
MANUAL DE SERVICE BT2909S (29M63)



CHASIS NX-56 VERSION G

	BT2909S
Cod. P.T.	PNE040084
Serie DCD5	EW0
Tamaño de pantalla	Total: 29" (74 cm)
	Visible: 27" (68 cm)
Tensión de alimentación	110 – 240 VCA
Consumo (W)	Máximo: 105
	Stand by: <3
Entradas	Sintonizador PAL-N/M, NTSC, 2xAV, YPbPr, S-Video
Dimensiones (en milímetros)	Alto: 631,0
	Ancho: 850,0
	Prof.: 435,0
Peso neto	43 Kg

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Notas

Antes de salir del menu de service, se debe llevar el valor **FACTORY HOTKEY**, del menu 4, a 0.

Despues de esto se debe apagar el televisor, volver a encenderlo y presionar el boton Menu para verificar que se accede al menu de usuario.

1、CAUTION:

Use of controls, adjustments or procedures other than those specified herein may result in hazardous radiation exposure.



CAUTION
**RISK OF ELECTRIC
SHOCK DO NOT OPEN.**



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, with an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to the person.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING: TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT
EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

IMPORTANT SAFETY INSTRUCTIONS

CAUTION:

Read all of these instructions. Save these instructions for later use. Follow all Warnings and Instructions marked on the audio equipment.

1. Read Instructions- All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions- The safety and operating instructions should be retained for future reference.
3. Heed Warnings- All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions- All operating and use instructions should be followed.

FOR YOUR PERSONAL SAFETY

1. When the power cord or plug is damaged or frayed, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
2. Do not overload wall outlets and extension cords as this can result in fire or electric shock.
3. Do not allow anything to rest on or roll over the power cord, and do not place the TV where power cord is subject to traffic or abuse. This may result in a shock or fire hazard.
4. Do not attempt to service this television set yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
5. Never push objects of any kind into this television set through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the television set.
6. If the television set has been dropped or the cabinet has been damaged, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
7. If liquid has been spilled into the television set, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
8. Do not subject your television set to impact of any kind. Be particularly careful not to damage the picture tube surface.
9. Unplug this television set from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 10.1. Do not place this television set on an unstable cart, stand, or table. The television set may fall, causing serious injury to a child or an adult, and serious damage to the appliance. Use only with a cart or stand recommended by the manufacturer, or sold with the television set. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.
- 10.2. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



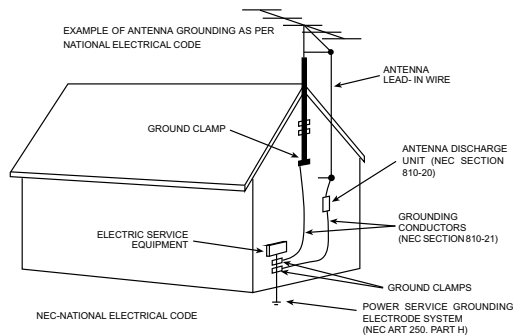
PROTECTION AND LOCATION OF YOUR SET

11.
 - Do not use this television set near water ... for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
 - Never expose the set to rain or water. If the set has been exposed to rain or water, unplug the set from the wall outlet and refer servicing to qualified service personnel.
12. Choose a place where light (artificial or sunlight) does not shine directly on the screen.
13. Avoid dusty places, since piling up of dust inside TV chassis may cause failure of the set when high humidity persists.
14. The set has slots, or openings in the cabinet for ventilation purposes, to provide reliable operation of the receiver, to protect it from overheating. These openings must not be blocked or covered.
 - Never cover the slots or openings with cloth or other material.
 - Never block the bottom ventilation slots of the set by placing it on a bed, sofa, rug, etc.
 - Never place the set near or over a radiator or heat register.
 - Never place the set in a "built-in" enclosure, unless proper ventilation is provided.

PROTECTION AND LOCATION OF YOUR SET

- 15.1. If an outside antenna is connected to the television set, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges, Section 810 of the National Electrical Code, NFPA No. 70-1975, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrode, and requirements for the grounding electrode.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS



- 15.2. Note to CATV system installer : (Only for the television set with CATV reception)

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

16. An outside antenna system should not be located in the vicinity of overhead power lines or other electric lights or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17. For added protection for this television set during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna. This will prevent damage due to lightning and power-line surges.

OPERATION OF YOUR SET

18. This television set should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply at your home, consult your television dealer or local power company. For television sets designed to operate from battery power, refer to the operating instructions.
19. If the television set does not operate normally by following the operating instructions, unplug this television set from the wall outlet and refer servicing to qualified service personnel. Adjust only those controls that are covered in the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television set to normal operation.
20. When going on a holiday : If your television set is to remain unused for a period of time, for instance, when you go on a holiday, turn the television set " off " and unplug the television set from the wall outlet.

IF THE SET DOES NOT OPERATE PROPERLY

21. If you are unable to restore normal operation by following the detailed procedure in your operating instructions, do not attempt any further adjustment. Unplug the set and call your dealer or service technician.
22. Whenever the television set is damaged or fails, or a distinct change in performance indicates a need for service, unplug the set and have it checked by a professional service technician.
23. It is normal for some TV sets to make occasional snapping or popping sounds, particularly when being turned on or off. If the snapping or popping is continuous or frequent, unplug the set and consult your dealer or service technician.

FOR SERVICE AND MODIFICATION

24. Do not use attachments not recommended by the television set manufacturer as they may cause hazards.
25. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
26. Upon completion of any service or repairs to the television set, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.

Item \ Model	NX56-LA 29185	NX56-LA 21M63US
Master Data		
-Version	1	1
-Customer ID	EM	EM
-Destination	EM	EM
-Brand		
-BOM NO.	03-B185SAE-SC31	03-DM63SAE-SC31S
-Chassis		
Reception		
-Tuning [Channels Amt.]	181	181
-Tuning [Technology]	PLL	PLL
-Tuning [Indication]	Channel	Channel
-Frequency Bands	Antenna AND Cable	Antenna AND Cable
-IF Frequency	45.7MHz	45.7MHz
-TV Systems (Color+ Sound)	PAL M/N NTSC M	PAL M/N NTSC M
-AV Systems	NTSC PAL	NTSC PAL
Picture-Processing		
-SCAN	Standard	Standard
-Wide Screen Switching		
-Comb filter		
-Picture Enhancement		
LTI / CTI		
Black Stretch		
Dynamic Skin		
Others		
-Picture Control [General]		
Brightness	X	X
Sharpness	X	X
Contrast	X	X
Tint	X	X
Color	X	X
-Picture Control [Special]		
Smart Pictures * modes	4 modes	4 modes
VM		
Color Temperature	3 modes	3 modes
Others		
-Picture Noise Reduction	X	X
Picture – Display		
-CRT Type		
Normal Flat		
Pure Flat	X	X
Super Flat		
-Deflection system		
1Fh	X	X
2Fh		
-Tube Technology		
Iron		
AK	X	X
Black Matrix		
Others		
-CRT Deflection (* Deg.)	110	120
-CRT Magnetic Field		
-Screen Type	4:3	4:3
-Screen Size / Vis. Size	29'	21' Super Slim
Sound		
-Audio Power Consumption	5W+5W	4W+4W
-Surround Sound		

Item \ Model	NX56-LA 29185	NX56-LA 21M63US
-Nicam		
-America Stereo (MTS,BTSC,MPS)	X	X
-America SAP		
-Korea Stereo		
-Thai Bilingual		
-Super Woofer		
-AVL		
-Sound Control [General]		
Volume	X	X
Mute	X	X
-Sound Control [Special]		
Treble		
Bass		
Balance	X	X
Equalizer		
Smart Sound * modes		
Others		
-Speakers Quantity	2X1	2X1
User Interface		
-Menu Language	English/Portugal/Espanol	English/Portugal/Espanol
-Features [General]		
AT		
Biological Clock		
Calendar		
Clock		
Channel Swap	X	X
Channel Naming		
Child Lock	X	X
Favorite Channel	X	X
Game		
Hotel Mode	X	X
High Sensitive		
Notebook		
On/Off Timer		
Preset	X	X
Recall	X	X
Rotation		
Sleep	X	X
AVC		
-Features [Special]		
V-chip / CCD	X	X
Teletext *Pages		
Others		
New Features		
Smart signal		
Voltage display		
环境光检测		
Easy search		
Tuning Features		
-Auto Channel Program	X	X
-Auto/Manual Tuning	X	X
-Auto/Manual Store	X	X
-Fine Tuning	X	X
-Factory Mode	X	X
-Service Mode		
Cabinet		
-Cabinet Name		

Model Item	NX56-LA 29185	NX56-LA 21M63US
-Front Cabinet Color		
-Middle Cabinet Color		
-Rear Cabinet Color		
-Local Controls Front		
Mains Switch	X	X
CH+ CH- VOL+ VOL-	X	X
TV/AV	X	X
Menu	X	X
Auto Search		
-Local Controls Top		
CH+ CH- VOL+ VOL-		
TV/AV		
Menu		
Auto Search		
-Indicator		
RC Received LED	X	X
Standby LED	X	X
Remote Controller		
-Type	RC166	RC166
-Batteries		
Connectors Rear		
-SCART Full w/o Y/C		
-SCART Full with Y/C		
-SCART Single (CVBS)		
-Component In (YPbPr) Cinch for 50Hz		
-In Y/C+Cinch(CVBS+ Stereo)	1 + 1	1 + 2
-In Y/C+Cinch (CVBS+ Mono)		
-In Cinch(CVBS+ Stereo)		
-In Cinch (CVBS+ Mono)		
-Out Cinch(CVBS+ Stereo)		
-Out Cinch(CVBS+ Mono)	1(follow TV)	1(follow TV)
- Y,Cb,Cr input	X	X
-Super Woofer		
-Digital Audio Out		
-Loudspeakers		
-Control Busses		
-Feature Slot		
-ITV Smart Port		
- Antenna in		
75 Ohms (F Type)	X	X
Connectors Front/Side		
-In Y/C+Cinch(CVBS+ Stereo)		
-In Y/C+Cinch (CVBS+ Mono)		
-In Cinch(CVBS+ Stereo)	X	
-In Cinch (CVBS+ Mono)		
-Out Headphone		
Mini-Jack 3.5mm		
Final Equipment		
-Packing –Methods		
2 Color Printing		
Carton Color		
-Documents and Manuals		
Instruction Book		
Screen Sticker		
Plastic Bag		
Warranty Card		

Item	Model		
		NX56-LA 29185	NX56-LA 21M63US
Guarantee Doc.			
Warning Label			
Approbation Label			
Others			
-Languages DFU			
-Indication on BACKOVER			
Made-in in family sheet			
FCC/Elect Shock Caution Label			
CE/Elect Shock Caution Label			
Warning Label			
Others			
Approbation		IEC65	IEC65
Miscellaneous			
-Mains Voltage		100-240V	100-240V
-Mains Frequency		50/60Hz	50/60Hz
-Type Mains Cord			
-Power Consumption TV in ON		75W	75W
-Power Consumption TV in Standby		<3W	<3W

1.1.The way to enter P-Mode

a) Method one

- A) Switch on the TV set.
- B) Press the “MENU” key on RC to show the “PICTURE” OSD menu.
- C) Move the cursor to “Contrast” item then press the “9”, “7”, “3”, “5” key continuously on RC within 3 seconds then enter P-Mode. The “P” letter will appear on the left low corner of the screen when enter P-Mode. Also the “FACTORY HOTKEY” will be set to “ON (= 1)”.

b) Another method

Press the “RECALL” key on RC to enter P-mode directly.

*Notes:

- 1. This will be active only when the “FACTORY HOTKEY” had set to “ON (= 1)”.
- 2. When the power on with “FACTORY HOTKEY” had set to “ON (= 1)”, the set will enter the P-Mode automatically.

1.2.Exit the P-Mode

Press the “RECALL” or “MENU” key on RC to exit the P-Mode.

1.3.Keys’ function on RC at the P-Mode

Use the RC to navigate in P-Mode:

Press “0” to “9” key to select factory adjustment page.

Press “▲▼” key to select option.

Press “►◄” key to adjust or select option.

Press “DISPLAY” key to display software version.

Press “MENU” key to exit the P-Mode.

Press “RECALL” key to enter or exit the P-Mode.

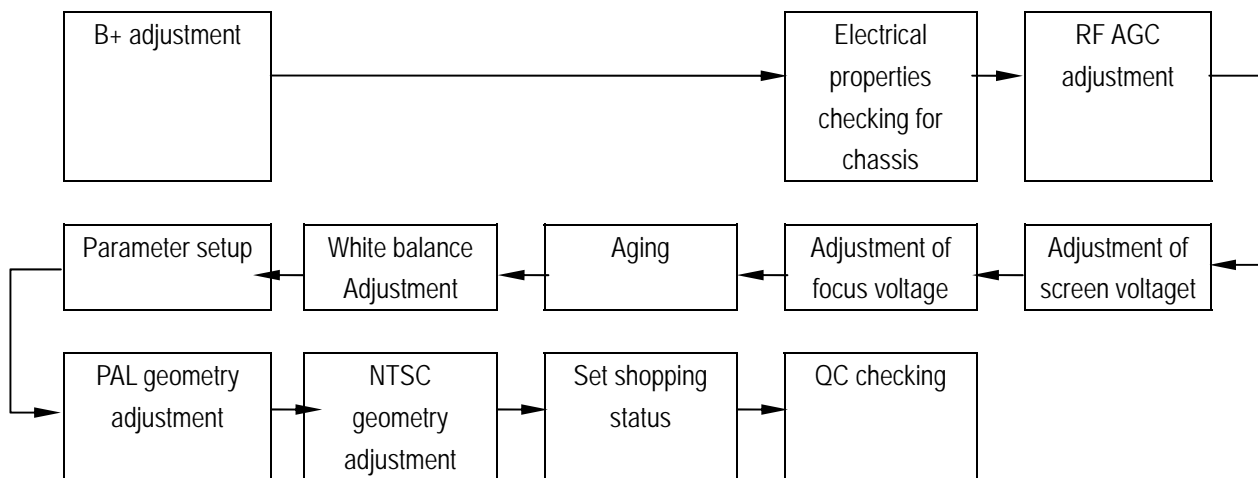
All change in P-Mode will be saved in EEPROM automatically

1.4.The adjustment page list on P-Mode:

RC key	Item	Description
0	Screen voltage adjustment	
1	Picture Geometric adjustment 1	Vertical geometry
2	Picture Geometric adjustment 2	Horizontal geometry
3	White Balance Adjustment	
4	Setup 1	
5	Setup 2	
6	Setup 3	
7	Setup 4	
8	Setup 5	
9	I2C Bus OFF	Press this key to enter or exit BUS OFF mode
DISPLAY	Display software version	

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2. Flowchart of alignment procedure



- 1) B+ Adjustment
- 2) RF AGC Adjustment
- 3) Screen & Focus adjustment
- 4) White balance adjustment
- 5) Producing parameter setup and option
- 6) Picture Geometry adjustment (Vertical first)
- 7) Set Shopping status
- 8) QC

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3. Adjustment description

*Notes: Alignment should be done after 3 minutes warm up of TV.

3.1 B+ Voltages

1. All relevant connectors and modules must be connected and inserted.
2. Main voltage is at 220VAC, 50Hz. (voltage range:110VAC~240VAC,50Hz)
3. Connect a voltmeter to B+ (Cathode of D808) and switch on the set.
4. Input Philips test pattern signal and standard mode.
5. Adjust VR801, it should as the value in below form B+ Voltage.

Table 3.1.1: The B+ value for vary tubes

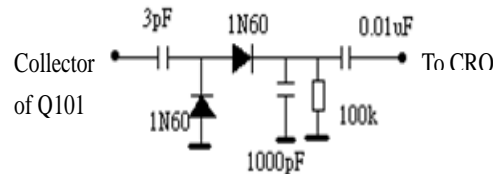
CRT type (Part Number)	B+ Voltage
A68ERF185X013/MS (44-29RFLT-HFCA)	125V+/-0.5V
A51QGT420X34(44-21RFLS-LGDA)	108V+/-0.5V

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3.2 RF AGC alignment

3.2.1 Method 1

- Connect the detector as shown below (Picture 3.2) to collector of Q101.
- Receive a grey scale signal with 70dB μ V amplitude.
- Enter P-Mode, press “6” key on RC to select “AGCT”.
- Adjust AGCT item until the output of the detector becomes 0.8Vpp



Picture 3.2

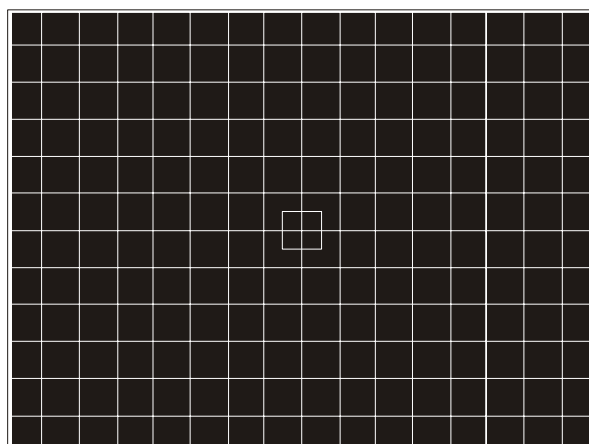
3.2.2 Method 2

- Receive a grey scale signal with 60dB μ V amplitude.
- Enter P-Mode, press “6” key on RC to select “AGCT”.
- Adjust the “AGCT” value until the hint display “AGC” just change between “0” and “1”.

3.3 Screen & Focus adjustment

***Notes:** Alignment below should be done after 15 minutes warm up of TV.

- Input cross hatch pattern signal to RF input.
- Enter P-Mode.
- Press “0” key on the RC and the screen will become a horizontal line.
- Adjust the “SCREEN” VR of the FBT until the horizontal line can just be seen barely (minimum visible intensity).
- Press “0” key again on the RC to exit the screen voltage adjustment mode.
- Adjust the “FCOUS” VR of the FBT until the vertical line and horizontal line becomes clear, like picture 3.3.



Picture 3.3

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3.4 White Balance Adjustment

1. Input a black and white pattern to RF input.
2. Enter P-Mode, press key “3 ” to select white balance adjustment menu.
3. Use the color analyzer to measure the black side of the screen. Adjust the value of “RC”, “GC” and “BC” to set the reading of the color analyzer to x=274, y=280. (11500 K).
4. Then measure the white side of the screen. Adjust the value of “RD”, “GD” and “BD” to set the reading of the color analyzer to x=274, y=280. (11500 K).
5. Repeat step 3&4 until you can get the correct reading for both black and white sides.

*Notes:

A. The “SUBB” and “SubCON” items are used to assistant the white balance adjustment. It is the same function as the user OSD menu “Brightness” and “Contrast” items. You can adjust these items to get the expect intensity when adjusting the white balance.

B. YUV white balance black level offset setup:

It is not need to adjust the white balance for YUV mode when production, but the BLOR-Y, BLOG-Y and BLOB-Y items which locate in EEPROM address 0x0A, 0x0B and 0x0C need to write in the right values to set the YUV mode black level offset before production. These offset values should be written by the PE engineer when making the EEPROM copy for the new lot with difference tube.

Table 3.4.1: The White Balance adjustment OSD menu

OSD menu	Default Value	Description	Remark
RC	32	R cut-off setting(BLOR)	Adjust to right value
GC	32	G cut-off setting(BLOG)	Adjust to right value
BC	32	B cut-off setting(BLOB)	Adjust to right value
RD	37	R drive setting(WPR)	Adjust to right value
GD	32	G drive setting(WPG)	Adjust to right value
BD	37	B drive setting(WPB)	Adjust to right value
BLOC	3	Black level offset course(BLOC)	Recommended value= “8”
PWL	8	Peak White Limiting	Don’t adjust, use default
BriVSD	32	Brightness of horizontal line when adjust G2	Don’t adjust, use default
SUBB	32	Brightness	Same as user “Brightness” and “Contrast” adjust
SubCON	32	Contrast	
BRTC	31	Sub-Brightness	Adjust to right value
BLOR-Y	64	YUV R -OFFSET	64= offset value 0 63= offset value -1 65= offset value +1 Adjust to right value
BLOG-Y	62	YUV G -OFFSET	
BLOB-Y	64	YUV B -OFFSET	

3.5 Picture Geometry adjustment

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3.5.1 Vertical geometry adjustment

1. Input a PAL crosshatch pattern signal to RF input.
2. Enter P-Mode, press key “1” to select vertical geometry adjustment. (The OSD menu for this adjustment as below table 3.5.1. For NTSC signal, the “-50” will replace with “-60”.)
3. Adjust the value of the corresponding item to make the vertical geometry of the pattern look good.
4. Apply NTSC signal to adjust these value for NTSC vertical geometry.

Table 3.5.1: The vertical geometry adjustment OSD menu

OSD menu	Default Value	Description	Remark
VSLOPE-50	32	Vertical slope(VS)	Adjust to right value
VCEN-50	32	Vertical shift (VSH)	Adjust to right value
VSIZE-50	32	Vertical amplitude(VA)	Adjust to right value
VZOOM-50	25	Vertical zoom(VX)	Adjust to right value
VSC-50	32	S-correction(SC)	Adjust to right value
VSCROLL-50	32	Vertical Scroll (VCS)	Adjust to right value

*Notes:

1. For NTSC signal, the “-50” will replace with “-60”.
2. For NTSC signal, only the “VCEN-60” and “VSIZE-60” items need the adjustment, the other items use the same data as PAL signal.
3. On producing, please use the “AUTO OFFSET” (On page “2”) function to easy the geometry adjustment of NTSC signal. When finished the PAL signal geometry adjustment, press “2” key to enter page “2” to select “AUTO OFFSET” item, press “ \bar{y} ” key to active the automatic offset function. Then the geometry adjustment of NTSC signal will finish automated. If the geometry of NTSC signal is look good, you don’t need to adjust the geometry of NTSC signal any more.

3.5.2 Horizontal geometry adjustment

1. Input a PAL crosshatch pattern signal to RF input.
2. Enter P-Mode, press key “2” to select horizontal geometry adjustment. (The OSD menu for this adjustment as below table 3.5.2. For NTSC signal, the “-50” will replace with “-60”.)
3. Adjust the value of the corresponding item to make the horizontal geometry of the pattern look good.
4. Apply NTSC signal to adjust these value for NTSC horizontal geometry.

Table 3.5.2: The horizontal geometry adjustment OSD menu

OSD menu	Default Value	Description	Remark
HCEN-50	32	Horizontal shift(HSH)	Adjust to right value
HSIZE-50	32	EW width(EWW)	Adjust to right value
HPARA-50	32	EW parabola width(PW)	Adjust to right value
HTRAP-50	32	EW trapezium(TC)	Adjust to right value
HCNRT-50	32	EW upper corner parabola(UCP)	Adjust to right value
HCNRB-50	32	EW lower corner parabola(LCP)	Adjust to right value
HBOW-50	32	Horizontal bow(HB)	Adjust to right value

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HPARALLEL	32	Horizontal parallelogram(HP)	Adjust to right value
AUTO OFFSET	0	Automatic offset NTSC geometry	See below description

*Notes:

1. For NTSC signal, the “-50” will replace with “-60”.
2. For NTSC signal, only the “HCEN-60” and “HSIZE-60” items need the adjustment, the other items use the same data as PAL signal.
3. On producing, please use the “AUTO OFFSET” (On page “2”) function to easy the geometry adjustment of NTSC signal. When finished the PAL signal geometry adjustment, press “2” key to enter page “2” to select “AUTO OFFSET” item, press “y” key to active the automatic offset function. Then the geometry adjustment of NTSC signal will finish automated. If now the geometry of NTSC signal is look good, it not needed to adjust the geometry of NTSC signal any more.

3.6 Producing parameter setup and option

1. Enter P-Mode, press key “4” to select page “4”.Set the corresponding item to require value. See below table 3.6.1 for detailed description.

Table 3.6.1: Producing parameter setup and option page “4”

OSD menu	Default Value	Description	Remark
WARM UP STATUS	0	Set aging mode	0=Aging mode off
			1=Aging mode on
SHOP INIT	0	Set the shopping status	0=>1= Set the shopping status
DCXO	2	Crystal oscillator frequency adjustment	Adjust this value to get the max color synchronization range
FACTORY HOTKEY	1	Set factory hotkey	0=”FACTORY HOTKEY” off
			1=”FACTORY HOTKEY” on
POWER ON MODE	LAST	Set the power on mode	ON=On when power on
			STB=Standby when power on
			LAST=Last power off status
EEPROM INIT	0	EEPROM initial	0=>1=Active EEPROM initial

2. Enter P-Mode, press key “5” to select page “5”. Set the corresponding item to require value. See below table 3.6.2 for detailed description.

Table 3.6.2: Producing parameter setup and option page “5”

OSD menu	Default Value	Description	Remark
Track. Mode	1	EHT tracking mode	0=EHT tracking only on vertical
			1=EHT tracking on vertical and EW
VX Normal	25	4:3 mode vertical zoom	Don’t adjust, use default

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VX Compr.	0	16:9 mode vertical zoom	Don't adjust, use default
WBF	5	Wide blanking start	Don't adjust, use default
WBR	8	Wide blanking end	Don't adjust, use default
GET OFFSET	0	Get offset	See below description
ColdRD	60	Cold color temperature R and G drive offset	64= offset value 0 63= offset value -1 65= offset value +1 Adjust to right value
ColdGD	59		
WarmRD	74	Warm color temperature R and G drive offset	64= offset value 0 63= offset value -1 65= offset value +1 Adjust to right value
WarmGD	71		

Description for AUTO OFFSET and GET OFFSET:

The “**GET OFFSET**” can use to make the EEPROM copy by PE engineer. When the PAL and NTSC geometry adjustment had finished, trigger the “GET OFFSET” from “0” to “1” to store the geometry offset datum between PAL and NTSC in EEPROM.

On producing, these geometry offset datum can use to easy the NTSC geometry adjustment. When finished the PAL geometry adjustment, trigger the “AUTO OFFSET” from “0” to “1”, then the geometry adjustment of NTSC signal will finish automated. If now the geometry of NTSC signal is look good, it not needed to adjust the geometry of NTSC signal any more.

3. Enter P-Mode, press key “6” to select page “6”. Set the corresponding item to require value. See below table 3.6.3 for detailed description.

Table 3.6.3: Producing parameter setup and option page “6”

OSD menu	Default Value	Description	Remark
AGCT	32	AGC take over point	See section “3.2 RF AGC alignment” for detailed.
AGC	0	AGC take over point indicate	
OIF	32	IF demodulator offset	Don't adjust, use default
IF	45.7	IF frequency	Select the IF frequency
AGCS	1	AGC speed	Don't adjust, use default
AGNE	3	Audio gain	Don't adjust, use default

4. Enter P-Mode, press key “7” to select page “7”. Set the corresponding item to require value. See below table 3.6.4 for detailed description.

Table 3.6.4: Producing parameter setup and option page “7”

OSD menu	Default Value	Description	Remark
EVG	0	Enable vertical guard(RGB blanking)	1= RGB blanking
DFL	0	Disable flash protection from deflection timer	Don't adjust, use default

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XDT	0	X-ray detection	Don't adjust, use default
AKB	1	Black current stabilization	Don't adjust, use default
NBL	1	Black current loop application	Don't adjust, use default
OSVE	0	Black current measuring lines in over scan(for vertical zoom setting <1)	Don't adjust, use default
CL	8	Set the cathode drive level	Don't adjust, use default
CC-LINE	21	CC's line	Don't adjust
HSYNC DELAY	2	CC's position	Don't adjust

5. Enter P-Mode, press key “8” to select page “8”. Set the corresponding item to require value. See below table 3.6.5 for detailed description.

Table 3.6.5: Producing parameter setup and option page “8”

OSD menu	Default Value	Description	Remark
BTSC	1	BTSC's option	1: open 0:close
AV ALIGNMENT	1	AV terminal align	0=3 x 3 1=4 x 3
SHVS ENABLE	1	S-Video terminal enable	0=Disable 1=Enable
YUV ENABLE	1	YUV terminal enable	
NO COMMAND ENABLE	1	No operation within 2 hours automatic standby enable	
LANGUAGE2	1		
LANGUAGE3	1		

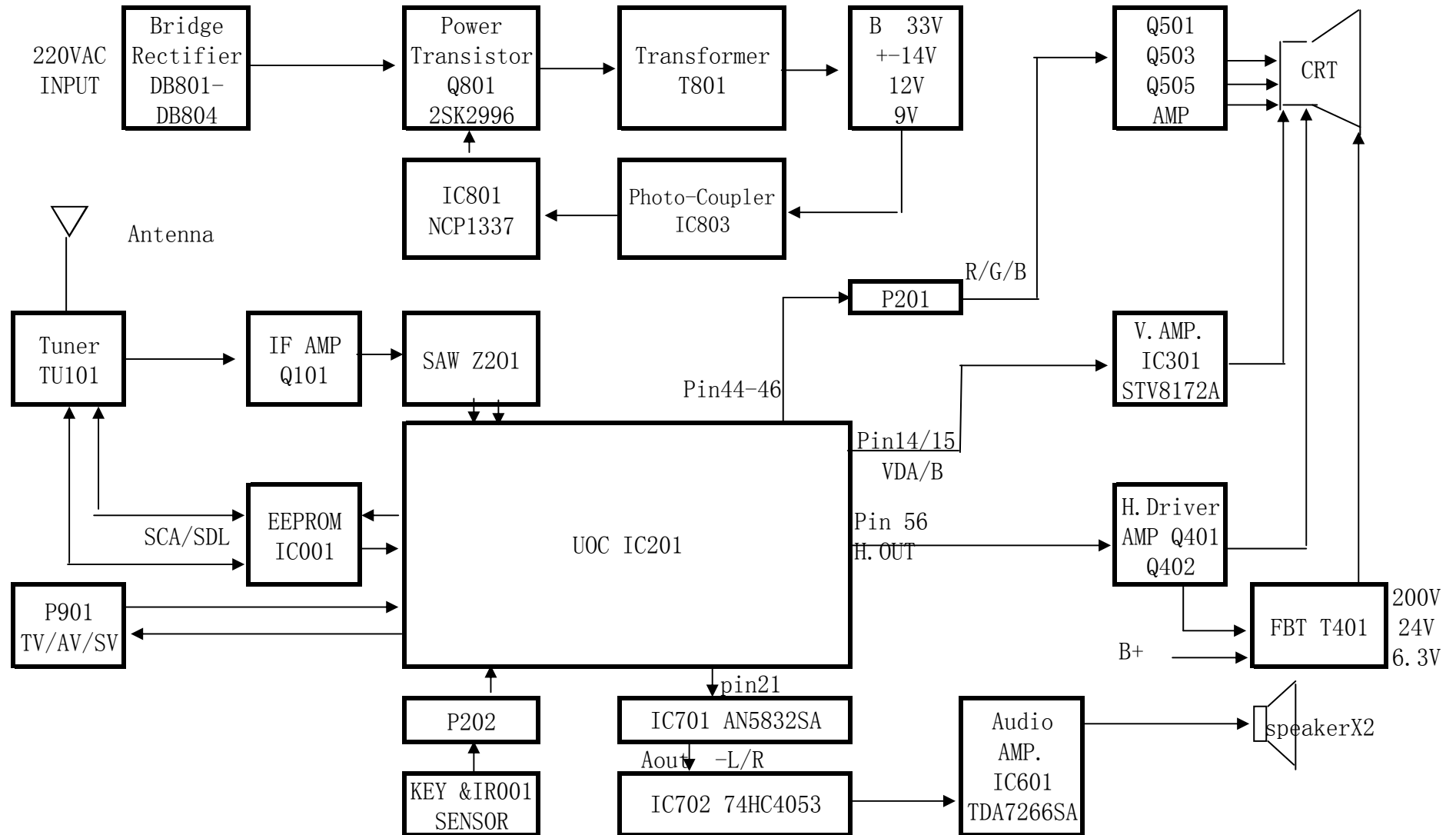
Note:

The “HEALTH FLAT” and “AC DISPLAY” options are valid only on model NX56-AP1 (example 29A41). The “LANGUAGE4” and “PIC PRESET” options are valid only on model NX56-AP2 (example 21E26).

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Chapter II Block Diagram of NX56

July5, 2008



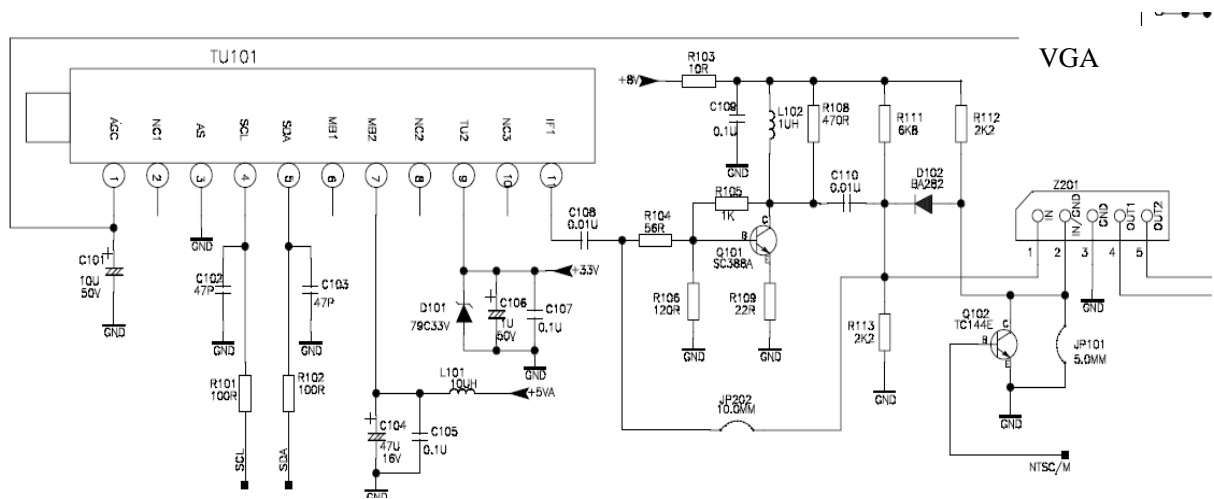
NX56 Chassis Signal Processing Introduction

Brief introduction

For different market requirements, our design it in two versions, one is for Latin America, we call the chassis as NX56-LA, the another one is for Asia Pacific Area, we call the chassis as NX56-AP. NX56-LA and NX56-AP adopt different UOC, The UOC for Latin America have CCD-Chip and BTSC function, so added AN5832SA to realize BTSC, but the UOC for Asia Pacific region does not have the two functions but SECAM system is necessary. NX56 Chassis not only match 21inches CRT, but also match 25 and 29inches CRT. Due to different screen sizes, maybe adopt different audio power amplifiers. The others should be the same. No matter NX56-AP what NX56-LA, they are use same main PCB board, just different peripheral components.

RF Section

Tuner Tu101 receive the radio frequency signal, after inside circuit to do signal receiving, and signal amplifying. The amplified high frequency signal accompany with the high frequency oscillation voltage oscillated by set oscillator input to the mixer. The IF picture signal and sound signal formed in mixer and output from mixer, then send to picture IF processing circuit.



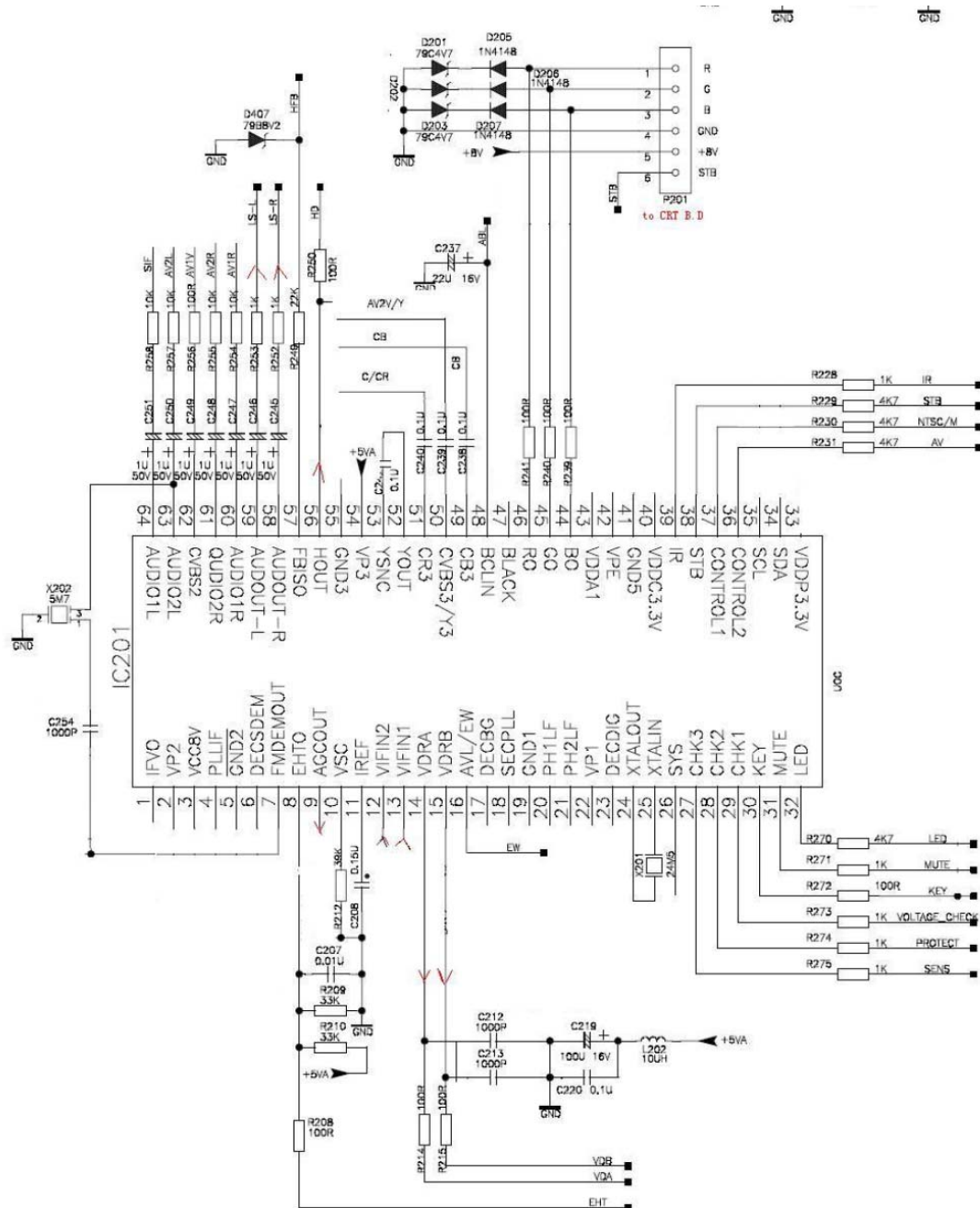
(Fig. 1. Tuner section)

Small Signal Processing Section

Small signal processing section is the IF (intermediate frequency) signal across saw filter send in the pin12 and pin13 of IC201. The VIFIN signal through built-in PLL DEMOD, sound trap, video amplifier and synchronous detector processing, get the color video broadcast signal and 2nd sound IF signal.

Video signal processing section is CVBS across video filter and delay line and horizontal & vertical synchronous separation circuit processing and get H-drive (pin56 of IC201) and V-drive signal (pin15/pin15 of IC201).

IF sound signal across the sound-down-mixer and AM demodulator processing, send out the AVL/ SSIF OUT signal. (Refer to Fig2 and Fig 3.)



(Fig 2. Small Signal Processing Section)

Vertical Scanning Section

Vertical scanning section adopted STV8172A vertical deflection booster, we use as differential-output driver. The vertical raw-tooth wave signal sends out from pin14/15 of IC201 VDA/VDB. The two differential signal input pin 1 and 7 of STV8172A IC301. Pin2(+14v) and Pin7(-14v) of IC301 is power supply which come from the main power transformer. Pin 6 is boost voltage, rectified by D301. C309,C301 and R305 makes up a voltage feedback network, R306 is a damping resistor. C306 is correction capacitor, R308 is current feedback resistor.

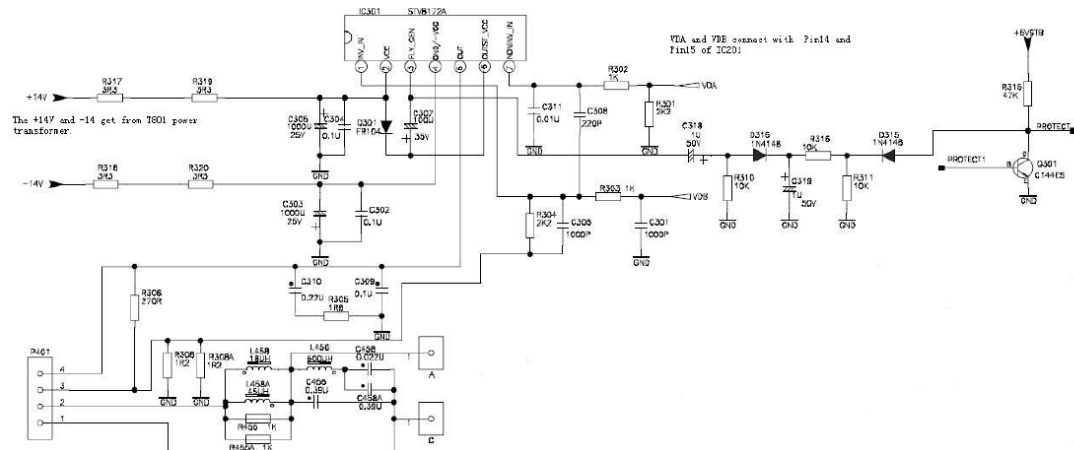
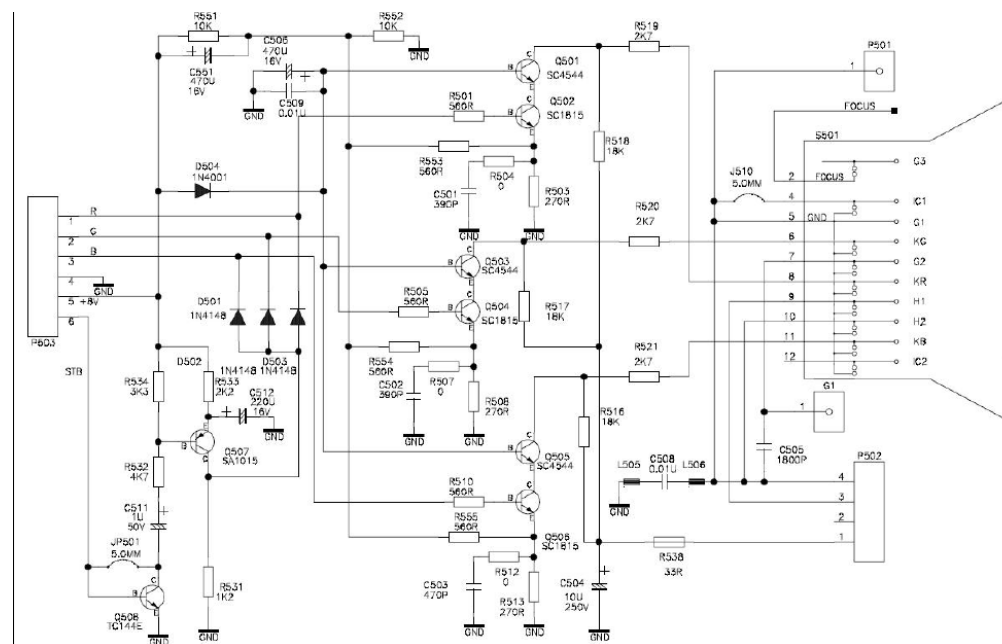


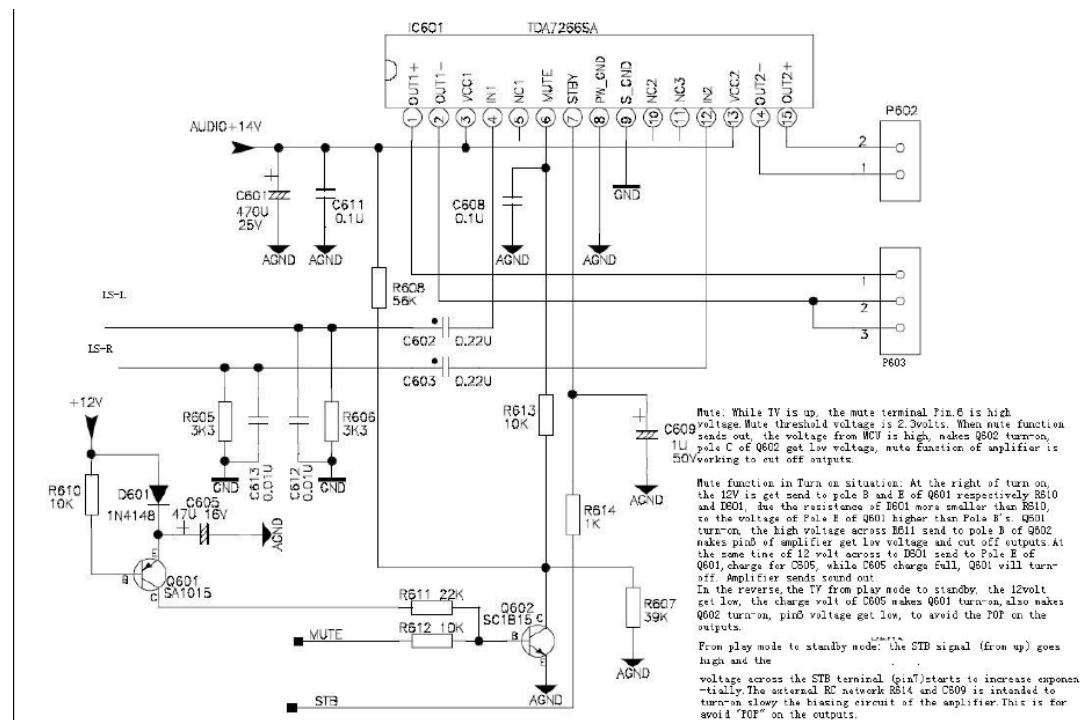
Fig 4. Vertical Scanning Processing Section

CRT Scanning Section

Q507,D501,D502 and D503 makes up a light eliminate circuit network. When the TV is playing mode, +8V voltage across R533 charge for C512, Q507 is cut off. At the right of turn off the TV, Q507 is turn-on, the current across D501, D502 and D503 send to R.G B to discharge the electronic quickly.

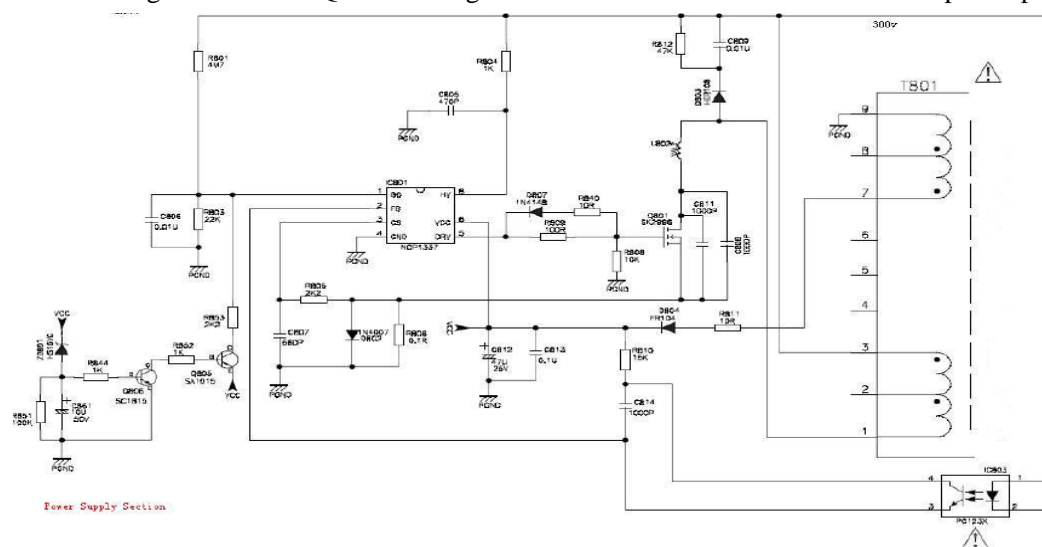


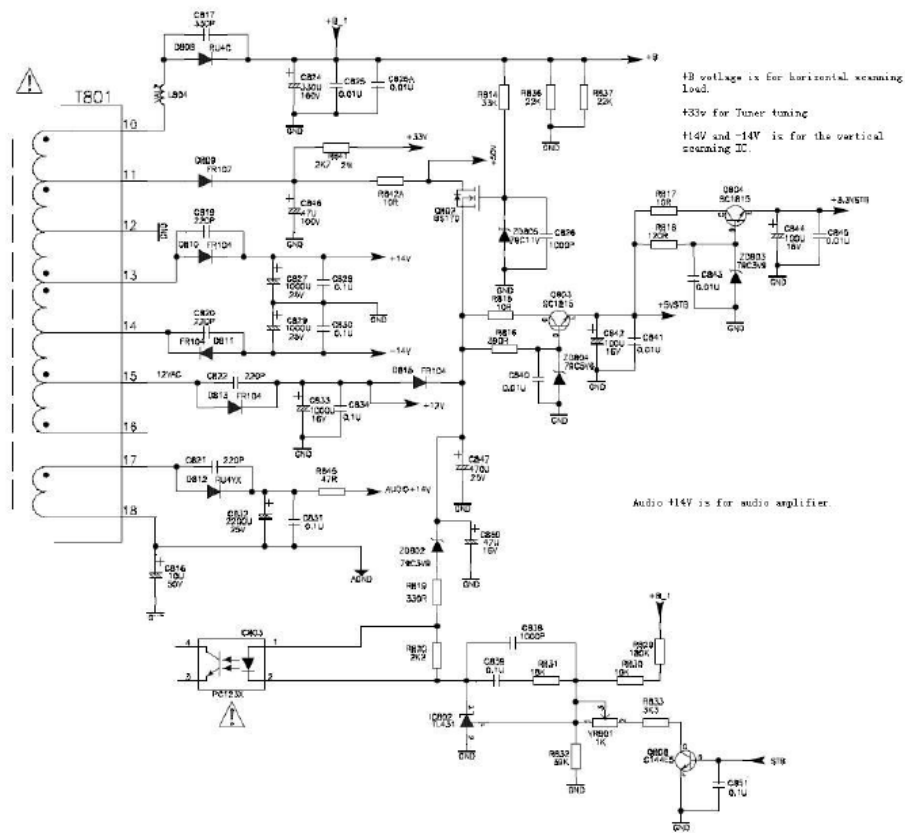
Audio Power Amplifying Section



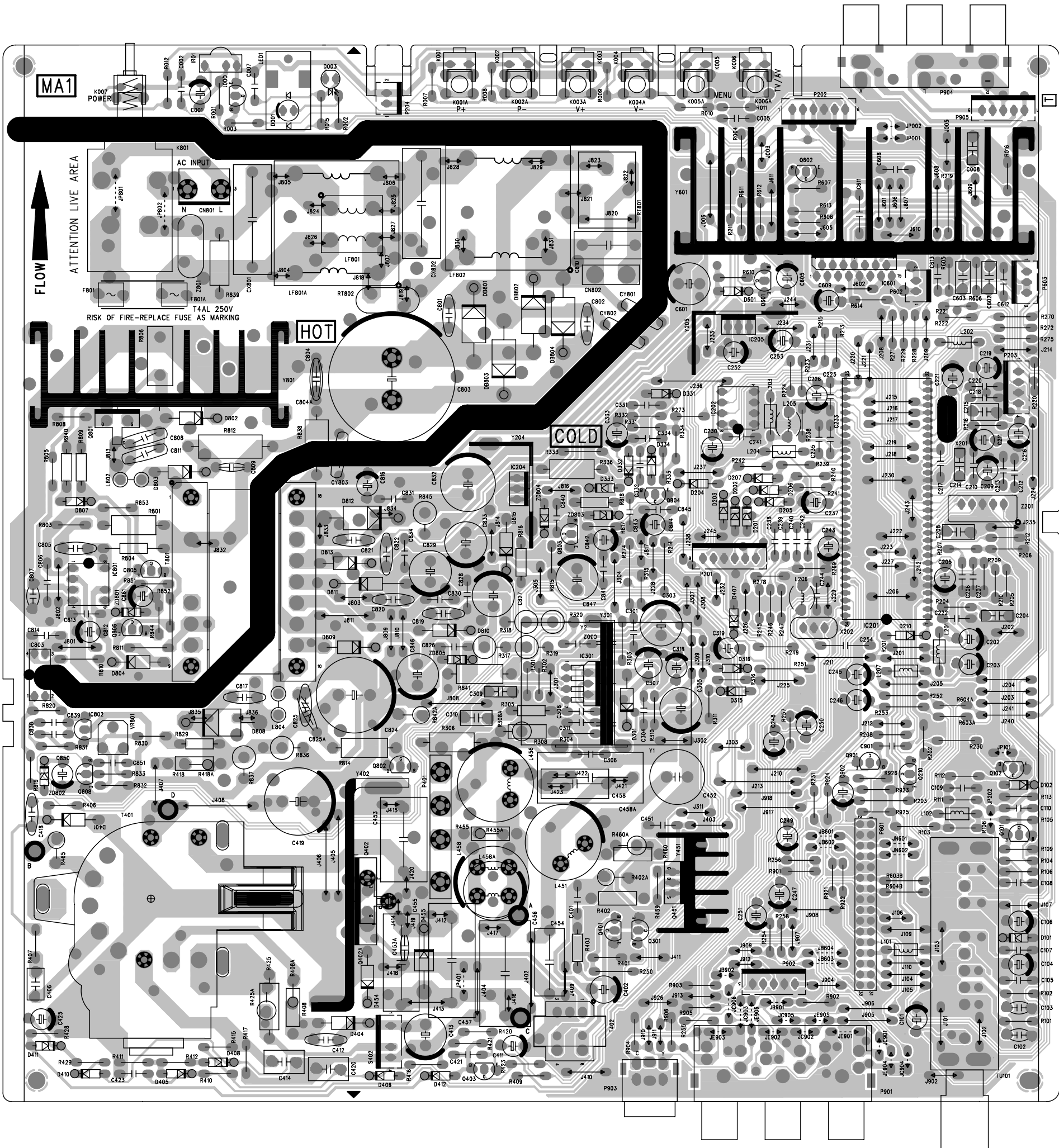
Power Supply Section

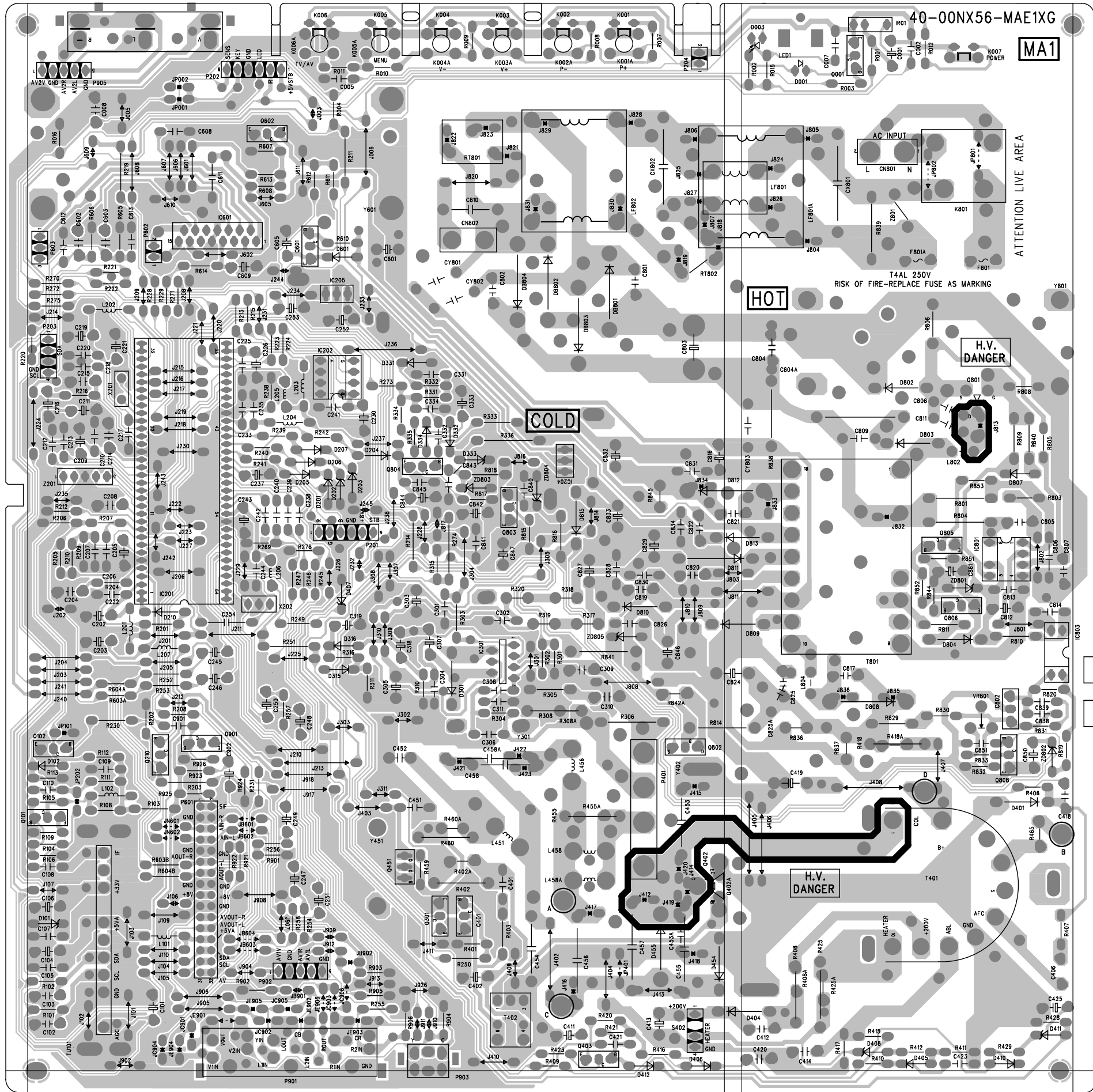
AC supply 220V/110v through filtering network and rectifying circuit and get 300Vdc voltage. LF801/LF801A and CX802 makes up a differential mode rejection, LF802 and CY801,CY802 makes up a common mode rejection network. D801-D804 is rectifying network. 300Vdc voltage supply pin3 of T801, also through R804 send to pin8 of IC801 NCP1337. Pin5 of IC801 sends out the PWM signal to control Q801 working in switch on and off situation. IC803 is optocoupler.





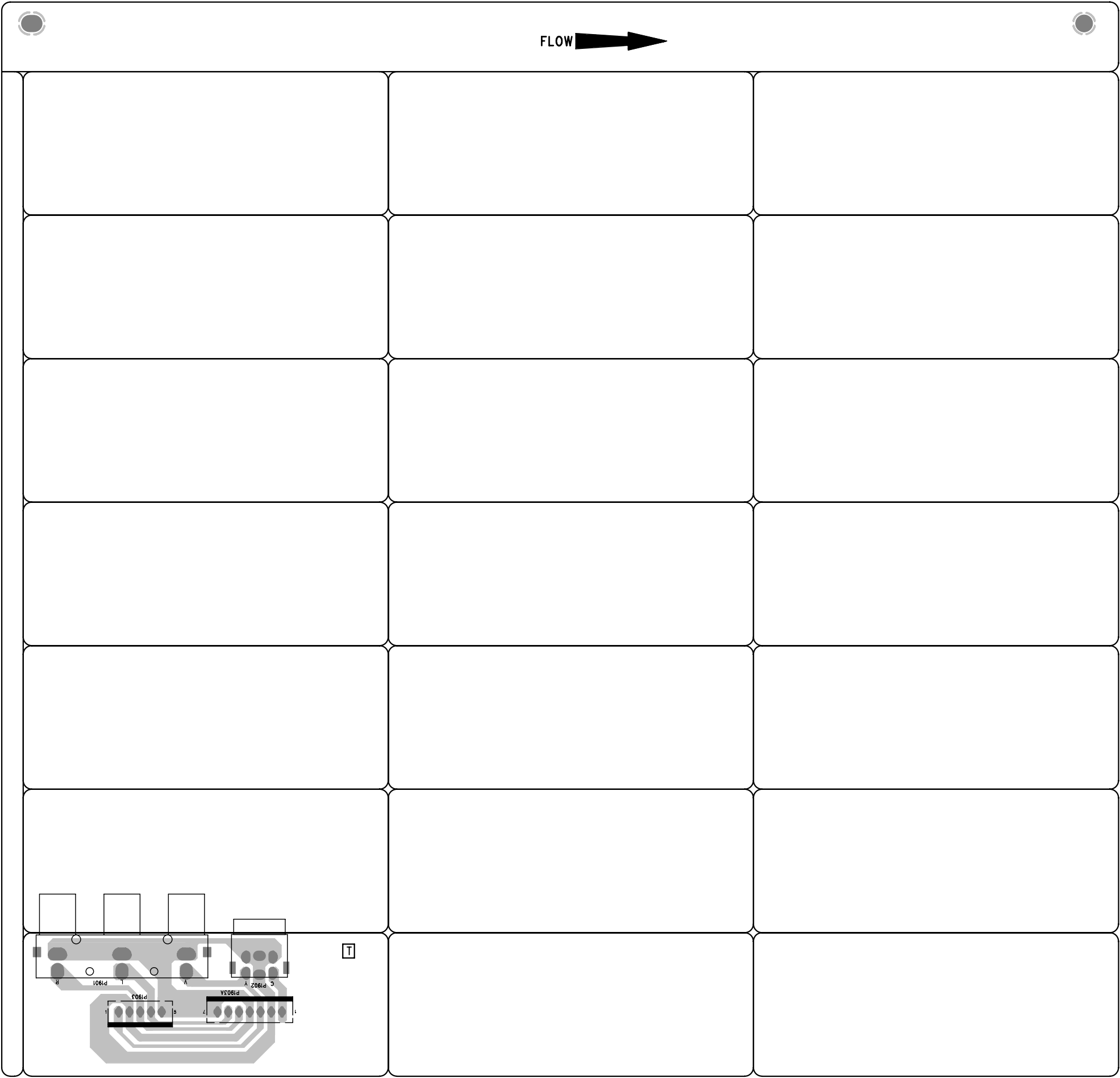
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DS1108/EC207/CCP6400S
Thickness(MM)
1.6MM
Layer
SINGLESIDE
Copper Thickness
10Z
Surface treatment
OSP
Solder slot(C-PAD)
Other

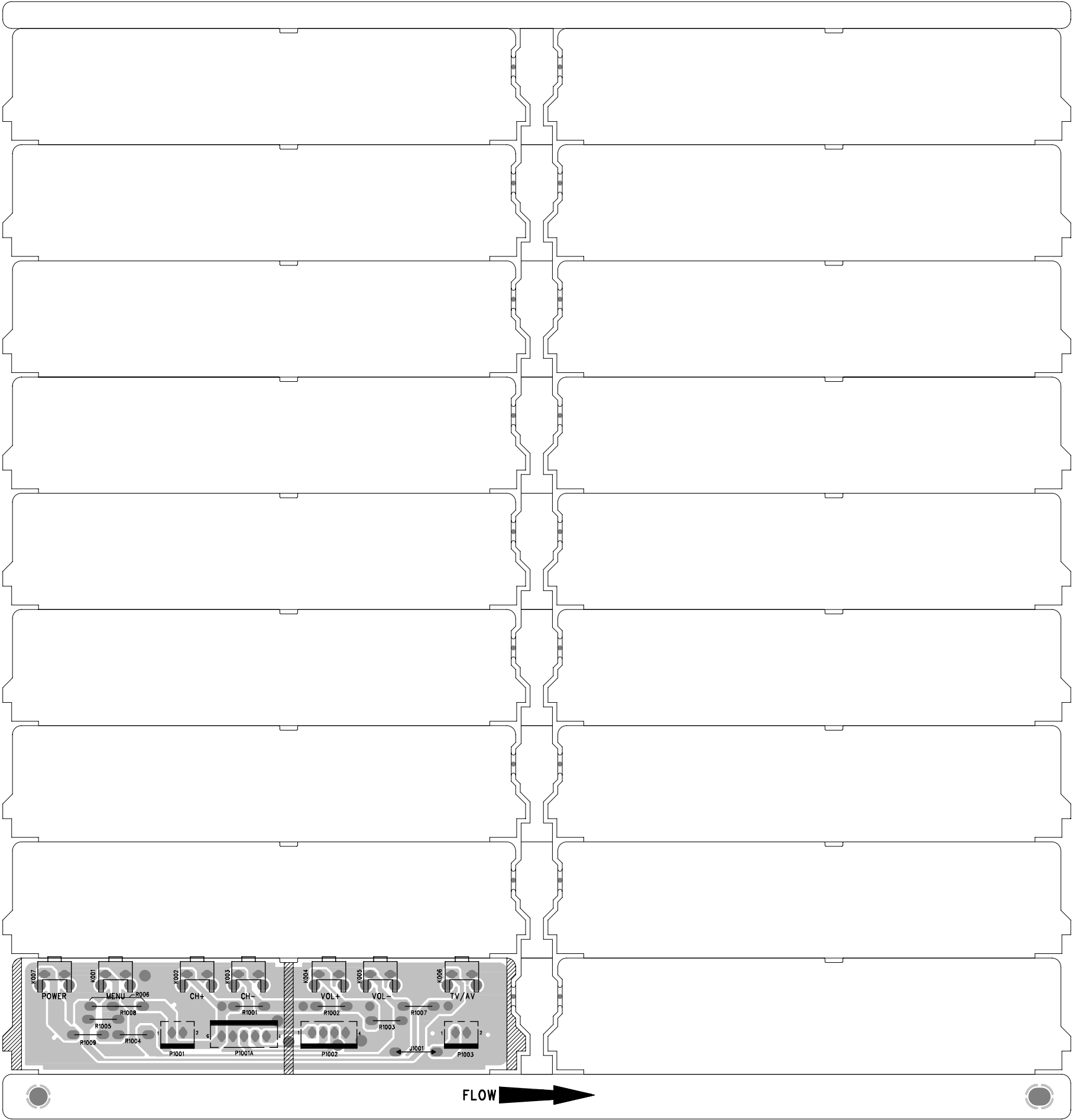




PCB Material
D21108/EC507/CP64002
Thickness(MM)
1.6MM
Layer
SINGLE-SIDE
Copper Thickness
10Z
Surface treatment
OSP
Solder slot(C-PAD)
Other

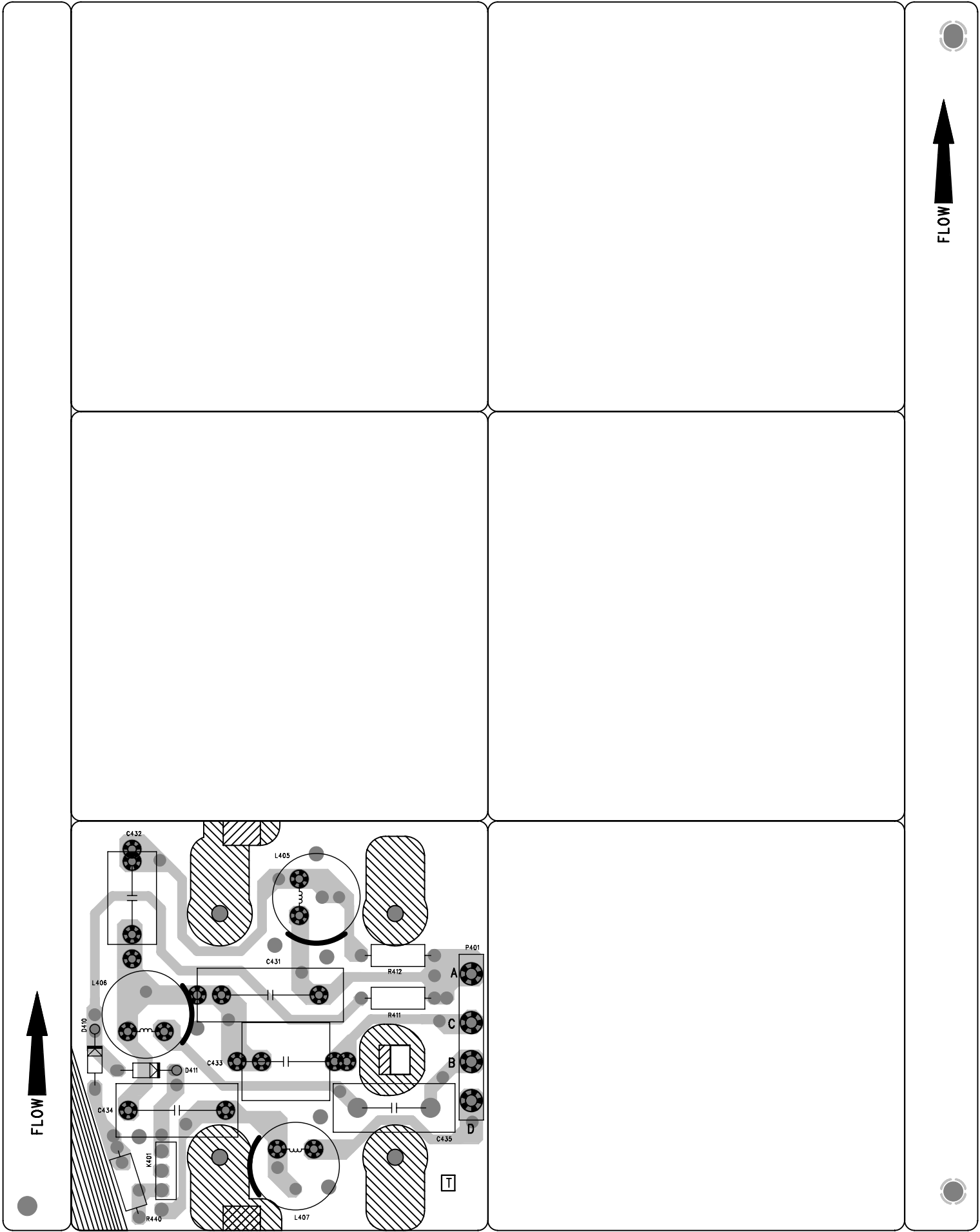
PCB Material
FR-1
Thickness(MM)
1.6MM
Layer
SINGLESIDE
Copper Thickness
10Z
Surface treatment
OSP
Solder slot(C-PAD)
Other



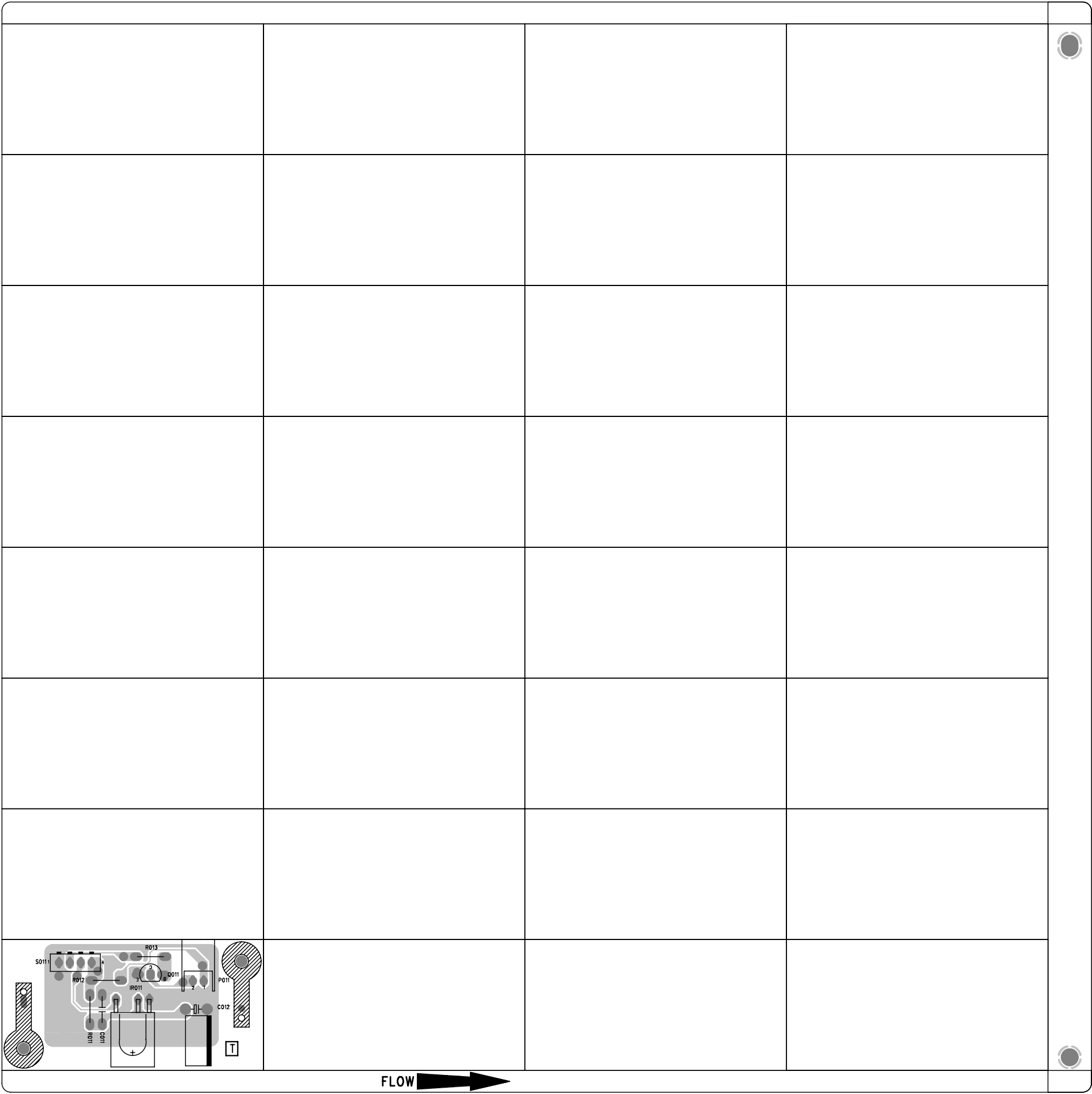


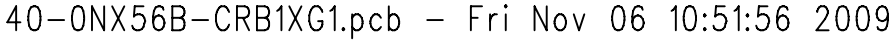
PCB Material	FR-1
Thickness(MM)	1.6MM
Layer	SINGLESIDE
Copper Thickness	10Z
Surface treatment	OSP
Solder slot(C-PAD)	
Other	

PCB Material
FR-1
Thickness(MM)
1.6MM
Layer
SINGLESIDE
Copper Thickness
10Z
Surface treatment
OSP
Solder slot(C-PAD)
Other

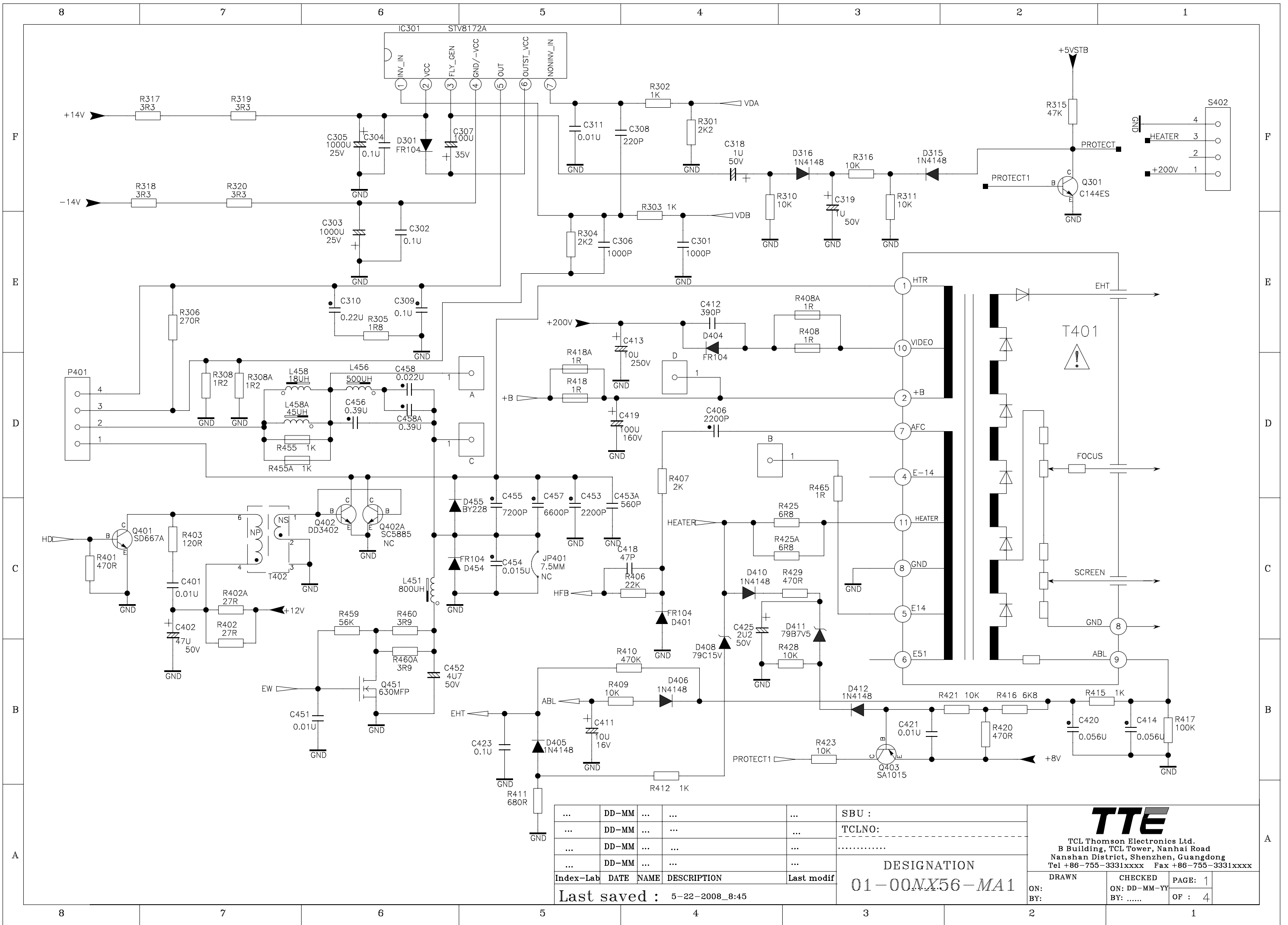


PCB Material
FR-1
Thickness(MM)
1.6MM
Layer
SINGLESIDE
Copper Thickness
10Z
Surface treatment
FLUX
Solder slot(C-PAD)
Other

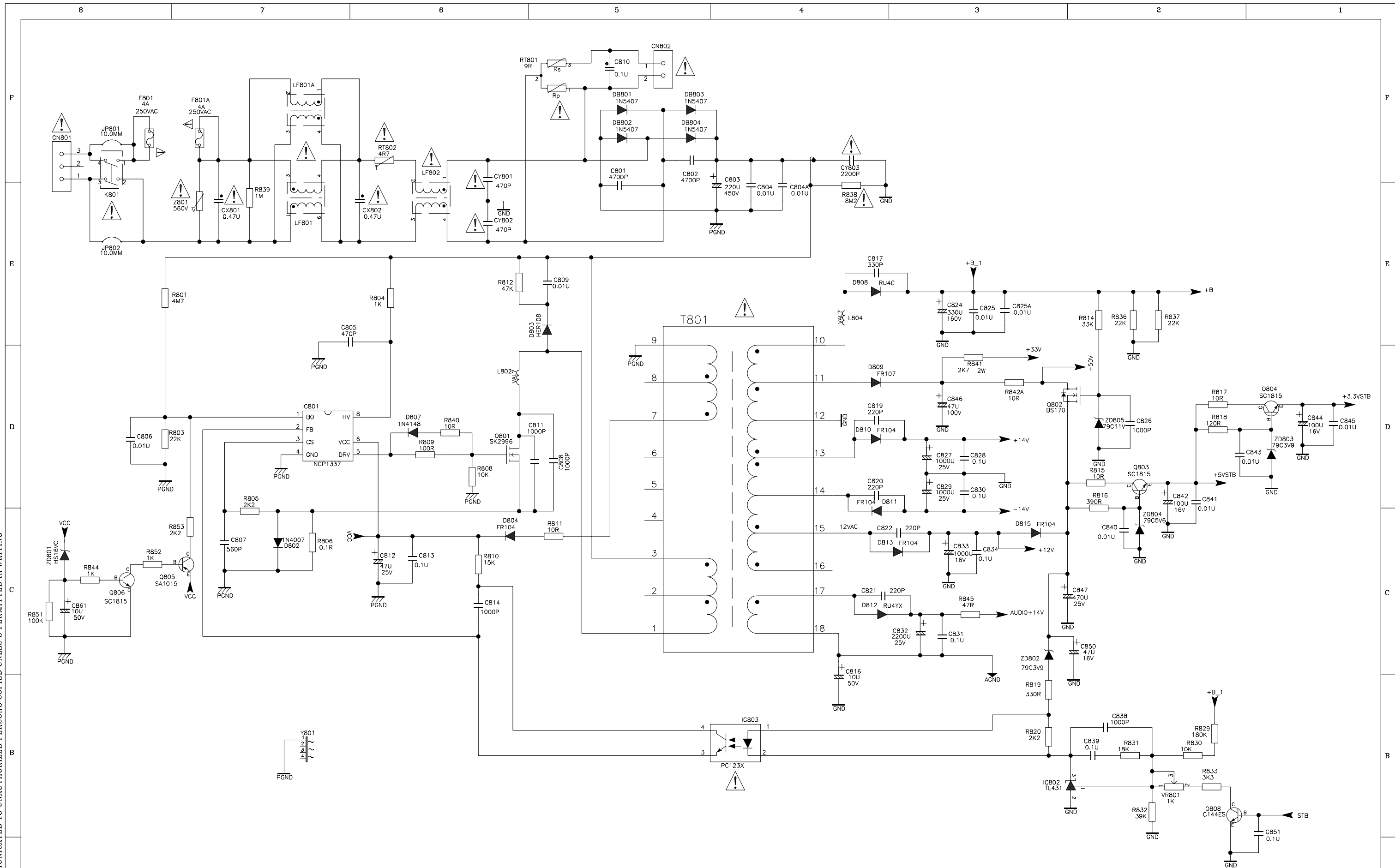




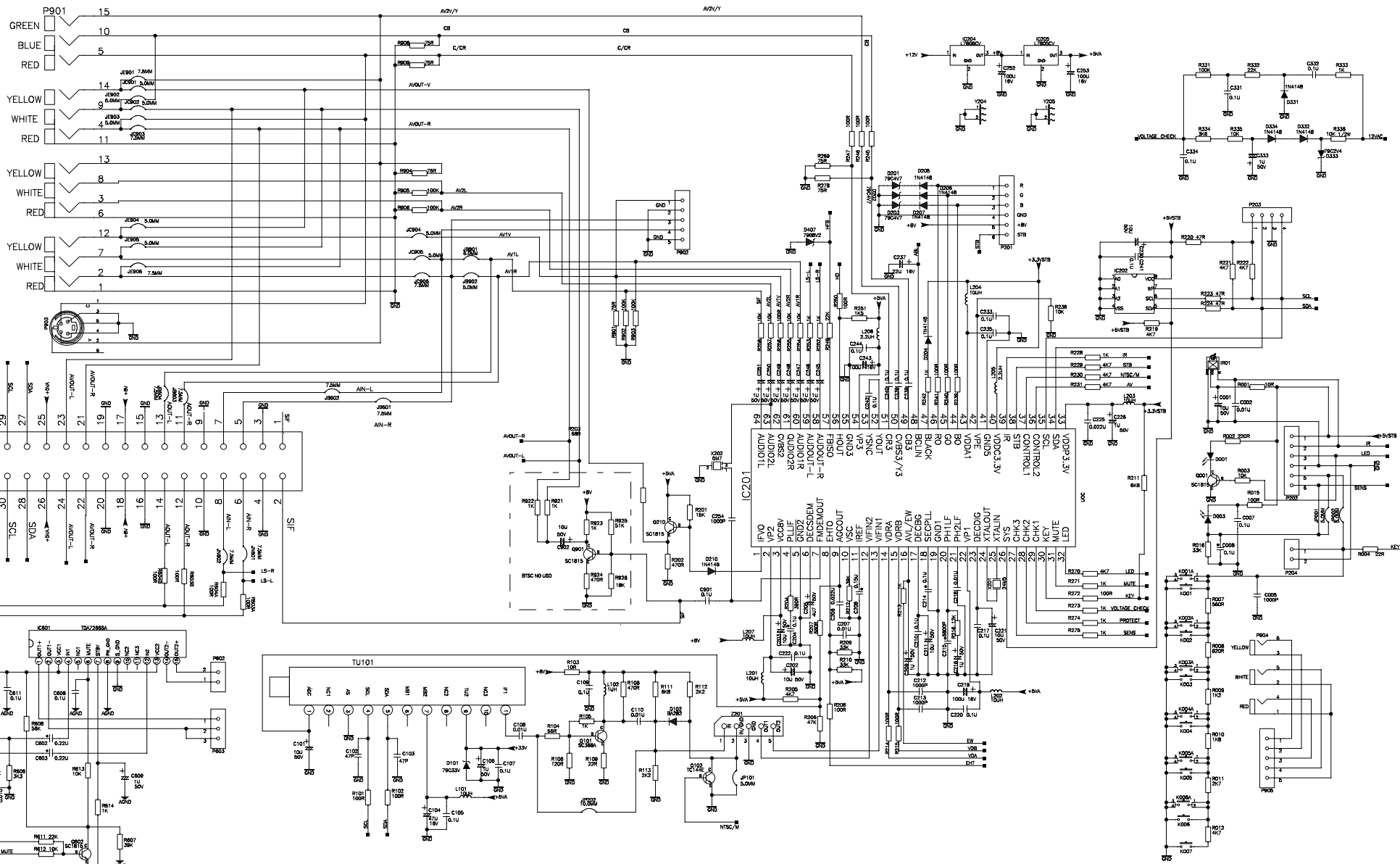
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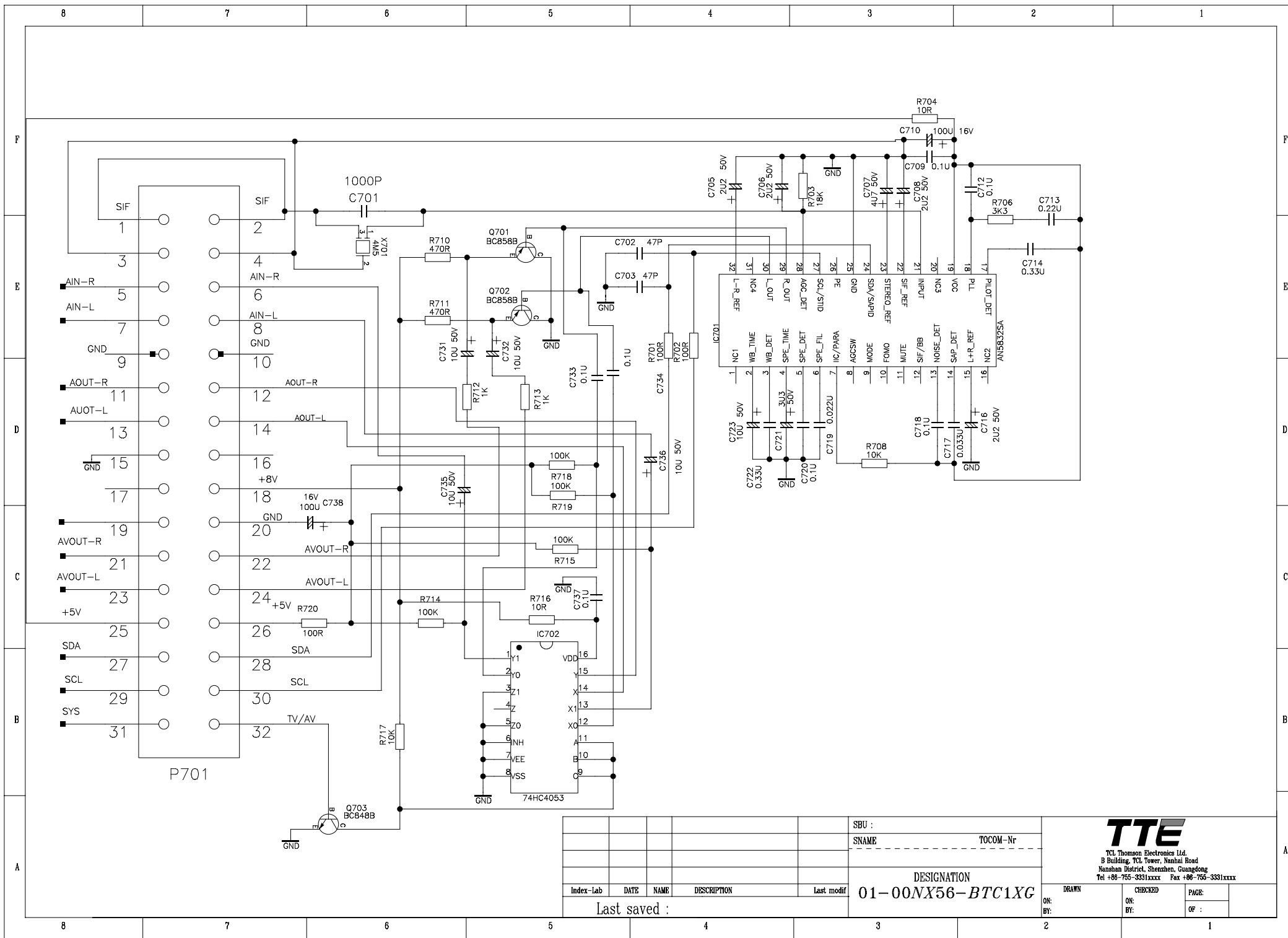
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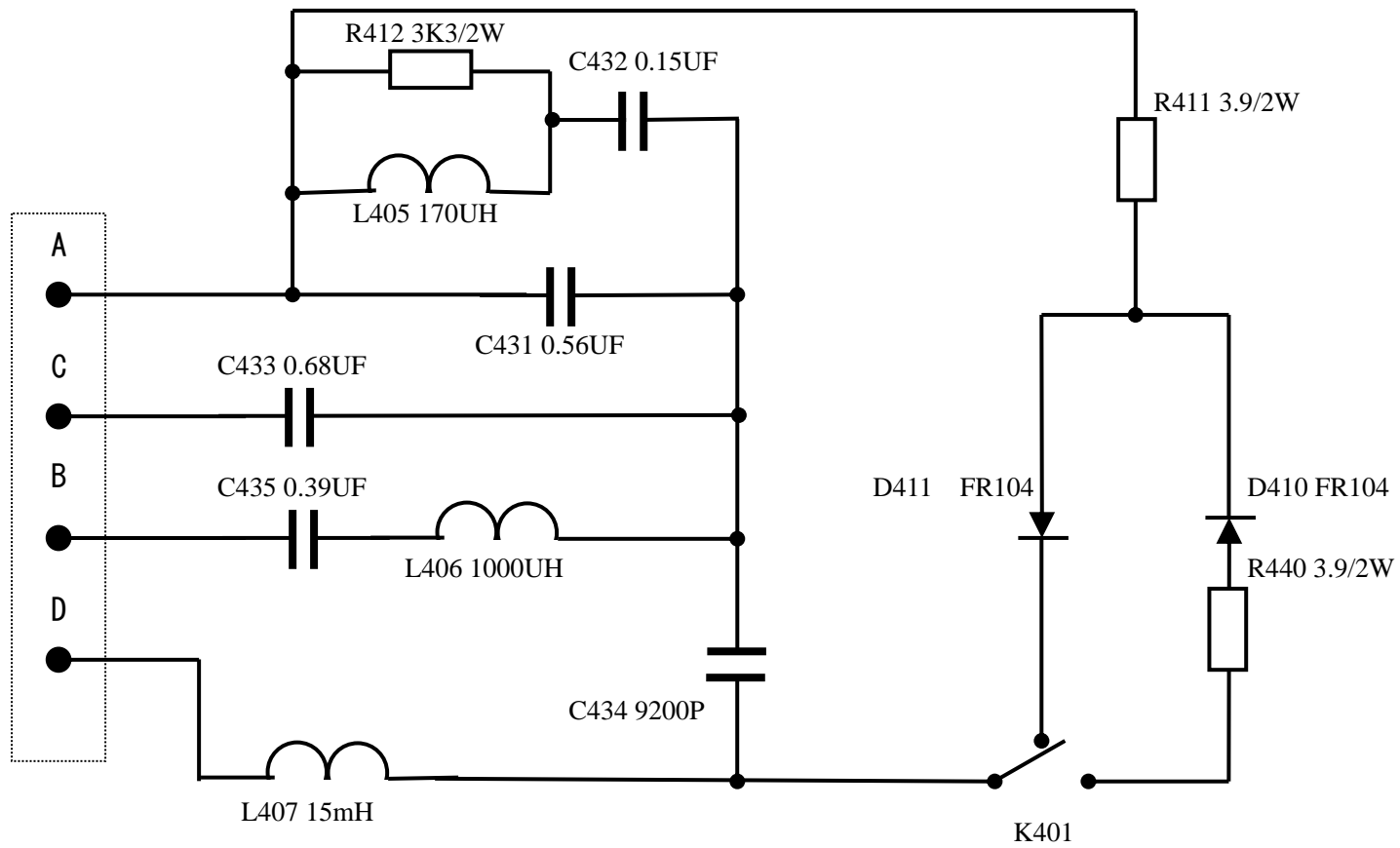


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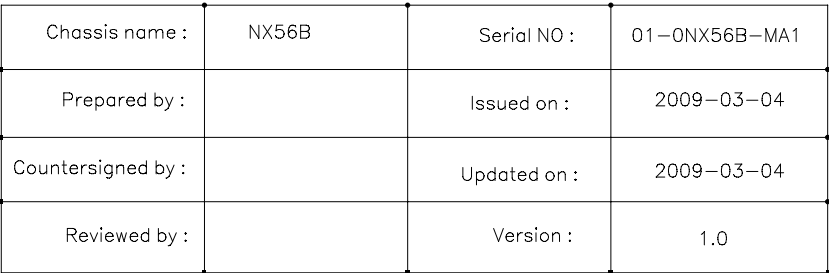
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40-29M76S-DPB1XG



MODELO: BT2909S (Chasis: NX56 VERSION G)

Seleccionar	Proceso	CODIGO	DESCRIPCION PROVEEDOR	DESCRIPCION ESPAÑOL	CANT.	UNI.	POSICION	OBSERVACIONES
A/V	M	46-CD055T-05K01G	WIRE 550MM 05 TJC3 SCN 2.5MM UL#246	CABLE CON CONECTOR PARA IMPRESO 5 VIAS	1	UN	P1903 A P902	
A/V	M	47-RCA020-XX0G	JACK RCA H=8MM AV-3.2-3W-G4	CONECTOR PARA IMPRESO 90° 3 VIAS RCA (1XCVBS+AUDIO)	1	UN	P1901	
A/V	PCB	40-029M71-SIA1XG	TV PCB SI BD R=Y	CIRCUITO IMPRESO FENOLICO SIMPLE FAZ A/V LATERAL 40-029M71-SIA1XG	1	UN		
CONTROLES	A	18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	RF PC 1K OHM 1/6W +/-5%	1	UN	R1005	
CONTROLES	A	18-CB0271-JNX	RES. C.F. 270 OHM 1/6W +/-5%	RF PC 270 OHM 1/6W +/-5%	1	UN	R1003	
CONTROLES	A	18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	RF PC 330 OHM 1/6W +/-5%	1	UN	R1002	
CONTROLES	A	18-CB0471-JNX	RES. C.F. 470 OHM 1/6W +/-5%	RF PC 470 OHM 1/6W +/-5%	1	UN	R1001	
CONTROLES	A	18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	RF PC 560 OHM 1/6W +/-5%	1	UN	R006	
CONTROLES	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTANADO	0,0001	UN	J1001	1
CONTROLES	M	46-CE060T-02K01G	WIRE UL2468#26 600MM 2 2.5MM	CABLE CON CONECTOR PARA IMPRESO 2 VIAS	1	UN	P1003 A M.BD P204	
CONTROLES	M	48-TAC002-XX0	TACT SWITCH	LLAVE PULSADOR AL TACTO	6	UN	K004;K005;K006;K001;K002;K003	
CONTROLES	PCB	40-N29M71-KEG1XG	TV PCB KEY BD R=Y	CIRCUITO IMPRESO FENOLICO SIMPLE FAZ CONTROLES 40-N29M71-KEG1XG	1	UN		
DP	A	66-343730-0B0	HOLLOW RIVET 1.6MMX3.0MMX3.2MM	OJALILLO DE LATON ESTANADO 1.6X3.0XL3.2	14	UN	C431X2;C432X2;C433X2;C434X2;L405X2;L406X2;L407X2	
DP	A	66-343740-0B0	HOLLOW RIVET (2.3MMX4.0MMX3.5MM)	OJALILLO DE LATON ESTANADO 2.3mmx4.0mmx3.5mm	4	UN	P401X4	
DP	M	10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	DIODO RECTIFICADOR FR104 600V 1A	2	UN	D411;D410	
DP	M	18-FG0332-JHX	RES. M.O. 3.3K OHM 2W +/-5%	RF OM 3.3K OHM 2W +/-5%	1	UN	R412	
DP	M	18-FG0399-JHX	RES. M.O. 3.9 OHM 2W +/-5%	RF OM 3.9 OHM 2W +/-5%	2	UN	R440;R411	
DP	M	27-AGQ394-JSX	TCL27-AGQ394-JSX= CAP. M.PP 0.39UF 250VA	CCTA 0.39UF 250V +/-5%	1	UN	C435	
DP	M	27-AHQ154-JSX	CAP. M.PP 0.15UF 400V +/-5%	CCTA 0.15UF 400V +/-5%	1	UN	C432	
DP	M	27-AHR474-JSX	CAP. M.PP 0.47UF 400V +/-5%	CPP MYLAR 0.47UF 400V +/-5%	1	UN	C431	
DP	M	27-AHR684-JSX	CAP. PP 680NF 400V +/-5%	CPP MYLAR 680NF 400V +/-5%	1	UN	C433	
DP	M	27-ALR922-JHX	CAP. M.PP 9200 PF 1.6KV +/-5%	CPP MYLAR 9200PF 1600V +/-5%	1	UN	C434	
DP	M	36-WID102-XX1	COIL WIDTH 1 MH	BOBINA FIJA DE ANCHO 1 MH	1	UN	L406	
DP	M	36-WID153-XX1	COIL CHOKE 15 MH	BOBINA FIJA CHOQUE 15 MH	1	UN	L407	
DP	M	36-WID171-XX3	COIL WIDTH L171AHA	BOBINA FIJA DE ANCHO L171AHA	1	UN	L405	
DP	M	46-39402W-04XG	BASE	CONECTOR PARA IMPRESO DE 4 VIAS	1	UN	P401	
DP	M	48-SLI001-XX0	SW. CHANNEL BAND SELECTOR KFC-G02	LLAVE SELECTORA 2 VIAS KFC-G02 60VDC	1	UN	K401	
DP	PCB	40-29M76S-DPB1XG	TV PCB DP BD R=Y	CIRCUITO IMPRESO FENOLICO SIMPLE FAZ COMP. HTAL 40-29M76S-DPB1XG	1	UN		
EMBALAJE	E	74-022032-6WEEM	PRI BAG -- RED 186C 01 00 00 R=N	BOLSA PARA ACCESORIOS	1	UN		
EMBALAJE	E	75-460610-EC0	TV RAW POLYFOAM -- -- 06 00 R=Y	ACCESORIO DE TELGOPOR INFERIOR IZQUIERDO BT2909S	1	UN		
EMBALAJE	E	75-460620-EC0	TV RAW POLYFOAM -- -- 06 00 R=Y	ACCESORIO DE TELGOPOR INFERIOR DERECHO BT2909S	1	UN		
EMBALAJE	E	75-460630-EC0	TV RAW POLYFOAM -- -- 06 00 R=Y	ACCESORIO DE TELGOPOR SUPERIOR IZQUIERDO BT2909S	1	UN		
EMBALAJE	E	75-460640-EC0	TV RAW POLYFOAM -- -- 06 00 R=Y	ACCESORIO DE TELGOPOR SUPERIOR DERECHO BT2909S	1	UN		
EMBALAJE	E	76-460650-0AT9A	DEC CARTON-BOX 29M63 CA 00 9A 00 R=Y	CAJA DE CARTON BT2909S	1	UN		
EMBALAJE	E	T6-016W31-AAR1X	ASY - REMOTE LOGO-BGH FEELNOLOGY	CONTROL REMOTO BGH FEELNOLOGY	1	UN		
ENSAMBLE	E	36-DEG290-XX2L	DEGAUSSING COIL XC-29*	BOBINA FIJA DESMAGNETIZADORA	1	UN		
ENSAMBLE	E	41-GND029-LX0	B121	MALLA DE ALAMBRE DE MASA TRC 29*	1	UN		
ENSAMBLE	E	42-61608F-XX1G	SPEAKER YDP616-5A	PARLANTE YDP616-5A	2	UN	SP601;SP602	
ENSAMBLE	E	46-35197H-02XG	HS 2P22 7007 TJC3-2Y	CABLE CON CONECTOR HEMBRA 2 VIAS TJC3-2Y	1	UN	S601A A R_SPK	
ENSAMBLE	E	46-CT048T-03H01G	HS 3PIN TCL1073	CABLE CON CONECTOR HEMBRA 3 VIAS TCL1073	1	UN	S602 A L_SPK	
ENSAMBLE	E	46-KN035T-03I01G	WIRE UL1672#18 350MM 3 3.96MM	CABLE CON CONECTOR PARA IMPRESO 2 VIAS	1	UN	POWER SW A MA BD	
ENSAMBLE	E	48-POW016-FX3G	SWITH-POWER 128V 8A HF-606(TV)-e6	LLAVE MECANICA DE RED 128 VCA 8A HF-606	1	UN		
ENSAMBLE	E	51-DC0220-Q0T0DG	245 POWER CORD	CABLE DE ALIMENTACION CON FICHA 220V	1	UN		
ENSAMBLE	E	54-113970-0U0	TV RAW INSULATOR SLEEVE AWG#5 -- 00 00 R	TUBO SPAGHETTI DE PVC	0,32	UN	FOR SPEAKER WIRE	
ENSAMBLE	E	54-114000-00X	TV RAW FELT PAPER 150MMX19MMX0.3MM BK 01	FIELTRO AUTOADHESIVO (150mmX19mmX0,3mm)	9	UN	MTG F.CAB&CRT	
ENSAMBLE	E	54-205140-000	SPACER CRT MOUNTING T=2MM	ESPACIADOR DE GOMA E=2mm	4	UN	MTG CRT & FC	
ENSAMBLE	E	54-314740-0X0	CRT FIBRE SHEET (22MMX22MMX0.8MM)	AMORTIGUADOR DE FIBRA (22mmX22mmX0.8mm)	12	UN	MTG CRT & FC	
ENSAMBLE	E	56-445230-4HN6R	TV PRI FASTENER CABLE-STRAP -- 00 00 R=N	SOPORTE PLASTICO LATERAL PARA PLACA A/V	1	UN		
ENSAMBLE	E	56-LM62FB-1HA5C	TV DEC KEY CLUSTER 29M71 -- 01 5C 00 R=N	CONJUNTO DE TECLAS PLASTICAS	1	UN		
ENSAMBLE	E	57-10654X-00F	TWIST TIE NY66	LAZO PLASTICO	10	UN		
ENSAMBLE	E	57-445670-0HC02	TV DEC DECOR LUMINOUS BAR -- 00 02 00 R=	BARRA LUMINOSA CON LEDS	1	UN		
ENSAMBLE	E	59-377680-000	RUBBER PAD (22X22X5MM)	PATA DE GOMA 22X22X5MM	2	UN	PARA MONTAJE TRC	
ENSAMBLE	E	62-216340-0UN	TCL62-216340-0UN= BLOCK R=N	TRABA PLASTICA SUJETA CABLE	1	UN		
ENSAMBLE	E	62-321780-0HG	TV RAW FASTENER CRT DEGAUSSING COIL 25"	SUJETADOR PLASTICO PARA BOBINA DESMAGNETIZANTE	4	UN		
ENSAMBLE	E	63-B40150-AB4G	SCREW-ST 4MM 15MM ISO 62 R=Y	TORNILLO PARA PLASTICO ZINCADO W 4 X 15	1	UN	MTG FBT	
ENSAMBLE	E	63-B40200-AB3G	SCREW-ST 4MM 20MM JIS B 1122 12 R=Y	TORNILLO PARA PLASTICO ZINCADO B 4 X 20 AB	10	UN	MTG MC&RC	
ENSAMBLE	E	63-F30100-BT3G	SCREW-ST 3MM 10MM ISO 65 0 0 R=Y	TORNILLO PARA PLASTICO ZINCADO NEGRO W 3 X 10 AB	2	UN	MTG RC&R AV BKT	
ENSAMBLE	E	63-S40150-AB3G	S/T SCREW S 4 X 15 AB	TORNILLO PARA PLASTICO ZINCADO C/ALA 4 X 15	4	UN	MTG MC&SPEAKER	
ENSAMBLE	E	63-W30100-AB4G	S/T SCREW W 3 X 10 AB	TORNILLO PARA PLASTICO ZINCADO W 3 X 10 AB	2	UN	MTG MC&REMOTE CONTROL PCB	
ENSAMBLE	E	63-W30120-AB4G	S/T SCREW W 3 X 12 AB	TORNILLO PARA PLASTICO ZINCADO W 3 X 12 AB	4	UN	MTG MC&SIDER AV BKT	
ENSAMBLE	E	63-Z60300-AB4G	S/T SCREW HA 6X30	TORNILLO PARA PLASTICO ZINCADO 6 X 30	4	UN	MTG MC&CRT	
ENSAMBLE	E	67-X21679-0E0	SPRING CRT 6MMX50MMX0.6MM	RESORTE DE ACERO TRC	2	UN		
ENSAMBLE	E	71-TELEFU-LAB9A	TV PRI LABEL 14E10 WHIT & BLACK R=N	ETIQUETA ADVERTENCIA PARA EL USUARIO	1	UN		
ENSAMBLE	E	74-130130-80HEM	DEC BAG 130X130CM RED 186C 00 EM 00 R=Y	BOLSA PARA TELEVISOR CON ADV. DE SEGURIDAD	1	UN		
ENSAMBLE	E	90-ODLSG1-JY1U	SILICON GREASE DLSG-1	GRASA SILICONADA DLSG-1	0,373	G		
FRENTE	E	55-BV18FC-1CL6L	DEC BACKCOVER -- Q0003 01 6L 00 R=N	FRENTE BT2909S	1	UN		
FRENTE	E	55-BV18MC-0CL9K	DEC BACKCOVER -- Q0001 01 9K 00 R=N	FRENTE DECORATIVO BT2909S	1	UN		
FRENTE	E	56-B266LE-0HC5Z	TV EQU KEY S29M63 SILVER R=N	LENTE ACRILICA IR	1	UN		
FRENTE	E	58-LM62FI-3UI9C	TV DEC OVERLAY BM62 -- 00 00 00 R=Y	ETIQUETA CONTROLES LATERALES	1	UN		
FRENTE	E	59-130460-00X	RUBBER PAD (25MMX7MM)	PATA DE GOMA 25MMX7MM	2	UN	STICK ON MC	
FRENTE	E	62-407210-0UN	POWER SUPPLY BRACKET	SOPORTE PLASTICO PLACA DP	1	UN		
FRENTE	E	62-444980-0CN	CRT SUPPORT	SOPORTE PLASTICO PARA TRC	2	UN		
FRENTE	E	62-455090-0UN	TV RAW BRACKET -- -- 00 00 R=N	GUIA PLASTICA LATERAL PARA PLACA	2	UN		
FRENTE	E	62-455100-0UN	TV RAW BRACKET -- -- 00 00 R=N	GUIA PLASTICA FRONTAL PARA PLACA	1	UN		

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Seleccionar	Proceso	CODIGO	DESCRIPCION PROVEEDOR	DESCRIPCION ESPAÑOL	CANT.	UNI.	POSICION	OBSERVACIONES
FRENTE	E	63-B40150-AB4G	SCREW-ST 4MM 15MM ISO 62 R=Y	TORNILLO PARA PLASTICO ZINCADO W 4 X 15	2	UN	MTG CRT SUPPORT TO MC	
FRENTE	E	63-W30100-AB4G	S/T SCREW W 3 X 10 AB	TORNILLO PARA PLASTICO ZINCADO W 3 X 10 AB	1	UN	MTG MC&LENS	
FRENTE	E	63-W30100-AB4G	S/T SCREW W 3 X 10 AB	TORNILLO PARA PLASTICO ZINCADO W 3 X 10 AB	2	UN	MTG MC&LED	
FRENTE	E	63-W30120-AB4G	S/T SCREW W 3 X 12 AB	TORNILLO PARA PLASTICO ZINCADO W 3 X 12 AB	12	UN	MTG MC&PUSH BKT;MTG FC&MC	
FRENTE	E	67-L46101-0A09A	DEC LOGO BGH FEELNOLOGY -- 00 9A 00 R=Y	PLACA DE MARCA BGH FEELNOLOGY 29"	1	UN		
IR	A	18-CB0100-JNX	RES. C.F. 10 OHM 1/6W +/-5%	RF PC 10 OHM 1/6W +/-5%	1	UN	R011	
IR	A	18-CB0103-JNX	RES. C.F. 10K OHM 1/6W +/-5%	RF PC 10K OHM 1/6W +/-5%	1	UN	R013	
IR	A	18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	RF PC 220 OHM 1/6W +/-5%	1	UN	R012	
IR	A	25-BDB470-M1X	CAP. ELEC 47 UF 25V +/-20%	CEAP 47 UF 25V +/-20%	1	UN	C012	
IR	A	26-EBP104-ZFS	CAP. CER 0.1UF 50V +80%/-20%	CCTA 0.1 UF 50V +80/-20% F	1	UN	C011	
IR	M	02-IRR001-XX1	IR RECEIVER MODULE HRM380017	RECEPTOR INFRARROJO HRM380017	1	UN	IR011	
IR	M	11-SC1815-YBX	TRANSISTOR 2SC1815-Y (NPN)	TRANSISTOR 2SC1815Y; NPN; 0,5W	1	UN	Q011	
IR	M	46-27626W-02XG	PIN BASE *2 TJC3-2A (HORIZ)	CONECTOR PARA IMPRESO DE 2 VIAS	1	UN	P011 FOR LED	
IR	M	46-CE035T-04K01G	WIRE 350MM 04 TJC3 JC25 2.5MM UL#24	CABLE CON CONECTOR PARA IMPRESO 4 VIAS	1	UN	S011 TO M.BD P202	
IR	PCB	40-N29M63-IRB1XG	TV PCB IR BD R=Y	CIRCUITO IMPRESO FENOLICO SIMPLE FAZ IR 40-N29M63-IRB1XG	1	UN		
MAIN	A	10-0FR107-FBX	DIODE FR107	DIODO RECTIFICADOR FR107	1	UN	D809	
MAIN	A	10-1N4007-EBX	DIODE 1N4007	DIODO RECTIFICADOR 1N4007 1000V 1A	1	UN	D802	
MAIN	A	10-1N4148-ABX	DIODE 1N4148 (SWITCHING)	DIODO DE CONMUTACION 1N4148,100V,200mA,DO-35,	13	UN	D205;D204;D412;D601;D406;D410;D210;D206;D207;D405;D316;D315;D807	
MAIN	A	10-79B8V2-DBX	DIODE 8.2V +/-2%	DIODO ZENER 8,2V 500mW +/-2%	1	UN	D407	
MAIN	A	10-79C15V-DBX	500MW ZENER DIODE BZX79C15 15V +/-5%	DIODO ZENER BZX79C15 15V 500mW +/-5%	1	UN	D408	
MAIN	A	10-79C33V-DBX	DIODE ZENER 33V 1/2W 5%	DIODO ZENER 33V 500mW +/-5%	1	UN	D101	
MAIN	A	10-79C3V9-DBX	DIODE ZENER 3V9 1/2W 5%	DIODO ZENER 3,9V 500mW 5%	2	UN	ZD803;ZD802	
MAIN	A	10-79C4V7-DBX	TCL10-79C4V7-DBX= DIODE ZENER 4V7 1/2W 5	DIODO ZENER 4,7V 500mW 5%	3	UN	D203;D202;D201	
MAIN	A	10-79C5V6-DBX	DIODE ZENER 5V6 1/2W 5%	DIODO ZENER 5,6V 500mW 5%	2	UN	D004;ZD804	
MAIN	A	10-79C7V5-DBX	TCL10-79C7V5-DBX= DIODE ZENER 7V5 1/2W 5	DIODO ZENER 7,5V 500mW 5%	1	UN	D411	
MAIN	A	10-HER108-FBX	DIODE HER108	DIODO RECTIFICADOR RAPIDO HER108 1000V 1A, 70ns	1	UN	D803	
MAIN	A	10-HS11VC-DBX	DIODE 11V 500MW	DIODO ZENER 11V 500mW 5%	1	UN	ZD805	
MAIN	A	10-HS16VC-DBX	DIODE 500MW 16HSC	DIODO ZENER 16V 500mW (16HSC)	1	UN	ZD801	
MAIN	A	11-3DA882-YAX	TRANSISTOR 3DA882-Y NPN	TRANSISTOR NPN AUDIO 3DA882-Y	1	UN	Q803	
MAIN	A	11-BS107A-OBX	MOSFET BS107A 200V 0.25A	TRANSISTOR MOSFET CANAL-N BS107A 200V 0,25A	1	UN	Q802	
MAIN	A	11-SA1015-YBX	TRANSISTOR ST2SA1015Y (PNP)	TRANSISTOR 2SA1015Y; PNP; 0,5A, 0,5W	2	UN	Q403;Q601	
MAIN	A	11-SC1815-YBX	TRANSISTOR 2SC1815-Y (NPN)	TRANSISTOR 2SC1815Y; NPN; 0,5W	5	UN	Q602;Q210;Q901;Q806;Q804	
MAIN	A	11-SD667A-CBX	TRANSISTOR 2SD667A-C	TRANSISTOR 2DS667A-C; NPN; 120V;1A	1	UN	Q401	
MAIN	A	11-TA124E-OBX	TRANSISTOR DTA124ESA	TRANSISTOR DTA124ESA;PNP;100mV;100mA	1	UN	Q805	
MAIN	A	11-TC144E-OBX	TRANSISTOR DTC144ESA	TRANSISTOR DTC144ESA;PNP;100mV;100mA	2	UN	Q301;Q808	
MAIN	A	18-CB0100-JNX	RES. C.F. 10 OHM 1/6W +/-5%	RF PC 10 OHM 1/6W +/-5%	3	UN	J236;R815;R817	
MAIN	A	18-CB0101-JNX	RES. C.F. 100 OHM 1/6W +/-5%	RF PC 100 OHM 1/6W +/-5%	15	UN	R241;R101;R102;R208;R214;R429;R246;R250;R604A;R603A;R272;R256;R240;R239;R215	
MAIN	A	18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	RF PC 1K OHM 1/6W +/-5%	18	UN	R409;R923;R274;R271;R242;R614;R255;R254;R412;R228;R213;R302;R303;R258;R257;R415;R844;R852	
MAIN	A	18-CB0103-JNX	RES. C.F. 10K OHM 1/6W +/-5%	RF PC 10K OHM 1/6W +/-5%	11	UN	R428;R610;R612;R613;R310;R311;R238;R423;R421;R316;R808	
MAIN	A	18-CB0104-JNX	RES. C.F. 100K OHM 1/6W +/-5%	RF PC 100K OHM 1/6W +/-5%	1	UN	R417	
MAIN	A	18-CB0122-JNX	RES. C.F. 1.2K OHM 1/6W +/-5%	RF PC 1.2K OHM 1/6W +/-5%	1	UN	R805	
MAIN	A	18-CB0123-JNX	RES. C.F. 12K OHM 1/6W +/-5%	RF PC 12K OHM 1/6W +/-5%	1	UN	R216	
MAIN	A	18-CB0152-JNX	RES. C.F. 1.5K OHM 1/6W +/-5%	RF PC 1,5K OHM 1/6W +/-5%	1	UN	R251	
MAIN	A	18-CB0153-JNX	RES. C.F. 15K OHM 1/6W +/-5%	RF PC 15K OHM 1/6W +/-5%	2	UN	R201;R810	
MAIN	A	18-CB0183-JNX	RES. C.F. 18K OHM 1/6W +/-5%	RF PC 18K OHM 1/6W +/-5%	2	UN	R926;R831	
MAIN	A	18-CB0202-JNX	RES. C.F. 2K OHM 1/6W +/-5%	RF PC 2K OHM 1/6W +/-5%	1	UN	R407	
MAIN	A	18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	RF PC 220 OHM 1/6W +/-5%	1	UN	R420	
MAIN	A	18-CB0222-JNX	RES. C.F. 2.2K OHM 1/6W +/-5%	RF PC 2,2K OHM 1/6W +/-5%	4	UN	R304;R301;R820;R853	
MAIN	A	18-CB0223-JNX	RES. C.F. 22K OHM 1/6W +/-5%	RF PC 22K OHM 1/6W +/-5%	8	UN	R406;R905;R611;R902;R903;R249;R906;R332	
MAIN	A	18-CB0272-JNX	RES. C.F. 2.7K OHM 1/6W +/-5%	RF PC 2.7K OHM 1/6W +/-5%	1	UN	R211	
MAIN	A	18-CB0274-JNX	TCL18-CB0274-JNX= RES. C.F. 270K OHM 1/6	RF PC 270K OHM 1/6W +/-5%	1	UN	R410	
MAIN	A	18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	RF PC 330 OHM 1/6W +/-5%	1	UN	R819	
MAIN	A	18-CB0332-JNX	RES. C.F. 3.3K OHM 1/6W +/-5%	RF PC 3,3K OHM 1/6W +/-5%	2	UN	R222;R221	
MAIN	A	18-CB0333-JNX	RES. C.F. 33K OHM 1/6W +/-5%	RF PC 33K OHM 1/6W +/-5%	2	UN	R210;R209	
MAIN	A	18-CB0391-JNX	RES. C.F. 390 OHM 1/6W +/-5%	RF PC 390 OHM 1/6W +/-5%	1	UN	R204	
MAIN	A	18-CB0392-JNX	RES. C.F. 3.9K OHM 1/6W +/-5%	RF PC 3.9 KOHM 1/6W +/-5%	1	UN	R416	
MAIN	A	18-CB0393-JNX	RES. C.F. 39K OHM 1/6W +/-5%	RF PC 39K OHM 1/6W +/-5%	1	UN	R212	
MAIN	A	18-CB0470-JNX	RES. C.F. 47 OHM 1/6W +/-5%	RF PC 47 OHM 1/6W +/-5%	4	UN	R220;R223;R224;R811	
MAIN	A	18-CB0471-JNX	RES. C.F. 470 OHM 1/6W +/-5%	RF PC 470 OHM 1/6W +/-5%	3	UN	R924;R401;R202	
MAIN	A	18-CB0472-JNX	CARBON RES. C.F. 4.7K OHM 1/6W +/-5%	RF PC 4,7K OHM 1/6W +/-5%	6	UN	R205;R219;R231;R270;R229;R851	
MAIN	A	18-CB0473-JNX	RES. C.F. 47K OHM 1/6W +/-5%	RF PC 47K OHM 1/6W +/-5%	3	UN	R608;R315;R206	
MAIN	A	18-CB0513-JNX	TCL18-CB0513-JNX= RES. C.F. 51K OHM 1/6W	RF PC 51K OHM 1/6W +/-5%	1	UN	R925	
MAIN	A	18-CB0560-JNX	RES. C.F. 56 OHM 1/6W +/-5%	RF PC 56 OHM 1/6W +/-5%	2	UN	R245;R247	
MAIN	A	18-CB0562-JNX	RES. C.F. 5.6K OHM 1/6W +/-5%	RF PC 5,6K OHM 1/6W +/-5%	2	UN	R605;R606	
MAIN	A	18-CB0563-JNX	RES. C.F. 56K OHM 1/6W +/-5%	RF PC 56K OHM 1/6W +/-5%	2	UN	R459;R607	
MAIN	A	18-CB0680-JNX	RES. C.F. 68 OHM 1/6W +/-5%	RF PC 68 OHM 1/6W +/-5%	1	UN	R203	
MAIN	A	18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	RF PC 680 OHM 1/6W +/-5%	2	UN	R411;R207	
MAIN	A	18-CB0820-JNX	RES. C.F. 82 OHM 1/6W +/-5%	RF PC 82 OHM 1/6W +/-5%	4	UN	R901;R278;R904;R269	
MAIN	A	18-CD0100-JNX	RES. C.F. 10 OHM 1/4W +/-5%	RF PC 10 OHM 1/4W +/-5%	2	UN	J410;R840	
MAIN	A	18-CD0101-JNX	RES. C.F. 100 OHM 1/4W +/-5%	RF PC 100 OHM 1/4W +/-5%	2	UN	R818;R809	
MAIN	A	18-CD0121-JNX	RES. C.F. 120 OHM 1/4W +/-5%	RF PC 120 OHM 1/4W +/-5%	1	UN	R403	

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Seleccionar	Proceso	CODIGO	DESCRIPCION PROVEEDOR	DESCRIPCION ESPAÑOL	CANT.	UNI.	POSICION	OBSERVACIONES
MAIN	A	18-CD0189-JNX	RES. C.F 1.8 OHM 1/4W +/-5%	RF PC 1.8 OHM 1/4W +/-5%	1	UN	R305	
MAIN	A	18-CD0391-JNX	RES. C.F. 390 OHM 1/4W +/-5%	RF PC 390 OHM 1/4W +/-5%	1	UN	R816	
MAIN	A	18-CE0271-JNX	TCL18-CE0271-JNX= RES. C.F. 270 OHM 1/2W	RF PC 270 OHM 1/2W +/-5%	1	UN	R306	
MAIN	A	18-DB0103-FNX	TCL18-DB0103-FNX= RES. M.F. 10K OHM 1/6W	RF PM 10K OHM 1/6W +/-1%	1	UN	R830	
MAIN	A	18-DB0223-FNX	TCL18-DB0223-FNX= RES. M.F. 22K OHM 1/6W	RF PM 22K OHM 1/6W +/-1%	1	UN	R803	
MAIN	A	18-DB0392-FNX	RES.M.F 3.9K 1/6W+/-1%	RF MF 3.9K OHM 1/6W +/-1%	1	UN	R833	
MAIN	A	18-DB0393-FNX	RES. M.F. 39K OHM 1/6W +/-1%	RF MF 39K OHM 1/6W +/-1%	1	UN	R832	
MAIN	A	18-DD0184-FNX	RES. M.F. 180K OHM 1/4W +/-1%	RF MF 180K OHM 1/4W +/-1%	1	UN	R829	
MAIN	A	18-EE0102-JS2	RES.FUSE 1K OHM 1/2W +/-5%	RF FU 1K OHM 1/2W +/-1%	1	UN	R455A	
MAIN	A	18-EE0109-JSX	FR 10HM 1/2W RF10S	RF 10 OHM 1/2W +/-5%	1	UN	R465	
MAIN	A	18-FE0102-JNX	RES. M.O. 1K OHM 1/2W +/-5%	RF OM 1K OHM 1/2W +/-5%	1	UN	R804	
MAIN	A	18-FF0270-JSX	RES.MOF 27 OHM 1W +/-5%	RF MOF 27 OHM 1W +/-5%	1	UN	R402A	
MAIN	A	18-FG0101-JSX	RMOF 100OHM +/-5% 2W R=Y	RF MOF 100 OHM 2W +/-5%	1	UN	R842A	
MAIN	A	18-KE0105-JNX	RES. GLASS GLAZE 1M OHM 1/2W +/-5%	RF GL 1M OHM 1/2W +/-5%	1	UN	R839	
MAIN	A	18-KE0475-JNX	RES. GLASS GLAZE 4.7M OHM 1/2W +/-5%	RF GL 4.7M OHM 1/2W +/-5%	1	UN	R801	
MAIN	A	25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	CEAP 100 UF 16V +/-20%	6	UN	C243;C253;C252;C219;C844;C842	
MAIN	A	25-BCB102-M1X	CAP. ELEC 1K UF 16V +/-20%	CEAP 1000 UF 16V +/-20%	1	UN	C833	
MAIN	A	25-BDB102-M1X	CAP.ELEC 1000UF 25V+/-20%13*22	CEAP 1000 UF 25V +/-20%	4	UN	C305;C303;C829;C827	
MAIN	A	25-BDB470-M1X	CAP. ELEC 47 UF 25V +/-20%	CEAP 47 UF 25V +/-20%	6	UN	C402;C425;C605;C104;C850;C812	
MAIN	A	25-BDB471-M1X	CAP. ELEC 470 UF 25V +/-20%	CEAP 470 UF 25V +/-20%	2	UN	C601;C847	
MAIN	A	25-BEB101-M1X	CAP. ELEC 100 UF 35V +/-20%	CEAP 100 UF 35V +/-20%	1	UN	C307	
MAIN	A	25-BFB100-M1X	CAP. ELEC 10 UF 50V +/-20%	CEAP 10 UF 50V +/-20%	11	UN	C202;C237;C211;C902;C221;C203;C230;C101;C421("+" Q403 "E"; "-" Q403 "B");C861;C816	
MAIN	A	25-BFB109-M1X	CAP. ELEC 1 UF 50V +/-20%	CEAP 1 UF 50V +/-20%	12	UN	C246;C247;C248;C249;C216;C251;C226;C245;C318;C609;C106;C250	
MAIN	A	25-BFB479-M1X	CAP. ELEC 4.7 UF 50V +/-20%	CEAP 4.7 UF 50V +/-20%	2	UN	C205;C319	
MAIN	A	25-BHA470-M1X	CAP. ELEC 47 UF 100V +/-20%	CEAP 47 UF 100V +/-20%	1	UN	C846	
MAIN	A	25-BLB100-M1X	CAP. ELEC 10 UF 250V +/-20%	CEAP 10 UF 250V +/-20%	1	UN	C413	
MAIN	A	26-ABC103-ZFX	CAP. CER 0.01 UF 50V +80-20% F	CCTA 0,01 UF 50V +80 -20% F	1	UN	C209	
MAIN	A	26-ABC470-JZX	CAP. CER 47 PF 50V +/-5% SL	CCTA 47 PF 50V +/-5% SL	2	UN	C102;C103	
MAIN	A	26-ABC561-JZX	CAP. CER 560 PF 50V +/-5% SL	CCTA 560 PF 50V +/-5% SL	1	UN	C807	
MAIN	A	26-AIC103-MEX	CC 10NF +20% 500V E	CCTA 10 NF 500V +/-20% E	2	UN	C804;C825	
MAIN	A	26-AIC221-KBX	CAP. CER 220 PF 500V +/-10% B	CCD 220 PF 500V +/-10% B	1	UN	C822	
MAIN	A	26-AIC391-KBX	CAP. CER 390 PF 500V +/-10% B	CCD 390 PF 500V +/-10% B	1	UN	C412	
MAIN	A	26-AKC331-KBX	CAP. CER 330 pF 1KV +/-10%	CCD 330 PF 1000V +/-10%	1	UN	C817	
MAIN	A	26-AKC471-KRX	CAP. CER 470 pF 1KV +/-10%	CCD 470 PF 1000V +/-10%	1	UN	C805	
MAIN	A	26-AKC472-MEX	CAP. CER 4700 pF 1KV +/-20%	CCD 4700 PF 1000V +/-20%	2	UN	C801;C802	
MAIN	A	26-EBP102-KBS	CAP. CER 1000 PF 50V +/-20%	CCTA 1000 PF 50V +/-20%	7	UN	C301;C306;C213;C212;C814;C826;C838	
MAIN	A	26-EBP103-KBS	TCL26-EBP103-KBS= CAP.CER 10NF 50V +/-10	CCTA 10 NF 50V +/-10%	5	UN	C005;C845;C843;C841;C840	
MAIN	A	26-EBP103-ZFS	CAP.CER 10NF 50V +80%-20%	CCTA 10NF 50V +80/-20% F	6	UN	C401;C311;C218;C207;C108;C423	
MAIN	A	26-EBP104-ZFS	CAP. CER 0.1UF 50V +80%/-20%	CCTA 0,1 UF 50V +80/-20% F	26	UN	C241;C210;C233;C302;C901;C242;C608;C220;C222;C240;C105;C107;C239;C238;C235;C244;C217;C304;C611;C834;C851;C839;C813;C828;C830;C831	
MAIN	A	26-EBP221-KBS	CAP. CER 220pF 50V +/-10%	CCTA 220 PF 50V +/-10%	1	UN	C308	
MAIN	A	26-EBP223-ZFS	CAP. CER 22NF 50V +80%/-20%	CCTA 22 NF 50V +80 -20%	2	UN	C206;C225	
MAIN	A	26-EBP333-KBS	CAP. CER 33NF 50V +/-10%	CCTA 33 NF 50V +/-10%	2	UN	C612;C613	
MAIN	A	26-EBP473-ZFS	TCL26-EBP473-ZFS= CAP. CER 47NF 50V +80/	CCTA 47 NF 50V +80 -20%	1	UN	C806	
MAIN	A	26-EBP681-JCS	CAP. CER 680 PF 50V +/-5%	CCTA 680PF 50V +/-5%	1	UN	C815	
MAIN	A	27-MBC104-JOX	CAP. M.P.E 0.1 UF 63V +/-5%	CPE MYLAR 0,1 UF 63V +/-5%	3	UN	C309;C214;C204	
MAIN	A	27-MBC154-JOX	CAP. M.P.E. 0.15UF 63V +/-5%	CPE MYLAR 0,15 UF 63V +/-5%	1	UN	C208	
MAIN	A	27-MBC224-JOX	CAP. M.P.E 0.22UF 63V +/-5%	CPE MYLAR 0,22 UF 63V +/-5%	3	UN	C602;C603;C310	
MAIN	A	27-MCC222-JOX	CAP. M.P.E 2200 PF 100V +/-5%	CPE MYLAR 2200 PF 100V +/-5%	1	UN	C406	
MAIN	A	27-PBC563-JOX	CAP. P.E 0.056 UF 63V +/-5%	CPE POLIESTER 0,056 UF 63V +/-5%	2	UN	C414;C420	
MAIN	A	27-PBC682-JOX	CAP. P.E 0.0068UF 63V +/-5%	CPE POLIESTER 0,0068 UF 63V +/-5%	1	UN	C215	
MAIN	A	34-A100K0-1IX	COIL CHOKE 10 UH +/-10%	BOBINA FIJA INDUCTOR 10 UH +/-10%	6	UN	L201;L203;L207;L101;L202;L204	
MAIN	A	34-R100J2-OEX	COIL PL - 10 UH +/-5%	BOBINA FIJA INDUCTOR 10 UH +/-5%	2	UN	L205;L206	
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0026	UN	JE903;JE902;JE901;JE904;JE905;J412;J415;J416;J417;R319;JP202;R320;J833;J819;J821;J822;J823;J834;J836;J835;J831;J830;J832;J818;J829;J824;J827;J826;J828;J825;J813;J806;J807	33
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0009	UN	J911;JP103;J202;J245;J244;J106;J909;J910;J609;J912;J817	11
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0027	UN	JE906;J212;J610;J209;J605;J409;J311;J005;J102;J107;J816;J904;J231;J229;J227;J226;J243;J208;J907;J913;J222;J411;J235;J242;J926;J902;J223;J003;J307;J303;J301;JB601;JB602;J814	34
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0005	UN	J602;J305;J310;J228;J214;J309	6
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0003	UN	J221;J234;JB604;JB603	4
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0002	UN	J403;J809;J810	3
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0020	UN	J611;R253;J109;J110;J607;J606;J237;R252;J238;J220;J201;J101;J601;R004;J225;J230;J233;J105;J104;J205;J206;J308;J414;J802;J801	25

MODELO: BT2909S (Chasis: NX56 VERSION G)

Seleccionar	Proceso	CODIGO	DESCRIPCION PROVEEDOR	DESCRIPCION ESPAÑOL	CANT.	UNI.	POSICION	OBSERVACIONES
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0001	UN	J413	1
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0002	UN	J908;J407	2
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0004	UN	J215;J216;J218;J217;J219	5
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0010	UN	J906;J905;J204;J210;J304;J241;J240;J203;J608;J404;J811;J820	12
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0005	UN	J918;J224;J917;J006;J211;J213	6
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0002	UN	J406;J408;J402	3
MAIN	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTAÑADO	0,0001	UN	J405	1
MAIN	A	66-343730-0B0	HOLLOW RIVET 1.6MMX3.0MMX3.2MM	OJALILLO DE LATON ESTAÑADO 1.6X3.0XL3.2	13	UN	T401X3;L458X2;Q402X2;L451X2;T801X4	
MAIN	A	66-343740-0B0	HOLLOW RIVET (2.3MMX4.0MMX3.5MM)	OJALILLO DE LATON ESTAÑADO 2.3mmx4.0mmx3.5mm	8	UN	P401X4;C803X2;CN803X2	
MAIN	M	07-457FF5-NA9G	TUNER F07GP-4ND-E	SINTONIZADOR TCL F07GP-4ND-E	1	UN	TU101	
MAIN	M	10-00RU4C-F0X	DIODE RU4C (FAST RECOVERY)	DIODO RECUPERACION RAPIDO RU4C	1	UN	D808	
MAIN	M	10-0FR104-FBX	DIODE FR104 (FAST RECTIFIER)	DIODO RECTIFICADOR FR104 600V 1A	9	UN	D404;D454;D401;D301;D815;D813;D811;D810;D804	
MAIN	M	10-0RU4YX-F0X	DIODE GRU4YX (FAST RECOVERY)	DIODO RECUPERACION RAPIDO GRU4YX	1	UN	D812	
MAIN	M	10-1N5407-FBX	DIODE 3A/800V 1N5407	DIODO RECTIFICADOR 1N5407	4	UN	DB801;DB802;DB803;DB804	
MAIN	M	10-TE2515-F0X	DIODE TE2515 (FAST RECOVER)	DIODO RECUPERACION RAPIDO TE2515	1	UN	D455	
MAIN	M	11-CS630F-0CX	N-MOSFET CS630F	TRANSISTOR MOSFET CANAL-N CS630F 200V 9A	1	UN	Q451	
MAIN	M	11-DD1556-0AX	TRANSISTOR 3DD1556	TRANSISTOR NPN 3DD1556	1	UN	Q402	
MAIN	M	11-SK2996-0AX	TRANSISTOR 2SK2996 (MOS)	TRANSISTOR MOS-FET CANAL N;2SK2996 (MOS), 600V, 10A, 45W, 0.7 ohm	1	UN	Q801	
MAIN	M	13-000TL4-31T	IC-REGSPECKT TL431ACLPL R=N	CI REFERENCIADOR TL431ACLPL	1	UN	IC802	
MAIN	M	13-00M24C-16P	IC-EEPROM M24C16-WBN6 R=N	CI MEMORIA EEPROM M24C16-WBN6	1	UN	IC202(CP)	
MAIN	M	13-0L7805-CVS	TCL13-0L7805-CVS= IC+5V 1.5A IC L7805CV#	CI REGULADOR DE TENSION ANALOG;+5V 1.5A IC L7805CV	1	UN	IC205	
MAIN	M	13-0L7808-CVS	IC L7808CV(+8V,1.5A)	CI REGULADOR DE TENSION ANALOG;+8 1.5A IC L7808CV	1	UN	IC204	
MAIN	M	13-DA7266-SAS	TCL13-DA7266-SAS= IC TDA7266SA R=N	CI AMPLIFICADOR ANALOGICO TDA7266SA	1	UN	IC601	
MAIN	M	13-NCP133-7PP	OPTICOUP NCP1337P	CI CONTROLADOR PWM NCP1337P	1	UN	IC801	
MAIN	M	13-PC123X-9YP	TCL13-PC123X-9YP= PHOTOCOUPLER PC123X9YF	CI OPTOACOPLADOR PC123X9YF	1	UN	IC803	
MAIN	M	13-STV817-2AS	IC-DEFLECT STV8172A VERTICAL DEFLECTION	CI VERTICAL STV8172A	1	UN	IC301	
MAIN	M	13-TDA111-45P	IC MCU(WRITE)	CI MICROPROCESADOR TDA1145	1	UN	IC201(CP)	
MAIN	M	18-CE0332-JNX	RES. C.F. 3.3K OHM 1/2W +/-5%	RF PC 3.3K OHM 1/2W +/-5%	1	UN	R841	
MAIN	M	18-EE0478-JNX	RES. FUS 0.47 OHM 1/2W +/-5%	RF FU 0.47 OHM 1/2W +/-5%	2	UN	R418;R408	
MAIN	M	18-FF0399-JGX	RES. M.O. 3.9 OHM 1W +/-5%	RF OM 3.9 OHM 1W +/-5%	1	UN	R460	
MAIN	M	18-FG0109-JSX	RMOF 10HM +/-5% 2W R=Y	RF OM 10 OHM 2W +/-5%	1	UN	R308A	
MAIN	M	18-FG0159-JAX	RES.M.O.1.5 OHM 2W +/-5%	RF OM 1.5 OHM 2W +/-5%	2	UN	R317;R318	
MAIN	M	18-FG0183-JHX	RES. M.O. 18K OHM 2W +/-5%	RF OM 18K OHM 2W +/-5%	1	UN	R814	
MAIN	M	18-FG0223-JSX	RMOF 2W +/-5%22Kl	RF OM 22K OHM 2W +/-5%	1	UN	R837	
MAIN	M	18-FG0339-JSX	RMOF 3.3OHM +/-5% 2W R=Y	RF OM 3.3 OHM 2W +/-5%	1	UN	R425A	
MAIN	M	18-FH0473-JLX	RES. M.O. 47K OHM 3W +/-5%	RF OM 47K OHM 3W +/-5%	1	UN	R812	
MAIN	M	18-KF0825-JH3	RES. H.VOLT.CC 8.2M OHM 1W +/-5%	RF CC HV 8.2M OHM 1W +/-5%	1	UN	R838	
MAIN	M	18-MJ0108-JDX	RES. CEMENT 5W 0.1 OHM +/-5%	RF CERAMICA 0.1 OHM 5W +/-5%	1	UN	R806	
MAIN	M	18-RG0478-JAX	RES. WIRE ROUND 0.47 OHM 2W +/-5%	RF ALAMBRE 0.47 OHM 2W +/-5%	1	UN	R845	
MAIN	M	20-TR102H-5CX	TCL20-TR102H-5CX= TRIMMER B1K HORIZ TYPE	RV 1K OHM 180°	1	UN	VR801	
MAIN	M	22-NTC479-XX0	NTC 4.7D2-14	RV NTC 4.7 OHM +/-18%	1	UN	RT802	
MAIN	M	22-PTC909-3A5	PTC MZ73BHL-9; iA20%	RV PTC 9 OHM	1	UN	RT801	
MAIN	M	25-BDA222-M1S	CAP. ELEC 25V/2200UF/+/-20%	CEAP 2200 UF 25V +/-20%	1	UN	C832	
MAIN	M	25-BJG101-M1X	CAP. ELEC 100 UF 160V +/-20%	CEAP 100 UF 160V +/-20%	1	UN	C419	
MAIN	M	25-BJG331-M1X	CAP. ELEC 330 UF 160V +/-20% (18X40)	CEAP 330 UF 160V +/-20%	1	UN	C824	
MAIN	M	25-BMJ221-M1X	CAP. ELEC 220 UF 400V +/-20%	CEAP 220 UF 400V +/-20%	1	UN	C803	
MAIN	M	25-DFA479-M1XR	CAP.ELEC 4.7UF 50V +/-20%	CEAP 4.7 UF 50V +/-20%	1	UN	C452	
MAIN	M	26-AKC152-KRX	CAP. CER 1500 pF 1KV +/-10%	CCD 1500 PF 1000V +/-10%	1	UN	C811	
MAIN	M	26-AKL103-MFX	CAP. CER 10 NF 1KVDC +/-20%	CCD 10 NF 1000V +/-20%	1	UN	C809	
MAIN	M	26-APK222-MEX	CCS 2N2F 20% 250V E Y1 R=Y	CCD 2.2 NF 250V +/-20% E	1	UN	CY803	
MAIN	M	26-APK471-KBX	CCS 470P0F 10% 250V B Y1 R=Y	CCD 470 PF 250VCA +/-10% B	2	UN	CY802;CY801	
MAIN	M	27-AHQ393-JSX	CAP. M.PP 0.039 UF 400V +/-5%	CCTA 0.039UF 400V +/-5%	1	UN	C454	
MAIN	M	27-ALQ432-J0X	TCL27-ALQ432-J0X= CAP. M.PP 4300 PF 1.6K	CPP MYLAR 4300PF 1600V +/-5%	1	UN	C453	
MAIN	M	27-ALR822-J0X	CAP. M.PP 0.0082UF 1.6KV +/-5%	CPP MYLAR 0.0082UF 1600V +/-5%	2	UN	C457;C455	
MAIN	M	27-AQT474-MV3	CAP.M.PP0.47UF275VAC/+/-20%	CPP MYLAR 0.47 UF 275V +/-20%	1	UN	CX802	
MAIN	M	27-MHW104-K0X	CAP. M.P.E 0.1 UF 400V +/-10%	CPP MYLAR 0.1 UF 400V +/-10%	1	UN	C810	
MAIN	M	35-392170-0IX	FERR BEAD BF-135050R-730	ANILLO DE FERRITE BF-135050R-730	2	UN	L802;L804	
MAIN	M	36-HDR020-XX0	TRANSFORMER HORIZ DRIVE BCT-1621	TRANSFORMADOR DRIVER HORIZONTAL BCT-1621	1	UN	T402	
MAIN	M	36-LIF005-XX1	LINE FILTER LCL-2826A	FILTRO CHOQUE DE LINEA LCL-2826A	1	UN	LF802	
MAIN	M	36-LIF087-JX1	LINE FILTER LGH2V-40UH	FILTRO CHOQUE DE LINEA LGH2V-40UH	1	UN	LF801	
MAIN	M	36-LIN180-XX1	TCL36-LIN180-XX1= COIL LINEARITY 18 UH R	BOBINA FIJA DE LINEALIDAD 18 UH	1	UN	L458	
MAIN	M	36-TRF325-AX1	TRANSFORMER BCK-4216	TRANSFORMADOR DE INDUCCION 90~260V ALTERNA BCK-4216	1	UN	T801	
MAIN	M	36-WID801-XX1	TCL36-WID801-XX1= COIL WIDTH 800 UH R=N	BOBINA FIJA DE ANCHO 800 UH	1	UN	L451	
MAIN	M	37-FCAT01-EAA9A	FBT SANHUA NX56 BSC27-0109X	TRANSFORMADOR DE INDUCCION FLY-BACK BSC27-0109X	1	UN	T401	
MAIN	M	41-BF0050-0BB	WIRE UL 1007 #24 50MM BLK	CABLE DE COBRE CON AISLACION L=50MM	1	UN	FOR D204 "+" A J232&P201	
MAIN	M	45-OSC24M-5N6BR	CRYSTAL 24.576MHZ 30PPM R=Y	CRISTAL DE CUARZO 24.576 Mhz	1	UN	X201	
MAIN	M	45-SAWD15-39C0D	SAW FILTER 45.75MHZ D1539C	FILTRO SAW D1539C (45.75MHZ)	1	UN	Z201	
MAIN	M	46-10962W-02XG	PIN BASE *2 TJC2-2A	CONECTOR PARA IMPRESO DE 2 VIAS	1	UN	CN802	
MAIN	M	46-33079W-02XG	PIN BASE *2 TJC3-2A	CONECTOR PARA IMPRESO DE 2 VIAS	1	UN	P204	
MAIN	M	46-33079W-02XG	PIN BASE *2 TJC3-2A	CONECTOR PARA IMPRESO DE 2 VIAS	1	UN	P602	
MAIN	M	46-33079W-03XG	PIN BASE *3 TJC3-3A	CONECTOR PARA IMPRESO DE 3 VIAS	1	UN	P603	
MAIN	M	46-33079W-04XG	PIN BASE *4 TJC3-4A	CONECTOR PARA IMPRESO DE 4 VIAS	1	UN	P202(PIN1-PIN4)	

MODELO: BT2909S (Chasis: NX56 VERSION G)

Seleccionar	Proceso	CODIGO	DESCRIPCION PROVEEDOR	DESCRIPCION ESPAÑOL	CANT.	UNI.	POSICION	OBSERVACIONES
MAIN	M	46-33079W-04XG	PIN BASE *4 TJC3-4A	CONECTOR PARA IMPRESO DE 4 VIAS	1	UN	P203	
MAIN	M	46-33079W-05XG	PIN BASE *5 TJC3-5A	CONECTOR PARA IMPRESO DE 5 VIAS	1	UN	P902	
MAIN	M	46-35063W-03XG	PIN BASE *3 VH-3A	CONECTOR PARA IMPRESO DE 3 VIAS	1	UN	CN803	
MAIN	M	46-39402W-04XG	BASE	CONECTOR PARA IMPRESO DE 4 VIAS	1	UN	P401	
MAIN	M	46-40331H-04XG	WIRE UL1007 300MM 4	CABLE CON CONECTOR 4P	1	UN	ROJO-A/AZUL-C/VERDE-B/AMARILLO-D	
MAIN	M	46-CD040T-04K01G	WIRE UL246#26 400MM 4 2.5MM	CABLE CON CONECTOR PARA IMPRESO 3 VIAS	1	UN	S402	
MAIN	M	46-CD055T-06K01G	WIRE 550MM 06 TJC3 SCN 2.5MM UL#246	CABLE CON CONECTOR PARA IMPRESO 5 VIAS	1	UN	P201 A CRT BD P503	
MAIN	M	47-RCA243-XX1G	SOCKET-RCA 9 RD-BU-GN-RD-WH-YW R	CONECTOR PARA IMPRESO 90° 9 VIAS RCA (YUV, 2XCVBS+AUDIO)	1	UN	P901	
MAIN	M	47-SVI002-XX0	Y/C SOCKET VERTICAL TYPE	ZOCALO HEMBRA DIN S-VIDEO TIPO VERTICAL	1	UN	P903	
MAIN	M	50-04000D-1GS1G	FUSE T4AL/250V	FUSIBLE VIDRIO 250V 4A	1	UN	F801	
MAIN	M	62-227680-0UA	TV RAW SUPPORT CABLE CHASSIS -- 00 00 00	ANILLO SUJETACABLE DE PLASTICO	1	UN		
MAIN	M	62-227680-1UA	TV RAW SUPPORT CABLE FBT -- 01 00 00 R=N	LAZO PLASTICO FBT	1	UN		
MAIN	M	63-B30080-BT4G	S/T SCREW B 3 X 8 BT	TORNILLO PARA PLASTICO ZINCADO B 3 X 8	1	UN	Q402	
MAIN	M	63-B30100-AB4G	SCREW-ST 3MM 10MM JIS B 1122 53 0 0 R=Y	TORNILLO PARA PLASTICO ZINCADO B 3 X 10 AB	1	UN	IC301	
MAIN	M	64-P30060-104G	M/C SCREW P 3 X 6	TORNILLO METRICO ZINCADO 3 X 6	2	UN	IC205;IC204	
MAIN	M	64-P30080-104G	M/C SCREW P 3 X 8	TORNILLO METRICO ZINCADO P 3 X 8	4	UN	Q451X1;IC601X2;Q801X1	
MAIN	M	66-20517X-0B7	FUSE HOLDER	SOPORTE FUSIBLE DE LATON ESTANO	2	UN	FOR F801	
MAIN	M	67-H10918-4M2	HEAT SINK	DISIPADOR DE ALUMINIO EXTRUIDO 25X15X25	2	UN	Y205;Y204	
MAIN	M	67-H27292-1A0	HEAT SINK	DISIPADOR DE ALUMINIO EXTRUIDO 23,5X17X60	1	UN	Y451	
MAIN	M	67-H30752-GA0	RAW HEATSINK -- GA0 00 R=N	DISIPADOR DE ALUMINIO EXTRUIDO 55X23X52	1	UN	Y402	
MAIN	M	67-H34800-9A0	HEATSINK	DISIPADOR DE ALUMINIO EXTRUIDO	1	UN	Y601	
MAIN	M	67-H38012-VA0	RAW HEATSINK -- 01 00 R=Y	DISIPADOR DE ALUMINIO EXTRUIDO	1	UN	Y801	
MAIN	M	67-H40390-4A0	HEAT SINK	DISIPADOR DE ALUMINIO EXTRUIDO	2	UN	Y1;Y2	
MAIN	M	67-M40068-2E4	TV RAW SUPPORT -- -- 00 00 00 R=N	SOPORTE PARA DISIPADOR DE ALUMINIO EXTRUIDO	1	UN	Y301	
MAIN	M	71-270870-0A9	LABEL	ETIQUETA	2	UN		
MAIN	M	71-DYP000-WX1	LABEL	ETIQUETA ADVERTENCIA LIVE AREA	1	UN	FOR Y801	
MAIN	M	90-0DSTG1-SR1U	HEAT SINK DSTG-1	GRASA SILICONADA DSTG-1	0,4	G		
MAIN	M	90-322130-JS1	RED ADHESIVE LIQUID BP-884	ADHESIVO ROJO BP-883	0,002	G		
MAIN	M	T8-DM63SAE-BT1	ASS *Y -- BTSC BDEQU	MODULO BTSC 29°	1	UN		P601
MAIN	PCB	40-00NX56-MAG1XG	TV PCB MA BD R=Y	CIRCUITO IMPRESO FENOLICO SIMPLE FAZ MAIN 40-00NX56-MAG1XG	1	UN		
TAPA TRASERA	E	55-BM62RC-5CL6R	DEC BACKCOVER -- A8252 01 00 00 R=N	TAPA TRASERA BT2909S	1	UN		
TAPA TRASERA	E	58-456790-1UI1A	TV DEC OVERLAY 29A41 REAR AV OVERLAY TO	ETIQUETA CONECTORES TRASEROS BT2909S	1	UN		
TAPA TRASERA	E	58-BM63MP-0UI9F	TV DEC OVERLAY -- WHITE & BLACK 00 9A 00	ETIQUETA IDENTIFICACION BT2909S	1	UN		
TRC	A	11-0BF422-0BX	TRANSISTOR BF422 (NPN) 126	TRANSISTOR NPN BF422	3	UN	Q512;Q522;Q532	
TRC	A	11-0BF423-0BX	TRANSISTOR BF423 (PNP) 126	TRANSISTOR PNP BF423	3	UN	Q513;Q523;Q533	
TRC	A	11-SC1815-YBX	TRANSISTOR 2SC1815-Y (NPN)	TRANSISTOR 2SC1815Y: NPN; 0,5W	3	UN	Q501;Q502;Q503	
TRC	A	18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	RF PC 220 OHM 1/6W +/-5%	3	UN	R513;R523;R533	
TRC	A	18-CB0470-JNX	RES. C.F. 47 OHM 1/6W +/-5%	RF PC 47 OHM 1/6W +/-5%	3	UN	R511;R521;R531	
TRC	A	18-CB0471-JNX	RES. C.F. 470 OHM 1/6W +/-5%	RF PC 470 OHM 1/6W +/-5%	3	UN	R512;R522;R532	
TRC	A	18-CB0751-JNX	RES. C.F. 750 OHM 1/6W +/-5%	RF PC 750 OHM 1/6W +/-5%	3	UN	R503;R501;R502	
TRC	A	18-CD0102-JNX	RES. C.F. 1K OHM 1/4W +/-5%	RF PC 1K OHM 1/4W +/-5%	1	UN	R541	
TRC	A	18-CD0471-JNX	RES. C.F. 470 OHM 1/4W +/-5%	RF PC 470 OHM 1/4W +/-5%	6	UN	R528;R526;R536;R538;R516;R518	
TRC	A	18-CE0224-JNX	RES. C.F. 220K OHM 1/2W +/-5%	RF PC 220K OHM 1/2W +/-5%	1	UN	R506	
TRC	A	18-FE0272-JNX	RES. M.O. 2.7K OHM 1/2W +/-5%	RF OM 2.7K OHM 1/2W +/-5%	3	UN	R519;R529;R539	
TRC	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTANADO	0,0002	UN	D531;D521;D511	3
TRC	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTANADO	0,0001	UN	J504	
TRC	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTANADO	0,0001	UN	J502	1
TRC	A	41-0J0000-00X	WIRE BARE JUMPER	ALAMBRE DE COBRE ESTANADO	0,0001	UN	J503	1
TRC	M	11-DA4544-0AX	TRANSISTOR 3DA4544-O/Y (NPN)	TRANSISTOR CONMUTACION NPN 3DA4544 300V 100mA	3	UN	Q521A;Q511A;Q531A	
TRC	M	18-FG0153-JSX	RMOF 15KOHM +/-5% 2W R=Y	RF OM 15K OHM 2W +/-5%	3	UN	R535A;R525A;R515A	
TRC	M	26-AMM102-KRX	CAP. CER 1000 PF 2KV +/-10% R	CCD 1000 PF 2KV +/-10% R	1	UN	C505	
TRC	M	26-EBP102-KBS	CAP. CER 1000 PF 50V +/-20%	CCTA 1000 PF 50V +/-20%	1	UN	C541	
TRC	M	26-EBP391-JCS	CAP. CER 390PF 50V +/-5%	CCTA 390PF 50V +/-5% CH	2	UN	C511;C521	
TRC	M	26-EBP471-JCS	CAP. CER 470 PF 50V +/-5%	CCTA 470PF 50V +/-5%	1	UN	C531	
TRC	M	34-A470K0-1IX	COIL CHOKE 47 UH +/-10%	BOBINA FLUJA INDUCTOR 47 UH +/-10%	1	UN	L501	
TRC	M	46-10967W-01XG	SMD PIN BASE *1 TJC1-1A	CONECTOR PARA IMPRESO DE 1 VIA	1	UN	P503	
TRC	M	46-33079W-06XG	PIN BASE *6 TJC3-6A	CONECTOR PARA IMPRESO DE 6 VIAS	1	UN	P501	
TRC	M	46-35179W-04XG	PIN BASE TJC3-4A	CONECTOR PARA IMPRESO DE 4 VIAS	1	UN	P502	
TRC	M	47-CRT004-XX3G	SOCKER CRT GZS10-2-AD2	CONECTOR ZOCALO DE TRC GZS10-2-AD2	1	UN	S501	
TRC	PCB	40-0NX56B-CRC1XG	TV PCB CR BD R=Y	CIRCUITO IMPRESO FENOLICO SIMPLE FAZ TRC 40-0NX56B-CRC1XG	1	UN		

UOC-TOP-64 N1 series

Versatile signal processor for CRT TV applications

Rev. 0.11 — 25 January 2007

Product data sheet

1. General description

The UOC-TOP-64 series is a very flexible concept which offers attractive solutions for $1f_H$ TV receivers with CRTs. This new concept offers a complete range of products with the right price level to cover TV receivers from basic mono 14 inch sets up to the best featured large and/or wide screen AV-stereo TV sets. The UOC-TOP-64 concept can also be used as front-end for $2f_H$ and LCD TV receivers.

The UOC-TOP-64 concept is mounted in a SDIP64 package and is split up in the following ranges:

- AV-110 (AV-stereo) concept. It contains a video processor with many features and it has an analog audio control circuit with balance, treble, bass and loudness control. Two different micro processor are available for this concept, one with OSD and Closed Captioning or Teletext and Closed Captioning features (UOCTOP_1PTXT version), the other with (extended) OSD features (UOCTOP_OSD version). The block diagram is given in [Figure 1](#).
- AV-90 concept. This concept is nearly identical to the AV-110 concept. The only difference that it does not contain an East-West and Scan Velocity Modulation (SVM) output. This concept is intended for 90° picture tubes.
- Mono-110 concept. The functional content of this concept is comparable with that of the AV 110 concept, however, it has just stereo input switch and no audio control circuit. The block diagram is given in [Figure 1](#).
- Mono-90 concept. This concept is intended for 90° picture tubes. The circuit has an audio switch for mono signals but the mono inputs can also be used as a stereo input. In this range most of the video and audio processing features have been omitted. Also this concept can be supplied with one of the two micro processors (UOCTOP_1PTXT or UOCTOP_OSD version). The block diagram is given in [Figure 2](#).

The most important features of the complete IC series are given in the following feature lists.

All packages are according to the ROHS legislation, which also means that these packages are lead-free. The ICs have supply voltages of 8V, 5V and 3.3V.

UOC-TOP-64 is supported by a comprehensive Global TV Software Development kit to enable easy programming and fast time-to-market (see also [Section 20.4 "Licenses"](#)).

2. Features

2.1 Analog Video Processing

2.1.1 Overview of available features (AV-110/90 and Mono-110 concept)

- Multi-standard vision IF circuit with alignment-free PLL demodulator
- Internal (switchable) time-constant for the IF-AGC circuit
- Switchable group delay correction and sound trap (with switchable centre frequency) for the demodulated CVBS signal
- Separate Second Sound IF output or FM demodulator output without de-emphasis available, which can be used as input for an external BTSC decoder or as input for external sound band-pass filter for second language processing.
- Separate SSIF input available as input for the FM-PLL demodulator to demodulate FM-radio with an IF frequency of 10.7 MHz, or as input from an external sound band-pass filter for second language processing.
- AM demodulator without extra reference circuit
- The mono intercarrier sound circuit has a selective FM-PLL demodulator which can be switched to the different FM sound frequencies (4.5/5.5/6.0/6.5 MHz). The quality of this system is such that the external band-pass filters can be omitted.
- The FM-PLL demodulator can be set to centre frequencies of 4.72/5.74 MHz so that a second sound channel can be demodulated. In such an application it is necessary that an external bandpass filter is inserted.
- Audio switch circuit with 2 stereo inputs (1 stereo input can also be switched into two mono sound inputs) and a stereo output which can be used for the drive of for audio power amplifiers (with volume and tone-control) or as SCART/CINCH output. The second stereo input is only available via the combined C2/C3/C4/AUDIOIN5R pin for the right channel and via the combined CVBS4/Y4/AUDIOIN5L pin for the left channel.
- Video switch with 3 external CVBS inputs. All CVBS inputs can be used as Y-input for Y/C signals. However, only 1 Y/C source can be selected because the circuit has 1 chroma input. CVBS3/Y3 input available in combination with the G/Y-3 input pin.
- 1 CVBS output, this output can be used as monitor video output or as front-end video output or as independent selectable video output.
- Automatic Y/C signal detector.
- Integrated luminance delay line with adjustable delay time
- Only one reference (24.576 MHz) crystal required for the m-Controller, Teletext- and the color decoder
- Multi-standard color decoder with automatic search system and various "forced mode" possibilities
- Internal base-band delay line
- Indication of the Signal-to-Noise ratio of the incoming CVBS signal
- Linear RGB/YP_BP_R input.
- Scan Velocity Modulation output. The SVM circuit is active for all the incoming CVBS, Y/C and RGB/YP_BP_R signals. The SVM output is combined with the black current input of the black current stabilisation circuit. By means of a small application adaptation both functions can be operational in parallel.

- Picture improvement features with peaking (with switchable centre frequency, depeaking, variable positive/negative peak ratio, variable pre-/overshoot ratio and video dependent coring), dynamic skin tone control, gamma control and blue- and black stretching. All features are available for CVBS, Y/C and RGB/YP_BP_R signals
- The effect of the various features can be demonstrated by means of a 'split screen' mode in which the features are activated in one half of the picture and switched off in the other half
- Switchable DC transfer ratio for the luminance signal
- Tint control for external RGB/YP_BP_R signals
- Contrast reduction possibility during mixed-mode of OSD and Text signals. Option to make a colored and in contrast reduced window.
- RGB control circuit with 'Continuous Cathode Calibration', white point and black level off-set adjustment so that the color temperature of the dark and the light parts of the screen can be chosen independently. When this 'Continuous Cathode Calibration' is not used, simple alignment of the cutoff level is possible.
- Adjustable 'wide blanking' of the RGB outputs
- Horizontal synchronization with two control loops and alignment-free horizontal oscillator
- Vertical count-down circuit
- Vertical driver optimized for DC-coupled vertical output stages
- Horizontal and vertical geometry processing with horizontal parallelogram and bow correction and horizontal and vertical zoom
- The IC can be used as front-end for Progressive Scan or LCD TV receivers
- Low-power start-up of the horizontal drive circuit

2.1.2 Features of the AV-110/90 concept which are not available in the Mono-110 concept

- Analog audio tone control circuit with treble, bass and loudness controls

2.1.3 Features of the AV-110 and Mono-110 concept which are not available in the AV-90 concept

- Horizontal geometry processing and Scan Velocity Modulation output

2.1.4 Differences in feature list for the MONO-90 concept compared with AV-110/90 and Mono-110 concept

- Audio switch circuit with 1 stereo input, which can also be switched into two mono sound inputs, a mono output for SCART/CINCH with the possibility to serve as front/monitor audio output.
- Stereo output (with volume and AVL) for audio power amplifiers. This stereo output can also be switched to one mono loudspeaker output and one fixed mono sound output.
- CVBS output, this output can only be used as monitor video output or as front-end video output.
- Only basic video processing. The remaining video features are peaking with coring, black stretching and gamma control.
- No horizontal geometry processing and Scan Velocity Modulation output.

2.2 Micro-Controller

- 80C51 m-controller core standard instruction set and timing
- 0.9766 ms machine cycle
- maximum of 80 k x 8-bit late programmed ROM
- maximum of 3 k x 8-bit Auxiliary RAM
- I²C byte level bus interface.
- Interrupt controller for individual enable/disable with two level priority
- Two 16-bit Timer/Counter registers
- One 24-bit Timer (16-bit timer with 8-bit Pre-scaler)
- 16-bit Data pointer
- WatchDog timer
- Auxiliary RAM page pointer
- Stand-by, Idle and Power Down modes
- Up to 13 general-purpose I/O pins
- 14 bits PWM for Voltage Synthesis Tuning
- 8-bit A/D converter with 4 multiplexed inputs
- 4 PWM (6-bits) outputs for analogue control functions

2.3 Data Capture (Teletext and Closed Caption devices)

- Text memory for 1 page
- Inventory of transmitted Teletext pages stored in the Transmitted Page Table (TPT) and Subtitle Page Table (SPT)
- Data Capture for US Closed Caption
- Data Capture for 525/625 line WST, VPS (PDC system A) and 625 line Wide Screen Signalling (WSS) bit decoding
- Automatic selection between 525 WST/625 WST
- Automatic selection between 625 WST/VPS on line 16 of VBI
- Real-time capture and decoding for WST Teletext in Hardware, to enable optimized m-processor throughput
- Automatic detection of FASTEXT transmission
- Real-time packet 26 engine in Hardware for processing accented, G2 and G3 characters
- Signal quality detector for video and WST/VPS data types
- Comprehensive teletext language coverage
- Vertical Blanking Interval (VBI) data capture of WST data

2.4 Display

2.4.1 Features of the OSD-only devices

- Up to 4 character sets with 256 characters each (size 16 pixels x 18 lines)
- Enhanced OSD modes
- 50Hz/60Hz display timing modes
- Serial and Parallel Display Attributes
- Single/Double Width and Height for characters
- Scrolling of display region
- Variable flash rate controlled by software
- Enhanced display features including overlining, underlining and italics
- Soft colors using CLUT with 4096 color palette
- Global selectable matrix: (12/16)
- By attribute selectable: 1.5x characters (18/24)
- Globally selectable character spacing
- Fringing (Shadow) selectable from N-S-E-W direction
- Fringe color selectable
- Contrast reduction of defined area with option of coloration
- Programmable Cursor
- Special Graphics Characters with two planes, allowing four colors per character

2.4.2 Features of the Teletext and Closed Caption devices

- Four character sets
- Up to 576 characters with a size of 12 pixels x 16 lines are supported
- Teletext and Enhanced OSD modes
- 50Hz/60Hz display timing modes
- Serial and Parallel Display Attributes
- Scrolling of display region
- Variable flash rate controlled by software
- Soft colors using CLUT with 4096 color palette
- Global selectable matrix: (12)
- Features of level 1.5 WST and US Close Caption
- Single/Double/Quadruple Width and Height for characters
- 64 software redefinable On-Screen display characters
- G1 Mosaic graphics, Limited G3 Line drawing characters
- WST Character sets and Closed Caption Character set in single device
- Curtaining effect via software
- Fringing (Shadow) selectable from N-S-E-W direction
- Fringe color selectable
- Contrast reduction of defined area with option of coloration
- Programmable Cursor
- Special Graphics Characters with two planes, allowing four colors per character

3. Quick reference data

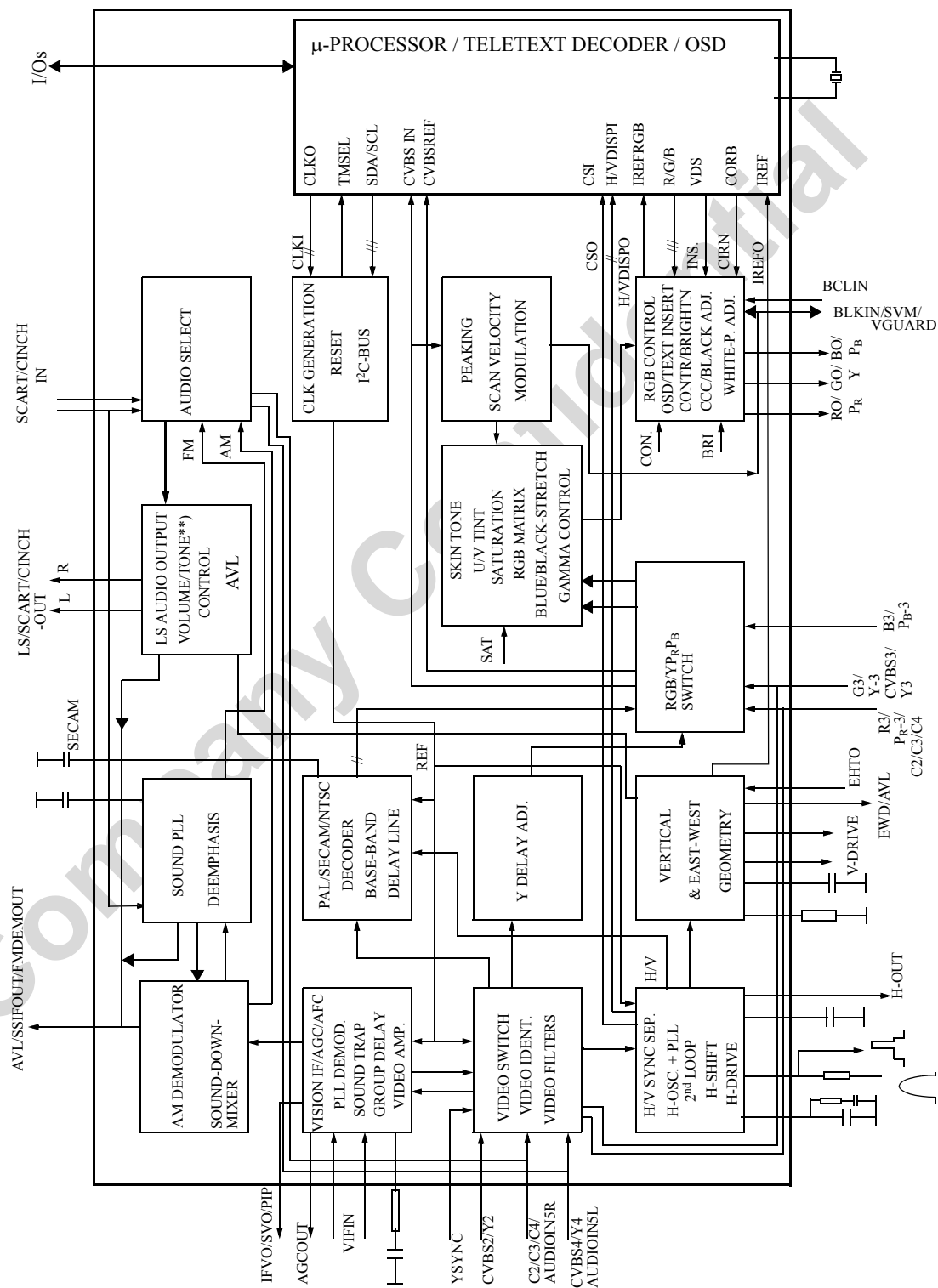
Table 1: Quick reference data

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
Supply					
V_P	analogue supply voltage VSP	4.7	5.0	5.3	V
I_P	supply current (5.0 V)	—	160	—	mA
V_{DDA}	digital supply VSP / analogue supply periphery	3.0	3.3	3.6	V
I_{DDA}	supply current (3.3 V); Mono90 version	—	50	—	mA
I_{DDA}	supply current (3.3 V); AV110/90 and Mono110 versions	—	70	—	mA
V_{PAudio} ^[1]	audio supply voltage	4.7	8.0	8.4	V
I_{PAudio} ^[1]	supply current (5.0/8.0 V); mono-90 version	—	0.5	—	mA
I_{PAudio}	supply current (8.0 V); AV-110/90 and mono-110 version	—	10	—	mA
P_{tot}	total power dissipation	—	—	1.1	W
Input voltages					
$V_{iVIF(rms)}$	video IF amplifier sensitivity (RMS value)	—	75	150	μ V
$V_{iSSIF(rms)}$	sound IF amplifier sensitivity (RMS value)	—	1.0	—	mV
$V_{iAUDIO(rms)}$	external audio input (RMS value)	—	1.0	1.3	V
$V_{iCVBS(p-p)}$	external CVBS/Y input (peak-to-peak value)	—	1.0	1.4	V
$V_{iCHROMA(p-p)}$	external chroma input voltage (burst amplitude) (peak-to-peak value)	—	0.3	1.0	V
$V_{iRGB(p-p)}$	RGB inputs (peak-to-peak value)	—	0.7	0.8	V
$V_{iY(p-p)}$	luminance input signal (peak-to-peak value)	—	1.0	—	V
$V_{iPB(p-p)}$	P_B input signal (peak-to-peak value) ^[2]	—	0.7	—	V
$V_{iPR(p-p)}$	P_R input signal (peak-to-peak value) ^[2]	—	0.7	—	V
Output signals					
$V_{o(IFVO)(p-p)}$	demodulated CVBS output (peak-to-peak value)	—	2.0	—	V
$V_{o(QSSO)(rms)}$	sound IF intercarrier output (RMS value)	—	100	—	mV
$V_{o(AMOUT)(rms)}$	demodulated AM sound output (RMS value)	—	250	—	mV
$V_{o(AUDIO)(rms)}$ ^[1]	non-controlled audio output signals (RMS value)	1.0	—	—	V
$V_{o(CVBSO)(p-p)}$	selected CVBS output (peak-to-peak value)	—	2.0	—	V
$I_{o(AGCOUT)}$	tuner AGC output current range	0	—	1	mA
$V_{oRGB(p-p)}$	RGB output signal amplitudes (peak-to-peak value)	—	1.2	—	V
I_{oHOUT}	horizontal output current	10	—	—	mA
I_{oVERT}	vertical output current (peak-to-peak value)	—	1	—	mA
I_{oEWD}	EW drive output current	—	—	1.2	mA

[1] The supply voltage for the analogue audio part of the mono-90 version can be 5V or 8V. For a supply voltage of 5V the maximum signal amplitudes at in and outputs are $1V_{rms}$. For a supply voltage of 8V the maximum output signal amplitude is $2V_{rms}$. The AV-110/90 and Mono-110 versions need a supply voltage of 8 V.

[2] The $Y_{PB}P_R$ input signal amplitudes are based on a color bar signal with 100% saturation.

5. Block diagram



**) The mono-110 version has only volume control and no tone control functions

Fig 1. Block diagram of the “AV-110/90” and “MONO-110” TV processor

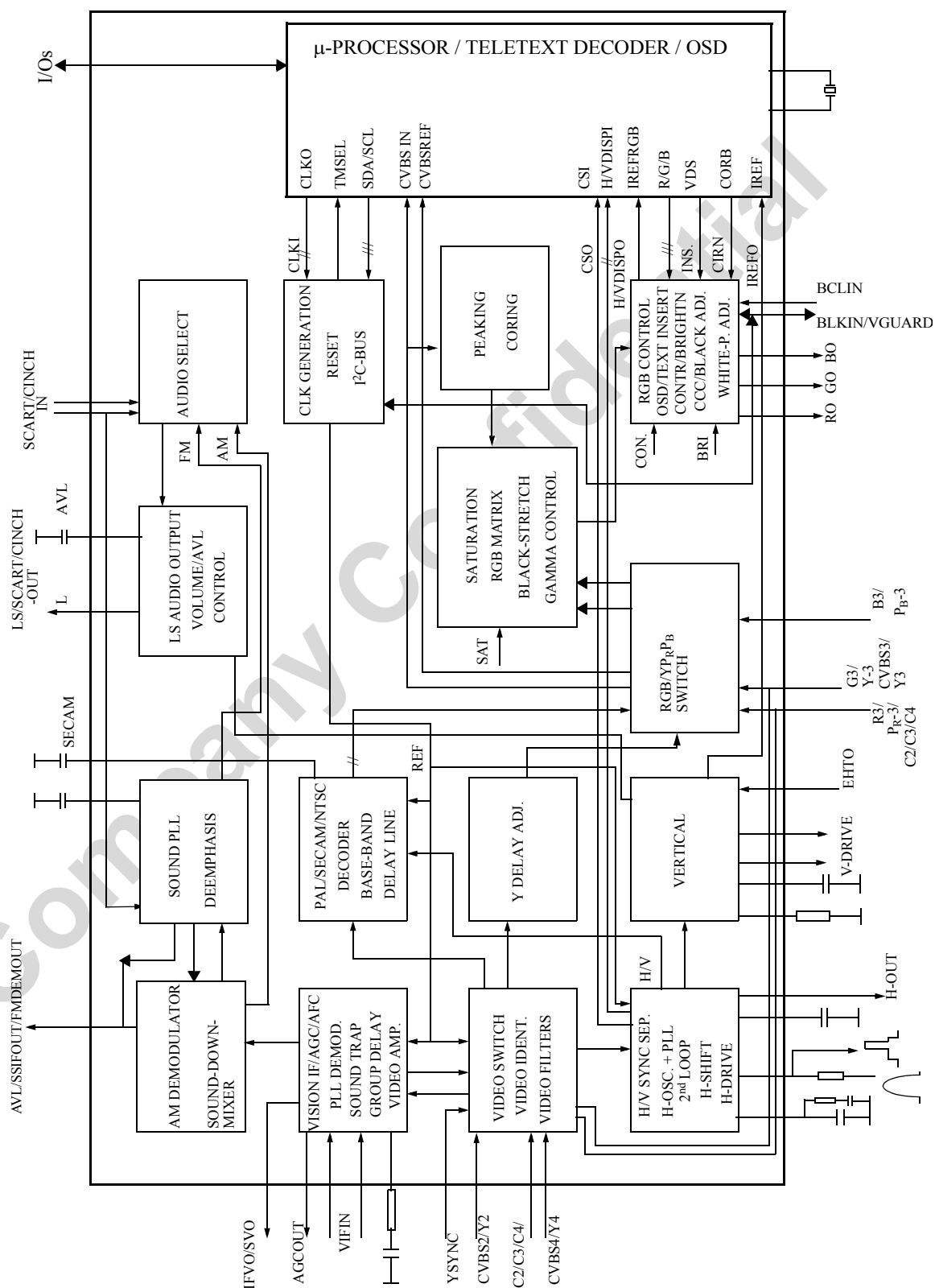


Fig 2. Block diagram of the “MONO-90” TV processor

6. Pinning information

Table 6: Pinning information

SYMBOL	SDIP64			DESCRIPTION
	AV-110 Mono-110	AV-90	Mono-90	
IFVO/SVO/PIP [3]	1	1	–	IF video output / selected CVBS output / PIP output
IFVO/SVO [3]	–	–	1	IF video output / selected CVBS output
VP2	2	2	2	2 nd supply voltage TV processor (+5 V)
VCC8V	3	3	3	8 Volt supply for audio switches
PLLIF	4	4	4	IF-PLL loop filter
GND2	5	5	5	ground 2 for TV processor
DECSDEM	6	6	6	decoupling sound demodulator
AVL/SSIFOUT/SNDDEMOUT [2]	7	7	7	AVL / Second sound IF output / sound demodulator output
EHTO	8	8	8	EHT/overvoltage protection input
AGCOUT	9	9	9	tuner AGC output
IREF	10	10	10	reference current input
VSC	11	11	11	vertical sawtooth capacitor
VIFIN2	12	12	12	IF input 2
VIFIN1	13	13	13	IF input 1
VDRA	14	14	14	vertical drive A output
VDRB	15	15	15	vertical drive B output
EWD/AVL	16	–	–	East-West drive output / AVL capacitor
AVL	–	16	16	AVL capacitor
DECBG	17	17	17	bandgap decoupling
SECPLL	18	18	18	SECAM PLL decoupling
GND1	19	19	19	ground 1 for TV-processor
PH1LF	20	20	20	phase-1 filter
PH2LF	21	21	21	phase-2 filter
VP1	22	22	22	1 st supply voltage TV-processor (+5 V)
DECDIG	23	23	23	decoupling digital supply
XTALOUT	24	24	24	crystal oscillator output
XTALIN	25	25	25	crystal oscillator input
P1.5	26	26	26	port 1.5
P3.3/ADC3/PWM3	27	27	27	port 3.3 or ADC3 input or PWM3 output
P3.2/ADC2/PWM2	28	28	28	port 3.2 or ADC2 input or PWM2 output
P3.1/ADC1/PWM1	29	29	29	port 3.1 or ADC1 input or PWM1 output
P3.0/ADC0/PWM0	30	30	30	port 3.0 or ADC0 input or PWM0 output
P2.1/PWM0	31	31	31	port 2.1 or PWM0 output
P2.0/TPWM	32	32	32	port 2.0 or Tuning PWM output
VDDP(3.3V)	33	33	33	supply to periphery (3.3V)
P1.7/SDA	34	34	34	port 1.7 or I ² C-bus data line
P1.6/SCL	35	35	35	port 1.6 or I ² C-bus clock line
P1.3/T1	36	36	36	port 1.3 or Counter/Timer 1 input
P1.1/T0	37	37	37	port 1.1 or Counter/Timer 0 input
P1.0/INT1	38	38	38	port 1.0 or external interrupt 1
INT0/P0.5	39	39	39	external interrupt 0 or port 0.5 (4 mA current sinking capability for direct drive of LEDs)
VDDC(3.3V)	40	40	40	supply

Table 6: Pinning information

SYMBOL	SDIP64			DESCRIPTION
	AV-110 Mono-110	AV-90	Mono-90	
GND5	41	41	41	ground
VPE	42	42	42	OTP Programming Voltage
VDDA1(3.3V)	43	43	43	supply voltage
BO/PBOUT	44	44	—	Blue output / P _B output
BO	—	—	44	Blue output
GO/YOUT	45	45	—	Green output / Y output
GO	—	—	45	Green output
RO/PROUT	46	46	—	Red output / P _R output
RO	—	—	46	Red output
BLKIN/VGUARD/SVM [1][6]	47	—	—	black current input / vertical guard / scan velocity modulation output
BLKIN/VGUARD [1][6]	—	47	47	black current input / vertical guard
BCLIN	48	48	48	beam current limiter input
B3/P _B 3	49	49	49	3 rd B input / P _B input
G3/Y3/CVBS3/Y3 [1]	50	50	50	3 rd G input / Y input / CVBS input / Y input
R3/P _R 3/C2/C3/C4 [1]	51	51	51	3 rd R input / P _R input / C2/3/4 input
YOUT	52	52	52	Y-output (for YUV interface)
YSYNC	53	53	53	Y-input for sync separator
VP3	54	54	54	supply voltage (5 V)
GND3	55	55	55	ground connection
HOUT	56	56	56	horizontal output
FBISO/SANDCA	57	57	57	flyback input/sandcastle output
AUDOUTSM2/LSR	58	58	58	audio output for audio power amplifier (right signal) or fixed audio output for mono applications
AUDOUTLSM1/LSL	59	59	59	audio output for audio power amplifier (left signal) or speaker output for mono applications
C2/C3/C4/AUDIOIN5R [1]	60	60	—	chroma-2/3/4 input / audio 5 right input
C2/C3/C4	—	—	60	chroma-2/3/4 input
AUDIOIN3/IN1R [5]	61	61	61	audio 3 input / right stereo input
CVBS2/Y2	62	62	62	CVBS2/Y2 input
AUDIOIN2/IN1L/SSIF [4][5]	63	63	63	audio 2 input / left stereo input / sound IF input
CVBS4/Y4/AUDIOIN5L [1]	64	64	—	CVBS4/Y4 input / audio 5 left input
CVBS4/Y4	—	—	64	CVBS4/Y4 input

[1] The function of these pins is dependent on some I²C-bus control bits. More details are given in [Table 7](#).

[2] The function of this pin is selected by means of the CMB2-0 bits

[3] The function of this pin is selected by means of the SVO1-0 bits

[4] The SSIF input is selected by means of the SSIFM bit

[5] The choice between two mono inputs or one stereo input is realized by means of the bits SAS3-0

[6] The black current input, vertical guard input and SVM output (AV-110/90 and Mono-110 versions) have been combined on this pin. For a reliable operation of the protection system and the black current stabilization system or SVM system, the end of the vertical guard protection pulse during normal operation should not overlap the measuring pulses. Therefore this pulse must end before line 14.

Vertical Deflection Booster for 3-App TV/Monitor Applications with 75-V Flyback Generator

PRODUCT PREVIEW

Main Features

- Power Amplifier
- Flyback Generator
- Stand-by Control
- Output Current up to 3 App
- Thermal Protection

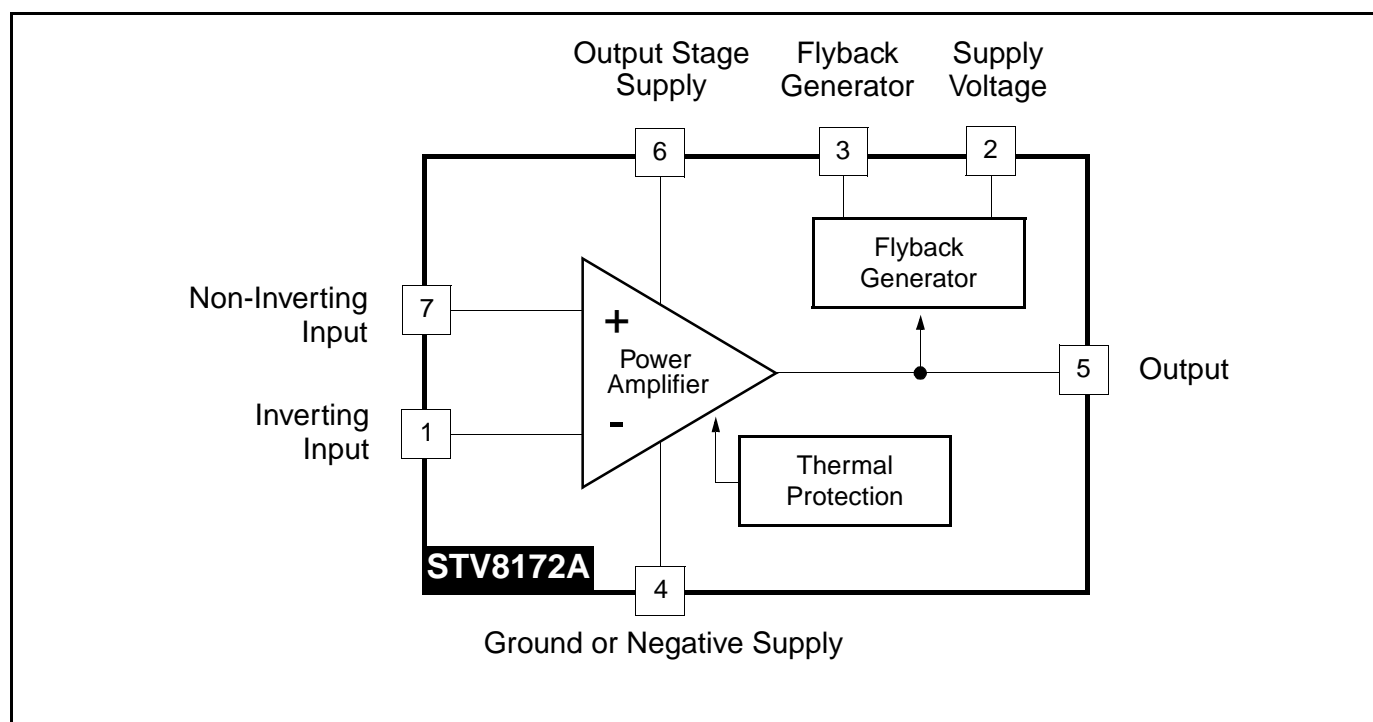
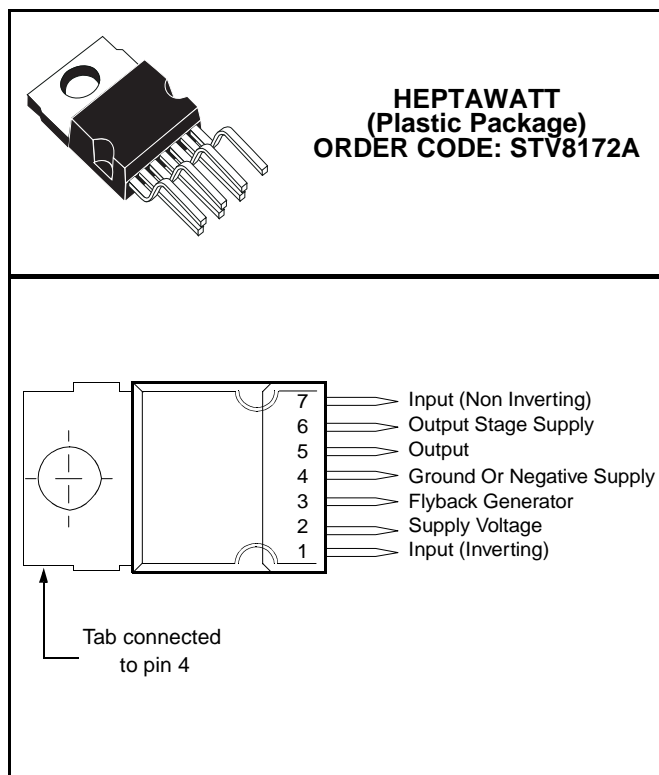
Description

The STV8172A is a vertical deflection booster designed for TV and monitor applications.

This device, supplied with up to 35 V, provides up to 2.5 App output current to drive the vertical deflection yoke.

The internal flyback generator delivers flyback voltages up to 75 V.

In double-supply applications, a stand-by state will be reached by stopping the (+) supply alone.



1 Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
Voltage			
V_S	Supply Voltage (pin 2) - Note 1 and Note 2	40	V
V_5, V_6	Flyback Peak Voltage - Note 2	70	V
V_3	Voltage at Pin 3 - Note 2 , Note 3 and Note 6	-0.4 to ($V_S + 3$)	V
V_1, V_7	Amplifier Input Voltage - Note 2 , Note 6 and Note 7	- 0.4 to ($V_S + 2$) or +40	V
Current			
$I_0(1)$	Output Peak Current at $f = 50$ to 200 Hz, $t \leq 10\mu s$ - Note 4	± 5	A
$I_0(2)$	Output Peak Current non-repetitive - Note 5	± 2	A
I_3 Sink	Sink Current, $t < 1ms$ - Note 3	2	A
I_3 Source	Source Current, $t < 1ms$	2	A
I_3	Flyback pulse current at $f=50$ to 200 Hz, $t \leq 10\mu s$ - Note 4	± 5	A
ESD Susceptibility			
ESD1	Human body model (100 pF discharged through 1.5 k Ω)	2	kV
ESD2	EIAJ Standard (200 pF discharged through 0 Ω)	300	V
Temperature			
T_s	Storage Temperature	-40 to 150	$^{\circ}C$
T_j	Junction Temperature	+150	$^{\circ}C$

Note:1. Usually the flyback voltage is slightly more than $2 \times V_S$. This must be taken into consideration when setting V_S .

2. Versus pin 4
3. V_3 is higher than V_S during the first half of the flyback pulse.
4. Such repetitive output peak currents are usually observed just before and after the flyback pulse.
5. This non-repetitive output peak current can be observed, for example, during the Switch-On/Switch-Off phases. This peak current is acceptable providing the SOA is respected ([Figure 8](#) and [Figure 9](#)).
6. All pins have a reverse diode towards pin 4, these diodes should never be forward-biased.
7. Input voltages must not exceed the lower value of either $V_S + 2$ or 40 volts.

2 Thermal Data

Symbol	Parameter	Value	Unit
R_{thJC}	Junction-to-Case Thermal Resistance	3	$^{\circ}C/W$
T_T	Temperature for Thermal Shutdown	150	$^{\circ}C$
T_J	Recommended Max. Junction Temperature	120	$^{\circ}C$

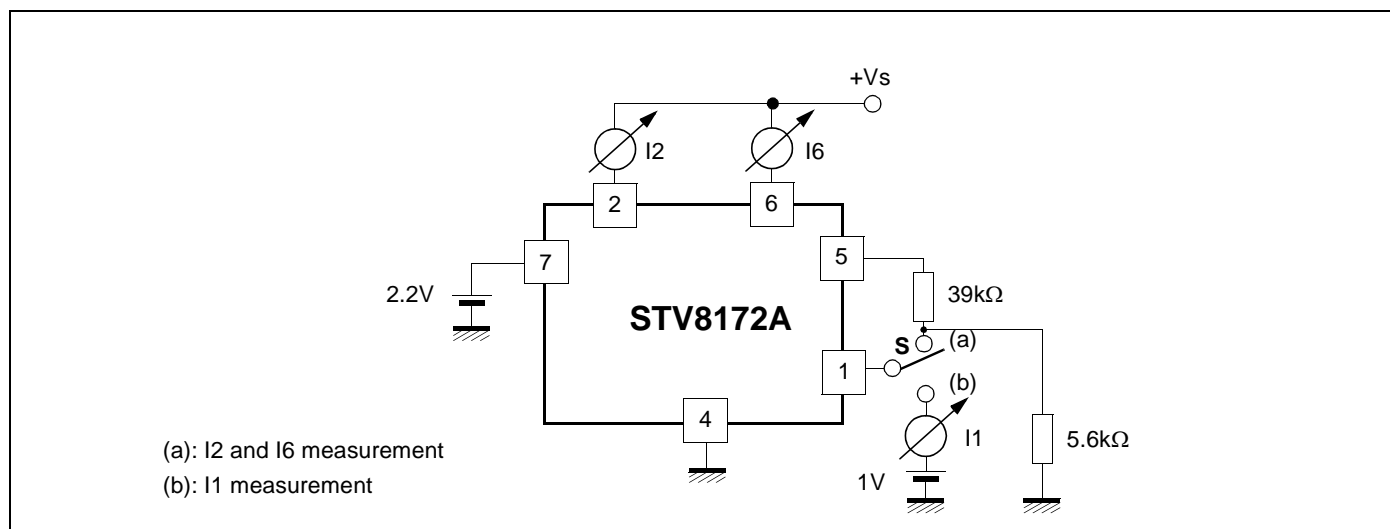
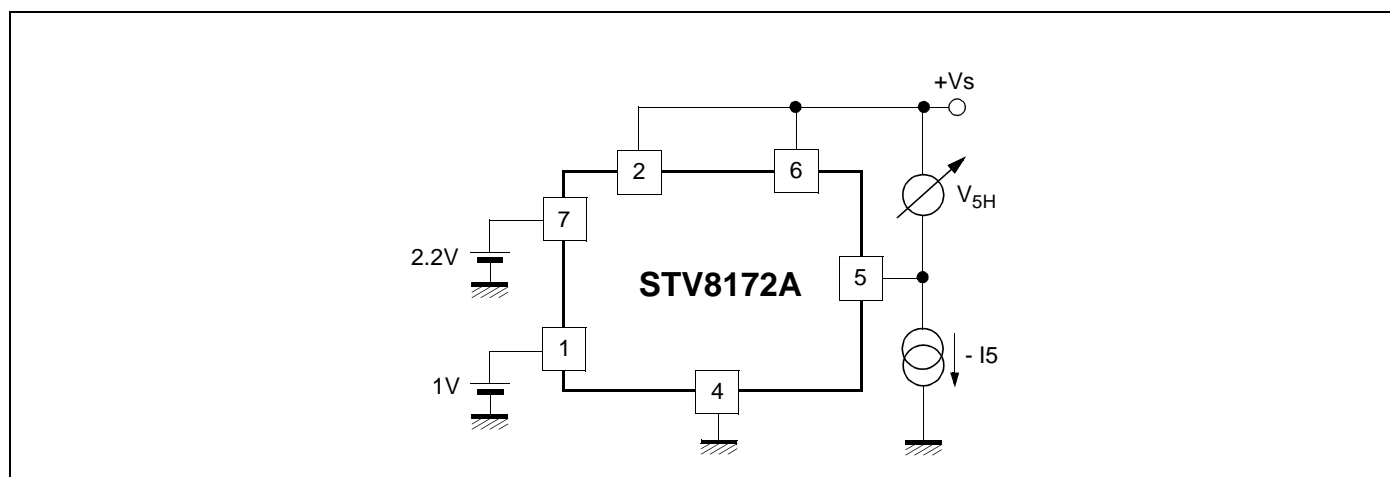
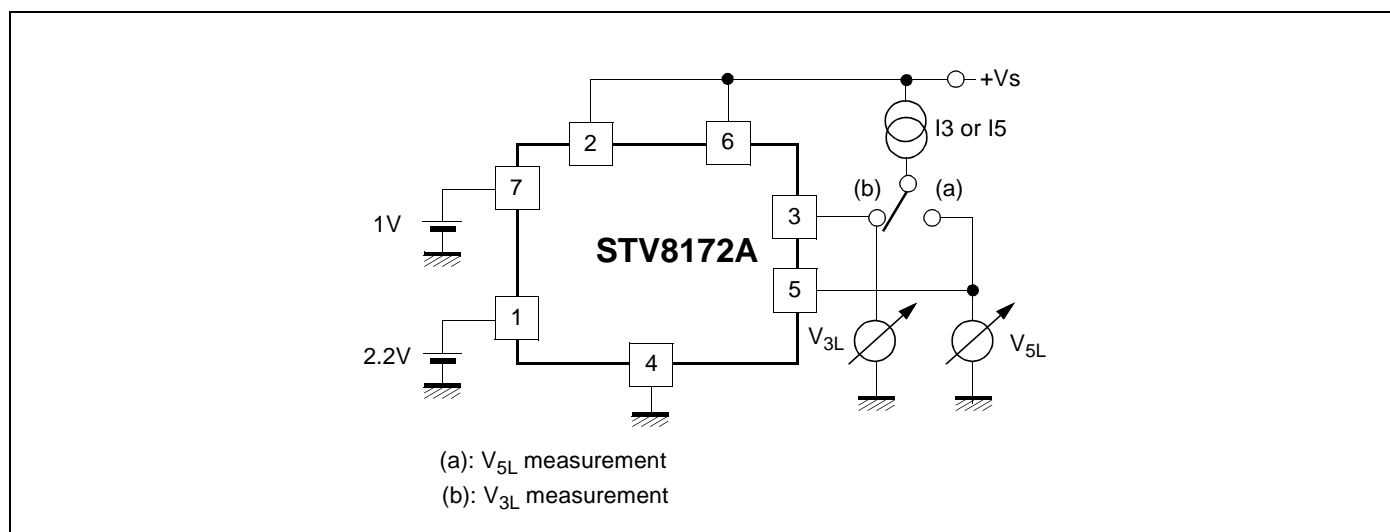
3 Electrical Characteristics

($V_S = 34\text{ V}$, $T_{AMB} = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	Fig.
Supply							
V_S	Operating Supply Voltage Range (V_2 - V_4)	Note 8	10		35	V	
I_2	Pin 2 Quiescent Current	$I_3 = 0$, $I_5 = 0$		5	20	mA	1
I_6	Pin 6 Quiescent Current	$I_3 = 0$, $I_5 = 0$, $V_6 = 35\text{V}$	8	19	50	mA	1
Input							
I_1	Input Bias Current	$V_1 = 1\text{ V}$, $V_7 = 2.2\text{ V}$		- 0.6	-1.5	μA	1
I_7	Input Bias Current	$V_1 = 2.2\text{ V}$, $V_7 = 1\text{ V}$		- 0.6	-1.5	μA	
V_{IR}	Operating Input Voltage Range		0		$V_S - 2$	V	
V_{IO}	Offset Voltage			2		mV	
$\Delta V_{IO}/dt$	Offset Drift versus Temperature			10		$\mu\text{V}/^\circ\text{C}$	
Output							
I_O	Operating Peak Output Current	$0^\circ < T_{case} < 125^\circ\text{C}$			± 1.5	A	
V_{5L}	Output Saturation Voltage to pin 4	$I_5 = 1.5\text{ A}$		1	1.7	V	3
V_{5H}	Output Saturation Voltage to pin 6	$I_5 = -1.5\text{ A}$		1.8	2.3	V	2
Stand-by							
V_{5STBY}	Output Voltage in Stand-by	$V_1 = V_7 = V_S = 0$ See Note 9	$V_S - 2$			V	
Miscellaneous							
G	Voltage Gain		80			dB	
V_{D5-6}	Diode Forward Voltage Between pins 5-6	$I_5 = 1.5\text{ A}$		1.8	2.3	V	
V_{D3-2}	Diode Forward Voltage between pins 3-2	$I_3 = 1.5\text{ A}$		1.6	2.2	V	
V_{3SL}	Saturation Voltage on pin 3	$I_3 = 20\text{ mA}$		0.4	1	V	3
V_{3SH}	Saturation Voltage to pin 2 (2nd part of flyback)	$I_3 = -1.5\text{ A}$		2.1	2.8	V	

8. In normal applications, the peak flyback voltage is slightly greater than $2 \times (V_S - V_4)$. Therefore, ($V_S - V_4$) = 35 V is not allowed without special circuitry.

9. Refer to Figure 4, Stand-by condition.

Figure 1: Measurement of I_1 , I_2 and I_6 Figure 2: Measurement of V_{5H} Figure 3: Measurement of V_{3L} and V_{5L} 

4 Application Hints

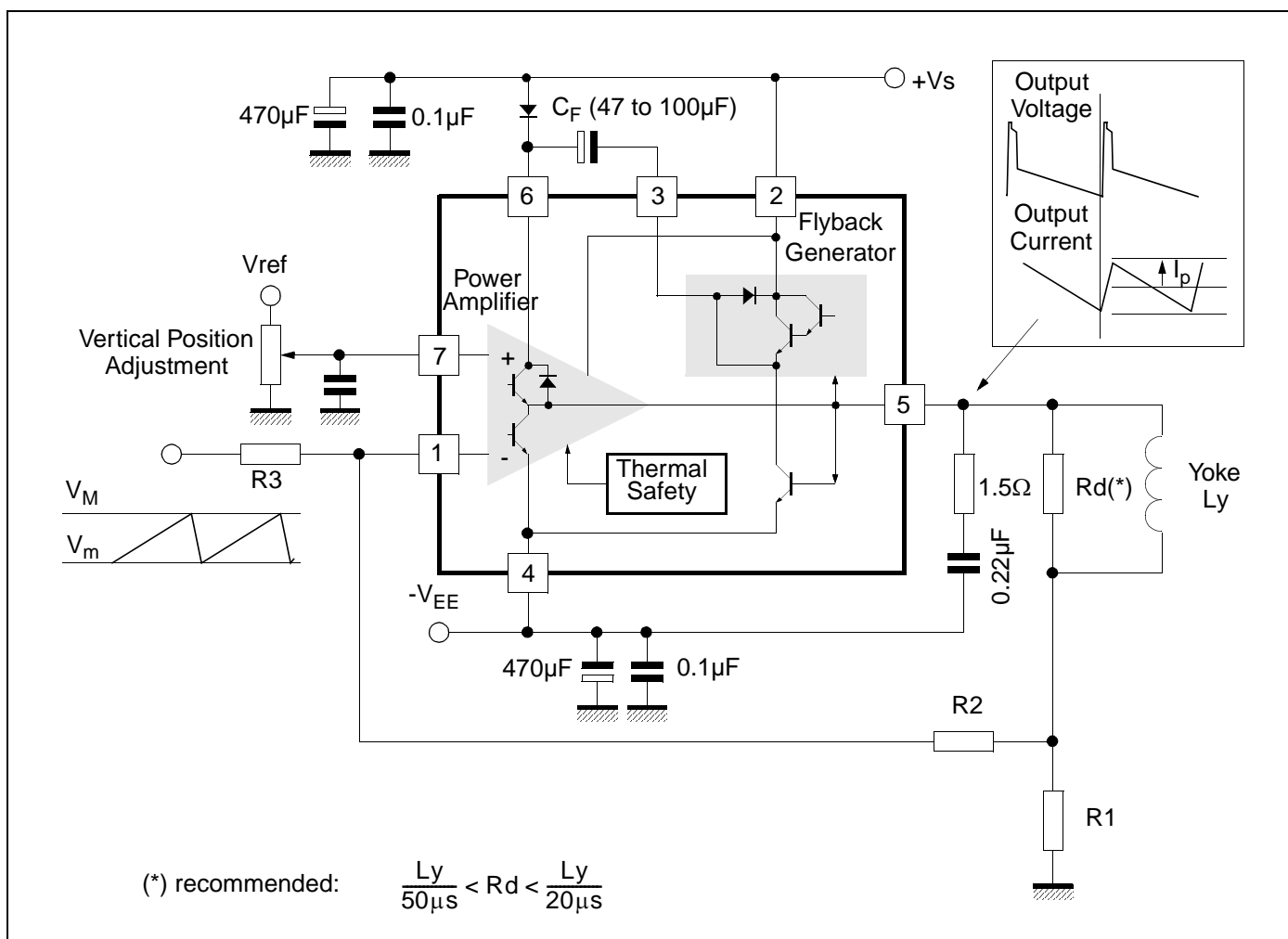
The yoke can be coupled either in AC or DC.

4.1 DC-coupled Application

When DC coupled (see Figure 4), the display vertical position can be adjusted with input bias. On the other hand, 2 supply sources (V_S and $-V_{EE}$) are required.

A Stand-by state will be reached by switching OFF the positive supply alone. In this state, where both inputs are the same voltage as pin 2 or higher, the output will sink negligible current from the deviation coil.

Figure 4: DC-coupled Application



4.1.1 Application Hints

For calculations, treat the IC as an op-amp, where the feedback loop maintains $V_1 = V_7$.

4.1.1.1 Centering

Display will be centered (null mean current in yoke) when voltage on pin 7 is (R_1 is negligible):

$$V_7 = \frac{V_M + V_m}{2} \times \left(\frac{R_2}{R_2 + R_3} \right)$$

4.1.1.2 Peak Current

$$I_P = \frac{(V_M - V_m)}{2} \times \frac{R_2}{R_1 \times R_3}$$

Example: for $V_m = 2\text{ V}$, $V_M = 5\text{ V}$ and $I_P = 1\text{ A}$

Choose R_1 in the $1\text{ }\Omega$ range, for instance $R_1 = 1\text{ }\Omega$

From equation of peak current:
$$\frac{R_2}{R_3} = \frac{2 \times I_P \times R_1}{V_M - V_m} = \frac{2}{3}$$

Then choose R_2 or R_3 . For instance, if $R_2 = 10\text{ k}\Omega$, then $R_3 = 15\text{ k}\Omega$

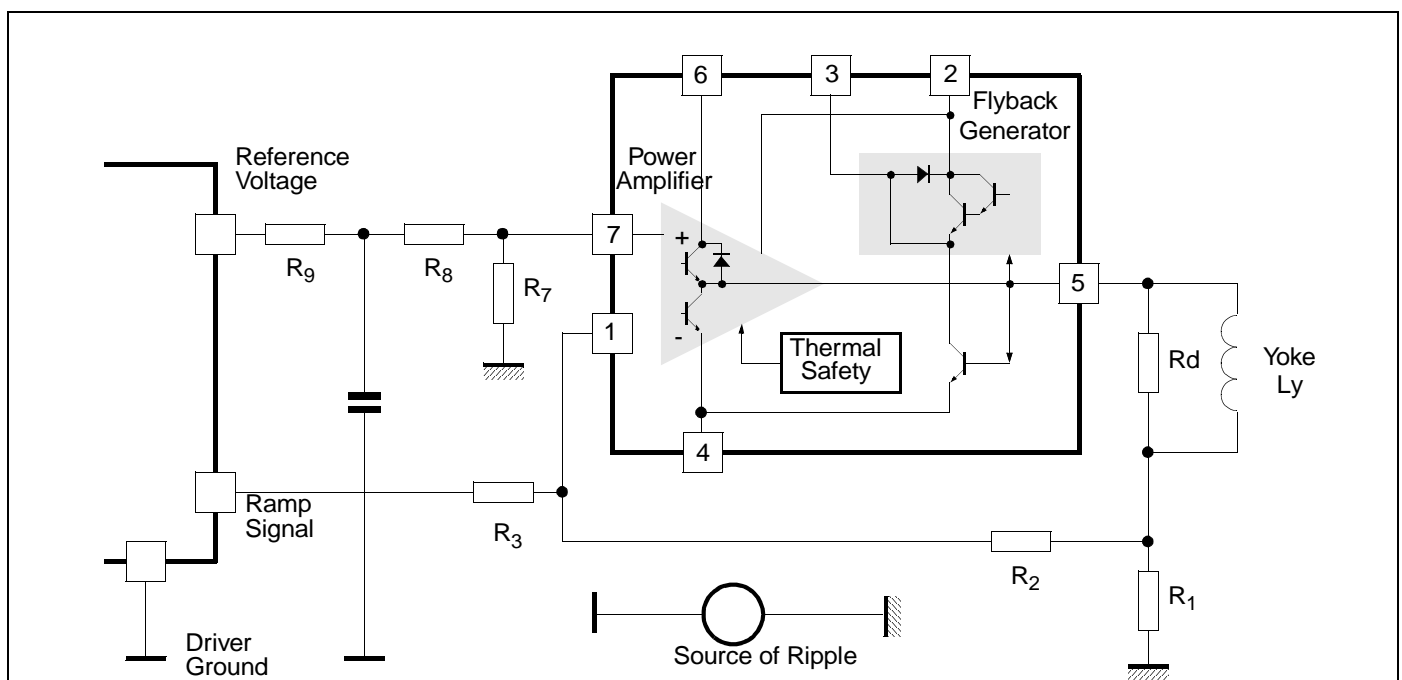
Finally, the bias voltage on pin 7 should be:

$$V_7 = \frac{V_M + V_m}{2} \times \frac{1}{\frac{R_3}{1 + \frac{R_2}{R_3}}} = \frac{7}{2} \times \frac{1}{2.5} = 1.4\text{ V}$$

4.1.2 Ripple Rejection

When both ramp signal and bias are provided by the same driver IC, you can gain natural rejection of any ripple caused by a voltage drop in the ground (see [Figure 5](#)), if you manage to apply the same fraction of ripple voltage to both booster inputs. For that purpose, arrange an intermediate point in the bias resistor bridge, such that $(R_8 / R_7) = (R_3 / R_2)$, and connect the bias filtering capacitor between the intermediate point and the local driver ground. Of course, R_7 should be connected to the booster reference point, which is the ground side of R_1 .

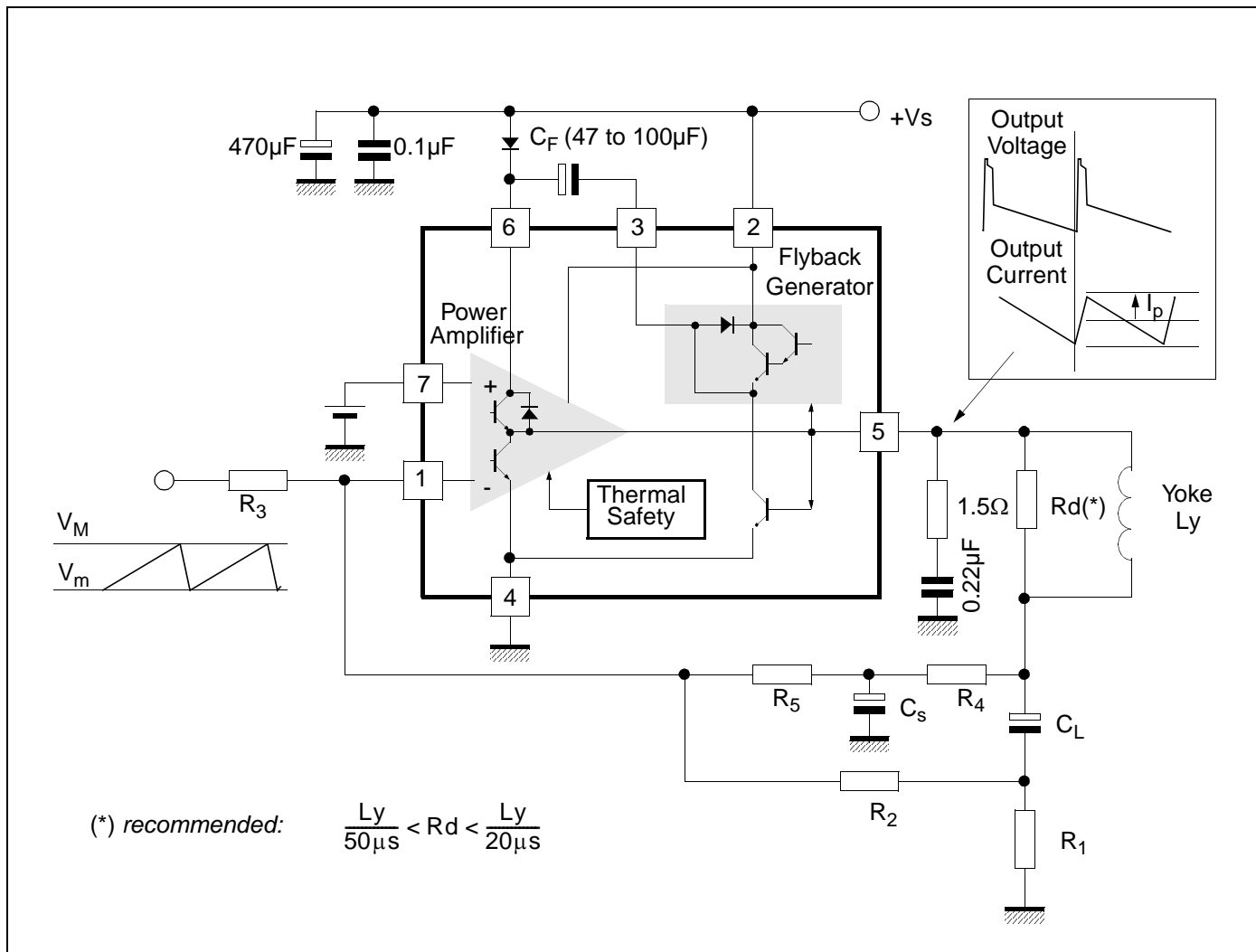
Figure 5: Ripple Rejection



4.2 AC-Coupled Applications

In AC-coupled applications (See Figure 6), only one supply (V_S) is needed. The vertical position of the scanning cannot be adjusted with input bias (for that purpose, usually some current is injected or sunk with a resistor in the low side of the yoke).

Figure 6: AC-coupled Application



4.2.1 Application Hints

Gain is defined as in the previous case:

$$I_p = \frac{V_M - V_m}{2} \times \frac{R_2}{R_1 \times R_3}$$

Choose R_1 then either R_2 or R_3 . For good output centering, V_7 must fulfill the following equation:

$$\frac{\frac{V_S}{2} - V_7}{R_4 + R_5} = \frac{V_7 - \frac{V_M + V_m}{2}}{R_3} + \frac{V_7}{R_2}$$

or

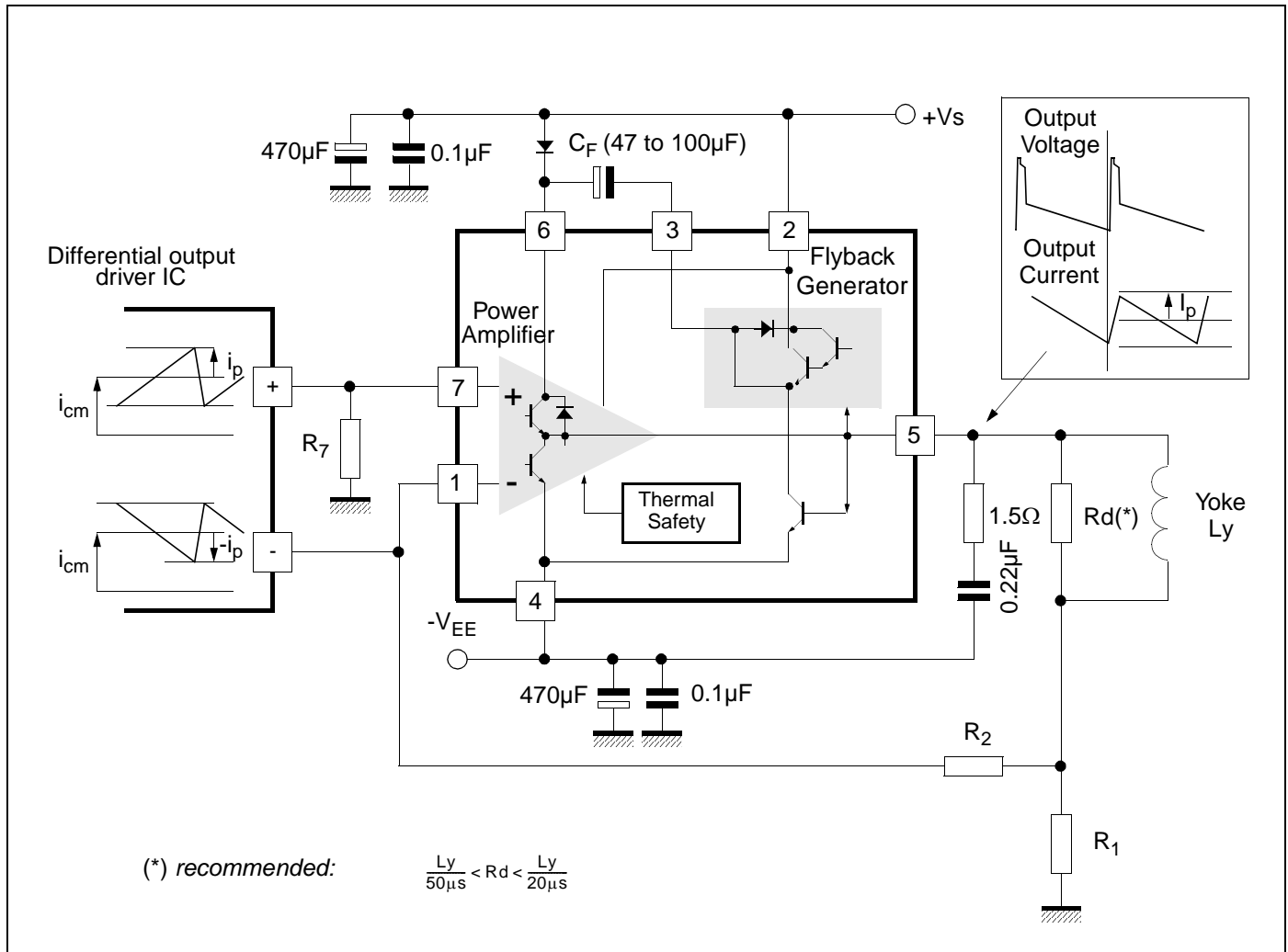
$$V_7 \times \left(\frac{1}{R_3} + \frac{1}{R_2} + \frac{1}{R_4 + R_5} \right) = \left(\frac{V_S}{2(R_4 + R_5)} + \frac{V_M + V_m}{2 \times R_3} \right)$$

C_S performs an integration of the parabolic signal on C_L , therefore the amount of S correction is set by the combination of C_L and C_S .

4.3 Application with Differential-output Drivers

Certain driver ICs provide the ramp signal in differential form, as two current sources i_+ and i_- with opposite variations.

Figure 7: Using a Differential-output Driver



Let us set some definitions:

- i_{cm} is the common-mode current: $i_{cm} = \frac{1}{2}(i_+ + i_-)$
- at peak of signal, $i_+ = i_{cm} + i_p$ and $i_- = i_{cm} - i_p$, therefore the peak differential signal is $i_p - (-i_p) = 2 i_p$, and the peak-peak differential signal, $4i_p$.

The application is described in Figure 7 with DC yoke coupling. The calculations still rely on the fact that V_1 remains equal to V_7 .

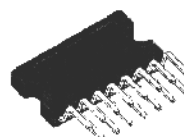


TDA7266SA

7W+7W DUAL BRIDGE AMPLIFIER

- WIDE SUPPLY VOLTAGE RANGE (3.5-18V)
- MINIMUM EXTERNAL COMPONENTS
 - NO SWR CAPACITOR
 - NO BOOTSTRAP
 - NO BOUCHEROT CELLS
 - INTERNALLY FIXED GAIN
- STAND-BY & MUTE FUNCTIONS
- SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

TECHNOLOGY Bi20II



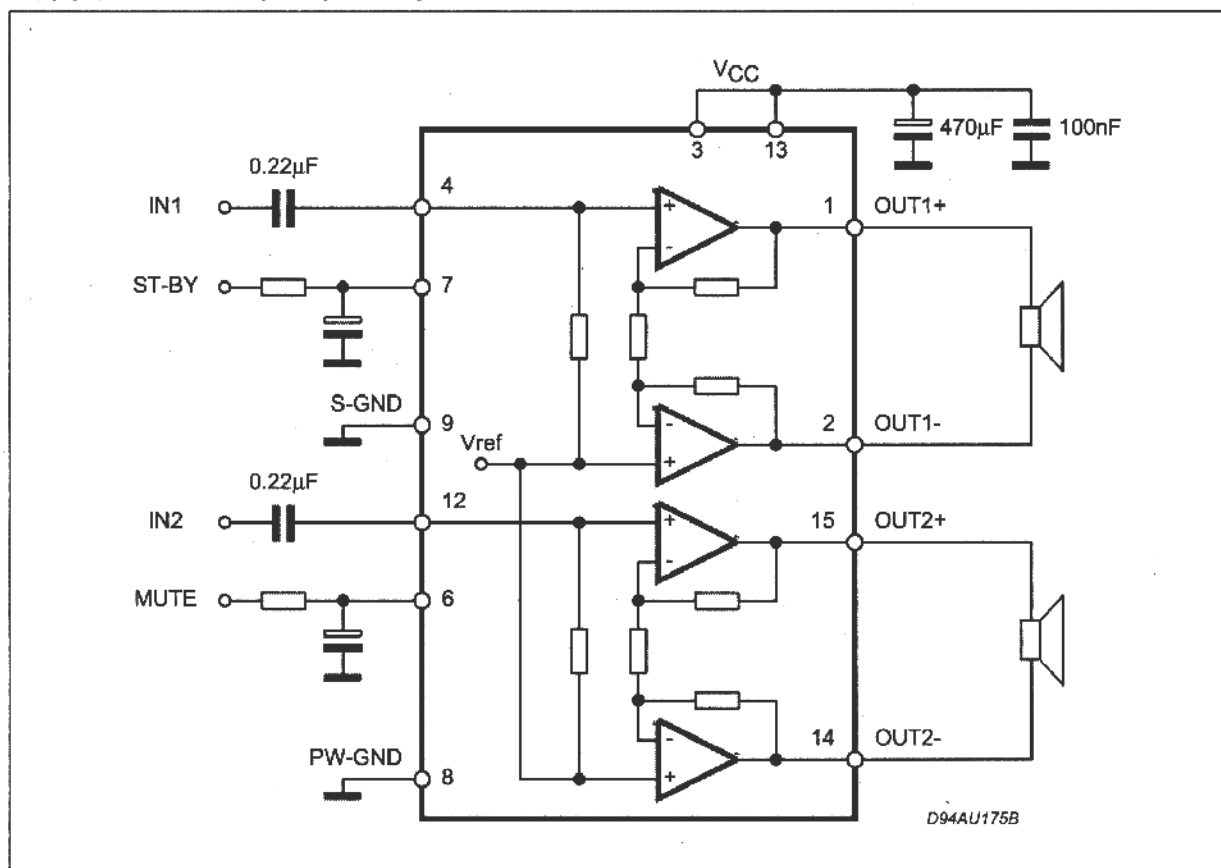
CLIPWATT15
ORDERING NUMBER: TDA7266SA

DESCRIPTION

The TDA7266SA is a dual bridge amplifier specially designed for LCD Monitor, PC Motherboard, TV and Portable Radio applications.

Pin to pin compatible with: TDA7266S, TDA7266, TDA7266M, TDA7266MA, TDA7266B, TDA7297SA & TDA7297.

BLOCK AND APPLICATION DIAGRAM



TDA7266SA

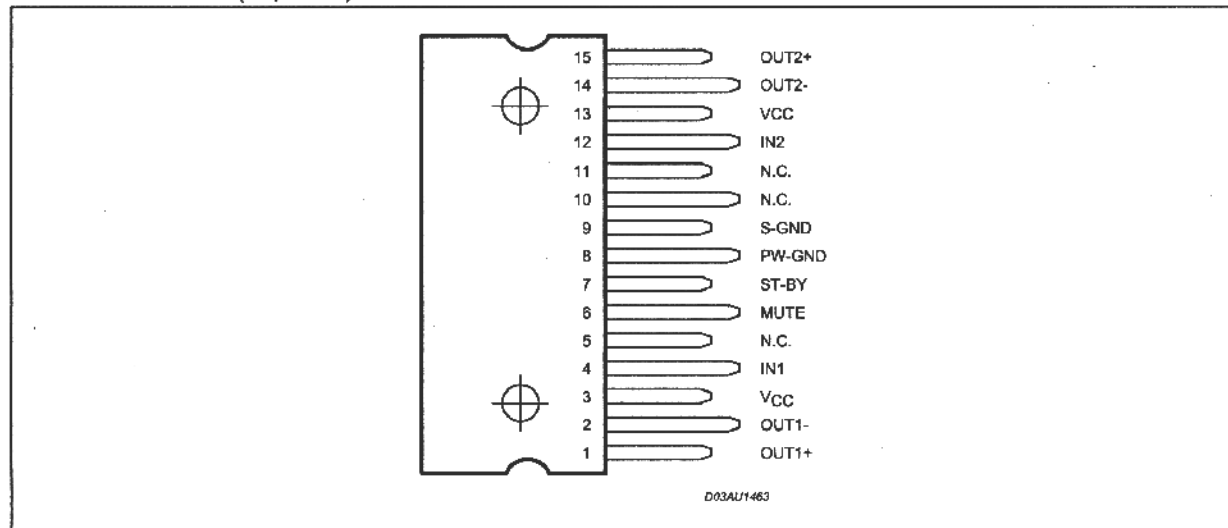
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	20	V
I_o	Output Peak Current (internally limited)	2	A
T_{op}	Operating Temperature	0 to 70	°C
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	°C

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th j-case}$	Thermal Resistance Junction-case	3	°C/W

PIN CONNECTION (Top view)



ELECTRICAL CHARACTERISTICS

($V_{CC} = 11V$, $R_L = 8\Omega$, $f = 1KHz$, $T_{amb} = 25^\circ C$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{CC}	Supply Range		3	11	18	V
I_q	Total Quiescent Current			50	65	mA
V_{os}	Output Offset Voltage				120	mV
P_o	Output Power	THD 10%	6.3	6		W
THD	Total Harmonic Distortion	$P_o = 1W$		0.05	0.2	%
		$P_o = 0.1W$ to $2W$ $f = 100Hz$ to $15KHz$			1	%
SVR	Supply Voltage Rejection	$f = 100Hz$, $V_R = 0.5V$	40	56		dB
CT	Crosstalk		46	60		dB
A_{MUTE}	Mute Attenuation		60	80		dB
T_w	Thermal Threshold			150		°C
G_v	Closed Loop Voltage Gain		25	26	27	dB
ΔG_v	Voltage Gain Matching				0.5	dB

ELECTRICAL CHARACTERISTICS (continued)(V_{CC} = 11V, R_L = 8Ω, f = 1KHz, T_{amb} = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
R _i	Input Resistance		25	30		KΩ
V _{T MUTE}	Mute Threshold	for V _{CC} > 6.4V; V _o = -30dB	2.3	2.9	4.1	V
		for V _{CC} < 6.4V; V _o = -30dB	V _{CC} /2 -1	V _{CC} /2 -0.75	V _{CC} /2 -0.5	V
V _{T ST-BY}	St-by Threshold		0.8	1.3	1.8	V
I _{ST-BY}	St-by Current V ₆ = GND				100	μA
e _N	Total Output Voltage	A Curve; f = 20Hz to 20KHz		150		μV

APPLICATION SUGGESTION**STAND-BY AND MUTE FUNCTIONS****(A) Microprocessor Application**

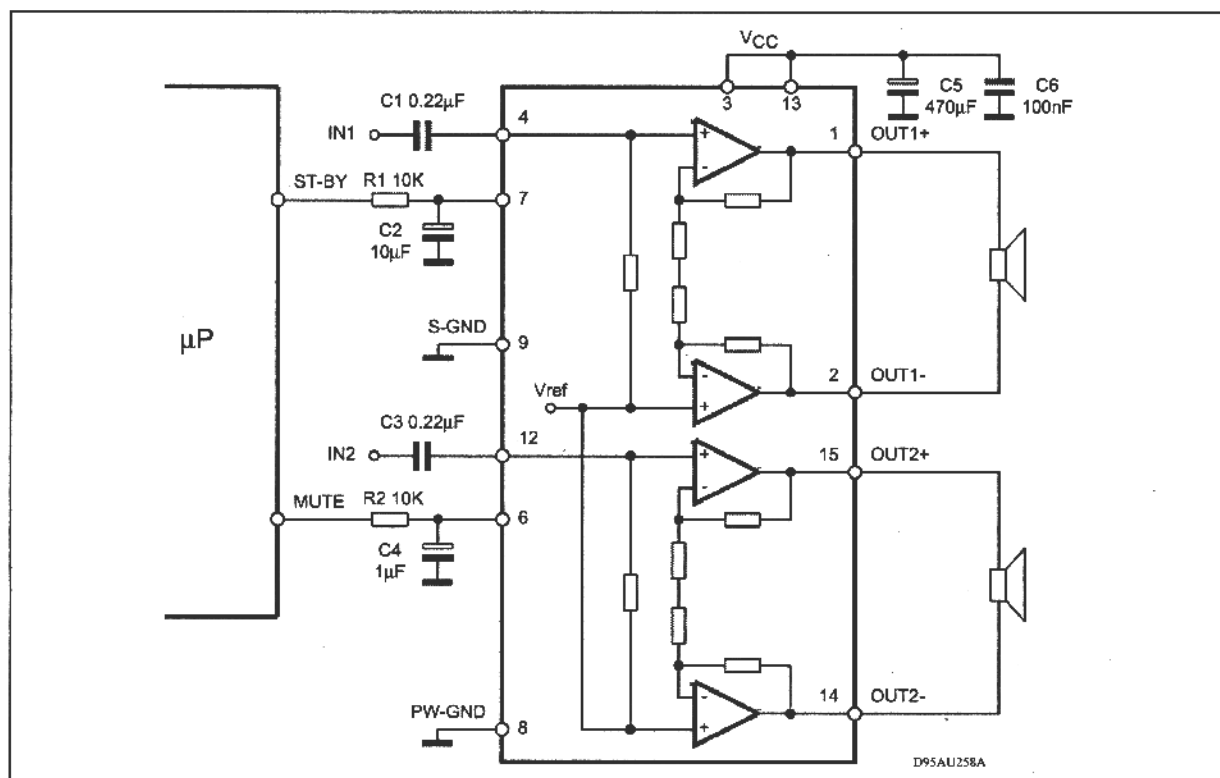
In order to avoid annoying "Pop-Noise" during Turn-On/Off transients, it is necessary to guarantee the right St-by and mute signals sequence. It is quite simple to obtain this function using a microprocessor (Fig. 1 and 2).

At first St-by signal (from μP) goes high and the voltage across the St-by terminal (Pin 7) starts to increase exponentially. The external RC network is intended to turn-on slowly the biasing circuits of the amplifier, this to avoid "POP" and "CLICK" on the outputs.

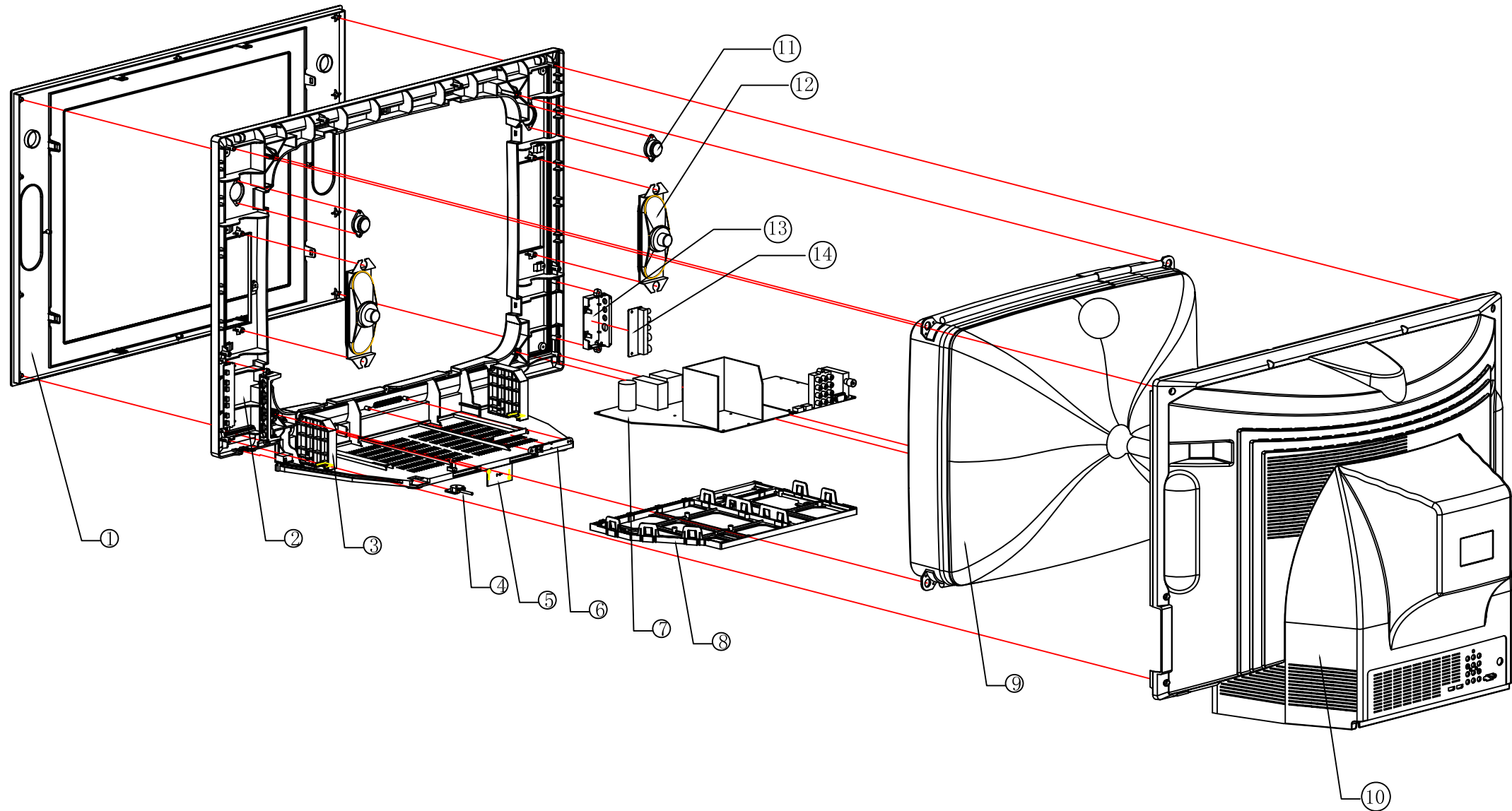
When this voltage reaches the St-by threshold level, the amplifier is switched-on and the external capacitors in series to the input terminals (C3, C53) start to charge.

It's necessary to maintain the mute signal low until the capacitors are fully charged, this to avoid that the device goes in play mode causing a loud "Pop Noise" on the speakers.

A delay of 100-200ms between St-by and mute signals is suitable for a proper operation.

Figure 1. Microprocessor Application

REV. NO.	NOTES	DATE	SIGNATURE



14	SIDE AV PCB		1	
13	SIDE AV SUPPORT	56-445230-OHN	1	
12	SPEAKER		2	
11	HIGH AUDIO SPEAKER		2	
10	29M62RC	55-BM62RC-OCL	1	
9	CRT		1	
8	MAIN BOARD SUPPORT	62-LM62MB-OUN	1	
7	MAIN BOARD		1	
6	POWER LIGHT	57-445670-OHC	1	
5	RECEIVING PCB			
4	POWER CORD CLIP	62-216340-OUA	1	
3	CRT SUPPORT	62-396500-OCN	2	
2	29V18MC	55-BV18MC-OCL	1	
1	29v18FC	55-BV18FC-OCL	1	
ITEM	NAME	PART NO.	QTY.	REMARK
DRAW				
CHECK				
SIGN				
APPROVE				
MODEL NO.			29V18	
TTE Mechanical development			EXPLODE DRAWING	REVISION