Sub Sharp□0~63
4	SUB TI	16		Sub Tint□0~31
5	YDL PAL	2		PAL Delay□0~15
6	YDL NTSC	2		NTSC Delay□0~15
7	YDL AV	4		AV Delay□0~15
8	CATHE	8		Cathode Voltage Adjustment□0~15
9	TINT RANGE	31		0~31

8)Picture effect preset□At the **ADJUST** mode, push [p.p] key continually,it is changed as follows□  
MILD→DYNAMIC→STANDARD→MILD.Using the 0□7 keys to return to the corresponding adjustment paper.

Items	Name	Default	Preset	Instruction
-------	------	---------	--------	-------------

		MILD	DYN.	STD.	
1	BRIGHT	75	75	50	Preset brightness:0~100
2	CONTRAST	50	100	75	Preset Contrast:0~100
3	COLOR	30	75	50	Preset Color:0□100
4	SHARP	25	75	50	Preset Sharp:0□100

### 3. LOGO Editing Method

There are two lines of the LOGO and each line can be set with 16 characters. The size of the LOGO or the colour and the location could be changed. It could also be opened and closed. LOGO will display when power on or at the blue screen.

#### 3.1 Operation Instruction

- Using the [HOLD] key of the factory remote controller to enter or quit the LOGO editing status. You can also use the user remote controller to enter the LOGO editing status: At the AV status, when OSD displays, push [6][4][8][3] keys to enter the LOGO editing status. And then push [standby] key to quit.
- At the LOGO editing status, you can do as follows:
  - a. Push [1] key to change the line of the LOGO.
  - b. Push [0] key to quickly delete the character.
  - c. Push [2] key to change the colour of the LOGO
  - d. Push [3] key to change the size of the LOGO
  - e. Push [4][5][6][7] key to change the location of the LOGO
- LOGO's content setting
  - i. using the [V+] [V-] key to select different characters
  - ii. using the [P+] [P-] key to change the characters

#### 3.2 Character table

Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A	z	y	x	w	v
u	t	s	r	q	p	o	n	m	l	k	j	i	h	g	f	e	d	c	b	a	□	.	□	@	*	+	-	blank		
9	8	7	6	5	4	3	2	1	0																					

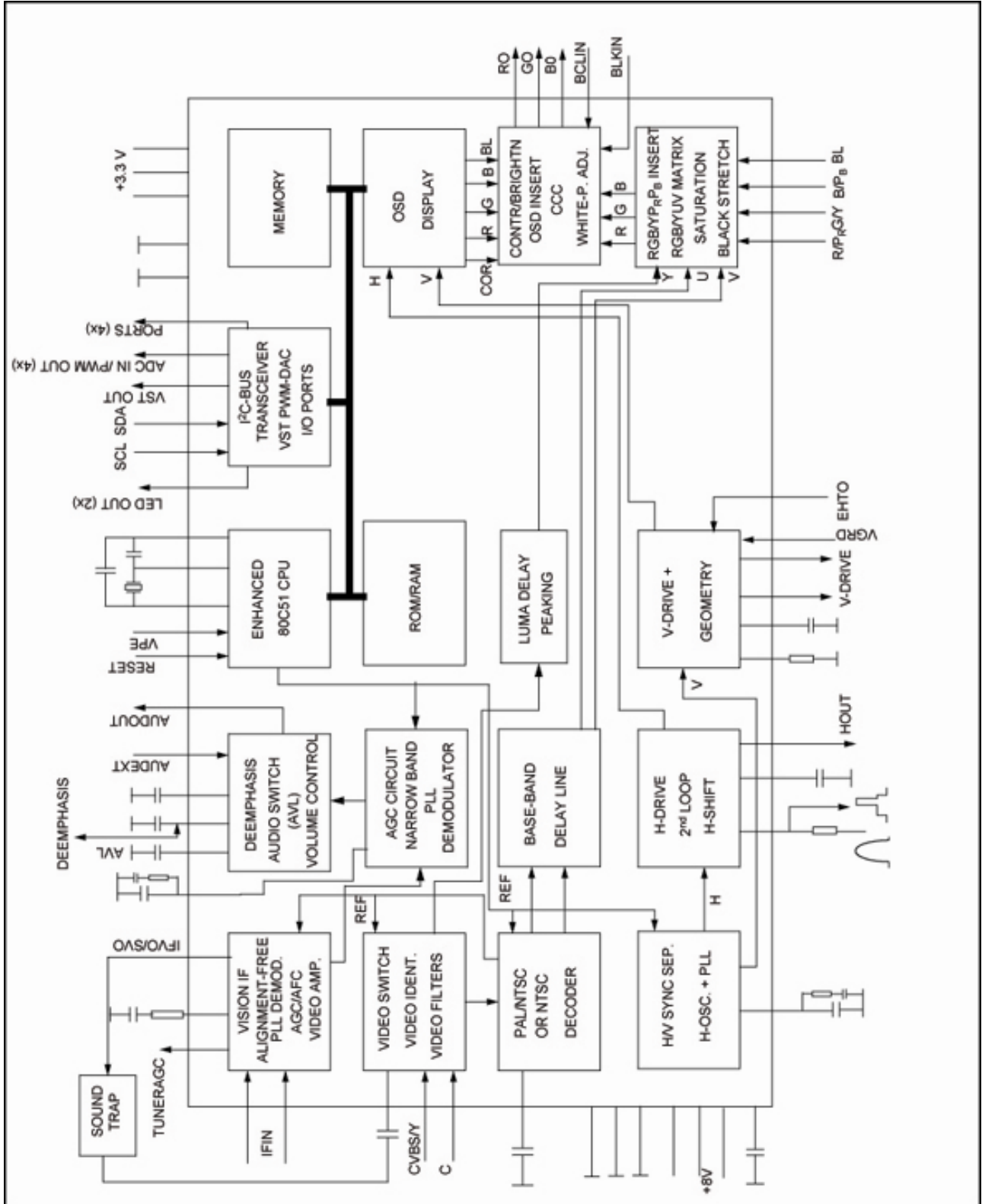
## SERVICE TIPS

CHECKED (●) THE FOLLOWING CHART  
ON SYMPTOMS AND SOLUTIONS?

Symptoms	Solution	Try different channel, if OK, probably station trouble	Check aerial connections on back of set	Check aerial for broken wires	Re-orient aerial (if indoor type)	Probably local interference, such as an appliance	Adjust fine tuning control	Adjust brightness control	Adjust contrast control	Check if station is broadcasting colour	Adjust colour control	Check if system switch is correct	Check if on/off switch is on	Check Batteries in Remote control
No picture, no sound		●	●	●			●					●	●	
Poor sound, picture OK		●			●	●	●					●		
Poor picture, sound OK		●	●	●	●	●	●	●				●		
Weak picture		●	●	●	●		●					●		
Blurred picture		●		●	●		●					●		
Double image		●	●	●	●		●							
Lines in picture		●		●	●	●	●							
Distorted picture		●		●	●		●					●		
Weak reception on some channels		●	●	●	●	●	●					●		
Horizontal bars				●	●	●								
Picture rolls vertically		●		●	●	●						●		
Poor colour		●	●	●	●	●	●	●	●		●	●		
No colour		●	●	●	●		●			●	●	●		
Misoperation of Remote control														●
No Remote control														●
On screen Display Control outside the screen												●		

# APPENDIX

## MAIN IC TDA93XX Internal Block Diagram

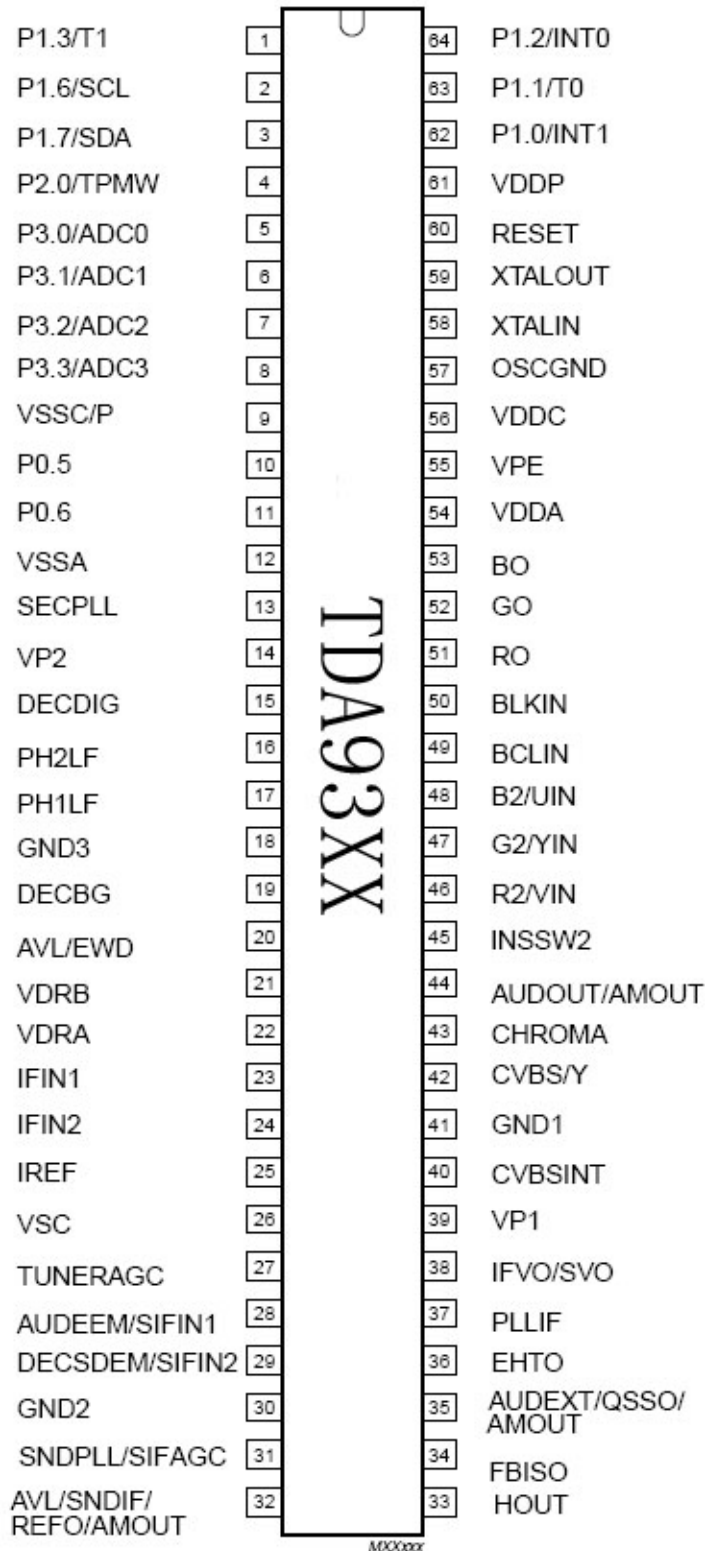


## PIN FUNCTION

SYMBOL	PIN	DESCRIPTION
P1.3/T1	1	port 1.3 or Counter/Timer 1 input
P1.6/SCL	2	port 1.6 or I <sup>2</sup> C-bus clock line
P1.7/SDA	3	port 1.7 or I <sup>2</sup> C-bus data line
P2.0/TPWM	4	port 2.0 or Tuning PWM output
P3.0/ADC0/PWM0	5	port 3.0 or ADC0 input or PWM0 output
P3.1/ADC1/PWM1	6	port 3.1 or ADC1 input or PWM1 output
P3.2/ADC2/PWM2	7	port 3.2 or ADC2 input or PWM2 output
P3.3/ADC3/PWM3	8	port 3.3 or ADC3 input or PWM3 output
VSSC/P	9	digital ground for $\mu$ -Controller core and periphery
P0.5	10	port 0.5 (8 mA current sinking capability for direct drive of LEDs)
P0.6	11	port 0.6 (8 mA current sinking capability for direct drive of LEDs)
VSSA	12	digital ground of TV-processor
IC	13	internally connected
VP2	14	2 <sup>nd</sup> supply voltage TV-processor (+8V)
DECDIG	15	supply voltage decoupling of digital circuit of TV-processor
PH2LF	16	phase-2 filter
PH1LF	17	phase-1 filter
GND3	18	ground 3 for TV-processor
DECBG	19	bandgap decoupling
AVL	20	Automatic Volume Levelling
VDRB	21	vertical drive B output
VDRA	22	vertical drive A output
IFIN1	23	IF input 1
IFIN2	24	IF input 2
IREF	25	reference current input
VSC	26	vertical sawtooth capacitor
AGCOUT	27	tuner AGC output
AUDEEM	28	audio deemphasis
DECSDEM	29	decoupling sound demodulator
GND2	30	ground 2 for TV processor
SNDPLL	31	narrow band PLL
IC	32	internally connected
HOUT	33	horizontal output
FBISO	34	flyback input/sandcastle output
AUDEXT	35	external audio input
EHTO	36	EHT/overvoltage protection input
PLLIF	37	IF-PLL loop filter
IFVO/SVO	38	IF video output / selected CVBS output

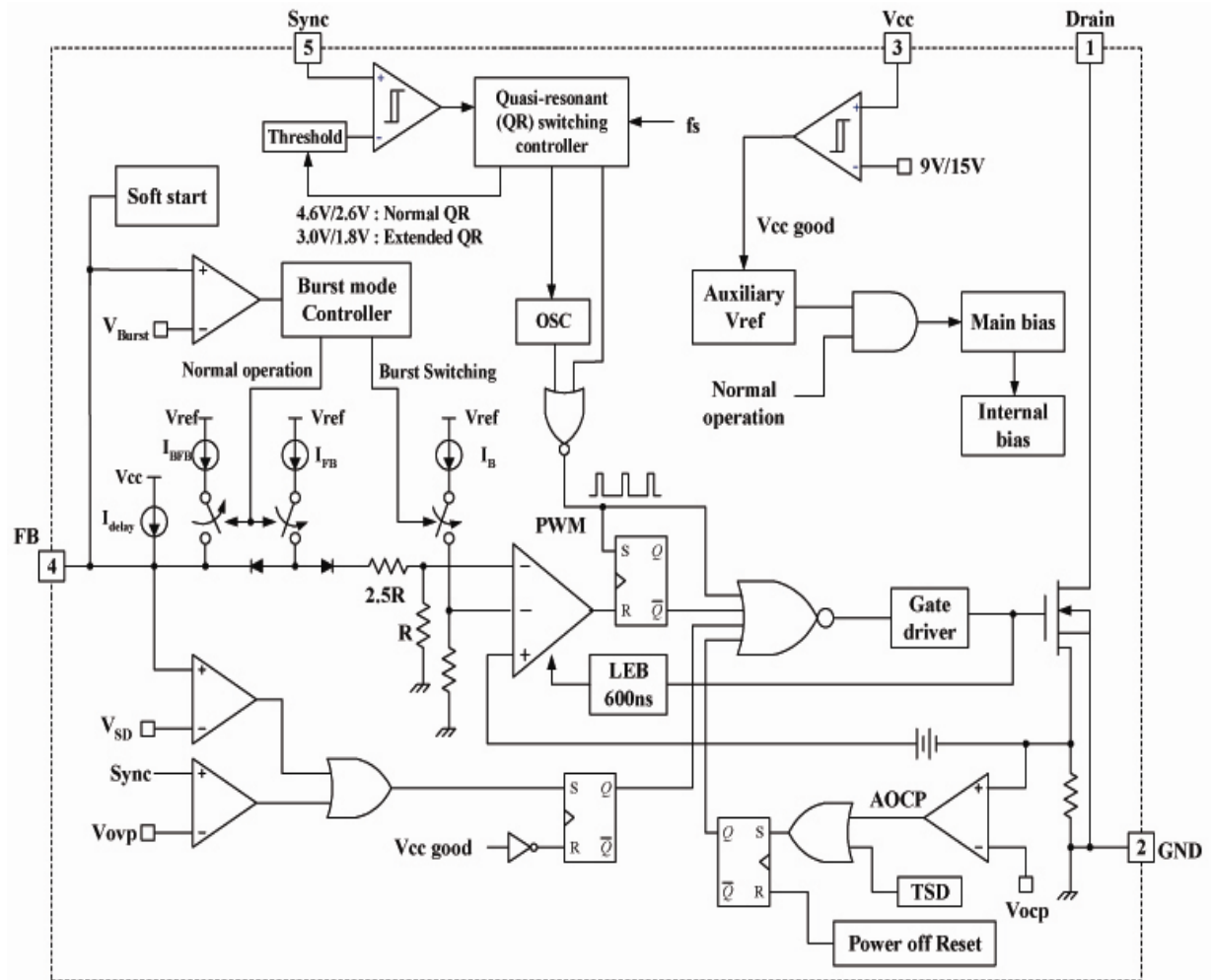
SYMBOL	PIN	DESCRIPTION
VP1	39	main supply voltage TV processor
CVBS1	40	internal CVBS input
GND	41	ground for TV processor
CVBS3/Y	42	CVBS3/Y input
C	43	chroma input
AUDOUT	44	audio output
INSSW2	45	2 <sup>nd</sup> RGB / YP <sub>R</sub> P <sub>B</sub> insertion input
R2/P <sub>R</sub> -IN	46	2 <sup>nd</sup> R input / P <sub>R</sub> input
G2/Y-IN	47	2 <sup>nd</sup> G input / Y input
B2/P <sub>B</sub> -IN	48	2 <sup>nd</sup> B input / P <sub>B</sub> input
BCLIN	49	beam current limiter input
BLKIN	50	black current input / V-guard input
RO	51	Red output
GO	52	Green output
BO	53	Blue output
VDDA	54	analog supply of Teletext decoder and digital supply of TV-processor (3.3 V)
VPE	55	OTP Programming Voltage
VDDC	56	digital supply to core (3.3 V)
OSCGND	57	oscillator ground supply
XTALIN	58	crystal oscillator input
XTALOUT	59	crystal oscillator output
RESET	60	reset
VDDP	61	digital supply to periphery (+3.3 V)
P1.0/INT1	62	port 1.0 or external interrupt 1 input
P1.1/T0	63	port 1.1 or Counter/Timer 0 input
P1.2/INT0	64	port 1.2 or external interrupt 0 input

## Pin Block Diagram

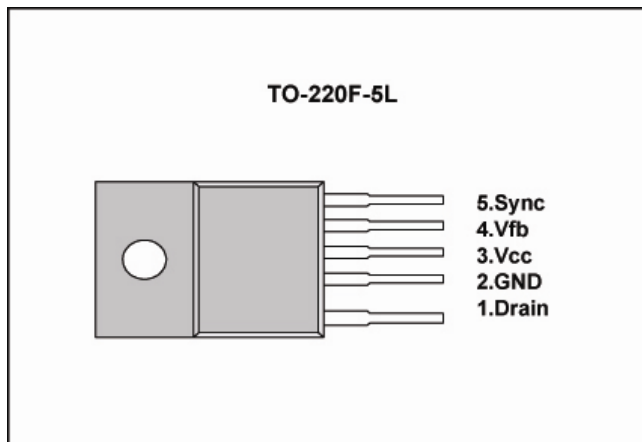




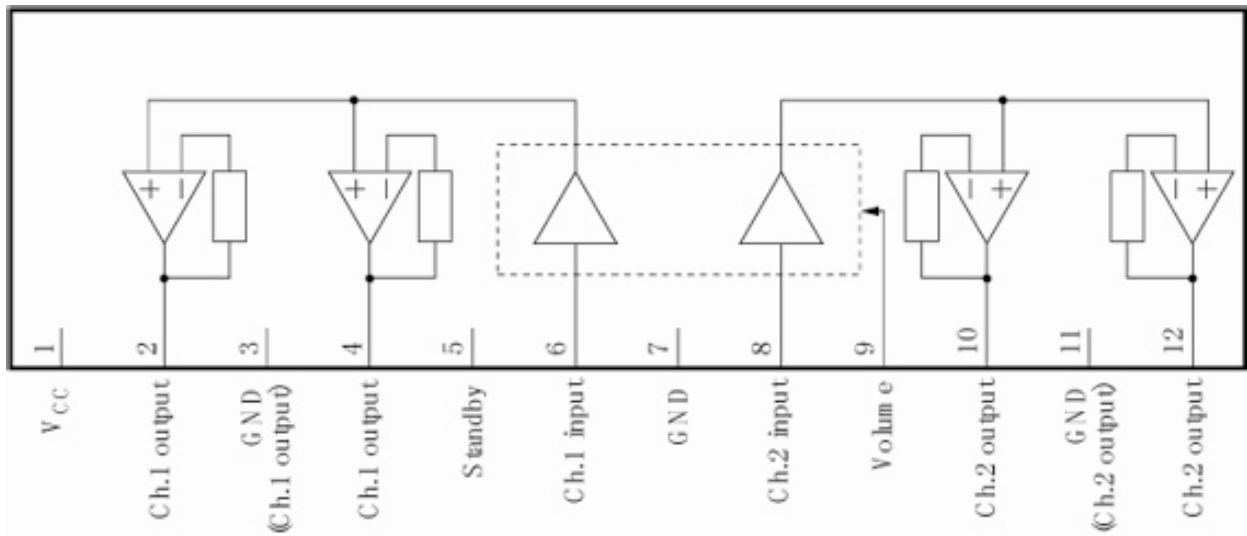
## POWER IC: FSCQ0765 OR 1265 Internal Block Diagram



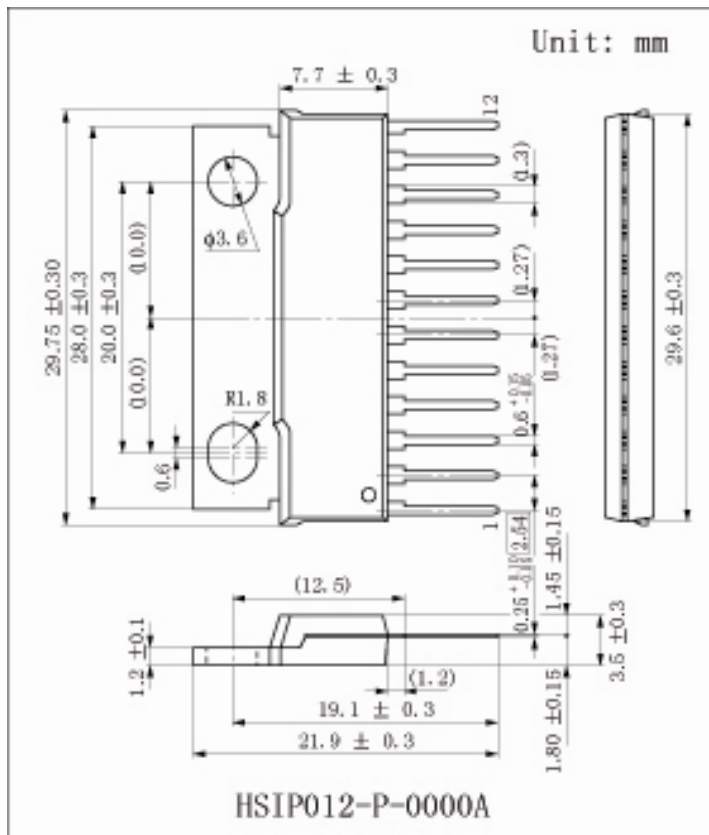
## Footprint



## Audio Power amplifier AN7522(N) Internal Block Diagram



## Footprint



# COLOUR TV SCHEMATIC DIAGRAM

## COLOUR TV SCHEMATIC DIAGRAM

