

**SERVICE MANUAL
LM CHASSIS**

BEKO
COLOUR TELEVISIONS



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SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. Always use the manufacturer's replacement safety components. The critical safety components marked with ∇ on the schematics diagrams should not be by other substitutes. Other substitute may create the electrical shock , fire or other hazards. Take attention to replace the spacers with the originals. Furthermore where a short circuit has occurred , replace those components that indicate evidence of overheating.
2. After servicing , see that all the protective devices such as insulation barriers, insulation papers, shields and isolation R-C combinations are correctly installed.
3. When the receiver is not being used for a long time of period of time , unplug the power cord of the Adaptor from the AC outlet.

Color TFT LCD Module is very sensitive both electrically and physically. Users, therefore, are requested to follow the "Guidance of handling color TFT LCD Module" on the followings.

1 - Be careful not to make scratch on the polarizer.

Surface of polarizer is soft and can be physically damaged easily.
Please do not touch, push or rub polarizer surface with materials over HB hardness.

2 - Keep clean the surface.

Please wear rubber glove when touch the surface of LCD screen. Please use soft and anti-static material as cleaner.

3 - Keep out of water.

Water on/in the LCD may cause electrical short or corrosion. Please wipe out dry or water carefully.

4 - Prevent swift Temperature & Humidity change.

Instantaneous temperature and/or humidity change can make dew or ice which cause nonconformance such as malfunction.

5 High temperature & high humidity reduce the life-time.

LCD is not proper to be used at high temperature and high humidity. Please keep specified temperature and humidity condition.

6 - Keep out of Corrosive Gas.

Corrosive gas effect the polarizer and the circuit chemically and cause defects accordingly.

7 - Electrostatic discharge can make Damage

There are electro-static sensitive components such as CMOS in LCD Module. Please earth human body when handle the LCD. In addition, please do not touch the interface connector pin with bare.

8 - Do not operate for a long time under the same pattern

Operating LCD for a long time under the same pattern can cause image persistence and can damage it. Please follow following guidance.

1. Turn the power off when do not use.
2. Change the pattern periodically.

Technical specifications chart

Picture tube size/type	27" 16:9 active matrix TFT
Sound outlet power (10% THD)	2x7 W
Power consumption	120 W
Stand-by Power consumption	1 W

General technical specifications

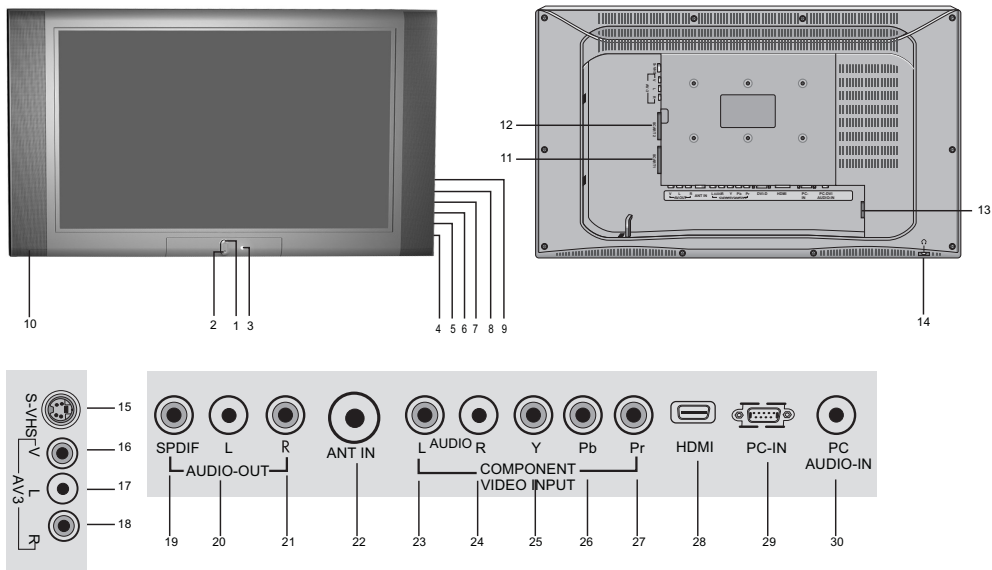
Power supply	
AC:	230V~50 Hz
Program memory:	100
RF Antenna input:	75 Ohm (Co-axial)
Loudspeaker impedance:	4 Ohm
Sound systems:	Mono/Stereo/Nicam
Batteries:	2xUM - 4, IEC R03 or AAA 1.5V
Received channels:	VHF (Band I channel 2-4)
.....	VHF (Band III channel 5-12)
.....	UHF (Channel 21-69)
.....	Cable TV (S1-S20/S21-S41)
Received broadcasting systems	PAL BG
	PAL SECAM BG
	PAL SECAM BG DK/DK'
	PAL SECAM BG LL'
	PAL I

Note: Your television has been manufactured in accordance with your country by selecting from among the above mentioned broadcasting systems and this system cannot be changed by the user except the case described below: In countries where BG/DK and BG/LL' broadcasts are done (BG or DK / BG and LL'). For further information, see the settings part about your television.

Your Television

Features

- 27" TFT-LCD WXGA Panel
- Available for cable broadcasts
- 2x7 W Stereo sound
- 12 pages of teletext Feature
- PIP (Picture in Picture) Feature from AV
- Wide angle of vision
- Scart socket, AV Socket and external sound system connection
- S-VHS and Cinch inputs for S-Video connection
- PC connection
- Low energy consumption
- AVL
- ATS
- Programmable power off
- Graphic equalizer
- The feature of sharpness in Colour Transitions (CTI)
- Sharpness feature and picture resolution (LTI) in the black-white transitions
- A clear Picture made possible by the Digital Comb Filter
- On screen viewing of all settings, program numbers and all the processes
- Manual Fine Tuning
- 100 Program memory
- Infrared Remote Control equipped all the functions
- Child Lock
- Feature of viewing the NTSC broadcast to be entered via Scart
- Easy performance of the processes via the advanced menu system. Ability to choose 26 different menu languages.
- HDMI feature

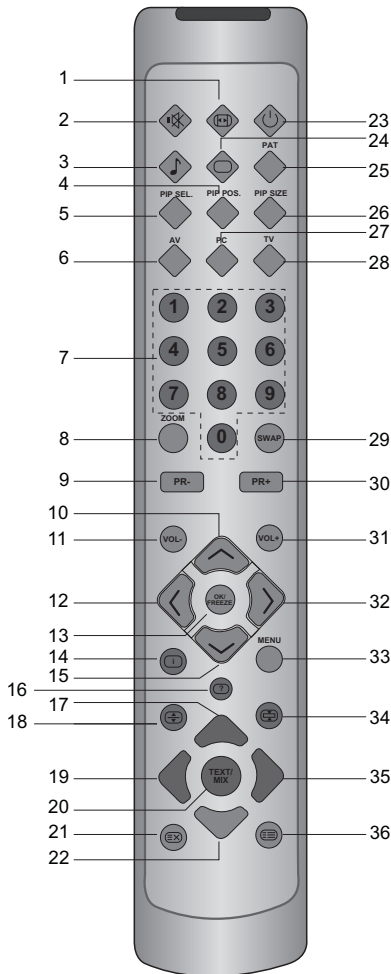


- | | |
|--------------------------------|---|
| 1. Standby status indicator | 16. Video input CINCH connector |
| 2. Network power on/off button | 17. Sound input CINCH connector (Left/L) |
| 3. Remote control receiver | 18. Sound input CINCH connector (Right/R) |
| 4. Volume turn-down button | 19. SPDIF Digital audio output |
| 5. Volume enhancement button | 20. Sound output (Left/L) |
| 6. Menu Button | 21. Sound output (Right/R) |
| 7. Source selection | 22. Antenna input |
| 8. Program decrease button | 23. Component sound input (L) |
| 9. Program increase button | 24. Component sound input (R) |
| 10. Speaker | 25. Component video input (Y) |
| 11. Scart 1 | 26. Component video input (Pb) |
| 12. Scart 2 | 27. Component video input (Pr) |
| 13. Power supply input | 28. HDMI |
| 14. Headphones output | 29. VGA (PC connection input) |
| 15. S-VHS connector | 30. PC sound input |

Note:

- Please do not use the video RCA and S-Video connection simultaneously, in that case, these two devices might influence the picture quality of one another.
- RGB offers the best picture quality over the Scart.

Remote Control



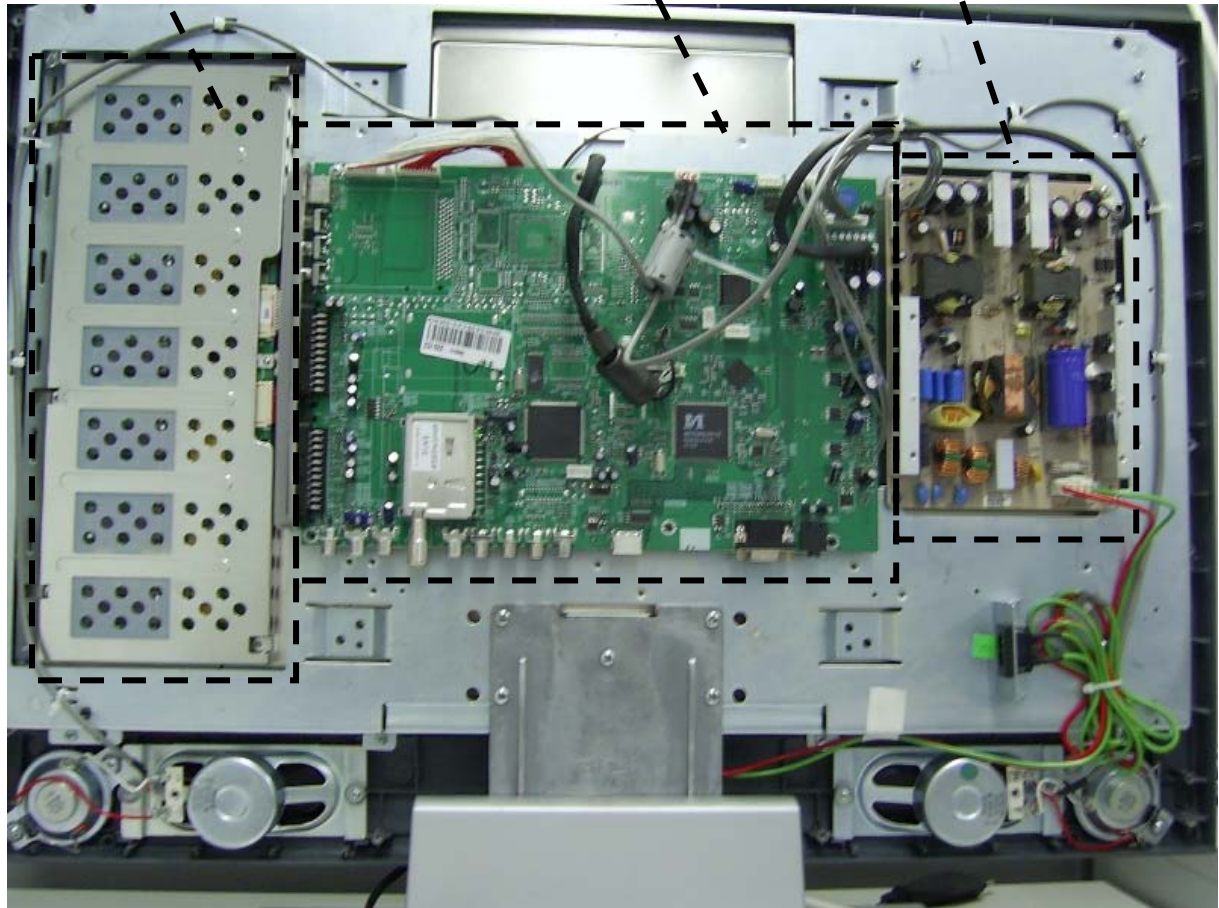
1. Picture Format selection button (🔍)
2. Temporary sound mute (Mute) button (🔇)
3. Equalizer selection button (🔊)
4. PIP Position selection button
5. PIP/PAP On-Off button
6. AV modes selection menu button
7. Numeric buttons
8. ZOOM mode selection button
9. Program down button (PR-)
10. Upward movement button (⬆️) (Menus)
11. Volume turn-down button (VOL-)
12. Left movement button (⬅️) (Menu)
13. Confirmation(OK) and Temporary picture freeze button (Freeze) (🔒)
14. Info / Txt index page button (📄)
15. Downward movement button (⬇️) (Menus)
16. Txt Question/Answer button (Reveal) (🔍)
17. Red teletext button (🔴)
18. Teletext page enlarge button (Double) (🔍)
19. Blue Teletext button (🔵)
20. Teletext / Mix selection buttons (📄)
21. UPDATE Button/Teletext time (🕒)
22. Yellow teletext button (🟡)
23. Stand-by On/Off button (🔌)
24. Picture Mode selection button (🔍)
25. PAT (Picture and Teletext) Mode Power On-Off button
26. PIP size selection button
27. PC mode access button
28. PC mode access button
29. Final program selection button (SWAP) (SWAP)
30. Program forward selection button (PR+)
31. Audio turn up button (VOL+)
32. Right movement button (➡️) (Menus)
33. MENU button
34. Txt Stop button (Hold) (🔒)
35. Green teletext button (🟢)
36. Sub page button (SUB PAGE) (📄)

SET APPERANCE

INVERTOR(BUILT IN PANEL)

MAIN CHASSIS

POWER SUPPLY BOARD



LM SERVICE MODE

1. Activating the Service Menu

When the menu is on the screen press '9', '3', '0', '1' on the remote controller. This will activate the service menu.

2. Service Mode Options

There are 6 submenus in this mode:

OPTIONS0, OPTIONS1, SOUND OPTIONS, IF SETTINGS, DIMMING, ADJUSTMENTS

2.1 OPTIONS0

STANDBY	CUSTOME (Customer), FACTORY
TEXT	Teletext Type : FAST (Fasttext), FAST TOP (Fasttext and Toplevel)
TEXT TBL	AUTO : Selects the table according to the selected menu language WEST: English-French-German-Turkish-Spanish-Italian-Finnish-Swedish Norwegian, Danish EAST : Polish-French-Hungarian-Czech-German-Slovenian-Italian-Romanian GREE : WEST + Greek CYRL : English-Russian-German-Czech-Estonian-Ukrainian-Latvian ARAB : West + Arabian FARS : West + Persian HEBR : West + Hebrew
LANGUAGE	A: English-German-French-Italian-Spanish-Portuguese-Greek-Turkish-Dutch-Swedish- Danish-Norwegian-Finnish-Slovenian-Polish-Hungarian-Russian-Hebrew-Romanian- Croatian-Czech-Slovak-Albanian-Bulgarian- Macedonian-Serbian B: English-German-French-Italian-Spanish-Portuguese-Greek-Turkish-Dutch-Swedish- Danish-Norwegian-Finnish-Slovenian-Polish-Hungarian-Russian-Romanian-Croatian- Czech-Slovak-Albanian-Bulgarian- Macedonian-Arabic-Persian
PANEL	Selects the software according to the panel name : 26 AU5, 32 AU3, 26 SS2, 32 SS3, 27 CH5, 32 CH2, 26 LP6, 37 LP2, 26 QD2, 32 QD2
PIP	NO (PIP via AV is not on), AV (PIP via AV is on)
PLUG PLAY	ON (Demo mode), OFF

2.2 OPTIONS1

BLUEBACK	ON, OFF
CTI	Colour Transient Improvement Feature : ON, OFF, MENU
DNR	Digital Noise Reduction : ON, OFF, MENU (selection via User Menu)
PROTECTION	ON, OFF
PANORAMA	AVAIL (On), NAVAIL (Off)
RC UNIT	Remote Control Type: 43 Key, 45 key
PAT	Picture and Text feature: AVAIL (On, Default), NAVAIL (Off)
HOTEL	Simple Hotel TV feature: AVAIL (On), NAVAIL (Off)
HOTEL VOL	Maximum sound level for Hotel Mode

2.3 SOUND OPTIONS

BG	EUROPE, NEWZ (New Zealand) AUST (Australia), NAVAIL (no BG)
DK	AVAIL, NAVAIL
L/L	AVAIL, NAVAIL
DOLBY	AVAIL, NAVAIL
BASS OPT	NONE (bass is not activated), DYN (Dinamic bass is activated), SUBW (Subwoofer feature is on)
HEADPHONE	AVAIL, NAVAIL
CARRI MUTE	MSP (for all markets except Turkey), MICRO (for Turkey)

2.4 IF SETTINGS

TUNER	PS DA5, THOMSON, TEMIC, PS D44, ALPS, PHILIPS
VHF III UHF	AGC adjustment is 5 for this frequency band
VHF I	AGC adjustment is 5 for this frequency band
AGC Method	AGC adjustment method: FIXED, SYNC&PW, SYNC, S&PW&PD (Default)
SECAM MTD	Secam decoding method : OLD, NEW (default)

2.5 DIMMING

No adjustment will be made in this menu for service purposes. Default value is 0.

2.6 ADJUSTMENTS

No adjustment will be made in this menu for service purposes. Default values are given below:

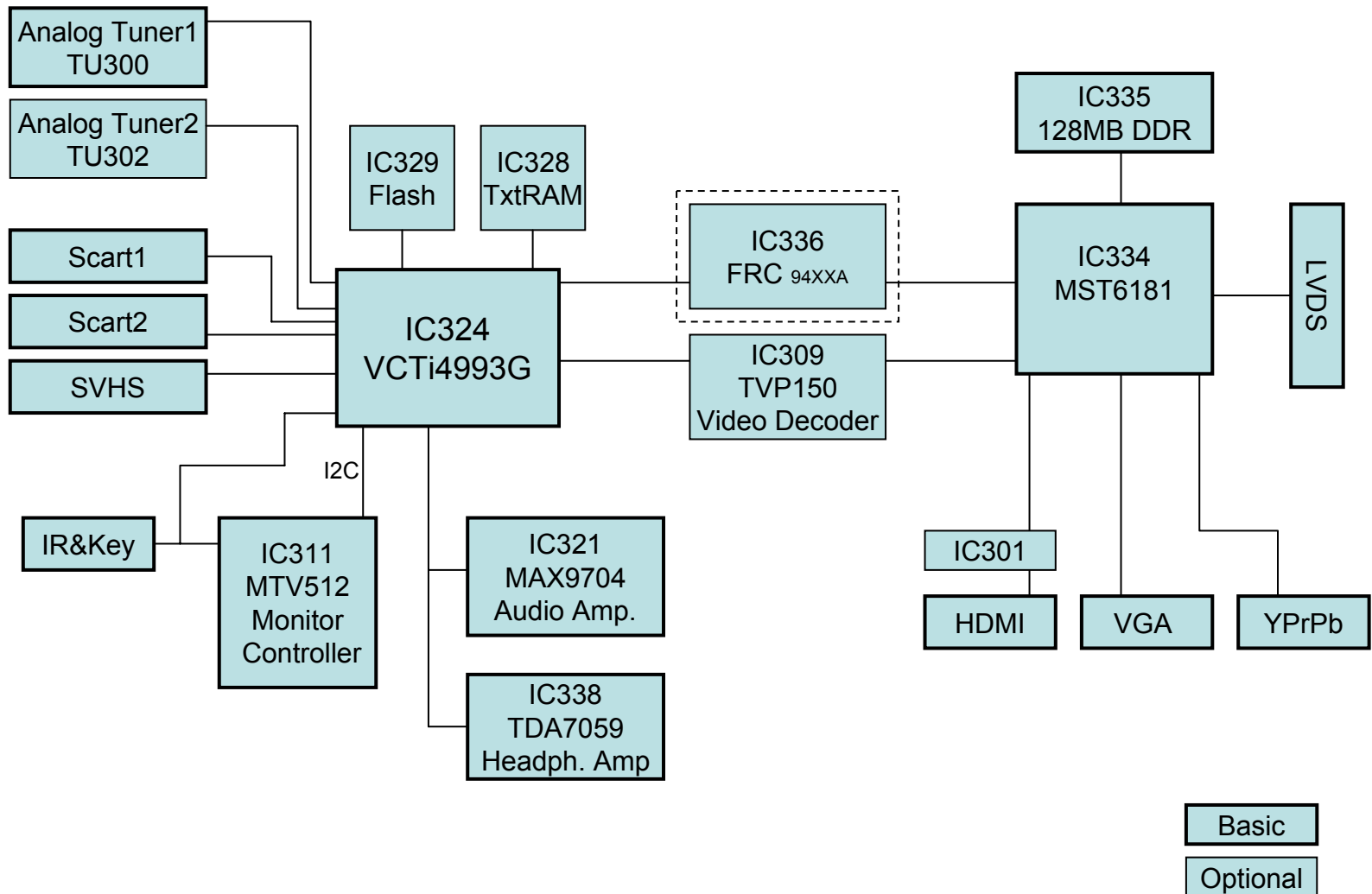
<u>VCTI</u>	BLE	BLE MODE	3
		BLE GAIN	2
		BLE TILT	8
		BLE STATIC	7
	FAC LTI	LTI CORING	0
		LTI GAIN	0
	SLL SUCARR	SLLTHDV	6
		SUBCARIER	19
	LUMA DELAY	DLY PAL	7
		DLY SECAM	10
		DLY NTSC	9
	SCART RGB	BRI	-14
		CONT	47
		CB SAT	50
		CR SAT	50
		TINT	0
		RGAIN	34
		GGAIN	33
		BGAIN	35

<u>MSTAR</u>	6CR	5
	6CG	5
	6CB	8
	6CC	0
	6CM	3
	6CY	2
	6CF	5
	SPECTRUM	1
<u>ADJUST</u>	R GAIN	122
	G GAIN	128
	B GAIN	90
	R OFFSET	125
	G OFFSET	125
	B OFFSET	126
	SUBCON	58
	SUB BRI	42

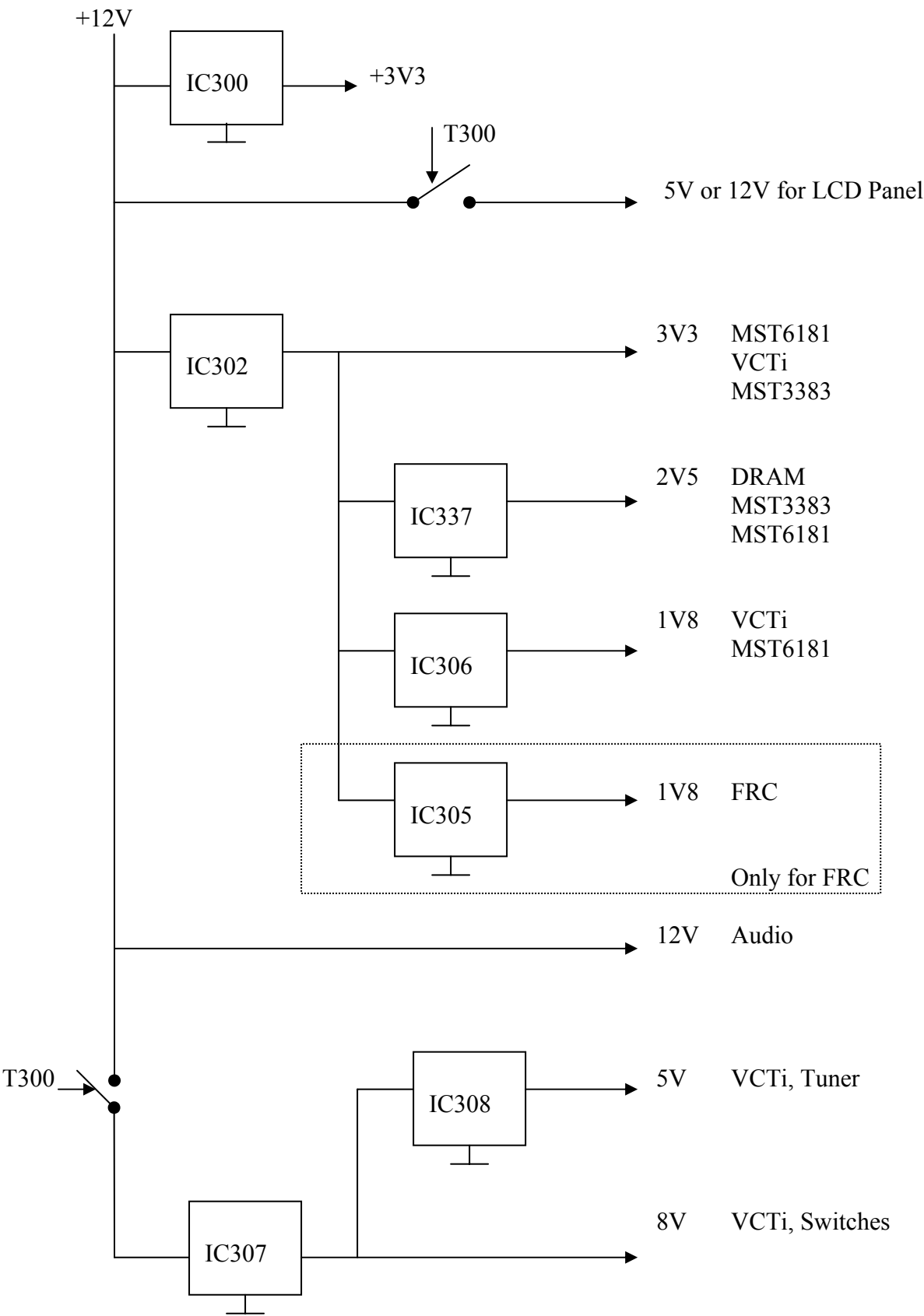
2.7 EEPROM EDIT

No adjustment will be made in this menu for service purposes.

Chassis LM Block Diagram



Power Supply Diagram



General Description

Release Note: This data sheet describes functions and characteristics of the VCT 49xyl, VCT 48xyl version F1.

1. Introduction

The VCT 49xyl, VCT 48xyl is an IC family of high-quality single-chip TV processors. Modular design and deep-submicron technology allow the economic integration of features in all classes of single-scan TV sets. The VCT 49xyl, VCT 48xyl family is based on functional blocks contained and approved in existing products like DRX 396xA, MSP 34x5G, VSP 94x7B, DDP 3315C, and SDA 55xx.

Each member of the family contains the entire IF, audio, video, display, and deflection processing for 4:3 and 16:9 50/60-Hz mono and stereo TV sets. The integrated microcontroller is supported by a powerful OSD generator with integrated Teletext & CC acquisition including on-chip page memory.

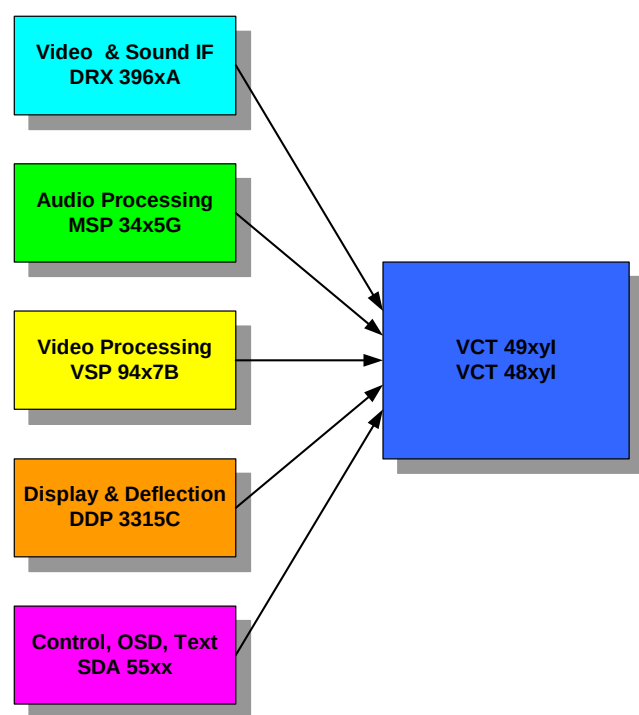


Fig. 1-1: Single-chip VCT 49xyl, VCT 48xyl

1.1. Features

The VCT 49xyl, VCT 48xyl family offers a rich feature set, covering the whole range of state-of-the-art 50/60 Hz TV applications.

- PSSDIP88-1 package
- PMQFP144-2 package

- Submicron CMOS technology
- Low-power standby mode
- Single 20.25 MHz reference crystal
- 8-bit 8051 instruction set compatible CPU
- Up to 256 kB on-chip program ROM
- WST, PDC, VPS, and WSS acquisition
- Closed Caption and V-chip acquisition
- Up to 10 pages on-chip teletext memory
- Multi-standard QSS IF processing with single SAW
- FM Radio and RDS with standard TV tuner
- TV-sound demodulation:
 - all A2 standards
 - all NICAM standards
 - BTSC/SAP with MNR (DBX optional)
 - EIA-J
- Baseband sound processing for loudspeaker channel:
 - volume and balance
 - bass/treble or equalizer
 - loudness and spatial effect (e.g. pseudo stereo)
 - Micronas AROUND (virtual Dolby optional)
 - Micronas BASS and Subwoofer output
 - further optional and licence requiring sound enhancements as BBE, SRS Wow and Micronas VOICE
- CVBS, S-VHS, YC_bC_r and RGB inputs
- ITU656 input
- 4H adaptive comb filter (PAL/NTSC)
- multi-standard color decoder (PAL/NTSC/SECAM)
- Macrovision Detection
- Nonlinear horizontal scaling “panorama vision”
- Luma and chroma transient improvement (LTI, CTI)
- Non-linear color space enhancement (NCE)
- Dynamic black level expander (BLE)
- Selective Color Enhancer (SCE)
- 8/10 bit ITU656 output
- Scan velocity modulation output
- Soft start/stop of H-drive
- Vertical angle and bow correction
- Average and peak beam current limiter
- Nonlinear and dynamic EHT compensation
- Black switch off procedure (BSO)

1.2. Chip Architecture

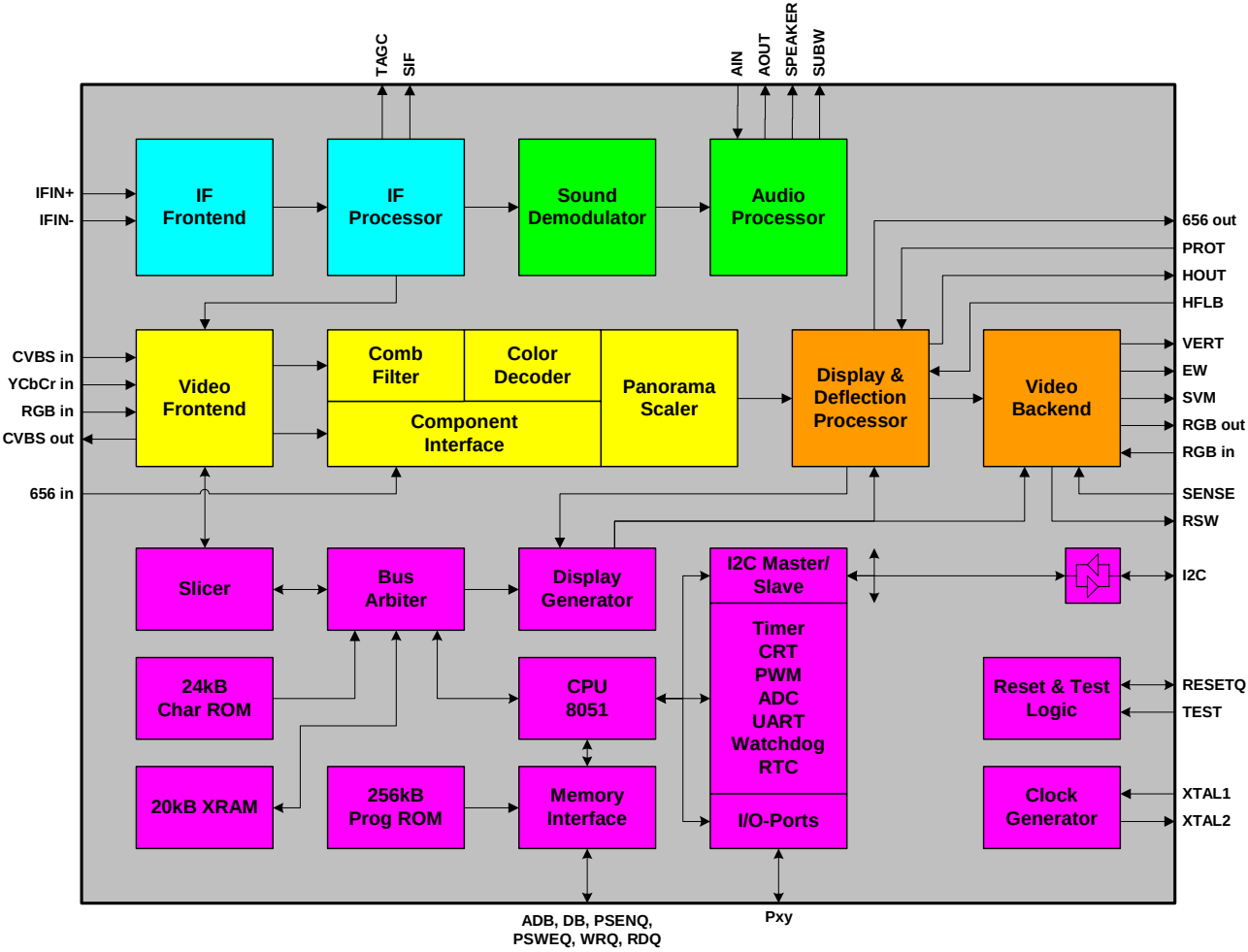


Fig. 1-2: Block diagram of the VCT 49xyl, VCT 48xyl

FEATURES

- Input supports up to UXGA & 1080P
- Panel supports up to SXGA/WXGA
- Integrated 8-bit triple-ADC/PLL
- Integrated DVI/HDCP/HDMI compliant receiver
- RGB/YUV 444 and YUV422 digital video input ports
- Dual high-quality scaling engines
- Built-in 3-D video de-interlacer
- Video-over-graphic PIP
- Video-by-graphic split screen
- MStarACE-2 picture/color processing engine
- Embedded On-screen display controller (OSD) engine
- Digital audio I/O & sync processor
- Built-in dual-link LVDS transmitter
- 5 Volt tolerant inputs
- Low EMI and power saving features
- Supports PWM & GPO controls
- 256-pin LQFP
- **Analog RGB Compliant Input Ports**
 - Dual analog ports support up to 165Mhz
 - Supports PC RGB input up to UXGA@60Hz
 - Supports HDTV RGB/YPbPr/YCbCr up to 1080P
 - On-chip high-performance PLLs
 - Supports Composite Sync and SOG (Sync-on-Green) separator
 - Automatic color calibration
- **DVI/HDCP/HDMI Compliant Input Port**
 - Operates up to 165 MHz (up to UXGA @60Hz)
 - Single link on-chip DVI 1.0 compliant receiver
 - High-bandwidth Digital Content Protection (HDCP) 1.1 compliant receiver
 - High Definition Multimedia Interface (HDMI) 1.0 compliant receiver with I2S and S/PDIF digital audio outputs
 - Long-cable tolerant robust receiving
- **Video Input Port**
 - One RGB/YUV 4:4:4 24-bit and one 4:2:2 ITU-R BT.656 8-bit digital video input ports
 - 24-bit port supports 8/16-bit YUV 4:2:2 or 24-bit RGB/YUV 4:4:4 interlaced/ progressive video input up to 1080i/720P
- **Auto-Configuration/Auto-Detection**
 - Auto input signal format (SOG, Composite, Separated HSYNC, VSYNC, and DE), and input mode (all VESA & IBM modes w/ resolution and polarity) detection
 - Auto-tuning function including phasing, positioning, offset, gain, and jitter detection
 - Sync Detection for H/V Sync
- **Dual High-Performance Scaling Engine**
 - Fully Programmable shrink/zoom capabilities
 - Nonlinear video scaling supports various modes including Panorama
 - Flexible independent control of sharpness for TV and graphic windows
- **Video Processing & Conversion**
 - 3-D motion adaptive video de-interlacer with upgraded edge-oriented adaptive algorithm for smooth low-angle edges
 - Automatic 3:2 pull-down & 2:2 pull-down detection and recovery
 - PIP with programmable size and location, supports multi-video applications
 - Video-over-graphic overlay
 - Video-by-graphic split screen
 - Frame rate conversion for both main window and sub window
 - MStar 2nd Generation Advanced Color Engine (MStarACE-2) automatic picture enhancement gives:
 - Brilliant and fresh color
 - Intensified contrast and details
 - Vivid skin tone
 - Sharp edge
 - Enhanced depth of field perception
 - Accurate and independent color control
 - Independent picture control for main and sub windows
 - sRGB compliance allows end-user to experience the same colors as viewed on CRTs and other displays
 - Programmable 10-bit RGB gamma CLUT
 - 3-D video noise reduction

■ On-Screen OSD Controller

- 16/256 color palette
- 256/512 1-bit/pixel font
- 128/256/512 4-bit/pixel font
- Supports texture function
- Supports 4K attribute/code
- Horizontal and vertical stretch of OSD menus
- Supports button function
- Pattern generator for production test
- Supports OSD MUX and alpha blending capability
- Supports blinking and scrolling for closed caption applications

■ LVDS Panel Interface

- Supports dual link up to 135MHz dot clock for SXGA

- Supports 2 data output formats: Thine & TI data mappings
- Compatible with TIA/EIA
- With 6/8 bits options
- Reduced swing for LVDS for low EMI
- Supports flexible spread spectrum frequency with 360Hz~11.8MHz and up to 25% modulation

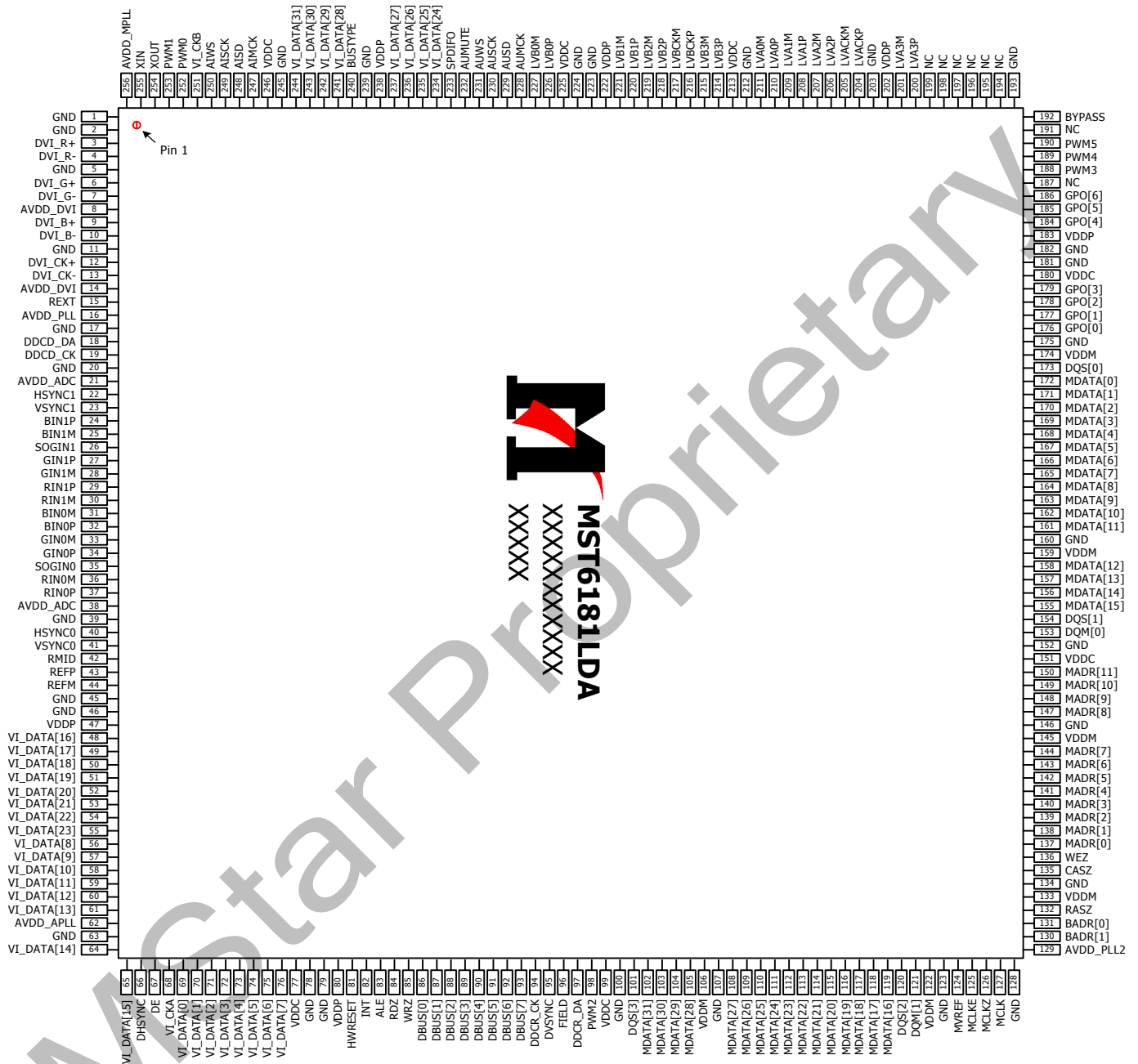
■ External Connection/Component

- Support 8051 parallel MCU bus
- Supports 4-wire double-data-rate direct MCU bus
- 32-bit data bus for external frame buffer (SDR or DDR DRAM)
- All system clocks synthesized from a single external clock

GENERAL DESCRIPTION

The MST6181LDA is a high performance and fully integrated graphics processing IC solution for multi-function LCD monitor/TV with resolutions up to SXGA/WXGA. It is configured with an integrated triple-ADC/PLL, an integrated DVI/HDCP/HDMI receiver, a video de-interlacer, two high quality scaling engines, an on-screen display controller, and a built-in output clock generator. By use of external frame buffer, PIP is provided for multimedia applications. It supports de-interlaced full-screen video, video-on-graphic overlay, split screen, frame rate conversion, and aspect ratio conversion for various video sources. To further reduce system costs, the MST6181LDA also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.

PIN DIAGRAM (MST6181LDA)



PIN DESCRIPTION

MCU Interface

Pin Name	Pin Type	Function	Pin
HWRESET	Schmitt Trigger Input w/ 5V-tolerant	Hardware Reset, active high	81
DBUS[7:0]	I/O w/ 5V-tolerant	MCU Direct bus; 4mA driving strength	93-86
ALE	I w/ 5V-tolerant	MCU Bus ALE, active high	83
RDZ	I w/ 5V-tolerant	MCU Bus RDZ, active high	84
WRZ	I w/ 5V-tolerant	MCU Bus WDZ, active high	85
INT	Output	MCU Bus Interrupt; 4mA driving strength	82
BUSTYPE	Input (not 5V-tolerant)	MCU bus type selection • Low (0V): 4-bit (DBUS[3:0]) DDR Direct Bus • High (3.3V): 8-bit (DBUS[7:0]) Direct Bus	240

Analog Interface

Pin Name	Pin Type	Function	Pin
RMID		Mid-Scale Voltage Bypass	42
REFP		Internal ADC Top De-coupling Pin	43
REFM		Internal ADC Bottom De-coupling Pin	44
REXT	Analog Input	External Resister 390 ohm to AVDD_DVI	15
HSYNC0	Schmitt Trigger Input w/ 5V-tolerant	Analog HSYNC Input from Channel 0	40
VSYNC0	Schmitt Trigger Input w/ 5V-tolerant	Analog VSYNC Input from Channel 0	41
BIN0M	Analog Input	Reference Ground for Analog Blue Input from Channel 0	31
BIN0P	Analog Input	Analog Blue Input from Channel 0	32
GIN0M	Analog Input	Reference Ground for Analog Green Input from Channel 0	33
GIN0P	Analog Input	Analog Green Input from Channel 0	34
SOGIN0	Analog Input	Sync On Green Input from Channel 0	35
RIN0M	Analog Input	Reference Ground for Analog Red Input from Channel 0	36
RIN0P	Analog Input	Analog Red Input from Channel 0	37
HSYNC1	Schmitt Trigger Input w/ 5V-tolerant	Analog HSYNC Input from Channel 1	22
VSYNC1	Schmitt Trigger Input w/ 5V-tolerant	Analog VSYNC Input from Channel 1	23
BIN1M	Analog Input	Reference Ground for Analog Blue Input from Channel 1	25

Pin Name	Pin Type	Function	Pin
BIN1P	Analog Input	Analog Blue Input from Channel 1	24
SOGIN1	Analog Input	Sync On Green Input from Channel 1	26
GIN1M	Analog Input	Reference Ground for Analog Green Input from Channel 1	28
GIN1P	Analog Input	Analog Green Input from Channel 1	27
RIN1M	Analog Input	Reference Ground for Analog Red Input from Channel 1	30
RIN1P	Analog Input	Analog Red Input from Channel 1	29

DVI/HDMI Interface

Pin Name	Pin Type	Function	Pin
DVI_R+	Input	DVI/HDMI Input Channel Red +	3
DVI_R-	Input	DVI/HDMI Input Channel Red -	4
DVI_G+	Input	DVI/HDMI Input Channel Green +	6
DVI_G-	Input	DVI/HDMI Input Channel Green -	7
DVI_B+	Input	DVI/HDMI Input Channel Blue +	9
DVI_B-	Input	DVI/HDMI Input Channel Blue -	10
DVI_CK+	Input	DVI/HDMI Input Clock +	12
DVI_CK-	Input	DVI/HDMI Input Clock -	13

Video Interface

Pin Name	Pin Type	Function	Pin
VI_CKA	Input w/ 5V-tolerant	Digital Video Input Clock for VI_DATA[23:0]	68
VI_CKB	Input w/ 5V-tolerant	Digital Video Input Clock for VI_DATA[31:24]	251
VI_DATA[23:0]	Input w/ 5V-tolerant	Digital Video Input Data[23:0]	55-48, 65, 64, 61-56, 76-69
VI_DATA[31:24]	Input	Digital Video Input Data[31:24]	244-241, 237-234
FIELD	Input w/ 5V-tolerant	FIELD Input	96
DVSYNC	Input w/ 5V-tolerant	Digital VSYNC Input	95
DHSYNC	Input w/ 5V-tolerant	Digital HSYNC Input	66
DE	Input w/ 5V-tolerant	DE Input	67

Digital Audio Interface

Pin Name	Pin Type	Function	Pin
AUMCK	Output	Audio Master Clock Output	228
AUSD	Output	Audio Serial Data Output; 4mA driving strength	229
AUSCK	Output	Audio Serial Clock Output; 4mA driving strength	230

Pin Name	Pin Type	Function	Pin
AUWS	Output	Word Select Output; 4mA driving strength	231
AUMUTE	Output	Audio Output Mute Control	232
SPDIFO	Output	S/PDIF Audio Output; 4mA driving strength	233
AIMCK	Input w/ 5V-tolerant	Audio Master Clock Input	247
AISD	Input w/ 5V-tolerant	Audio Serial Data Input	248
AISCK	Input w/ 5V-tolerant	Audio Serial Clock Input	249
AIWS	Input w/ 5V-tolerant	Word Select Input	250

LVDS Interface

Pin Name	Pin Type	Function	Pin
LVA0M	Output	A-Link Negative LVDS Differential Data Output	211
LVA0P	Output	A-Link Positive LVDS Differential Data Output	210
LVA1M	Output	A-Link Negative LVDS Differential Data Output	209
LVA1P	Output	A-Link Positive LVDS Differential Data Output	208
LVA2M	Output	A-Link Negative LVDS Differential Data Output	207
LVA2P	Output	A-Link Positive LVDS Differential Data Output	205
LVA3M	Output	A-Link Negative LVDS Differential Data Output	201
LVA3P	Output	A-Link Positive LVDS Differential Data Output	200
LVACKM	Output	A-Link Negative LVDS Differential Data Output	205
LVACKP	Output	A-Link Positive LVDS Differential Data Output	204
LVB0M	Output	B-Link Negative LVDS Differential Data Output	227
LVB0P	Output	B-Link Positive LVDS Differential Data Output	226
LVB1M	Output	B-Link Negative LVDS Differential Data Output	221
LVB1P	Output	B-Link Positive LVDS Differential Data Output	220
LVB2M	Output	B-Link Negative LVDS Differential Data Output	219
LVB2P	Output	B-Link Positive LVDS Differential Data Output	218
LVB3M	Output	B-Link Negative LVDS Differential Data Output	215
LVB3P	Output	B-Link Positive LVDS Differential Data Output	214
LVBCKM	Output	B-Link Negative LVDS Differential Data Output	217
LVBCKP	Output	B-Link Positive LVDS Differential Data Output	216

GPO Interface

Pin Name	Pin Type	Function	Pin
PWM0	Output	PWM; 4mA driving strength	252
PWM1	Output	PWM; 4mA driving strength	253
PWM2	Output	PWM; 4mA driving strength	98
PWM3/GPO[7]	Output	GPO with PWM Function; 6mA driving strength	188
PWM4/GPO[8]	Output	GPO with PWM Function; 6mA driving strength	189
PWM5/GPO[9]	Output	GPO with PWM Function; 6mA driving strength	190
GPO[6:0]	Output	GPO; 6mA driving strength	186-184, 179-176

DRAM Interface

Pin Name	Pin Type	Function	Pin
MVREF	Input	Reference Voltage for DDR SDRAM Interface	124
MCLKE	Output	DRAM Memory Clock Enable	125
MCLKZ	Output	DRAM Memory Clock Complementary / Input (for differential clocks)	126
MCLK	Output	DRAM Memory Clock	127
RASZ	Output	Row Address Strobe, active low	132
CASZ	Output	Column Address Strobe, active low	135
WEZ	Output	Write Enable, active low	136
DQM[1:0]	Output	Data Mask Byte Enable	121, 153
DQS[3:0]	Output	Data Strobe	101, 120, 154, 173
BADR[1:0]	Output	Memory Bank Address	130, 131
MADR[11:0]	Output	Memory Address	150-147, 144-137
MDATA[31:0]	I/O	Memory Data	102-105, 108-119, 155-158, 161-172

Misc. Interface

Pin Name	Pin Type	Function	Pin
DDCD_DA	I/O w/ 5V-tolerant	HDCEP Serial Bus Data / DDC Data of DVI Port; 4mA driving strength	18
DDCD_CK	Input w/ 5V-tolerant	HDCEP Serial Bus Data / DDC Clock of DVI Port	19
DDCR_CK	Input w/ 5V-tolerant	DDC Clock for ROM	94
DDCR_DA	I/O w/ 5V-tolerant	DDC Data for ROM	97
BYPASS		For External Bypass Capacitor	192

Pin Name	Pin Type	Function	Pin
XIN	Crystal Oscillator Input	Xin	255
XOUT	Crystal Oscillator Output	Xout	254

Power Pins

Pin Name	Pin Type	Function	Pin
AVDD_DVI	3.3V Power	DVI/HDMI Power	8, 14
AVDD_ADC	3.3V Power	ADC Power	21, 38
AVDD_PLL	3.3V Power	PLL Power	16
AVDD_PLL2	3.3V Power	PLL Power	129
AVDD_APLL	1.8V Power	Audio PLL Power	62
AVDD_MPLL	3.3V Power	PLL Power	256
VDDM	2.5V Power (DDR) / 3.3V Power (SDRAM)	Memory Interface Power	106, 122, 133, 145, 159, 174
VDDP	3.3V Power	Digital Output Power	47, 80, 183, 202, 222, 238
VDDC	1.8V Power	Digital Core Power	77, 99, 151, 180, 213, 225, 246
GND	Ground	Ground	1, 2, 5, 11, 17, 20, 39, 45, 46, 63, 78, 79, 100, 107, 123, 128, 134, 146, 152, 160, 175, 181, 182, 193, 203, 212, 223, 224, 239, 245

No Connects

Pin Name	Pin Type	Function	Pin
NC		No connect. Leave these pins floating.	187, 191, 194-199

8051 Embedded Monitor Controller with 64K Flash ROM

GENERAL DESCRIPTIONS

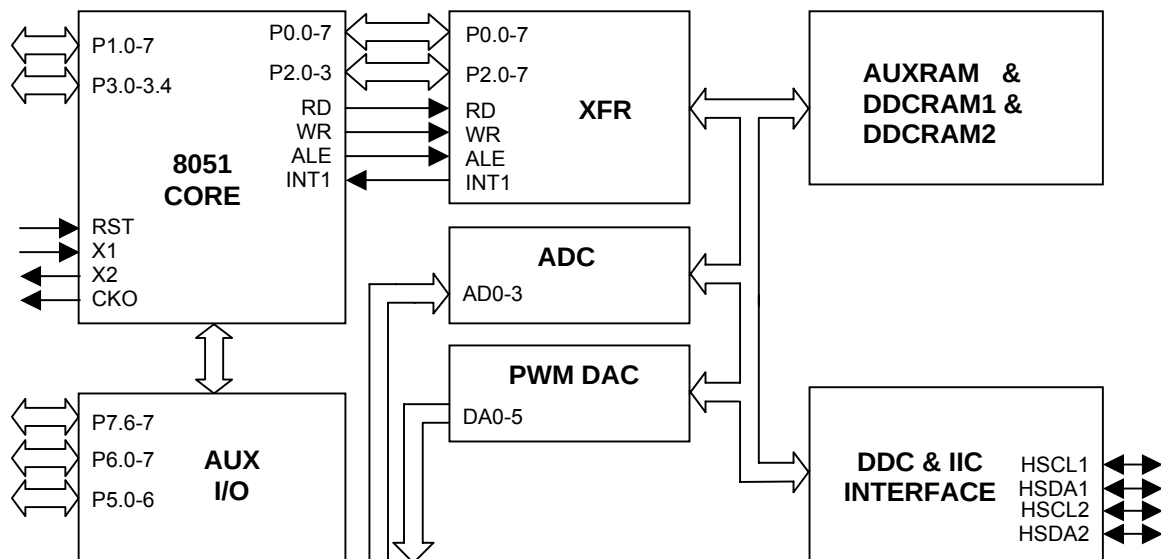
The MTV512M micro-controller is an 8051 CPU core embedded device especially tailored for flat panel display applications. It includes an 8051 CPU core, 768-byte SRAM, 4 channels of 6-bit ADC, 3 external counters/timers, 6 channels of PWM DAC, VESA DDC interface, and a 64K-byte internal program Flash-ROM memory.

FEATURES

- 8051 core, CPU operating frequency up to 24MHz
- 3.3V power supply
- 768-byte RAM; 64K-byte program Flash memory
- Maximum 6 channels of PWM DAC
- Compliant with VESA DDC1/2B/2Bi/2B+/CI standard

- Watchdog timer with programmable interval
- Support external counters/timers, T0, T1, and ET2
- Single/double frequency clock output
- Two clock output ports
- Two external interrupts, INT1 is shared with Slave IIC interrupt source
- Maximum 4 channels of 6-bit ADC
- Flash-ROM code protection selection
- Hardware ISP (In System Programming), no Boot Code required
- Embedded Dual Ports DDCRAM (128-byte x 2)
- 40-pin PDIP, 42-pin SDIP, or 44-pin PLCC/QFP package
- Green products like Pb-Free Packages or All Green Packages available

BLOCK DIAGRAM



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PIN CONFIGURATION & DESCRIPTION

A “CMOS output pin” means it can sink and drive at least 4mA current. It is not recommended to use such pin as input function.

An “open drain pin” means it can sink at least 4mA current. It can be used as input or output function and needs an external pull up resistor.

An “8051 standard pin” is a pseudo open drain pin. It can sink at least 4mA current when output is at low level, and drives at least 4mA current for 160nS when output transits from low to high, then keeps driving at 120 μ A to maintain the pin at high level. It can be used as input or output function. It needs an external pull up resistor when driving heavy load device.

There is an internal pull-up resistance on each CMOS PAD and an internal pull-down resistance on each input PAD. It is recommended to add a pull high resistance on each open drain pin.

Name	Pin No.				Direction	Default Direction	Default Output Value*	Internal Pull Up/Down	Pin Type	Description
	PLCC	QFP	PDIP	SDIP						
NC	1	39	-	1	-	-	-	-	-	No connection
DA0/P5.0	2	40	1	2	I/O	O	1(DA0)	-	Open Drain	PWM DAC output/General purpose I/O (open drain)
DA1/P5.1	3	41	2	3	I/O	O	1(DA1)	-	Open Drain	PWM DAC output/General purpose I/O (open drain)
DA2/P5.2	4	42	3	4	I/O	O	1(DA2)	-	Open Drain	PWM DAC output/General purpose I/O (open drain)
DA3/P5.3	5	43	4	5	I/O	O	1(DA3)	-	Open Drain	PWM DAC output/General purpose I/O (open drain)
DA4/ P5.4	6	44	5	6	I/O	O	1(DA4)	-	Open Drain	PWM DAC output/General purpose I/O (open drain)
DA5/P5.5	7	1	6	7	I/O	O	1(DA5)	-	Open Drain	PWM DAC output/General purpose I/O (open drain)
P5.6/HSCL2	8	2	7	8	I/O	I	Z(P5.6)	-	Open Drain w/ filter	General purpose I/O/Slave IIC1 SCL2 (open drain)
P5.7/HSDA2	9	3	8	9	I/O	I	Z(P5.7)	-	Open Drain w/ filter	General purpose Output/Slave IIC1 SDA2 (open drain)
RST	10	4	9	10	I	I	0	down	Input	High Active RESET
HSCL1/P3.0/RXD	11	5	10	11	I/O	I/O	Z(HSCL1)	-	Open Drain w/ filter	Slave IIC clock/General purpose I/O/Rxd (open drain)
NC	12	6	-	-	-	-		-	-	No connection
HSDA1/P3.1/TXD	13	7	11	12	I/O	I/O	Z(HSDA1)	-	Open Drain w/ filter	Slave IIC data/General purpose I/O/Txd (open drain)

1 TVP5150A Introduction

The TVP5150A device is an ultralow power NTSC/PAL/SECAM video decoder. Available in a space saving 32-pin TQFP package, the TVP5150A decoder converts NTSC, PAL, and SECAM video signals to 8-bit ITU-R BT.656 format. Discrete syncs are also available. The optimized architecture of the TVP5150A decoder allows for ultralow-power consumption. The decoder consumes 115 mW of power in typical operation and consumes less than 1 mW in power-down mode, considerably increasing battery life in portable applications. The decoder uses just one crystal for all supported standards. The TVP5150A decoder can be programmed using an I²C serial interface. The decoder uses a 1.8-V supply for its analog and digital supplies, and a 3.3-V supply for its I/O.

The TVP5150A decoder converts baseband analog video into digital YCbCr 4:2:2 component video. Composite and S-video inputs are supported. The TVP5150A decoder includes one 9-bit analog-to-digital converter (ADC) with 2x sampling. Sampling is ITU-R BT.601 (27.0 MHz, generated from the 14.31818-MHz crystal or oscillator input) and is line-locked. The output formats can be 8-bit 4:2:2 or 8-bit ITU-R BT.656 with embedded synchronization.

The TVP5150A decoder utilizes Texas Instruments patented technology for locking to weak, noisy, or unstable signals. A Genlock/real-time control (RTC) output is generated for synchronizing downstream video encoders.

Complementary 4-line adaptive comb filtering is available for both the luma and chroma data paths to reduce both cross-luma and cross-chroma artifacts; a chroma trap filter is also available.

Video characteristics including hue, contrast, brightness, saturation, and sharpness may be programmed using the industry standard I²C serial interface. The TVP5150A decoder generates synchronization, blanking, lock, and clock signals in addition to digital video outputs. The TVP5150A decoder includes methods for advanced vertical blanking interval (VBI) data retrieval. The VBI data processor slices, parses, and performs error checking on teletext, closed caption, and other data in several formats.

The TVP5150A decoder detects copy-protected input signals according to the Macrovision™ standard and detects Type 1, 2, 3, and colorstripe pulses.

The main blocks of the TVP5150A decoder include:

- Robust sync detector
- ADC with analog processor
- Y/C separation using 4-line adaptive comb filter
- Chrominance processor
- Luminance processor
- Video clock/timing processor and power-down control
- Output formatter
- I²C interface
- VBI data processor
- Macrovision™ detection for composite and S-video

1.1 Features

- Accepts NTSC (M, 4.43), PAL (B, D, G, H, I, M, N), and SECAM (B, D, G, K, K1, L) video data
- Supports ITU-R BT.601 standard sampling
- High-speed 9-bit ADC
- Two composite inputs or one S-video input

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Other trademarks are the property of their respective owners.

- Fully differential CMOS analog preprocessing channels with clamping and automatic gain control (AGC) for best signal-to-noise (S/N) performance
- Ultralow power consumption: 115 mW typical
- 32-pin TQFP package
- Power-down mode: <1 mW
- Brightness, contrast, saturation, hue, and sharpness control through I²C
- Complementary 4-line (3-H delay) adaptive comb filters for both cross-luminance and cross-chrominance noise reduction
- Patented architecture for locking to weak, noisy, or unstable signals
- Single 14.31818-MHz crystal for all standards
- Internal phase-locked loop (PLL) for line-locked clock and sampling
- Subcarrier Genlock output for synchronizing color subcarrier of external encoder
- Standard programmable video output format:
 - ITU-R BT.656, 8-bit 4:2:2 with embedded syncs
 - 8-bit 4:2:2 with discrete syncs
- Macrovision™ copy protection detection
- Advanced programmable video output formats:
 - 2x oversampled raw VBI data during active video
 - Sliced VBI data during horizontal blanking or active video
- VBI modes supported
 - Teletext (NABTS, WST)
 - Closed-caption decode with FIFO, and extended data services (EDS)
 - Wide screen signaling, video program system, CGMS, vertical interval time code
 - Gemstar 1x/2x electronic program guide compatible mode
 - Custom configuration mode that allows the user to program the slice engine for unique VBI data signals
- Power-on reset

1.2 Product Family

This data manual covers three devices in the TVP5150A product family: the TVP5150APBS, the TVP5150AM1PBS, and the TVP5150AM1ZQC. The hardware for these three devices is identical. The following software changes are the differences between these two devices. For the remainder of this document, unless otherwise noted, TVP5150A refers to all three devices.

- TVP5150APBS
 - ROM version 3.21
 - SECAM is masked from the autoswitch process in the default mode of register 0x04
 - Only supports ITU-R BT656.4 timing
- TVP5150AM1PBS/TVP5150AM1ZQC
 - ROM version 4.00
 - SECAM is unmasked from the autoswitch process in the default mode of register 0x04
 - Addition of register 0x30 to select ITU-R BT656.3 or ITU-R BT656.4 timing

1.3 Applications

The following is a partial list of suggested applications:

- Digital television
- PDA
- Notebook PCs
- Cell phones
- Video recorder/players
- Internet appliances/web pads
- Handheld games

1.4 Related Products

- *TVP5146 NTSC/PAL/SECAM 4x10-Bit Digital Video Decoder With Macrovision™ Detection, YPbPr/RGB Inputs, 5-Line Comb Filter and SCART/Digital RGB Overlay Support Decoder With Robust Sync Detector, Literature Number SLES084*

1.5 Ordering Information

T _A	PACKAGED DEVICES	PACKAGE OPTION
	32TQFP-PBS	
0°C to 70°C	TVP5150APBS	Tray
0°C to 70°C	TVP5150APBSR	Tape and reel
0°C to 70°C	TVP5150AM1PBS	Tray
0°C to 70°C	TVP5150AM1PBSR	Tape and reel
0°C to 70°C	TVP5150AM1ZQC	Tray
0°C to 70°C	TVP5150AM1ZQCR	Tape and reel

1.6 Functional Block Diagram

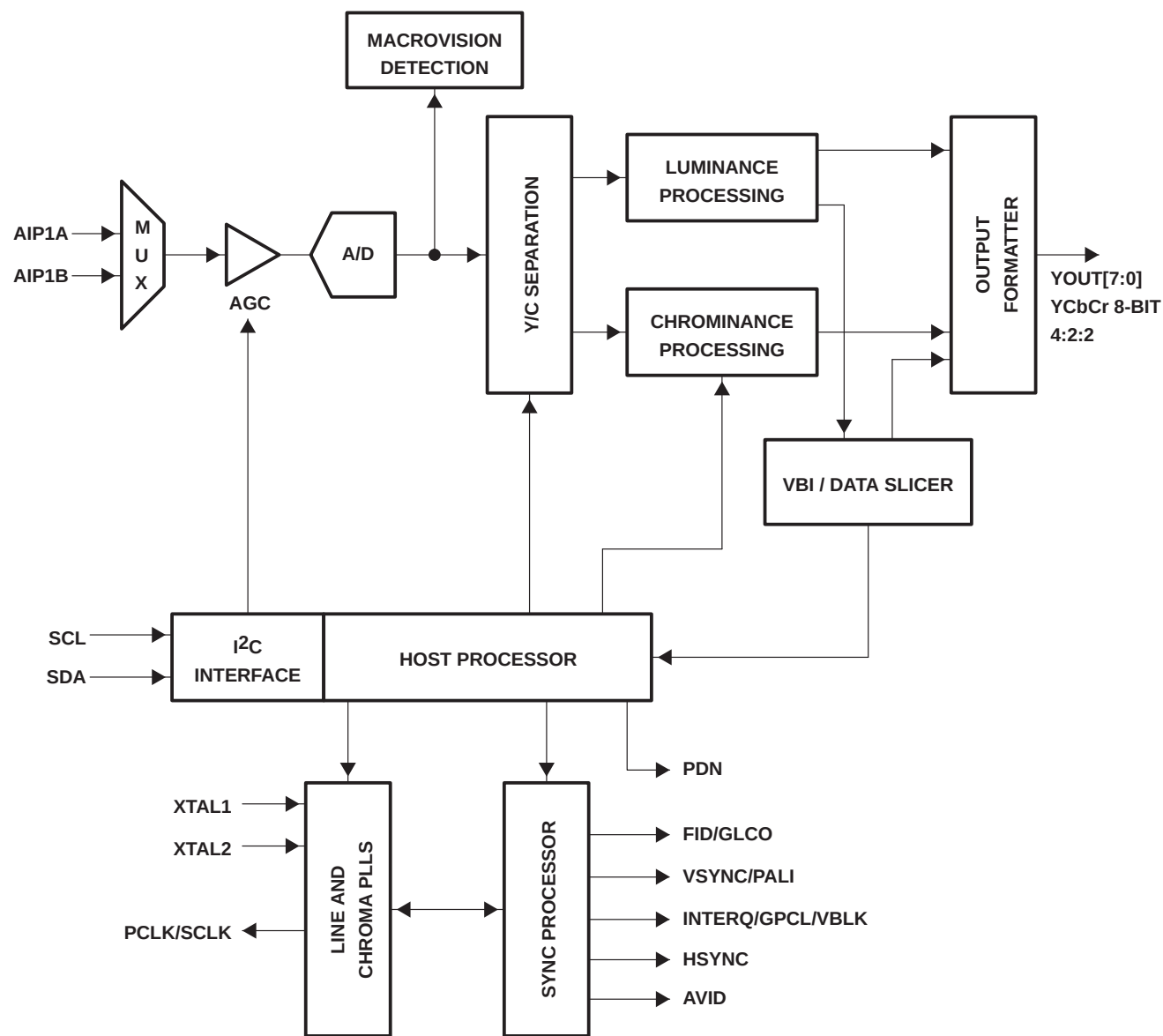
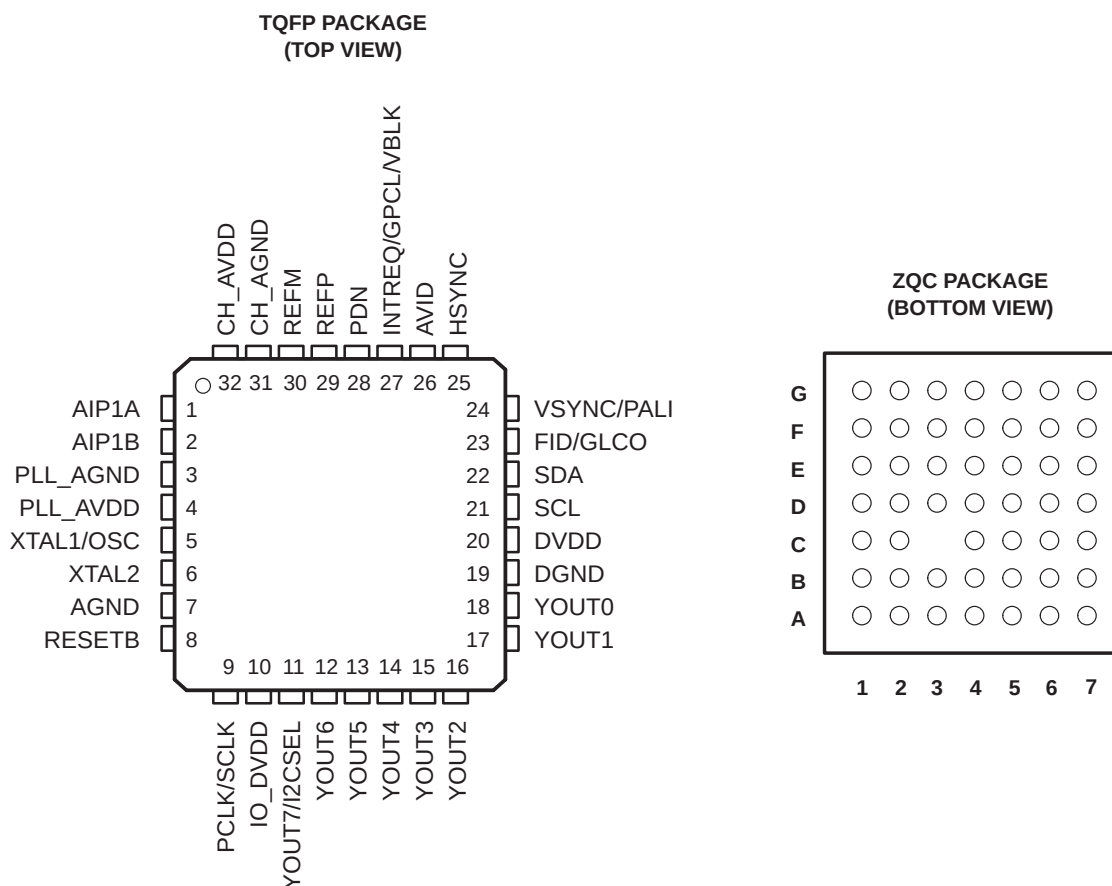


Figure 1-1. Functional Block Diagram

1.7 Terminal Assignments



1.8 Terminal Functions

Table 1–1. Terminal Functions

TERMINAL			I/O	DESCRIPTION
NAME	NUMBER			
	PBS	ZQC		
Analog Section				
AGND	7	E1	I	Substrate. Connect to analog ground.
AIP1A	1	A1	I	Analog input. Connect to the video analog input via 0.1-μF capacitor. The maximum input range is 0–0.75 V _{PP} , and may require an attenuator to reduce the input amplitude to the desired level. If not used, connect to AGND via 0.1-μF capacitor. Refer to Figure 5–1.
AIP1B	2	B1	I	Analog input. Connect to the video analog input via 0.1-μF capacitor. The maximum input range is 0–0.75 V _{PP} , and may require an attenuator to reduce the input amplitude to the desired level. If not used, connect to AGND via 0.1-μF capacitor. Refer to Figure 5–1.
CH_AGND	31	A3	I	Analog ground
CH_AVDD	32	A2	I	Analog supply. Connect to 1.8-V analog supply.
NC	–	B2, B3, B6, C4, C5, D3–D6, E2–E5, F2, F5, F6	–	No connect
PLL_AGND	3	C2	I	PLL ground. Connect to analog ground.
PLL_AVDD	4	C1	I	PLL supply. Connect to 1.8-V analog supply.

Table 1–1. Terminal Functions (Continued)

TERMINAL			I/O	DESCRIPTION
NAME	NUMBER			
	PBS	ZQC		
Analog Section (continued)				
REFM	30	A4	I	A/D reference ground. Connect to analog ground through 1-μF capacitor. Also, it is recommended to connect directly to REFP through 1-μF capacitor. Refer to Figure 5–1.
REFP	29	B4	I	A/D reference supply. Connect to analog ground through 1-μF capacitor. Refer to Figure 5–1.
Digital Section				
AVID	26	A6	O	Active video indicator. This signal is high during the horizontal active time of the video output. AVID toggling during vertical blanking intervals is controlled by bit 2 of the active video cropping start pixel LSB register at address 12h (see Section 2.20.17).
DGND	19	E6	I	Digital ground
DVDD	20	E7	I	Digital supply. Connect to 1.8-V digital supply
FID/GLCO	23	C6	O	FID: Odd/even field indicator or vertical lock indicator. For the odd/even indicator, a 1 indicates the odd field. GLCO: This serial output carries color PLL information. A slave device can decode the information to allow chroma frequency control from the TVP5150A decoder. Data is transmitted at the SCLK rate in Genlock mode. In RTC mode, SCLK/4 is used.
HSYNC	25	A7	O	Horizontal synchronization signal
INTREQ/GPCL/VBLK	27	B5	I/O	INTREQ: Interrupt request output. GPCL/VBLK: General-purpose control logic. This terminal has two functions: 1. GPCL: General-purpose output. In this mode the state of GPCL is directly programmed via I ² C. 2. VBLK: Vertical blank output. In this mode the GPCL terminal indicates the vertical blanking interval of the output video. The beginning and end times of this signal are programmable via I ² C.
IO_DVDD	10	G2	I	Digital supply. Connect to 3.3 V.
PCLK/SCLK	9	G1	O	System clock at either 1x or 2x the frequency of the pixel clock.
PDN	28	A5	I	Power-down terminal (active low). Puts the decoder in standby mode. Preserves the value of the registers.
RESETB	8	F1	I	Active-low reset. RESETB can be used only when PDN = 1. When RESETB is pulled low, it resets all the registers and restarts the internal microprocessor.
SCL	21	D7	I/O	I ² C serial clock (open drain)
SDA	22	C7	I/O	I ² C serial data (open drain)
VSYNC/PALI	24	B7	O	VSYNC: Vertical synchronization signal PALI: PAL line indicator or horizontal lock indicator For the PAL line indicator: 1 = Indicates a noninverted line 0 = Indicates an inverted line
XTAL1/OSC XTAL2	5 6	D2 D1	I O	External clock reference. The user may connect XTAL1 to an oscillator or to one terminal of a crystal oscillator. The user may connect XTAL2 to the other terminal of the crystal oscillator or not connect XTAL2 at all. One single 14.31818-MHz crystal or oscillator is needed for ITU-R BT.601 sampling, for all supported standards.
YOUT[6:0]	12 13 14 15 16 17 18	G3 F4 G4 G5 G6 G7 F7	I/O	Output decoded ITU-R BT.656 output/YCbCr 4:2:2 output with discrete sync.
YOUT7/I2CSEL	11	F3	I/O	I2CSEL: Determines address for I ² C (sampled during reset). A pullup or pulldown register is needed (>1 kΩ) to program the terminal to the desired address. 1 = Address is 0xBA 0 = Address is 0xB8 YOUT7: MSB of output decoded ITU-R BT.656 output/YCbCr 4:2:2 output.

PARTS LIST

Note: For parts other than those of chassis (cosmetic parts and auxiliary boards like power supply etc) please see the parts lists in the web page.

Position	Parts code	Description	Position	Parts code	Description
CAPACITORS			C376	294121R	CC-CHIP 100NF J 50V /0603 NPO
C1	202476R	CC 4.7NF M 250VAC Y5U R:10	C378	294121R	CC-CHIP 100NF J 50V /0603 NPO
C1	251105R	EC 10UF 16V 5*3.5 R:5	C379	294121R	CC-CHIP 100NF J 50V /0603 NPO
C26	251106R	EC 10UF 100V 11*6.3 R:5	C380	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE
C187	293113R	CC-CHIP 10NF K 50V /0603 X7R	C381	294121R	CC-CHIP 100NF J 50V /0603 NPO
C225	294121R	CC-CHIP 100NF J 50V /0603 NPO	C382	294121R	CC-CHIP 100NF J 50V /0603 NPO
C300	294121R	CC-CHIP 100NF J 50V /0603 NPO	C383	294121R	CC-CHIP 100NF J 50V /0603 NPO
C301	294121R	CC-CHIP 100NF J 50V /0603 NPO	C384	294121R	CC-CHIP 100NF J 50V /0603 NPO
C302	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R	C385	294121R	CC-CHIP 100NF J 50V /0603 NPO
C303	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R	C386	294121R	CC-CHIP 100NF J 50V /0603 NPO
C304	290223R	CC-CHIP 22PF J 50V /0603 NPO TAPE	C387	294121R	CC-CHIP 100NF J 50V /0603 NPO
C305	294121R	CC-CHIP 100NF J 50V /0603 NPO	C388	294121R	CC-CHIP 100NF J 50V /0603 NPO
C306	293113R	CC-CHIP 10NF K 50V /0603 X7R	C389	294121R	CC-CHIP 100NF J 50V /0603 NPO
C307	294121R	CC-CHIP 100NF J 50V /0603 NPO	C390	294121R	CC-CHIP 100NF J 50V /0603 NPO
C308	294121R	CC-CHIP 100NF J 50V /0603 NPO	C391	294121R	CC-CHIP 100NF J 50V /0603 NPO
C309	294121R	CC-CHIP 100NF J 50V /0603 NPO	C392	294121R	CC-CHIP 100NF J 50V /0603 NPO
C310	294121R	CC-CHIP 100NF J 50V /0603 NPO	C393	294121R	CC-CHIP 100NF J 50V /0603 NPO
C311	294121R	CC-CHIP 100NF J 50V /0603 NPO	C394	294121R	CC-CHIP 100NF J 50V /0603 NPO
C312	294121R	CC-CHIP 100NF J 50V /0603 NPO	C395	294121R	CC-CHIP 100NF J 50V /0603 NPO
C315	294121R	CC-CHIP 100NF J 50V /0603 NPO	C396	294121R	CC-CHIP 100NF J 50V /0603 NPO
C316	294121R	CC-CHIP 100NF J 50V /0603 NPO	C397	294121R	CC-CHIP 100NF J 50V /0603 NPO
C317	294121R	CC-CHIP 100NF J 50V /0603 NPO	C398	294121R	CC-CHIP 100NF J 50V /0603 NPO
C318	294121R	CC-CHIP 100NF J 50V /0603 NPO	C399	294121R	CC-CHIP 100NF J 50V /0603 NPO
C319	294121R	CC-CHIP 100NF J 50V /0603 NPO	C400	294121R	CC-CHIP 100NF J 50V /0603 NPO
C320	294121R	CC-CHIP 100NF J 50V /0603 NPO	C401	294121R	CC-CHIP 100NF J 50V /0603 NPO
C321	294121R	CC-CHIP 100NF J 50V /0603 NPO	C402	294121R	CC-CHIP 100NF J 50V /0603 NPO
C322	294121R	CC-CHIP 100NF J 50V /0603 NPO	C403	294121R	CC-CHIP 100NF J 50V /0603 NPO
C323	294121R	CC-CHIP 100NF J 50V /0603 NPO	C404	294121R	CC-CHIP 100NF J 50V /0603 NPO
C324	294121R	CC-CHIP 100NF J 50V /0603 NPO	C405	294121R	CC-CHIP 100NF J 50V /0603 NPO
C326	290223R	CC-CHIP 22PF J 50V /0603 NPO TAPE	C406	294121R	CC-CHIP 100NF J 50V /0603 NPO
C327	290223R	CC-CHIP 22PF J 50V /0603 NPO TAPE	C407	294121R	CC-CHIP 100NF J 50V /0603 NPO
C328	290335R	CC-CHIP 33PF J 50V /0603 NPO TAPE	C408	294121R	CC-CHIP 100NF J 50V /0603 NPO
C329	290335R	CC-CHIP 33PF J 50V /0603 NPO TAPE	C409	294121R	CC-CHIP 100NF J 50V /0603 NPO
C330	294685R	CC-CHIP 1UF K 25V X7R 0805	C410	294121R	CC-CHIP 100NF J 50V /0603 NPO
C331	295114R	CC-CHIP 1UF K 10V /0603 X5R	C411	294121R	CC-CHIP 100NF J 50V /0603 NPO
C332	295114R	CC-CHIP 1UF K 10V /0603 X5R	C412	294121R	CC-CHIP 100NF J 50V /0603 NPO
C333	295114R	CC-CHIP 1UF K 10V /0603 X5R	C413	294121R	CC-CHIP 100NF J 50V /0603 NPO
C334	295114R	CC-CHIP 1UF K 10V /0603 X5R	C414	294121R	CC-CHIP 100NF J 50V /0603 NPO
C335	294121R	CC-CHIP 100NF J 50V /0603 NPO	C416	294121R	CC-CHIP 100NF J 50V /0603 NPO
C336	295114R	CC-CHIP 1UF K 10V /0603 X5R	C418	294121R	CC-CHIP 100NF J 50V /0603 NPO
C337	295114R	CC-CHIP 1UF K 10V /0603 X5R	C420	294121R	CC-CHIP 100NF J 50V /0603 NPO
C338	294121R	CC-CHIP 100NF J 50V /0603 NPO	C421	290562R	CC-CHIP 56PF J 50V/0603 NPO TAPE
C339	294121R	CC-CHIP 100NF J 50V /0603 NPO	C422	294121R	CC-CHIP 100NF J 50V /0603 NPO
C340	294121R	CC-CHIP 100NF J 50V /0603 NPO	C424	294121R	CC-CHIP 100NF J 50V /0603 NPO
C341	253115R	EC 1000UF 16V 20*10 R:5	C431	252112R	EC 100UF 16V 11*6 R:5
C350	251107R	EC 10UF M 16V 11*5 R:5	C432	252229R	EC 220UF 16V 11*8 R:5
C351	293113R	CC-CHIP 10NF K 50V /0603 X7R	C433	293113R	CC-CHIP 10NF K 50V /0603 X7R
C352	293113R	CC-CHIP 10NF K 50V /0603 X7R	C436	294121R	CC-CHIP 100NF J 50V /0603 NPO
C353	293113R	CC-CHIP 10NF K 50V /0603 X7R	C437	294121R	CC-CHIP 100NF J 50V /0603 NPO
C354	293113R	CC-CHIP 10NF K 50V /0603 X7R	C441	294121R	CC-CHIP 100NF J 50V /0603 NPO
C355	294121R	CC-CHIP 100NF J 50V /0603 NPO	C442	294121R	CC-CHIP 100NF J 50V /0603 NPO
C356	294121R	CC-CHIP 100NF J 50V /0603 NPO	C443	294121R	CC-CHIP 100NF J 50V /0603 NPO
C357	294121R	CC-CHIP 100NF J 50V /0603 NPO	C444	294121R	CC-CHIP 100NF J 50V /0603 NPO
C358	290688R	CC-CHIP 68PF J 50V /0603 NPO TAPE	C445	294121R	CC-CHIP 100NF J 50V /0603 NPO
C359	290688R	CC-CHIP 68PF J 50V /0603 NPO TAPE	C446	294121R	CC-CHIP 100NF J 50V /0603 NPO
C360	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C447	294121R	CC-CHIP 100NF J 50V /0603 NPO
C361	294121R	CC-CHIP 100NF J 50V /0603 NPO	C448	294121R	CC-CHIP 100NF J 50V /0603 NPO
C362	294121R	CC-CHIP 100NF J 50V /0603 NPO	C450	294121R	CC-CHIP 100NF J 50V /0603 NPO
C363	252112R	EC 100UF 16V 11*6 R:5	C451	294121R	CC-CHIP 100NF J 50V /0603 NPO
C364	294121R	CC-CHIP 100NF J 50V /0603 NPO	C452	294121R	CC-CHIP 100NF J 50V /0603 NPO
C365	294121R	CC-CHIP 100NF J 50V /0603 NPO	C465	252250R	EC 220UF 25V %20 11*8 R:5MM LOW ESR
C366	294121R	CC-CHIP 100NF J 50V /0603 NPO	C467	252250R	EC 220UF 25V %20 11*8 R:5MM LOW ESR
C367	252112R	EC 100UF 16V 11*6 R:5	C469	293235R	CC-CHIP 22NF J 16V /0603 X7R
C368	294121R	CC-CHIP 100NF J 50V /0603 NPO	C471	293235R	CC-CHIP 22NF J 16V /0603 X7R
C369	294121R	CC-CHIP 100NF J 50V /0603 NPO	C472	293235R	CC-CHIP 22NF J 16V /0603 X7R
C370	294121R	CC-CHIP 100NF J 50V /0603 NPO	C473	293235R	CC-CHIP 22NF J 16V /0603 X7R
C371	294121R	CC-CHIP 100NF J 50V /0603 NPO	C474	293235R	CC-CHIP 22NF J 16V /0603 X7R
C372	294121R	CC-CHIP 100NF J 50V /0603 NPO	C475	293235R	CC-CHIP 22NF J 16V /0603 X7R
C373	294121R	CC-CHIP 100NF J 50V /0603 NPO	C476	293235R	CC-CHIP 22NF J 16V /0603 X7R
C374	294121R	CC-CHIP 100NF J 50V /0603 NPO	C477	293235R	CC-CHIP 22NF J 16V /0603 X7R
C375	294121R	CC-CHIP 100NF J 50V /0603 NPO	C478	293235R	CC-CHIP 22NF J 16V /0603 X7R

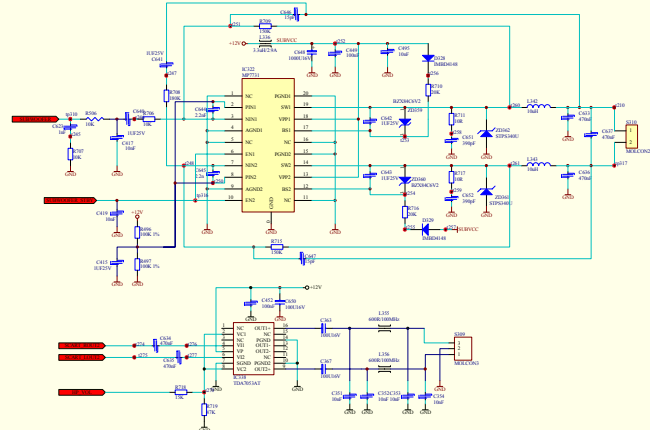
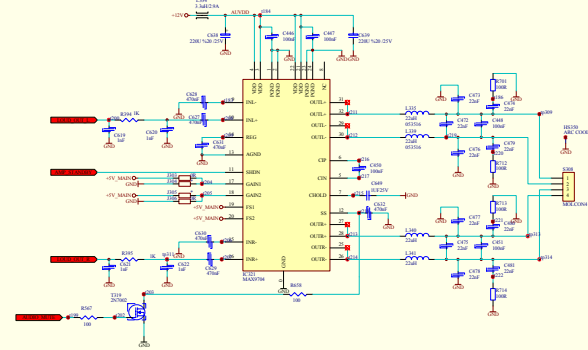
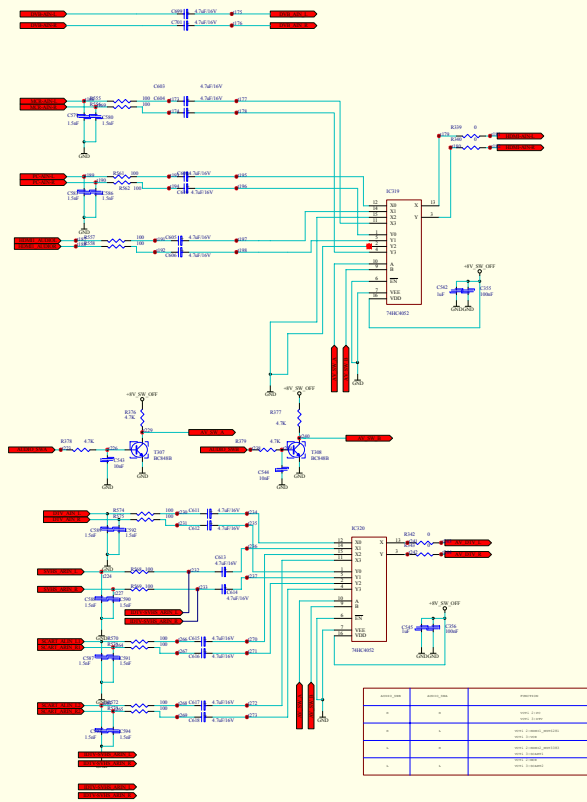
Position	Parts code	Description	Position	Parts code	Description
C479	293235R	CC-CHIP 22NF J 16V /0603 X7R	C602	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE
C480	293235R	CC-CHIP 22NF J 16V /0603 X7R	C605	250470R	EC 4.7UF 16V 11*5 R:5
C481	293235R	CC-CHIP 22NF J 16V /0603 X7R	C606	250470R	EC 4.7UF 16V 11*5 R:5
C491	293113R	CC-CHIP 10NF K 50V /0603 X7R	C609	034107R	TUBE PVC 1*.25 YELLOW
C492	293113R	CC-CHIP 10NF K 50V /0603 X7R	C609	250470R	EC 4.7UF 16V 11*5 R:5
C494	293113R	CC-CHIP 10NF K 50V /0603 X7R	C610	034107R	TUBE PVC 1*.25 YELLOW
C497	299112R	CC-CHIP 22UF Z 10V /1210 Y5V	C610	250470R	EC 4.7UF 16V 11*5 R:5
C498	299112R	CC-CHIP 22UF Z 10V /1210 Y5V	C611	250470R	EC 4.7UF 16V 11*5 R:5
C503	299112R	CC-CHIP 22UF Z 10V /1210 Y5V	C612	250470R	EC 4.7UF 16V 11*5 R:5
C504	299112R	CC-CHIP 22UF Z 10V /1210 Y5V	C613	250470R	EC 4.7UF 16V 11*5 R:5
C505	253115R	EC 1000UF 16V 20*10 R:5	C614	250470R	EC 4.7UF 16V 11*5 R:5
C507	252250R	EC 220UF 25V %20 11*8 R:5MM LOW ESR	C615	250470R	EC 4.7UF 16V 11*5 R:5
C509	252112R	EC 100UF 16V 11*6 R:5	C616	250470R	EC 4.7UF 16V 11*5 R:5
C510	294685R	CC-CHIP 1UF K 25V X7R 0805	C617	250470R	EC 4.7UF 16V 11*5 R:5
C511	294685R	CC-CHIP 1UF K 25V X7R 0805	C618	250470R	EC 4.7UF 16V 11*5 R:5
C512	294121R	CC-CHIP 100NF J 50V /0603 NPO	C619	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R
C513	294121R	CC-CHIP 100NF J 50V /0603 NPO	C620	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R
C515	294121R	CC-CHIP 100NF J 50V /0603 NPO	C621	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R
C516	295114R	CC-CHIP 1UF K 10V /0603 X5R	C622	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R
C517	295114R	CC-CHIP 1UF K 10V /0603 X5R	C627	294480R	CC-CHIP 470NF K 10V /0603 X5R
C518	294121R	CC-CHIP 100NF J 50V /0603 NPO	C628	294480R	CC-CHIP 470NF K 10V /0603 X5R
C519	295114R	CC-CHIP 1UF K 10V /0603 X5R	C629	294480R	CC-CHIP 470NF K 10V /0603 X5R
C521	294121R	CC-CHIP 100NF J 50V /0603 NPO	C630	294480R	CC-CHIP 470NF K 10V /0603 X5R
C522	251107R	EC 10UF M 16V 11*5 R:5	C631	294480R	CC-CHIP 470NF K 10V /0603 X5R
C523	250470R	EC 4.7UF 16V 11*5 R:5	C632	294480R	CC-CHIP 470NF K 10V /0603 X5R
C524	250332R	EC 3.3UF 50V 11*5 R:5	C634	294480R	CC-CHIP 470NF K 10V /0603 X5R
C525	293113R	CC-CHIP 10NF K 50V /0603 X7R	C635	294480R	CC-CHIP 470NF K 10V /0603 X5R
C526	293235R	CC-CHIP 22NF J 16V /0603 X7R	C638	252250R	EC 220UF 25V %20 11*8 R:5MM LOW ESR
C531	294121R	CC-CHIP 100NF J 50V /0603 NPO	C639	252250R	EC 220UF 25V %20 11*8 R:5MM LOW ESR
C532	294121R	CC-CHIP 100NF J 50V /0603 NPO	C649	294685R	CC-CHIP 1UF K 25V X7R 0805
C533	294121R	CC-CHIP 100NF J 50V /0603 NPO	C650	252476R	EC 470UF 25V 11*10 R:5
C534	294121R	CC-CHIP 100NF J 50V /0603 NPO	C657	290223R	CC-CHIP 22PF J 50V /0603 NPO TAPE
C535	294121R	CC-CHIP 100NF J 50V /0603 NPO	C671	291104R	CC-CHIP 100PF J 50V /0603 NPO
C536	294121R	CC-CHIP 100NF J 50V /0603 NPO	C672	291104R	CC-CHIP 100PF J 50V /0603 NPO
C537	290159R	CC-CHIP 15PF J 50V /0603 NPO	C673	251225R	EC 22UF 16V 11*5 R:5
C538	290159R	CC-CHIP 15PF J 50V /0603 NPO	C674	251225R	EC 22UF 16V 11*5 R:5
C541	294121R	CC-CHIP 100NF J 50V /0603 NPO	C675	251225R	EC 22UF 16V 11*5 R:5
C542	294685R	CC-CHIP 1UF K 25V X7R 0805	C676	251225R	EC 22UF 16V 11*5 R:5
C543	293113R	CC-CHIP 10NF K 50V /0603 X7R	C677	251225R	EC 22UF 16V 11*5 R:5
C544	293113R	CC-CHIP 10NF K 50V /0603 X7R	C678	251225R	EC 22UF 16V 11*5 R:5
C545	294685R	CC-CHIP 1UF K 25V X7R 0805	C679	293478R	CC-CHIP 47NF K 25V /0603 X7R TAPE
C546	252112R	EC 100UF 16V 11*6 R:5	C680	293478R	CC-CHIP 47NF K 25V /0603 X7R TAPE
C547	290201R	CC-CHIP 20PF J 50V/0603	C681	293478R	CC-CHIP 47NF K 25V /0603 X7R TAPE
C548	290201R	CC-CHIP 20PF J 50V/0603	C682	294121R	CC-CHIP 100NF J 50V /0603 NPO
C553	294685R	CC-CHIP 1UF K 25V X7R 0805	C683	293478R	CC-CHIP 47NF K 25V /0603 X7R TAPE
C554	295114R	CC-CHIP 1UF K 10V /0603 X5R	C684	293478R	CC-CHIP 47NF K 25V /0603 X7R TAPE
C555	294685R	CC-CHIP 1UF K 25V X7R 0805	C685	293478R	CC-CHIP 47NF K 25V /0603 X7R TAPE
C556	290159R	CC-CHIP 15PF J 50V /0603 NPO	C686	293478R	CC-CHIP 47NF K 25V /0603 X7R TAPE
C558	294685R	CC-CHIP 1UF K 25V X7R 0805	C689	251107R	EC 10UF M 16V 11*5 R:5
C561	295114R	CC-CHIP 1UF K 10V /0603 X5R	C692	294121R	CC-CHIP 100NF J 50V /0603 NPO
C562	294685R	CC-CHIP 1UF K 25V X7R 0805	C693	294121R	CC-CHIP 100NF J 50V /0603 NPO
C563	294685R	CC-CHIP 1UF K 25V X7R 0805	C702	252112R	EC 100UF 16V 11*6 R:5
C564	294685R	CC-CHIP 1UF K 25V X7R 0805	C703	252112R	EC 100UF 16V 11*6 R:5
C572	290335R	CC-CHIP 33PF J 50V /0603 NPO TAPE	C704	252112R	EC 100UF 16V 11*6 R:5
C573	290335R	CC-CHIP 33PF J 50V /0603 NPO TAPE	C706	252112R	EC 100UF 16V 11*6 R:5
C577	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R	C708	251478R	EC 47UF 16V 11*5 R:5
C578	292103R	CC-CHIP 1NF J 50V /0603 NPO T&R	C709	251478R	EC 47UF 16V 11*5 R:5
C583	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C710	294121R	CC-CHIP 100NF J 50V /0603 NPO
C586	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C711	294121R	CC-CHIP 100NF J 50V /0603 NPO
C587	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C712	294121R	CC-CHIP 100NF J 50V /0603 NPO
C588	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C714	294121R	CC-CHIP 100NF J 50V /0603 NPO
C589	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C715	259103R	EC 10UF 50V 7*5 R:5
C590	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C716	294480R	CC-CHIP 470NF K 10V /0603 X5R
C591	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C719	294121R	CC-CHIP 100NF J 50V /0603 NPO
C592	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C720	294121R	CC-CHIP 100NF J 50V /0603 NPO
C593	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C722	294121R	CC-CHIP 100NF J 50V /0603 NPO
C594	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C729	294121R	CC-CHIP 100NF J 50V /0603 NPO
C595	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C731	290107R	CC-CHIP 10PF J 50V /0603 NPO TAPE
C596	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE	C732	290107R	CC-CHIP 10PF J 50V /0603 NPO TAPE
C597	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE			
C598	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE			
C599	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE			
C600	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE			
C601	292153R	CC-CHIP 1.5NF K 50V /0603 X7R TAPE			

Position	Parts code	Description	Position	Parts code	Description
DIODES			L354	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
D1	7S2204F	HOLD.LED 28K15	L355	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
D1	303883R	LED 5MM L5B47UWCLD2 WHITE 3V 5MA P.LIGH	L356	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
D300	303464R	DIODE-CHIP STPS340U	L357	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
D303	303464R	DIODE-CHIP STPS340U	L359	053804R	COIL-CHIP 10UH K 0805
D305	303497R	DIODE CHIP IMBD4148 SOT 23	L360	053804R	COIL-CHIP 10UH K 0805
D314	303818R	DIODE-CHIP BAV99LT1 SOT23 T&R	L361	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
D315	303818R	DIODE-CHIP BAV99LT1 SOT23 T&R	L362	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
D316	303818R	DIODE-CHIP BAV99LT1 SOT23 T&R	L363	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
D326	300107R	DIODE-CHIP BAV70LT1 SOT23	L364	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
D327	300107R	DIODE-CHIP BAV70LT1 SOT23	L365	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
D331	303817R	DIODE-CHIP Z. 33V SOD-106	L366	053872R	COIL-CH 4.7UH(NL3225-22T-4R7J-SM1210)
INTEGRATED CIRCUITS			L367	053805R	COIL-CHIP 1UH K /0805
IC300	453032R	IC-CHIP NCP1117ST3T3TG SOT-223 T&R	L368	055626R	FERRITE BEAD-CHIP 120R/100MHZ3A
IC301	450534R	IC-CHIP CM2021-00TR TSSOP-38	L369	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC302	453553R	IC-CHIP MP1593DN-LF-Z DC-DC CONV SOIC8N	L370	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC304	453553R	IC-CHIP MP1593DN-LF-Z DC-DC CONV SOIC8N	L371	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC306	453295R	IC-CHIP NCP1117DT18RK G TO252 (T&R)	L373	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC307	453095R	IC-CHIP NCP1117DTARK G (DPAK) T&R TO252	L374	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC308	453095R	IC-CHIP NCP1117DTARK G (DPAK) T&R TO252	L375	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC309	453538R	IC-CHIP TVP5150AM1PBSRG4 PQFP VIDEO DEC	L376	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC310	453537R	IC-CHIP MAX810STRG SOT23 RESET IC	L377	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A
IC311	453536R	IC-CHIP MTV512GMV64 PLCC 8051 MON.CO T&R	L381	053580R	COIL-CHIP 560NH K 0805 MLF2012DR56
IC312	451885R-1	IC TL431CLPRA G	L382	053580R	COIL-CHIP 560NH K 0805 MLF2012DR56
IC314	453031R-2	IC-CHIP AT24C08AN-10SU-2.7 (ATMEL) TAPE&	RESISTORS		
IC315	453031R-2	IC-CHIP AT24C08AN-10SU-2.7 (ATMEL) TAPE&	R1	101163R	CFR 150R J 1/4W 26MM
IC317	453412R	IC-CHIP CS4334-KSZR SO8 T&R	R2	101163R	CFR 150R J 1/4W 26MM
IC319	453535R	IC-CHIP 74HC4052D SO16	R3	101343R	CFR 330R J 1/4W /6 26MM
IC320	453535R	IC-CHIP 74HC4052D SO16	R4	101282R	CFR 270R J 1/4W /6 26MM
IC321	454311R	IC-CHIP MAX9704 ST CLASS-D AUD AMP TQFN	R5	101189R	CFR 180R J 1/4W /6 26MM
IC323	453077R-1	IC-CHIP AT24C32AN-10SU-2.7 (T&R)	R6	102141R	CFR 1K J 1/4W /6 26MM
IC324	S-SLM512	SW IC LM BEKO VCT4993G-XM	R7	101494R	CFR 470R J 1/4W /6 26MM
IC325	453529R	IC-CHIP MM74HC4066MX SO14 ANALOG SWITCH	R8	140472R	CFR 47R J 1/4W /3.2 26MM
IC326	453529R	IC-CHIP MM74HC4066MX SO14 ANALOG SWITCH	R9	102572R	CFR 5.6K J 1/4W /6 26MM
IC327	056298R	SAW FILTER X6966M	R104	171224R	RC-CHIP 220R J 1/16W/0603 TAPE
IC334	453531R	IC-CHIP MST6181LDA-LF LQFP LCD MON.CONT.	R124	173100R	RC-CHIP 10K J 1/10W /0603
IC335	453530R	IC-CHIP HY5DU283222BFP-33 FBGA SDRAM	R231	170474R	RC-CHIP 47R J 1/16W /0603 TAPE
IC337	453073R	IC-CHIP KF25BDT(T&R)	R232	170754R	RC-CHIP 75R J 1/16W /0603
IC338	453528R	IC-CHIP TDA7053AT SO16 2*0.5W ST. AMP.	R300	172473R	RC-CHIP 4.7K J 1/10W /0603
COILS			R301	183100R	RM-CHIP 10K %1 1/16W /0603
L107	053725R	COIL-CHIP 10UH %20/0805	R302	172473R	RC-CHIP 4.7K J 1/10W /0603
L300	053383R	COIL 1.2MH R:5	R303	183100R	RM-CHIP 10K %1 1/16W /0603
L301	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R304	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L302	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R305	172343R	RC-CHIP 3.3K %1 1/16W /0603
L303	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R306	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L304	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R307	172933R	RC-CHIP 15K %1 1/16W /0603 SERITLI
L306	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R308	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L308	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R309	172567R	RC-CHIP 5.6K J 1/16W /0603 TAPE
L309	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R310	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L310	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R311	172228R	RC-CHIP 2.2K J 1/10W /0603
L311	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R312	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L312	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R313	173300R	RC-CHIP 30K J 1/16W /0603
L313	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R314	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L314	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R315	172751R	RC-CHIP 7.5K J 1/16W /0603
L316	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R316	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L317	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R317	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L323	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R318	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L325	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R319	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L326	053875R	COIL 3.3UH 2.9A RADIAL	R320	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L327	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R321	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L330	053875R	COIL 3.3UH 2.9A RADIAL	R322	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L331	053946R	COIL-CHIP B82464G4223M EPCOS	R323	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L332	053946R	COIL-CHIP B82464G4223M EPCOS	R324	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
L333	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R325	172473R	RC-CHIP 4.7K J 1/10W /0603
L334	053875R	COIL 3.3UH 2.9A RADIAL	R328	170105R	RC-CHIP 10R J 1/16W /0603
L335	053516R	COIL 22UH RADIAL	R329	170391R	RC-CHIP 39R J 1/10W /0603
L339	053516R	COIL 22UH RADIAL	R330	172125R	RC-CHIP 1.2K J 1/16W/0603 TAPE
L340	053516R	COIL 22UH RADIAL	R331	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L341	053516R	COIL 22UH RADIAL	R332	173100R	RC-CHIP 10K J 1/10W /0603
L344	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R334	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L345	055626R	FERRITE BEAD-CHIP 120R/100MHZ 3A/1206	R335	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L346	055547R	FERRIT-CHIP MI0603J680R-00 68R 1A /0603	R337	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
L347	055547R	FERRIT-CHIP MI0603J680R-00 68R 1A /0603	R338	173100R	RC-CHIP 10K J 1/10W /0603
L348	055547R	FERRIT-CHIP MI0603J680R-00 68R 1A /0603	R339	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE

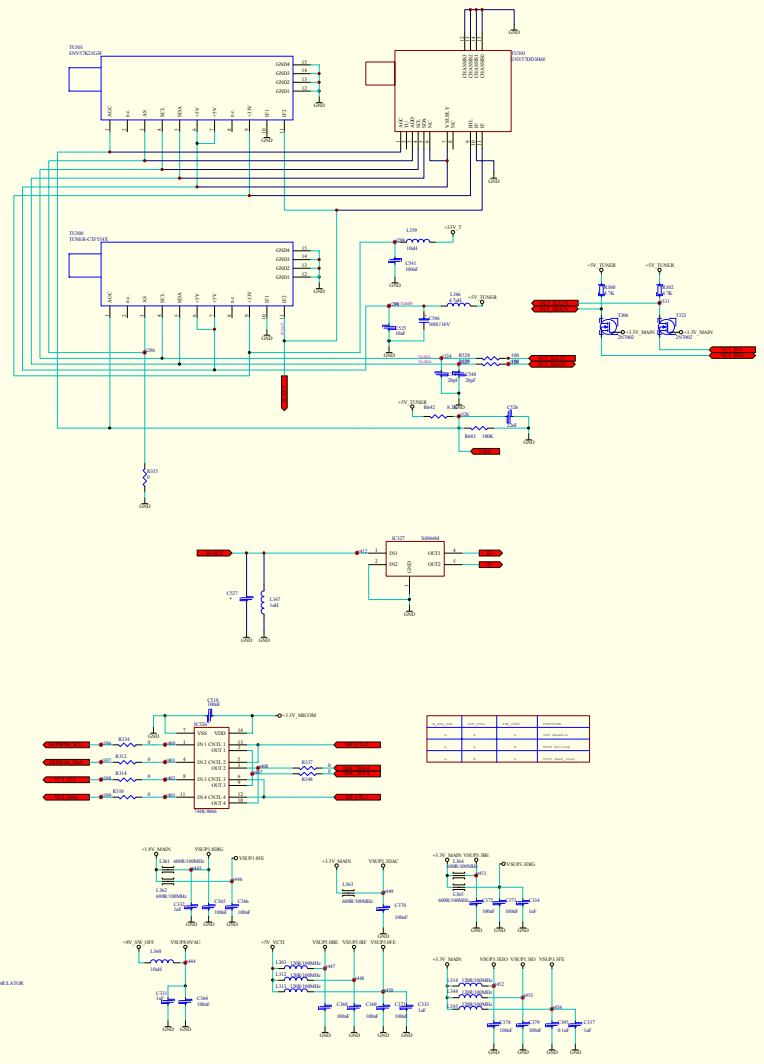
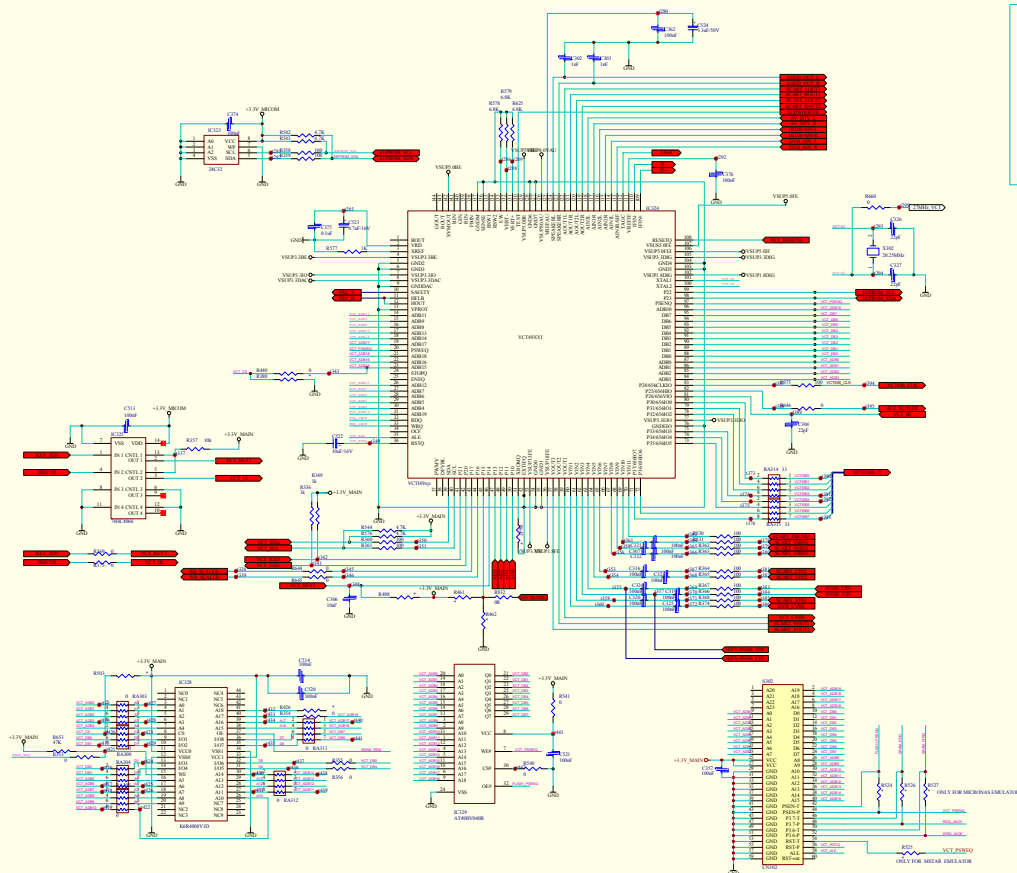
Position	Parts code	Description	Position	Parts code	Description
R340	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R436	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
R342	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R437	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
R343	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R442	172473R	RC-CHIP 4.7K J 1/10W /0603
R344	172228R	RC-CHIP 2.2K J 1/10W /0603	R443	172473R	RC-CHIP 4.7K J 1/10W /0603
R345	173478R	RC-CHIP 47K J 1/16W /0603 TAPE	R445	172473R	RC-CHIP 4.7K J 1/10W /0603
R348	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R446	172473R	RC-CHIP 4.7K J 1/10W /0603
R349	172104R	RC-CHIP 1K J 1/16W /0603	R447	172473R	RC-CHIP 4.7K J 1/10W /0603
R357	173100R	RC-CHIP 10K J 1/10W /0603	R448	172473R	RC-CHIP 4.7K J 1/10W /0603
R358	171107R	RC-CHIP 100R J 1/16W /0603	R449	171107R	RC-CHIP 100R J 1/16W /0603
R359	171107R	RC-CHIP 100R J 1/16W /0603	R450	172104R	RC-CHIP 1K J 1/16W /0603
R360	171107R	RC-CHIP 100R J 1/16W /0603	R451	172104R	RC-CHIP 1K J 1/16W /0603
R361	171107R	RC-CHIP 100R J 1/16W /0603	R452	170754R	RC-CHIP 75R J 1/16W /0603
R362	171107R	RC-CHIP 100R J 1/16W /0603	R454	172104R	RC-CHIP 1K J 1/16W /0603
R363	171107R	RC-CHIP 100R J 1/16W /0603	R455	171107R	RC-CHIP 100R J 1/16W /0603
R364	171107R	RC-CHIP 100R J 1/16W /0603	R456	171107R	RC-CHIP 100R J 1/16W /0603
R365	171107R	RC-CHIP 100R J 1/16W /0603	R457	171107R	RC-CHIP 100R J 1/16W /0603
R366	171107R	RC-CHIP 100R J 1/16W /0603	R458	171107R	RC-CHIP 100R J 1/16W /0603
R367	171107R	RC-CHIP 100R J 1/16W /0603	R459	171107R	RC-CHIP 100R J 1/16W /0603
R368	171107R	RC-CHIP 100R J 1/16W /0603	R460	171107R	RC-CHIP 100R J 1/16W /0603
R370	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R461	172473R	RC-CHIP 4.7K J 1/10W /0603
R371	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R464	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
R372	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R466	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
R375	171107R	RC-CHIP 100R J 1/16W /0603	R467	171107R	RC-CHIP 100R J 1/16W /0603
R376	172473R	RC-CHIP 4.7K J 1/10W /0603	R468	171107R	RC-CHIP 100R J 1/16W /0603
R377	172473R	RC-CHIP 4.7K J 1/10W /0603	R469	171107R	RC-CHIP 100R J 1/16W /0603
R378	172473R	RC-CHIP 4.7K J 1/10W /0603	R470	171107R	RC-CHIP 100R J 1/16W /0603
R379	172473R	RC-CHIP 4.7K J 1/10W /0603	R471	171107R	RC-CHIP 100R J 1/16W /0603
R381	171107R	RC-CHIP 100R J 1/16W /0603	R472	173100R	RC-CHIP 10K J 1/10W /0603
R382	171107R	RC-CHIP 100R J 1/16W /0603	R473	170225R	RC-CHIP 22R J 1/10W /0603
R383	171107R	RC-CHIP 100R J 1/16W /0603	R474	171107R	RC-CHIP 100R J 1/16W /0603
R384	171107R	RC-CHIP 100R J 1/16W /0603	R475	171336R	RC-CHIP 330R J 1/16W /0603 TAPE
R387	171472R	RC-CHIP 470R J 1/16W /0603 TAPE	R476	171107R	RC-CHIP 100R J 1/16W /0603
R390	171107R	RC-CHIP 100R J 1/16W /0603	R477	171107R	RC-CHIP 100R J 1/16W /0603
R391	172104R	RC-CHIP 1K J 1/16W /0603	R478	171107R	RC-CHIP 100R J 1/16W /0603
R392	171107R	RC-CHIP 100R J 1/16W /0603	R479	171336R	RC-CHIP 330R J 1/16W /0603 TAPE
R394	172104R	RC-CHIP 1K J 1/16W /0603	R480	171107R	RC-CHIP 100R J 1/16W /0603
R395	172104R	RC-CHIP 1K J 1/16W /0603	R481	171107R	RC-CHIP 100R J 1/16W /0603
R396	172104R	RC-CHIP 1K J 1/16W /0603	R482	171107R	RC-CHIP 100R J 1/16W /0603
R397	172104R	RC-CHIP 1K J 1/16W /0603	R483	171107R	RC-CHIP 100R J 1/16W /0603
R398	172104R	RC-CHIP 1K J 1/16W /0603	R484	173478R	RC-CHIP 47K J 1/16W /0603 TAPE
R399	172104R	RC-CHIP 1K J 1/16W /0603	R485	171107R	RC-CHIP 100R J 1/16W /0603
R400	172104R	RC-CHIP 1K J 1/16W /0603	R486	171107R	RC-CHIP 100R J 1/16W /0603
R401	172104R	RC-CHIP 1K J 1/16W /0603	R487	171107R	RC-CHIP 100R J 1/16W /0603
R402	172104R	RC-CHIP 1K J 1/16W /0603	R488	171107R	RC-CHIP 100R J 1/16W /0603
R403	172104R	RC-CHIP 1K J 1/16W /0603	R489	171107R	RC-CHIP 100R J 1/16W /0603
R404	172104R	RC-CHIP 1K J 1/16W /0603	R490	173100R	RC-CHIP 10K J 1/10W /0603
R405	172104R	RC-CHIP 1K J 1/16W /0603	R491	173100R	RC-CHIP 10K J 1/10W /0603
R406	172104R	RC-CHIP 1K J 1/16W /0603	R493	173100R	RC-CHIP 10K J 1/10W /0603
R407	172104R	RC-CHIP 1K J 1/16W /0603	R494	173563R	RC-CHIP 56K J 1/16W /0603
R408	172104R	RC-CHIP 1K J 1/16W /0603	R495	173563R	RC-CHIP 56K J 1/16W /0603
R409	173100R	RC-CHIP 10K J 1/10W /0603	R501	171107R	RC-CHIP 100R J 1/16W /0603
R410	170754R	RC-CHIP 75R J 1/16W /0603	R502	171107R	RC-CHIP 100R J 1/16W /0603
R411	170754R	RC-CHIP 75R J 1/16W /0603	R504	171472R	RC-CHIP 470R J 1/16W /0603 TAPE
R412	170754R	RC-CHIP 75R J 1/16W /0603	R505	175105R	RC-CHIP 1M J 1/16W/0603 T&R
R413	170754R	RC-CHIP 75R J 1/16W /0603	R507	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
R414	170754R	RC-CHIP 75R J 1/16W /0603	R510	173100R	RC-CHIP 10K J 1/10W /0603
R415	170754R	RC-CHIP 75R J 1/16W /0603	R511	173100R	RC-CHIP 10K J 1/10W /0603
R416	170754R	RC-CHIP 75R J 1/16W /0603	R512	173100R	RC-CHIP 10K J 1/10W /0603
R417	170754R	RC-CHIP 75R J 1/16W /0603	R513	173100R	RC-CHIP 10K J 1/10W /0603
R418	170754R	RC-CHIP 75R J 1/16W /0603	R517	173100R	RC-CHIP 10K J 1/10W /0603
R419	170754R	RC-CHIP 75R J 1/16W /0603	R518	173100R	RC-CHIP 10K J 1/10W /0603
R420	170754R	RC-CHIP 75R J 1/16W /0603	R519	172112R	RC-CHIP 1K 1% 1/10W /0603
R421	170754R	RC-CHIP 75R J 1/16W /0603	R520	183100R	RM-CHIP 10K %1 1/16W /0603
R422	170754R	RC-CHIP 75R J 1/16W /0603	R521	183100R	RM-CHIP 10K %1 1/16W /0603
R423	170754R	RC-CHIP 75R J 1/16W /0603	R522	172278R	RC-CHIP 2.7K %1 1/16W /0603
R424	170754R	RC-CHIP 75R J 1/16W /0603	R523	172336R	RC-CHIP 3.3K J 1/16W /0603
R425	170754R	RC-CHIP 75R J 1/16W /0603	R524	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
R427	170754R	RC-CHIP 75R J 1/16W /0603	R528	171107R	RC-CHIP 100R J 1/16W /0603
R428	170754R	RC-CHIP 75R J 1/16W /0603	R529	171107R	RC-CHIP 100R J 1/16W /0603
R429	170754R	RC-CHIP 75R J 1/16W /0603	R530	171107R	RC-CHIP 100R J 1/16W /0603
R430	170391R	RC-CHIP 39R J 1/10W /0603	R531	171107R	RC-CHIP 100R J 1/16W /0603
R431	170391R	RC-CHIP 39R J 1/10W /0603	R532	173100R	RC-CHIP 10K J 1/10W /0603
R434	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R533	172336R	RC-CHIP 3.3K J 1/16W /0603
R435	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R534	173100R	RC-CHIP 10K J 1/10W /0603

Position	Parts code	Description	Position	Parts code	Description
R535	173100R	RC-CHIP 10K J 1/10W /0603	R656	171127R	RC-CHIP 120R J 1/16W /0603 TAPE
R536	173100R	RC-CHIP 10K J 1/10W /0603	R658	171107R	RC-CHIP 100R J 1/16W /0603
R537	173100R	RC-CHIP 10K J 1/10W /0603	R659	172104R	RC-CHIP 1K J 1/16W /0603
R538	173100R	RC-CHIP 10K J 1/10W /0603	R661	171107R	RC-CHIP 100R J 1/16W /0603
R539	173100R	RC-CHIP 10K J 1/10W /0603	R669	171107R	RC-CHIP 100R J 1/16W /0603
R540	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R675	171107R	RC-CHIP 100R J 1/16W /0603
R541	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803	R676	171107R	RC-CHIP 100R J 1/16W /0603
R542	172473R	RC-CHIP 4.7K J 1/10W /0603	R677	171107R	RC-CHIP 100R J 1/16W /0603
R543	172473R	RC-CHIP 4.7K J 1/10W /0603	R678	171107R	RC-CHIP 100R J 1/16W /0603
R544	172473R	RC-CHIP 4.7K J 1/10W /0603	R681	171107R	RC-CHIP 100R J 1/16W /0603
R548	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R685	174273R	RC-CHIP 270K J 1/16W /0603 TAPE
R557	171107R	RC-CHIP 100R J 1/16W /0603	R686	174273R	RC-CHIP 270K J 1/16W /0603 TAPE
R558	171107R	RC-CHIP 100R J 1/16W /0603	R689	172104R	RC-CHIP 1K J 1/16W /0603
R561	171107R	RC-CHIP 100R J 1/16W /0603	R690	172104R	RC-CHIP 1K J 1/16W /0603
R562	171107R	RC-CHIP 100R J 1/16W /0603	R695	173100R	RC-CHIP 10K J 1/10W /0603
R567	171107R	RC-CHIP 100R J 1/16W /0603	R696	173100R	RC-CHIP 10K J 1/10W /0603
R568	171107R	RC-CHIP 100R J 1/16W /0603	R699	172473R	RC-CHIP 4.7K J 1/10W /0603
R569	171107R	RC-CHIP 100R J 1/16W /0603	R700	172473R	RC-CHIP 4.7K J 1/10W /0603
R570	171107R	RC-CHIP 100R J 1/16W /0603	R701	171107R	RC-CHIP 100R J 1/16W /0603
R571	171107R	RC-CHIP 100R J 1/16W /0603	R712	171107R	RC-CHIP 100R J 1/16W /0603
R572	171107R	RC-CHIP 100R J 1/16W /0603	R713	171107R	RC-CHIP 100R J 1/16W /0603
R573	171107R	RC-CHIP 100R J 1/16W /0603	R714	171107R	RC-CHIP 100R J 1/16W /0603
R574	171107R	RC-CHIP 100R J 1/16W /0603	R717	170105R	RC-CHIP 10R J 1/16W /0603
R575	171107R	RC-CHIP 100R J 1/16W /0603	R718	173153R	RC-CHIP 15K J 1/16W /0603 TAPE
R576	172473R	RC-CHIP 4.7K J 1/10W /0603	R719	172824R	RC-CHIP 8.2K J 1/16W /0603 TAPE
R577	172104R	RC-CHIP 1K J 1/16W /0603	R724	172473R	RC-CHIP 4.7K J 1/10W /0603
R578	179827R	RC-CHIP 6.2K J 1/16W /0603	R725	172473R	RC-CHIP 4.7K J 1/10W /0603
R579	179827R	RC-CHIP 6.2K J 1/16W /0603	R726	171107R	RC-CHIP 100R J 1/16W /0603
R580	171107R	RC-CHIP 100R J 1/16W /0603	R728	172104R	RC-CHIP 1K J 1/16W /0603
R581	170333R	RC-CHIP 33R J 1/16W /0603 TAPE	R736	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE
R582	170333R	RC-CHIP 33R J 1/16W /0603 TAPE	R737	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
R583	170333R	RC-CHIP 33R J 1/16W /0603 TAPE	R738	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
R584	170333R	RC-CHIP 33R J 1/16W /0603 TAPE	R739	055529R	FERRIT-CHIP 600R/100MHZ 500MA/0803
R585	170333R	RC-CHIP 33R J 1/16W /0603 TAPE	R746	172104R	RC-CHIP 1K J 1/16W /0603
R586	170333R	RC-CHIP 33R J 1/16W /0603 TAPE	R747	173100R	RC-CHIP 10K J 1/10W /0603
R587	171107R	RC-CHIP 100R J 1/16W /0603	R756	171154R	RC-CHIP 150R J 1/16W /0603
R588	171107R	RC-CHIP 100R J 1/16W /0603	R757	171154R	RC-CHIP 150R J 1/16W /0603
R589	171107R	RC-CHIP 100R J 1/16W /0603	R758	171154R	RC-CHIP 150R J 1/16W /0603
R590	171107R	RC-CHIP 100R J 1/16W /0603	R759	171154R	RC-CHIP 150R J 1/16W /0603
R591	171107R	RC-CHIP 100R J 1/16W /0603	R760	173183R	RC-CHIP 18K J 1/16W /0603 TAPE
R592	171107R	RC-CHIP 100R J 1/16W /0603	R761	173183R	RC-CHIP 18K J 1/16W /0603 TAPE
R593	171107R	RC-CHIP 100R J 1/16W /0603	R762	172276R	RC-CHIP 2.7K J 1/16W /0603
R594	171107R	RC-CHIP 100R J 1/16W /0603	R763	170105R	RC-CHIP 10R J 1/16W /0603
R595	171107R	RC-CHIP 100R J 1/16W /0603	R764	170105R	RC-CHIP 10R J 1/16W /0603
R596	171107R	RC-CHIP 100R J 1/16W /0603	R765	170105R	RC-CHIP 10R J 1/16W /0603
R597	171107R	RC-CHIP 100R J 1/16W /0603	R766	170105R	RC-CHIP 10R J 1/16W /0603
R598	171107R	RC-CHIP 100R J 1/16W /0603	R767	170105R	RC-CHIP 10R J 1/16W /0603
R599	171107R	RC-CHIP 100R J 1/16W /0603	R768	170105R	RC-CHIP 10R J 1/16W /0603
R600	171107R	RC-CHIP 100R J 1/16W /0603	R769	170105R	RC-CHIP 10R J 1/16W /0603
R601	171107R	RC-CHIP 100R J 1/16W /0603	R770	170105R	RC-CHIP 10R J 1/16W /0603
R602	171107R	RC-CHIP 100R J 1/16W /0603	R771	172336R	RC-CHIP 3.3K J 1/16W /0603
R610	171107R	RC-CHIP 100R J 1/16W /0603	R772	172336R	RC-CHIP 3.3K J 1/16W /0603
R611	171107R	RC-CHIP 100R J 1/16W /0603	R773	171336R	RC-CHIP 330R J 1/16W /0603 TAPE
R612	171107R	RC-CHIP 100R J 1/16W /0603	R774	171336R	RC-CHIP 330R J 1/16W /0603 TAPE
R625	179827R	RC-CHIP 6.2K J 1/16W /0603	R775	171336R	RC-CHIP 330R J 1/16W /0603 TAPE
R626	173100R	RC-CHIP 10K J 1/10W /0603	R776	171336R	RC-CHIP 330R J 1/16W /0603 TAPE
R627	173100R	RC-CHIP 10K J 1/10W /0603	R777	173563R	RC-CHIP 56K J 1/16W /0603
R628	173100R	RC-CHIP 10K J 1/10W /0603	R778	173563R	RC-CHIP 56K J 1/16W /0603
R629	173100R	RC-CHIP 10K J 1/10W /0603	R779	173563R	RC-CHIP 56K J 1/16W /0603
R630	173100R	RC-CHIP 10K J 1/10W /0603	R780	173563R	RC-CHIP 56K J 1/16W /0603
R631	173100R	RC-CHIP 10K J 1/10W /0603	R781	172104R	RC-CHIP 1K J 1/16W /0603
R632	173100R	RC-CHIP 10K J 1/10W /0603	R782	171395R	RC-CHIP 390R J 1/16W /0603 TAPE
R633	173100R	RC-CHIP 10K J 1/10W /0603	R783	170225R	RC-CHIP 22R J 1/10W /0603
R634	173100R	RC-CHIP 10K J 1/10W /0603	R784	170225R	RC-CHIP 22R J 1/10W /0603
R637	172104R	RC-CHIP 1K J 1/16W /0603	R785	170225R	RC-CHIP 22R J 1/10W /0603
R639	172104R	RC-CHIP 1K J 1/16W /0603	R786	170225R	RC-CHIP 22R J 1/10W /0603
R641	171154R	RC-CHIP 150R J 1/16W /0603	R787	170225R	RC-CHIP 22R J 1/10W /0603
R642	172824R	RC-CHIP 8.2K J 1/16W /0603 TAPE	R788	170225R	RC-CHIP 22R J 1/10W /0603
R643	173114R	RC-CHIP 100K J 1/16W /0603	R789	170225R	RC-CHIP 22R J 1/10W /0603
R644	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R790	170225R	RC-CHIP 22R J 1/10W /0603
R645	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R791	170225R	RC-CHIP 22R J 1/10W /0603
R646	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	R792	170225R	RC-CHIP 22R J 1/10W /0603
R654	171224R	RC-CHIP 220R J 1/16W /0603 TAPE	R793	170225R	RC-CHIP 22R J 1/10W /0603
R655	171363R	RC-CHIP 365R %1 1/16W /0603 TAPE	R794	170225R	RC-CHIP 22R J 1/10W /0603

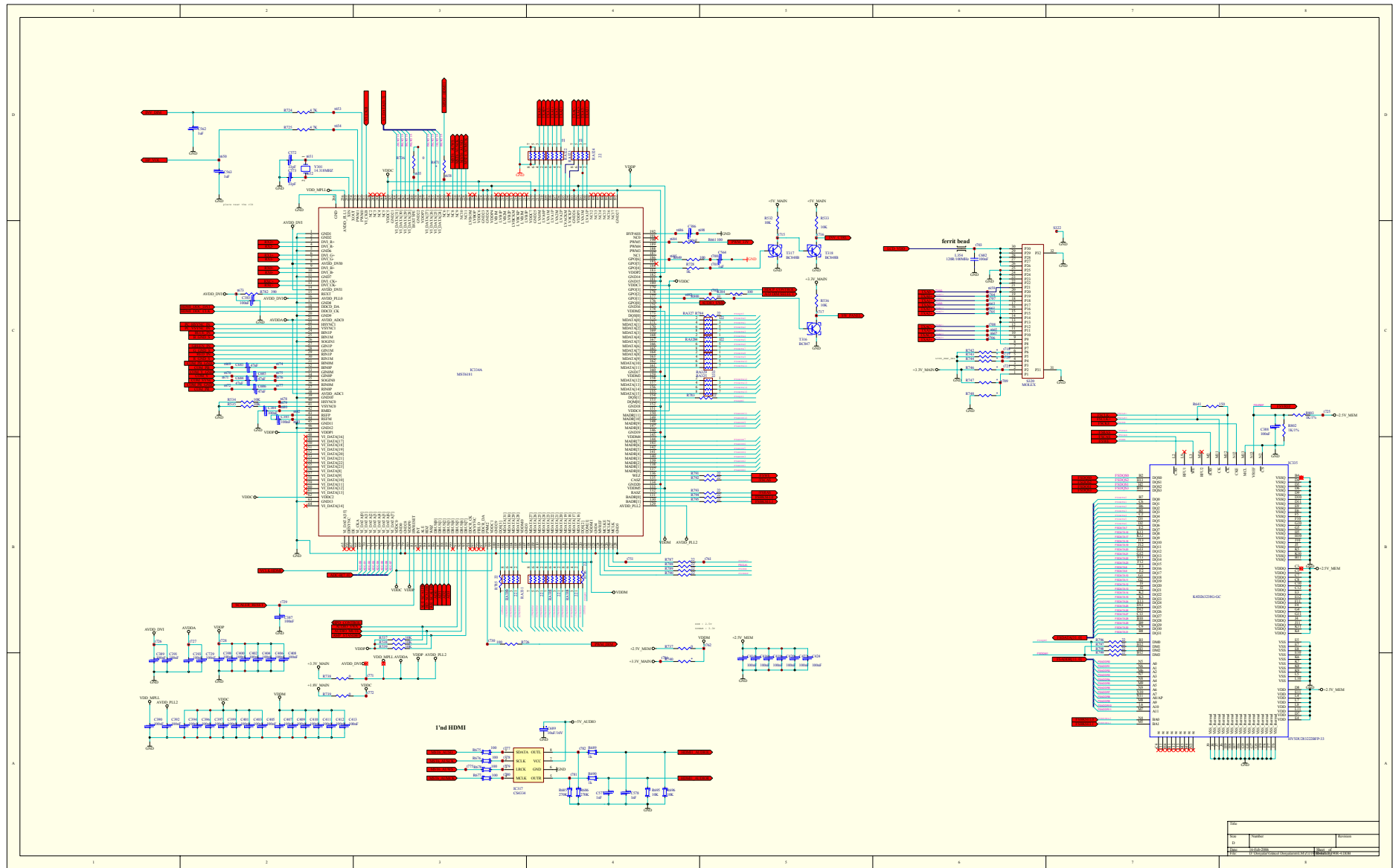
Position	Parts code	Description	Position	Parts code	Description
R795	170225R	RC-CHIP 22R J 1/10W /0603	TRANSISTORS		
R796	170225R	RC-CHIP 22R J 1/10W /0603	T102	401141R	TRN-CHIP BC848BLT1G SOT23
R797	170225R	RC-CHIP 22R J 1/10W /0603	T106	401142R	TRN-CHIP BC858BLT1G SOT23
R798	170225R	RC-CHIP 22R J 1/10W /0603	T300	401372R	TRN FDS9933A
R799	170225R	RC-CHIP 22R J 1/10W /0603	T301	401460R	TRN-CHIP BC847BWT1 G SOT323
R800	170333R	RC-CHIP 33R J 1/16W /0603 TAPE	T302	401460R	TRN-CHIP BC847BWT1 G SOT323
R802	172128R	RC-CHIP 1.2K %1 1/16W/0603 TAPE	T303	401472R	TRN-CHIP 2N7002 N-CHANNEL SOT23
R803	172112R	RC-CHIP 1K 1% 1/10W /0603	T304	401192R	TRN-CHIP BC846BLT1 G SOT23 S-8
R805	170754R	RC-CHIP 75R J 1/16W /0603	T305	401141R	TRN-CHIP BC848BLT1G SOT23
R824	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	T306	401472R	TRN-CHIP 2N7002 N-CHANNEL SOT23
R826	171107R	RC-CHIP 100R J 1/16W /0603	T307	401141R	TRN-CHIP BC848BLT1G SOT23
R827	171107R	RC-CHIP 100R J 1/16W /0603	T308	401141R	TRN-CHIP BC848BLT1G SOT23
R828	171107R	RC-CHIP 100R J 1/16W /0603	T309	401460R	TRN-CHIP BC847BWT1 G SOT323
R829	171107R	RC-CHIP 100R J 1/16W /0603	T310	401141R	TRN-CHIP BC848BLT1G SOT23
R832	179005R	RC-CHIP 0R /0603 1.6*0.8 TAPE	T311	401141R	TRN-CHIP BC848BLT1G SOT23
R940	141332R	CFR 330R J 1/4W /3.2 26MM	T312	401141R	TRN-CHIP BC848BLT1G SOT23
R941	141332R	CFR 330R J 1/4W /3.2 26MM	T313	401460R	TRN-CHIP BC847BWT1 G SOT323
RA301	190471R	R-ARRAY-CHIP 47R*4/YC16	T314	401141R	TRN-CHIP BC848BLT1G SOT23
RA302	190471R	R-ARRAY-CHIP 47R*4/YC16	T315	401141R	TRN-CHIP BC848BLT1G SOT23
RA314	170339R	RC-CHIP-ARRAY 4*33R /YC16	T316	401460R	TRN-CHIP BC847BWT1 G SOT323
RA315	170339R	RC-CHIP-ARRAY 4*33R /YC16	T317	401141R	TRN-CHIP BC848BLT1G SOT23
RA316	193105R	R-ARRAY-CHIP 0R*4	T318	401141R	TRN-CHIP BC848BLT1G SOT23
RA317	193105R	R-ARRAY-CHIP 0R*4	T319	401472R	TRN-CHIP 2N7002 N-CHANNEL SOT23
RA322	055631R	FERRIT ARRAY 68R BK32164L680-T/1206 T&R	T320	401142R	TRN-CHIP BC858BLT1G SOT23
RA323	055631R	FERRIT ARRAY 68R BK32164L680-T/1206 T&R	T321	401142R	TRN-CHIP BC858BLT1G SOT23
RA324	055631R	FERRIT ARRAY 68R BK32164L680-T/1206 T&R	T322	401141R	TRN-CHIP BC848BLT1G SOT23
RA325	170228R	RC-CHIP-ARRAY 4*22R /YC16	T323	401472R	TRN-CHIP 2N7002 N-CHANNEL SOT23
RA327	170228R	RC-CHIP-ARRAY 4*22R /YC16	T329	401192R	TRN-CHIP BC846BLT1 G SOT23 S-8
RA328	170228R	RC-CHIP-ARRAY 4*22R /YC16	MISCELLANEOUS		
RA329	170228R	RC-CHIP-ARRAY 4*22R /YC16	MENU	010844R	TACT SWITCH 2 LEG (MTSB)
RA330	170228R	RC-CHIP-ARRAY 4*22R /YC16	P-	010844R	TACT SWITCH 2 LEG (MTSB)
RA331	170228R	RC-CHIP-ARRAY 4*22R /YC16	P+	010844R	TACT SWITCH 2 LEG (MTSB)
RA332	170228R	RC-CHIP-ARRAY 4*22R /YC16	V-	010844R	TACT SWITCH 2 LEG (MTSB)
RA333	170228R	RC-CHIP-ARRAY 4*22R /YC16	V+	010844R	TACT SWITCH 2 LEG (MTSB)
RA340	170339R	RC-CHIP-ARRAY 4*33R /YC16	SOURCE	010844R	TACT SWITCH 2 LEG (MTSB)
RA341	170339R	RC-CHIP-ARRAY 4*33R /YC16	IR1	452521R-1	IR RECEIVER TSOP34838 SS1A
CONNECTORS			SW1	010773R	POWER SWITCH ALPS SDKLA10300 5A
CN1	031294R	CONN.HOUS.JST 2317-4R WHITE	TU301	Z1J138R	TUNER PANASONIC ENV57K23G3F
CN2	031245R	CONN.HOUS.2P 2317-2S JST B 2B-XH-A WHITE	X301	056863R	CRYSTALL Q 14.318180-SMU4-22-30/50 T1
CN3	031396R	CON.CINCH SST 396G1-R 3LU YATIK/2PIN	X302	056269R	CRYSTAL-CHIP 20.250MHZ SMU-13-30/50
CN3	032997R	CONN.HOUS.2 PIN 2317-2R JST 2B-XH-A	Y301	056863R	CRYSTALL Q 14.318180-SMU4-22-30/50 T1
CN4	031245R	CONN.HOUS.2P 2317-2S JST B 2B-XH-A WHITE		Z1U117	SPK.CABLE ASSY 8R 10W(NOM)/15W
JA300	031164R	KONN. CINCH RED HOR.14.1		ZF7107R	SPEAKER 8R 10W(NOM)/15W 58x165MM
JA301	031163R	KONN. CINCH WHITE HOR.14.1		038921R	MAIN CABLE PC/MONITOR 2MT EURO
JA302	032979R	CONN.CINCH FRONT GREEN		Z1J820	CIRCUIT DIAGRAM LM
JA303	031164R	KONN. CINCH RED HOR.14.1			
JA304	032978R	CONN.CINCH FRONT BLUE			
JA305	031163R	KONN. CINCH WHITE HOR.14.1			
JA306	031164R	KONN. CINCH RED HOR.14.1			
JA307	031165R	KONN. CINCH YELLOW HOR.14.1			
JA308	031163R	KONN. CINCH WHITE HOR.14.1			
JA309	031164R	KONN. CINCH RED HOR.14.1			
P100	032937R	CONN. CINCHBLACK HOR. L6B			
S304	031476R	CONN.HOUSING.12P 2MM 89400-1210 MOLEX			
S305	031658R	CONN.HOUSING.10P 2MMM 89400-1010 MOLEX			
S307	032951R	CONN.HOUSING.7.LI MOLEX 89400-0710			
S308	031194R	CONN.HOUS.4P 2317-4S JST B 4B-XH-A WHITE			
S309	031224R	CONN.HOUS.3P 2317-3S JST B 3B-XH-A WHITE			
S311	031423R	HEADPHONE JACK YKB21-5103			
S312	031358R	CONN. VGA B10B			
S313	031251R	SCART SOCKET 14.1			
S314	031251R	SCART SOCKET 14.1			
S315	031281R	CON.MALE 7.LI 2317-7S JST B 7B-XH-A WHIT			
S316	031646R	CONN.HOUS.3P 2317-3S JST B 3B-XH-A RED			
S317	032988R	CON.500254-1927 MOLEX HDMI			
S318	031795R	CONN.S-VHS			
S320	032449R	KONN.MALE 2*15 30.LU SST			
S322	032450R	TERMINAL MALE 6.3MM FIXED			
X940	031224R	CONN.HOUS.3P 2317-3S JST B 3B-XH-A WHITE			
X941	032150R	HP JACK 17 LCD TV (OLD-8R9185)			
X941	011424R	LOAF HEAD JACK			



Rev	1.0	Date	10/10/2010
By	John Doe	Drawn	John Doe
Appr	John Doe	Checked	John Doe
SHEET 1 OF 1			



Rev	1.0	Rev	1.0
Date	10/10/2010	Date	10/10/2010
By	10/10/2010	By	10/10/2010
Check	10/10/2010	Check	10/10/2010



REV	1.0	DATE	2010.01.10
BY	WANG	CHK	WANG
APP	WANG	DATE	2010.01.10

