HYUNDAI DIGITAL TECHNOLOGY

HSS-730/830 & UFD505/515 INTEGRATED SATELLITE

RECEIVER / DECODER

SERVICE MANUAL

REVISION A

DATE : January 10, 2002

223-22, Sangdaewon-1dong, jungwon-gu,

Seongnam-si, kyoungki-do, Korea 462-807

Contents

USED FOR

HSS-730/830

UFT505/515

STB REPAIR

Introduction

The HDT DVB satellite STB is a receiver that is capable of receiving digital signals transmitted through the satellite network. The services available on the HDT satellite STB includes
Digital television (including teletext services) & radio programs

1. Front Panel

The front panel is a secondary tool used to manipulate some of the STB functions. The number of front panel buttons is limited compared to the RCU, but the user should be able to operate most important STB functions via those buttons.

1.1. Front Panel Buttons for HSS-730/830 & UFD505/515

- **Standby On /Off Key**
- **Menu Key**
- **Select Key**
- **Volume Up / Down Key**
- **Channel Up / Down Key**

The front panel buttons perform the same functions as the corresponding keys on the RCU. See the User Manual for a description of the button functionality.

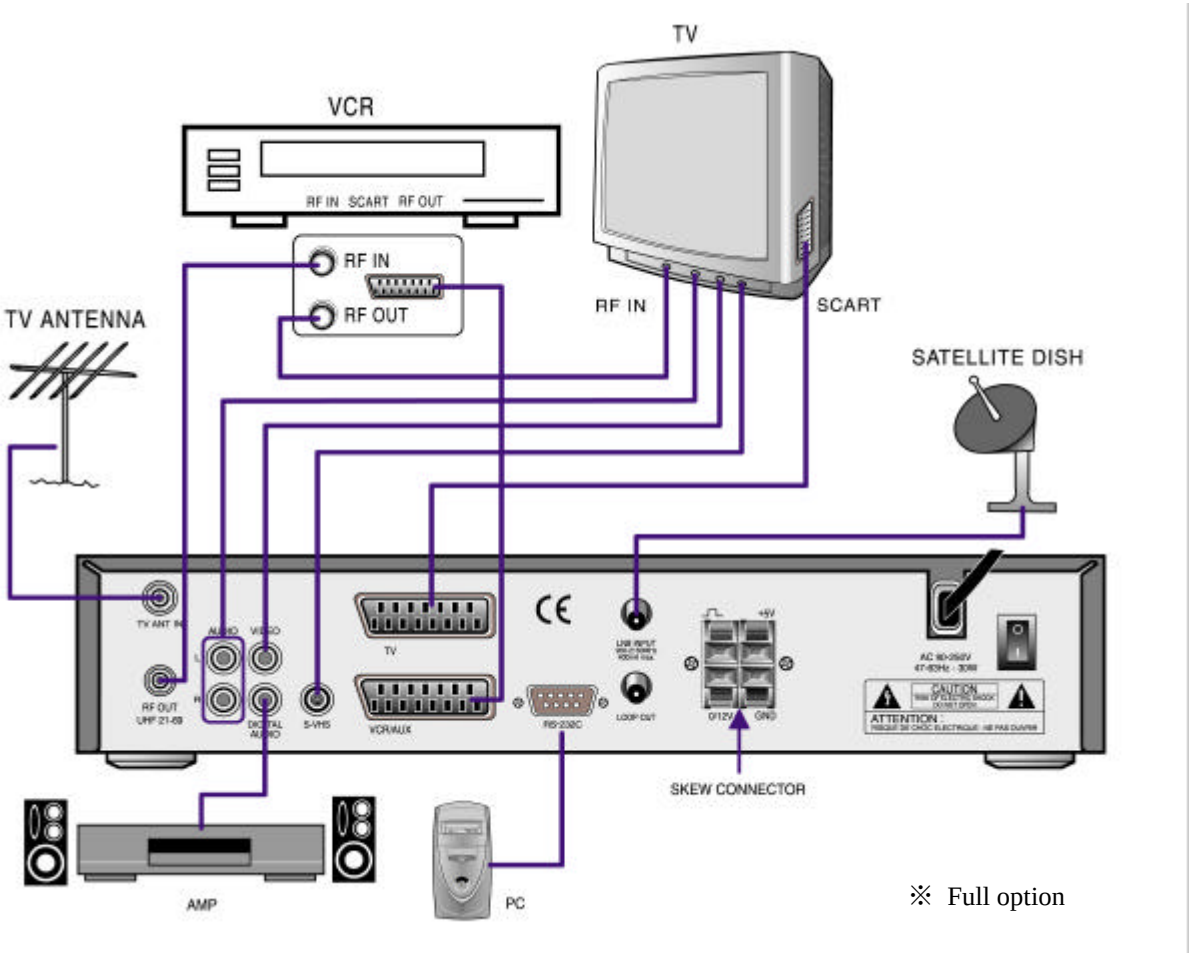
1.2. Front Panel Indicators

Standby/On indication LED	This LED is illuminated red to indicate that the STB is in standby mode, and off to indicate that the STB is in power on mode.
*RCU Key Received LED	This LED is flashed orange to indicate that the STB is receiving data from the RCU.
*TV/SAT Mode Indication LED	This LED is used to indicate whether the STB receives the satellite or terrestrial antenna input, and is illuminated green while receiving terrestrial input, off while receiving the satellite input.
4 Digit Seven Segments	These segments are used to display a channel number or any messages.

* ‘ RCU Key Received LED’ & ‘ TV/SAT Mode Indication LED’ may be used in some derivative models.

2. Rear Panel

The rear panel provides all the connectors required to place the STB into the home video systems.



(HSS-730/830 & UFD505/515 Rear Panel)

2.1. Rear Panel Connectors

Label	Connector	Function
SAT ANT IN	IEC 169-24 female	RF input from LNB to digital tuner
SAT ANT OUT	IEC 169-24 female	RF loop-through output from digital tuner
TV ANT IN	IEC 169-2 female	Input from terrestrial antenna
TV SCART	SCART	SCART output to TV
VCR/AUX SCART	SCART	SCART output to VCR/AUX
AUDIO L	RCA cinch	Left audio output
AUDIO R	RCA cinch	Right audio output
VIDEO	RCA cinch	Video output
SPDIF	RCA cinch	Digital audio output
RS-232C	DB-9 female	Low speed data output

3. Hardware

This section describes the entire architecture and an individual module of the STB hardware.

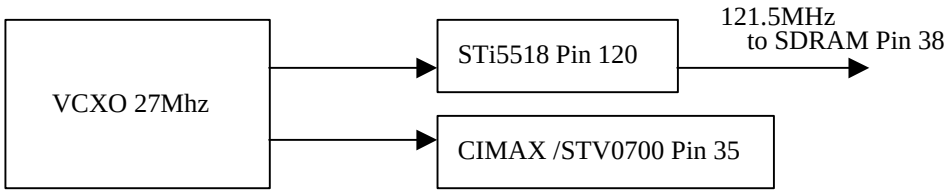
3.1. System Block Diagram

The hardware is modularly designed to support as many markets as possible while minimizing the burden on developing the derivative hardware. This approach also enables the derivative hardware to be quickly developed in order to meet a variety of user demands. The Block Diagram of page 8 depicts the System Block Diagram.

3.2. Main Board Clock Diagram

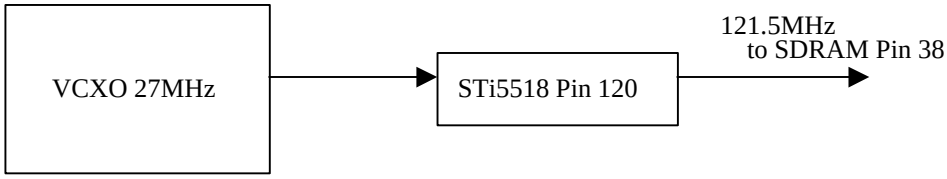
3.2.1. Clock Diagram for CI Model

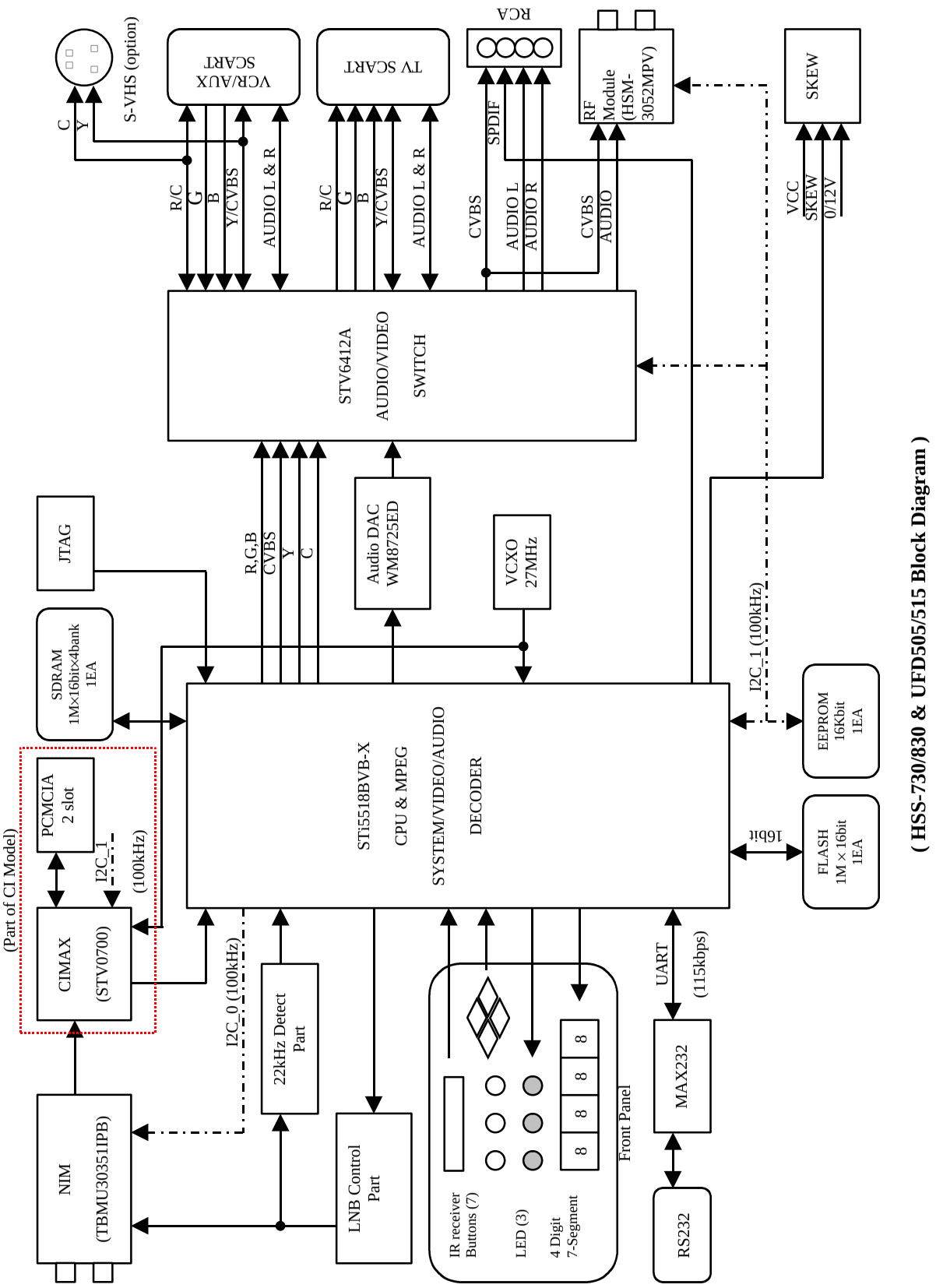
- **27MHz System Clock**



3.2.2. Clock Diagram for FTA Model

- **27MHz System Clock**





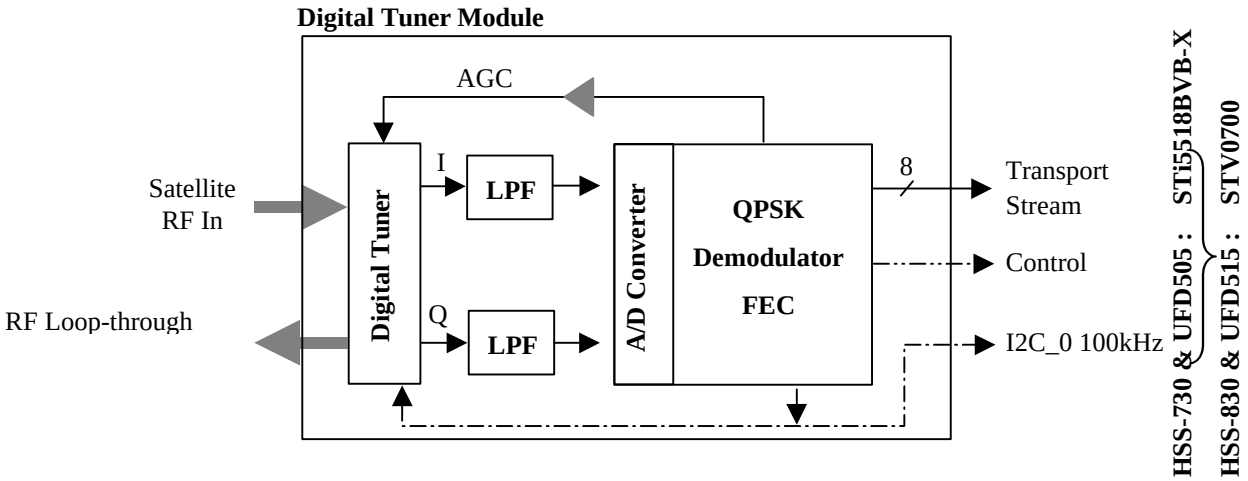
(HSS-730/830 & UFD505/515 Block Diagram)

3.3. Network Interface Module

3.3.1. NIM Module

3.3.1.1. Block Diagram

The NIM module has digital tuner as depicted in the following figure.



3.3.1.2. Digital Network Interface Module Operating

The satellite RF input signal (1st IF) is connected to the tuner. The tuner down-converts the RF signal to ZERO IF signal, and then generates the analog base band I(In-phase) and Q(Quadrature) signals containing a QPSK modulated digital data. After passing the LPF and A/D converter, these signals are demodulated by the QPSK demodulator into a digital data stream.

The satellite signal is relatively noisy and this may produce a high bit-error rate at the demodulator output. The high demodulator bit-error rate will produce errors in the MPEG decoder that will in turn lead to unsatisfactory audio/video quality. The FEC is needed to reduce the bit-error rate to an acceptable level (bit-error rate of 10^{-11}). The FEC used a Reed-Solomon decoder to reduce a burst error and a viterbi decoder to correct a bit error.

3.3.1.3. Electrical Specification of Digital Tuner

Impedance	75 Ω
Return Loss	> 8dB
Frequency Range	950 to 2150 MHz
Signal Level	-65 to -25 dBm
AFC Range	+ - 3MHz
Connector	IEC 169-24 female (F-type) and male (for loop-through)
Phase Noise 10 kHz 100 kHz	 < -70 dBc/Hz < -90 dBc/Hz
Synthesizer Step Size	PSK & BPSK (Compliant to DVB-S)
Nyquist Shaping Filter	35% square root raised cosine
Symbol Rate	2 up to 45 Msps
Inner Code	Convolitional (K=7)
FEC Code Rate	1/2,2/3,3/4,5/6,7/8. Automatically detected
Interleaving Factor	I = 12
Outer code	RS (204,188,T = 8)
Spectral Inversion	Automatically detected

3.3.2. LNB Control

The LNB is powered through the center conductor of the RF coaxial cable connecting the LNB to the STB. The polarization is switched by varying the power supply voltage of the LNB. In addition, a 22kHz tone is used to switch the LNB between the low frequency band and the high frequency band. The high frequency band is selected when the 22kHz is present.

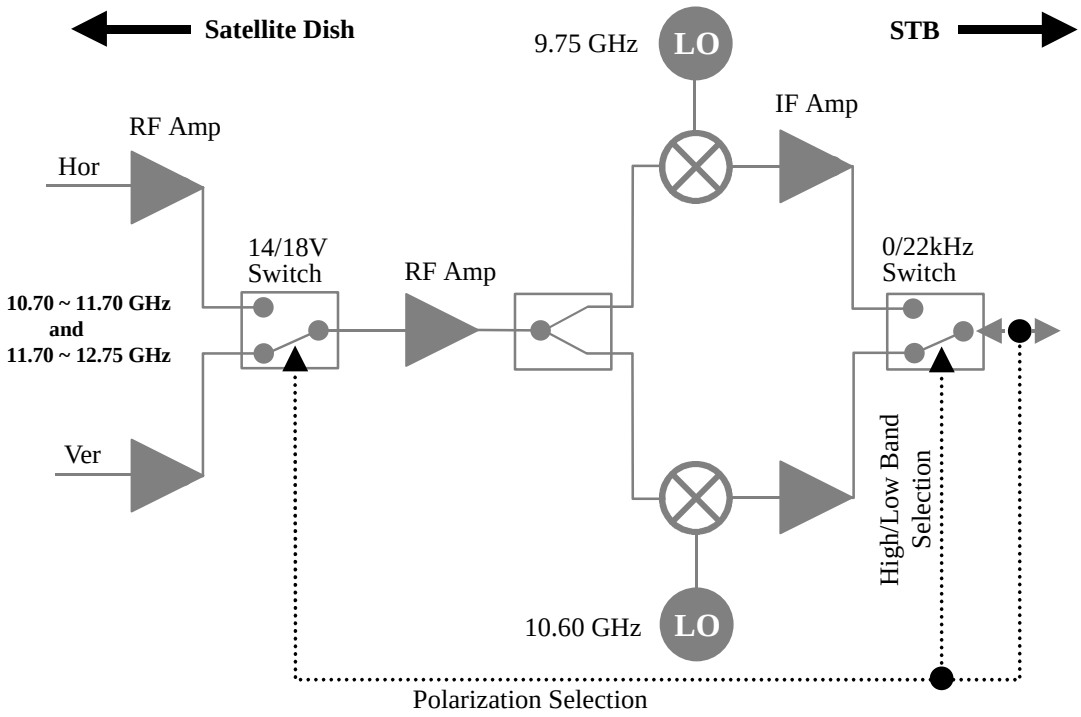
The horizontal and vertical polarizations have different voltage ranges as shown in the below table.

Current	500mA max. (Short circuit protected)
Vertical Polarization Voltage	13 to 14.5 V
Horizontal Polarization Voltage	17 to 19 V
Software Controlled LNB ON/OFF	Supported

The characteristics of the 22kHz tone is as follows:

Duty Cycle	50% ± 10%
Frequency	22 kHz ± 4 kHz
Amplitude	0.6V (± 0.2V)
Rising and Falling Time	10 µs ± 5 µs
Software Controlled Tone ON/OFF	Supported

The following figure is an example of universal LNB.



3.3.3. LNB Switching Control

As shown in the below figure, the STB supports the following LNB switching methods

DiSEqC 1.2 (including the SMATV mode) Compliant (over DiSEqC 1.2 in future).

The switching type controlled by 14/18V DC.

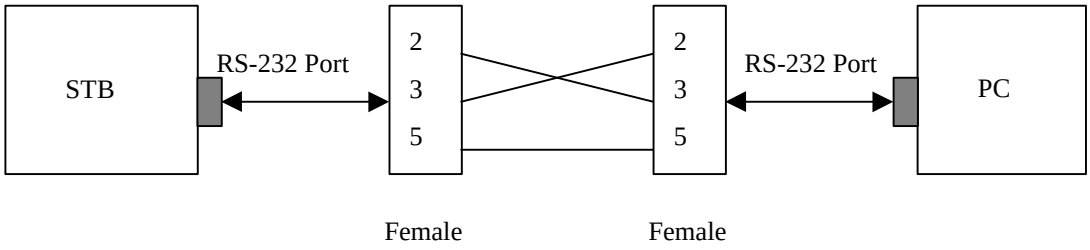
The switching type controlled by 22kHz Tone.

The STB can Generates a DiSEqC command by modulating the 22kHz signal.

3.4. Software Download

The resident software boots up the STB, downloads the entire new software as needed, and tests the hardware integrity of the STB. These software modules are stored in non-volatile memory so that these should not be erased during a power outrage or other catastrophic events.

3.4.1. RS-232 Cable Configuration



3.4.2. Software Download with Serial Link Cable form PC

As the STB boots up, the download module is the first to run. It starts by waiting for receipt of an acknowledgement message on the serial interface indicating that the download is to be performed. If this message is received within a given second, the module is waiting for commands from the host PC.

This download module loads an entire STB software image into the STB via the serial interface. The software image is downloaded into the RAM for verification and then is written to FLASH. When the module completes a download, it resets and restarted the STB automatically.

Procedure to download the software

First, connect the serial link cable between the PC and STB and make sure that the STB is in the standby or power off mode.

① **Execute download program (dn.exe), select correct directory and file in your PC**
Download file have two types, one is main program, other is channel data.

② **Select correct serial port and command type (‘Download’ is default).**

③ **Click button ‘Execute’ then the data is transferred from PC to the STB via the serial interface. Turn on the STB power.**

④ **The STB will display ‘SUCC’ when the download is complete.**

3.4.3. Software Download with Serial Link Cable from other STB

Procedure to download the software

First, connect the serial link cable between the master STB and slave STB and make sure that the STB is in the standby or power off mode.

① **After the master STB turn on, push select key and volume down key simultaneously for downloading main Program**
If master STB is ready, FND display ‘ - - - - ’ in Front panel.
FND is not display ‘ - - - -’, try again

② **The slave STB turn on and then wait**

③ **The master, slave STB will display ‘ SUCC’ all when the download is complete.**

④ **After the master STB turn on, push select key and volume up key simultaneously for downloading channel data.**

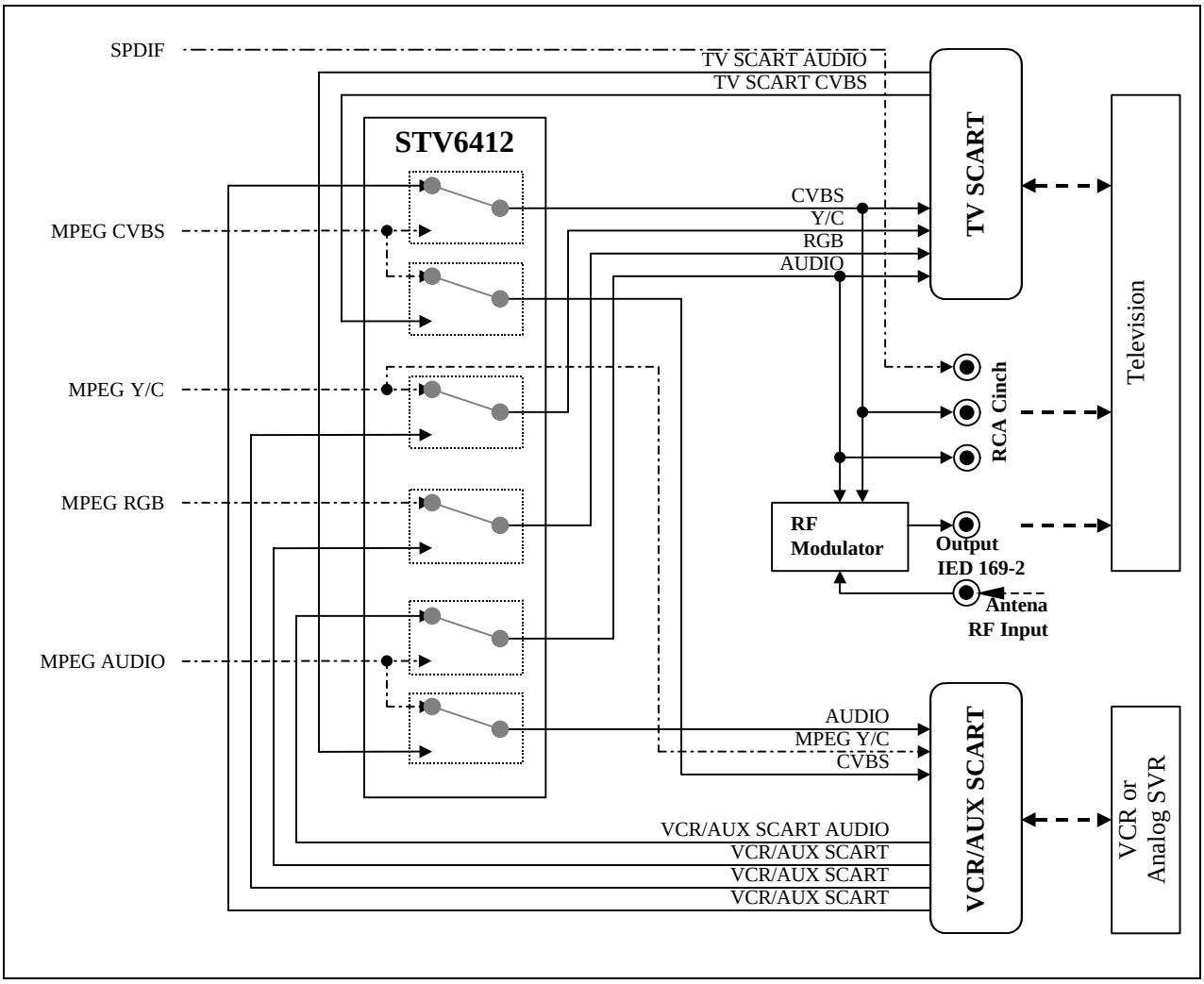
⑤ **The slave STB turn on and then wait**

⑥ **The master, slave STB will display ‘ SUCC’ all when the download is complete**

3.5. Output Interfaces

3.5.1. TV and VCR/AUX Scart Configuration

The STB presents the audio and video data to the user in a variety of formats. The following figure describes the logical wiring of the STB outputs.



If the STB is in the power-on mode, the user controls the output source selection for the VCR/AUX Scart, and the voltage on pin 8 of the VCR/AUX Scart is ignored.

If the STB is in the standby mode, it detects the voltage on pin 8 of the VCR/AUX Scart. If the voltage is present, the STB automatically switches the output source to the VCR/AUX Scart and generates the appropriate voltage on pin 8 of the TV Scart.

3.5.2. TV Scart Connector Pin Configuration

PIN number	Signal name	Description
1	AOUTR	Audio right output to TV
2	AINR	Audio right input from TV
3	AOUTL	Audio left output to TV
4	RTN5	Ground
5	RTN1	Ground
6	AINL	Audio left input from TV
7	BLUE	B output to TV
8	MODE	0/6/12V output (4:3 or 16:9 mode select)
9	RTN2	Ground
10	RSV1	Not connected
11	GREEN	G output to TV
12	RSV2	Not connected
13	RTN3	Ground
14	RTN6	Not connected
15	RED	R or C output to TV
16	BLK	0/1~3V output (RGB or CVBS,Y/C select)
17	RTN4	Ground
18	RTN7	Ground
19	VOUT	CVBS or Y output to TV
20	VIN	CVBS input from TV
21	GND	Ground

3.5.3. VCR/AUX Scart Connector Pin Configuration

PIN number	Signal name	Description
1	AOUTR	Audio right output to VCR/AUX
2	AINR	Audio right output from VCR/AUX
3	AOUTL	Audio left output to VCR/AUX
4	RTN5	Ground
5	RTN1	Ground
6	AINL	Audio left output form VCR/AUX
7	BLUE	B input from VCR/AUX
8	MODE	0/6/12V input (4:3 or 16:9 mode select)
9	RTN2	Ground
10	RSV1	Not connected
11	GREEN	G input from VCR/AUX
12	RSV2	Not connected
13	RTN3	Ground
14	RTN6	Not connected
15	RED	R input form VCR/AUX
16	BLK	0/1~3V output (RGB or CVBS,Y/C select)
17	RTN4	Ground
18	RTN7	Ground
19	VOUT	CVBS video output to VCR/AUX
20	VIN	CVBS video output from VCR/AUX
21	GND	Ground

3.5.4. RCA Cinch Connector

The MPEG stereo audio and CVBS video and digital audio(SPDIF) are available through four cinch connectors.

Color	Description
Yellow	Video (CVBS)
White	Audio left
Red	Audio right
Black	Digital Audio (SPDIF)

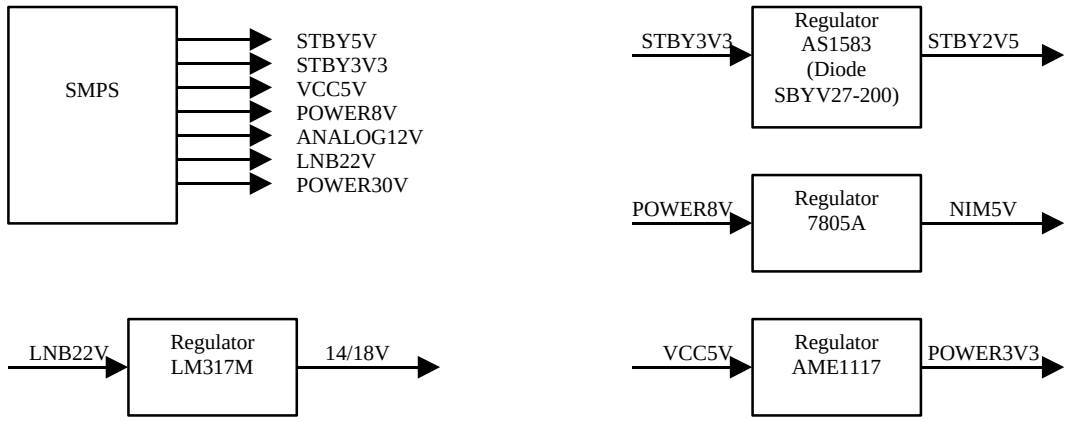
3.5.5. RF Modulator (Option)

The RF modulator takes the mono audio and CVBS video internally generated by the STB, converts them to an UHF channel selected by the user and then adds this channel to all terrestrial channels coming in from the terrestrial antenna. That is, the RF modulator outputs all terrestrial channels where the STB generated CVBS and mono audio becomes one channel within the UHF channels 21 to 69 range.

The input connector is an IEC 169-2 female, and the output is an IEC-169-2 male connector.

3.5.6. Power Connector Configuration

PIN number	Name	Description
1	Standby 5V	5V in standby mode
2	Standby 3.3V	3.3V in standby mode
3	VCC	Main 5V
4	GND	Ground
5	Power 8V	8V
6	Power 12V	Analog 12V
7	Power 22V	LNB 22V
8	Power 30V	30V
9	GND	Ground
10	Power control	Main Power control 0:0ff, 5V:on
11	GND	Ground



3.5.7. Front Panel Connector Configuration

PIN number	Signal	Description
1	Digit1	FND digit1 select
2	Digit2	FND digit2 select
3	Digit3	FND digit3 select
4	Digit4	FND digit4 select
5	Standby5V	Power 5V
6	Digit_data1	FND digit data1
7	Digit_data2	FND digit data2
8	Digit_data3	FND digit data3
9	Digit_data4	FND digit data4
10	Digit_data5	FND digit data5
11	Digit_data6	FND digit data6
12	Digit_data7	FND digit data7
13	Digit_data8	FND digit data8
14	Standby5V	Power 5V
15	Row0	Front Key Row data0
16	Row1	Front Key Row data1
17	Row2	Front Key Row data2
18	Col0	Front Key Column data0
19	Col1	Front Key Column data1
20	Col2	Front Key Column data2
21	IR_RCV	Remocon sensor data
22	TV_DBS_LED	Control for TV/DBS LED
23	Remote_LED	Remocon sensor operating for LED
24	Pw_on_LED	Control for standby Power on/off
25	GND	Ground
26	GND	Ground

3.5.8. RS-232 Connector Configuration

A RS-232C serial interface is provided on a 9-pin D-type female connector. This interface may be used to connect an STB to the PC for an entire software downloading and error monitoring.

Pin Number	Signal	Signal Description
1	Not Connected	Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	Not Connected	Data Terminal Ready
5	GND	Ground
6	Not Connected	Data Set Ready
7	Not Connected	Clear To Send
8	Not Connected	Request To Send
9	Not Connected	Ring Indicator

4. Electrical Specifications

4.1 Power Supply

Type	Switching mode power supply
AC Line Voltage	88 to 264 V
AC Line Frequency	47 to 63 Hz
Power Consumption	30W max for operational, 5 W max for standby
Power ON/OFF	Switch on the rear panel

5. Trouble Shooting

5.1. No display on FND with A/C power switch on (Booting Fail)

Check that

- Power cable is connected to consent.
- Front cable is connected between Front PCB to main board (CON12).
- Fuse in SMPS is good.
- Cable is connected between SMPS and main board.
- Output voltage of SMPS is good.
- 27MHz clock input to pin 120 of STi5518.
- The operation of Flash memory is good (chip select, read, write, address bus, data bus).
- The operation of dram or sync dram is good (read, write address bus, data bus).
- CPU boots up correctly.

5.2. Remocon doesn’ t operate

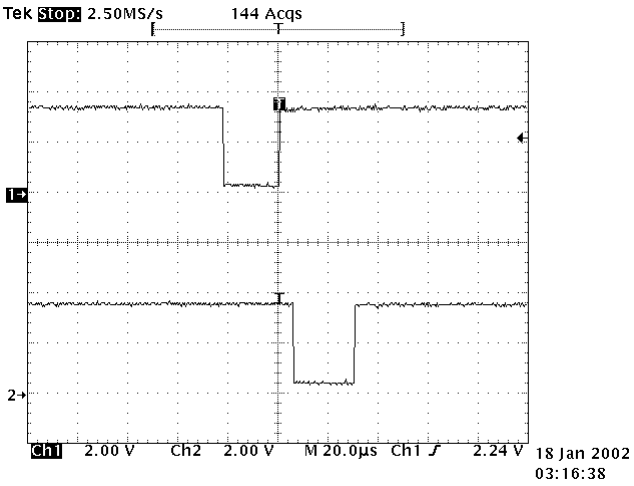
Check that

- Battery in remocon is good.
- Cable is connected between front and main board.
- IR sensor in Front panels operate good.
- Remocon signal is transferred from front to main board (at pin 21 of front panel connector).
- CPU receives correctly remocon signal (at pin 127 of STi5518).

5.3. Key in front panel doesn' t operate

Check that

- Cable is connected between front and main board.
- CPU boots up correctly.

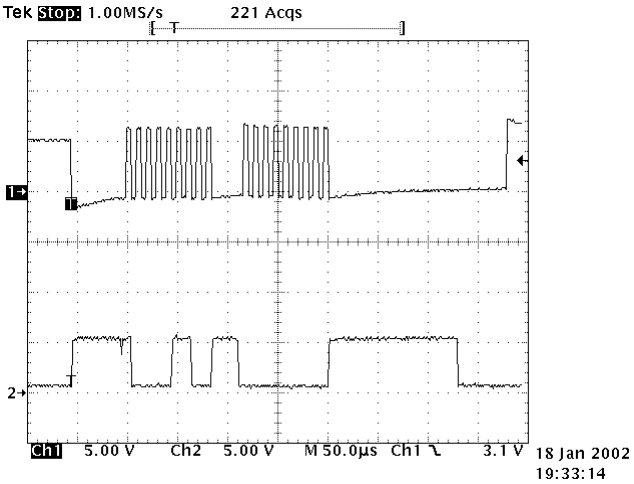


Ch1 LOW0 (STi5518 pin42)
Ch2 COL0 (STi5518 pin39)

5.4. RF-Modulator doesn' t operate (Option)

Check that

- The type of RF Module is correct in menu.
- The channel number is correct in menu.
- TV/SAT LED in front panel is off (RF-Module is in modulation mode, not in bypass mode).
- The power of RF Modulator (at pin 1, 4, 7).
- Video and audio signal is input to RF Modulator (check RF video at pin 6, RF audio at pin 2).
- Audio mute is off (if pin 2 is HIGH audio mute is on).
- I2C2CLK, I2C2DATA which control PLL-Type RF Module signal are input to RF Modulator (I2C2DATA at RF Modulator pin 3, I2C2CLK at RF Modulator pin 5).

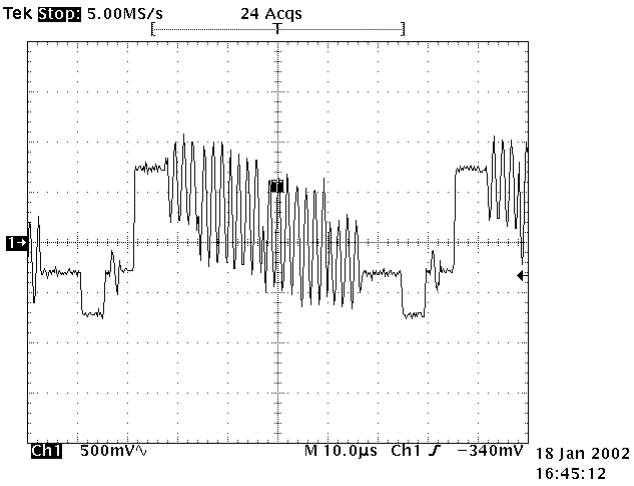


Ch1 I2C1_CLK (STi5518 pin21)
Ch2 I2C1_DAT (STi5518 pin20)

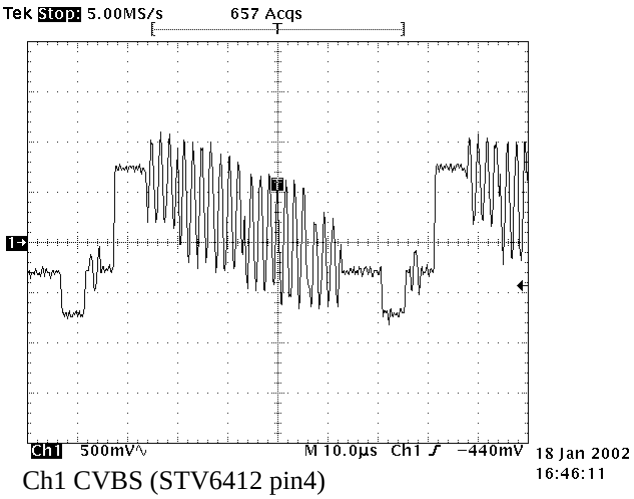
5.5. RCA Video doesn’ t output

Check that

- A/V mode sets to CVBS in menu.
- Video signal outputs from STi5518 pin 34.
- Video signal inputs to Scart controller (STV6412) pin 4.
- Video signal outputs from Scart controller (STV6412) pin 36.
- Video signal outputs from RCA connector Video port.
- I2C2CLK, I2C2DATA which control Scart controller (STV6412) signal are input to Scart controller (STV6412 pin 55, pin 56).



Ch1 CVBS (STi5518 pin34)

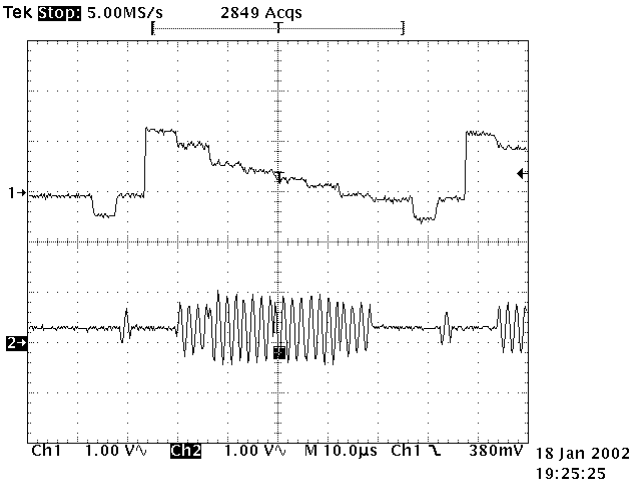


Ch1 CVBS (STV6412 pin4)

5.6. S-VIDEO Video in TV and VCR/AUX Scart doesn’ t output

Check that

- A/V mode sets to Y/C in menu.
- Video signal(Y) outputs from STi5518 pin 32.
- Video signal(C) outputs from STi5518 pin 33.
- Video signal(Y) inputs to Scart controller (STV6412) pin 6.
- Video signal(C) inputs to Scart controller (STV6412) pin 8.
- I2C2CLK, I2C2DATA which control



Ch1 Y (STV6412 pin44) Ch2 C (STV6412 pin42)

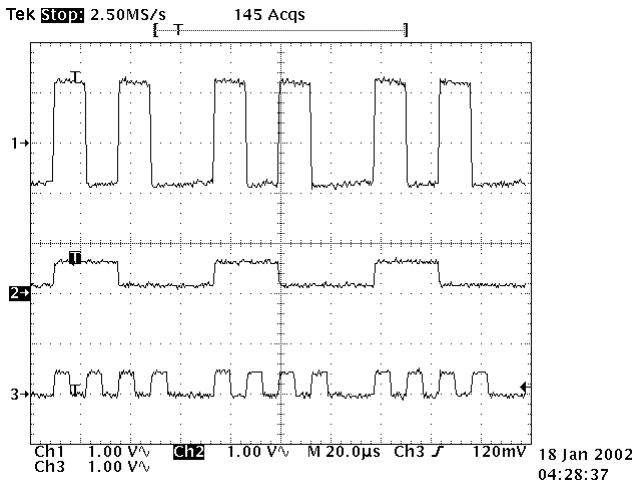
Scart controller (STV6412) signal are input to Scart controller (STV6412 pin 55, pin 56).

- Video signal(Y) outputs to Scart controller (STV6412) pin 44 for TV Scart.
- Video signal(C) outputs to Scart controller (STV6412) pin 42 for TV Scart.
- Video signal(Y) outputs to Scart controller (STV6412) pin 48 for VCR/AUX Scart.
- Video signal(C) outputs to Scart controller (STV6412) pin 46 for VCR/AUX Scart.
- Video signal(Y) outputs from TV Scart connector pin 19.
- Video signal(C) outputs from TV Scart connector pin 15.
- Video signal(Y) outputs from VCR/AUX Scart connector pin 19.
- Video signal(C) outputs from VCR/AUX Scart connector pin 15.

5.7. RGB Video in TV Scart doesn' t output

Check that

- A/V mode sets to RGB in menu
- Video signal(R) outputs from STi5518 pin 27.
- Video signal(G) outputs from STi5518 pin 26.
- Video signal(B) outputs from STi5518 pin 25.
- Video signal(R) inputs to Scart controller (STV6412) pin 10.
- Video signal(G) inputs to Scart controller (STV6412) pin 12.
- Video signal(B) inputs to Scart controller (STV6412) pin 14.



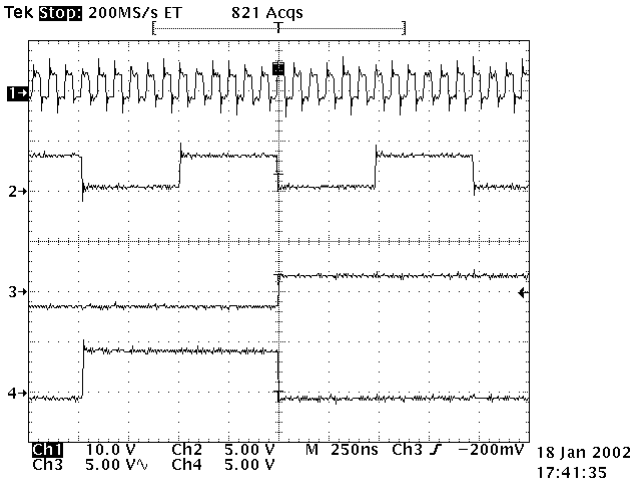
Ch1 Red (STV6412 pin42)
Ch2 Green (STV6412 pin 40)
Ch3 Blue (STV6412 pin38)

- I2C2CLK, I2C2DATA which control Scart controller (STV6412) signal are input to Scart controller (STV6412 pin 55, pin 56)
- Video signal(R) outputs to Scart controller (STV6412) pin 42 for TV Scart.
- Video signal(G) outputs to Scart controller (STV6412) pin 40 for TV Scart.
- Video signal(B) outputs to Scart controller (STV6412) pin 38 for TV Scart.
- Video signal(R) outputs from TV Scart connector pin 15
- Video signal(G) outputs from TV Scart connector pin 11
- Video signal(B) outputs from TV Scart connector pin 7

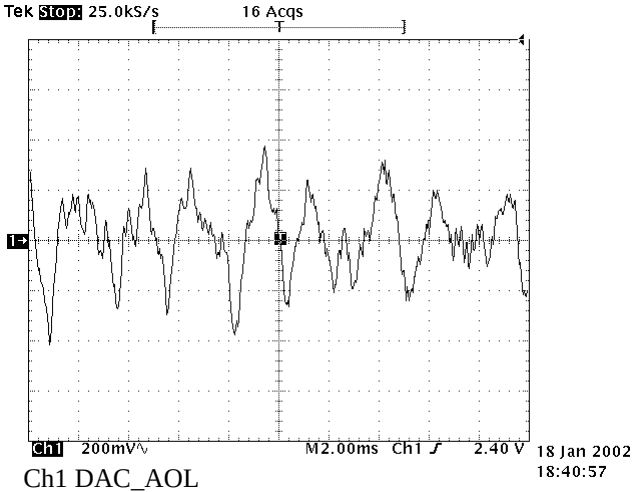
5.8. **Audio doesn' t output**.

Check that

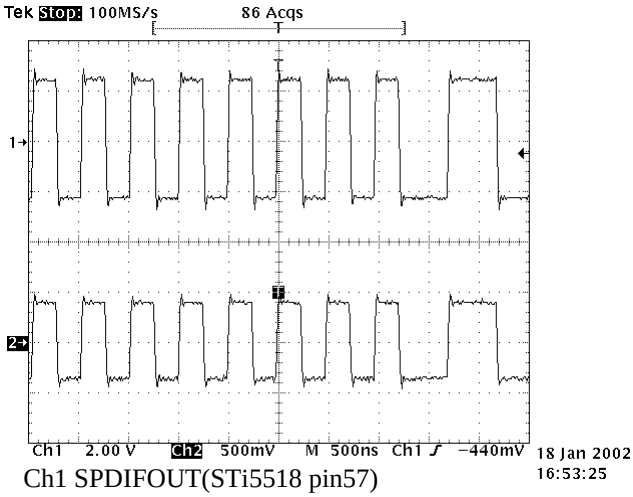
- Audio PCM LR clock, PCM data, PCM clock, master clock input to AUDIO DAC(WM8725ED) pin 1, 2, 3, 14.
- Audio signal outputs from AUDIO DAC (at pin 6, 9 of WM8725ED).
- Audio signal inputs to SCART controller (at pin 11, 13 of STV6412).
- Audio signal outputs to SCART controller (at pin 32, 33 of STV6412) for TV Scart.
- Audio signal outputs to SCART controller (at pin 27, 28 of STV6412) for RCA
- Audio signal outputs to SCART controller (at pin 29, 30 of STV6412) for VCR/AUX Scart.
- Audio signal outputs to SCART controller (at pin 35 of STV6412) for RF modulator.
- Audio mute is off (if pin 2 of STi5518 is HIGH Audio mute is on).



Ch1 PCM_MCLK (pin55) Ch2 PCM_SCLK (pin51)
Ch3 PCM_LRCLK (pin56) Ch4 PCM_DATA(pin52)
(STi5518)



Ch1 DAC_AOL

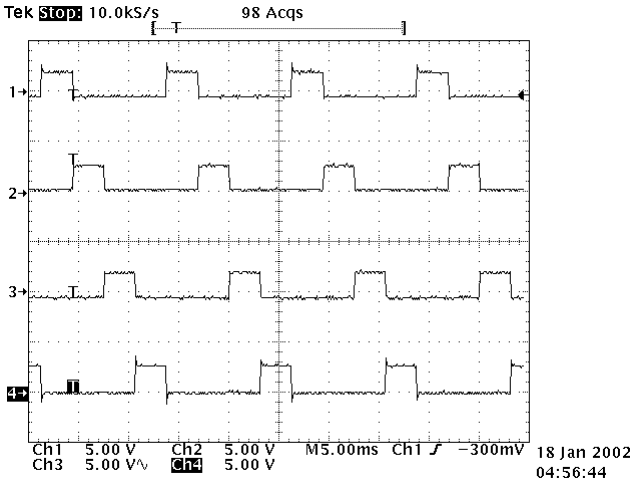


Ch1 SPDIFOUT(STi5518 pin57)
Ch2 SPDIF of RCA

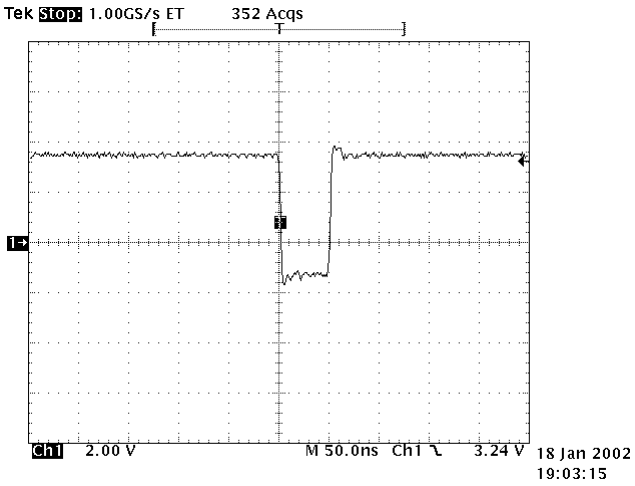
5.9. A digit in FND doesn' t display

Check that

- Pulse signals which control 4 digit output from transistor.
- Digit data from in GPIO buffer (74HCT374) output corrected.



Ch1 DIGIT1 Ch2 DIGIT2
Ch3 DIGIT3 Ch4 DIGIT4
(Front cable)



Ch1 GPIO_CLK

5.10. SMPS doesn' t give main power with S5V (standby5V) on

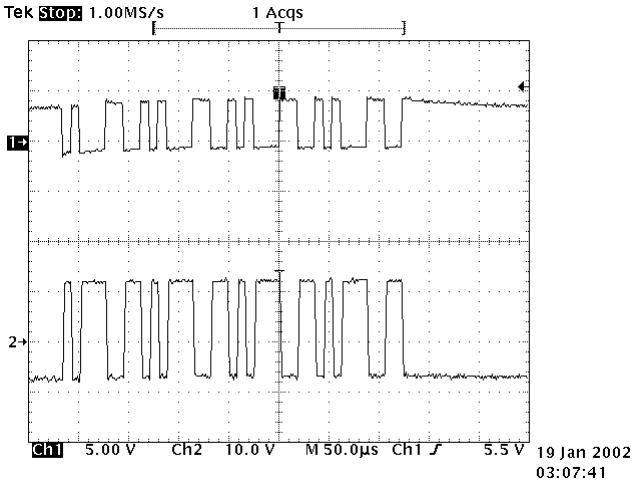
Check that

- PWCNTL signal is (low at Pin 46 at STi5518 : main power on, high at Pin 46 at STi5518 : main power off).

5.11. Can't download software via RS-232C Port

Check that

- Power is provided to RS-232C Driver.
- U3 is in good condition (pin 7 of RS-232C Driver showes –10V with main power on. If the measurement is 0V the device is in fail).



Ch1 TIN2 (pin 10 of MAX232)
Ch2 TXD of RS232 port

5.12. LNB power doesn't output. (View circuit diagram)

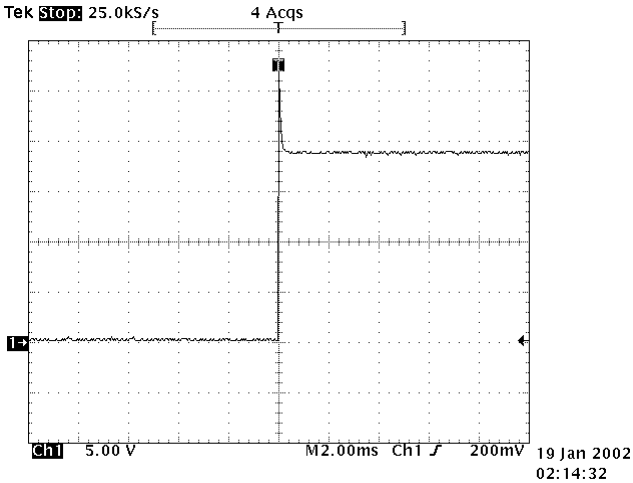
Check that

- LNBP_EN is HIGH
- LNB_22V is input to LM317
- Voltage Pin 1(input), 2(output) at KSB1151

5.13. LNB power 14V(18V) doesn't change to 14V(18V) (view circuit diagram)

Check that

- Pin 192 of STi5518 is controlled according to menu setting.
  HIGH : 14V. LOW : 18V
- Pin 192 of STi5518 is good. But 14V(18V) doesn't change to 18V(14V). Then switching.
  TR is in fail.



Ch1 LNB1

5.14. 22kHz doesn’t output.(view circuit diagram)

Check that

- LNB_ENT at pin 193 STi5518 is good operation.
  HIGH -> 22kHz On, LOW -> 22kHz Off.
- At Pin 14 of Digital tuner module, 22kHz signal generate good.
- The switching TR is good.

5.15. Bad or No Signal (View circuit diagram)

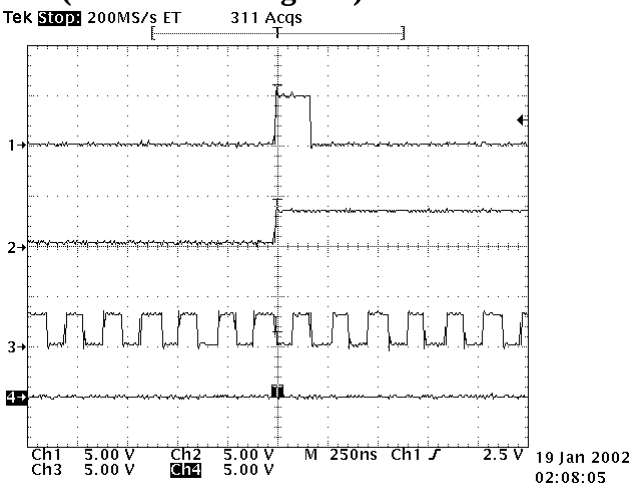
Check that

- Satellite is selected correctly in menu.
- LNB setting is correct in the satellite (LNB Power On, L/O Value..).
- Antenna cable is connected to ‘ SATANT IN’ Port of digital tuner.
- I2C bus operate good.
- NIM30V, NIN5V, POWER3.3V input to Digital tuner module.

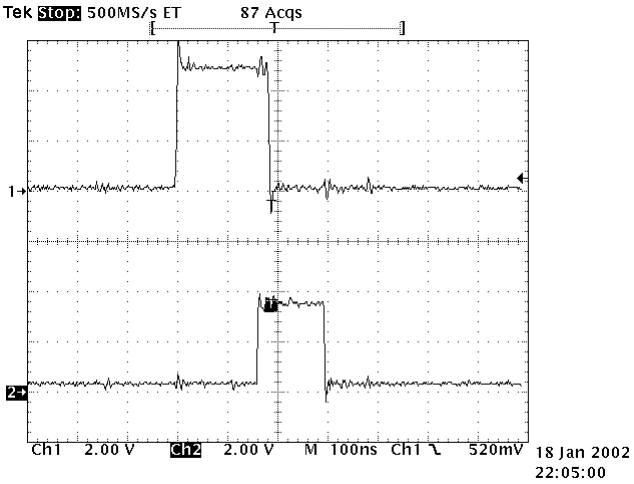
5.16. Tuner signal Lock, But A/V not display to TV (view circuit diagram)

Check that

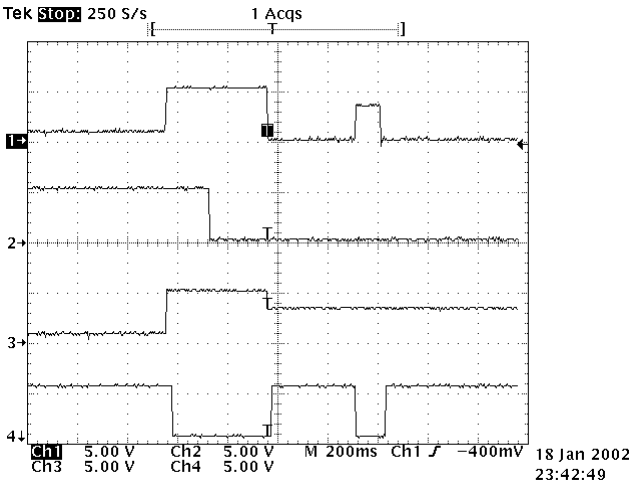
- I2C bus operate good.
- Digital tuner module outputs serial transport stream correctly for FTA model.
- Digital tuner module outputs parallel transport stream correctly for FTA model.
- Transport stream passes to STi5518 through serial resistance correctly for FTA model.
- Transport stream passes to CIMAX input through serial resistance correctly for CI model.
- Transport stream passes from CIMAX to CAM module correctly for CI model.
- Transport stream passes from CAM module to CIMAX correctly for CI model.
- Transport stream passes from CIMAX to parallel to serial Logic correctly for CI model.



Ch1 N_DATA_F_START Ch2 N_DATA_VALID
Ch3 N_DATA_CLK Ch4 N_ERROR



Ch1 DATDIR(pin68) Ch2 DATOE(pin69)
(STV0700)



Ch1 RSTB(pin119) Ch2 CD1B(pin71)
Ch3 CE1B(pin81) Ch4 RDY/IRQB(pin100)
(STV0700)

6. Schematic

6.1. HSS-730/830 & UFD505/515 circuit diagram

- Ref to appendix A

6.2. Front circuit diagram

- Ref to appendix B

6.3. SMPS circuit diagram

- Ref to appendix C

7. PCB Pattern

7.1. HSS-730/830 & UFD505/515 Silk & PCB pattern

- Ref to appendix D

7.2. HSS-730/830 Front Silk & pattern

- Ref to appendix E

7.3. UFD505/515 Front Silk & pattern

- Ref to appendix F

8. Product Disassembly Diagram

8.1. Product Disassembly Diagram for UFD505

- Ref to appendix G

8.2. Product Disassembly Diagram for UFD515

- Ref to appendix H

8.3. Product Disassembly Diagram for HSS-830

- Ref to appendix I

9. Part List

9.1. Part list for HSS-730/830 & UFD505/515

- Ref to appendix J

9.2. Part list for HSS-730/830 Front

- Ref to appendix K

9.3. Part list for UFD505/515 Front

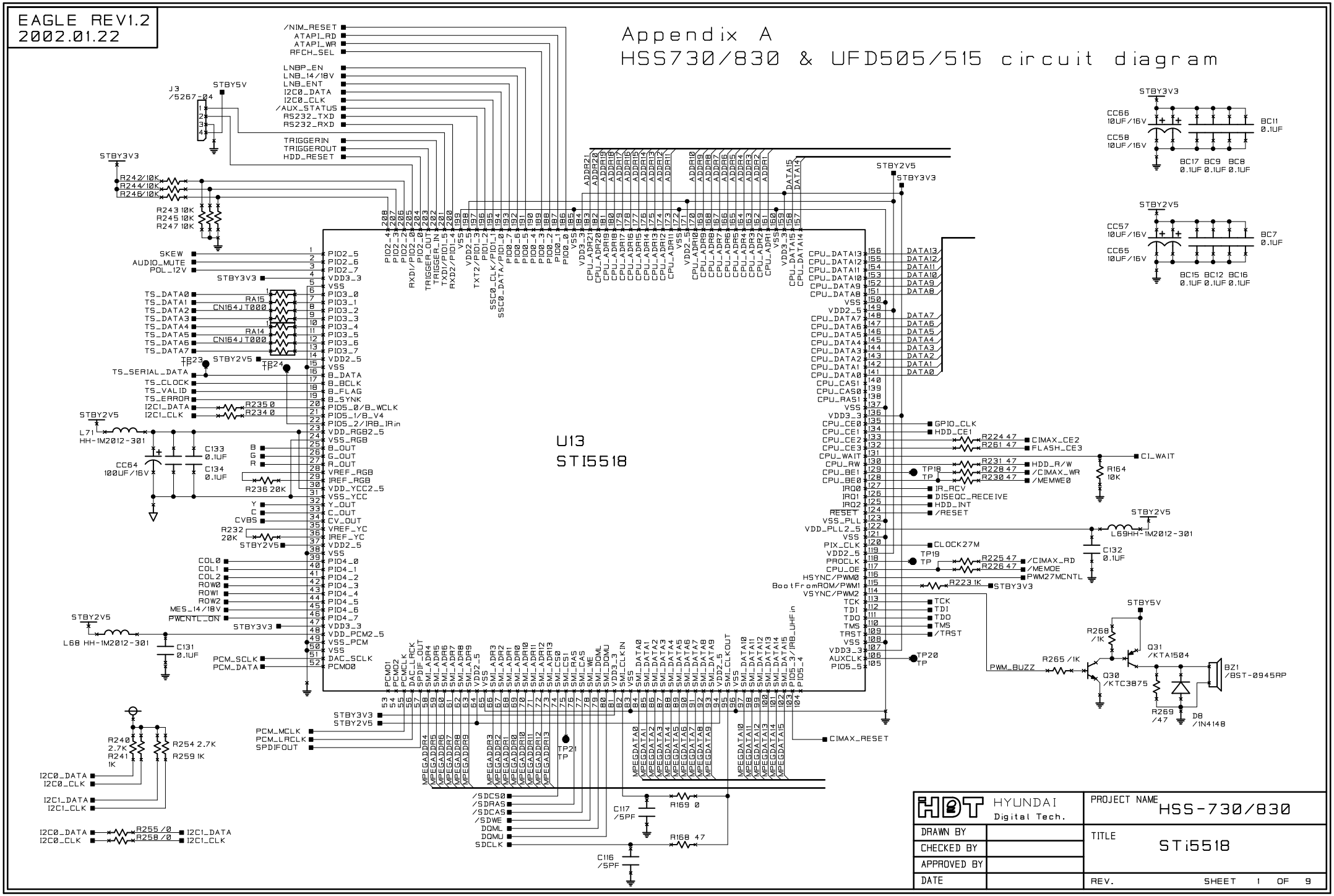
- Ref to appendix L

9.4. Part list for SMPS

- Ref to appendix M

EAGLE REV1.2
2002.01.22

Appendix A
HSS730/830 & UFD505/515 circuit diagram



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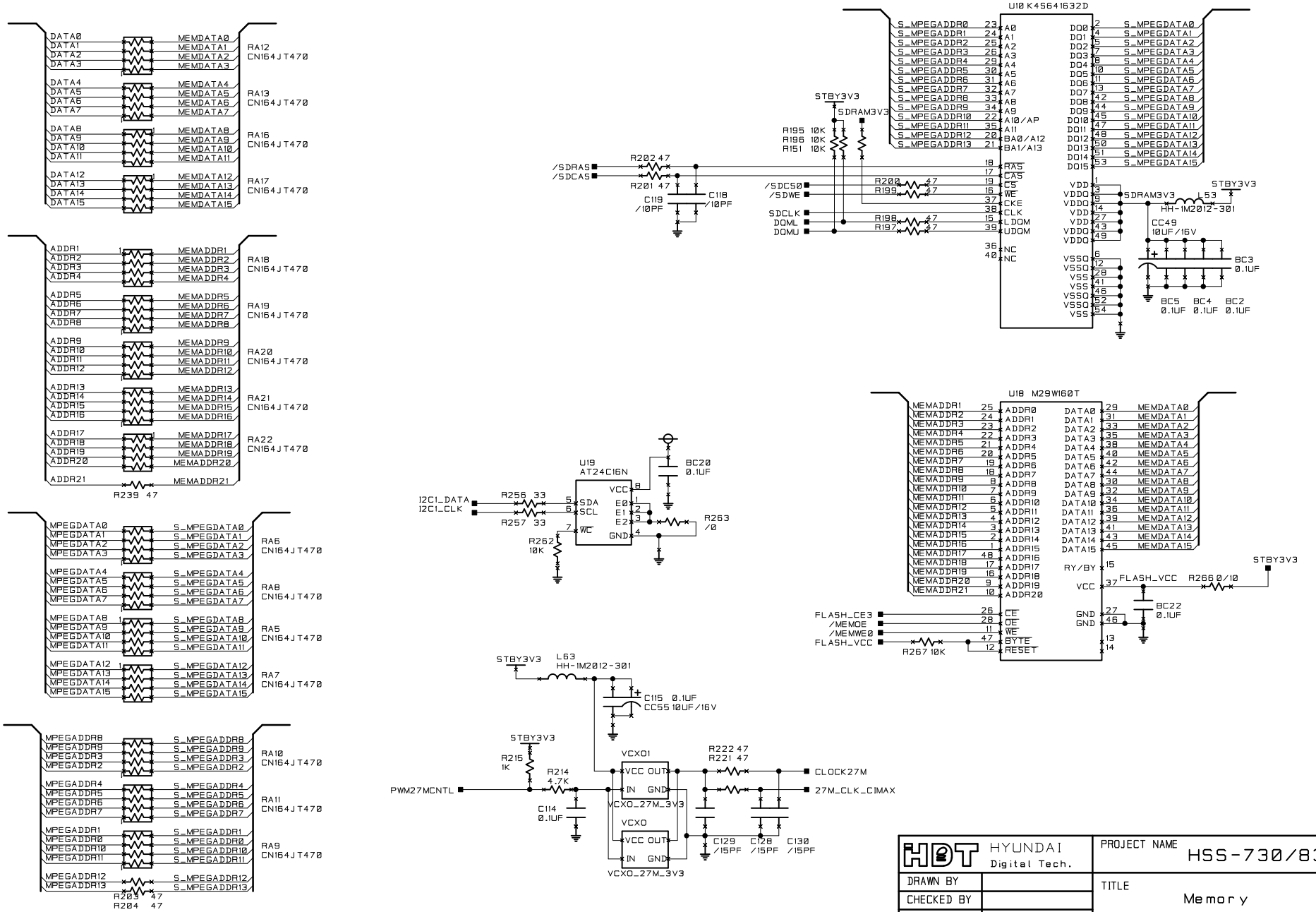
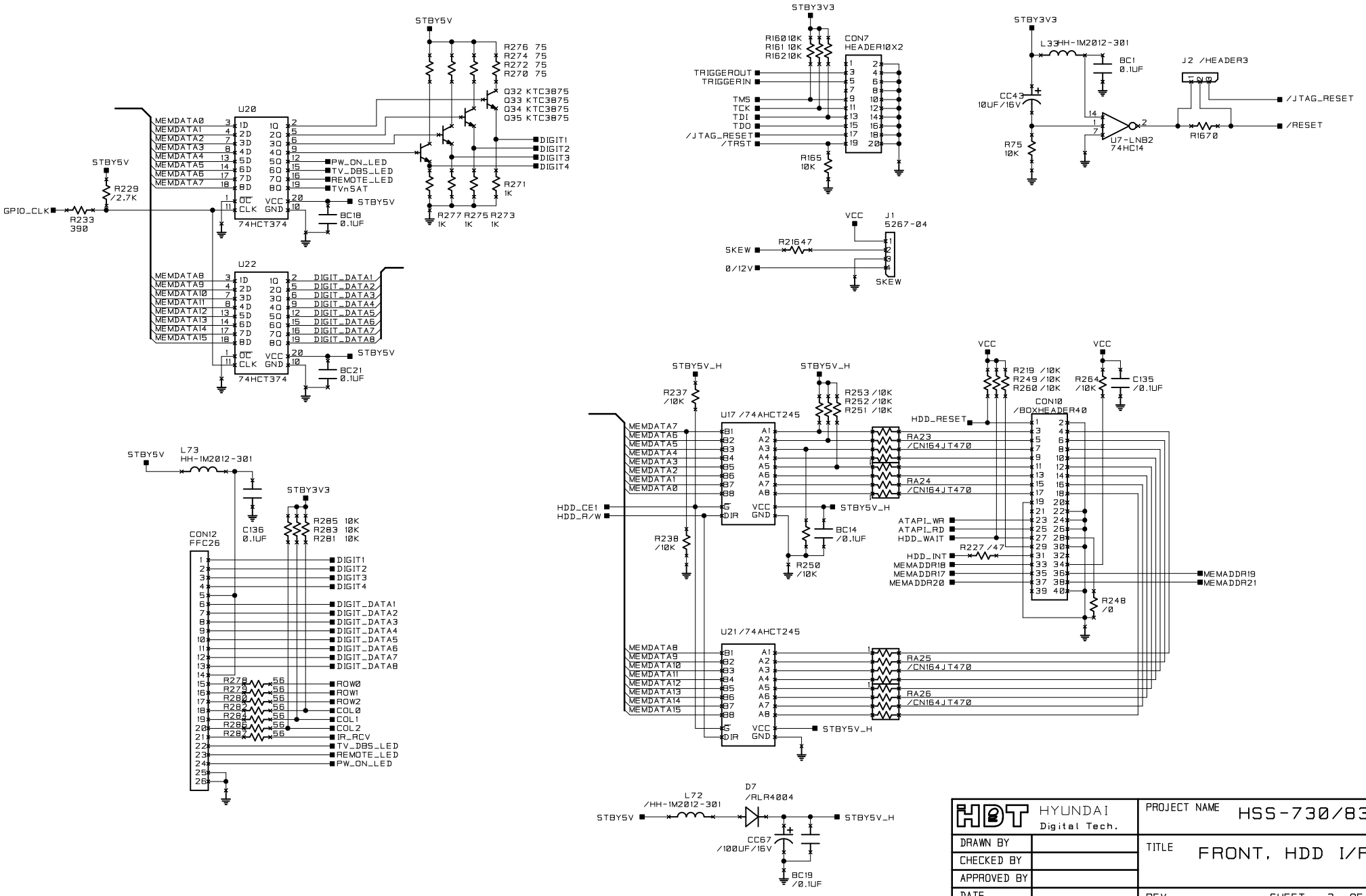
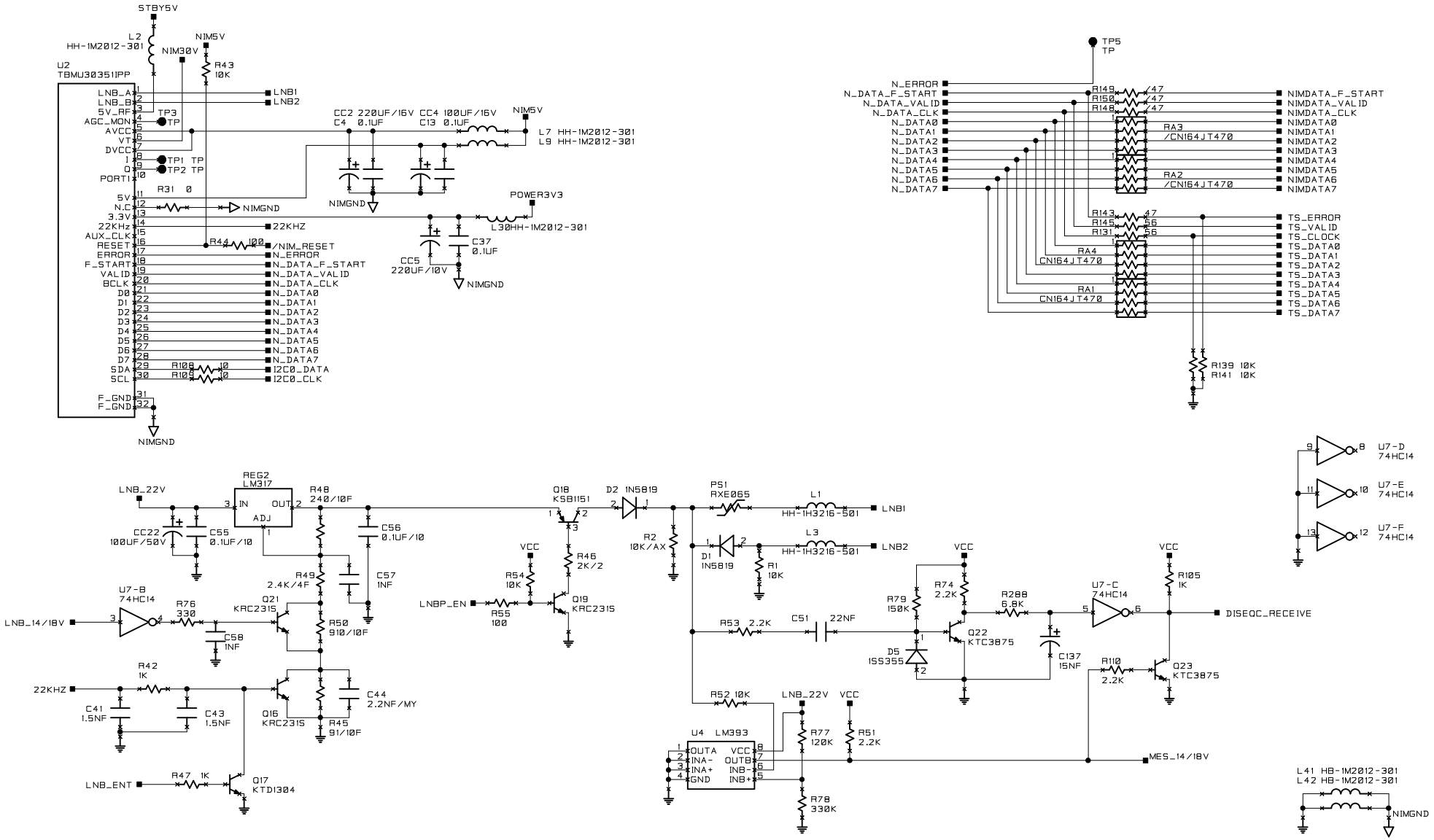
DRAWN BY		TITLE	STi5518
CHECKED BY			
APPROVED BY			
DATE		REV.	SHEET 1 OF 9


DATA0 DATA1 DATA2 DATA3 MEMDATA0 MEMDATA1 MEMDATA2 MEMDATA3 RA12 CN164JT470
DATA4 DATA5 DATA6 DATA7 MEMDATA4 MEMDATA5 MEMDATA6 MEMDATA7 RA13 CN164JT470
DATA8 DATA9 DATA10 DATA11 MEMDATA8 MEMDATA9 MEMDATA10 MEMDATA11 RA16 CN164JT470
DATA12 DATA13 DATA14 DATA15 MEMDATA12 MEMDATA13 MEMDATA14 MEMDATA15 RA17 CN164JT470
ADDR1 ADDR2 ADDR3 ADDR4 MEMADDR1 MEMADDR2 MEMADDR3 MEMADDR4 RA18 CN164JT470
ADDR5 ADDR6 ADDR7 ADDR8 MEMADDR5 MEMADDR6 MEMADDR7 MEMADDR8 RA19 CN164JT470
ADDR9 ADDR10 ADDR11 ADDR12 MEMADDR9 MEMADDR10 MEMADDR11 MEMADDR12 RA20 CN164JT470
ADDR13 ADDR14 ADDR15 ADDR16 MEMADDR13 MEMADDR14 MEMADDR15 MEMADDR16 RA21 CN164JT470
ADDR17 ADDR18 ADDR19 ADDR20 MEMADDR17 MEMADDR18 MEMADDR19 MEMADDR20 RA22 CN164JT470
ADDR21 MEMADDR21 R239 47
MPEGDATA0 MPEGDATA1 MPEGDATA2 MPEGDATA3 S_MPEGDATA0 S_MPEGDATA1 S_MPEGDATA2 S_MPEGDATA3 RA6 CN164JT470
MPEGDATA4 MPEGDATA5 MPEGDATA6 MPEGDATA7 S_MPEGDATA4 S_MPEGDATA5 S_MPEGDATA6 S_MPEGDATA7 RA8 CN164JT470
MPEGDATA8 MPEGDATA9 MPEGDATA10 MPEGDATA11 S_MPEGDATA8 S_MPEGDATA9 S_MPEGDATA10 S_MPEGDATA11 RA5 CN164JT470
MPEGDATA12 MPEGDATA13 MPEGDATA14 MPEGDATA15 S_MPEGDATA12 S_MPEGDATA13 S_MPEGDATA14 S_MPEGDATA15 RA7 CN164JT470
MPEGADDR8 MPEGADDR9 MPEGADDR3 MPEGADDR2 S_MPEGADDR8 S_MPEGADDR9 S_MPEGADDR3 S_MPEGADDR2 RA10 CN164JT470
MPEGADDR4 MPEGADDR5 MPEGADDR6 MPEGADDR7 S_MPEGADDR4 S_MPEGADDR5 S_MPEGADDR6 S_MPEGADDR7 RA11 CN164JT470
MPEGADDR1 MPEGADDR0 MPEGADDR10 MPEGADDR11 S_MPEGADDR1 S_MPEGADDR0 S_MPEGADDR10 S_MPEGADDR11 RA9 CN164JT470
MPEGADDR12 MPEGADDR13 S_MPEGADDR12 S_MPEGADDR13 R203 47 R204 47
U10 K4S641632D
S_MPEGADDR0 S_MPEGADDR1 S_MPEGADDR2 S_MPEGADDR3 S_MPEGADDR4 S_MPEGADDR5 S_MPEGADDR6 S_MPEGADDR7 S_MPEGADDR8 S_MPEGADDR9 S_MPEGADDR10 S_MPEGADDR11 S_MPEGADDR12 S_MPEGADDR13
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 BA0/A12 BA1/A13
DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7 DQ8 DQ9 DQ10 DQ11 DQ12 DQ13 DQ14 DQ15
S_MPEGDATA0 S_MPEGDATA1 S_MPEGDATA2 S_MPEGDATA3 S_MPEGDATA4 S_MPEGDATA5 S_MPEGDATA6 S_MPEGDATA7 S_MPEGDATA8 S_MPEGDATA9 S_MPEGDATA10 S_MPEGDATA11 S_MPEGDATA12 S_MPEGDATA13 S_MPEGDATA14 S_MPEGDATA15
STBY3V3 SDRAM3V3
R195 10K R196 10K R151 10K
R202 47 R201 47 C119 /10PF C118 /10PF
/SDRAS /SDCAS /SDCS0 /SDWE SDCLK DQML DQMU
R200 47 R199 47 R198 47 R197 47
RAS CAS CS WE CKE CLK LDQM UDQM NC NC
VDD VDDQ VDDQ VDD VDD VDDQ VDDQ VSSQ VSSQ VSS VSSQ VSSQ VSS
SDRAM3V3 L53 HH-1M2012-301 STBY3V3
CC49 10UF/16V BC3 0.1UF BC5 0.1UF BC4 0.1UF BC2 0.1UF
U18 M29W160T
MEMADDR1 MEMADDR2 MEMADDR3 MEMADDR4 MEMADDR5 MEMADDR6 MEMADDR7 MEMADDR8 MEMADDR9 MEMADDR10 MEMADDR11 MEMADDR12 MEMADDR13 MEMADDR14 MEMADDR15 MEMADDR16 MEMADDR17 MEMADDR18 MEMADDR19 MEMADDR20 MEMADDR21
ADDR0 ADDR1 ADDR2 ADDR3 ADDR4 ADDR5 ADDR6 ADDR7 ADDR8 ADDR9 ADDR10 ADDR11 ADDR12 ADDR13 ADDR14 ADDR15 ADDR16 ADDR17 ADDR18 ADDR19 ADDR20
DATA0 DATA1 DATA2 DATA3 DATA4 DATA5 DATA6 DATA7 DATA8 DATA9 DATA10 DATA11 DATA12 DATA13 DATA14 DATA15
MEMDATA0 MEMDATA1 MEMDATA2 MEMDATA3 MEMDATA4 MEMDATA5 MEMDATA6 MEMDATA7 MEMDATA8 MEMDATA9 MEMDATA10 MEMDATA11 MEMDATA12 MEMDATA13 MEMDATA14 MEMDATA15
RY/BY VCC GND GND
STBY3V3 FLASH_VCC R266 0/10 BC22 0.1UF
FLASH_CE3 /MEMOE /MEMWE0 FLASH_VCC R267 10K
CE OE WE BYTE RESET
U19 AT24C16N
I2C1_DATA I2C1_CLK R256 33 R257 33 R262 10K
SDA SCL WC VCC E0 E1 E2 GND
BC20 0.1UF R263 /0
STBY3V3 L63 HH-1M2012-301 C115 0.1UF CC55 10UF/16V
STBY3V3 R215 1K R214 4.7K PWM27MCNTL C114 0.1UF
VCXO1 VCC OUT IN GND VCXO_27M_3V3
R222 47 R221 47 CLOCK27M 27M_CLK_CIMAX
VCXO VCC OUT IN GND VCXO_27M_3V3
C129 /15PF C128 /15PF C130 /15PF
HYUNDAI Digital Tech.
PROJECT NAME HSS-730/830
DRAWN BY
CHECKED BY
APPROVED BY
DATE
TITLE Memory
REV.
SHEET 2 OF 9



HDT HYUNDAI Digital Tech.		PROJECT NAME	HSS-730/830
DRAWN BY		TITLE	FRONT, HDD I/F
CHECKED BY			
APPROVED BY			
DATE		REV.	SHEET 3 OF 9



HDT HYUNDAI Digital Tech.		PROJECT NAME	HSS-730/830
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APPROVED BY			
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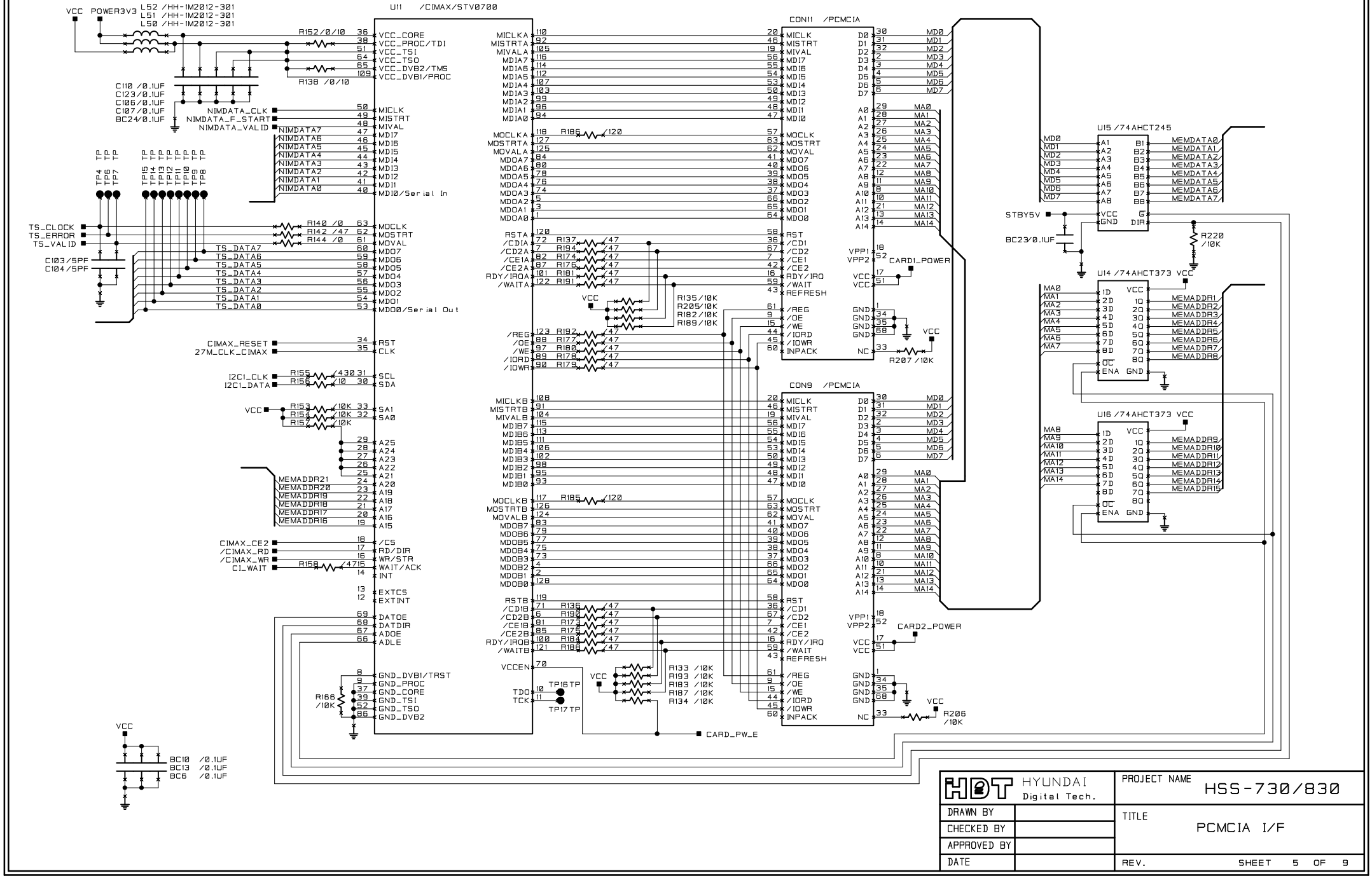

HBT HYUNDAI Digital Tech.		PROJECT NAME	HSS-730/830
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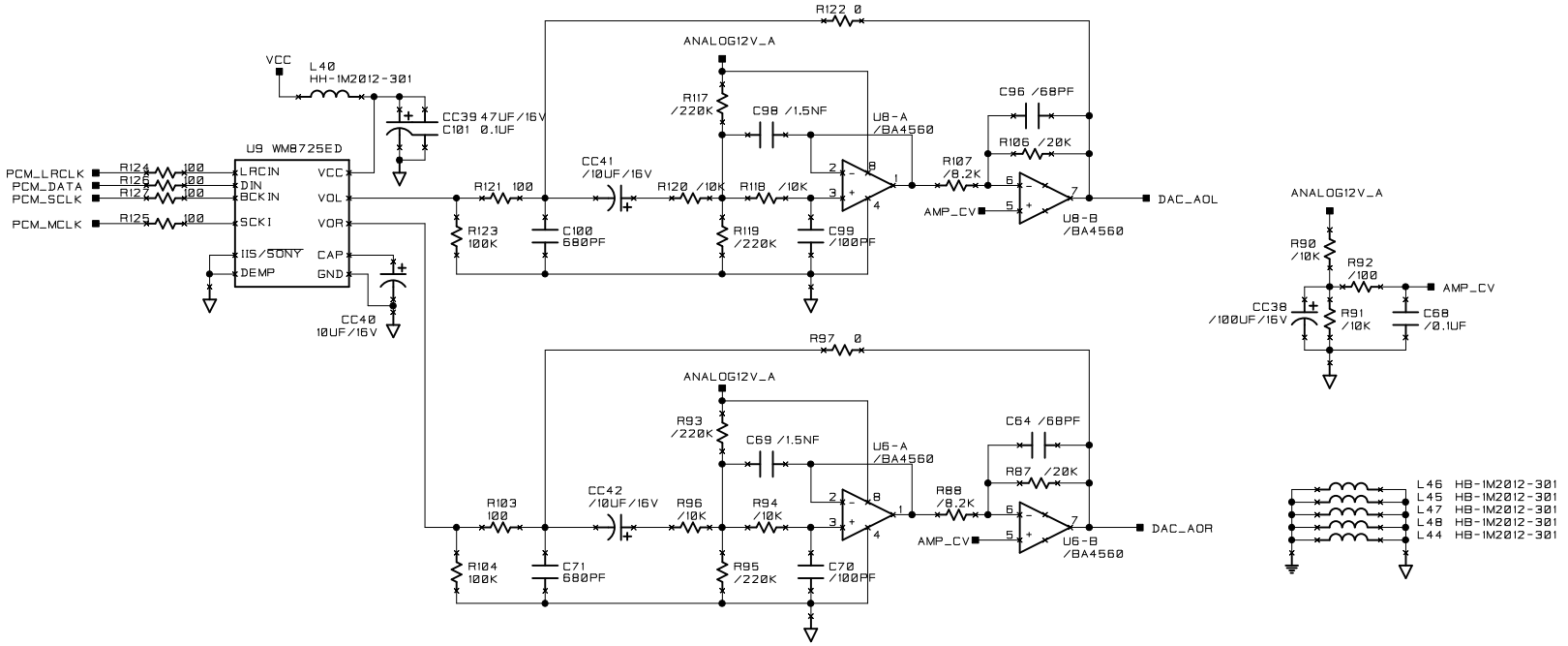
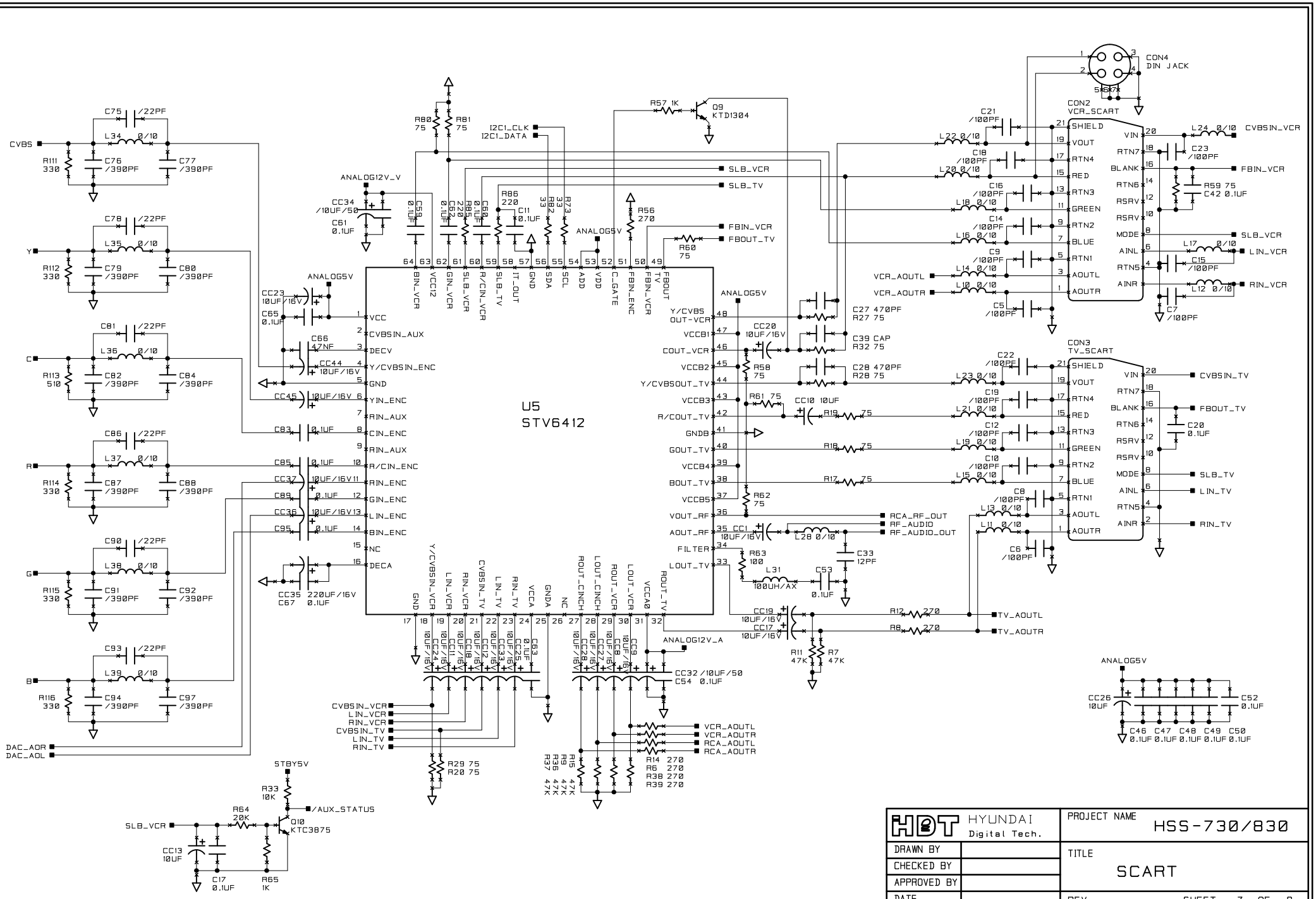
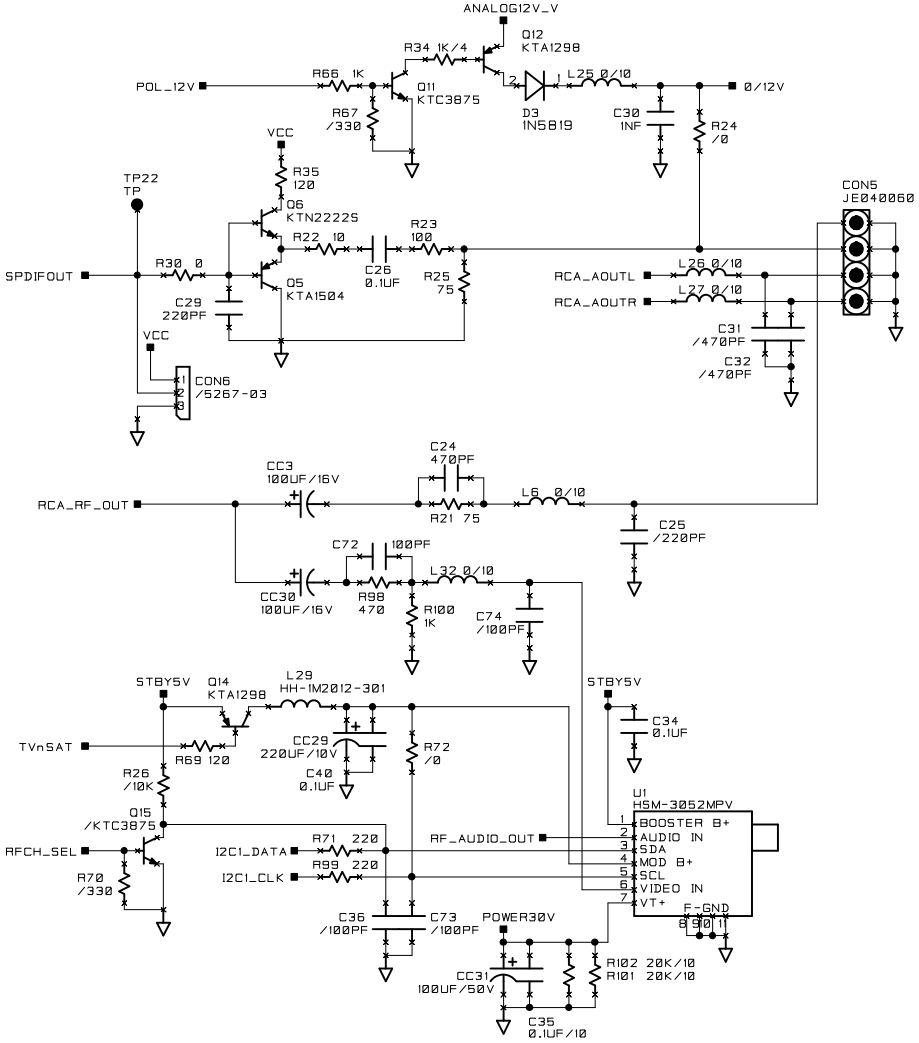
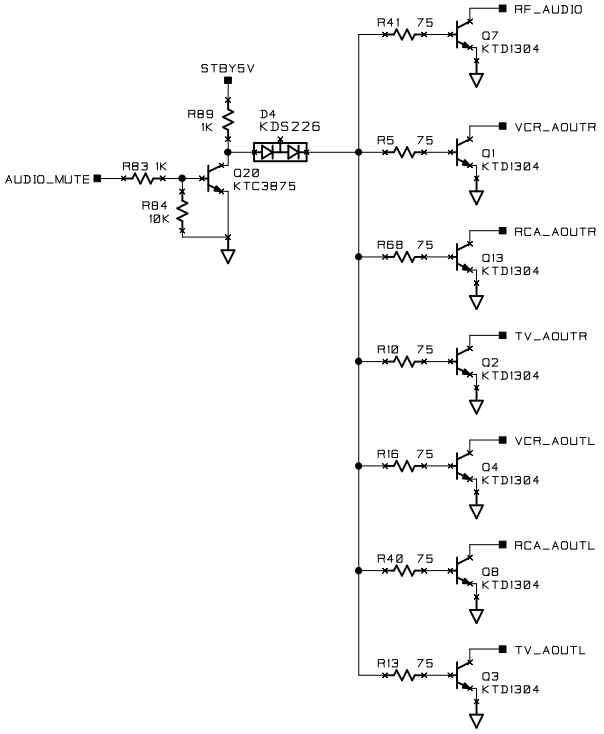
APPROVED BY			
DATE		REV.	SHEET 5 OF 9



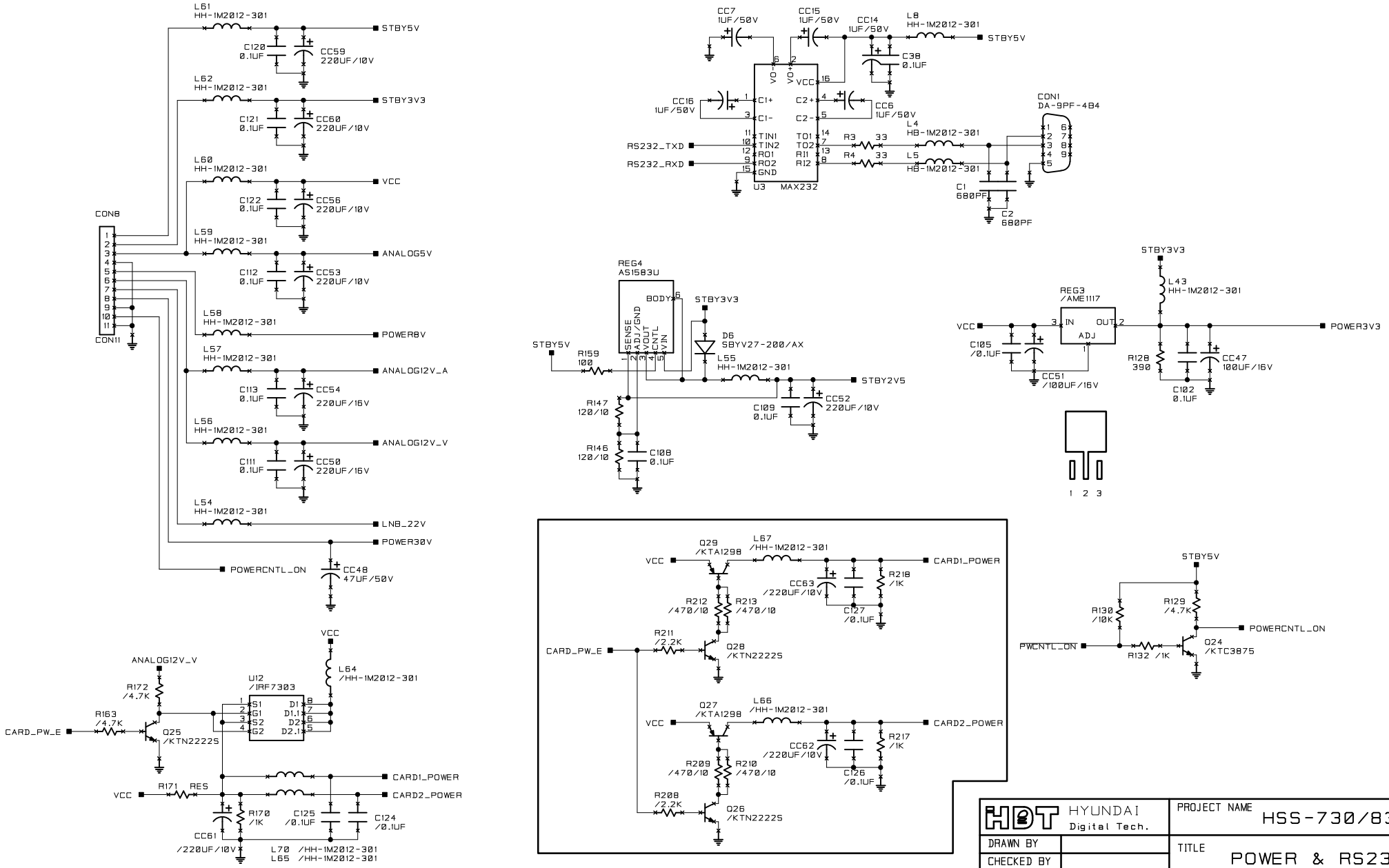
HDT HYUNDAI Digital Tech.		PROJECT NAME	HSS-730/830
DRAWN BY		TITLE	Audio
CHECKED BY			
APPROVED BY			
DATE		REV.	SHEET 6 OF 9


U5
STV6412
CON4
DIN JACK
CON2
VCR_SCART
CON3
TV_SCART
Q9
KTD1304
Q10
KTC3875
I2C1_CLK
I2C1_DATA
SLB_VCR
SLB_TV
FBIN_VCR
FBOUT_TV
ANALOG12V_V
ANALOG5V
ANALOG12V_A
STBY5V
CVBS
Y
C
R
G
B
DAC_AOR
DAC_AOL
/AUX_STATUS
VCR_AOUTL
VCR_AOUTR
TV_AOUTL
TV_AOUTR
RCA_RF_OUT
RF_AUDIO
RF_AUDIO_OUT
CVBSIN_VCR
LIN_VCR
RIN_VCR
CVBSIN_TV
LIN_TV
RIN_TV
HDT
HYUNDAI
Digital Tech.
PROJECT NAME
HSS-730/830
DRAWN BY
CHECKED BY
APPROVED BY
DATE
TITLE
SCART
REV.
SHEET 7 OF 9





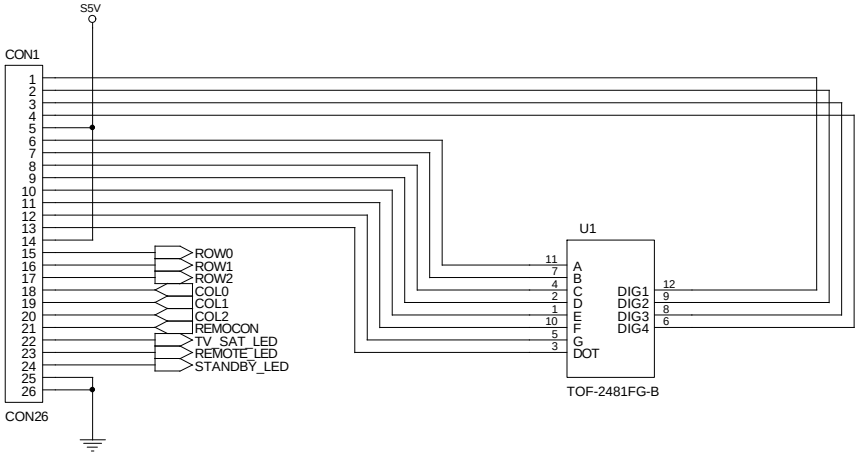
HDT HYUNDAI Digital Tech.		PROJECT NAME	HSS-730/830
DRAWN BY		TITLE	RCA, RF
CHECKED BY			
APPROVED BY			
DATE		REV.	SHEET 8 OF 9

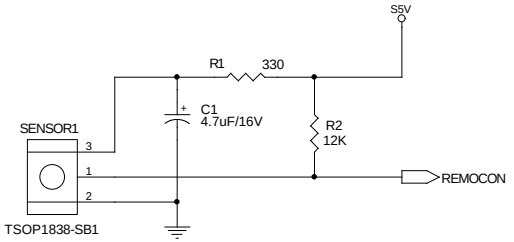


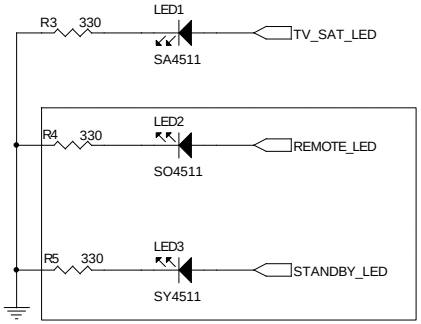
HDT HYUNDAI Digital Tech.		PROJECT NAME	HSS-730/830
DRAWN BY		TITLE	POWER & RS232C
CHECKED BY			
APPROVED BY			
DATE		REV.	SHEET 9 OF 9

Appendix B

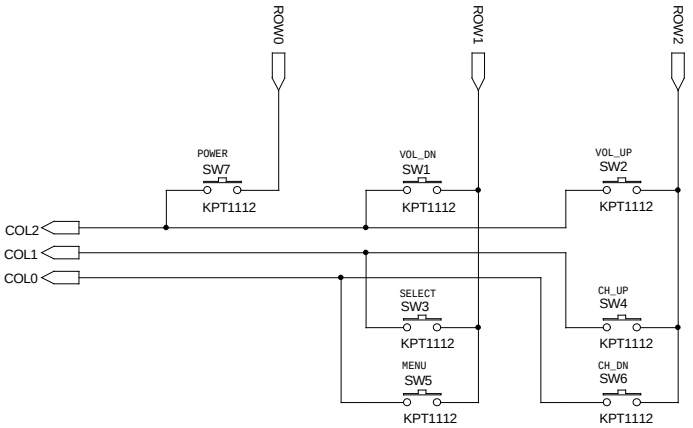
Front circuit diagram





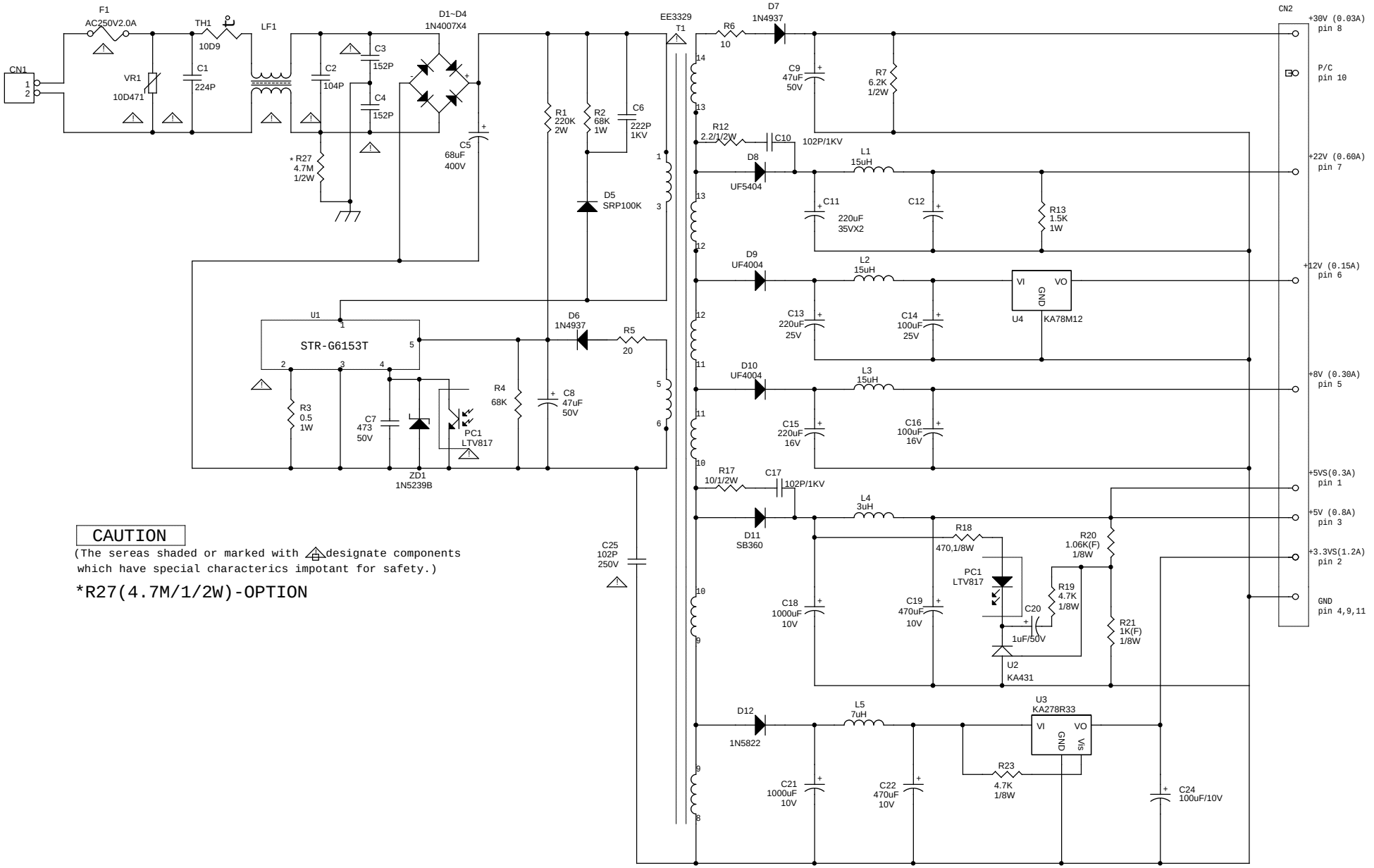


* These parts may not be used in some derivative models.



				HDT LAB. 1	
				Title: FRONT BOARD	
D.G. HAN	D.G. HAN	J.S. LEE	K.J. LEE	Size: A3	Document Number: HSS-730/830 & UFD505/515 Front — Rev: 1.1
DRAW BY	DESIGN BY	CHECK BY	APPROVE BY	Date: Tuesday, January 29, 2002	Sheet 1 of 1

Appendix C SMPS circuit diagram



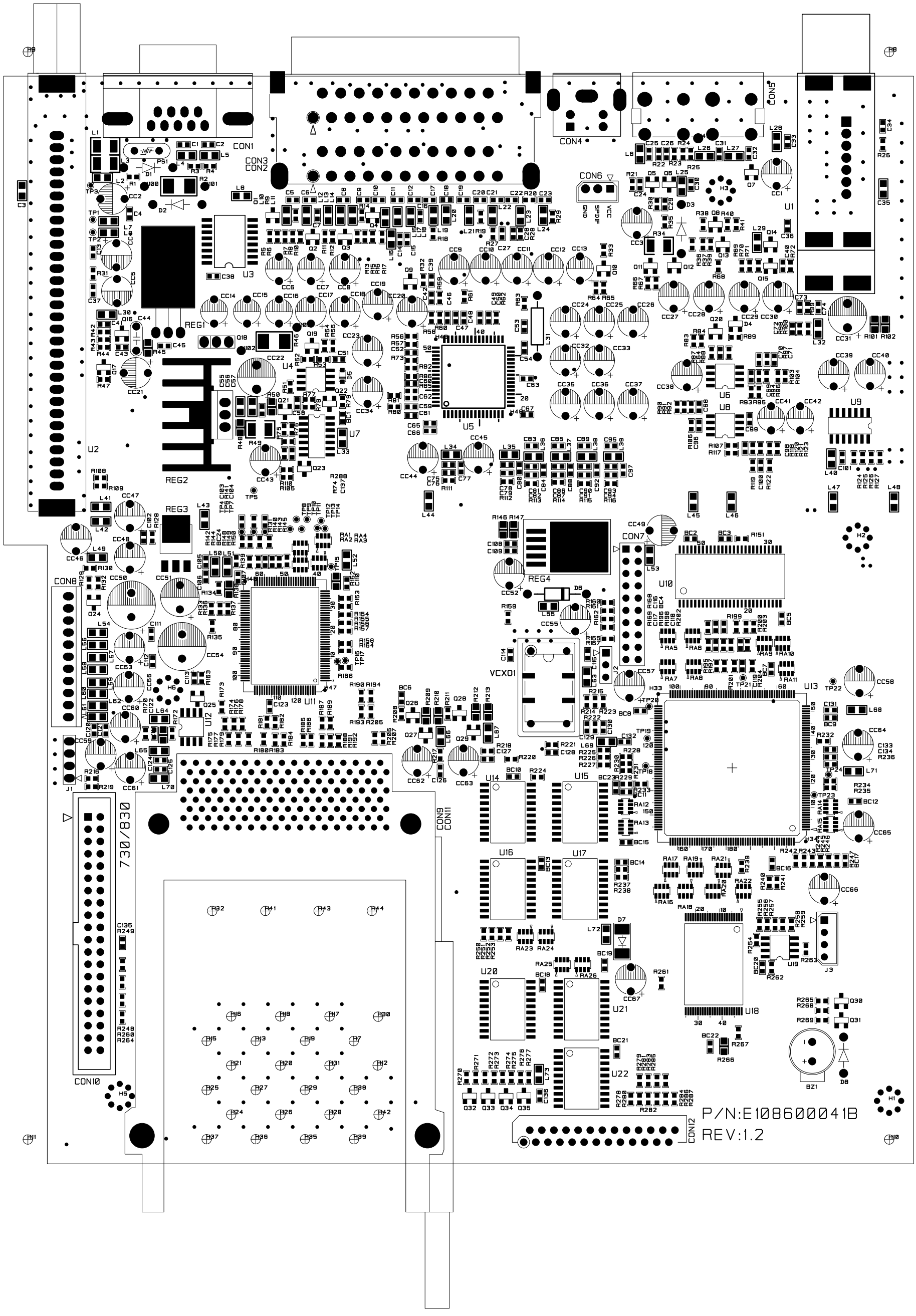
CAUTION

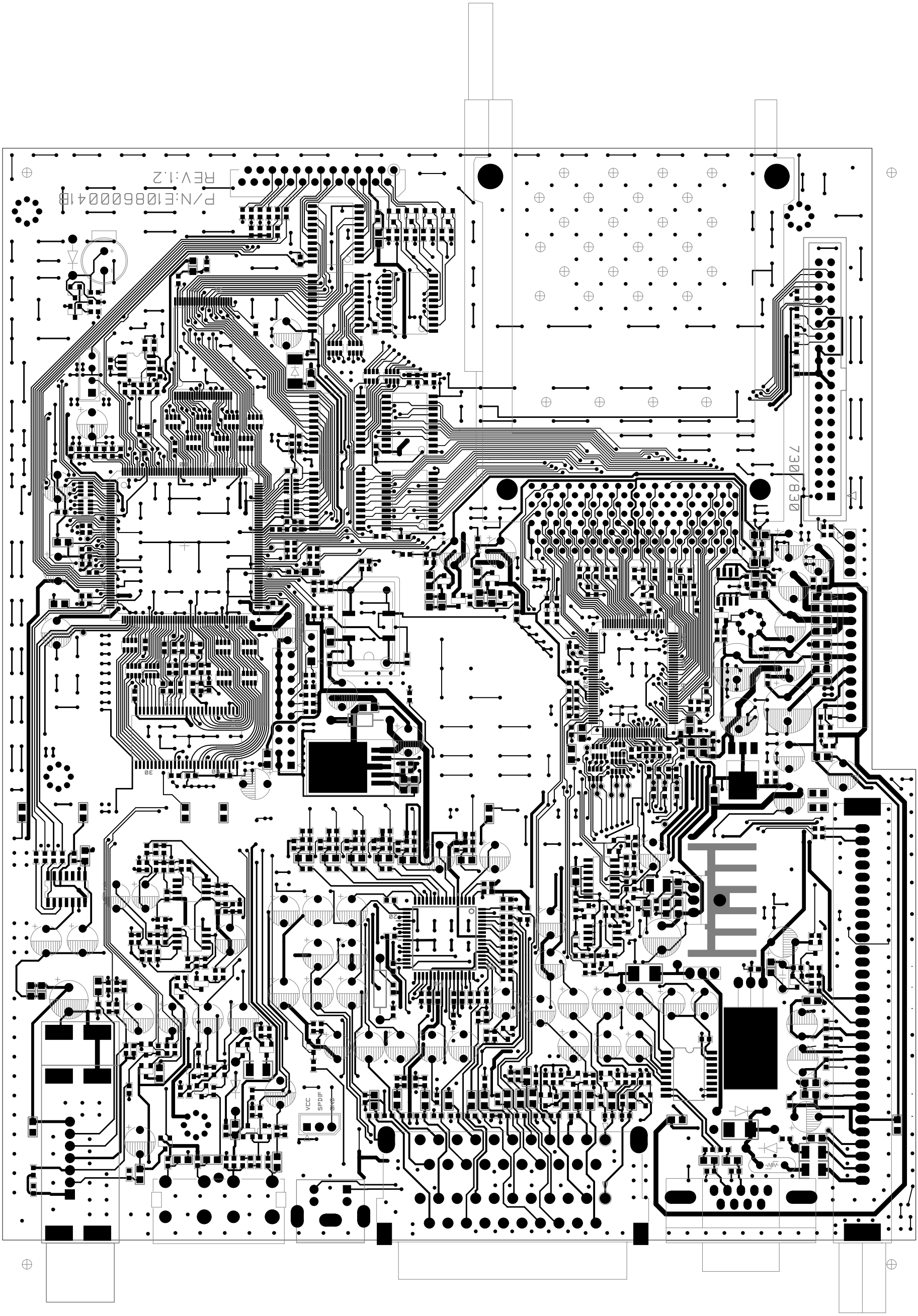
(The sereas shaded or marked with ⚠ designate components which have special characterics impotant for safety.)

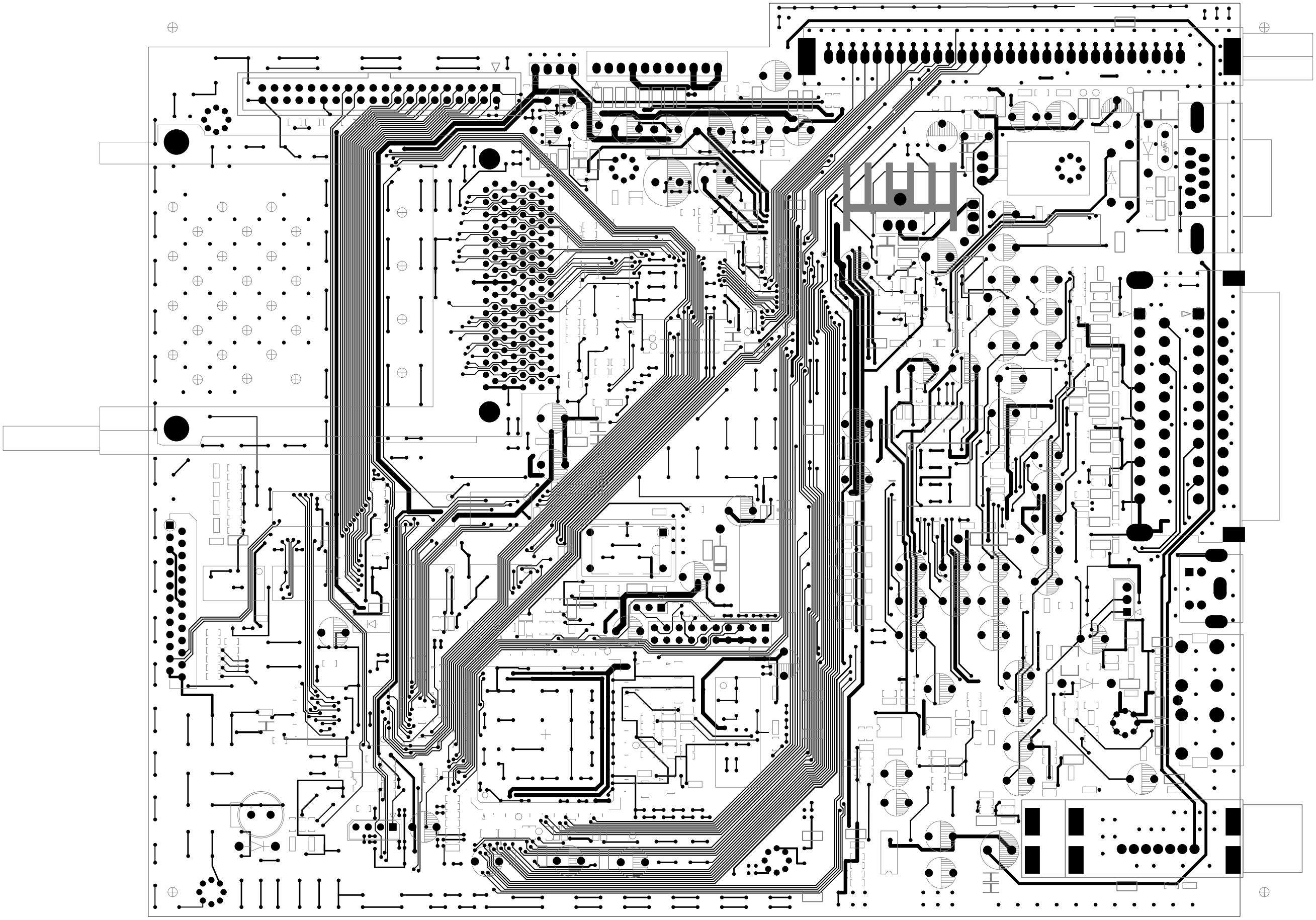
*R27(4.7M/1/2W)-OPTION

Orientech CO.,LTD		
Title: ORTP-833 CIRCUIT DIAGRAM		
Size: A3	Document Number: HSS-730/830 & UFD505/515 SMPS	Rev: 02
Date: Tuesday, January 29, 2002	Sheet 1 of 1	

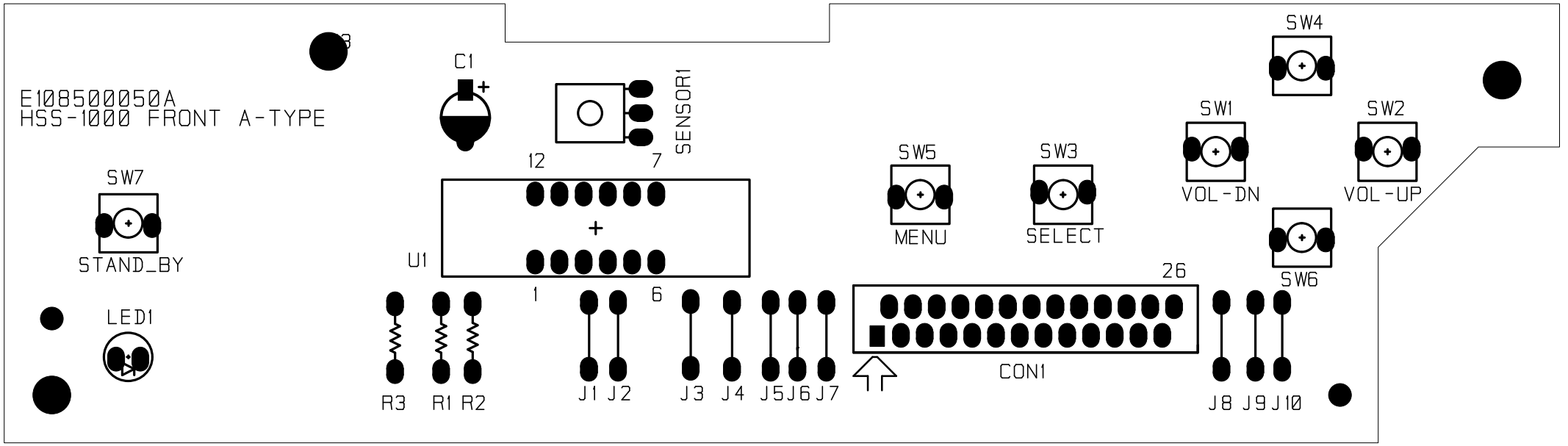
Appendix D
HSS-730/830 & UFD505/515 Silk & PCB pattern

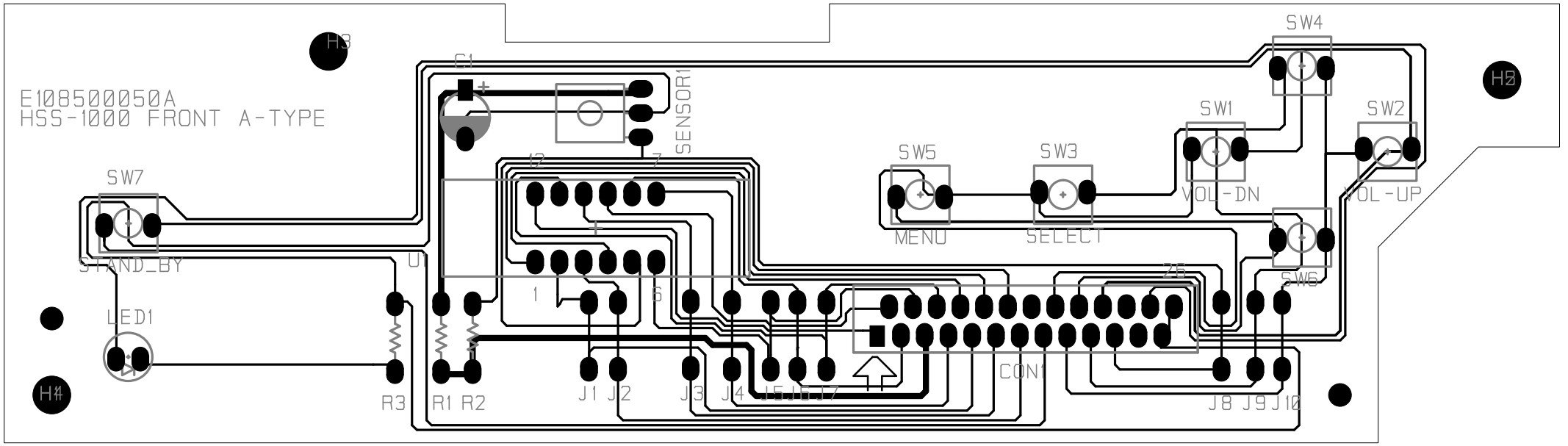



P/N:E108600041B
REV:1.2
730/830
VCC
SPDIF
GND

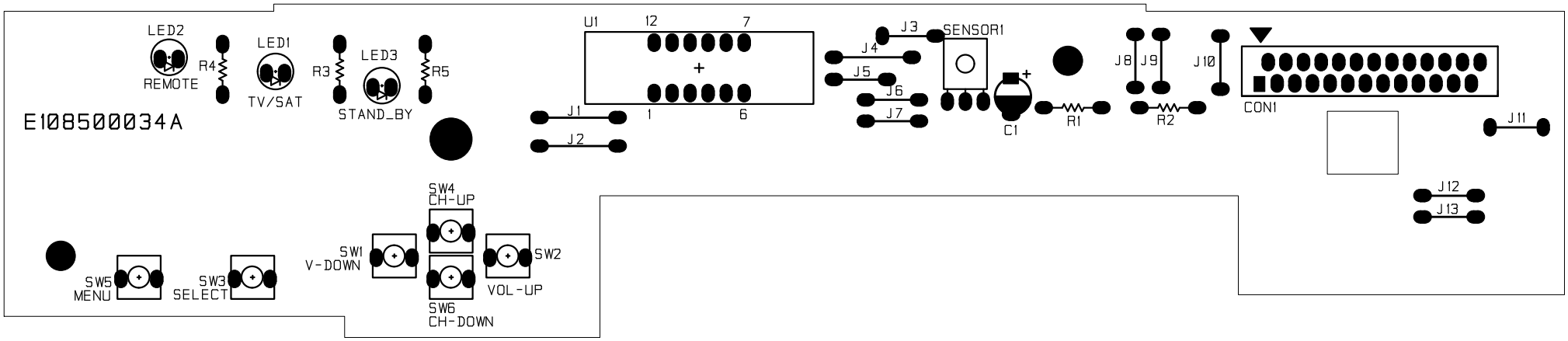


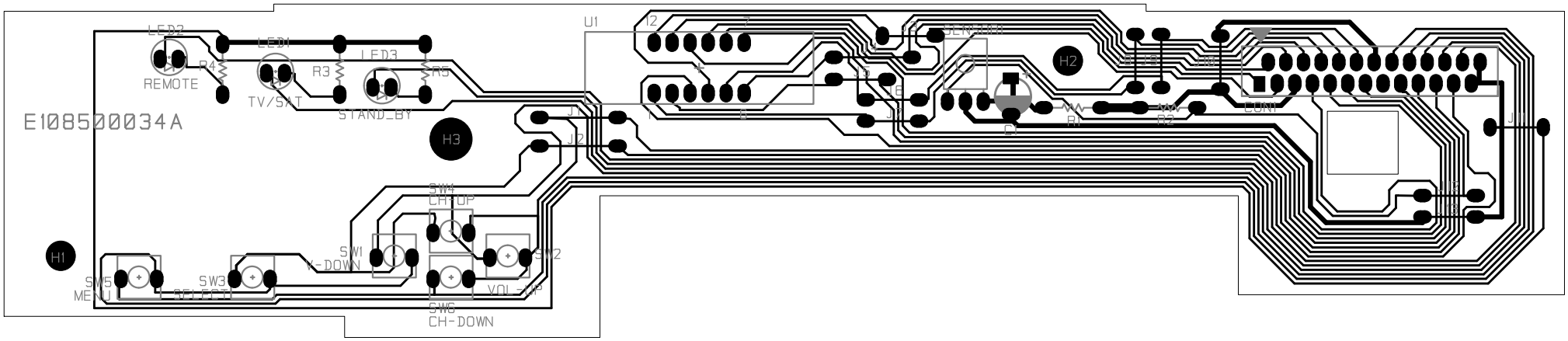
Appendix E
HSS-730/830 Front Silk & PCB pattern



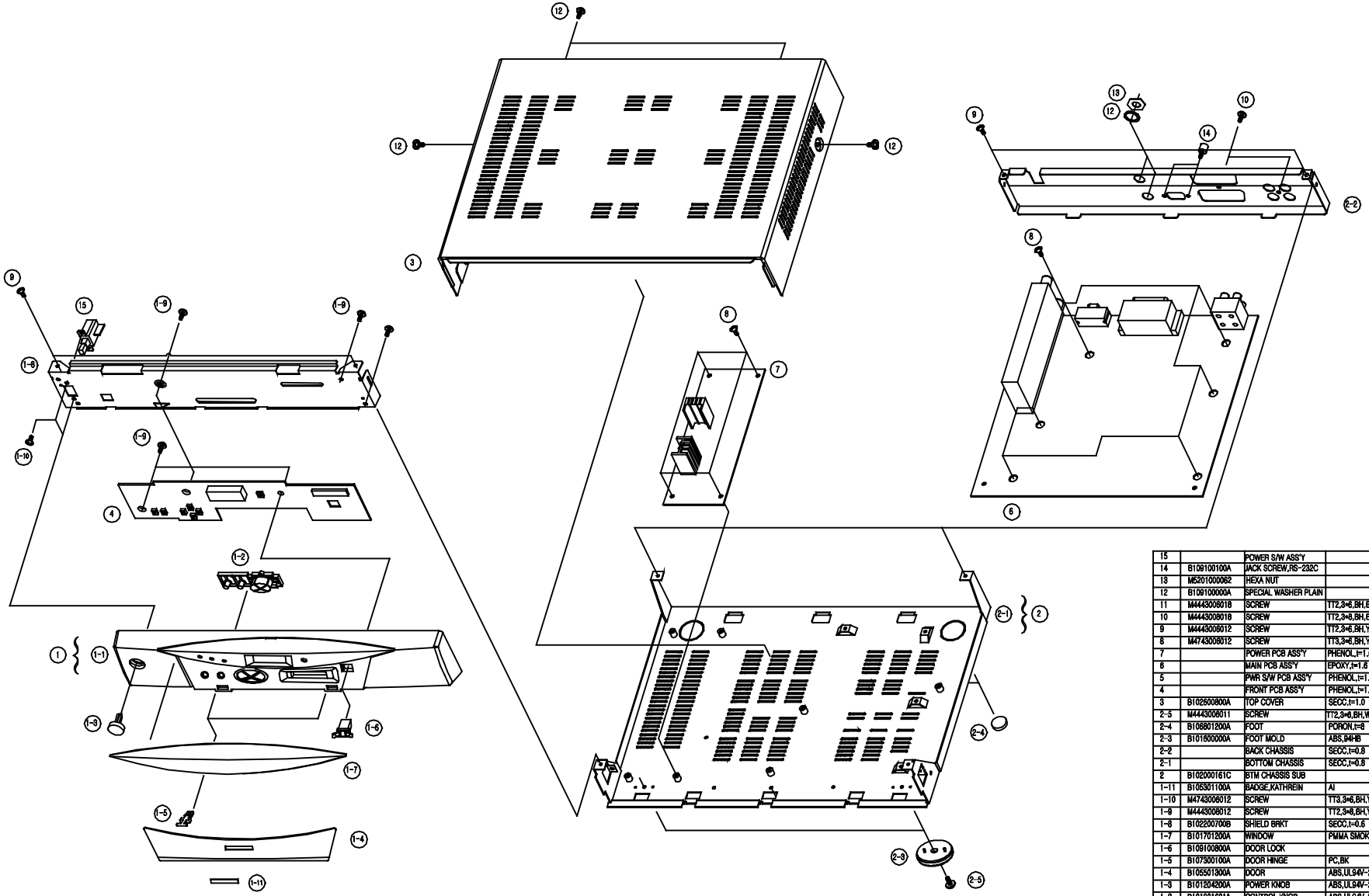

E108500050A
HSS-1000 FRONT A-TYPE
H3
H2
H4
C1
SENSOR1
SW4
SW1
SW2
SW5
SW3
SW7
VOL-DN
VOL-UP
MENU
SELECT
STAND_BY
U1
SW6
LED1
CON1
R3
R1 R2
J1 J2
J3 J4 J5 J6 J7
J8 J9 J10

Appendix F
UFD505/515 Front Silk & PCB pattern




LED2
REMOTE
R4
LED1
TV/SAT
R3
LED3
STAND_BY
R5
U1
J2
J1
H3
H2
H1
E108500034A
SW4
CH-UP
SW1
V-DOWN
SW2
VOL-UP
SW5
MENU
SW3
SELECT
SW6
CH-DOWN
R1
R2
D1
CONN

Appendix G:
Product Disassembly Diagram for UFD-505



15		POWER S/W ASS'Y			4	
14	B109100100A	JACK SCREW,RS-232C			2	
13	M5201000062	HEXA NUT			2	
12	B109100000A	SPECIAL WASHER PLAIN			4	
11	M4443006018	SCREW	TT2,3×6,BH,Bk		2	
10	M4443008018	SCREW	TT2,3×8,BH,Bk		2	
9	M4443006012	SCREW	TT2,3×6,BH,YL		2	
8	M4743008012	SCREW	TT3,3×6,BH,YI		10	부전금속
7		POWER PCB ASS'Y	PHENOL,t=1.6		1	
6		MAIN PCB ASS'Y	EPOXY,t=1.6		1	
5		PWR S/W PCB ASS'Y	PHENOL,t=1.6		1	
4		FRONT PCB ASS'Y	PHENOL,t=1.6		1	
3	B102500800A	TOP COVER	SECC,t=1.0	한진산업	1	한진산업
2-5	M4443006011	SCREW	TT2,3×6,BH,Wh	부전금속	4	
2-4	B106801200A	FOOT	PORON,t=8	광진레미칼	2	
2-3	B101800000A	FOOT MOLD	ABS,B4HB	부성ENG.	2	
2-2		BACK CHASSIS	SECC,t=0.8	한진산업	1	
2-1		BOTTOM CHASSIS	SECC,t=0.8	한진산업	1	
2	B102000161C	BTM CHASSIS SUB			1	한진산업
1-11	B105301100A	BADGE,KATHREIN	Al	제일특수인쇄	1	
1-10	M4743006012	SCREW	TT3,3×6,BH,YL		2	
1-9	M4443008012	SCREW	TT2,3×8,BH,YL		7	
1-8	B102200700B	SHIELD BRKT	SECC,t=0.6	한진산업	1	
1-7	B101701200A	WINDOW	PMMA SMOK GREY	부성ENG.	1	
1-6	B109100800A	DOOR LOCK		KIFCO	1	
1-5	B107300100A	DOOR HINGE	PC,BK	부성ENG.	2	
1-4	B105501300A	DOOR	ABS,UL94V-2	부성ENG.	1	
1-3	B101204200A	POWER KNOB	ABS,UL94V-2	부성ENG.	1	
1-2	B101201601A	CONTROL KNOB	ABS,UL94V-2	부성ENG.	1	
1-1		FRONT PANEL	ABS,UL94V-2	부성ENG.	1	
1	B103001700A	FRONT PANEL SUB			1	부성ENG.

번호	자재코드	품 명	재질	부품업체	수량	납품업체
NO.	PART NO.	DESCRIPTION	MATERIAL	COLOR/FINISH	QTY	REMARKS

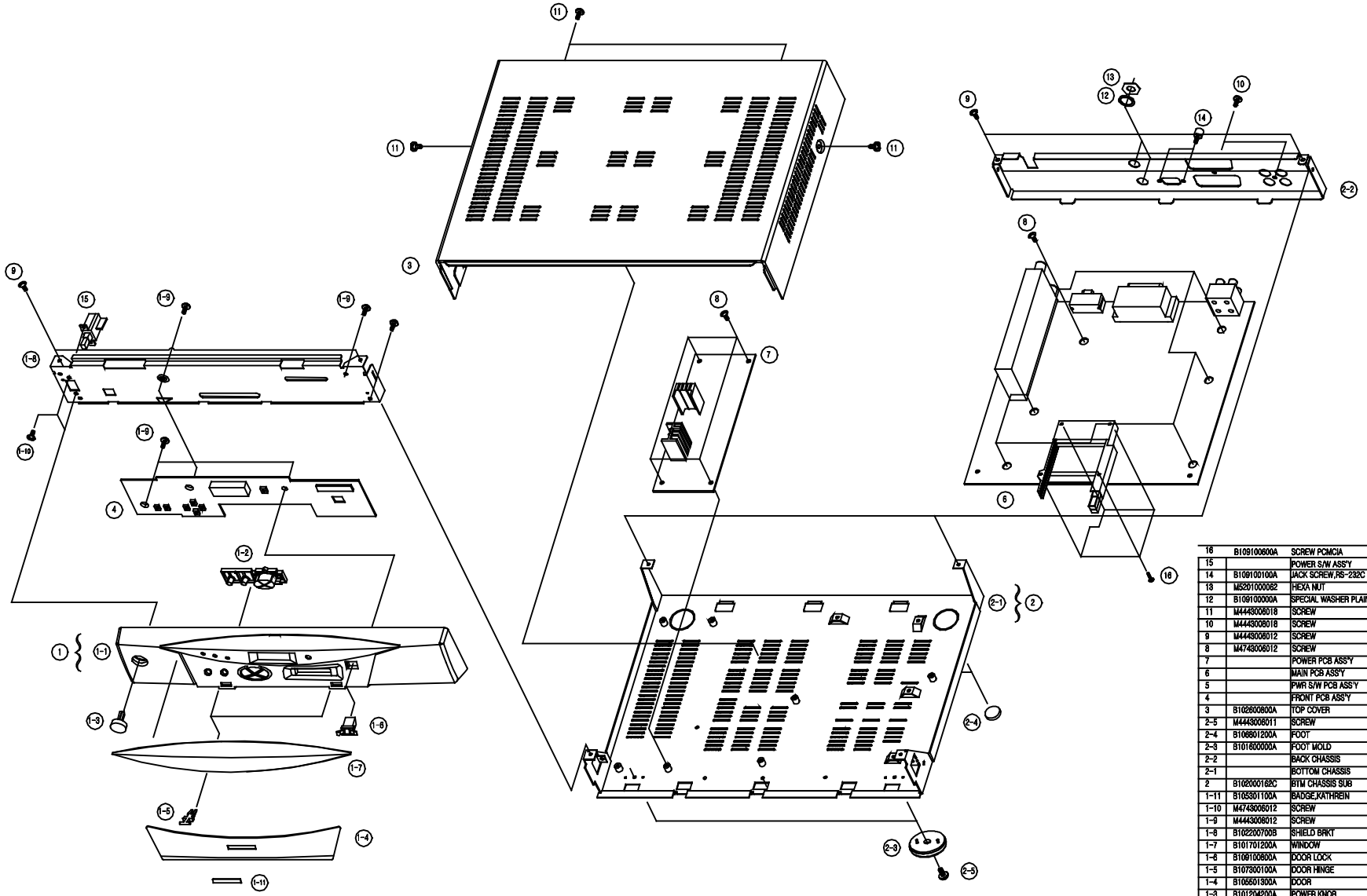
변경일	기호	변경내용	ECO NO.	담당자

치수허용차분류 표기(±)				
5*미만	0.1	0.1	0.1	0.2
5 - 20 ▼	0.1	0.1	0.2	0.3
20 - 60 ▼	0.1	0.2	0.3	0.5
60 - 250 ▼	0.2	0.3	0.5	0.8
250이상	0.3	0.5	0.8	1.2
RADII		ANGLE		

일반공차		TITLE	EXPLODED VIEW
표면거칠기		DWG NO.	UFD-505
재질		REV	1
마감		SIZE	A1
도면번호	UFD-505	SHEET	1/1
작성			

HDT Co., Ltd.

Appendix H:
Product Disassembly Diagram for UFD-515



16	B109100600A	SCREW PCMCIA			4	
15		POWER S/W ASS'Y			1	
14	B109100100A	JACK SCREW,RS-232C			2	
13	M5201000082	HEXA NUT			2	
12	B109100000A	SPECIAL WASHER PLAIN			2	
11	M4443006018	SCREW	TT2.3*6,BH,Bk		4	
10	M4443006018	SCREW	TT2.3*8,BH,Bk		2	
9	M4443006012	SCREW	TT2.3*6,BH,YL		2	
8	M4743006012	SCREW	TT3.3*6,BH,YI		10	부품금속
7		POWER PCB ASS'Y	PHENOL,t=1.6		1	
6		MAIN PCB ASS'Y	EPOXY,t=1.6		1	
5		PWR S/W PCB ASS'Y	PHENOL,t=1.6		1	
4		FRONT PCB ASS'Y	PHENOL,t=1.6		1	
3	B102600800A	TOP COVER	SECC,t=1.0	안전산업	1	안전산업
2-5	M4443006011	SCREW	TT2.3*6,BH,Wh	부품금속	4	
2-4	B106801200A	FOOT	PORON,t=6	동진케이팜	2	
2-3	B101600000A	FOOT MOLD	ABS,94HB	부성ENG.	2	
2-2		BACK CHASSIS	SECC,t=0.8	안전산업	1	
2-1		BOTTOM CHASSIS	SECC,t=0.8	안전산업	1	
2	B102000182C	BTM CHASSIS SUB			1	안전산업
1-11	B103301100A	BADGE,KATHREIN	Al	제일특수인쇄	1	
1-10	M4743006012	SCREW	TT3.3*6,BH,YL		2	
1-9	M4443006012	SCREW	TT2.3*6,BH,YL		7	
1-8	B102200700B	SHIELD BRKT	SECC,t=0.8	안전산업	1	
1-7	B101701200A	WINDOW	PMMA SMOK GREY	부성ENG.	1	
1-6	B109100800A	DOOR LOCK		KIFCO	1	
1-5	B107300100A	DOOR HINGE	PC,BK	부성ENG.	2	
1-4	B105601300A	DOOR	ABS,UL94V-2	부성ENG.	1	
1-3	B101204200A	POWER KNOB	ABS,UL94V-2	부성ENG.	1	
1-2	B101201601A	CONTROL KNOB	ABS,UL94V-2	부성ENG.	1	
1-1		FRONT PANEL	ABS,UL94V-2	부성ENG.	1	
1	B103001600A	FRONT PANEL SUB			1	부성ENG.

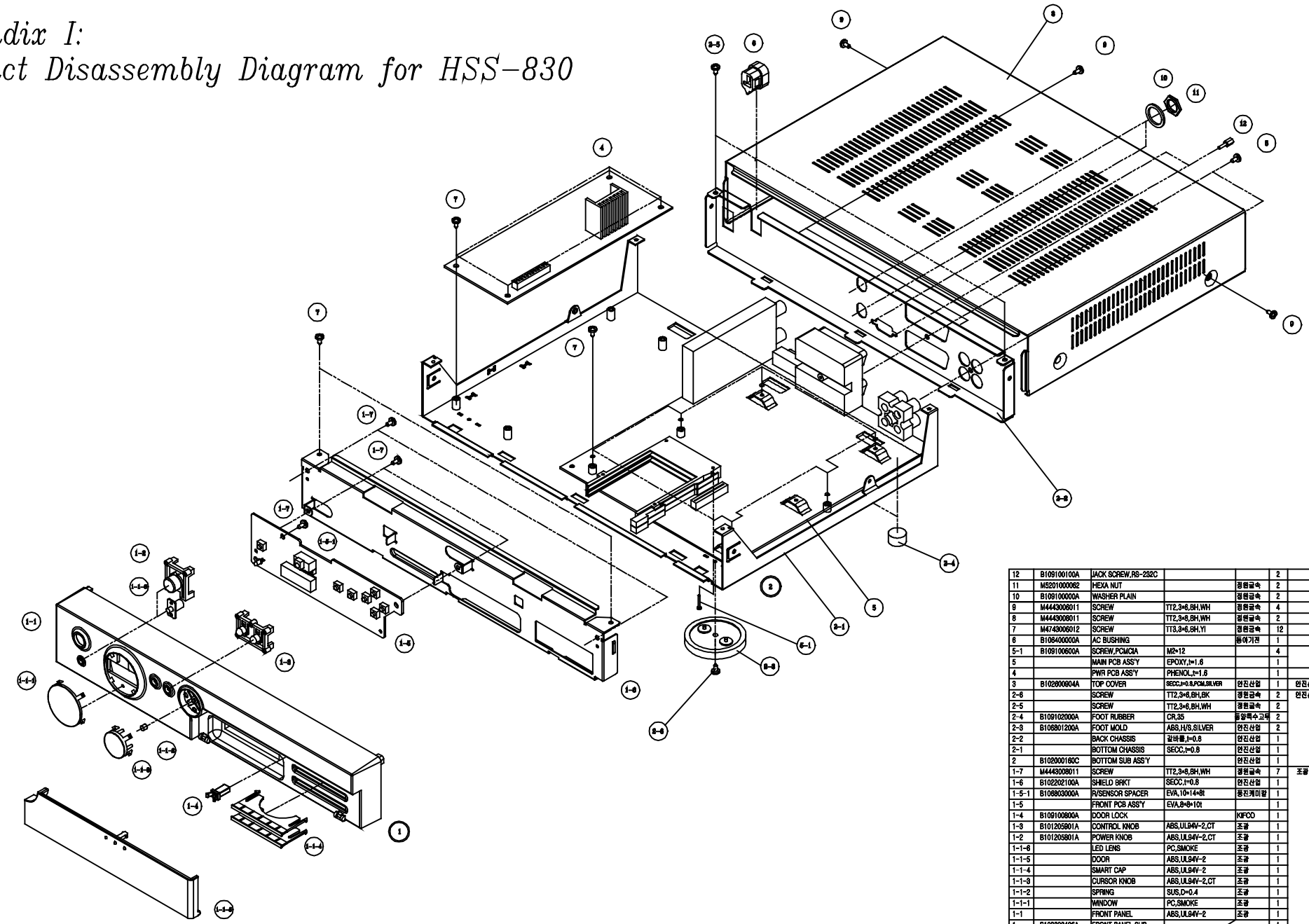
번호	자재코드	품 명	재질	부품업체	수량	납품업체
NO.	PART NO.	DESCRIPTION	MATERIAL	COLOR/FINISH	QT'Y	REMARKS

넌실 입	기호	변경내용	ECO NO.	담당자

지정해선합손부분의 공차(±)				
5미만	0.1	0.1	0.1	0.2
5 - 20 ▼	0.1	0.1	0.2	0.3
20 - 60 ▼	0.1	0.2	0.3	0.5
60 - 250 ▼	0.2	0.3	0.5	0.8
250이상	0.3	0.5	0.8	1.2
RADII		ANGLE		

관주 성		TITLE	EXPLODED VIEW
		SIZE	A1
HDT Co., Ltd.	UFD-515	DWG NO.	
		REV	1
		SHEET	1/1

Appendix I:
Product Disassembly Diagram for HSS-830



번호	자재코드 PART NO.	품 명 DESCRIPTION	재질 MATERIAL	부품업체 COLOR/FINISH	수량 QTY	납품업체 REMARKS
12	B109100100A	JACK SCREW,RS-232C			2	
11	M5201000082	HEXA NUT		정원금속	2	
10	B109100000A	WASHER PLAIN		정원금속	2	
9	M4443006011	SCREW	TT2,3×6,BH,WH	정원금속	4	
8	M4443006011	SCREW	TT2,3×8,BH,WH	정원금속	2	
7	M4743006012	SCREW	TT3,3×6,BH,YI	정원금속	12	
6	B108400000A	AC BUSHING		동아기전	1	
5-1	B109100600A	SCREW,PCMCIA	M2×12		4	
5		MAIN PCB ASS'Y	EPOXY,t=1.6		1	
4		PWR PCB ASS'Y	PHENOL,t=1.6		1	
3	B102600804A	TOP COVER	SECC,t=0.8,POM,SILVER	안진산업	1	안진산업
2-6		SCREW	TT2,3×6,BH,BK	정원금속	2	안진산업
2-5		SCREW	TT2,3×6,BH,WH	정원금속	2	
2-4	B109102000A	FOOT RUBBER	CR,35	동광특수고무	2	
2-3	B106801200A	FOOT MOLD	ABS,H/S,SILVER	안진산업	2	
2-2		BACK CHASSIS	갈바륨,t=0.8	안진산업	1	
2-1		BOTTOM CHASSIS	SECC,t=0.8	안진산업	1	
2	B102000160C	BOTTOM SUB ASS'Y		안진산업	1	
1-7	M4443008011	SCREW	TT2,3×8,BH,WH	정원금속	7	조광
1-6	B102202100A	SHIELD BRKT	SECC,t=0.8	안진산업	1	
1-5-1	B106803000A	R/SENSOR SPACER	EVA,10×14×8t	동진케미칼	1	
1-5		FRONT PCB ASS'Y	EVA,8×8×10t		1	
1-4	B109100800A	DOOR LOCK		KIFCO	1	
1-3	B101205901A	CONTROL KNOB	ABS,UL94V-2,CT	조광	1	
1-2	B101205801A	POWER KNOB	ABS,UL94V-2,CT	조광	1	
1-1-6		LED LENS	PC,SMOKE	조광	1	
1-1-5		DOOR	ABS,UL94V-2	조광	1	
1-1-4		SMART CAP	ABS,UL94V-2	조광	1	
1-1-3		CURSOR KNOB	ABS,UL94V-2,CT	조광	1	
1-1-2		SPRING	SUS,D=0.4	조광	1	
1-1-1		WINDOW	PC,SMOKE	조광	1	
1-1		FRONT PANEL	ABS,UL94V-2	조광	1	
1	B103002406A	FRONT PANEL SUB			1	

년월일	기호	변경내용	ECO NO.	담당자

치광허용분류 공차(±)				
5이하	0.1	0.1	0.1	0.2
5 - 20	0.1	0.1	0.2	0.3
20 - 60	0.1	0.2	0.3	0.5
60 - 250	0.2	0.3	0.5	0.8
250이상	0.3	0.5	0.8	1.0
RADII		ANGLE		

원주성	
대칭도	

HDT Co., Ltd.

TITLE	EXPLODED VIEW
REV	1
MODEL	HSS-830
SIZE	A1
DWG NO.	
SHEET	1/1

Appendix J

Part list for HSS-730/830 & UFD505/515

PART NO.	DESCRIPTION	수량	단위	LOCATION
B104200200A	H-SINK,27*27*5,ZIVA3	1	EA	
B109100601A	SCREW,PCMCIA,2*16(H4)	4	EA	
E104300150A	CON,PCMCIA,DIP,P1T2B1392	1	EA	
B104200003A	H-SINK VCD 공용	1	EA	REG2
E104100011A	JACK RS-232C 9P	1	EA	CON1
E104100015A	RCA,2*2,JE040060PN	1	EA	CON5
E104100016B	SCART,1*2,SHIELD	1	EA	CON2
E104300111A	CON,FFC,26P,ST	1	EA	CON12
E104300120A	CON,PWR,11P,2.54m	1	EA	CON8
E105400028A	MDL,TBMU30351IPP	1	EA	
E107500026A	VCXO,27M,3.3V	1	EA	VCXO1
M4443008012	SCREW,TT2,BIN+,3*8,	1	EA	
CES5T1A221M	C-EL,10V,220UF,SMS	10	EA	CC2, CC5, CC52, CC53, CC56, CC59, CC60, CC61, CC62, CC63
CES5T1C100M	C-EL,16V,10UF,SMS	30	EA	CC1, CC8, CC9, CC10, CC11, CC12, CC13, CC17, CC18, CC19,
				CC20, CC23, CC24, CC25, CC26, CC27, CC28, CC33, CC36, CC37,
				CC40, CC43, CC44, CC45, CC49, CC55, CC57, CC58, CC65, CC66
CES5T1C101M	C-EL,16V,100UF,SMS	5	EA	CC3, CC4, CC47, CC64, CC51
CES5T1C221M	C-EL,16V,220UF,SMS	3	EA	CC35, CC50, CC54
CES5T1C470M	C-EL,16V,47UF,SMS	2	EA	CC21, CC39
CES5T1H010M	C-EL,50V,1UF,SMS	5	EA	CC6, CC7, CC14, CC15, CC16
CES5T1H101M	C-EL,50V,100UF,SMS	1	EA	CC22
CES5T1H470M	C-EL,50V,47UF,SMS	2	EA	CC46, CC48
CQSBT1H222J	C-MY,50V,0.0022UF,J	1	EA	C44
E102700018A	SW,POLY,RXE065	1	EA	PS1
DSBYV27-200	D-AX,SBYV27-200	1	EA	D6
DT1N5819	D-AX,1N5819	2	EA	D1, D2

PART NO.	DESCRIPTION	수량	단위	LOCATION
E103100057A	IND-AX,100UH,1/4,BMB	1	EA	L31
RDHP0T0103J	R-C-AX,1/6,10K,J	1	EA	R2
CC1CP1E681J	C-CH,25V,680PF,J,1608	4	EA	C1, C2, C71, C100
CC1CPAI050C	C-CH,50V,5PF,C,1608	2	EA	C103, C104
CC1CPAI120J	C-CH,50V,12PF,J,1608	1	EA	C33
CC1CPAI221J	C-CH,50V,220PF,J,1608	1	EA	C29
CC1CPAI471J	C-CH,50V,470PF,J,1608	3	EA	C24, C27, C28
CC1XP1E223K	C-CH,25V,0.022UF,K,X7R,1608	1	EA	C51
CC1XP1E473K	C-CH,25V,0.047UF,K,X7R,1608	1	EA	C66
CC1XPAI102K	C-CH,50V,1000PF,K,X7R,1608	2	EA	C57, C58
CC1XPAI152K	C-CH,50V,1500PF,K,X7R,1608	2	EA	C41, C43
CC1XPAI153K	C-CH,50V,0.015UF,K,X7R,1608	1	EA	C137
CC1YP1E104Z	C-CH,25V,0.1UF,Z,Y5V,1608	75	EA	BC1, BC10, BC12, BC13, BC15, BC16, BC17, BC18, BC2, BC20,
				BC21, BC22, BC23, BC24, BC3, BC4, BC5, BC6, BC7, BC8,
				BC9, C101, C102, C106, C107, C109, C11, C110, C111, C112,
				C113, C114, C115, C120, C121, C122, C123,C124, C125, C126,
				C127, C13, C131, C132, C133, C134, C136, C17, C20, C26,
				C37, C38, C4, C42, C45, C46, C47, C48, C49, C50,
				C52, C53, C54, C59, C60, C61, C62, C63, C65, C67,
				C83, C85, C89, C95, C105
CK2F0AI104Z	C-CH,50V,0.1UF,HIK	3	EA	C3, C55, C56
DKDS226	D-CH,KDS226	1	EA	D4
DT1SS355	D-CH,1SS355	1	EA	D5
E103100052A	BD-CH,HH-1M3216-501J	2	EA	L1, L3
E103100062A	BD-CH,HH-1M2012-301JT	28	EA	L2, L30, L33, L40, L49, L51, L52, L53, L54, L55,
				L56, L57, L58, L59, L60, L61, L62, L63, L65, L68,
				L69, L7, L70, L71, L73, L8, L9, R171
E103100063A	BD-CH,HB-1M2012-301	9	EA	L4, L5, L41, L42, L44, L45, L46, L47, L48
E108600041A	PCB-D,730,MAIN	1	EA	
RAK80P0000J	R-NET,1/4,0,J,3216	2	EA	RA14, RA15
RAK80P0470J	R-NET,1/4,47,J,3216	18	EA	RA2, RA3, RA5, RA6, RA7, RA8, RA9, RA10, RA11, RA12,
				RA13, RA16, RA17, RA18, RA19, RA20, RA21, RA22
RKD10P0000J	R-CH,1/16,0,J,1608	10	EA	R122, R140, R144, R167, R171, R234, R235, R30, R31, R97

PART NO.	DESCRIPTION	수량	단위	LOCATION
RKD10P0100J	R-CH,1/16,10,J,1608	4	EA	R22, R108, R109, R156
RKD10P0101J	R-CH,1/16,100,J,1608	11	EA	R103, R121, R124, R125, R126, R127, R168, R23, R44, R55, R63
RKD10P0102J	R-CH,1/16,1K,J,1608	15	EA	R105, R170, R223, R241, R259, R271, R273, R275, R277,R42,
				R47, R57, R65, R83, R89
RKD10P0103J	R-CH,1/16,10K,J,1608	39	EA	R1, R33, R43, R52, R54, R75, R84, R133, R134, R135,
				R151, R153, R154, R157, R160, R161, R162, R164, R165, R166,
				R182, R183, R187, R189, R193, R195, R196, R205,R206, R207,
				R220, R243, R245, R247, R262, R267, R281, R283, R285
RKD10P0104J	R-CH,1/16,100K,J,1608	2	EA	R104, R123
RKD10P0121J	R-CH,1/16,120,J,1608	3	EA	R185, R186, R35
RKD10P0124J	R-CH,1/16,120K,J,1608	1	EA	R77
RKD10P0154J	R-CH,1/16,150K,J,1608	1	EA	R79
RKD10P0203J	R-CH,1/16,20K,J,1608	3	EA	R64, R232, R236
RKD10P0221J	R-CH,1/16,220,J,1608	2	EA	R85, R86
RKD10P0222J	R-CH,1/16,2.2K,J,1608	4	EA	R51, R53, R74, R110
RKD10P0271J	R-CH,1/16,270,J,1608	7	EA	R6, R8, R12, R14, R38, R39, R56
RKD10P0272J	R-CH,1/16,2.7K,J,1608	2	EA	R240, R254
RKD10P0330J	R-CH,1/16,33,J,1608	6	EA	R3, R4, R73, R82, R256, R257
RKD10P0331J	R-CH,1/16,330,J,1608	6	EA	R76, R111, R112, R114, R115, R116
RKD10P0334J	R-CH,1/16,330K,J,1608	1	EA	R78
RKD10P0391J	R-CH,1/16,390,J,1608	3	EA	R128, R233, BC11
RKD10P0431J	R-CH,1/16,430,J,1608	1	EA	R155
RKD10P0470J	R-CH,1/16,47,J,1608	41	EA	R136, R137, R142, R148, R149, R150, R158, R173, R174, R175,
				R176, R177, R178, R179, R180, R181, R184, R188, R190, R191,
				R192, R194, R197, R198, R199, R200, R201, R202, R203, R204,
				R221, R222, R224, R225, R226, R228, R230, R231, R239, R261, R169
RKD10P0472J	R-CH,1/16,4.7K,J,1608	1	EA	R214
RKD10P0473J	R-CH,1/16,47K,J,1608	6	EA	R7, R9, R11, R15, R36, R37
RKD10P0511J	R-CH,1/16,510,J,1608	1	EA	R113
RKD10P0560J	R-CH,1/16,56,J,1608	7	EA	R278, R279, R280, R282, R284, R286, R287
RKD10P0682J	R-CH,1/16,6.8K,J,1608	1	EA	R288
RKD10P0750J	R-CH,1/16,75,J,1608	28	EA	R5, R10, R13, R16, R17, R18, R19, R20, R21, R25,
				R27, R28, R29, R32, R40, R41, R58, R59, R60, R61,

PART NO.	DESCRIPTION	수량	단위	LOCATION
				R62, R68, R80, R81, R270, R272, R274, R276
RKFC0P0000J	R-CH,1/10,0,J	26	EA	L10, L11, L12, L13, L14, L15, L16, L17, L18, L19,
				L20, L21, L22, L23, L24, L26, L27, L28, L34, L35,
				L36, L37, L38, L39, L6, R266
RKFC0P0241F	R-CH,1/10,240,F	1	EA	R48
RKFC0P0910F	R-CH,1/10,91,F	1	EA	R45
RKFC0P0911F	R-CH,1/10 910,F	1	EA	R50
RKKC0P0242G	R-CH,1/4,2.4K,G,SMD,RK73K2ETD	1	EA	R49
RKNC0P0202J	R-CH,1/2,2K,SMD,J,RK73K2HTE2KJ	1	EA	R46
TKRC231S	TR-CH,N,KRC231S	3	EA	Q16, Q19, Q21
TKTA1504	TR-CH,P,KTA1504	1	EA	Q5
TKTC3875	TR-CH,N,KTC3875	8	EA	Q10, Q20, Q22, Q23, Q32, Q33, Q34, Q35
TKTD1304	TR-CH,N,KTD1304	9	EA	Q1, Q2, Q3, Q4, Q7, Q8, Q9, Q13, Q17
TKTN2222S	TR-CH,N,KTN2222S	1	EA	Q6
TUAME1117C	REG,UAME1117CCCT,3.3V	1	EA	REG3
U24C16N	IC,MEMO,24C16N,SOI	1	EA	U19
U74AHCT245DW	IC,74AHCT245DW,SMD	1	EA	U15
U74AHCT373DW	IC,74AHCT373DW,SMD	2	EA	U14, U16
U74HC14D	IC,TTL,74HC14D,SOT	1	EA	U7
U74HCT374DW	IC,TTL,SN74HCT374DW,T.I	2	EA	U20, U22
UK4S641632D	IC,SDRAM,K4S641632D-7N,TSOP	1	EA	U10
ULM393	IC,LM393	1	EA	U4
UM29W160DT	IC,M29W160DT-90N1,1M*16,TSOP	1	EA	U18
UMAX232C	IC,INT,MAX232CWE,SOI	1	EA	U3
USTI5518BX	IC,STI5518,BVB-X,208P	1	EA	U13
USTV0700	IC,STV0700	1	EA	U11
USTV6412A	IC,STV6412A,TQFT64	1	EA	U5
UWM8725ED	IC,WM8725ED,SOIC,14P	1	EA	U9
TKSB1151	TR-RA,P,KSB1151,Y	1	EA	Q18
UJRC7805	IC,LIN,JRC7805,TO2	1	EA	REG1
ULM317T	IC,REG,LM317T	1	EA	REG2

Appendix K

Part list for HSS-730/830 Front

PART NO.	DESCRIPTION	수 량	단 위	LOCATION
E104600188A	CBL-FFC,1000IR,26P,300mm	1	EA	
B106802000A	FND,SPACER,GRUNDIG	2	EA	
B106803000A	RUBBER,SPACER,SENSOR,10*14*8T	1	EA	
E104300113A	CON,FFC,26P,LS	1	EA	CON1
E106400008A	LED,7SEG,88:88	1	EA	U1
E106800007A	SENS,TSOP1838SB1	1	EA	SENSOR1
LSA3411S3T	LED,SA3411-S3T	1	EA	LED1
CEE5T1C4R7M	C-EL,16V,4.7UF,SRE	1	EA	C1
E102700003A	SW,TACK,2P	7	EA	SW1, SW2, SW3, SW4, SW5, SW6, SW7
E104600021A	WIRE-NS-S,52MM	10	EA	J1, J2, J3, J4, J5, J6, J7, J8, J9, J10
E108500050A	PCB-S,HSS-1000,FR0NT,TYPE-A	1	EA	
RDHP0T0123J	R-C-AX,1/6,12K,J	1	EA	R2
RDHP0T0331J	R-C-AX,1/6,330,J	1	EA	R3
RDHP0T0470J	R-C-AX,1/6,47,J	1	EA	R1

Appendix L

Part list for UFD505/515 Front

PART NO.	DESCRIPTION	수 량	단 위	LOCATION
E104600079B	CBL-FFC,26P,110mm(6)	1	EA	
P-5150-FM0A	515,FRT,M/I	1	ST	
B106800900A	RUBBER,FND,BDT	1	EA	
B106802100A	R/SENSOR,SPACER,GRUNDIG	1	EA	
E104300113A	CON,FFC,26P,LS	1	EA	CON1
E106400014B	FND,7SEG,88:88,SOCKET,8.9mm	1	EA	U1
E106800011A	REMOTE,SEN,ORC-354HF	1	EA	SENSOR1
P-5150-FR0A	515,FRT,RAD	1	ST	
CEE5T1C4R7M	C-EL,16V,4.7UF,SRE	1	EA	C1
E102700003A	SW,TACK,2P	6	EA	SW2, SW3, SW4, SW5, SW6, SW7
E106500012A	LED,SR5511-B.SP	1	EA	LED3
E106500013A	LED,SM5511-B,SP	1	EA	LED1
E106500014A	LED,SO5511-B,SP	1	EA	LED2
P-5150-FA0A	515,FRT,AXI	1	ST	
E104600021A	WIRE-NS-S,52MM	13	EA	JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10, JP11, JP12, JP13
E108500034A	PCB-S,FRONT,515	1	EA	
RDHP0T0123J	R-C-AX,1/6,12K,J	1	EA	R2
RDHP0T0331J	R-C-AX,1/6,330,J	3	EA	R3, R4, R5
RDHP0T0470J	R-C-AX,1/6,47,J	1	EA	R1

Appendix M

Part list for SMPS

PART NO.	DESCRIPTION	수 량	LOCATION
YRE16010	1/8W 470 ohm J	1	R18
YRE15210	1/8W 4.7K ohm J	2	R19,23
YRE63410	1/8W 1.0K ohm **-(F)**	1	R21
YRE6B910	1/8W 1.06K ohm **-(F)**	1	R20
YRE10320	1/4W 10 ohm J	1	R6
YRE18920	1/4W 20 ohm J	1	R5
YRE15520	1/4W 68K ohm J	1	R4
YRE13830	1/2W 2.2 ohm J	1	R12
YRE10330	1/2W 10 ohm J	1	R17
YRE17530	1/2W 6.2K ohm J**(MOS)**	1	R7
YRE12840	1W 1.5K ohm J**(MOS)**	1	R13
YRE15540	1W 68K ohm J**(MOS)**	1	R2
YRE76640	INF 0.50 ohm **-(F)**	1	R3
YDI36503	SRP100K/FR107	1	D5
YDI20502	1N4007	4	D1~4
YDI30402	1N4937	2	D6,7
YDI36302	UF4004	2	D9,10
YDI71O09	181.2*70*1.6(t) **CEM-1**	1	ZD1
YPC62APH	TIN 0.6t	1	PCB
YJW06200	1000pF/1KV.K (102P)	16	J1~J11,Q1,Q3~6
YCP10J51	0.0022uF/1KV.(B) K (222P)	2	C17,10
YCP10J37	0.047uF/50(100)V (473P)	1	C6
YCP90355	1uF/50V SG/SMS(5x11)	1	C7
YCP20354	100uF/10V SG/SMS(5x11)	1	C20
YCP21G26	100uF/16V SG/SMS(6.3x11)	1	C24
YCP20126	100uF/25V SG/SMS(6.3x11)	1	C16
YCP20226	470uF/10V SG/SMS(8x11.5)	1	C14
YCP20G42	47uF/50V **RG/KME**(6.3x11)	2	C19,22
YCP42324	220uF/16V **RG/KME**(8x11.5)	2	C8,9
YCP42128	220uF/25V **RG/KME**(8x11.5)	1	C15
YCP42228	150K,CC-150B	1	C13
YID04000	KA431AZ/TL431CLP	3	L1,2,3
YIC10004	FC51F	1	U2
YFC00000	NTC10D9/DSC10D9	2	FOR F1
YTH21001	2W 220K ohm J	1	TH1
YRE16550	1000pF 400VAC-Y1 M SD/AD/DG	1	R1
YCP11951	1500pF 400VAC-Y1 M SD/AD/DG	1	C25
YCP11953	0.22uF 275VAC-PCX2-335M	2	C3,4
YCP51K12	WBU1942NA224 0.1uF 275VAC-PCX2-335M	1	C1
YCP51I16	WBU1942NA104 68uF/400V SG/SMS(18x25)	1	C2
YCP22925	220uF/35V **RG/KME**(10x12.5)	1	C5
YCP42H28	1000uF/10V **RG/KME**(10x16)	2	C11,12
YCP42G41	ORT-833(EE3327-V)	2	C18,21
YST00023	SW-2030/BJ-2030/LW2030	1	T1
YLF10000	BAR 5x20(2.9uH)	1	LF1

PART NO.	DESCRIPTION	수 량	LOCATION
YID05002	BAR 5x20(7.0uH)	1	L4
YID07000	LTV817B,C/TCET1105T	1	L5
YIC10006	1N5822L	1	PC1
YDI40206	SB360L	1	D12
YDI40M06	UF5404L	1	D11
YDI36306	KA7812/KA78M12	1	D8
YIC10014	3941P03VP01	1	U4
YCN00850	SVC471D-10A/INR10D471	1	CN1
YVA32110	AC 250V 50CT2A	1	VR1
YFU12102	STR-G6153T	1	F1
YIC10018	KA278R33	1	U1
YIC10017	23x17x19(HOLE)x35(H)	1	U3
YHS00015	15x5x22(HOLE)x26(H)	1	FOR U1
YHS00013	M3 * 6 ASSEMBLY	1	FOR U3
YBT03000	M3 * 8 ASSEMBLY	1	FOR U3
YBT05000	UL1007 22AWG 11x155mm	1	FOR U1
YCN00006	10*25*9t(UL94V-0)	1	FOR CN2 OUT
YJE1E050	QC PASS(31E)	1	FOR PCB
YLAH1095	LABEL(LOT NO.)	1	FOR PCB
YLAG154C	RTV122/LDC7091	1	FOR CARTON BOX
YBB00001	CARTON BOX	g	FOR PCB
YBO41004	PAD-A	1	CARTON BOX
	PAD-B	4	FOR CARTON BOX
	PAD-C	20	
		1	
YSO11000		9.5g	FOR PCB
YSO21100	319F		
YFL00000	319		
YTN10000			