THOMSON

TV

PARTS LIST
LISTE PIECES DETACHEES
ERSATZTEILLISTE
LISTA PARTI DI RICAMBIO
LISTA DE PIEZAS DE REPUESTO

THOMSON 32LB220B4/U Chassis IFC228-LCD

MODULES

MAIN	**IFC228-LCD 27/32P**	⚠ **21399240**
POWE	**SMPS-300**	⚠ **21408840**
AUDI	**AUDIO/AMPLI SUBWOOFER**	⚠ **21354320**
SCAL	**SCALER**	⚠ **21410230**
UHF	**SUB PIP**	⚠ **21350980**
PS	**PS**	⚠ **21373080**
IR	**IR**	⚠ **21361960**
KB	**KDB**	⚠ **21361950**
FAV	**FAV**	⚠ **21386670**

FZX002	TE5-T NO 396 3.15A 125V	⚠ 21210090
GK01	TFMS5330B	20627780
IA001	MSP4411K FLAT	21371570
IA300	TS482D FLAT	10750860
IA301,302	ESDA14V2L	10765650
IA500	TEA6422D FLAT	10683950
IP001,**IT**630, **IX**005	LD1117DT33	25516290
IP002,005, **IX**006	LD1117DT18	10802820
IP003	LF90ABDT	10802840
IP004	KF80BDT	25486130
IP006	LF50CDT FLAT	10750340
IP201,202,203, 204,261,271, 303,351,751	TL431	15069010
IP251,302,310	TCET1103G	⚠ 10547560
IP300	L6598	21285600
IP710	L4981B	10224630
IP985	L4973V5.1	21406140
IR001	GENCAM CUT2.1U VY22497-2 FLAT	10820270
IR005	M24C64-WMN6 FLAT	55131810
IR006	PCF8574TS FLAT	10807130
IR040	NCP303LSN30T1	10735560
IR110	MT48LC4M16A2TG-75 (1M*16*4) FLAT	10821350
IS100	MC33079/D FLAT	20760680
IS200,500	TDA7490L	21344320
IT502,**IX**410	FSAV330QSC FLAT	21341360
IT503	74HC4053 FLAT	70130000
IT504,620	M24C02WMN6 FLAT	35096320
IT505	74HCT14T/D FLAT	15265870
IT600	SII907B FLAT	15883700
IV100	VSP9407B-VK-C3 FLAT	10822350
IV101	TEA6415CD FLAT	10315540
IV200	TA1360AFG FLAT	10804010
IV202	74HC4538 FLAT	10729090
IX002	DS1811R-10 FLAT	21348350
IX003	K4D263238F-QC50 FLAT	10872420
IX007	M24C32WMN6 FLAT	35850060
IX014	AD9883KST-110 A/D FLAT	15769370
IX300	RS232 FLAT	21380590
IX400	CXA2171AQ FLAT	10803170
IX420	74HC123PW	10760570
IX430	74HC1G32 FLAT	10766560
IX440	74HC4066PW FLAT	10760580

IX009	NTTS2P02R2 SMD	21348330
TH001,**TR**023, 062,141,145, 147,149,198, **TS**203,204,207, 501,503,**TT**631, **TV**107,108,211, **TX**001,002,003, 004,005,101, 102,103,124, 161,162,163, 164,184	BC846B SMD	16006260
TP201,202,203, 2534195A 204,302,751	STP22NF03L (TO220)	
TP205,223	KTC8550D	21039270
TP220	STP6NB90FP	25460310
TP222,271,303, 361,407,752, 753	BC548B	16000930
TP321,322	STP14NK50ZFP	21286780
TP495	BC558B	16001110
TP720	2SK2837	⚠ 21391880
TR015,024,061, 140,144,146, 148,**TS**208, **TT**632,**TV**100, 101,102,103, 104,105,106, 200,201,202, **TX**441,481,483, 485	BC856B SMD	16006310
TS201,202,502, 504	RN1402 (TE85L/R) SMD	10966200
TT601,602	PMBF170 SMD	15360250
TV109,110,111	BC847PN	25441670

DH001,**DT**510, 511,512,513	MMSZ33T1 SMD	15580650
DP203,381,382	STPS30150CT	21286900
DP204,351,352, 386	SB560	20956430
DP205,206,247, 724,**DX**002	RGP15G	10272800
DP225,226,301, 323,325,751, **DX**003	RGP10G	10459090
DP227	ZPD24	44016504
DP230,753	BZX55C8V2	11073660
DP233	BZX55B15/ZPD15 2%	80444020
DP237,273	BAV21	44044407
DP240	BZX55C27	60447870
DP250,472	BZX55B3V9	60447770
DP252,253,254, 255,743,744	GP30M	10455410
DP260	BZX55C6V2 500MW	20475410
DP361	ZPD30	44016101
DP371,372,391, 392	BYW98-200 3.0A	15103710
DP415,416	BZX55C3V3	30948790
DP471	ZPD4,7/BZX55C4V7	20475400
DP493	BZX55C9V1	90578100
DP720	BZX55C20	30948810
DP721	STTH8R06FP 600V	21392250
DP808	1N4148	44009209
DR800,**DS**201, 202,203,204, 205,**DV**201,202, **DX**164	LL4148 SMD	16012450
DT001,002, **IT**607,608	NSAD500H	16100970
DT501,502,503, 504,505	BAV99	16012300
DT506,507,509, 602,603,604, **DV**100,101,102, 103,104	MMSZ6V8T1 SMD	15580490
DT508	BAV70 SMD	25469490
DV200	GDZ2.0B 2.1V SMD	25668970
DX111,171,403, 407	BAV103 SMD	10155030
DX112,113,114, 115,172,173,174, 175,401,402	ZMM6,8 SMD	70439940
DX161	BZX84B8V2 SMD	25385640
GE02	1259-7VRVGW LED	21393660

For any requests, please contact THOMSON multimedia after sales service area
Pour toutes précisions, contactez votre service apres vente local THOMSON multimedia
Für weitere Auskünfte, wenden Sie sich bitte an die THOMSON multimedia Kundendienste
Per precisazioni, contattare l'assistenza tecnica THOMSON multimedia
Para cualquier pregunta, por favor contactar con el responsable de zona del servicio postventa de THOMSON multimedia

VERSION 1 **10 / 2004** **35863280**
VERSION 2 00 / 0000

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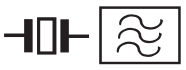


QA001	18M432HZ		10334670
QR001	8M0HZ		21382440
QV100	20M25HZ		25639490
QV260	503K5HZ		15315420
QX001	14M31818HZ SMD		21372530
QX471	4M0HZ		10047890

RA010,027	4R7 OHM 5% 0,35W	⚠	10226310
RK01	5K62 OHM 1% 0,25W		15019670
RK02	1K5 OHM 1% 0,25W		80437630
RK03	453R0 OHM 1% 0,250W		15018140
RK04	3K32 OHM 1% 0,25W		15017270
RK05	681R0 OHM 1% 0,25W		15020310
RP001,002	13R0 OHM 5% 3W		90572350
RP220	0R68 OHM 5% 2,5W		20822410
RP225	10M0 OHM 5% 1W	⚠	21090250
RP251	470K0 OHM 5% 1W	⚠	21185660
RP328	0R1 OHM 5% 3W		30941770
RP414,418,462, 504,554,588, 853	3K92 OHM 1% 0,25W		50883690
RP415	2K43 OHM 1% 0,25W		11060890
RP416,484	2K1 OHM 1% 0,25W		60442260
RP483	0R845 OHM 1% 0,25W		70431190
RP723	0R27 OHM 5% 3W		13085530
RP729,751	4R7 OHM 5% 10W		21341600
RP826,827,828, 832,833,834	301K0 OHM 1% 0,25W		90572040
RP837	12K7 OHM 1% 0,25W		90571910

CP215	2N2F 20% 250V	⚠	21079000
CP220	1N5F 10% 1K0V		43402900
CP226	330P0F 20% 1K0V		14035270
CP233	1N0F 10% 500V		10546570
CP236	10UF 20% 250V		13039480
CP251,253	100N0F 20% 275V	⚠	40404090
CP254,255,256	1N5F 10% 1K0V		20338740
CP268	2N2F 2K0V		14036020
CP321,322	18N3F 3,5% 1K6V	⚠	15870290
CP701	470N0F 10% 400V		10469630
CP708	470U0F 20% 400V		25351800
CP709	150U0F 20% 400V		13050060
CP722,727	2N2F 20% 1K0V		43325400

LP250,251	25M0H	⚠	21264970
LP252	15MI0H	⚠	20973100
LP253	TFSMTP27-E50	⚠	21404640
LP300	TFSMTP32-E300	⚠	21403130

OTHER PARTS
AUTRES PIECES
SONSTIGE TEILE
ALTRE PARTI
OTRAS PIEZAS

BA200	CINCH SOCKET 4 ASSY ENSEMBLE 4 PRISES CINCH CHINCH 4 BUCHSEN-EINHEIT ASSIEME 4 PRESA CINCH CONJUNTO 4 TOMA CINCH	⚠	21380950
BJ01	CINCH SOCKET PRISE CINCH CINCH-BUCHSE PRESA CINCH TOMA CINCH		10037440
BJ02	SVHS SOCKET PRISE SVHS S-VHS-BUCHSE PRESA SVHS TOMA SVHS		20392900
BQ01	HEADPHONE SOCKET PRISE CASQUE KOPFHOERERBUCHSE PRESA JACK TOMA JACK		40110900
BS003	CINCH SOCKET 3 ASSY ENSEMBLE 3 PRISES CINCH CHINCH 3 BUCHSEN-EINHEIT ASSIEME 3 PRESA CINCH CONJUNTO 3 TOMA CINCH		21371970
BS004	LOUDSPEAKER SOCKET PRISE HAUT PARLEUR LAUTSPRECHERBUCHSE PRESA ALTOPARLANTE TOMA ALTAVOZ	⚠	21362220
BT502	VGA SOCKET PRISE VGA VGA-BUCHSE PRESA VGA TOMA VGA		15216260
BT600	DVI SOCKET PRISE DVI DVI-BUCHSE PRESA DVI TOMA DVI		25609410
BX110	SCART SOCKET PRISE PERITEL EURO-AV-BUCHSE EUROPRESA NORMALIZZATA EUROCONECTOR	⚠	21356620
BX120	DOUBLE SCART SOCKET PRISE PERITEL DOUBLE DOPPELT EURO-AV-BUCHSE EUROPRESA NORMALIZZATA DOPPIO EUROCONECTOR DOBLE		25519670
BX400	CINCH SOCKET 5 ASSY ENSEMBLE 5 PRISES CINCH CHINCH 5 BUCHSEN-EINHEIT ASSIEME 5 PRESA CINCH CONJUNTO 5 TOMA CINCH		21252340
FP251	2A5T 250V TIME-LAG FUSE 2A5T 250V FUSIBLE TEMPO. 2A5T 250V SICHERUNG 2A5T 250V FUSIBILE TEMPO. 2A5T 250V FUSIBLE TEMPO.	⚠	10246750
FZP20,30	500MA 250V FUSE 500MA 250V FUSIBLE 500MA 250V SICHERUNG 500MA 250V FUSIBILE 500MA 250V FUSIBLE	⚠	21424710
FZP20,35	1A 250V FUSE 1A 250V FUSIBLE 1A 250V SICHERUNG 1A 250V FUSIBILE 1A 250V FUSIBLE	⚠	21424720
FZP20,37,39	3A15 250V FUSE 3A15 250V FUSIBLE 3A15 250V SICHERUNG 3A15 250V FUSIBILE 3A15 250V FUSIBLE	⚠	21424730
LJ050	CABLE 4X 400MM TYPE C CABLE NAPPE 4X 400MM C FOLIENKABEL 4X 400MM C CAVO DI COLLEGAMENTO 4X 400MM TYPE C CABLE 4X 400MM TYPE C	⚠	21373310
LJ056	CABLE 5X 400MM TYPE C CABLE NAPPE 5X 400MM C FOLIENKABEL 5X 400MM C CAVO DI COLLEGAMENTO 5X 400MM TYPE C CABLE 5X 400MM TYPE C	⚠	21373320
LJ325	CABLE 14X 250MM TYPE C CABLE NAPPE 14X 250MM C FOLIENKABEL 14X 250MM C CAVO DI COLLEGAMENTO 14X 250MM TYPE C CABLE 14X 250MM TYPE C		21187860
LJ700	CABLE WITH CONNECTOR 30 PINS 250MM CABLE AVEC CONNECTEUR 30 VOIES 250MM KABEL MIT VERBINDER 30 PINS 250MM CAVO CON CONNETTORE 30 SPINOTTI 250MM CABLE CON CONECTOR 30 PUNTOS 250MM	⚠	21408830
NH001	FE6233 TUNER FE6233 TETE FE6233 TUNER FE6233 TUNER FE6233 SINTONIZADOR		21301450
NH002	FE6230A TUNER FE6230A TETE FE6230A TUNER FE6230A TUNER FE6230A SINTONIZADOR		21331530
SK01,02,03, 04,05,06	MICROSWITCH MICRO CONTACTEUR MIKROSCHALTER MICROINTERRUTTORE MICROCONTACTOR		25380930
SP400	ON/OFF MICROSWITCH MICRO CONTACTEUR MARCHE/ARRET EIN-AUS MIKROSCHALTER MICROINTERRUTTORE ACCESO/SPENTO MICROCONTACTOR MARCHA/PARADA		20935300
SS001	SWITCH SLIDE COMMUTATEUR A GLISSIERE KURVENRADSCHALTER COMMUTATORE CONMUTADOR DESLIZANTE		1584279A

EQUIPMENT/PRESENTATION
EQUIPEMENT/PRESENTATION
AUSSTATTUNG/GEHAEUSE
PARTI VARIE
EQUIPO/PRESENTACION

DISPLAY LCD 32P TX80D16VCOCAC ⚠ **21407450**
ECRAN LCD 32P TX80D16VCOCAC
LCD-ANZEIGE 32P TX80D16VCOCAC
VISUALIZZATORE LCD 32P TX80D16VCOCAC
VISUALIZADOR LCD 32P TX80D16VCOCAC

POWER SUPPLY LEAD 21416840
CORDON D'ALIMENTATION
NETZKABEL
CAVO DI ALIMENTAZIONE
CABLE DE ALIMENTACION

POWER SUPPLY LEAD UK 21384590
CORDON D'ALIMENTATION UK
NETZKABEL UK
CAVO DI ALIMENTAZIONE UK
CABLE DE ALIMENTACION UK

LOUDSPEAKER GRID BOOMER SI01TH 25779660
GRILLE HAUT PARLEUR GRAVES SI01TH
LAUTSPRECHER GITTER TIEFTOENER SI01TH
GRIGLIA ALTOPARLANTE INFERIOR SI01TH
REJILLA ALTAVOZ GRAVES SI01TH

FRONT CABINET ASSY BK20TH 25779690
FACADE EQUIPEE BK20TH
FRONTPLATTE KPL BK20TH
MOBILE FRONTALE CPL BK20TH
MUEBLE FRONTAL CPL BK20TH

GLASS PROTECTION BK20TH 25779720
VITRE DE PROTECTION BK20TH
GLAS SCHULTZ BK20TH
VETRO DI PROTEZIONE BK20TH
CRISTAL DE PROTECCION BK20TH

BASE PLATE OF THE FOOT SI01TH 25780850
EMBASE DU PIED SI01TH
FLACHE BASIS OF THE FUSSBALL SI01TH
BASE DI APPOGGIO DEL PIEDE SI01TH
EMBASE DEL PIE SI01TH

STAND FOOT 25780260
MONTANT DU PIED
BETRAG DES FUSSES
PIEDE VERTICALE
PIE VERTICAL

TRAP DOOR HIDING PLACE FOOT SI01TH 25782820
TRAPPE CACHE PIED SI01TH
FALLTÜR VERSTECKT FUSS SI01TH
PORTELLO DELLA PRESA DEL PIEDE SI01TH
PUERTA DE LA TRAMPA DEL PIE SI01TH

FOOT SUPPORT AXIS 25786750
AXE DE SOUTIEN DU PIED
UNTERSTÜTZUNGSACHSE DES FUSSES
ASSE DI SOSTEGNO DEL PIEDE
EJE DE LA AYUDA DEL PIE

CONNEXTION FLAP SI01TH 25779560
VOLET PRISES SI01TH
CONNEXTION-KLAPPE SI01TH
SPORTELLO PRESA SI01TH
PUERTA CONECTOR SI01TH

REAR PANEL SI01TH ⚠ 25779740
DOS SI01TH
RUECKWAND SI01TH
PANNELLO POSTERIORE SI01TH
TAPA POSTERIOR SI01TH

INFRARED WINDOW 25745580
GLACE INFRAROUGE
INFRAROTFENSTER
VETRO INFRAROSSO
CRISTAL INFRARROJO

LOGO THOMSON SCENIUM CHROME 25591650
LOGO THOMSON SCENIUM CHROME
SCHRIFTZUG THOMSON SCENIUM CHROME
MARCHIO THOMSON SCENIUM CHROME
LOGOTIPO THOMSON SCENIUM CHROME

LOUDSPEAKER GRID RIGHT BK25RC 25782790
GRILLE HAUT PARLEUR DROITE BK25RC
LAUTSPRECHERGITTER RECHTS BK25RC
GRIGLIA ALTOPARLANTE DESTRO BK25RC
REJILLA ALTAVOZ DERECHO BK25RC

LOUDSPEAKER GRID LEFT BK25RC 25782810
GRILLE HAUT PARLEUR GAUCHE BK25RC
LAUTSPRECHERGITTER LINKS BK25RC
GRIGLIA ALTOPARLANTE SINISTRO BK25RC
REJILLA ALTAVOZ IZQUIERDO BK25RC

AUDIO SOCKET TRIM SI01TH 25764330
ENJOLIVEUR PRISES AUDIO SI01TH
AUDIO ZERRAHMEN BUCHSE SI01TH
FINIZIONE PRESA AUDIO SI01TH
EMBELLECEDOR TOMA AUDIO SI01TH

SOCKET TRIM SI01TH 25779610
ENJOLIVEUR PRISES SI01TH
ZERRAHMEN BUCHSE SI01TH
FINIZIONE PRESA SI01TH
EMBELLECEDOR TOMA SI01TH

SPEAKER KIT 25784940
ENS. HAUT PARLEUR
ZUSAMMEN LAUTSPRECHER
INSIEME ALTOPARLANTE
CONJUNTO ALTAVOZ

SPEAKER BOOMER 25764620
HAUT PARLEUR BOOMER
LAUTSPRECHER BOOMER
ALTOPARLANTE BOOMER
ALTAVOZ BOOMER

ON/OFF BUTTON SI01TH 25776060
TOUCHE MARCHE/ARRET SI01TH
EIN-AUS TASTE SI01TH
TASTO ACCESO/SPENTO SI01TH
TECLA MARCHA/PARADA SI01TH

CONTROL TRIM SI01TH 25779630
ENJOLIVEUR DE COMMANDES SI01TH
ZIERRAHMEN BEDIENTEIL SI01TH
FINIZIONE COMMANDI SI01TH
EMBELLECEDOR DE MANDOS SI01TH

BUTTON STRIP 6T SI01TH 25740930
BARRETTE DE TOUCHES 6T SI01TH
TASTENLEISTE 6T SI01TH
ASSIEME TASTI 6T SI01TH
CONJUNTO DE TECLAS 6T SI01TH

MAINS SOCKET ⚠ 2137192B
PRISE SECTEUR
NETZANSCHLUSSBUCHSE
PRESA RETE
TOMA RED

ASSY-FAN CABLE 580MM 21423480
VENTILATEUR EQ CABLE 580MM
VENTILATOR KPL. KABEL 580MM
BLOCCO VENTOLA CAVO 580MM
MOTOR VENTILADOR CABLE 580MM

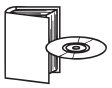
RCT615TCLM1 REMOTE CONTROL 21292080
RCT615TCLM1 TELECOMMANDE
RCT615TCLM1 FERNBEDIENUNG
RCT615TCLM1 TELECOMANDO
RCT615TCLM1 TELEMANDO

FOLDING BOX 25770490
EMBALLAGE CARTON
KARTON
IMBALLAGGIO CARTONE
EMBALAJE CARTON

PLASTIC PACKING 25750420
ENVELOPPE PLASTIQUE
KUNSTSTOFF-VERPACKUNG
IMBALLAGGIO PLASTICO
EMBALAJE PLÁSTICO

FITTING LEFT 25764750
CALE GAUCHE
POLSTER LINKS
DISTANZIATORE SINISTRA
CALZO IZQUIERDA

FITTING RIGHT 25764760
CALE DROITE
POLSTER RECHTS
DISTANZIATORE DESTRA
CALZO DERECHA



32LB220B4/U PARTS LIST 35863280
32LB220B4/U LISTE DE PIECES DETACHEES
32LB220B4/U ERSATZTEILLISTE
32LB220B4/U LISTA PARTI DI RICAMBIO
32LB220B4/U LISTA DE PIEZAS DE REPUESTO

IFC228-LCD SERVICE MANUAL 35851340
IFC228-LCD DOC TECHNIQUE
IFC228-LCD TECHNISCHE DOKUMENTATION
IFC228-LCD DOCUMENTAZIONE TECNICA
IFC228-LCD DOCUMENTACION TECNICA

23/27/32LB220B4/S4 UM TH 25769390
23/27/32LB220B4/S4 NU TH
23/27/32LB220B4/S4 BA TH
23/27/32LB220B4/S4 IU TH
23/27/32LB220B4/S4 IU TH

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THOMSON multimedia Sales Europe - S.A. au capital de 30 000 000 €- Siège : 46, Quai Alphonse Le Gallo 92100 Boulogne FRANCE - RCS NANTERRE B 322 019 464

Chassis IFC228 (PLASMA - LCD)

Section :

Power supply

H_Deflection circuit

V_Deflection circuit

HF-IF circuit

Input / Output - Scart

Mechanical

Control panel

Data processing

Audio processing

Video processing

Picture Tube - Display

General

Power supply

Symptom description

LCD & PLASMA

Whistle of the power supply in stand-by mode.

LCD

Whistle of the power supply.
Black screen.
Some components are broken on the power supply.
Humming Noise.

PLASMA

Humming Noise.

Data processing

Symptom description

PLASMA - LCD

Wrong identification of display mode types in VGA input.
Wrong identification of display mode types in DVI input.

Audio processing

Symptom description

LCD

Humming noise in sound (excepted when the mute is on).

Video processing

Symptom description

LCD - PLASMA

Compatibility Improvement of the set to the HDCP norm.

Intermittently, absence of one of the primary colors (RVB) or black screen.

PLASMA

Improvements of the video adjustments (PAL/SECAM/RGB/YUV1H/YUV2H).

General

Symptom description

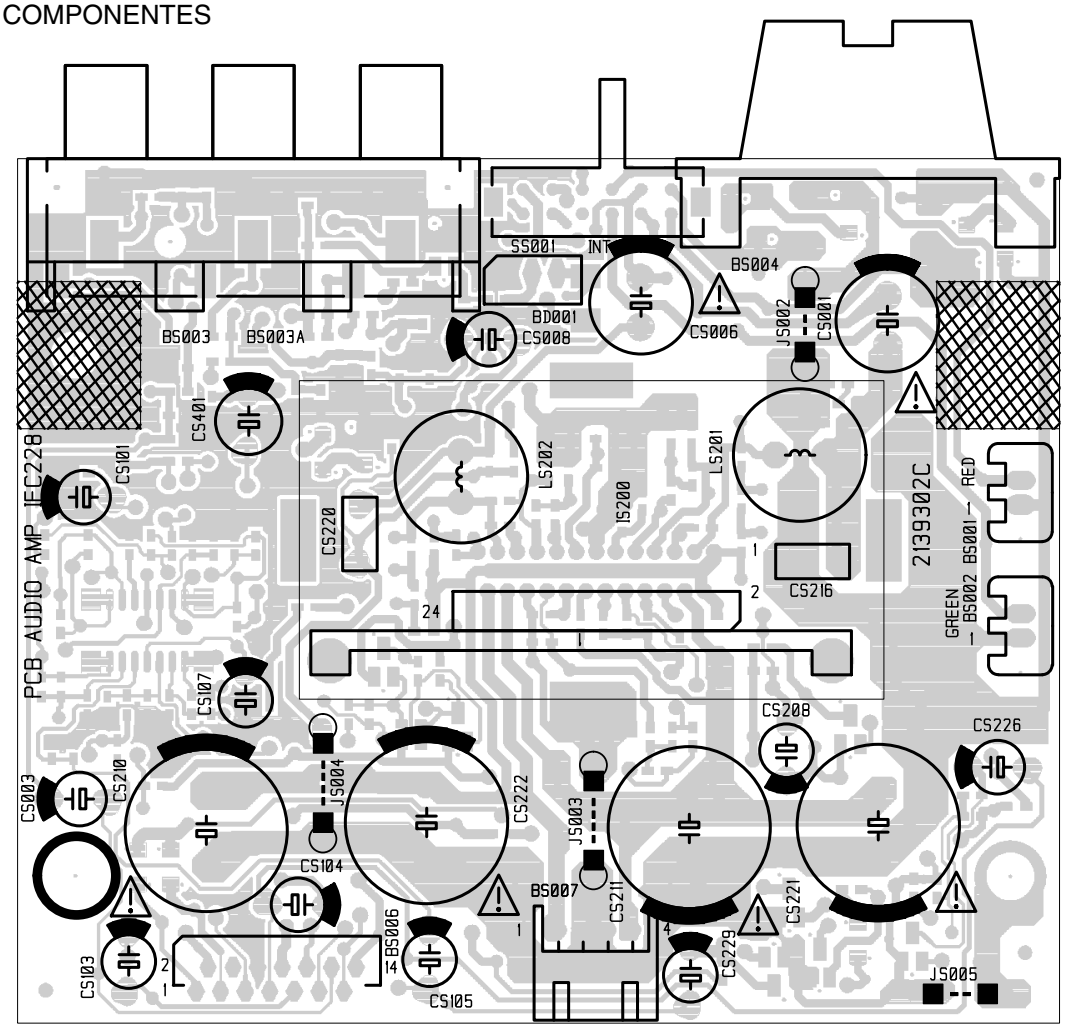
LCD

Color change.

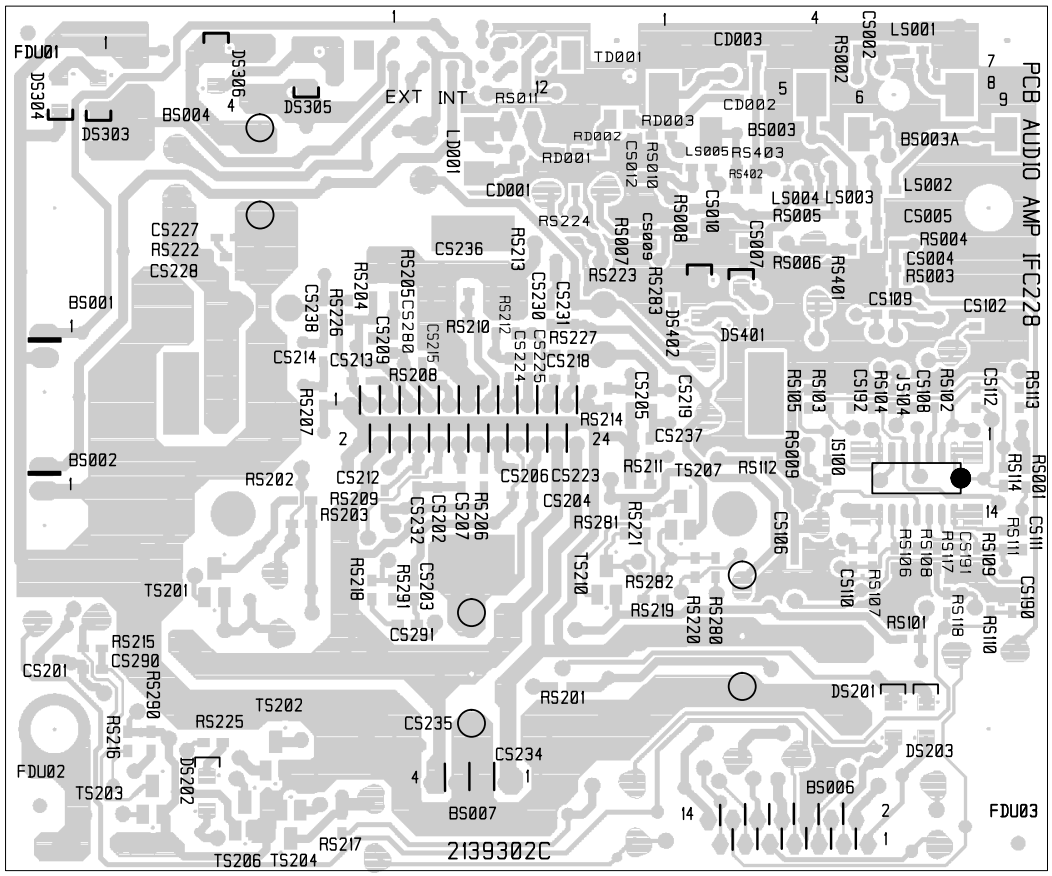
Fan noise.

AUDIO BOARD - PLATINE AUDIO - AUDIO GRUNDPLATTE - PIASTRA AUDIO - PLATINA AUDIO

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI
LADO COMPONENTES



SOLDER SIDE - COTÉ CUIVRE - LÖTSEITE - LATO SALDATURE - LADO DEL COBRE



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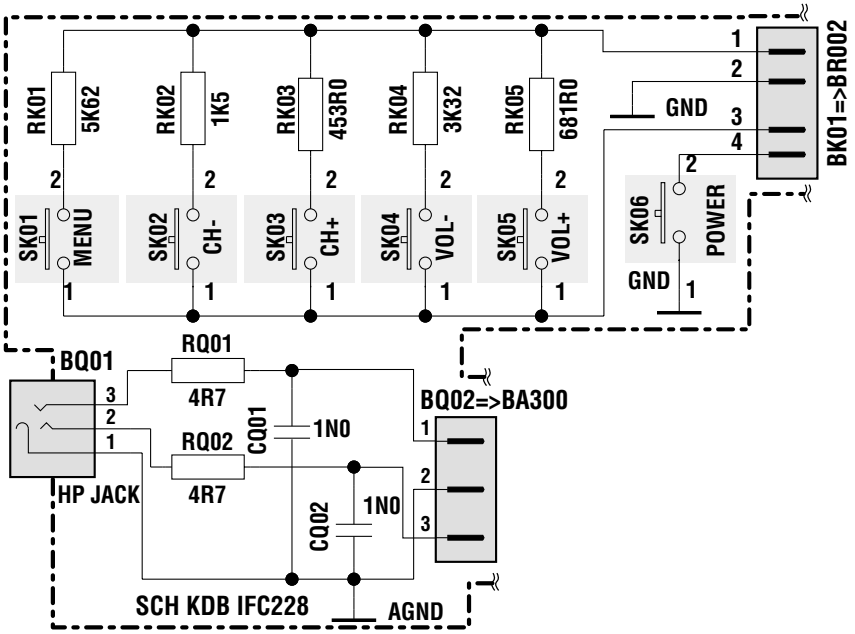
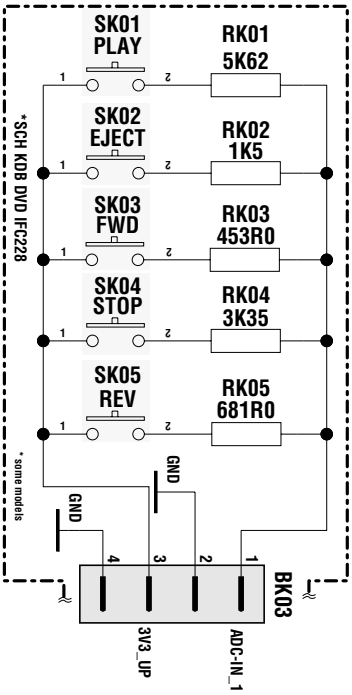
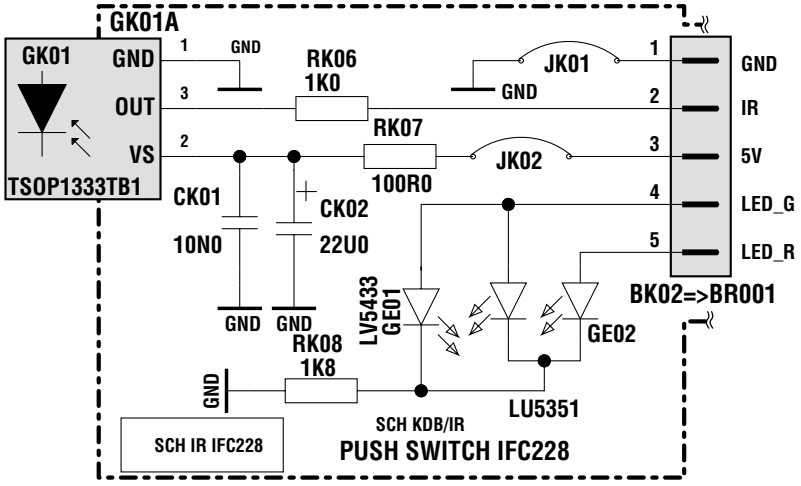
KDB IFC228



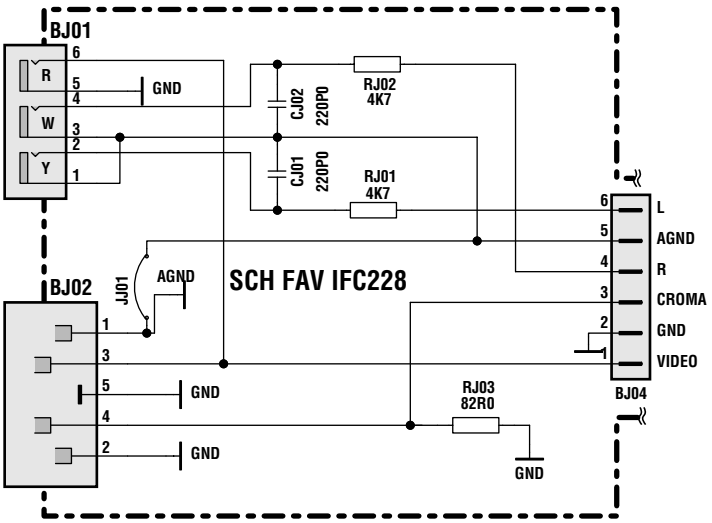
KDB IFC228



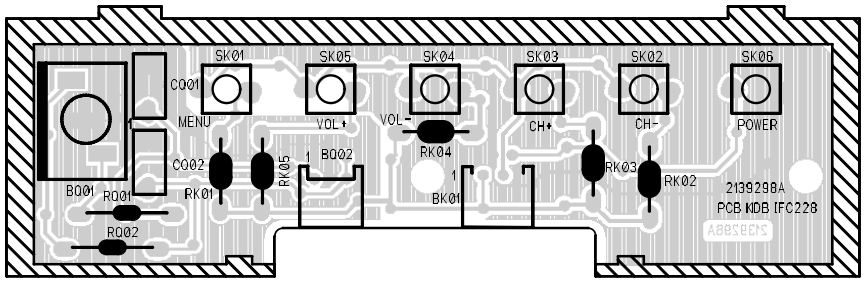
PUSH SWITCH



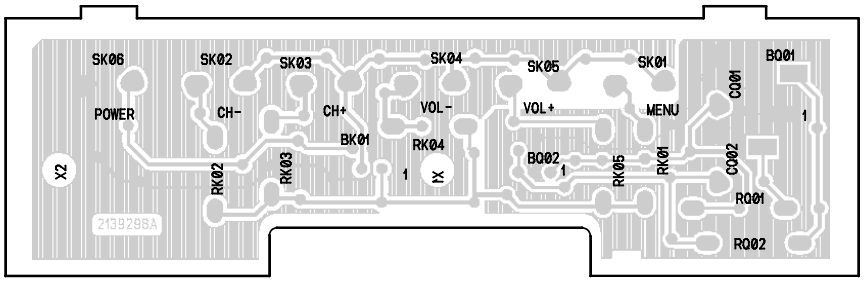
FAV IFC228



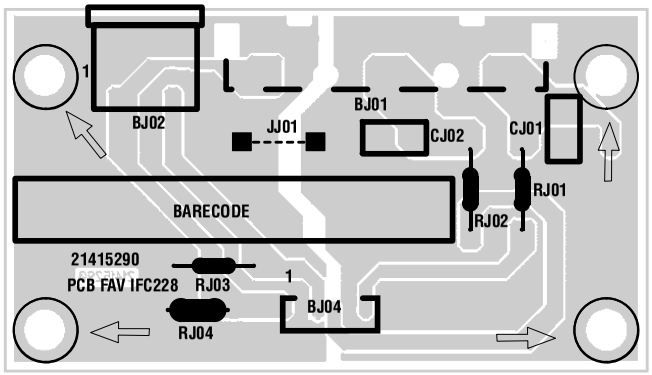
COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI
LADO COMPONENTES



SOLDER SIDE - COTÉ CUIVRE - LÖTSEITE - LATO SALDATURE - LADO DEL COBRE

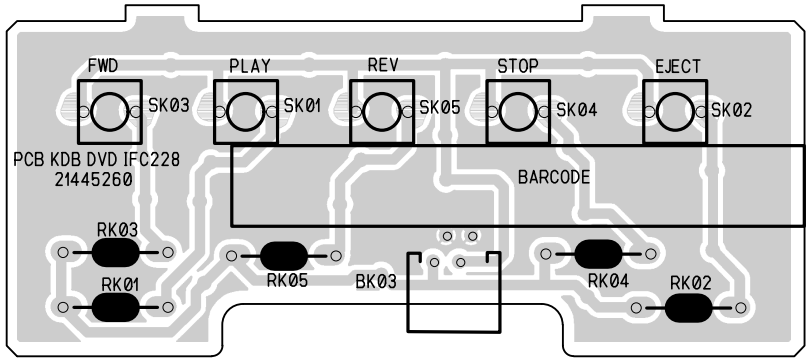


FAV IFC228



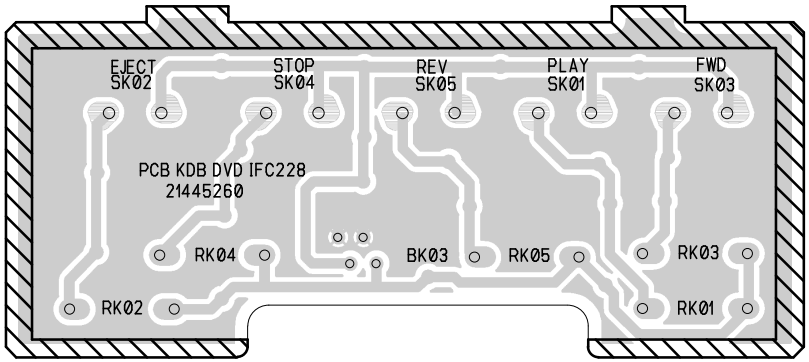
KDB DVD

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI
LADO COMPONENTES

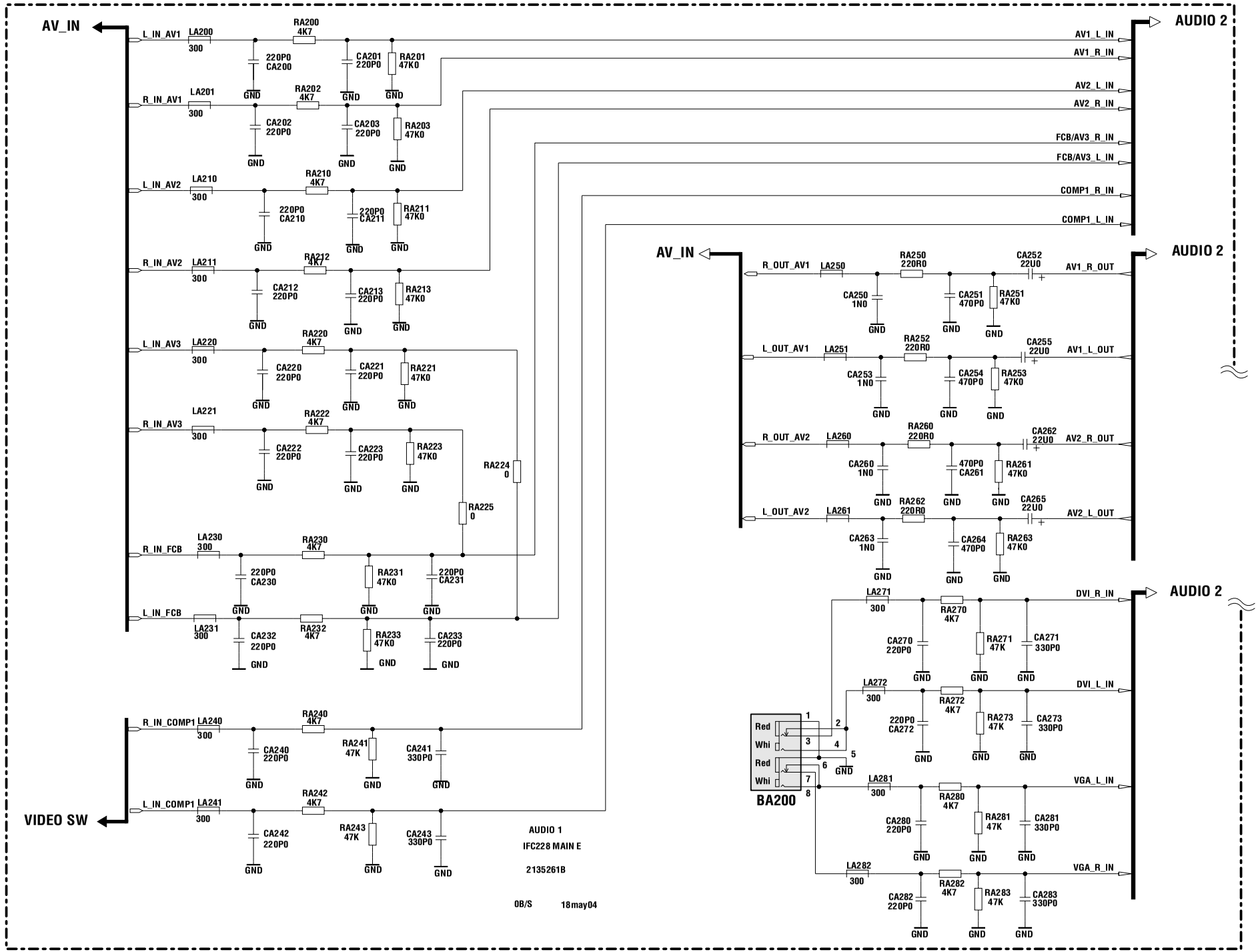


KDB DVD

SOLDER SIDE - COTÉ CUIVRE - LÖTSEITE - LATO SALDATURE - LADO DEL COBRE



MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



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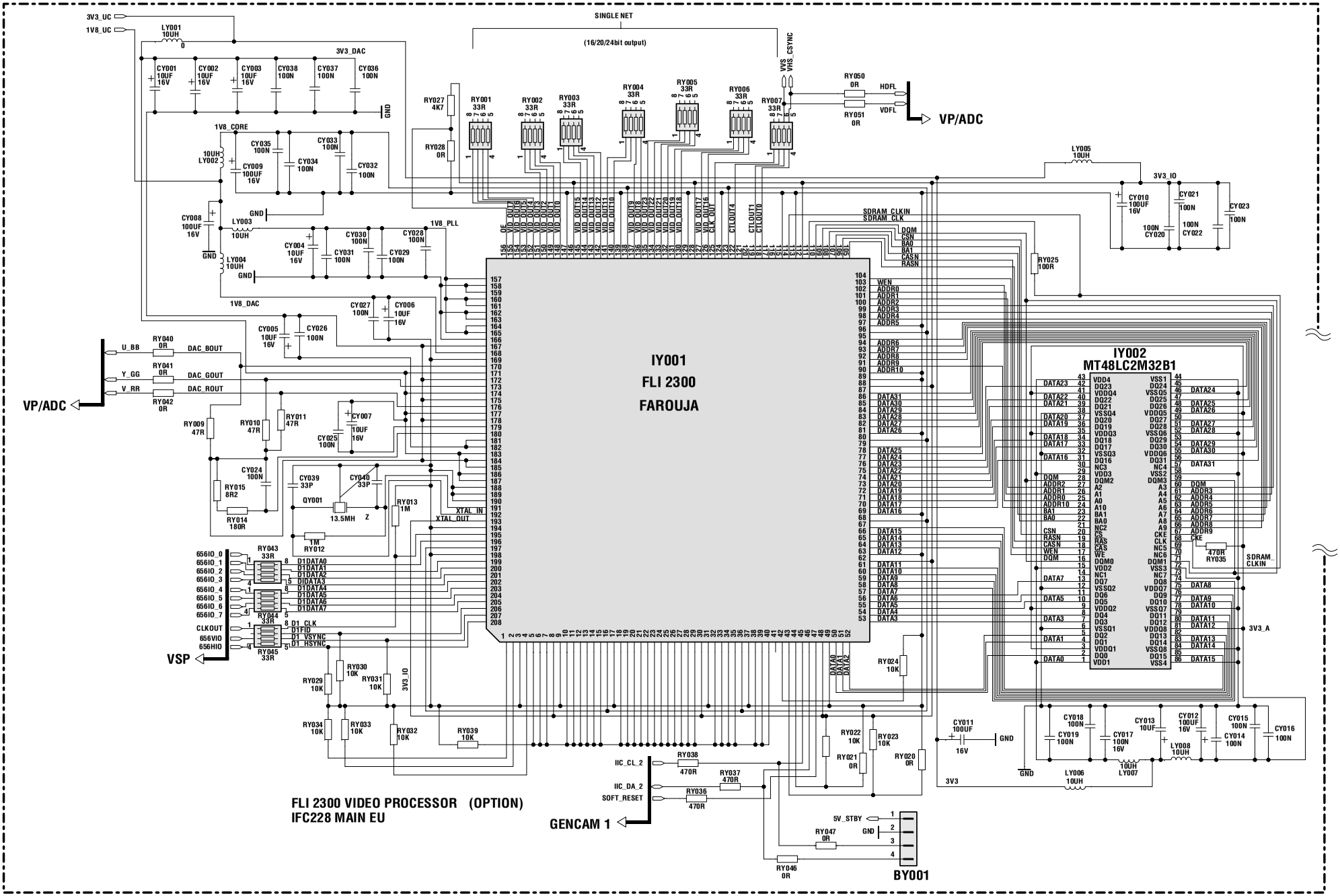
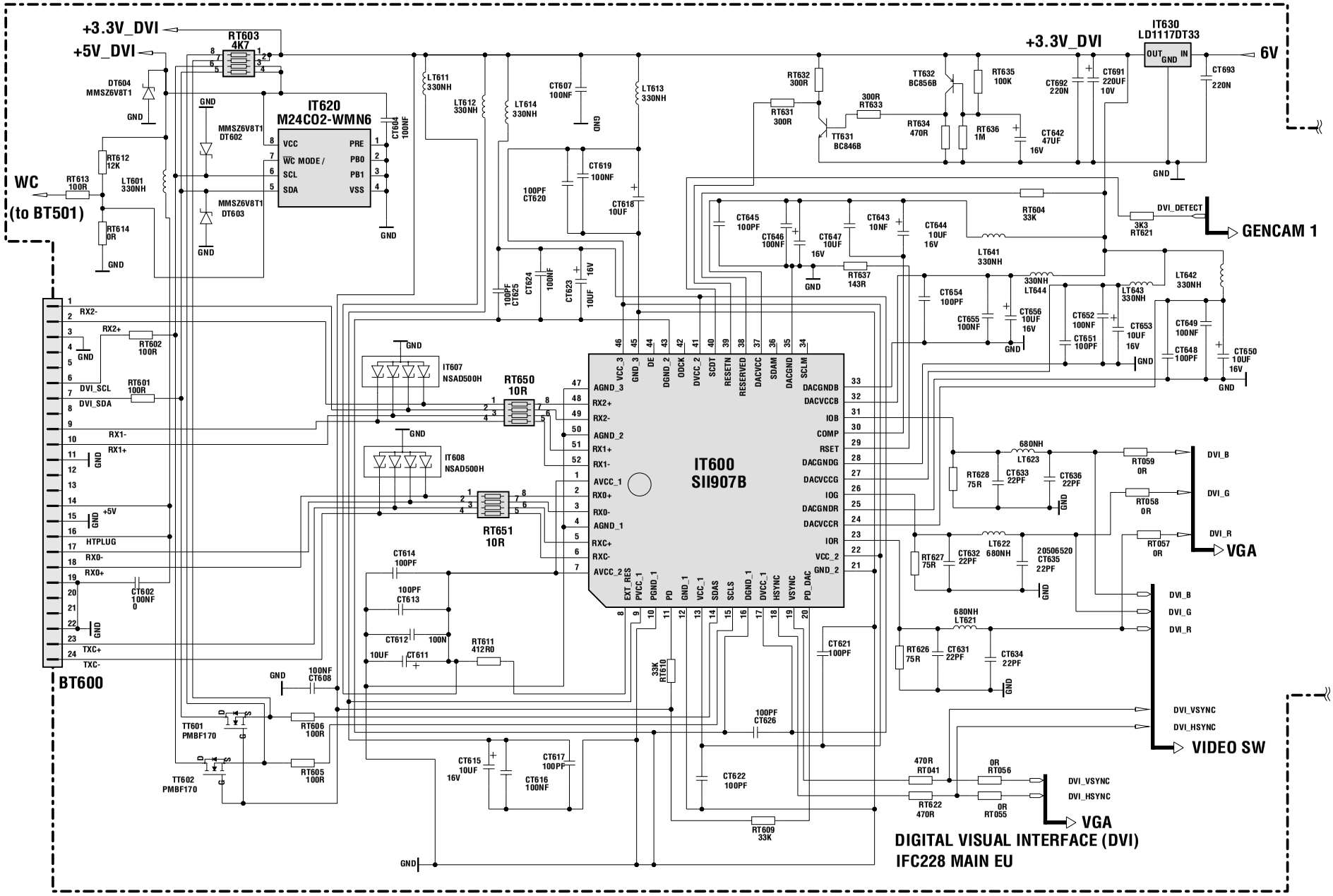
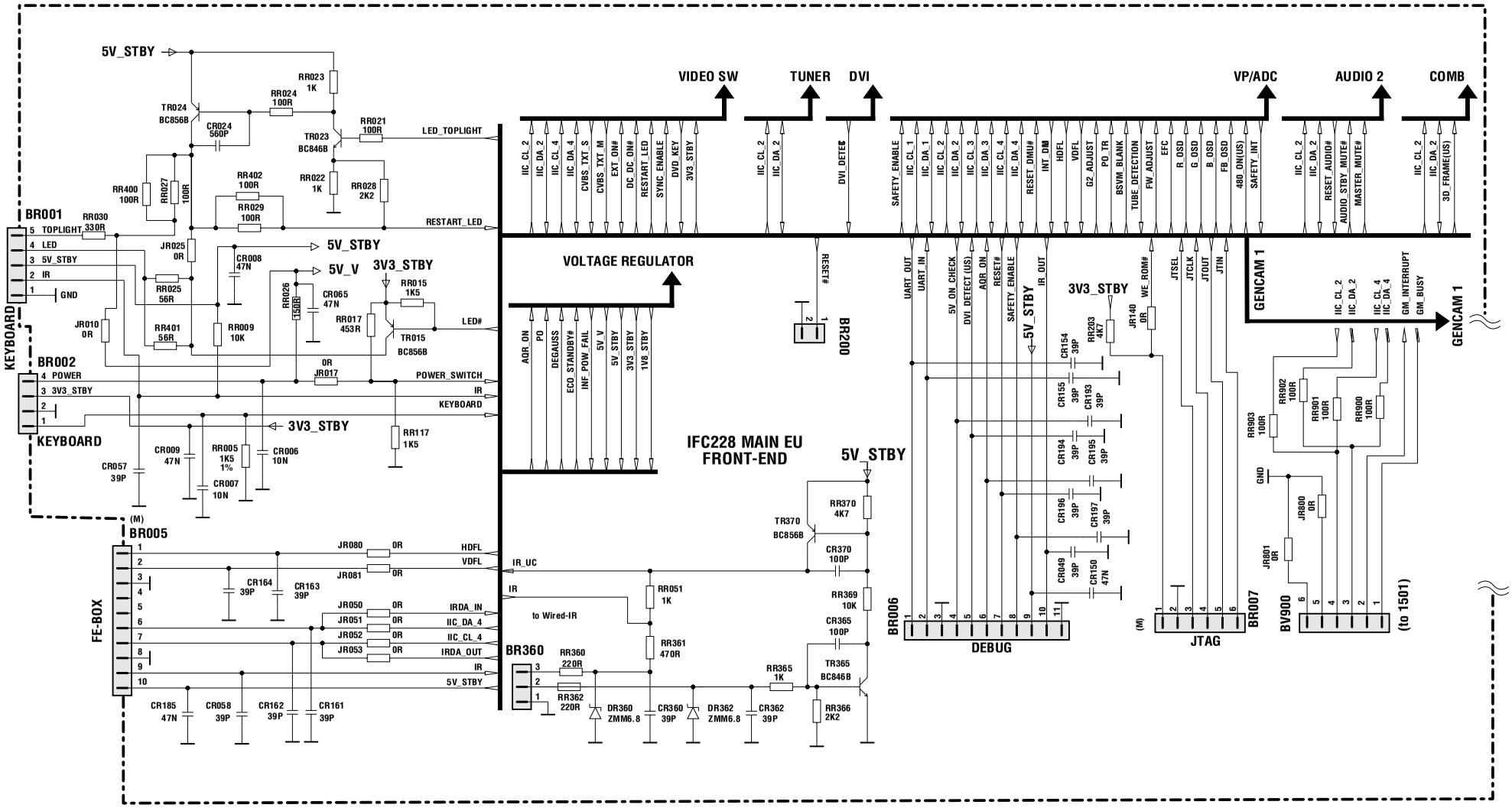
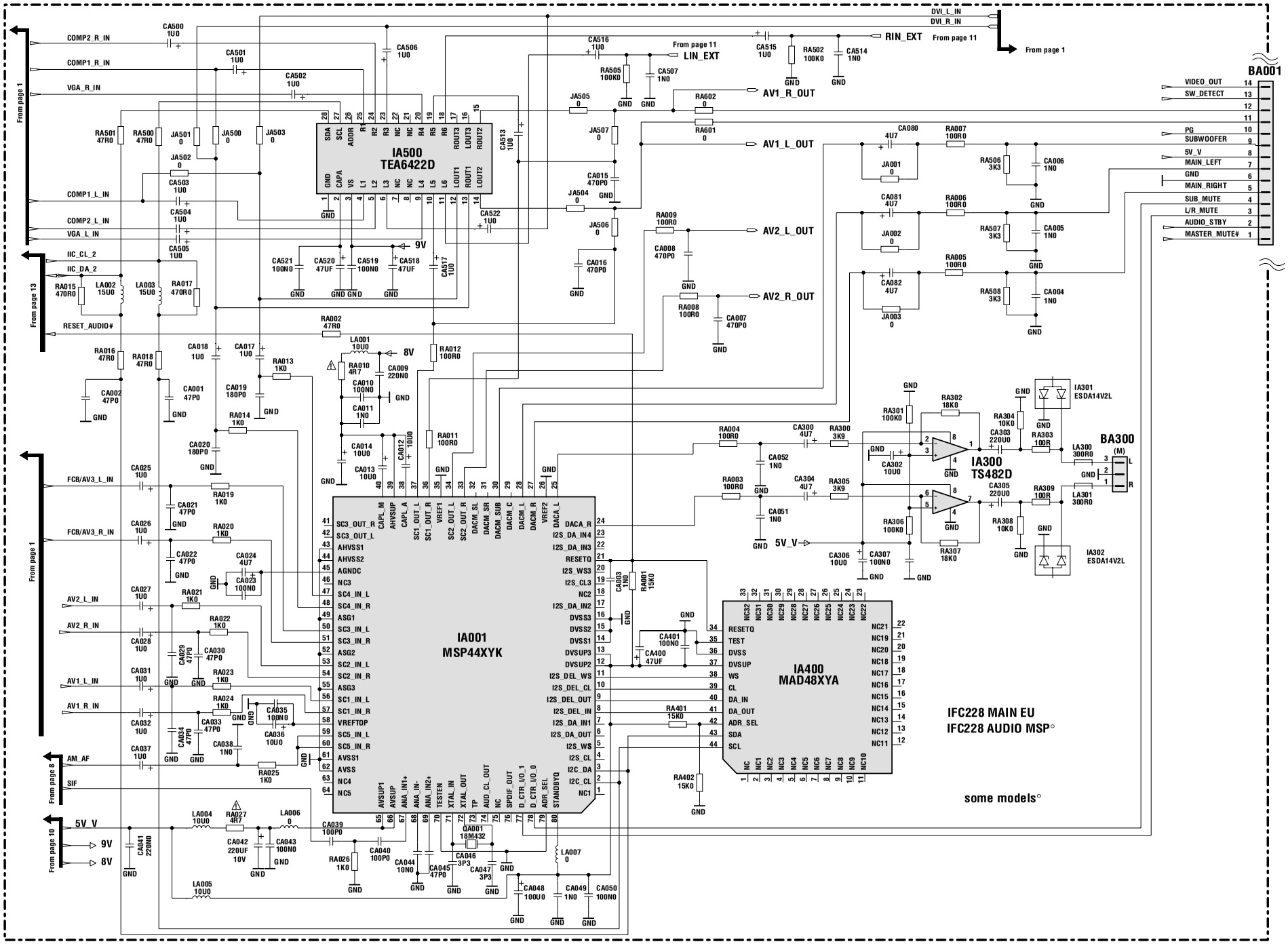
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL

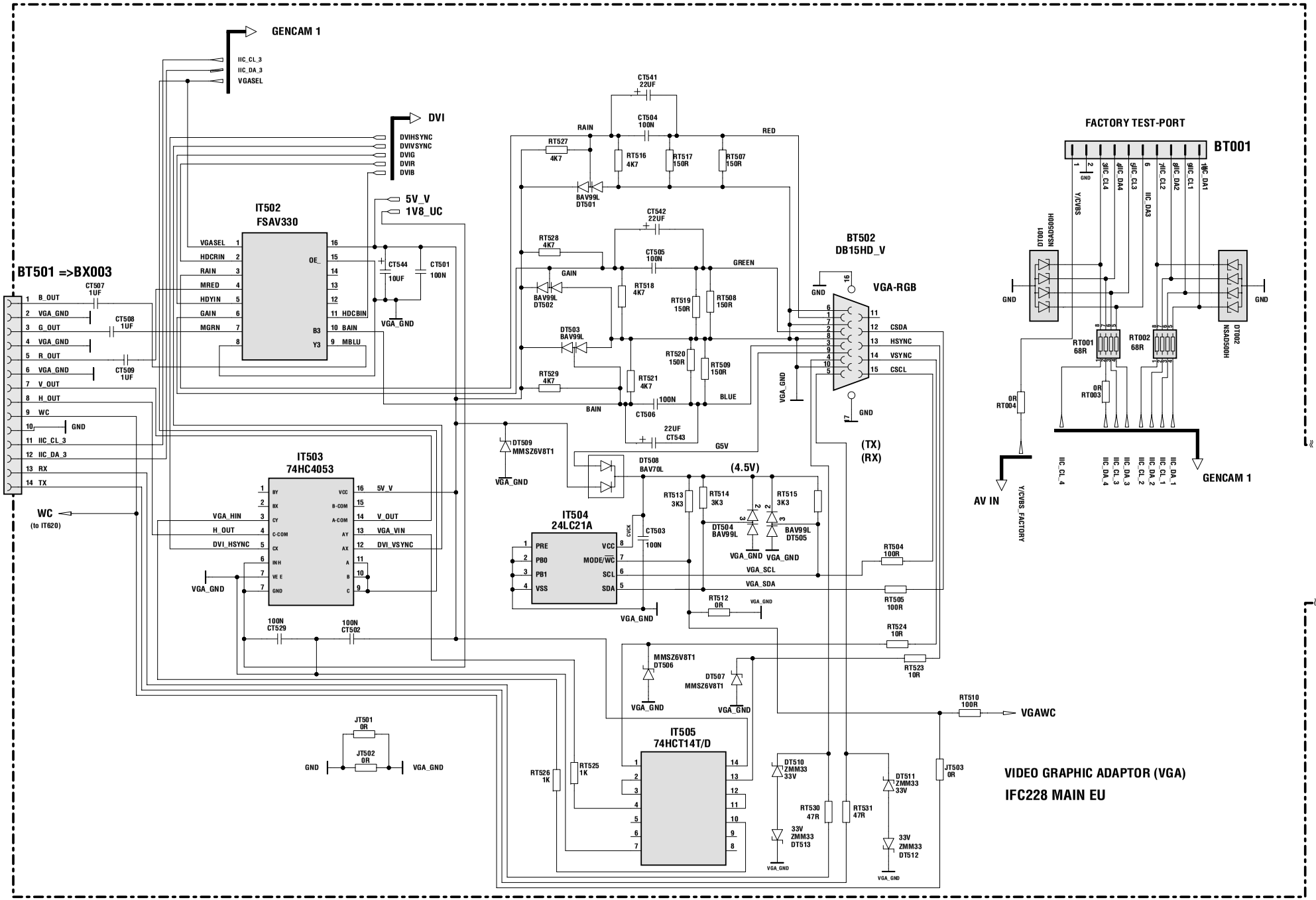



+3.3V_DVI
+5V_DVI
RT603 4K7
DT604 MMSZ6V8T1
MMSZ6V8T1 DT602
MMSZ6V8T1 DT603
IT620 M24C02-WMN6
VCC
WC MODE /
SCL
SDA
PRE
PB0
PB1
VSS
CT604 100NF
WC
(to BT501)
RT613 100R
RT612 12K
RT614 0R
LT601 330NH
BT600
RX2-
RX2+
RT602 100R
DVI_SCL
DVI_SDA
RT601 100R
RX1-
RX1+
HTPLUG
RX0-
RX0+
CT602 100NF 0
TXC+
TXC-
IT607 NSAD500H
IT608 NSAD500H
RT650 10R
RT651 10R
IT600 SII907B
AGND_3
RX2+
RX2-
AGND_2
RX1+
RX1-
AVCC_1
RX0+
RX0-
AGND_1
RXC+
RXC-
AVCC_2
VCC_3
GND_3
DE
DGND_2
ODCK
DVCC_2
SCDT
RESETN
RESERVED
DACVCC
SDAM
DACGND
SCLM
DACGNDB
DACVCCB
IOB
COMP
RSET
DACGNDG
DACVCCG
IOG
DACGNDR
DACVCCR
IOR
VCC_2
GND_2
EXT_RES
PVCC_1
PGND_1
PD
GND_1
VCC_1
SDAS
SCLS
DGND_1
DVCC_1
HSYNC
VSYNC
PD_DAC
CT614 100PF
CT613 100PF
CT612 100N
CT611 10UF
RT611 412R0
CT608 100NF
RT610 33K
TT601 PMBF170
TT602 PMBF170
RT606 100R
RT605 100R
CT615 10UF 16V
CT616 100NF
CT617 100PF
CT626 100PF
CT622 100PF
RT609 33K
CT621 100PF
LT611 330NH
LT612 330NH
LT614 330NH
LT613 330NH
CT607 100NF
CT619 100NF
CT618 10UF
100PF CT620
CT624 100NF
CT623 10UF 16V
100PF CT625
+3.3V_DVI
IT630 LD1117DT33
OUT GND IN
6V
CT693 220N
CT691 220UF 10V
CT692 220N
RT632 300R
RT631 300R
300R RT633
TT632 BC856B
TT631 BC846B
RT635 100K
RT634 470R
RT636 1M
CT642 47UF 16V
RT604 33K
DVI_DETECT
3K3 RT621
GENCAM 1
CT645 100PF
CT646 100NF
CT647 10UF 16V
CT643 10NF
CT644 10UF 16V
RT637 143R
LT641 330NH
CT654 100PF
CT655 100NF
CT656 10UF 16V
330NH LT644
LT643 330NH
LT642 330NH
CT652 100NF
CT651 100PF
CT653 10UF 16V
CT649 100NF
CT648 100PF
CT650 10UF 16V
680NH LT623
RT628 75R
CT633 22PF
CT636 22PF
RT059 0R
RT058 0R
RT057 0R
DVI_B
DVI_G
DVI_R
VGA
RT627 75R
CT632 22PF
LT622 680NH
20506520 CT635 22PF
680NH LT621
RT626 75R
CT631 22PF
CT634 22PF
DVI_VSYNC
DVI_HSYNC
VIDEO SW
470R RT041
RT622 470R
0R RT056
0R RT055
VGA
DIGITAL VISUAL INTERFACE (DVI)
IFC228 MAIN EU


5V_STBY
VIDEO SW
TUNER
DVI
VP/ADC
AUDIO 2
COMB
VOLTAGE REGULATOR
IFC228 MAIN EU
FRONT-END
KEYBOARD
BR001
BR002
BR005
FE-BOX
BR006
DEBUG
BR007
JTAG
BV900
BR200
BR360
GENCAM 1
3V3_STBY
5V_V
LED_TOPLIGHT
RESTART_LED
LED#
POWER_SWITCH
IR
KEYBOARD
HDFL
VDFL
IRDA_IN
IIC_DA_4
IIC_CL_4
IRDA_OUT
IR_UC
to Wired-IR
(to 1501)

MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL

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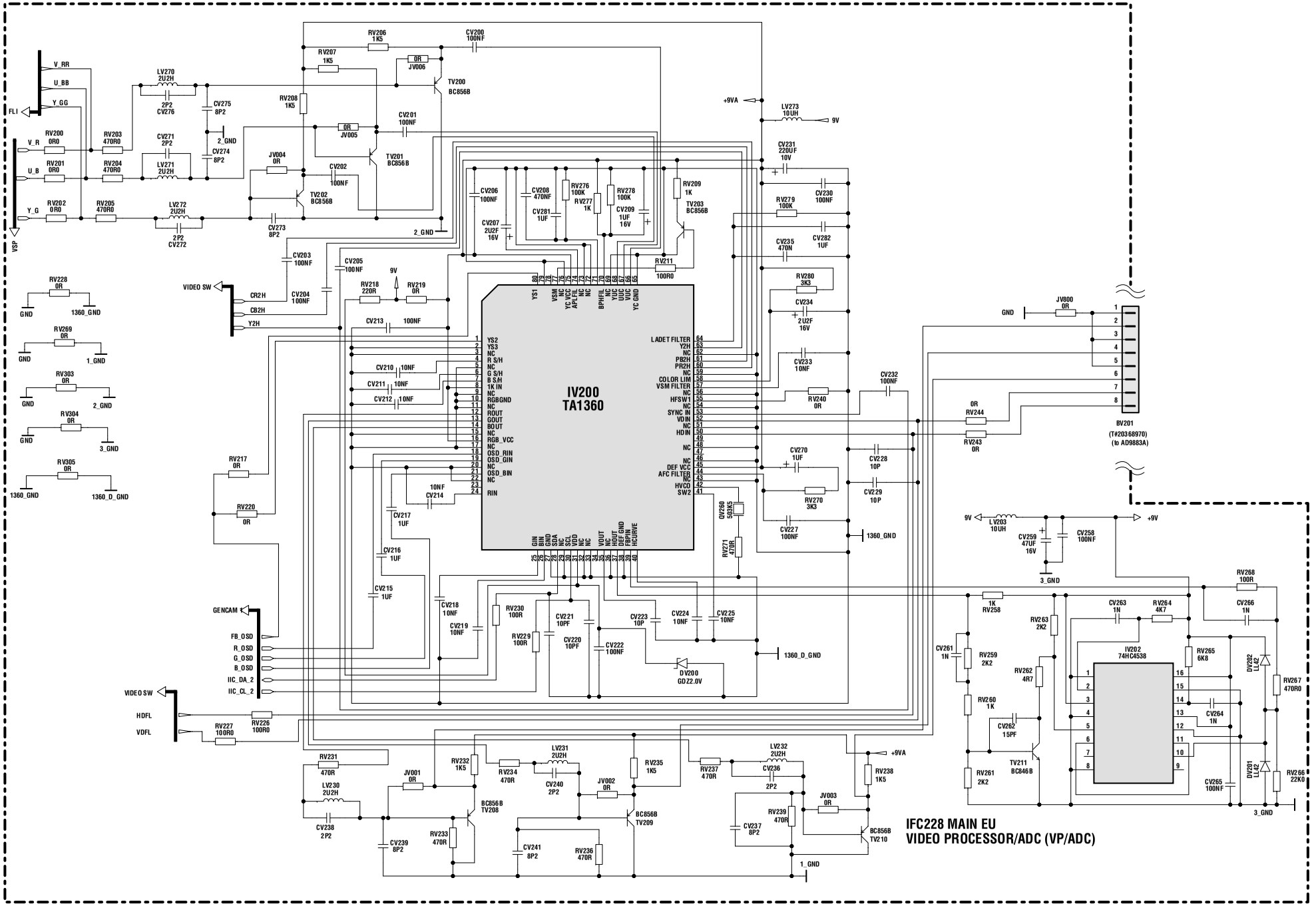
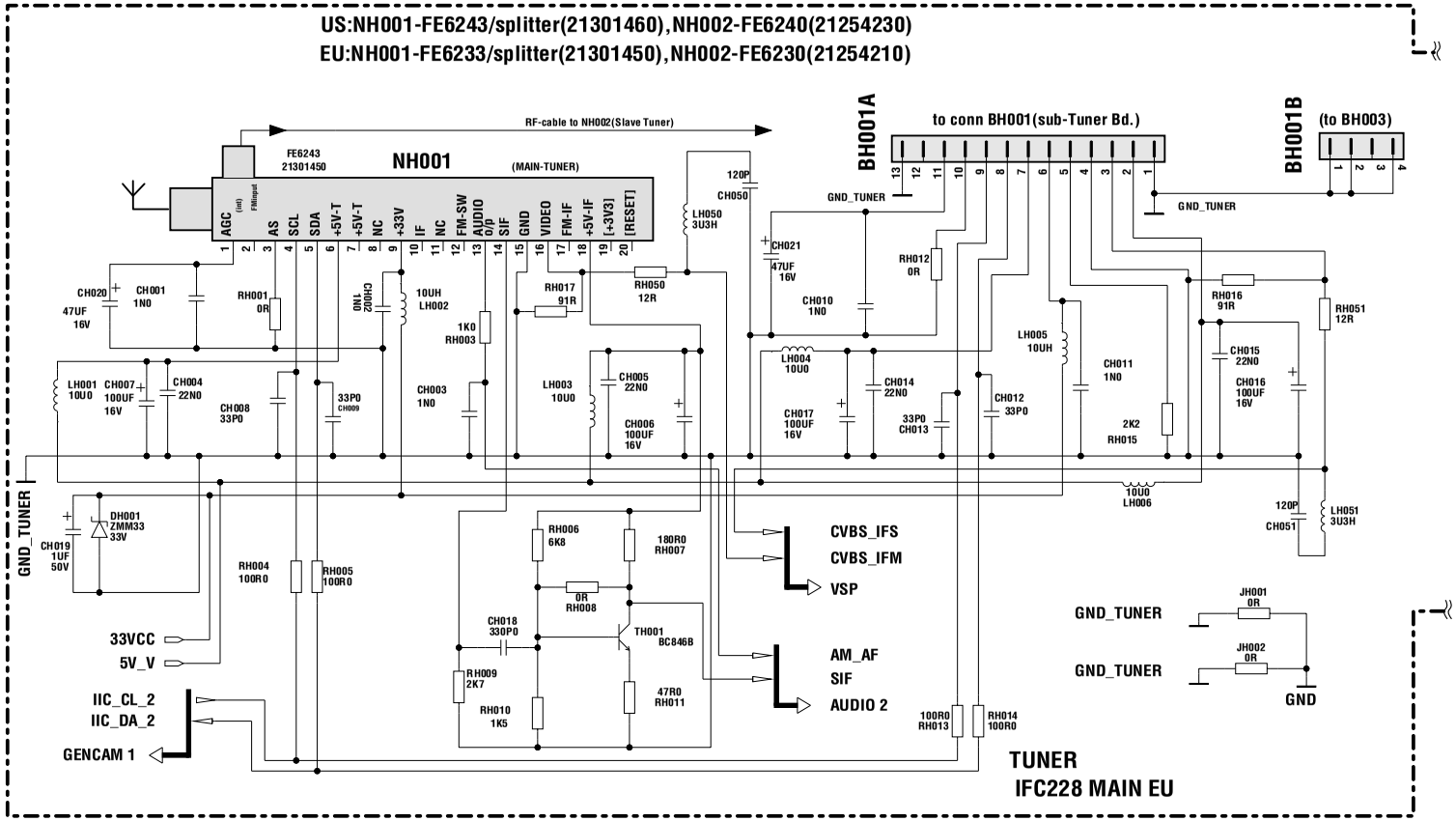
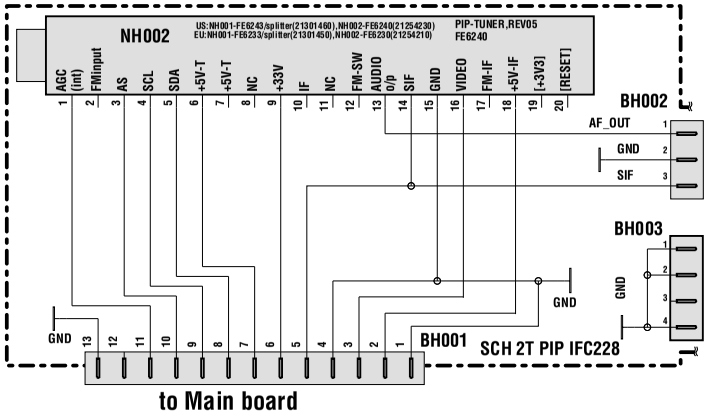
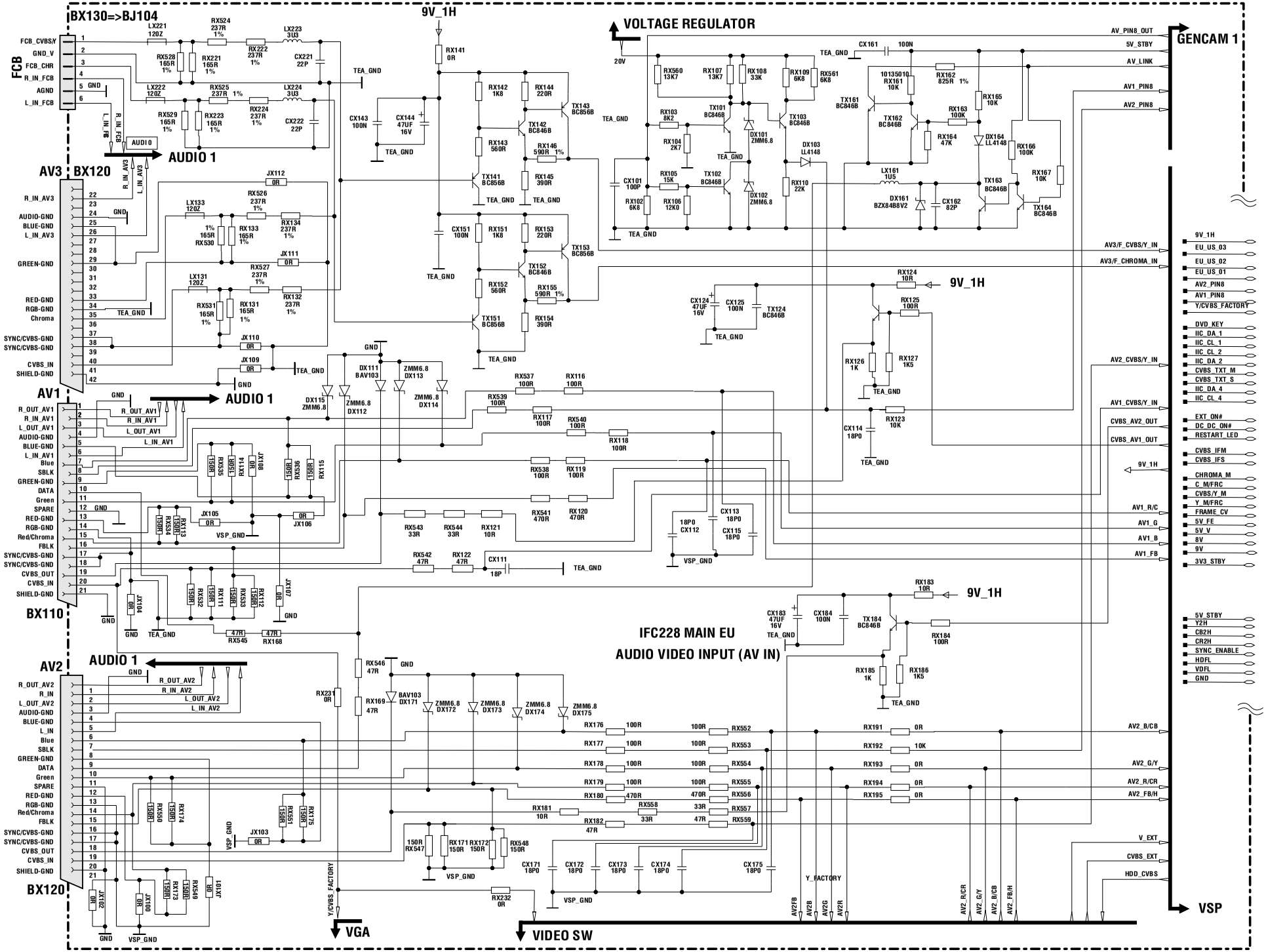
IIC_CL_3
IIC_DA_3
VGASEL
DVI
DVIHSYNC
DVIVSYNC
DVIG
DVIR
DVIB
5V_V
1V8_UC
IT502
FSAV330
VGASEL
HDCRIN
RAIN
MRED
HDYIN
GAIN
MGRN
OE_
B3
Y3
HDCBIN
BAIN
MBLU
CT544 10UF
CT501 100N
VGA_GND
BT501 =>BX003
B_OUT
VGA_GND
G_OUT
R_OUT
V_OUT
H_OUT
WC
GND
IIC_CL_3
IIC_DA_3
RX
TX
CT507 1UF
CT508 1UF
CT509 1UF
WC
(to IT620)
IT503
74HC4053
5V_V
V_OUT
VGA_VIN
DVI_VSYNC
VGA_HIN
H_OUT
DVI_HSYNC
100N CT529
100N CT502
IT504
24LC21A
PRE
PB0
PB1
VSS
VCC
MODE/WC
SCL
SDA
CT503 100N
VGA_SCL
VGA_SDA
RT512 0R
RT504 100R
RT505 100R
RT524 10R
RT523 10R
CT541 22UF
CT504 100N
RAIN
RED
RT527 4K7
RT516 4K7
RT517 150R
RT507 150R
BAV99L DT501
CT542 22UF
RT528 4K7
CT505 100N
GREEN
GAIN
BAV99L DT502
RT518 4K7
RT519 150R
RT508 150R
DT503 BAV99L
RT520 150R
RT509 150R
RT529 4K7
RT521 4K7
BLUE
BAIN
CT506 100N
CT543 22UF
G5V
VGA_GND
BT502
DB15HD_V
VGA-RGB
GND
CSDA
HSYNC
VSYNC
CSCL
(TX)
(RX)
DT509 MMSZ6V8T1
DT508 BAV70L
(4.5V)
RT513 3K3
RT514 3K3
RT515 3K3
DT504 BAV99L
DT505 BAV99L
MMSZ6V8T1 DT506
DT507 MMSZ6V8T1
RT510 100R
VGAWC
JT501 0R
JT502 0R
IT505
74HCT14T/D
RT526 1K
RT525 1K
DT510 ZMM33 33V
DT511 ZMM33 33V
RT530 47R
RT531 47R
33V ZMM33 DT513
33V ZMM33 DT512
JT503 0R
FACTORY TEST-PORT
BT001
GND
Y/CVBS
IIC_CL4
IIC_DA4
IIC_CL3
IIC_DA3
IIC_CL2
IIC_DA2
IIC_CL1
IIC_DA1
DT001 NSAD500H
DT002 NSAD500H
RT001 68R
RT002 68R
0R RT003
0R RT004
AV IN
Y/CVBS_FACTORY
IIC_CL_4
IIC_DA_4
IIC_CL_3
IIC_DA_3
IIC_CL_2
IIC_DA_2
IIC_CL_1
IIC_DA_1
GENCAM 1
VIDEO GRAPHIC ADAPTOR (VGA)
IFC228 MAIN EU


IV200
TA1360
IFC228 MAIN EU
VIDEO PROCESSOR/ADC (VP/ADC)
IV202
74HC4538
BV201
(T#20368970)
(to AD9883A)
TV200 BC856B
TV201 BC856B
TV202 BC856B
TV203 BC856B
TV208 BC856B
TV209 BC856B
TV210 BC856B
TV211 BC846B
DV200 GDZ2.0V
DV201 LL42
DV202 LL42
DV260 5S8MG
VIDEO SW
GENCAM 1
FB_OSD
R_OSD
G_OSD
B_OSD
IIC_DA_2
IIC_CL_2
HDFL
VDFL
V_RR
U_BB
Y_GG
FLI
VSP
+9VA
9V
1360_GND
1_GND
2_GND
3_GND
1360_D_GND


US:NH001-FE6243/splitter(21301460),NH002-FE6240(21254230)
EU:NH001-FE6233/splitter(21301450),NH002-FE6230(21254210)
RF-cable to NH002(Slave Tuner)
FE6243
21301450
NH001
(MAIN-TUNER)
BH001A
to conn BH001(sub-Tuner Bd.)
BH001B
(to BH003)
GND_TUNER
CVBS_IFS
CVBS_IFM
VSP
AM_AF
SIF
AUDIO 2
33VCC
5V_V
IIC_CL_2
IIC_DA_2
GENCAM 1
JH001
JH002
GND
TUNER
IFC228 MAIN EU


NH002
PIP-TUNER,REV05
FE6240
BH002
AF_OUT
GND
SIF
BH003
BH001
SCH 2T PIP IFC228
to Main board

MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



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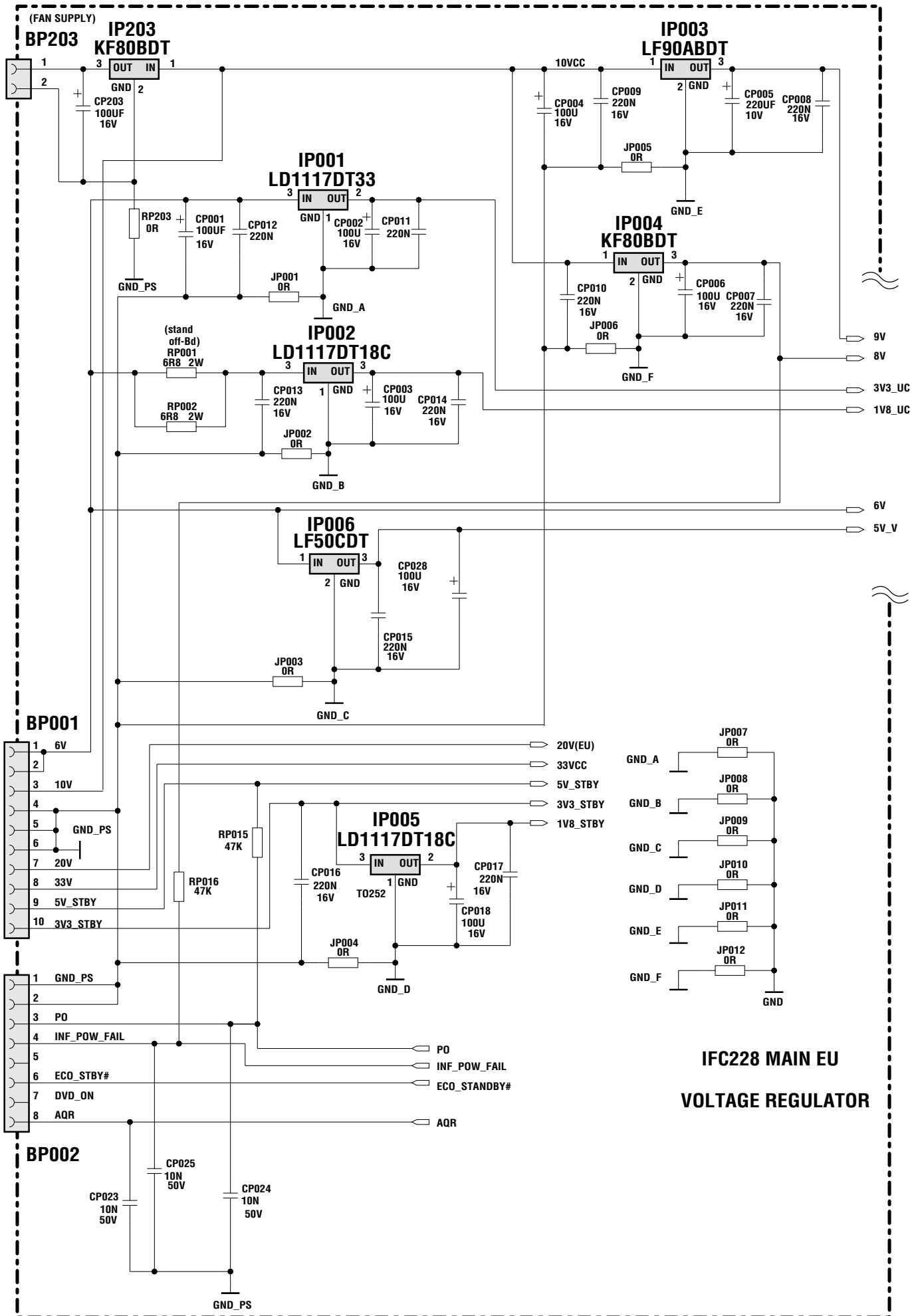
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE
SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE
ESQUEMA DE LA PLATINA PRINCIPAL



IFC228-LCD
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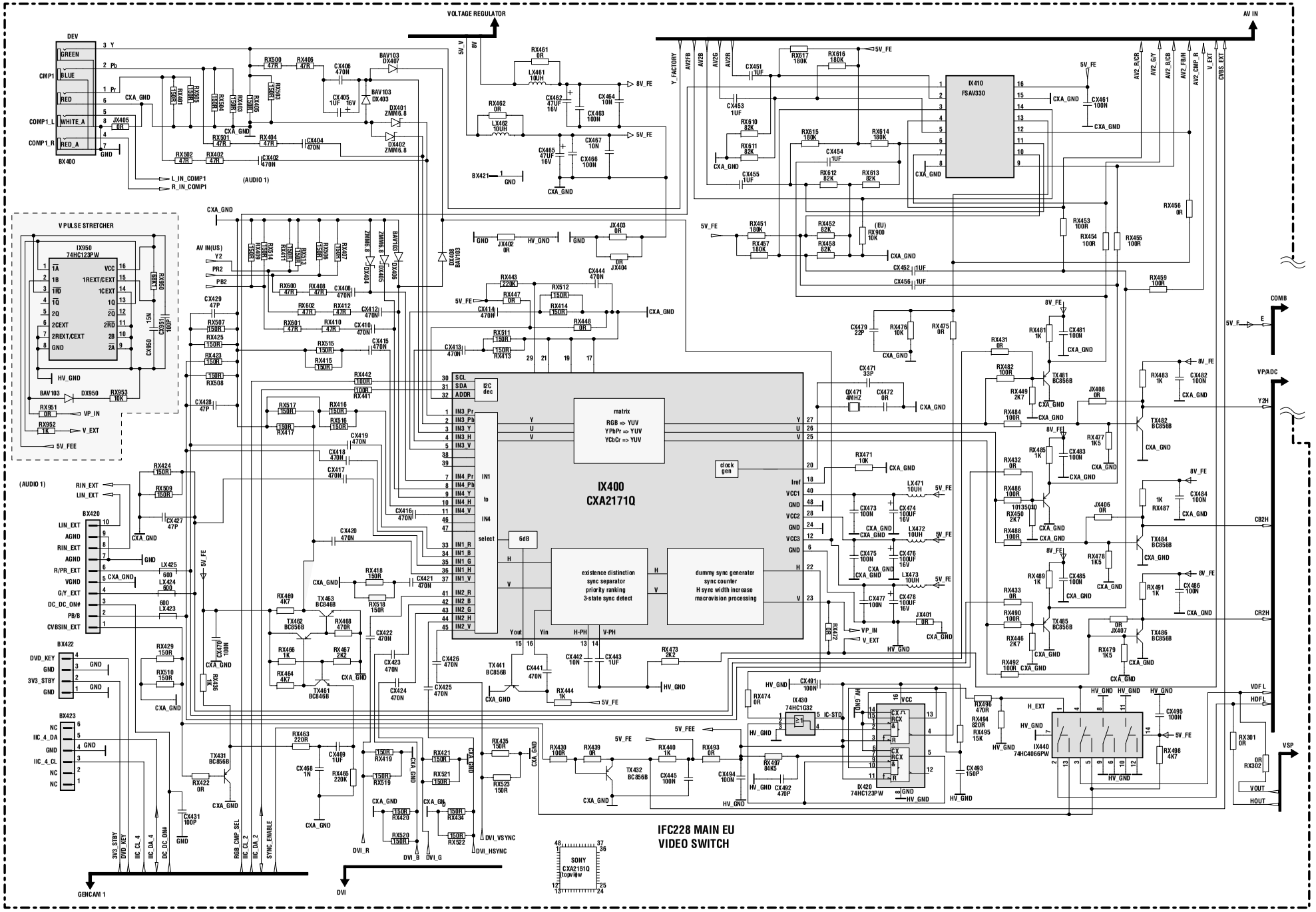
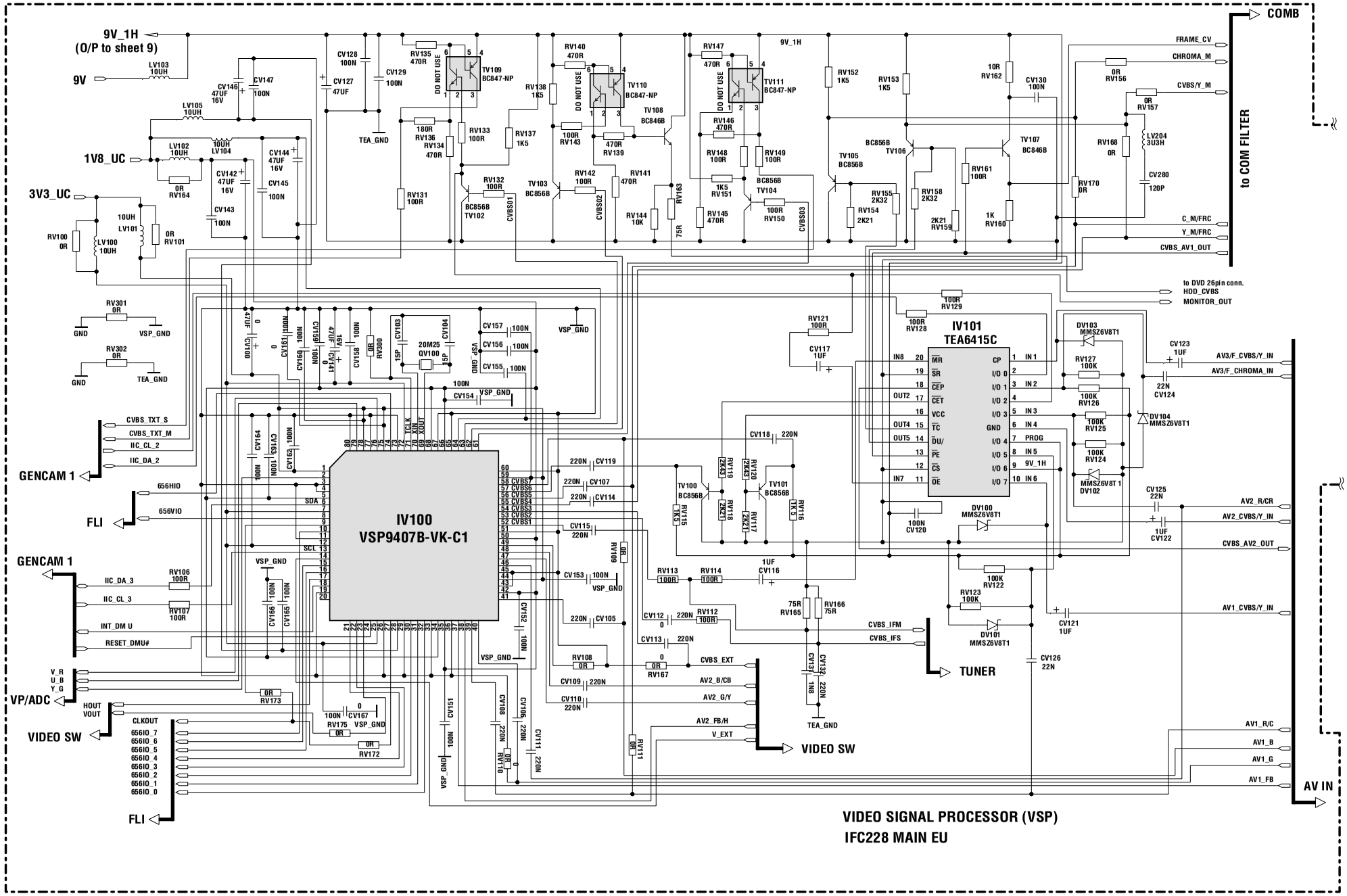
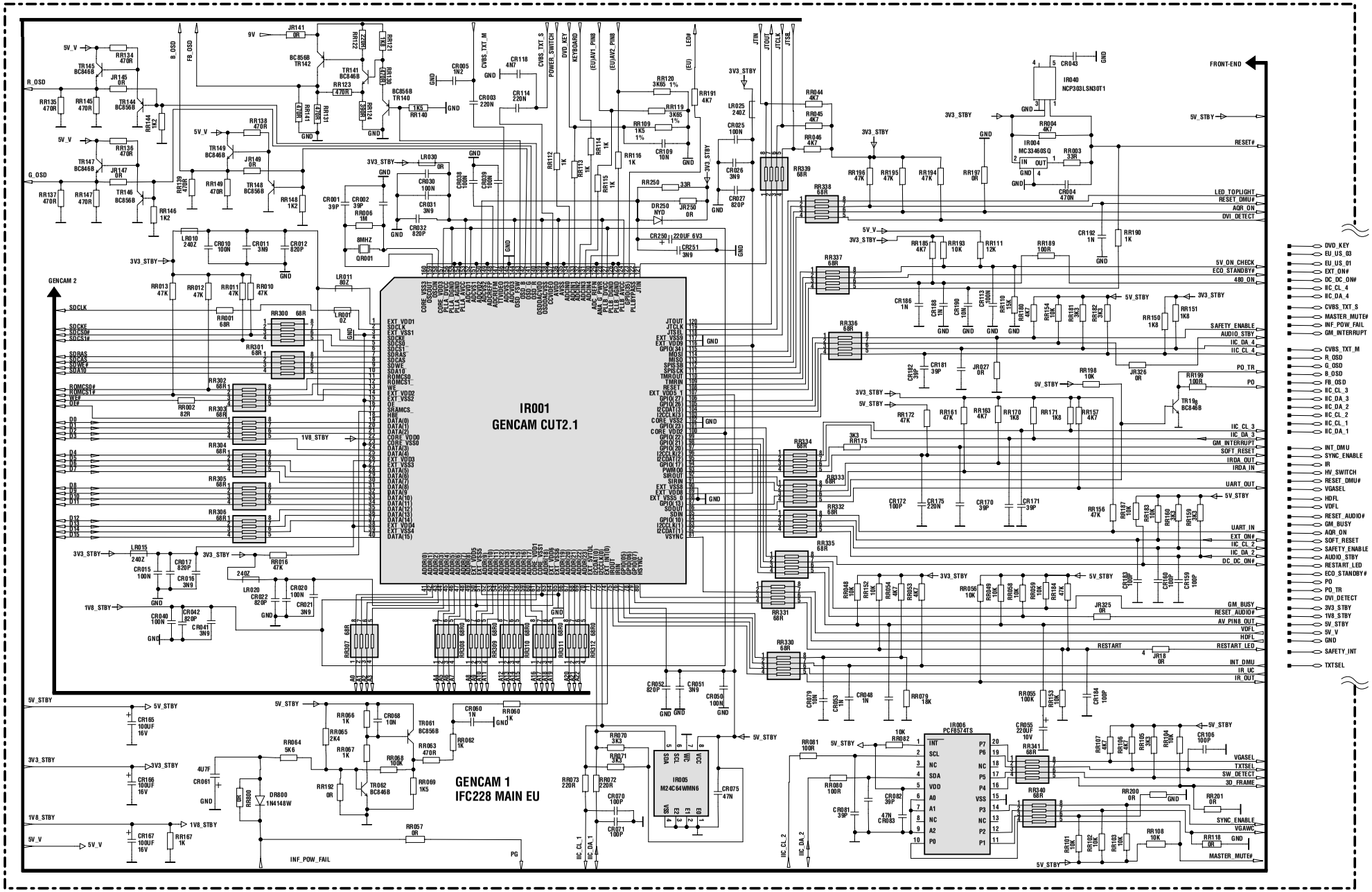
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL

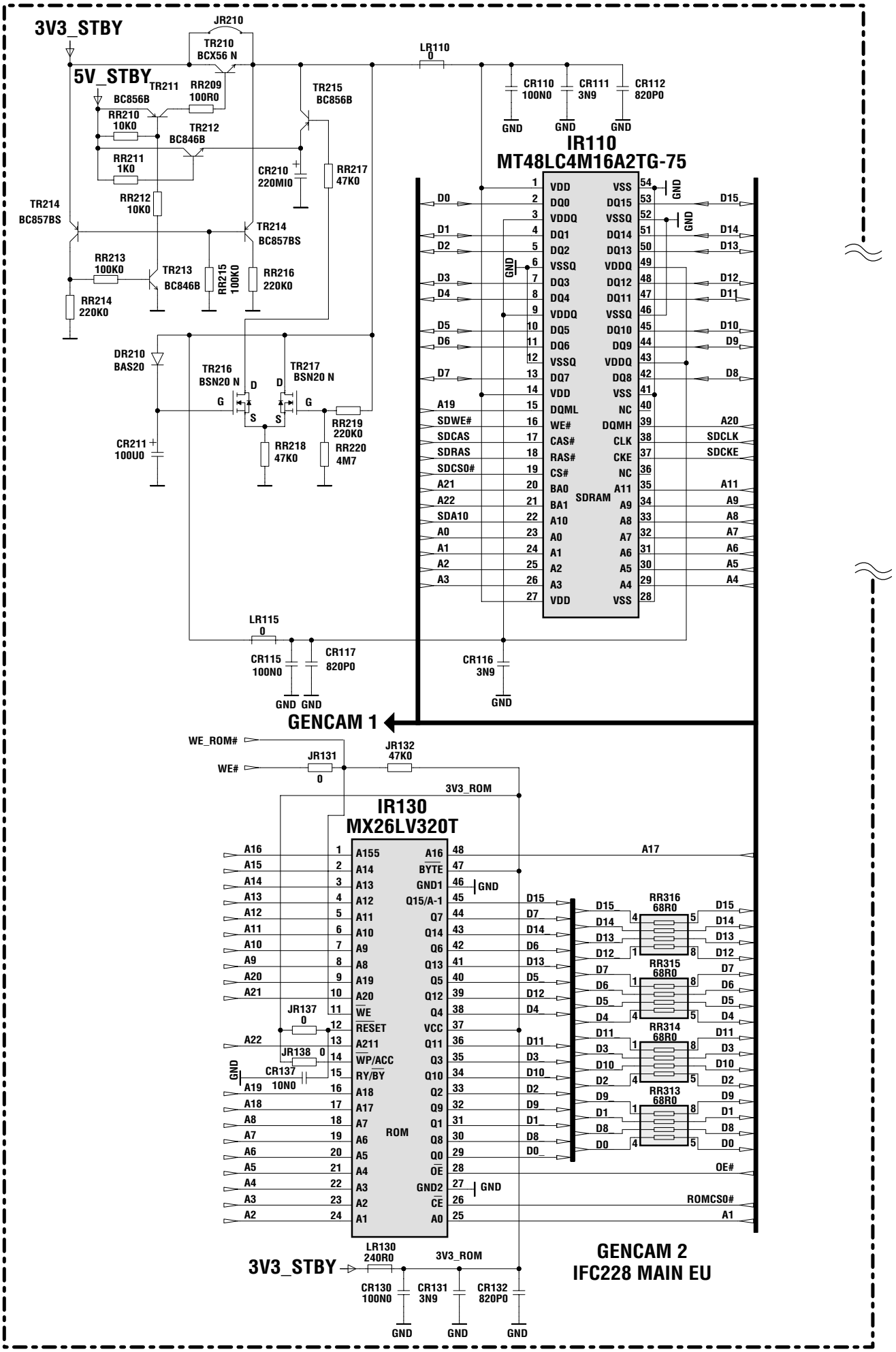



9V_1H
(O/P to sheet 9)
9V
1V8_UC
3V3_UC
COMB
to COM FILTER
FRAME_CV
CHROMA_M
CVBS/Y_M
C_M/FRC
Y_M/FRC
CVBS_AV1_OUT
to DVD 26pin conn.
HDD_CVBS
MONITOR_OUT
IV100
VSP9407B-VK-C1
IV101
TEA6415C
GENCAM 1
FLI
VP/ADC
VIDEO SW
TUNER
AV IN
CVBS_TXT_S
CVBS_TXT_M
IIC_CL_2
IIC_DA_2
656HIO
656VIO
IIC_DA_3
IIC_CL_3
INT_DM U
RESET_DMU#
V_R
U_B
Y_G
HOUT
VOUT
CLKOUT
CVBS_EXT
AV2_B/CB
AV2_G/Y
AV2_FB/H
V_EXT
CVBS_IFM
CVBS_IFS
AV3/F_CVBS/Y_IN
AV3/F_CHROMA_IN
AV2_R/CR
AV2_CVBS/Y_IN
CVBS_AV2_OUT
AV1_CVBS/Y_IN
AV1_R/C
AV1_B
AV1_G
AV1_FB
VIDEO SIGNAL PROCESSOR (VSP)
IFC228 MAIN EU

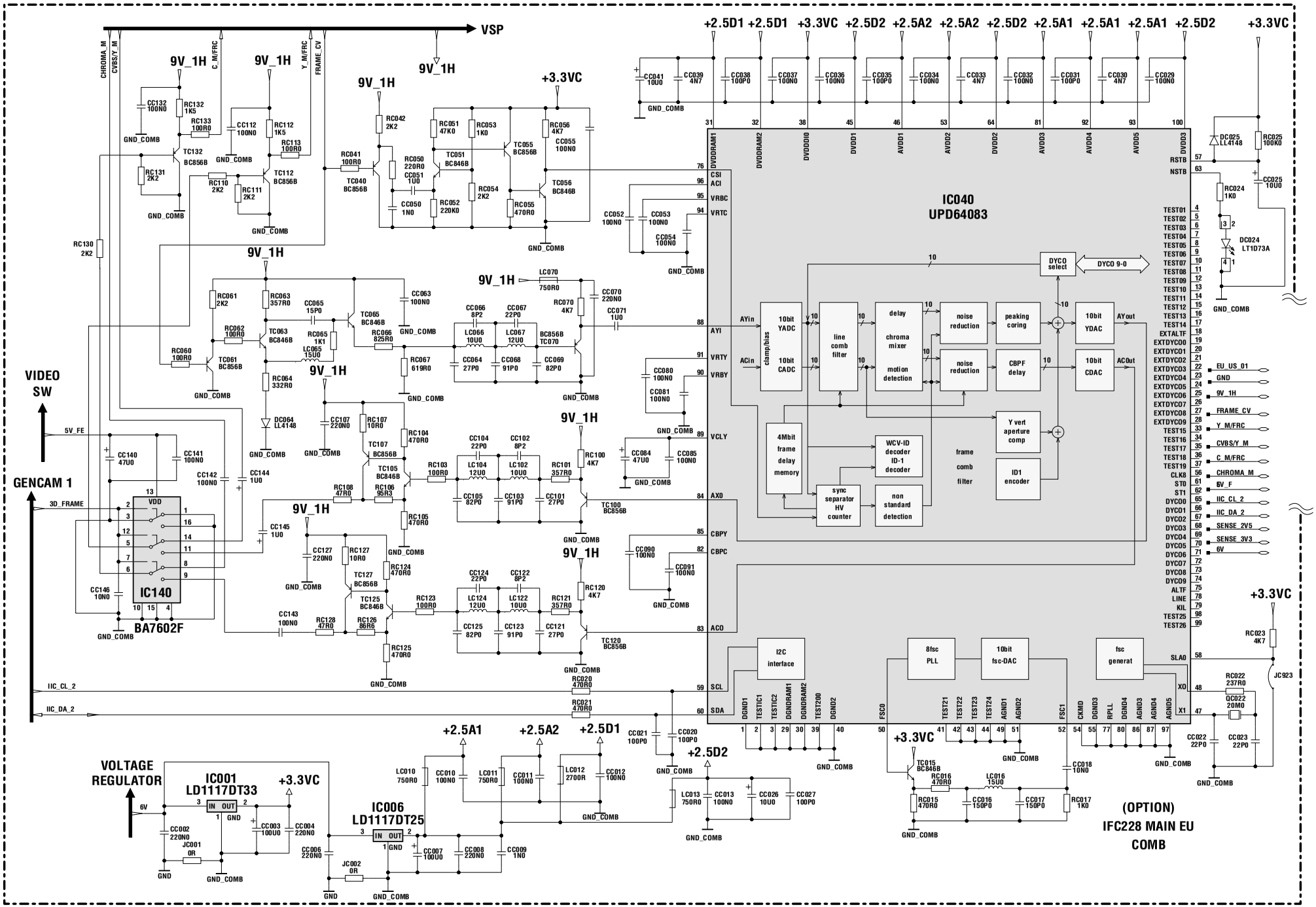
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE
SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE
ESQUEMA DE LA PLATINA PRINCIPAL

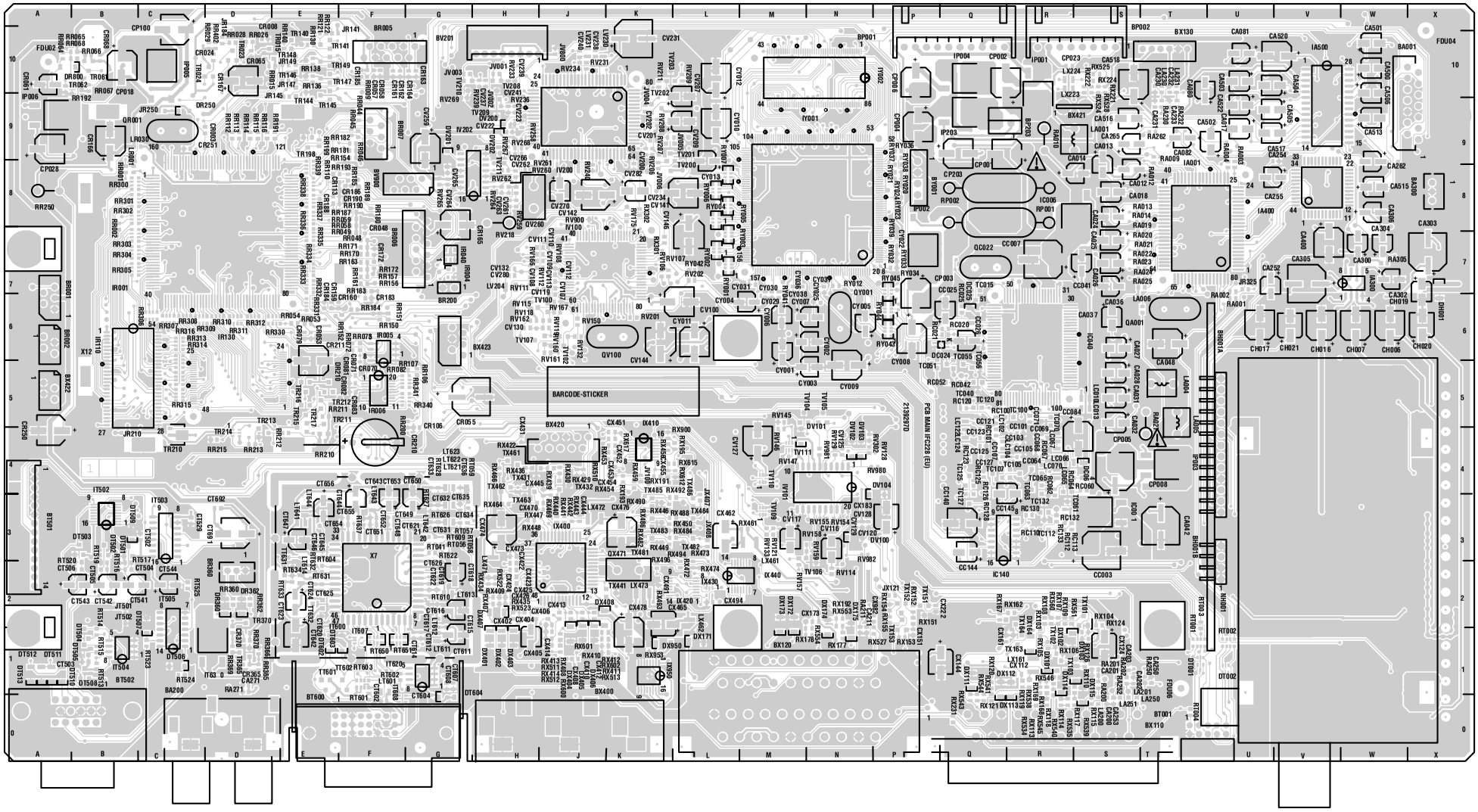


MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



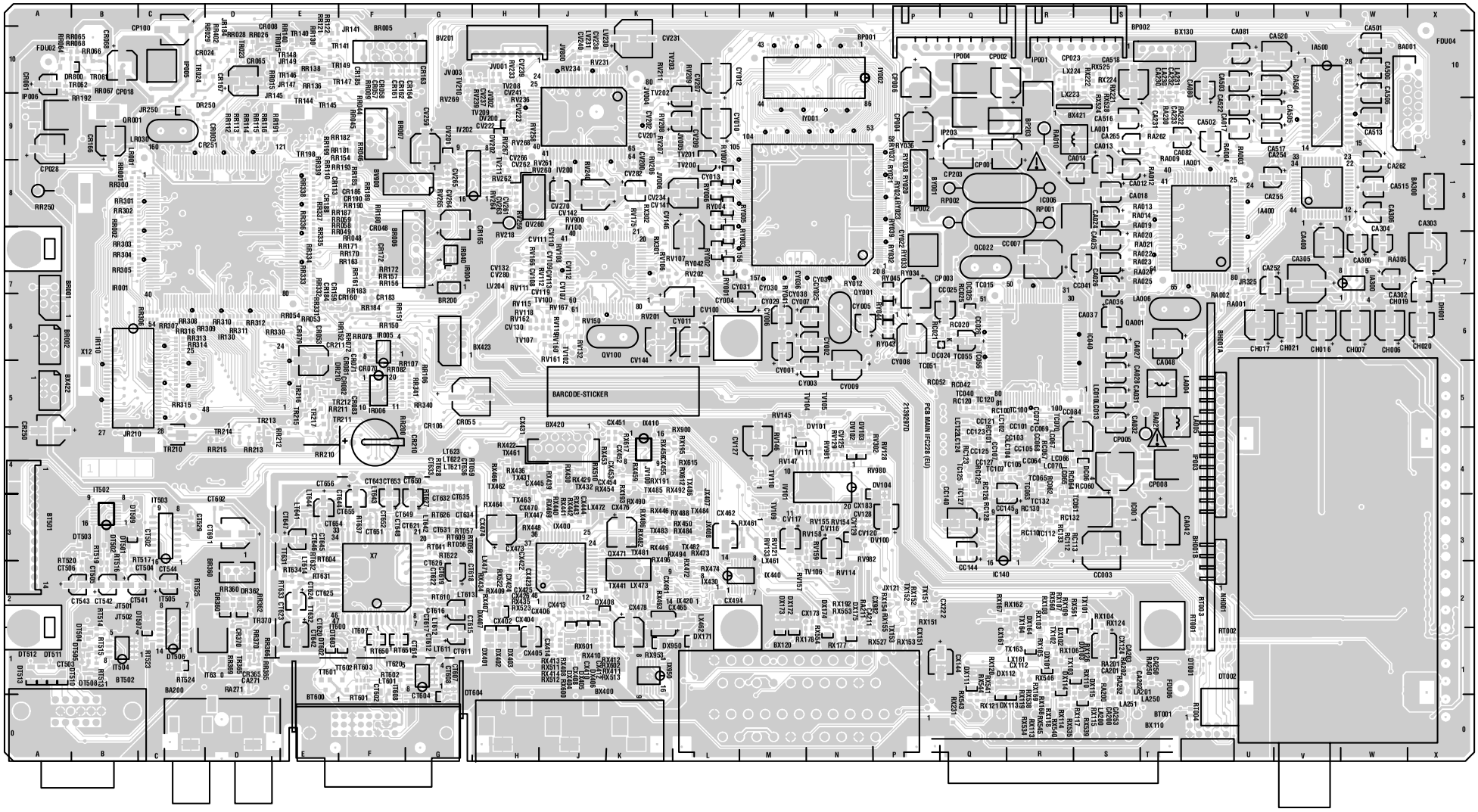
MAIN BOARD - PLATINE PRINCIPALE - CHASSIS GRUNDPLATTE - PIASTRA PRINCIPALE - PLATINA PRINCIPAL

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



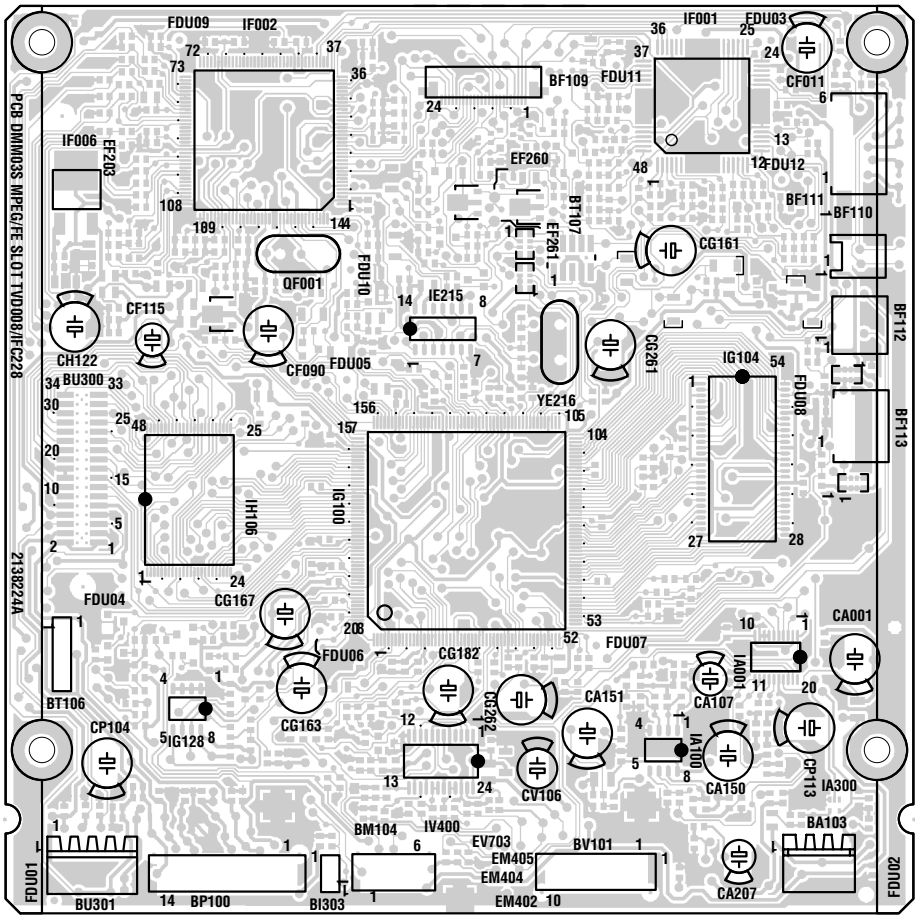
MAIN BOARD - PLATINE PRINCIPALE - CHASSIS GRUNDPLATTE - PIASTRA PRINCIPALE - PLATINA PRINCIPAL

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

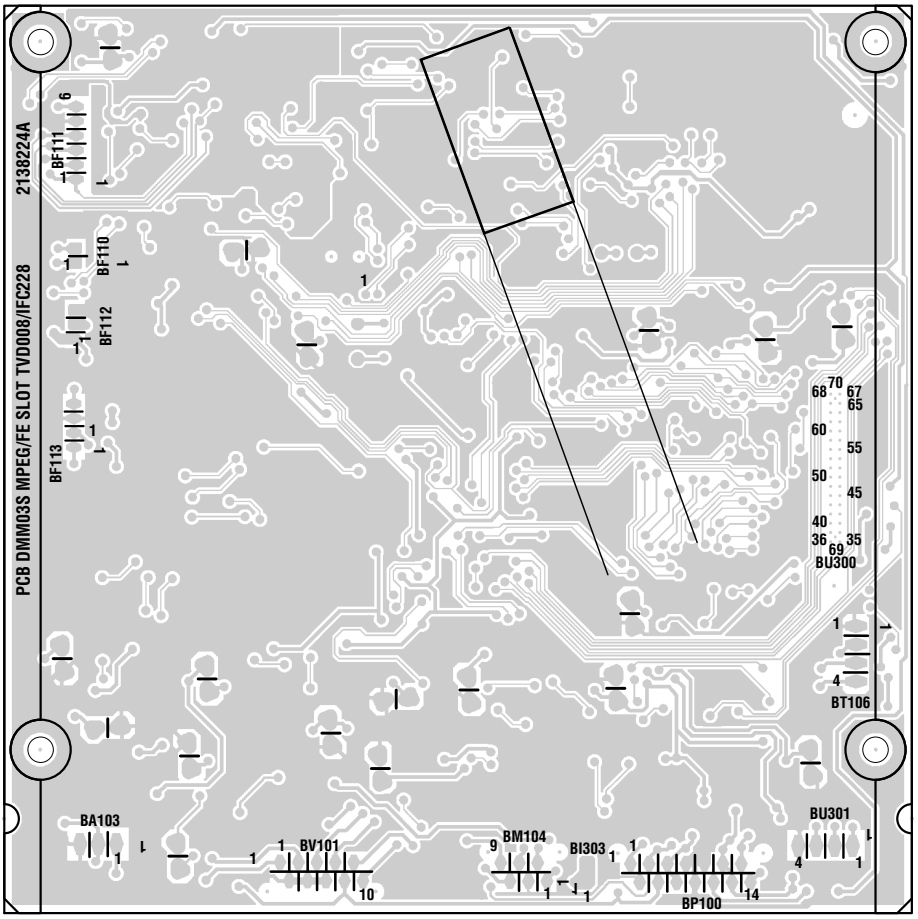


DIGITAL PROCESSING P.C.B. - PLATINE TRAITEMENT DIGITAL
LTPL. DIGITALVERARBEITUNG - PIASTRA ELABORAZIONE DIGITALE
PLATINA TRATAMIENTO DIGITAL

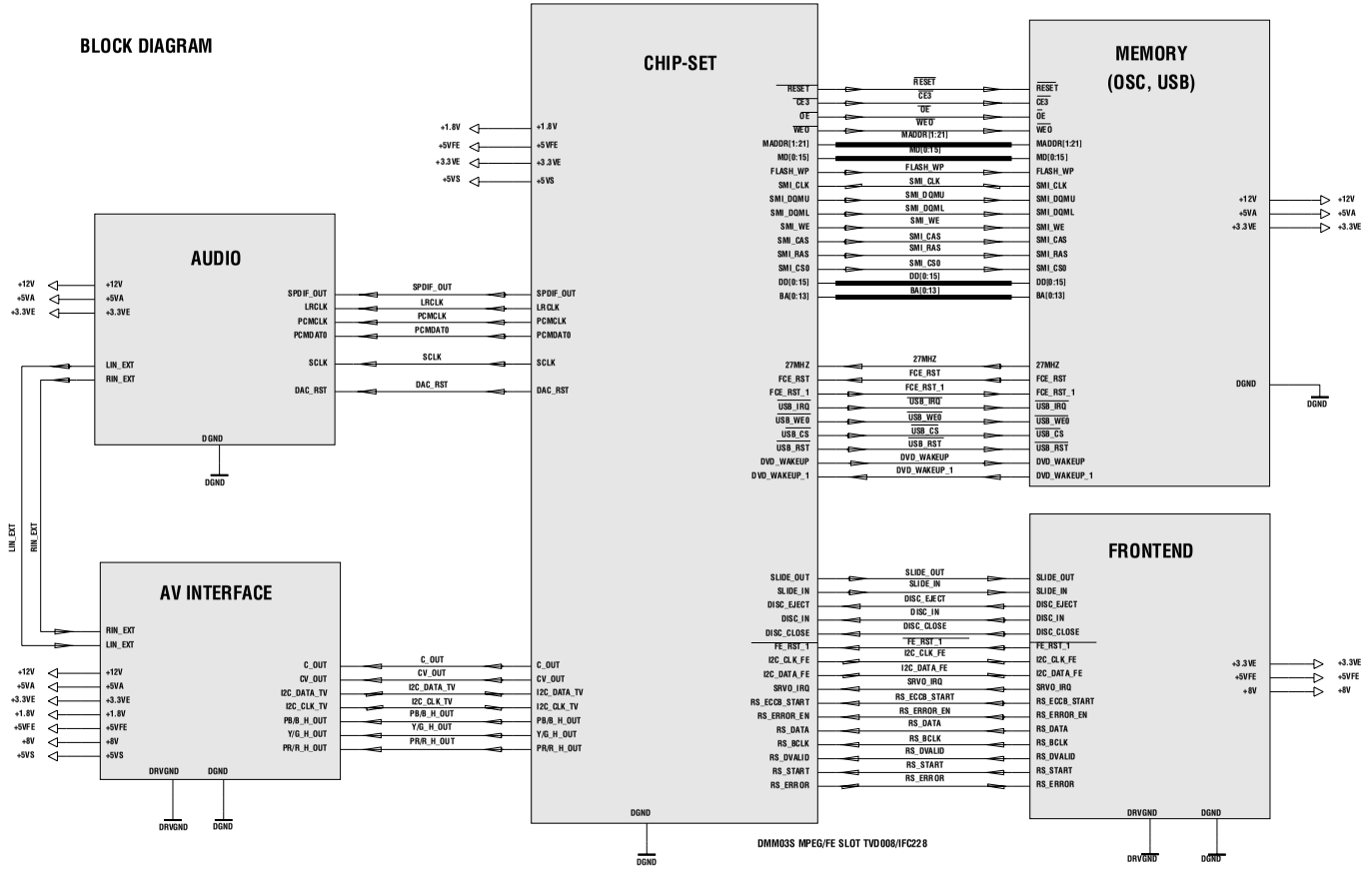
COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI
LADO COMPONENTES



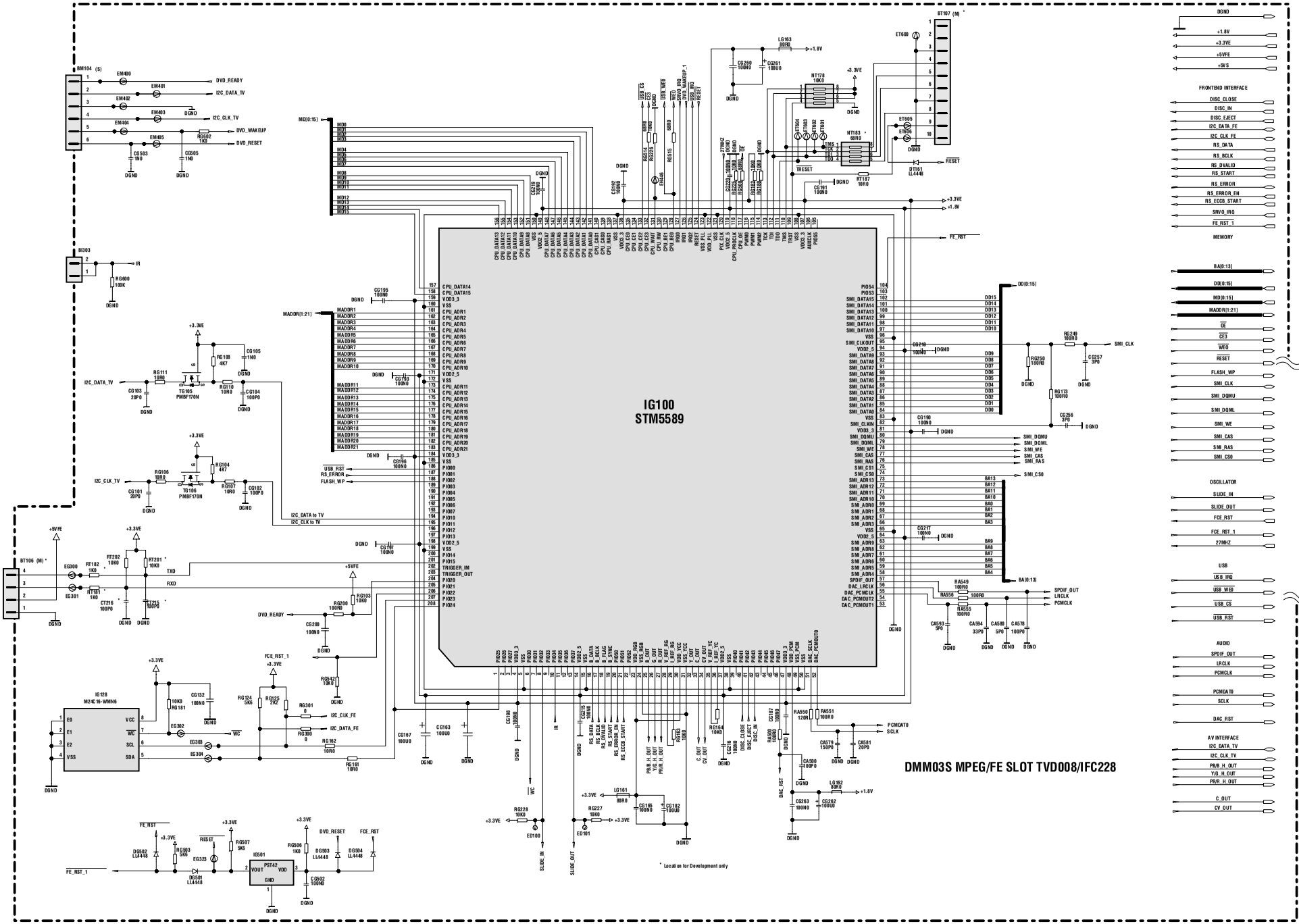
SOLDER SIDE - COTÉ CUIVRE - LÖTSEITE - LATO SALDATURE - LADO DEL COBRE

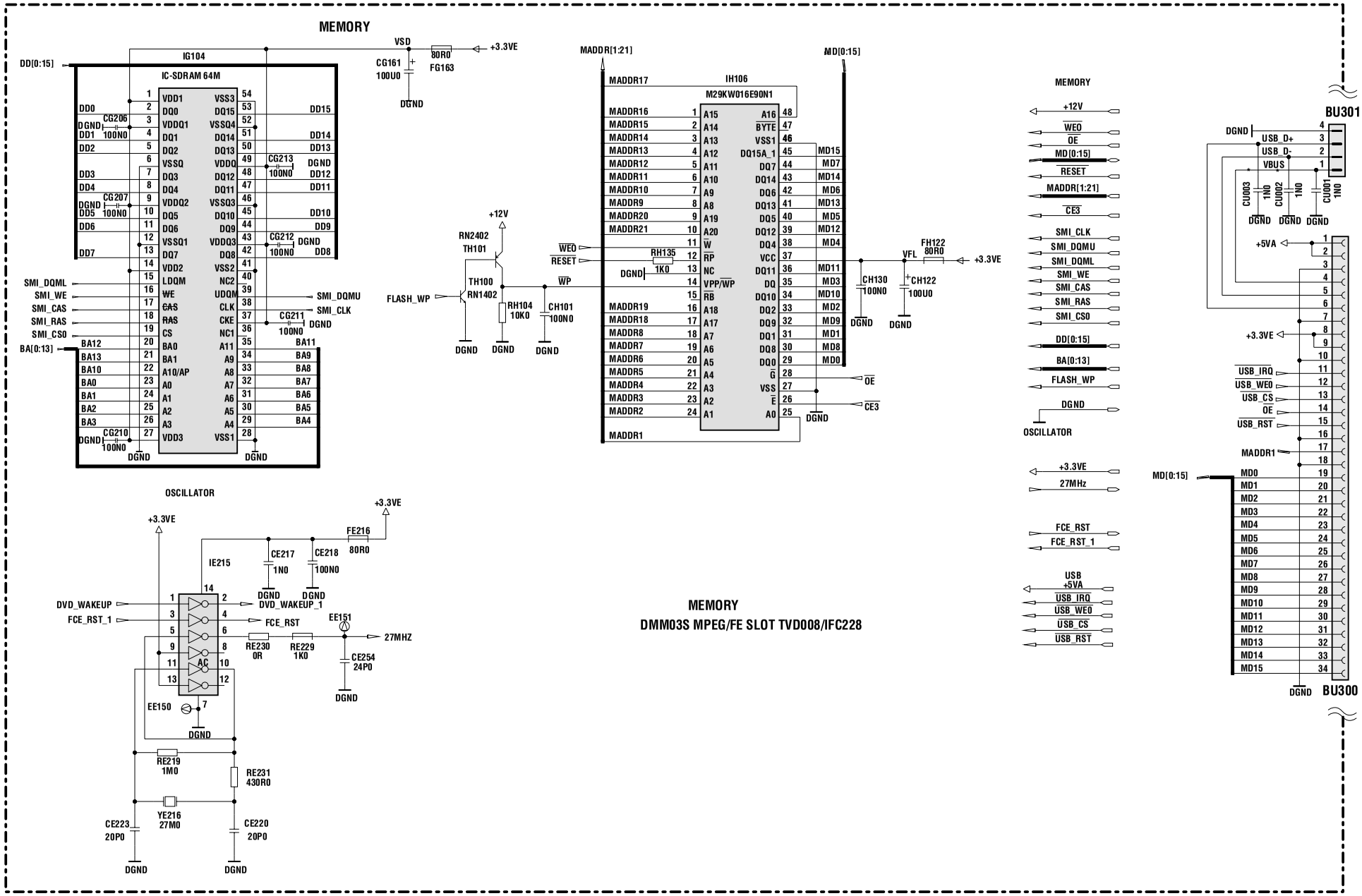


IFC228-LCD
First issue 04 / 05

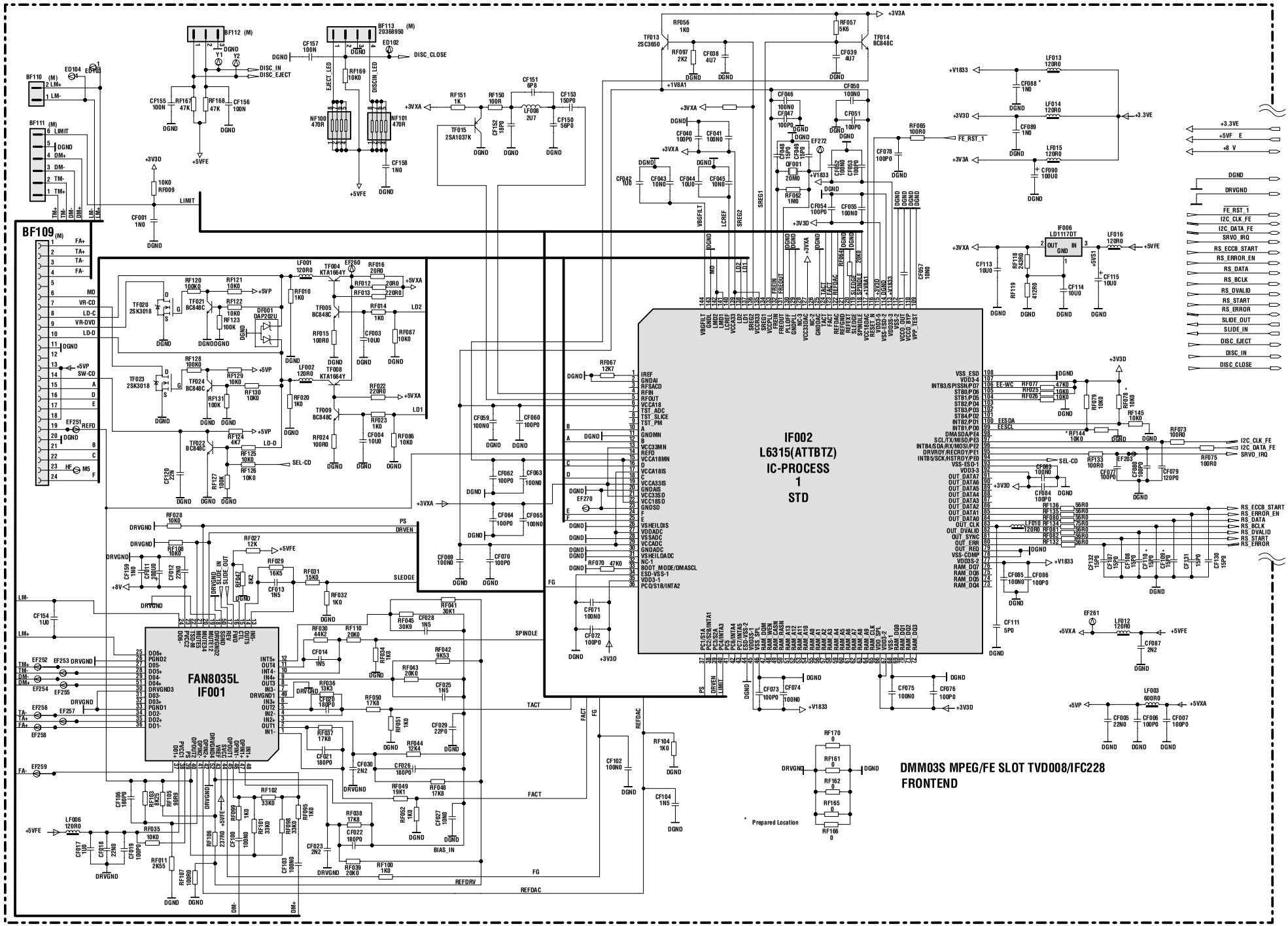

BLOCK DIAGRAM
CHIP-SET
MEMORY
(OSC, USB)
AUDIO
AV INTERFACE
FRONTEND
DMM03S MPEG/FE SLOT TVD008/IFC228

MPEG SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE MPEG - SCHALTBILD MPEG - SCHEMA DELLA PIASTRA MPEG- ESQUEMA DE LA PLATINA MPEG



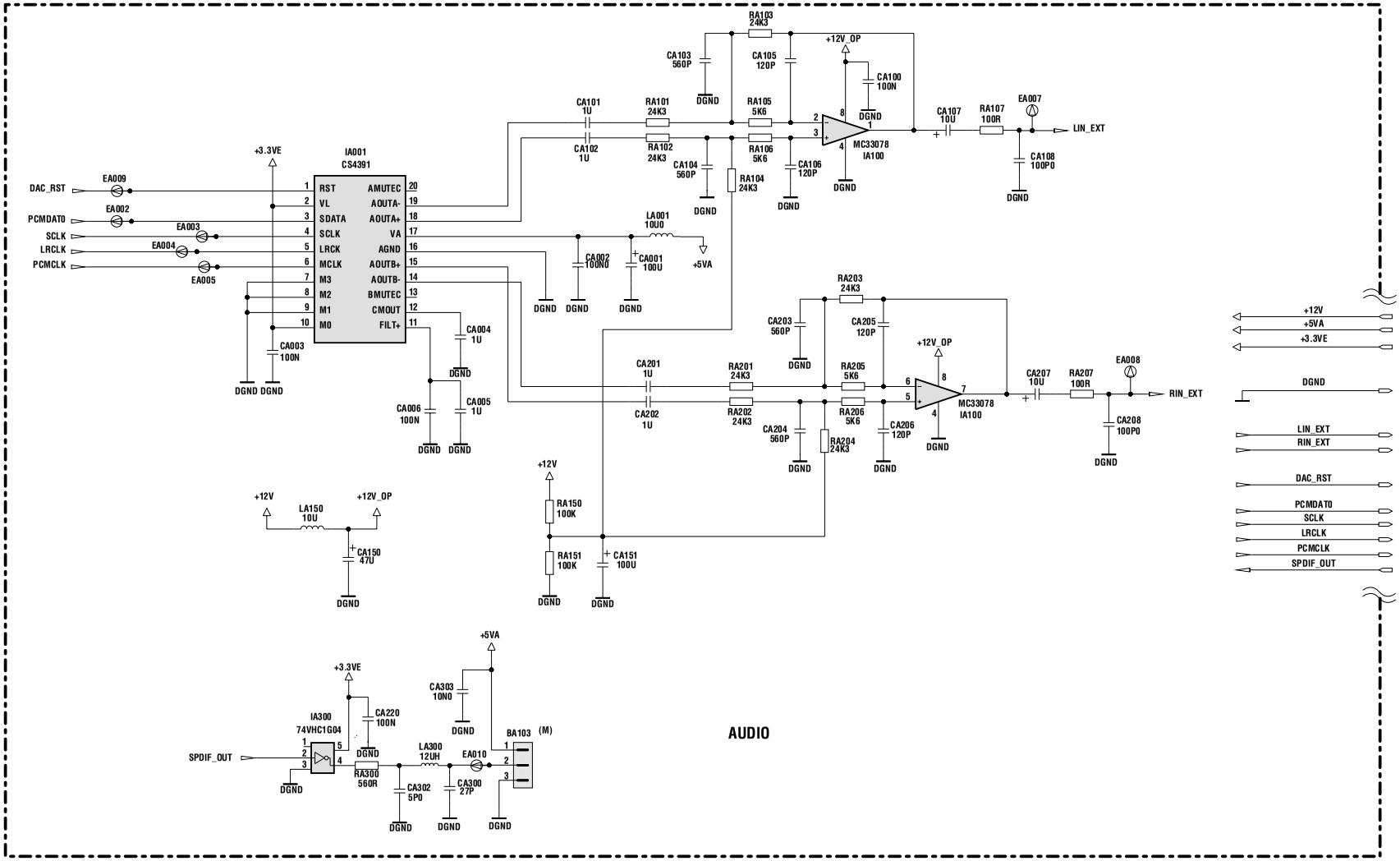

MEMORY
IG104
IC-SDRAM 64M
DD[0:15]
SMI_DQML
SMI_WE
SMI_CAS
SMI_RAS
SMI_CS0
BA[0:13]
SMI_DQMU
SMI_CLK
VSD
CG161 100U0
80R0
FG163
+3.3VE
DGND
MADDR[1:21]
MD[0:15]
IH106
M29KW016E90N1
RN2402
TH101
TH100
RN1402
RH104 10K0
CH101 100N0
FLASH_WP
+12V
RH135 1K0
RESET
WEO
OE
CE3
VFL
FH122 80R0
CH130 100N0
CH122 100U0
MEMORY
+12V
WEO
OE
MD[0:15]
RESET
MADDR[1:21]
CE3
SMI_CLK
SMI_DQMU
SMI_DQML
SMI_WE
SMI_CAS
SMI_RAS
SMI_CS0
DD[0:15]
BA[0:13]
FLASH_WP
DGND
OSCILLATOR
+3.3VE
27MHz
FCE_RST
FCE_RST_1
USB
+5VA
USB_IRQ
USB_WEO
USB_CS
USB_RST
BU301
USB_D+
USB_D-
VBUS
CU003 1N0
CU002 1N0
CU001 1N0
+5VA
+3.3VE
USB_IRQ
USB_WEO
USB_CS
OE
USB_RST
MADDR1
MD[0:15]
BU300
OSCILLATOR
+3.3VE
FE216 80R0
CE217 1N0
CE218 100N0
IE215
DVD_WAKEUP
FCE_RST_1
DVD_WAKEUP_1
FCE_RST
EE151
27MHZ
RE230 0R
RE229 1K0
CE254 24P0
EE150
RE219 1M0
RE231 430R0
YE216 27M0
CE223 20P0
CE220 20P0
MEMORY
DMM03S MPEG/FE SLOT TVD008/IFC228

MPEG SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE MPEG - SCHALTBILD MPEG - SCHEMA DELLA PIASTRA MPEG- ESQUEMA DE LA PLATINA MPEG

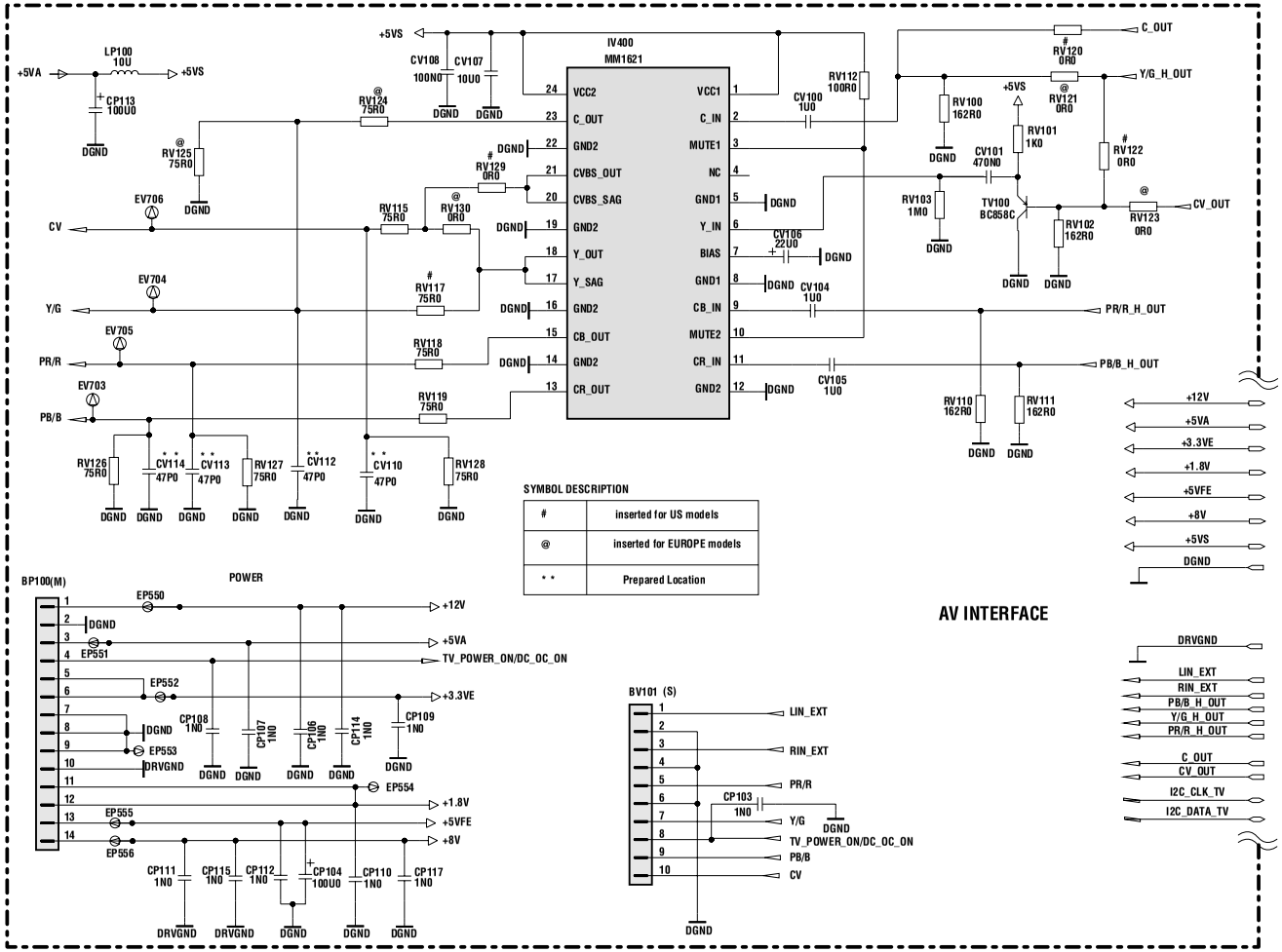


IFC228-LCD
First issue 04 / 05

MPEG SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE MPEG - SCHALTBILD MPEG - SCHEMA DELLA PIASTRA MPEG- ESQUEMA DE LA PLATINA MPEG

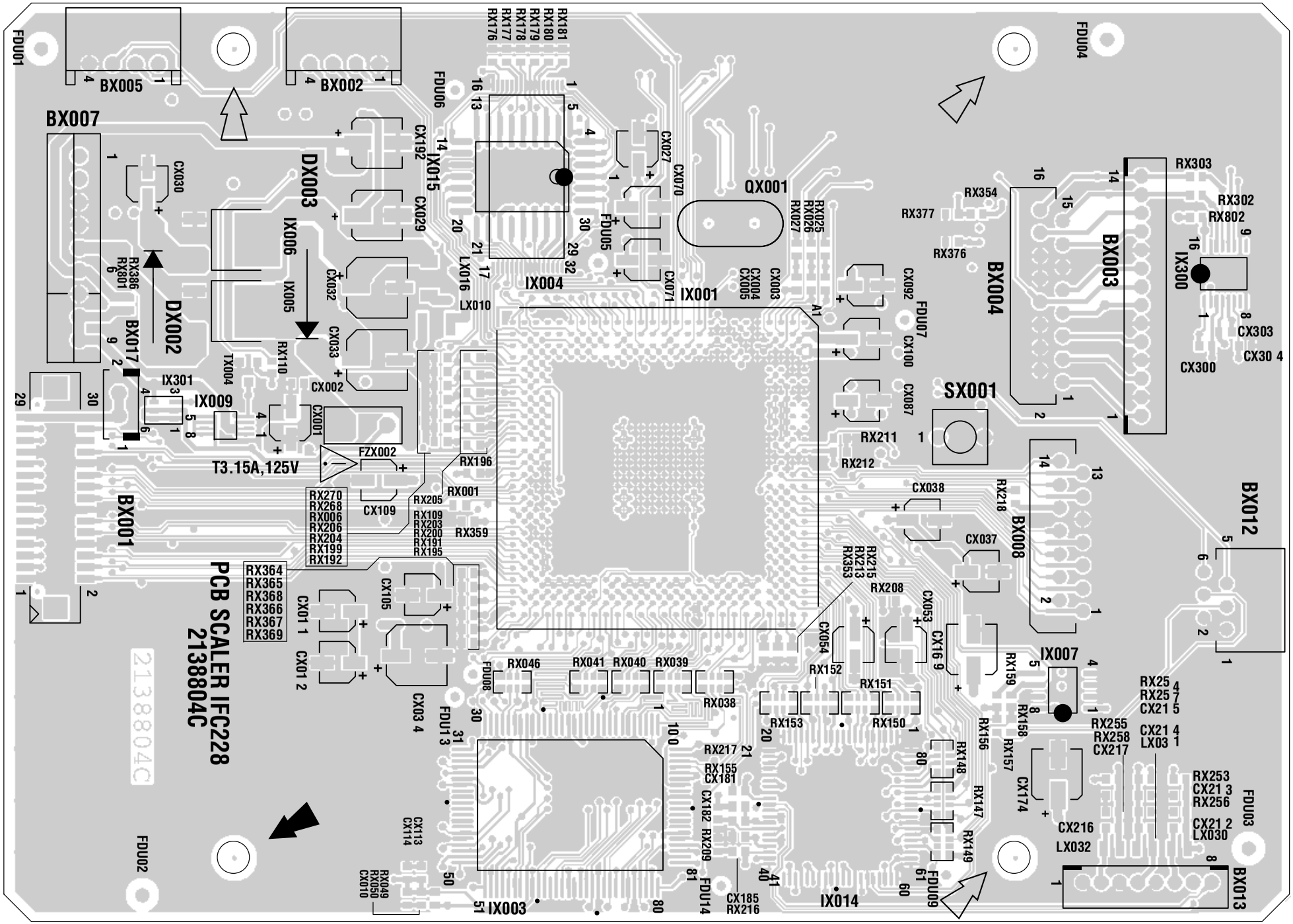


MPEG SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE MPEG - SCHALTBILD MPEG - SCHEMA DELLA PIASTRA MPEG- ESQUEMA DE LA PLATINA MPEG

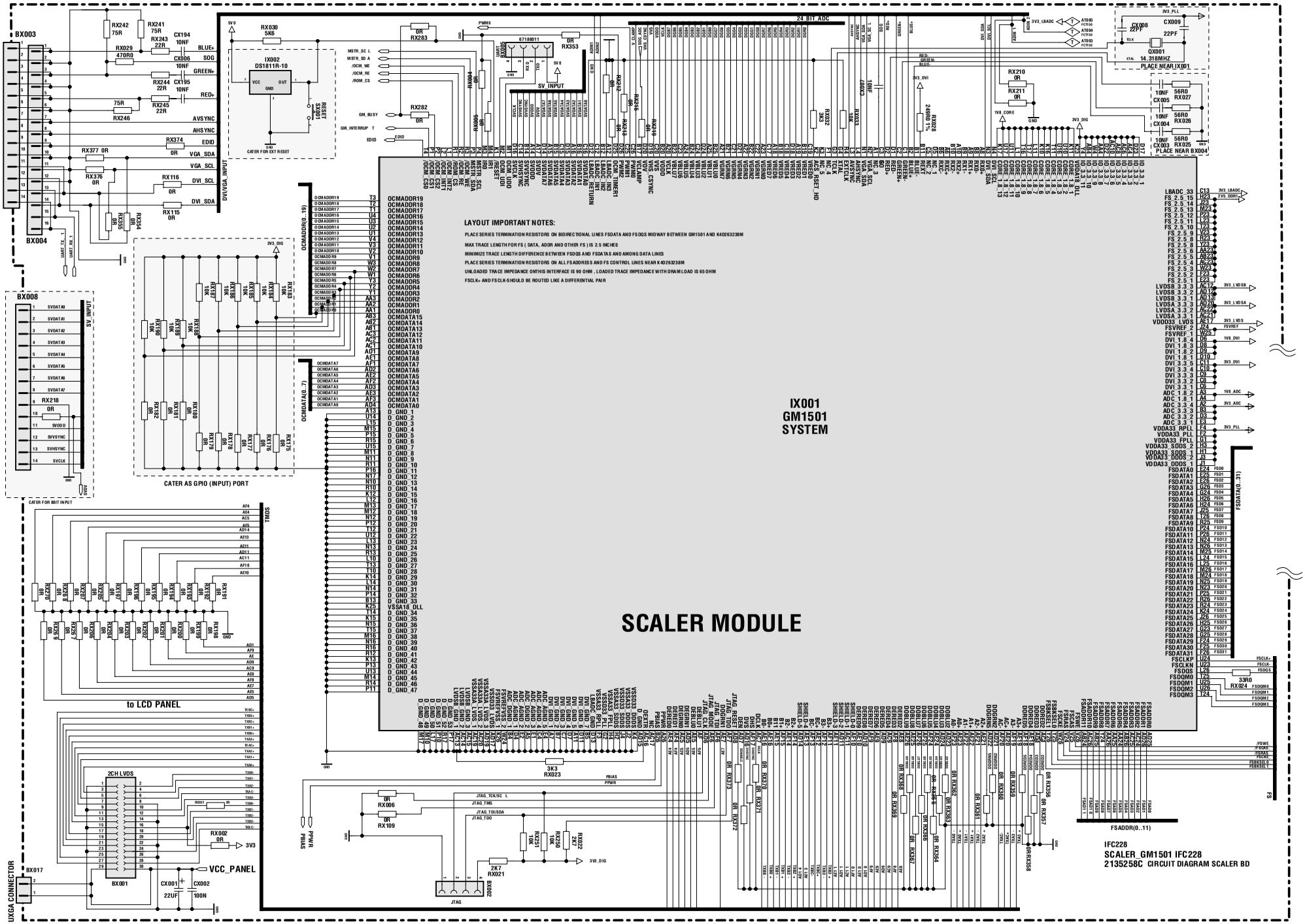


SCALER BOARD - PLATINE SCALER - SCALER GRUNDPLATTE - PIASTRA SCALER - PLATINA SCALER

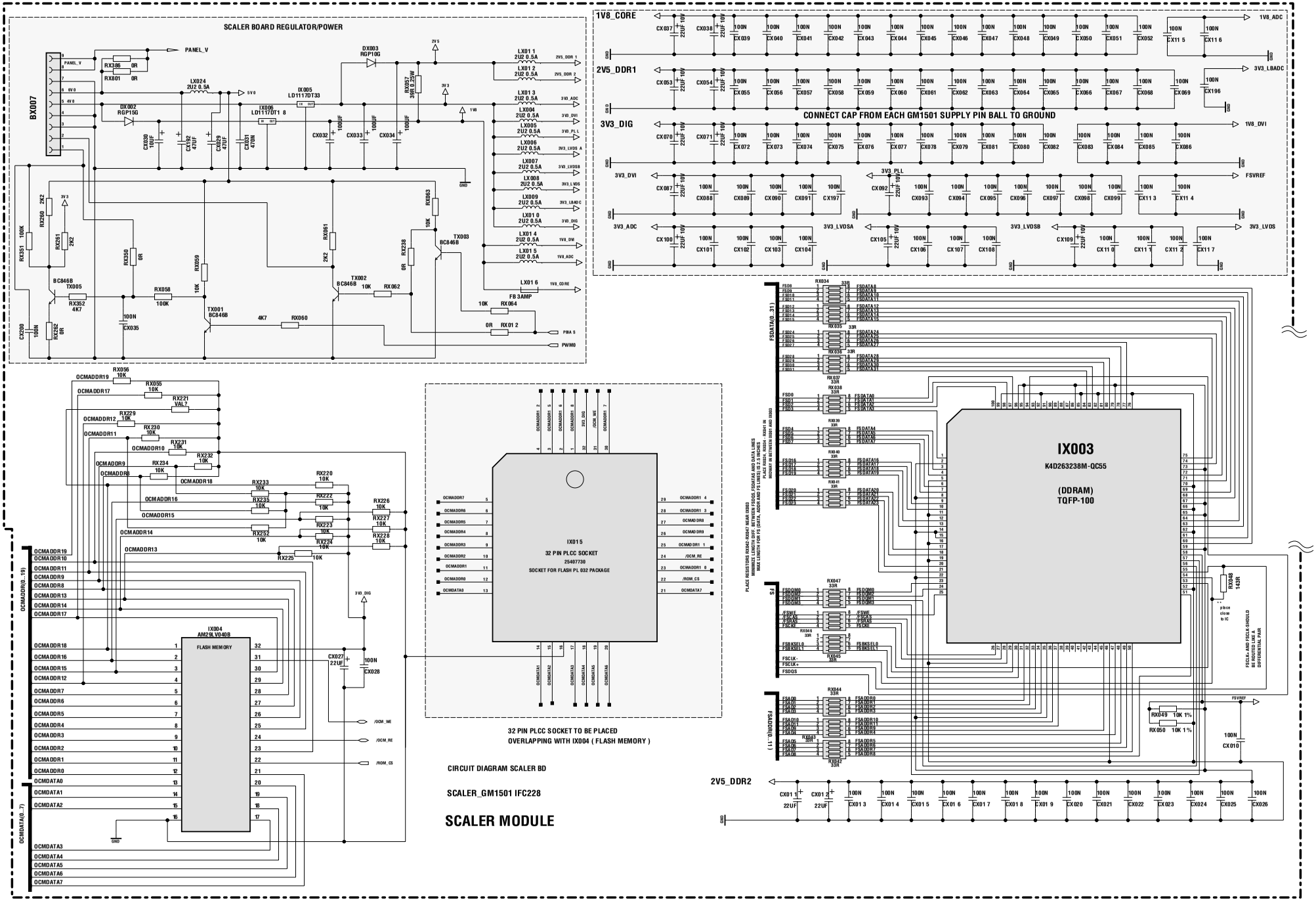
COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

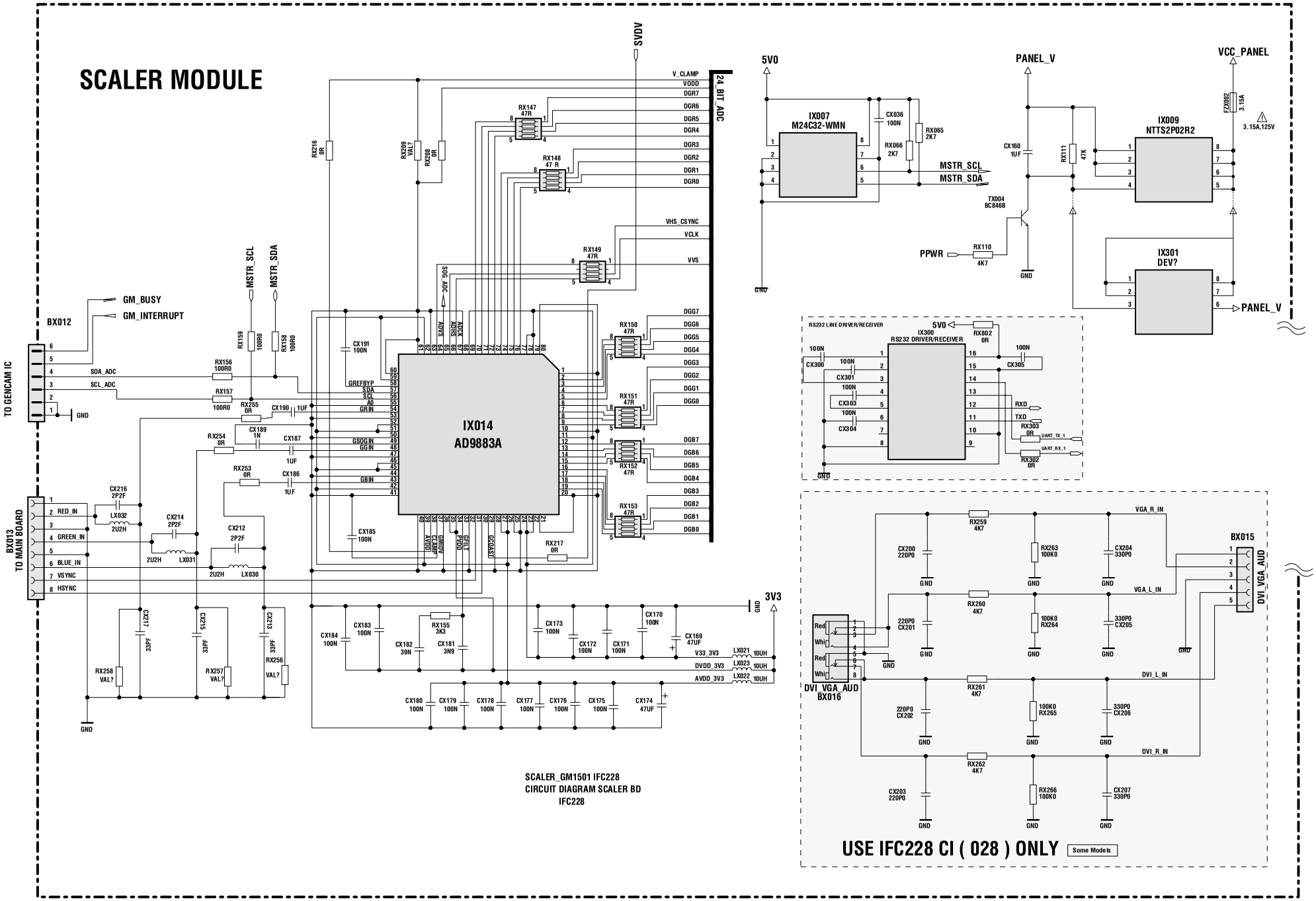


SCALER SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE SCALER - SCHALTBILD SCALER - SCHEMA DELLA PIASTRA SCALER - ESQUEMA DE LA PLATINA SCALER

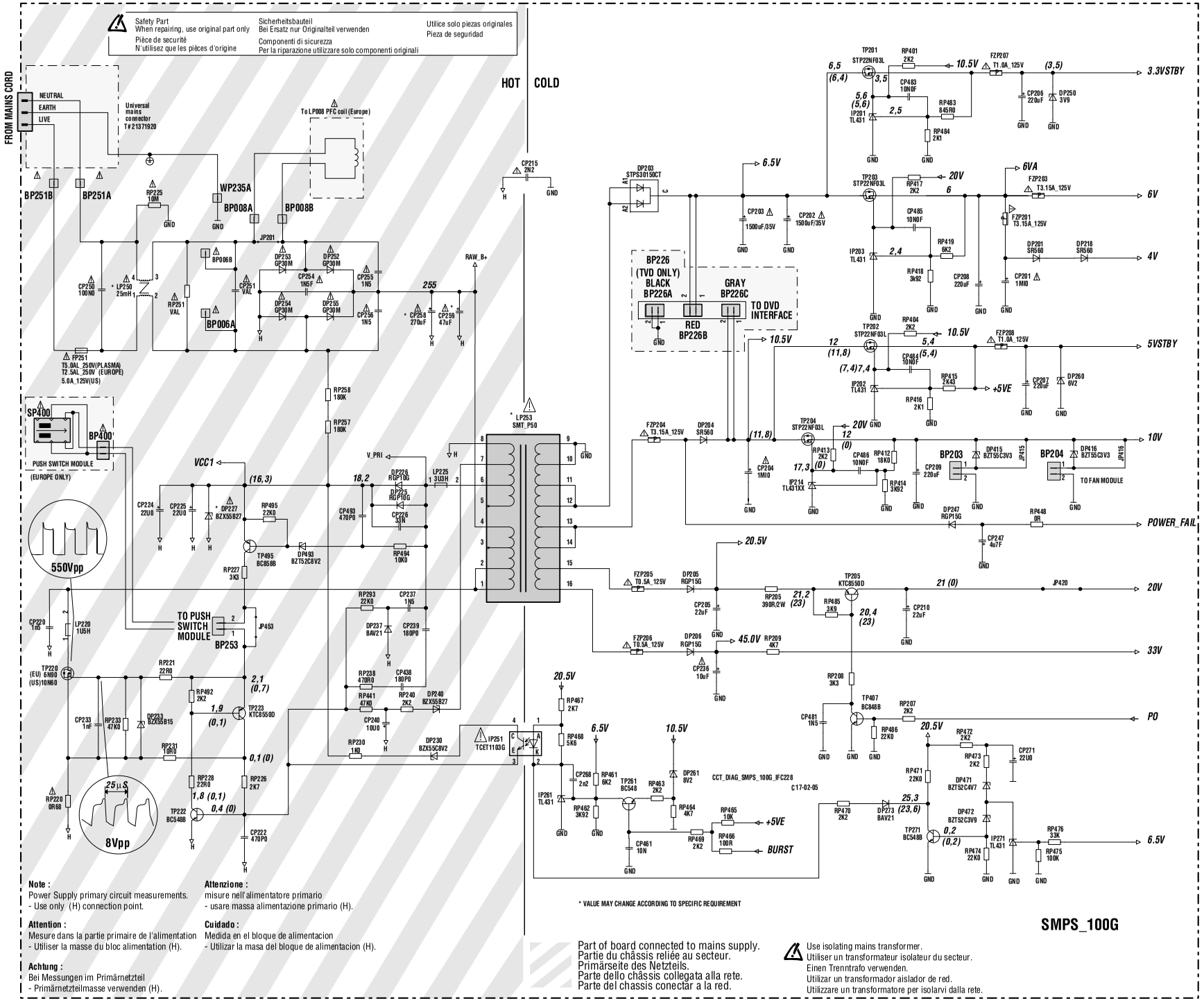


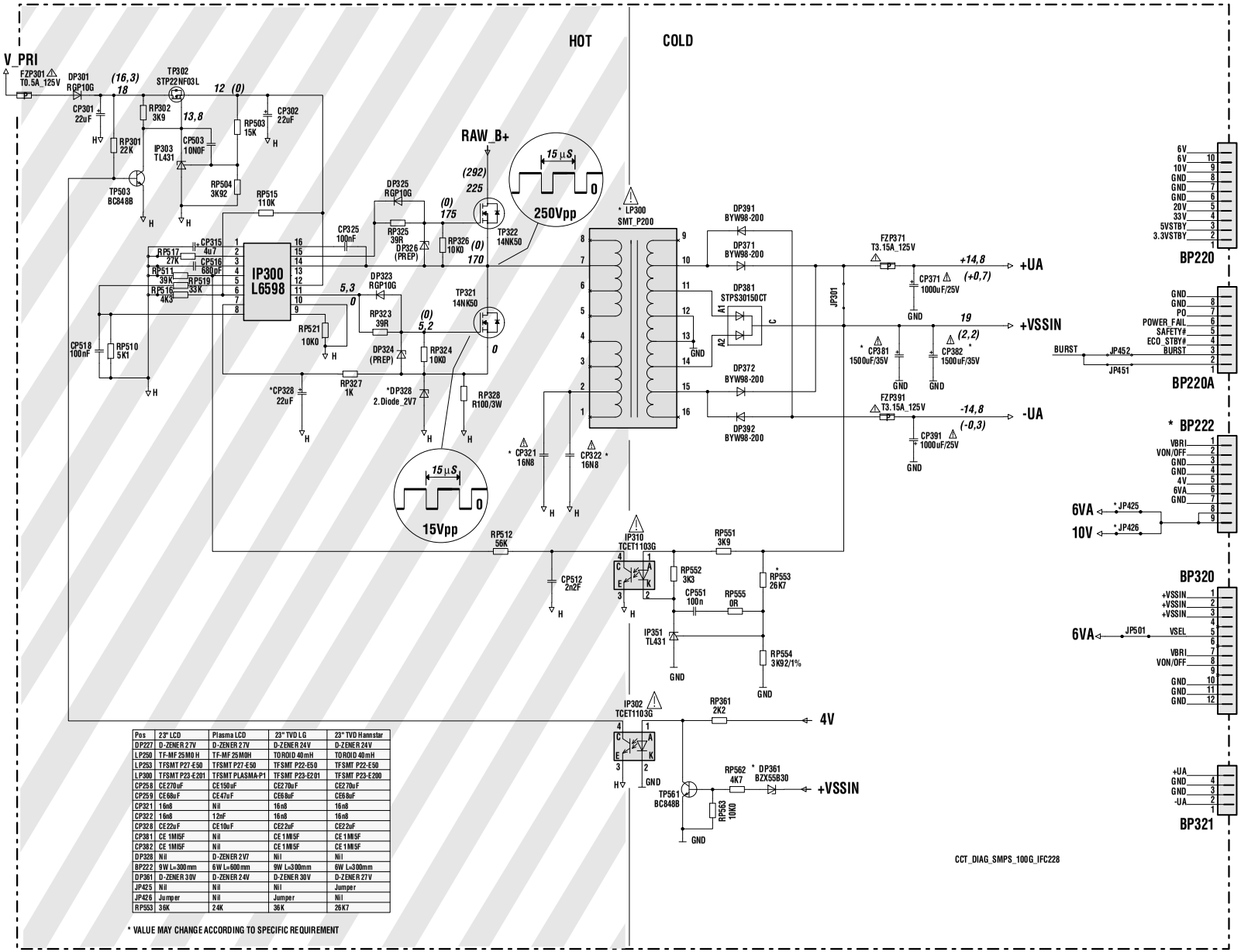
SCALER SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE SCALER - SCHALTBILD SCALER - SCHEMA DELLA PIASTRA SCALER - ESQUEMA DE LA PLATINA SCALER




SCALER MODULE
IX014
AD9883A
24_BIT_ADC
SVDV
V_CLAMP
VODD
DGR7
DGR6
DGR5
DGR4
DGR3
DGR2
DGR1
DGR0
VHS_CSYNC
VCLK
VVS
DGG7
DGG6
DGG5
DGG4
DGG3
DGG2
DGG1
DGG0
DGB7
DGB6
DGB5
DGB4
DGB3
DGB2
DGB1
DGB0
MSTR_SCL
MSTR_SDA
SOG ADC
GM_BUSY
GM_INTERRUPT
BX012
TO GENCAM IC
SDA_ADC
SCL_ADC
GND
BX013
TO MAIN BOARD
RED_IN
GREEN_IN
BLUE_IN
VSYNC
HSYNC
3V3
V33_3V3
DVDD_3V3
AVDD_3V3
5V0
IX007
M24C32-WMN
MSTR_SCL
MSTR_SDA
PANEL_V
VCC_PANEL
IX009
NTTS2P02R2
IX301
DEV?
PPWR
TX004
BC846B
RS232 LINE DRIVER/RECEIVER
IX300
RS232 DRIVER/RECEIVER
RXD
TXD
UART_TX_1
UART_RX_1
BX015
DVI_VGA_AUD
BX016
VGA_R_IN
VGA_L_IN
DVI_L_IN
DVI_R_IN
USE IFC228 CI (028) ONLY
Some Models
SCALER_GM1501 IFC228
CIRCUIT DIAGRAM SCALER BD
IFC228

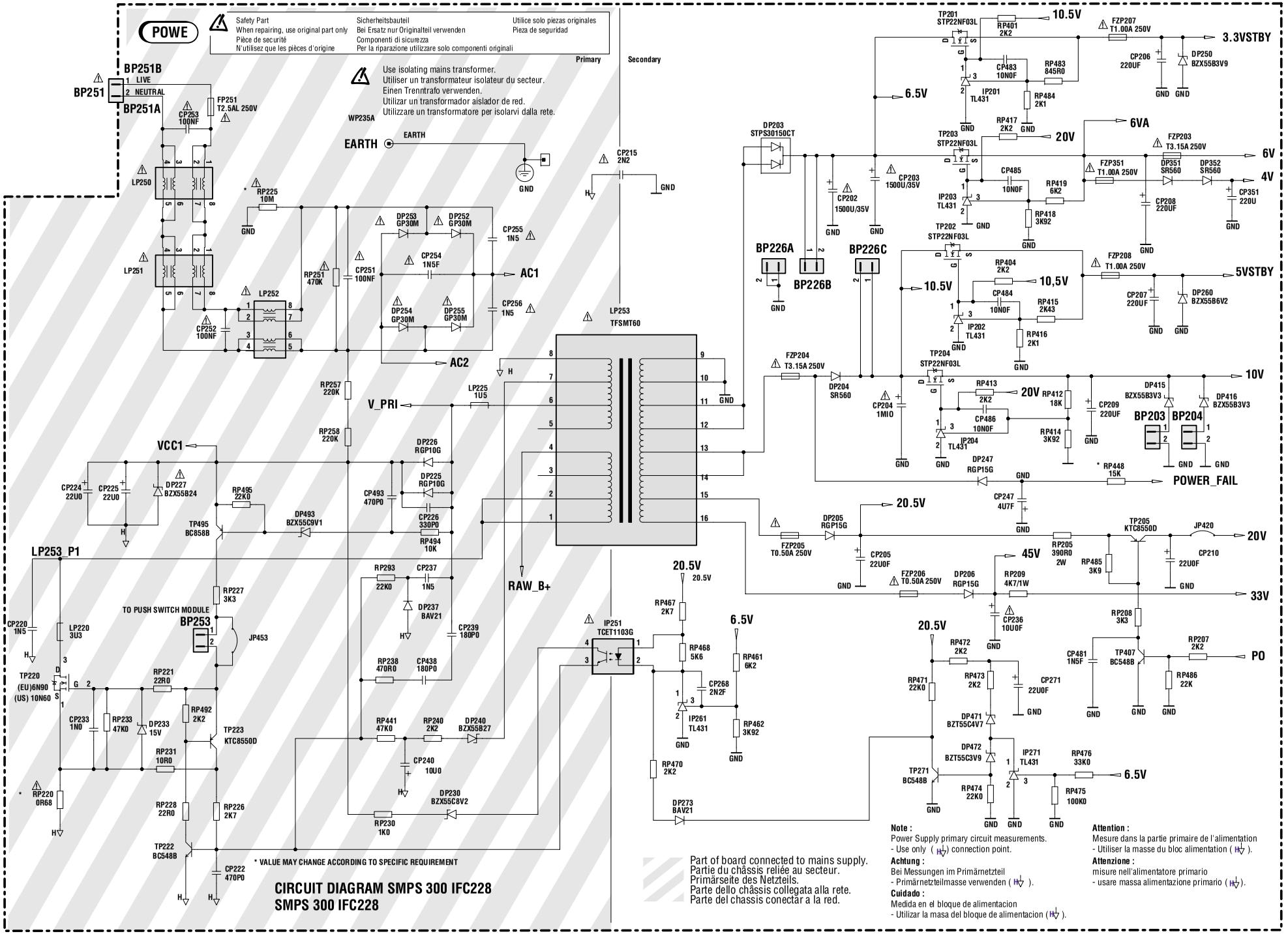
POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE - ALIMENTACIÓN



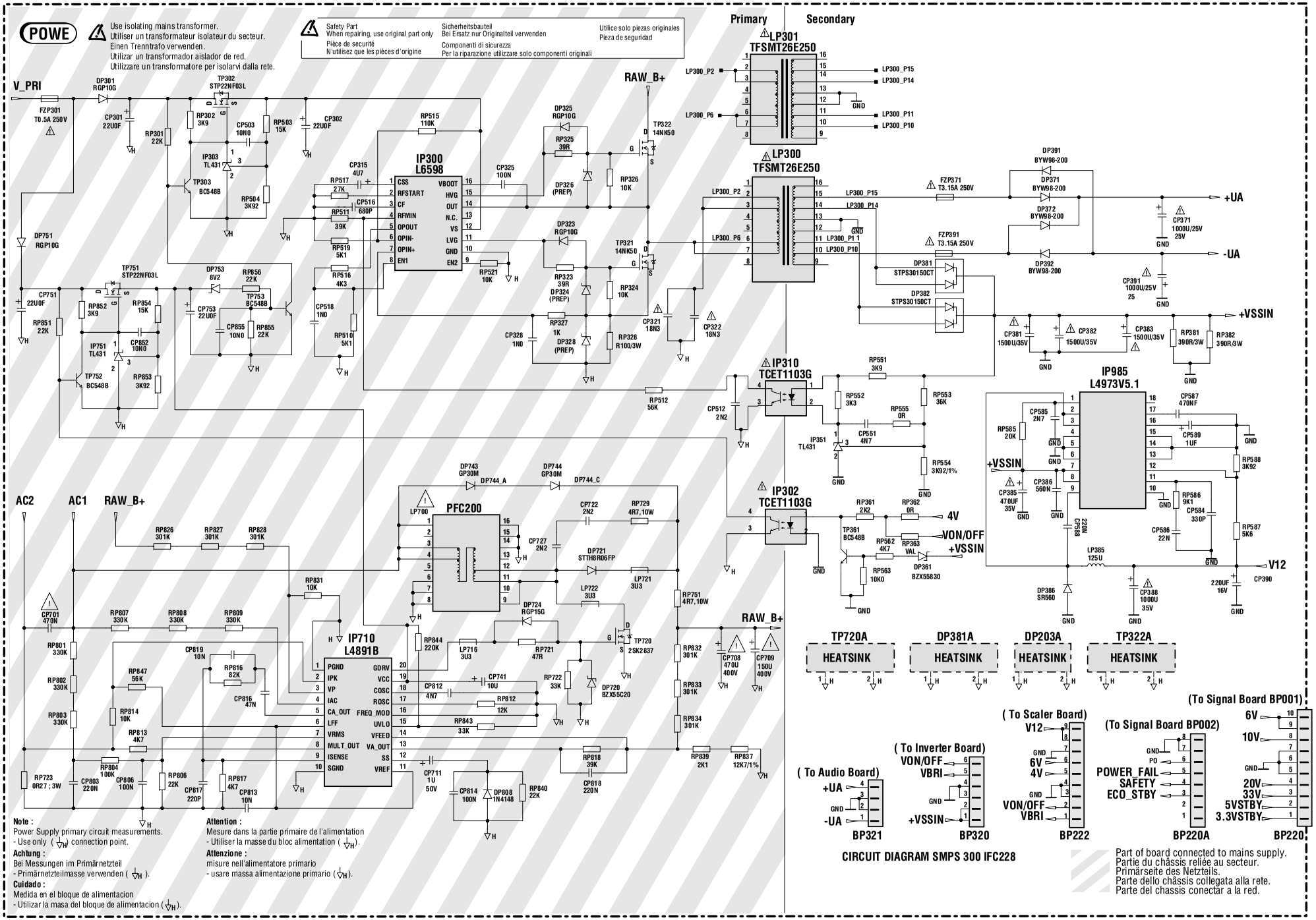


Pos	23" LCD	Plasma LCD	23" TVD LG	23" TVD Hannstar
DP227	D-ZENER 27V	D-ZENER 27V	D-ZENER 24V	D-ZENER 24V
LP250	TF-MF 25M0 H	TF-MF 25M0H	TOROID 40mH	TOROID 40mH
LP253	TFSMT P27-E50	TFSMT P27-E50	TFSMT P22-E50	TFSMT P22-E50
LP300	TFSMT P23-E201	TFSMT PLASMA-P1	TFSMT P23-E201	TFSMT P23-E200
CP258	CE270uF	CE150uF	CE270uF	CE270uF
CP259	CE68uF	CE47uF	CE68uF	CE68uF
CP321	16n8	Nil	16n8	16n8
CP322	16n8	12nF	16n8	16n8
CP328	CE22uF	CE10uF	CE22uF	CE22uF
CP381	CE 1M5F	Nil	CE 1M5F	CE 1M5F
CP382	CE 1M5F	Nil	CE 1M5F	CE 1M5F
DP328	Nil	D-ZENER 2V7	Nil	Nil
BP222	9W L=300mm	6W L=600mm	9W L=300mm	6W L=300mm
DP361	D-ZENER 30V	D-ZENER 24V	D-ZENER 30V	D-ZENER 27V
JP425	Nil	Nil	Nil	Jumper
JP426	Jumper	Nil	Jumper	Nil
RP553	36K	24K	36K	26K7

* VALUE MAY CHANGE ACCORDING TO SPECIFIC REQUIREMENT


POWE
Safety Part
When repairing, use original part only
Pièce de securité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
Per la riparazione utilizzare solo componenti originali
Utilice solo piezas originales
Pieza de seguridad
Primary
Secondary
Use isolating mains transformer.
Utiliser un transformateur isolateur du secteur.
Einen Trenntrafo verwenden.
Utilizar un transformador aislador de red.
Utilizzare un transformatore per isolarvi dalla rete.
WP235A
BP251B
BP251
1 LIVE
2 NEUTRAL
BP251A
FP251 T2.5AL 250V
CP253 100NF
LP250
LP251
LP252
LP253 TFSMT60
EARTH
CP215 2N2
RP225 10M
RP251 470K
CP251 100NF
CP252 100NF
DP253 GP30M
DP252 GP30M
DP254 GP30M
DP255 GP30M
CP254 1N5F
CP255 1N5
CP256 1N5
AC1
AC2
RP257 220K
RP258 220K
V_PRI
LP225 1U5
VCC1
CP224 22U0
CP225 22U0
DP227 BZX55B24
RP495 22K0
TP495 BC858B
DP493 BZX55C9V1
DP226 RGP10G
DP225 RGP10G
CP493 470P0
CP226 330P0
RP494 10K
LP253_P1
RP293 22K0
CP237 1N5
DP237 BAV21
CP239 180P0
RP238 470R0
CP438 180P0
RP441 47K0
RP240 2K2
DP240 BZX55B27
CP240 10U0
DP230 BZX55C8V2
RP230 1K0
RAW_B+
TO PUSH SWITCH MODULE
BP253
JP453
RP227 3K3
CP220 1N5
LP220 3U3
TP220 (EU)6N90 (US) 10N60
RP221 22R0
RP492 2K2
CP233 1N0
RP233 47K0
DP233 15V
TP223 KTC8550D
RP231 10R0
RP220 0R68
RP228 22R0
RP226 2K7
TP222 BC548B
CP222 470P0
* VALUE MAY CHANGE ACCORDING TO SPECIFIC REQUIREMENT
IP251 TCET1103G
20.5V
RP467 2K7
RP468 5K6
CP268 2N2F
IP261 TL431
6.5V
RP461 6K2
RP462 3K92
RP470 2K2
DP273 BAV21
TP201 STP22NF03L
RP401 2K2
10.5V
FZP207 T1.00A 250V
3.3VSTBY
CP206 220UF
DP250 BZX55B3V9
CP483 10N0F
RP483 845R0
IP201 TL431
RP484 2K1
6.5V
RP417 2K2
20V
6VA
DP203 STPS30150CT
TP203 STP22NF03L
FZP203 T3.15A 250V
6V
CP202 1500U/35V
CP203 1500U/35V
CP485 10N0F
RP419 6K2
FZP351 T1.00A 250V
DP351 SR560
DP352 SR560
4V
IP203 TL431
RP418 3K92
CP208 220UF
CP351 220U
TP202 STP22NF03L
BP226A
BP226B
BP226C
RP404 2K2
10,5V
10.5V
FZP208 T1.00A 250V
5VSTBY
CP484 10N0F
RP415 2K43
CP207 220UF
DP260 BZX55B6V2
IP202 TL431
RP416 2K1
TP204 STP22NF03L
FZP204 T3.15A 250V
10V
DP204 SR560
RP413 2K2
20V
RP412 18K
DP415 BZX55B3V3
DP416 BZX55B3V3
CP204 1MIO
CP209 220UF
CP486 10N0F
BP203
BP204
IP204 TL431
RP414 3K92
DP247 RGP15G
* RP448 15K
POWER_FAIL
CP247 4U7F
20.5V
DP205 RGP15G
FZP205 T0.50A 250V
CP205 22U0F
RP205 390R0 2W
45V
TP205 KTC8550D
JP420
20V
RP485 3K9
CP210 22U0F
FZP206 T0.50A 250V
DP206 RGP15G
RP209 4K7/1W
33V
CP236 10U0F
RP208 3K3
20.5V
RP472 2K2
RP207 2K2
PO
CP481 1N5F
TP407 BC548B
RP486 22K
RP471 22K0
RP473 2K2
CP271 22U0F
DP471 BZT55C4V7
DP472 BZT55C3V9
IP271 TL431
RP476 33K0
6.5V
TP271 BC548B
RP474 22K0
RP475 100K0
Part of board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils.
Parte dello châssis collegata alla rete.
Parte del chassis conectar a la red.
Note :
Power Supply primary circuit measurements.
- Use only ( ) connection point.
Achtung :
Bei Messungen im Primärnetzteil
- Primärnetzteilmasse verwenden ( ).
Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion ( ).
Attention :
Mesure dans la partie primaire de l'alimentation
- Utiliser la masse du bloc alimentation ( ).
Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario ( ).
CIRCUIT DIAGRAM SMPS 300 IFC228
SMPS 300 IFC228

POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE - ALIMENTACIÓN



Note :
Power Supply primary circuit measurements.
- Use only (⏚H) connection point.

Achtung :
Bei Messungen im Primärnetzteil
- Primärnetzteilmasse verwenden (⏚H).

Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (⏚H).

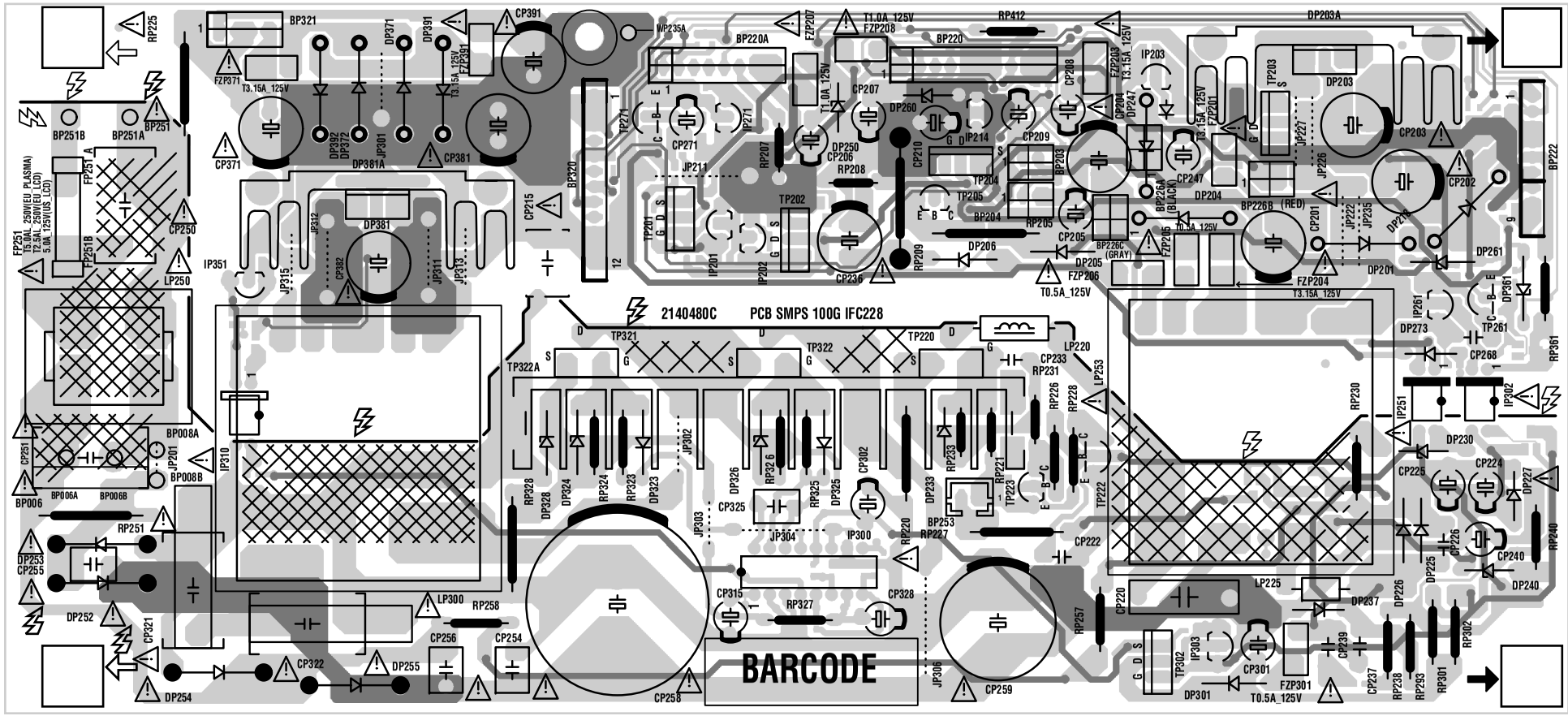
Attention :
Mesure dans la partie primaire de l'alimentation
- Utiliser la masse du bloc alimentation (⏚H).

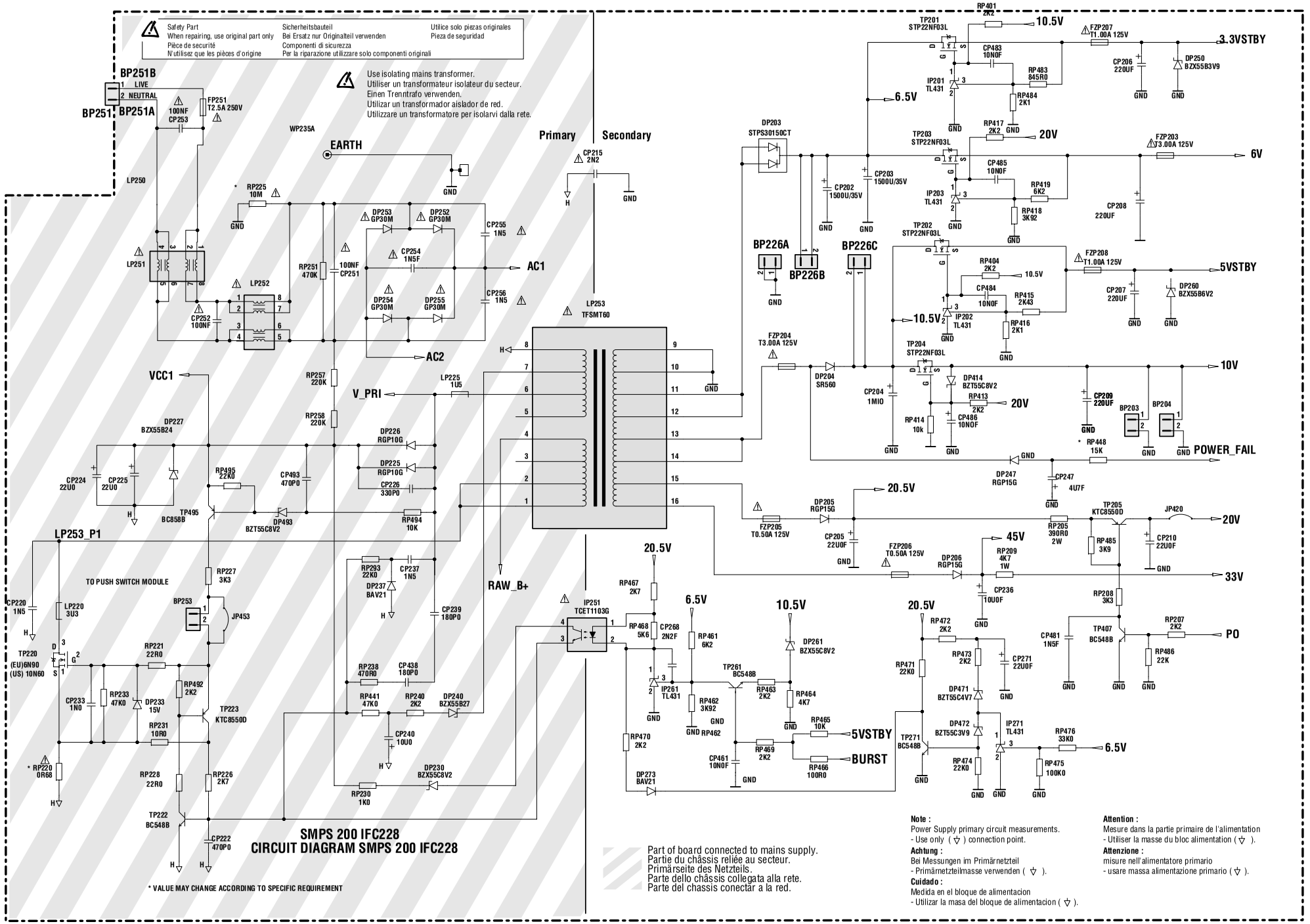
Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (⏚H).

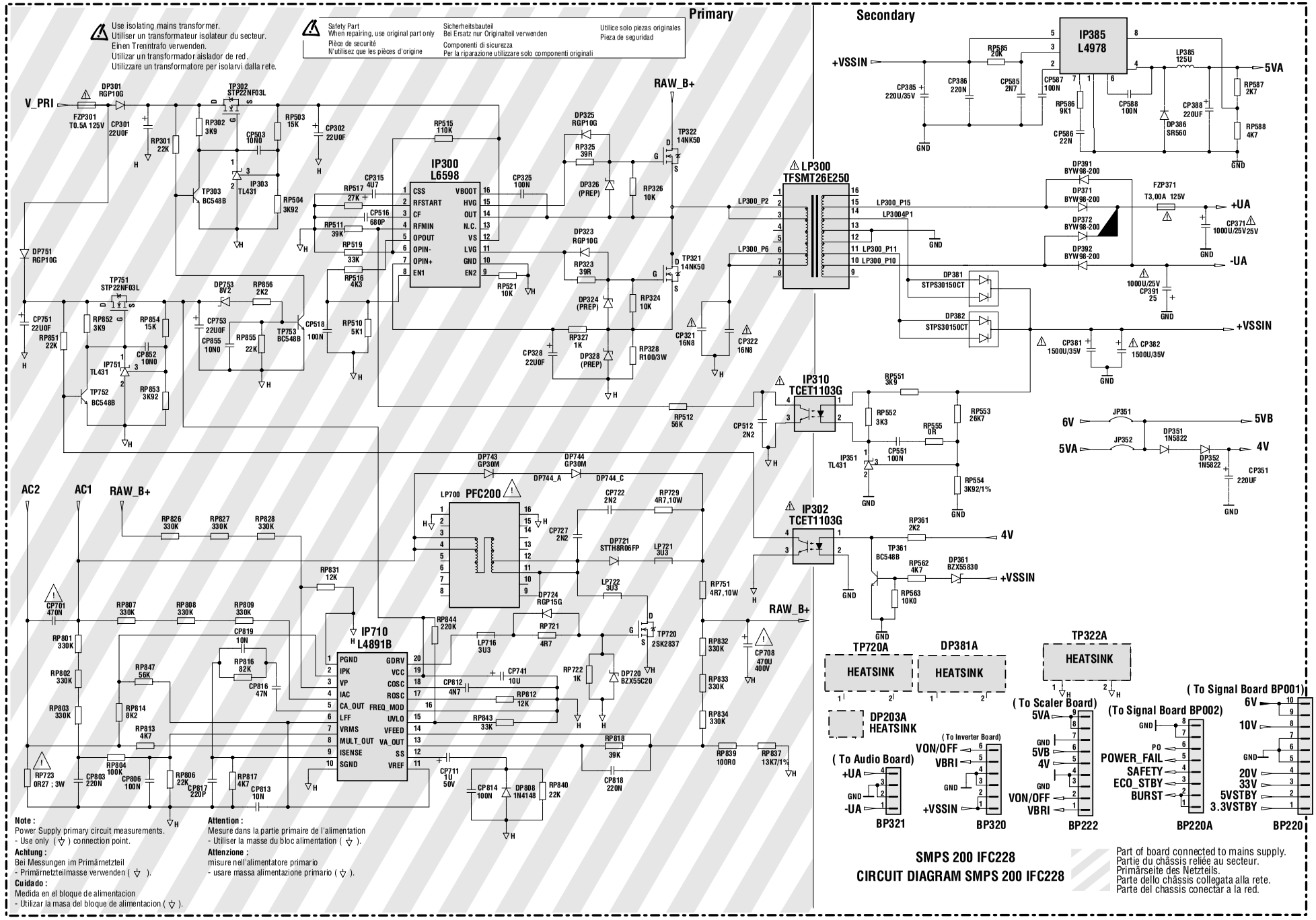
POWER SUPPLY CIRCUIT BOARD - CIRCUIT IMPRIME DE L'ALIMENTATION - LEITERPLATTE NETZTEIL - PIASTRA DEI CIRCUITI DI ALIMENTAZIONE - PLATINA ALIMENTACIÓN

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

IFC228 (SMPS 100G)



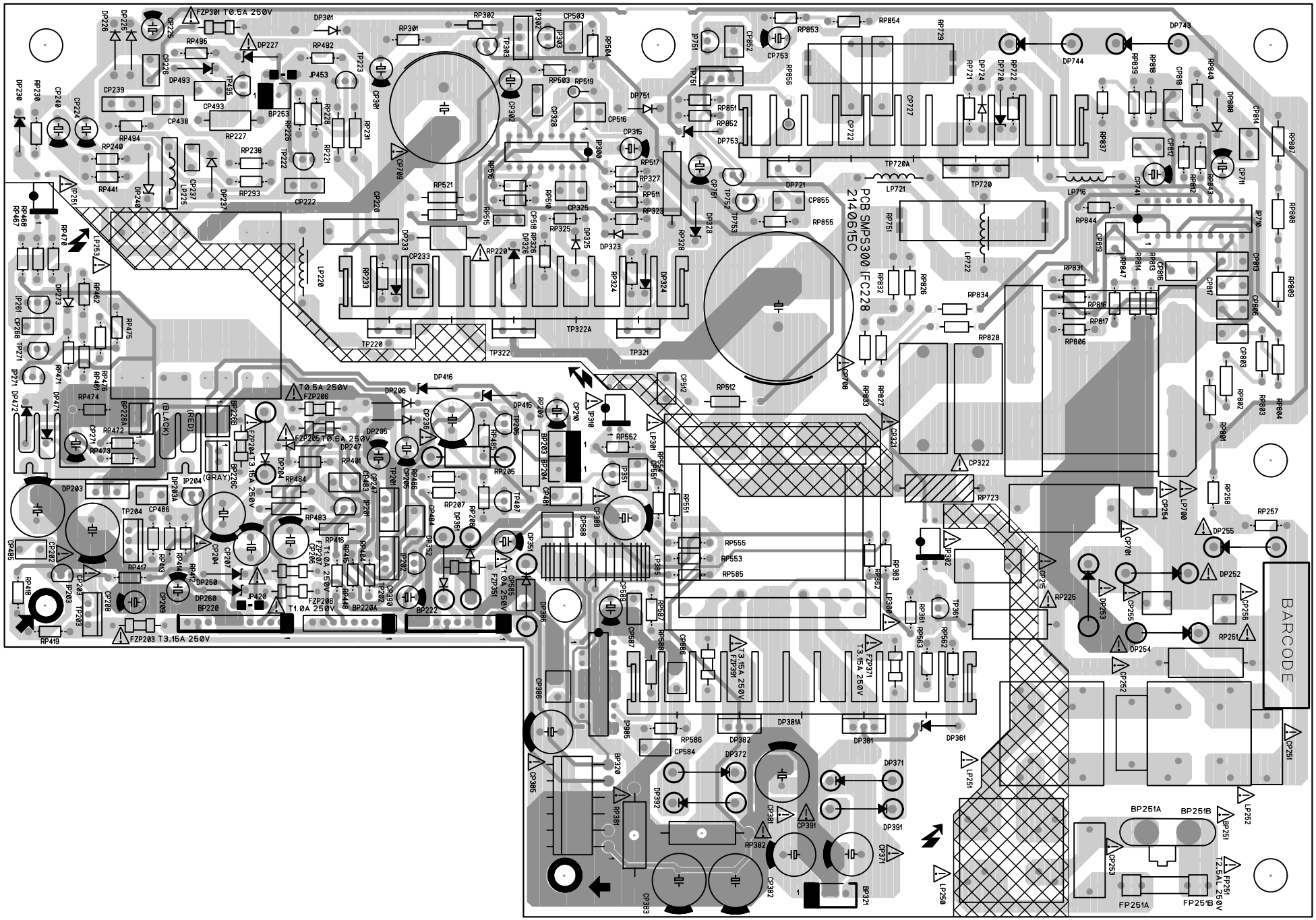

Safety Part
When repairing, use original part only
Pièce de securité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
Per la riparazione utilizzare solo componenti originali
Utilice solo piezas originales
Pieza de seguridad
Use isolating mains transformer.
Utiliser un transformateur isolateur du secteur.
Einen Trenntrafo verwenden.
Utilizar un transformador aislador de red.
Utilizzare un transformatore per isolarvi dalla rete.
Primary
Secondary
BP251B
BP251
BP251A
LIVE
NEUTRAL
FP251 T2.5A 250V
100NF CP253
WP235A
EARTH
LP250
LP251
LP252
LP253 TFSMT60
CP252 100NF
RP225 10M
RP251 470K
100NF CP251
DP253 GP30M
DP252 GP30M
DP254 GP30M
DP255 GP30M
CP254 1N5F
CP255 1N5
CP256 1N5
CP215 2N2
AC1
AC2
VCC1
V_PRI
LP225 1U5
RP257 220K
RP258 220K
DP227 BZX55B24
CP224 22U0
CP225 22U0
RP495 22K0
CP493 470P0
DP226 RGP10G
DP225 RGP10G
CP226 330P0
TP495 BC858B
DP493 BZT55C8V2
RP494 10K
LP253_P1
RAW_B+
TO PUSH SWITCH MODULE
BP253
JP453
CP220 1N5
LP220 3U3
TP220 (EU)6N90 (US) 10N60
RP221 22R0
RP227 3K3
RP492 2K2
CP233 1N0
RP233 47K0
DP233 15V
RP231 10R0
RP220 0R68
RP228 22R0
RP226 2K7
TP222 BC548B
TP223 KTC8550D
CP222 470P0
RP293 22K0
CP237 1N5
DP237 BAV21
CP239 180P0
RP238 470R0
CP438 180P0
RP441 47K0
RP240 2K2
DP240 BZX55B27
CP240 10U0
DP230 BZX55C8V2
RP230 1K0
IP251 TCET1103G
RP467 2K7
RP468 5K6
CP268 2N2F
RP461 6K2
IP261 TL431
RP462 3K92
RP470 2K2
DP273 BAV21
TP261 BC548B
DP261 BZX55C8V2
RP463 2K2
RP464 4K7
RP465 10K
RP469 2K2
RP466 100R0
CP461 10N0F
5VSTBY
BURST
SMPS 200 IFC228
CIRCUIT DIAGRAM SMPS 200 IFC228
* VALUE MAY CHANGE ACCORDING TO SPECIFIC REQUIREMENT
Part of board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils.
Parte dello châssis collegata alla rete.
Parte del chassis conectar a la red.
RP401 2K2
10.5V
TP201 STP22NF03L
CP483 10N0F
RP483 845R0
IP201 TL431
RP484 2K1
FZP207 T1.00A 125V
3.3VSTBY
CP206 220UF
DP250 BZX5583V9
6.5V
RP417 2K2
20V
DP203 STPS30150CT
TP203 STP22NF03L
CP485 10N0F
RP419 6K2
IP203 TL431
RP418 3K92
CP202 1500U/35V
CP203 1500U/35V
FZP203 3.00A 125V
6V
CP208 220UF
BP226A
BP226B
BP226C
TP202 STP22NF03L
RP404 2K2
CP484 10N0F
RP415 2K43
IP202 TL431
RP416 2K1
FZP208 T1.00A 125V
5VSTBY
CP207 220UF
DP260 BZX55B6V2
FZP204 T3.00A 125V
TP204 STP22NF03L
DP204 SR560
DP414 BZT55C8V2
RP413 2K2
CP204 1MIO
RP414 10k
CP486 10N0F
CP209 220UF
10V
BP203
BP204
RP448 15K
POWER_FAIL
DP247 RGP15G
CP247 4U7F
20.5V
FZP205 T0.50A 125V
DP205 RGP15G
CP205 22U0F
RP205 390R0 2W
TP205 KTC8550D
JP420
20V
RP485 3K9
CP210 22U0F
45V
FZP206 T0.50A 125V
DP206 RGP15G
RP209 4K7 1W
CP236 10U0F
33V
RP208 3K3
RP207 2K2
PO
TP407 BC548B
CP481 1N5F
RP486 22K
RP472 2K2
RP473 2K2
CP271 22U0F
RP471 22K0
DP471 BZT55C4V7
DP472 BZT55C3V9
IP271 TL431
TP271 BC548B
RP474 22K0
RP476 33K0
RP475 100K0
6.5V
Note :
Power Supply primary circuit measurements.
- Use only (⏚) connection point.
Achtung :
Bei Messungen im Primärnetzteil
- Primärnetzteilmasse verwenden (⏚).
Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (⏚).
Attention :
Mesure dans la partie primaire de l'alimentation
- Utiliser la masse du bloc alimentation (⏚).
Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (⏚).


Primary
Secondary
Use isolating mains transformer.
Utiliser un transformateur isolateur du secteur.
Einen Trenntrafo verwenden.
Utilizar un transformador aislador de red.
Utilizzare un transformatore per isolarvi dalla rete.
Safety Part
When repairing, use original part only
Pièce de securité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
Per la riparazione utilizzare solo componenti originali
Utilice solo piezas originales
Pieza de seguridad
V_PRI
RAW_B+
AC2
AC1
IP300 L6598
IP710 L4891B
LP300 TFSMT26E250
PFC200
IP385 L4978
IP310 TCET1103G
IP302 TCET1103G
+VSSIN
+UA
-UA
5VA
5VB
4V
6V
TP720A
DP381A
TP322A
HEATSINK
DP203A HEATSINK
(To Audio Board)
(To Inverter Board)
(To Scaler Board)
(To Signal Board BP002)
(To Signal Board BP001)
BP321
BP320
BP222
BP220A
BP220
SMPS 200 IFC228
CIRCUIT DIAGRAM SMPS 200 IFC228
Part of board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils.
Parte dello châssis collegata alla rete.
Parte del chassis conectar a la red.
Note :
Power Supply primary circuit measurements.
- Use only (⏚) connection point.
Achtung :
Bei Messungen im Primärnetzteil
- Primärnetzteilmasse verwenden (⏚).
Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (⏚).
Attention :
Mesure dans la partie primaire de l'alimentation
- Utiliser la masse du bloc alimentation (⏚).
Attenzione ;
misure nell'alimentatore primario
- usare massa alimentazione primario (⏚).

POWER SUPPLY CIRCUIT BOARD - CIRCUIT IMPRIME DE L'ALIMENTATION - LEITERPLATTE NETZTEIL - PIASTRA DEI CIRCUITI DI ALIMENTAZIONE - PLATINA ALIMENTACIÓN

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

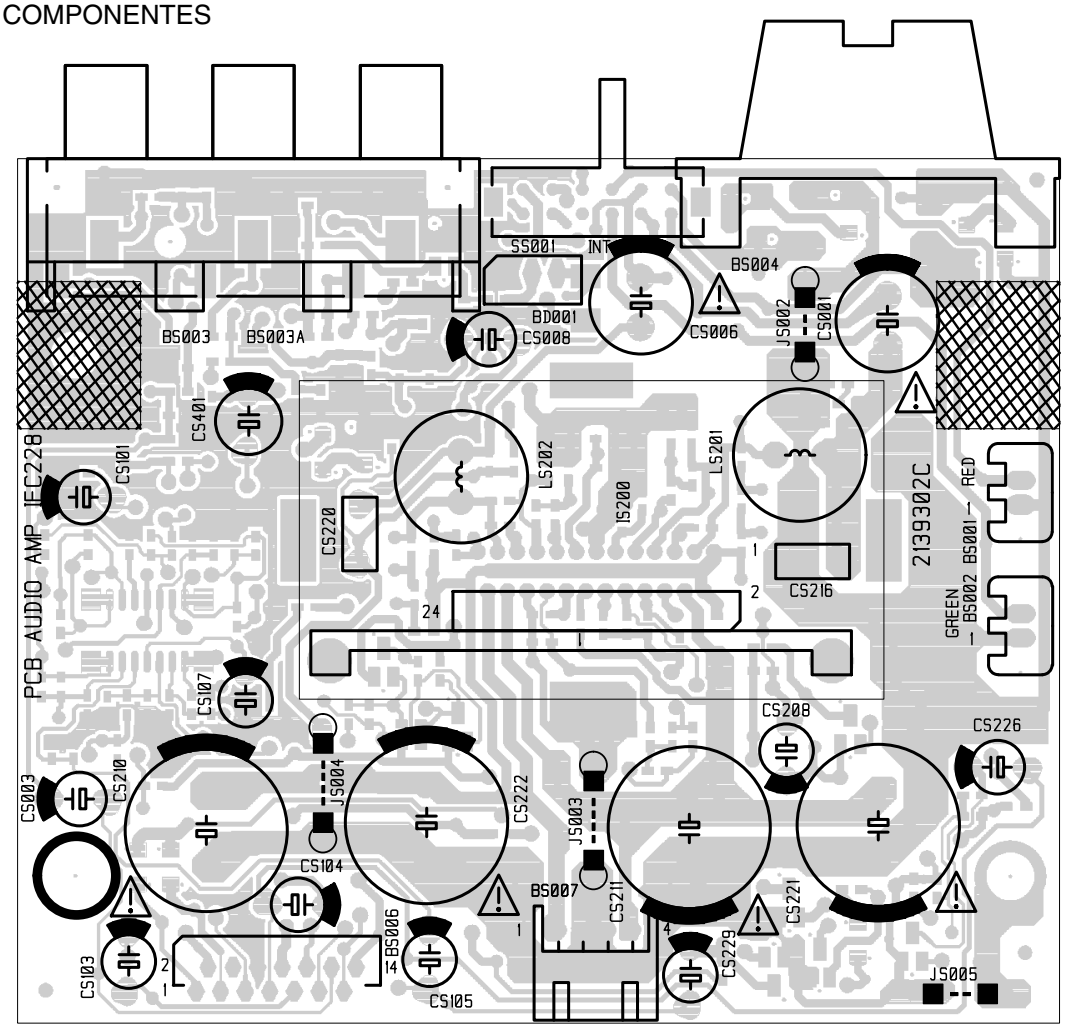
IFC228 (SMPS 300)



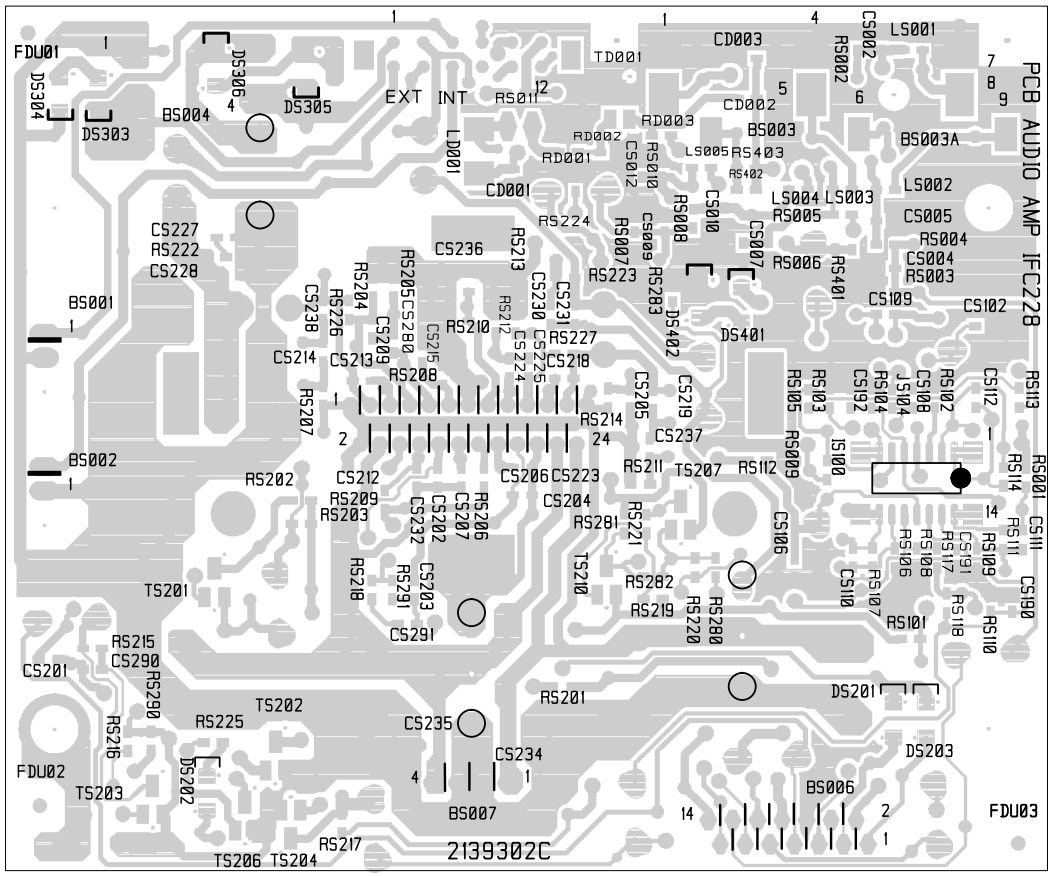
IFC228-LCD
First issue 04 / 05

AUDIO BOARD - PLATINE AUDIO - AUDIO GRUNDPLATTE - PIASTRA AUDIO - PLATINA AUDIO

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI
LADO COMPONENTES

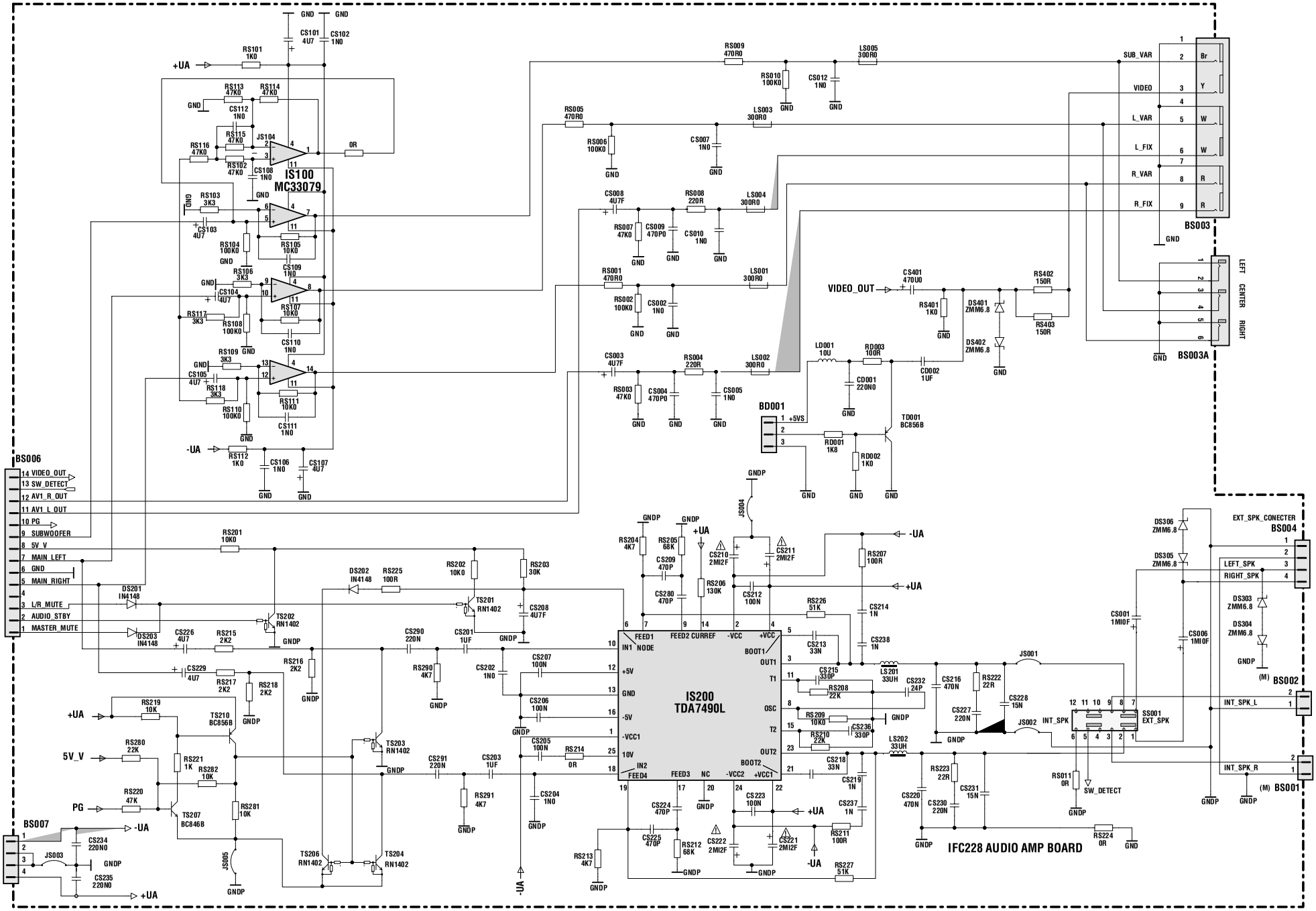


SOLDER SIDE - COTÉ CUIVRE - LÖTSEITE - LATO SALDATURE - LADO DEL COBRE



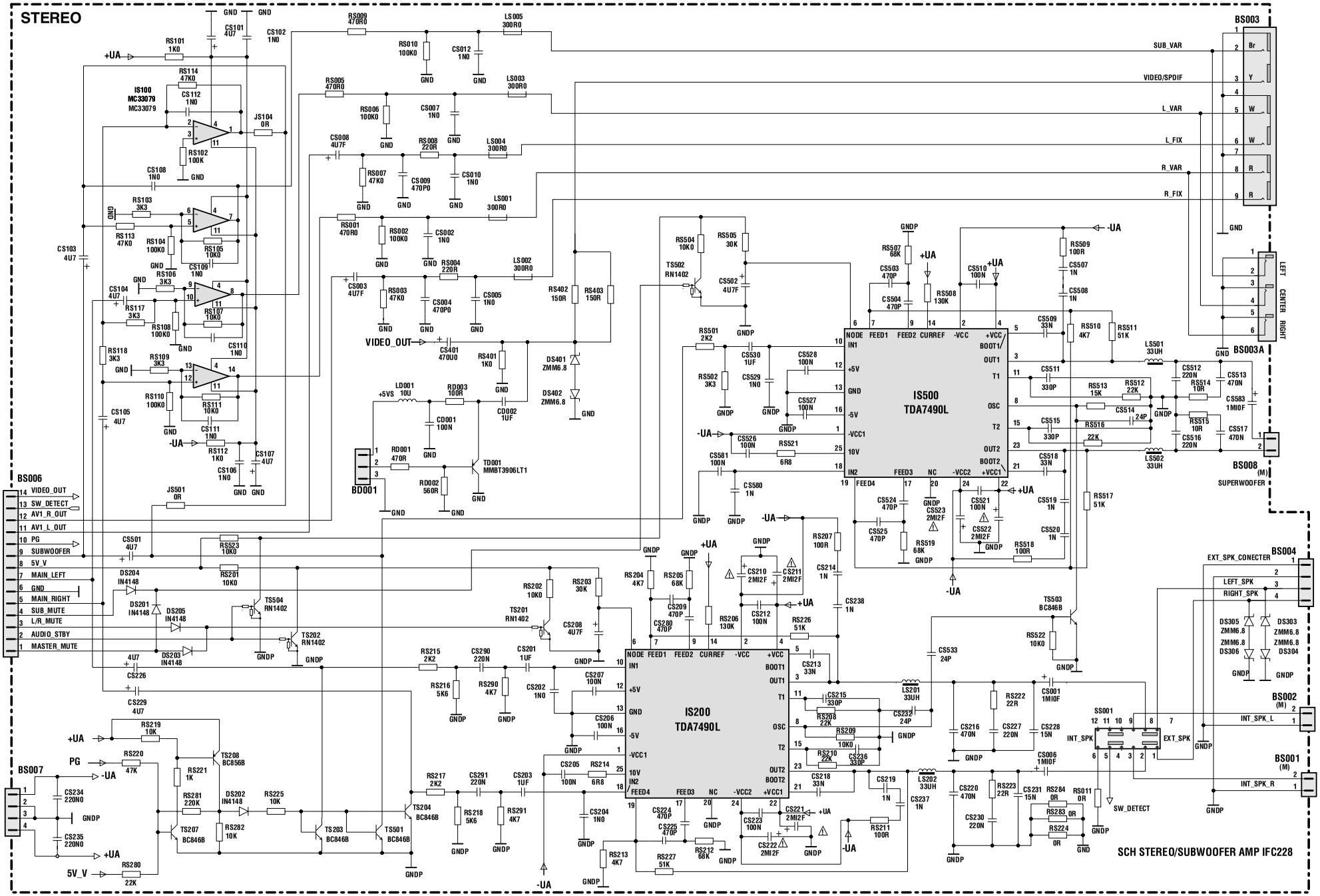
IFC228-LCD
First issue 08 / 04

AUDIO AMPLIFIER SCHEMATIC DIAGRAM - SCHEMA DE L'AMPLIFICATEUR AUDIO - AUDIO ENDVERSTÄRKER - SCHEMA AMPLIFICATORE AUDIO - ESQUEMA DEL AMPLICADOR AUDIO

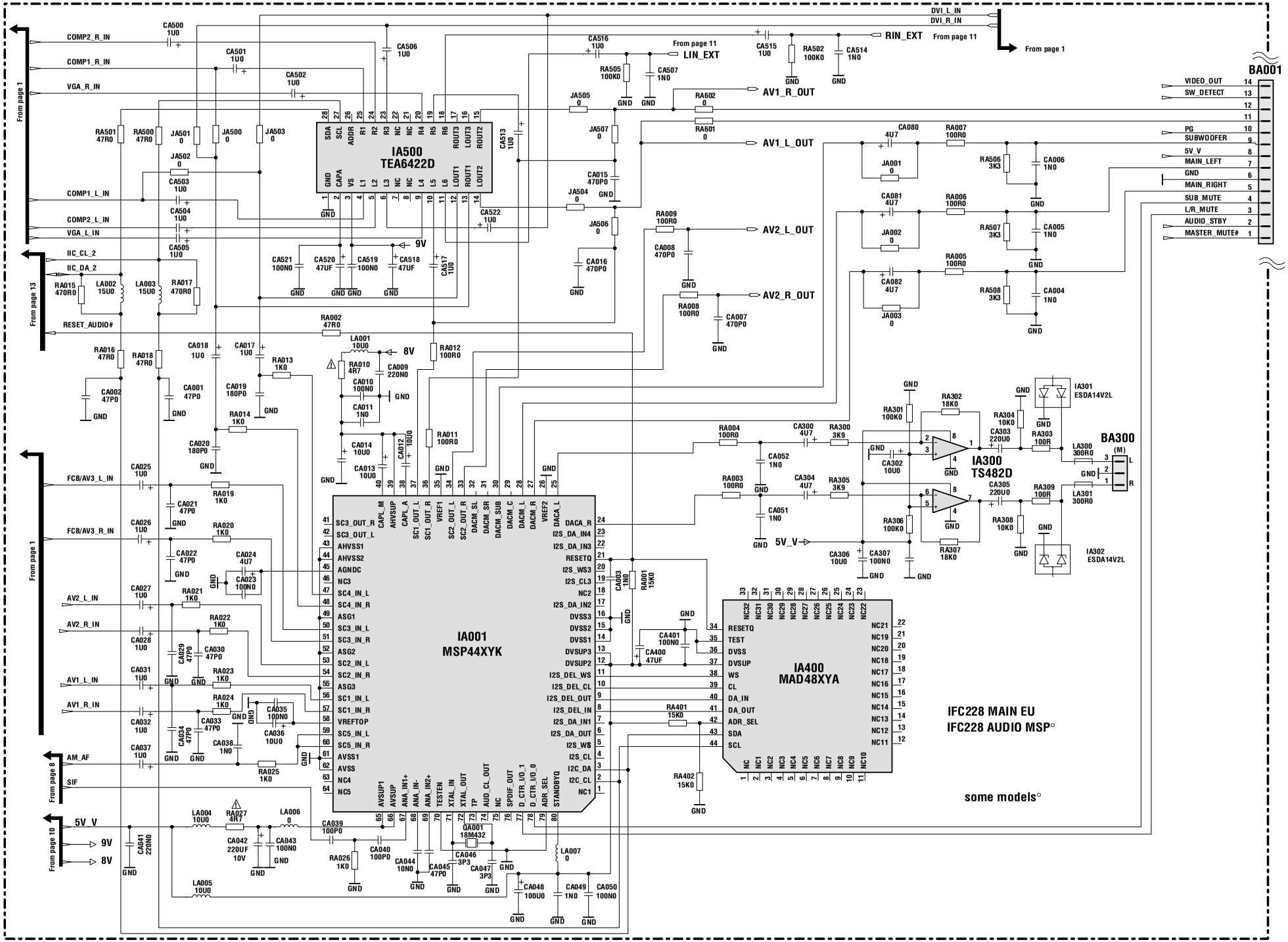


AUDIO AMPLIFIER SCHEMATIC DIAGRAM - SCHEMA DE L'AMPLIFICATEUR AUDIO - AUDIO ENDVERSTÄRKER - SCHEMA AMPLIFICATORE AUDIO - ESQUEMA DEL AMPLICADOR AUDIO

WITH SUBWOOFER - AVEC SUBSUBWOOFER - MIT BASSLAUTSPRECHER - CON SUBWOOFER



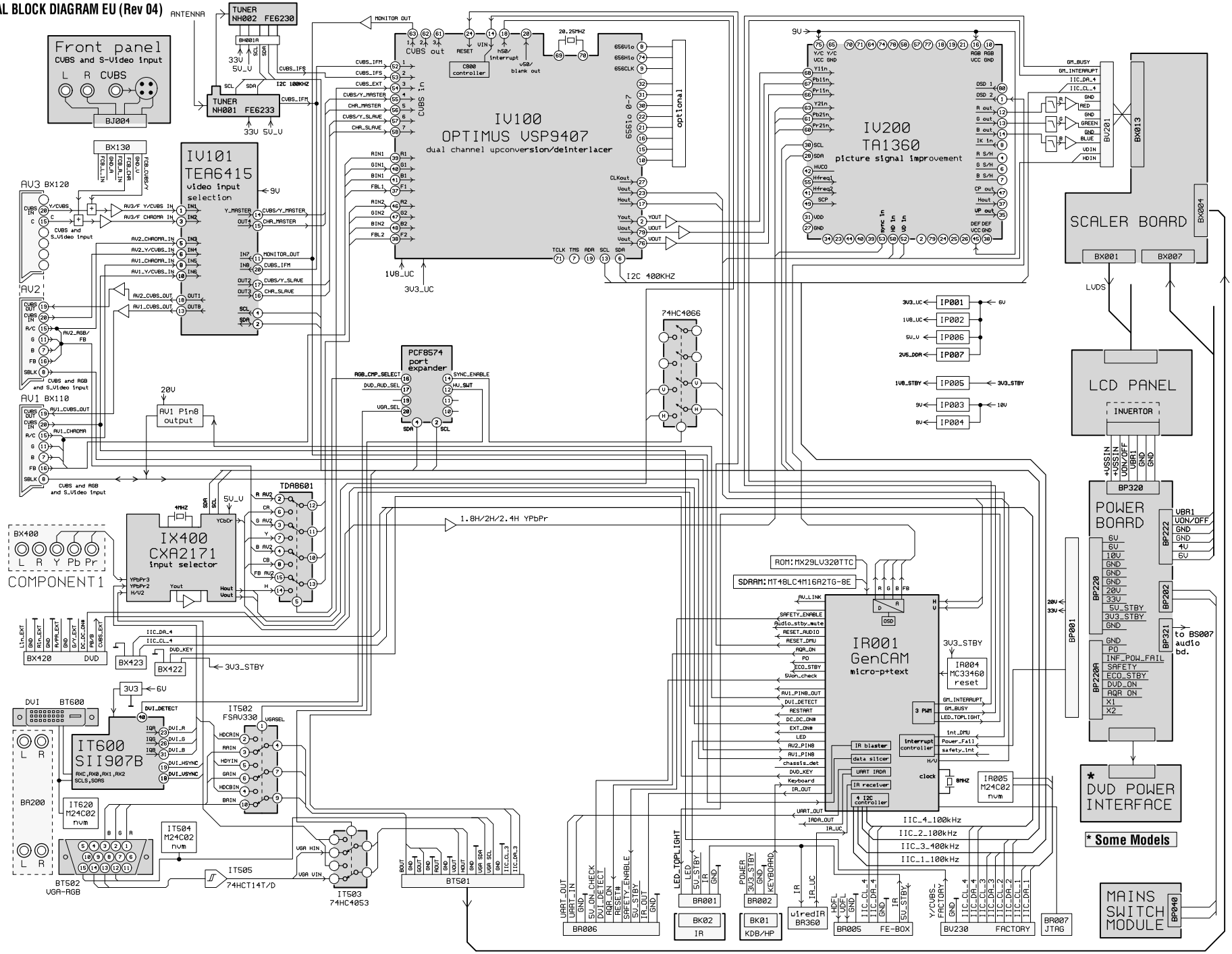
AUDIO AMPLIFIER SCHEMATIC DIAGRAM - SCHEMA DE L'AMPLIFICATEUR AUDIO - AUDIO ENDVERSTÄRKER - SCHEMA AMPLIFICATORE AUDIO - ESQUEMA DEL AMPLICADOR AUDIO



IFC228-LCD
First issue 08 / 04

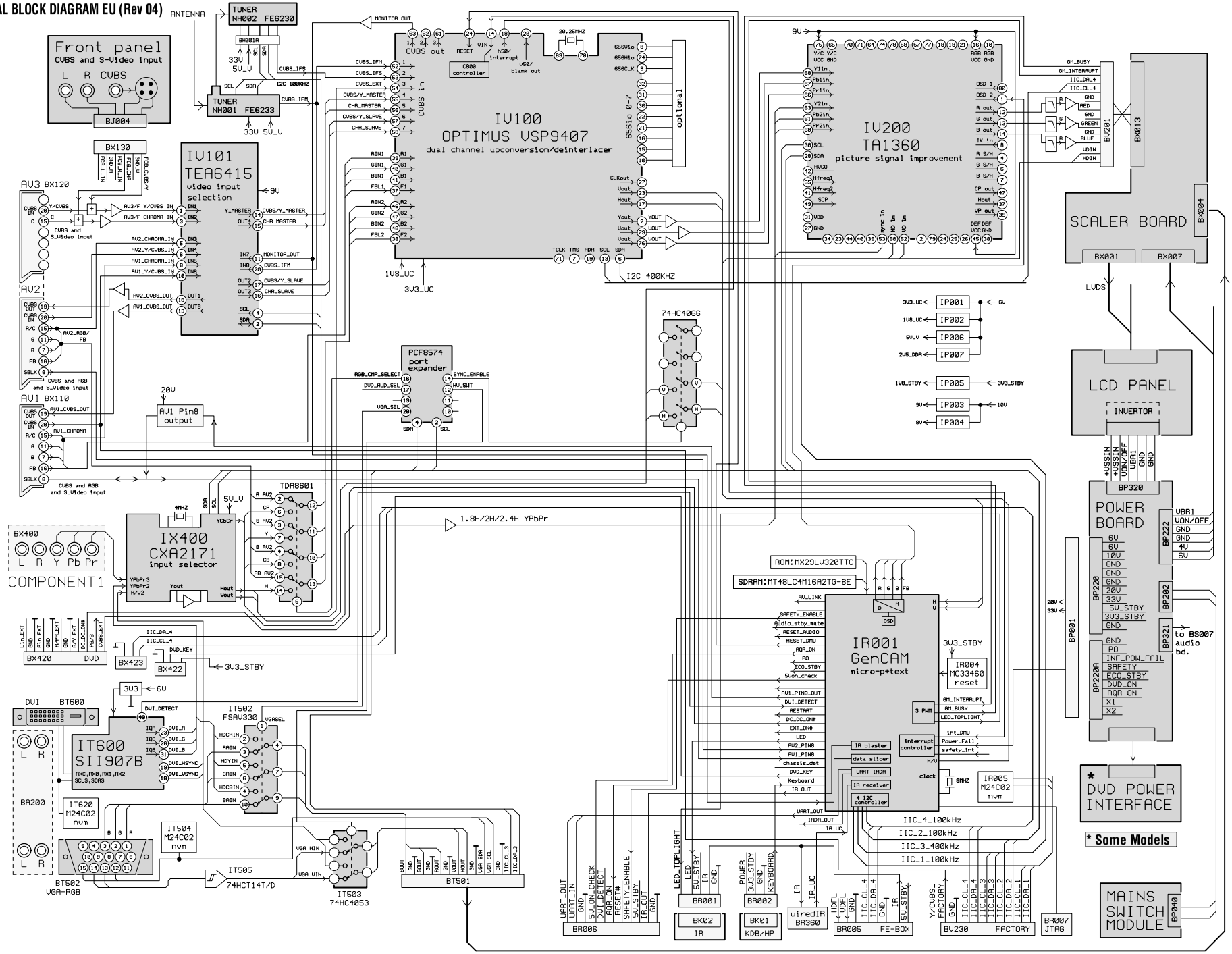
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES

IFC 228 SIGNAL BLOCK DIAGRAM EU (Rev 04)

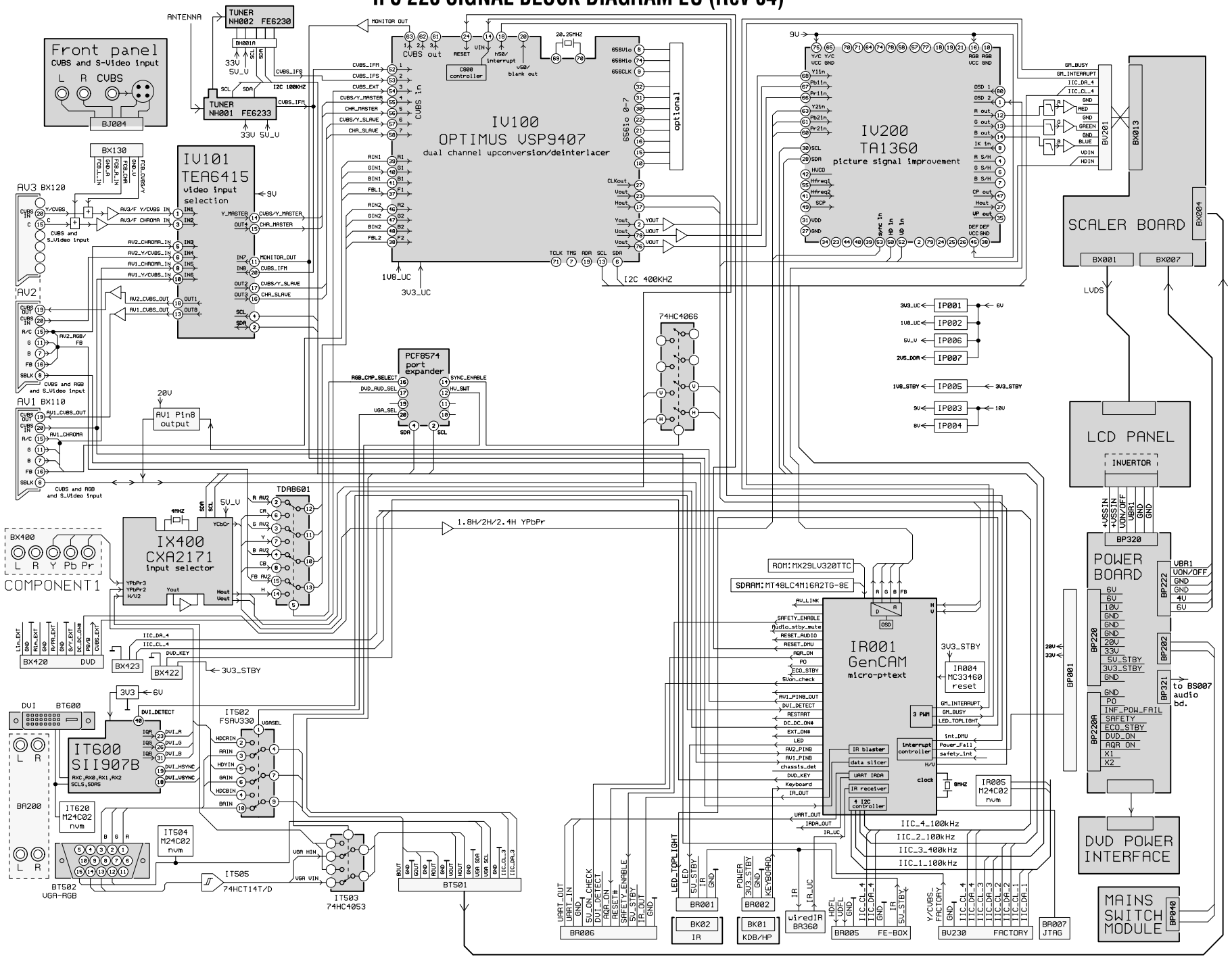


BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES

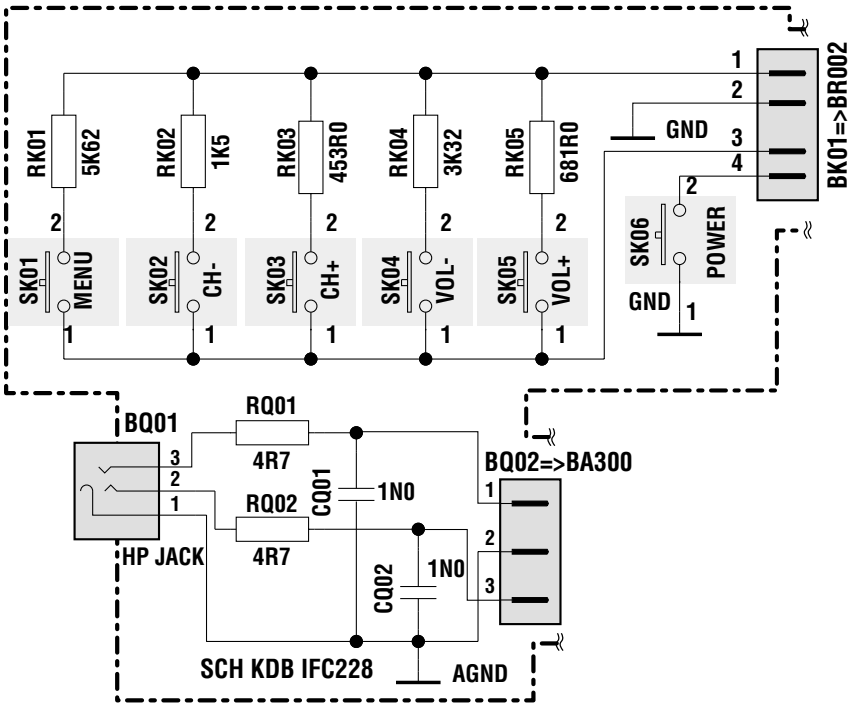
IFC 228 SIGNAL BLOCK DIAGRAM EU (Rev 04)



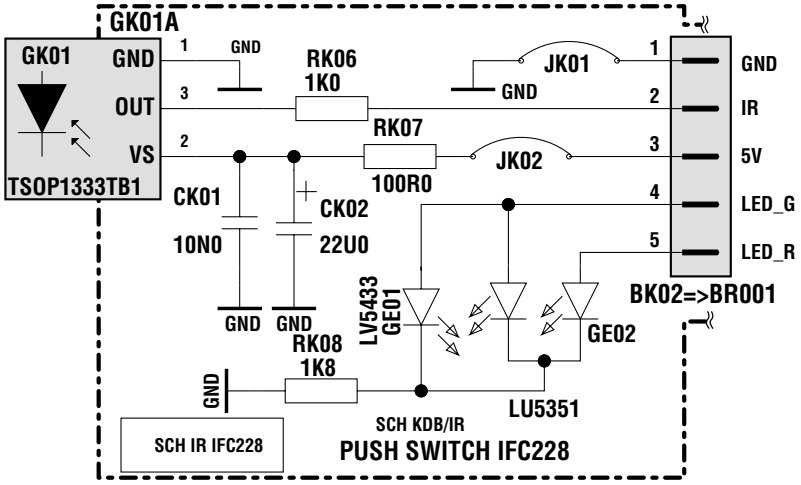
IFC 228 SIGNAL BLOCK DIAGRAM EU (Rev 04)



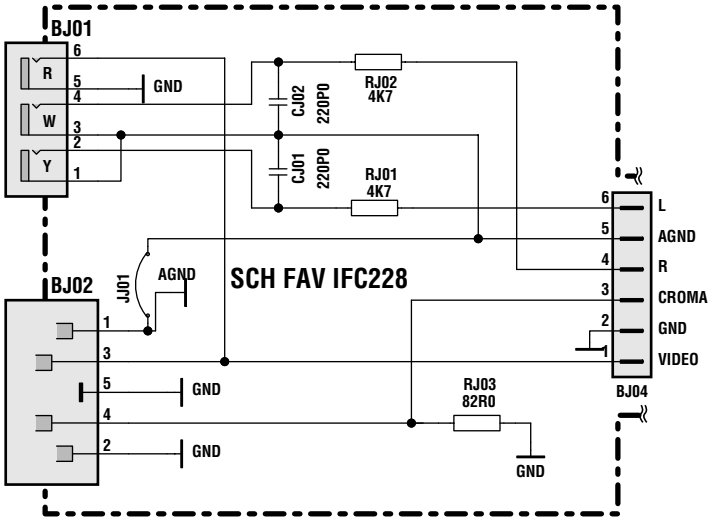
KDB IFC228



PUSH SWITCH

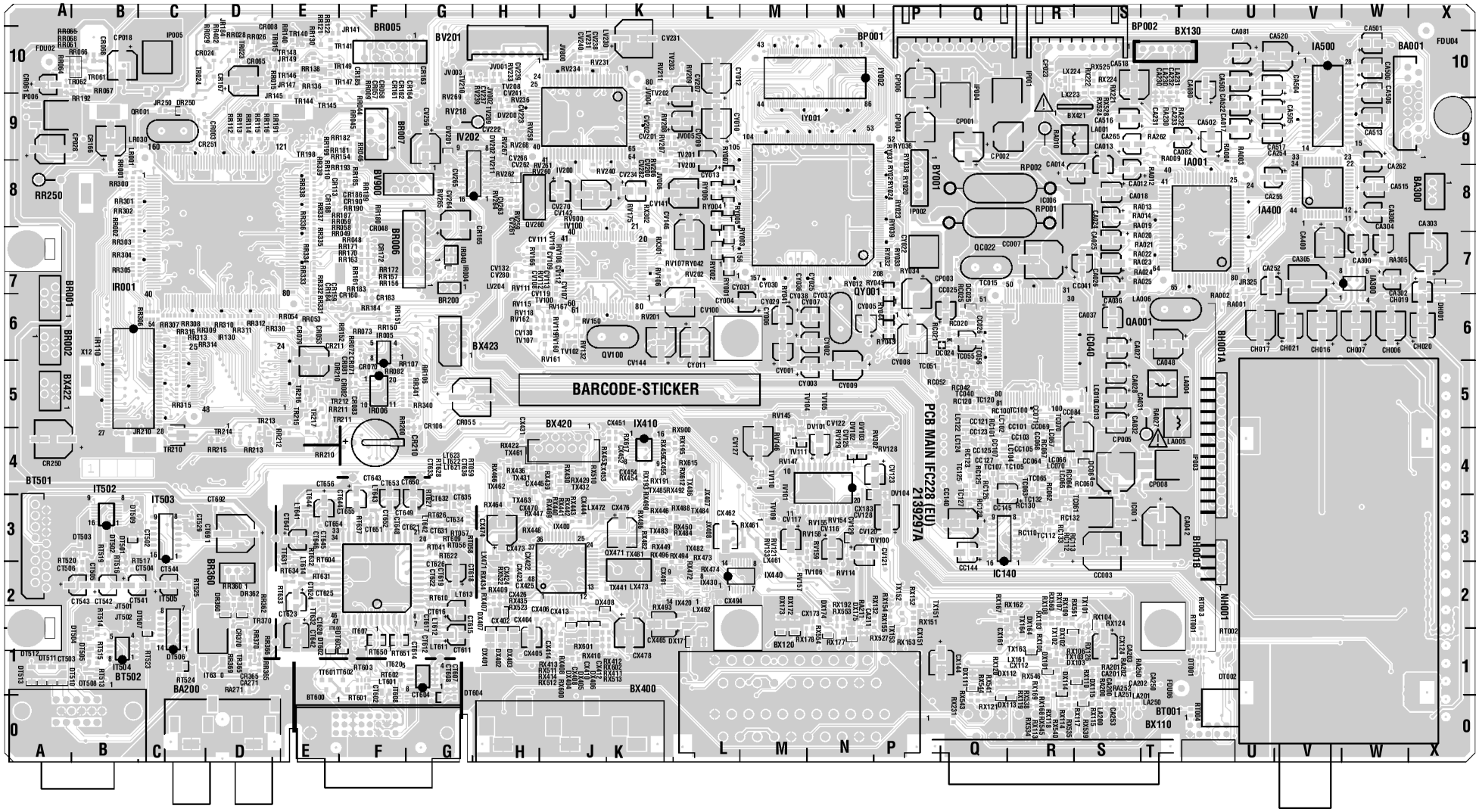


FAV IFC228



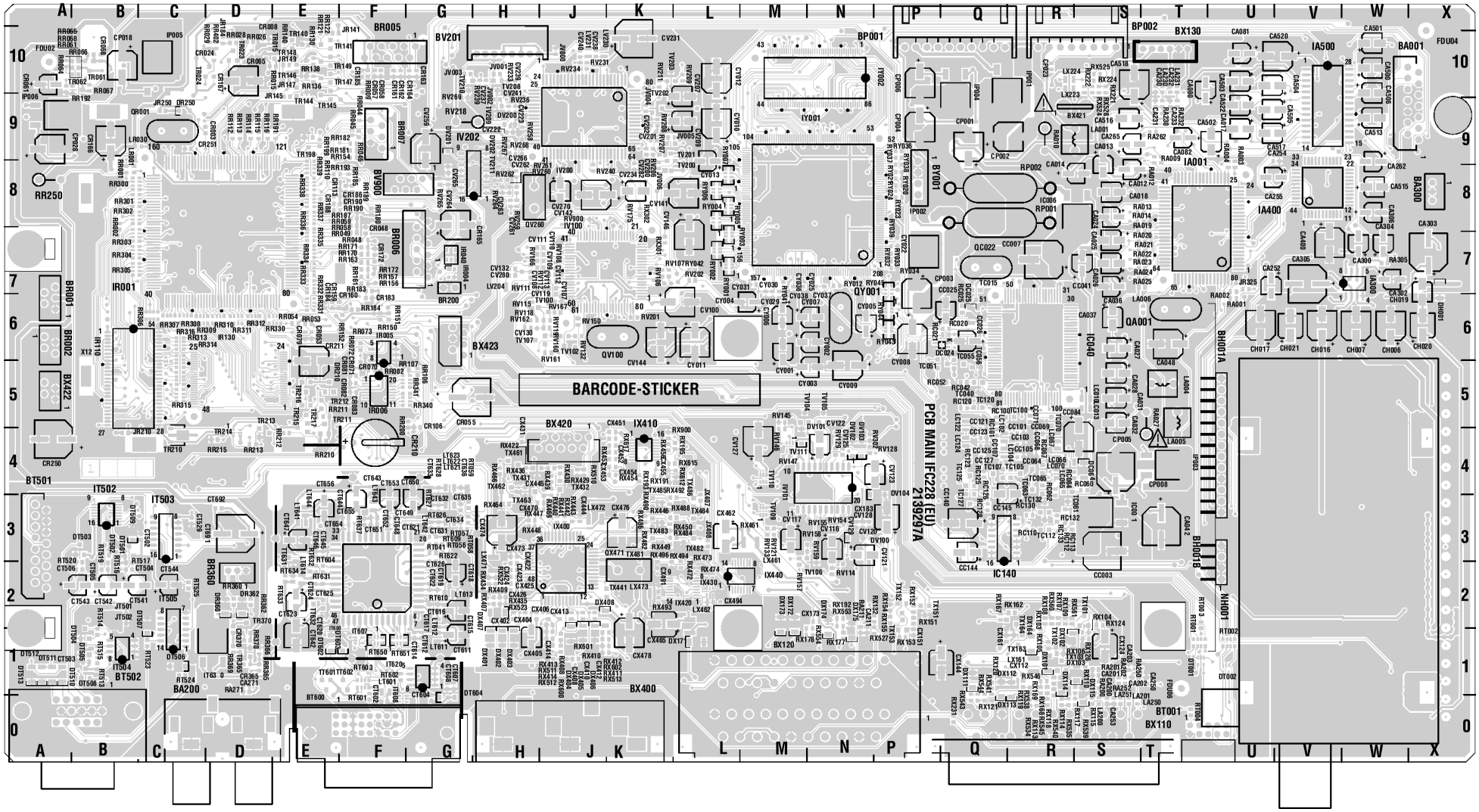
MAIN BOARD - PLATINE PRINCIPALE - CHASSIS GRUNDPLATTE - PIASTRA PRINCIPALE - PLATINA PRINCIPAL

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

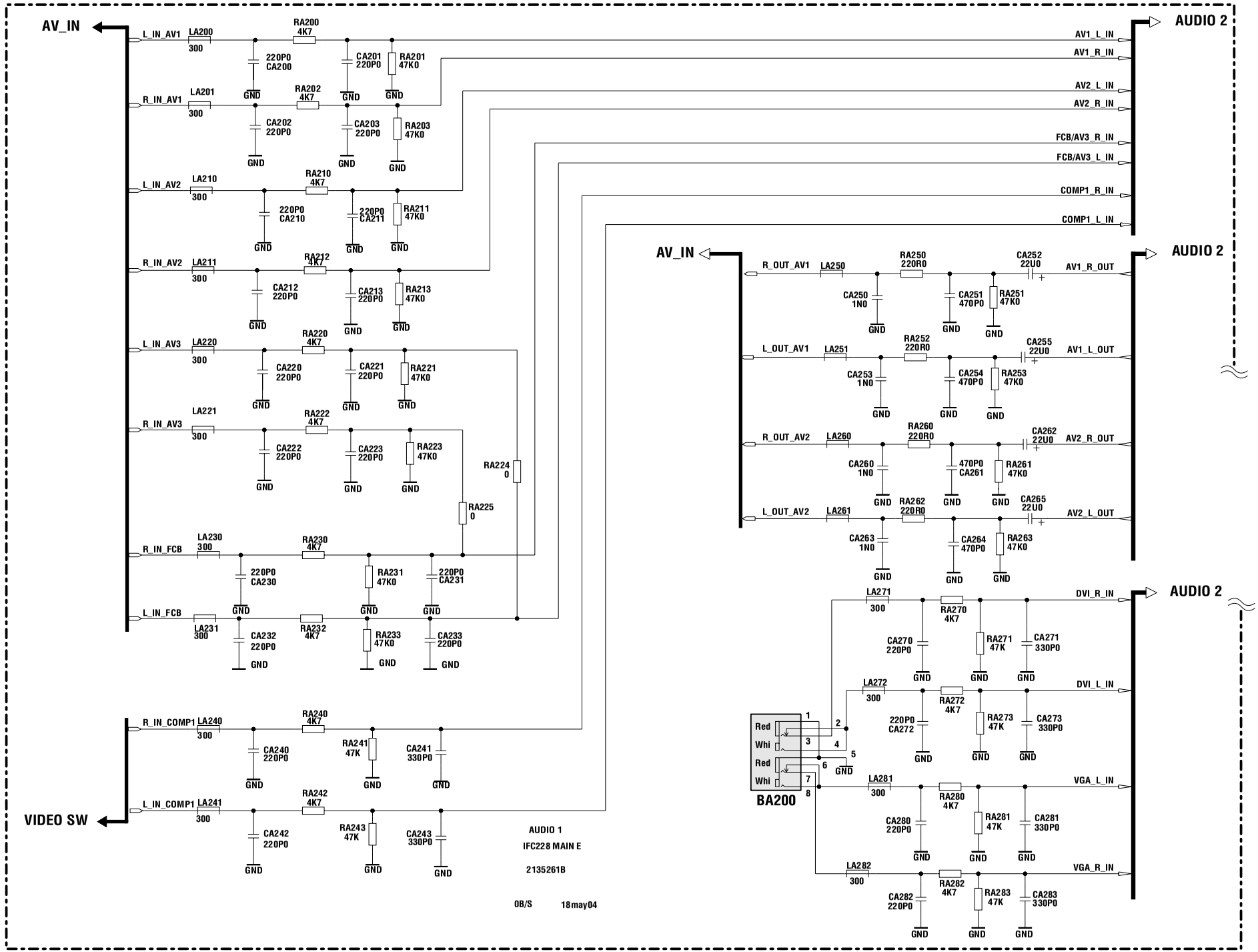


MAIN BOARD - PLATINE PRINCIPALE - CHASSIS GRUNDPLATTE - PIASTRA PRINCIPALE - PLATINA PRINCIPAL

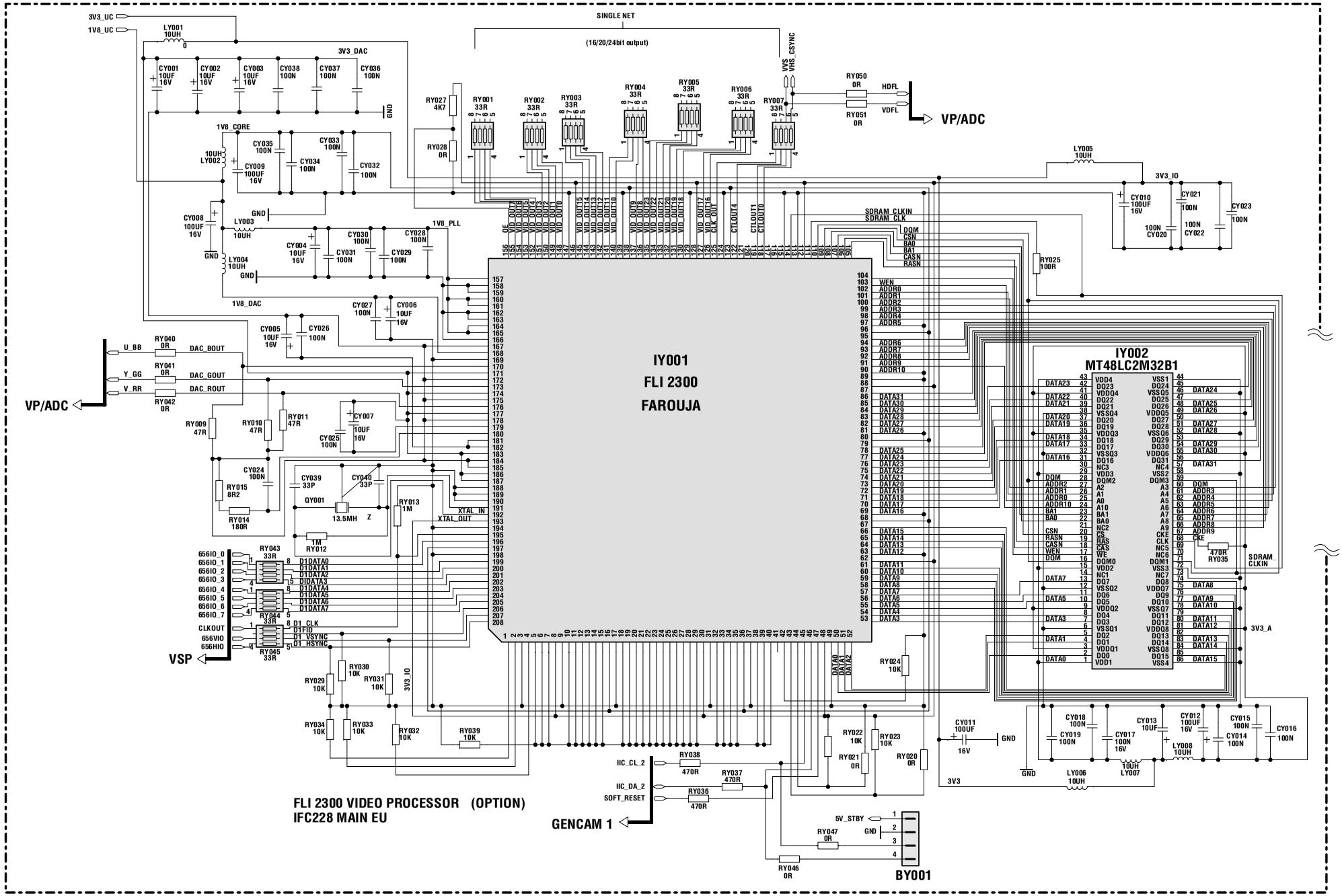
COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

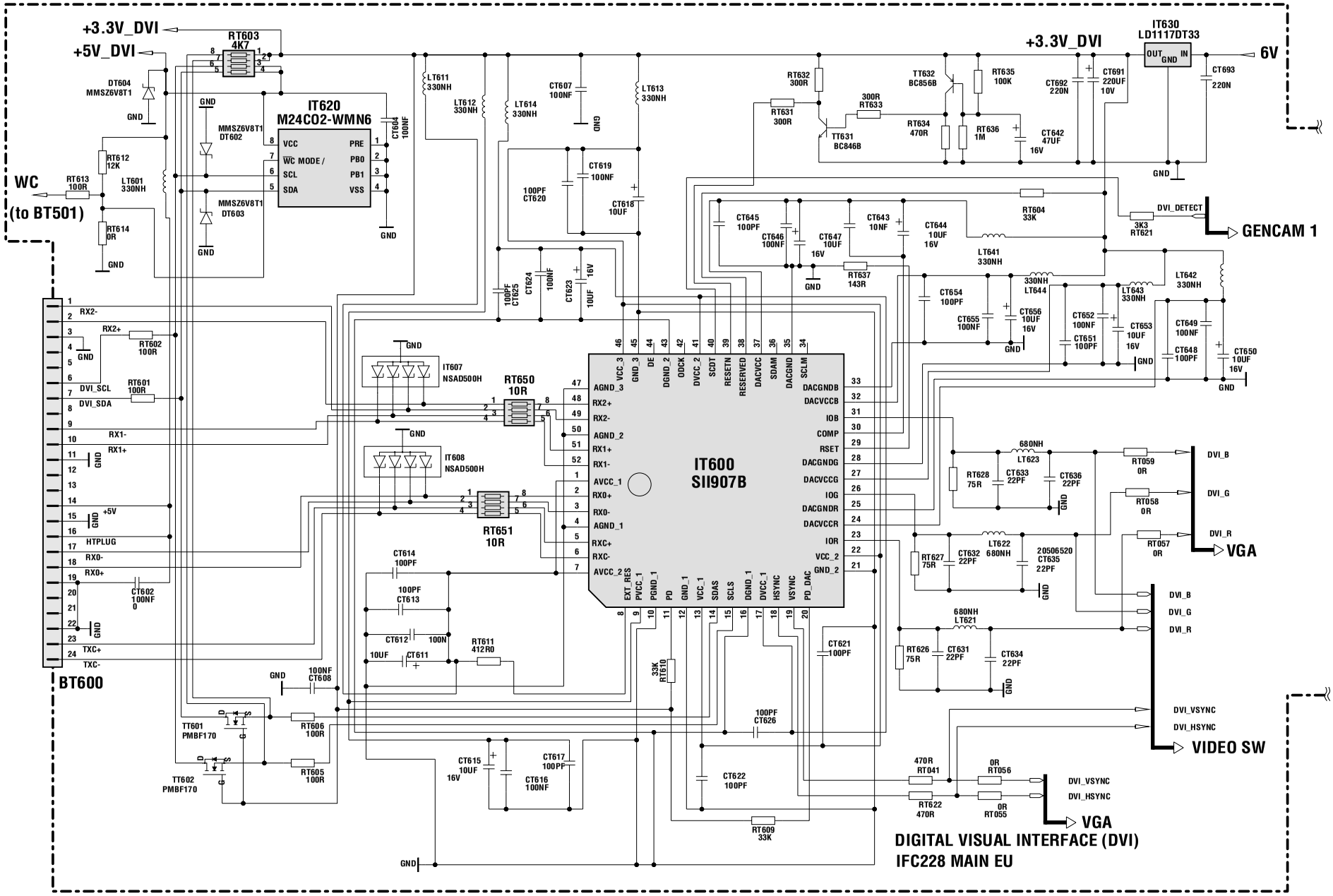


MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL

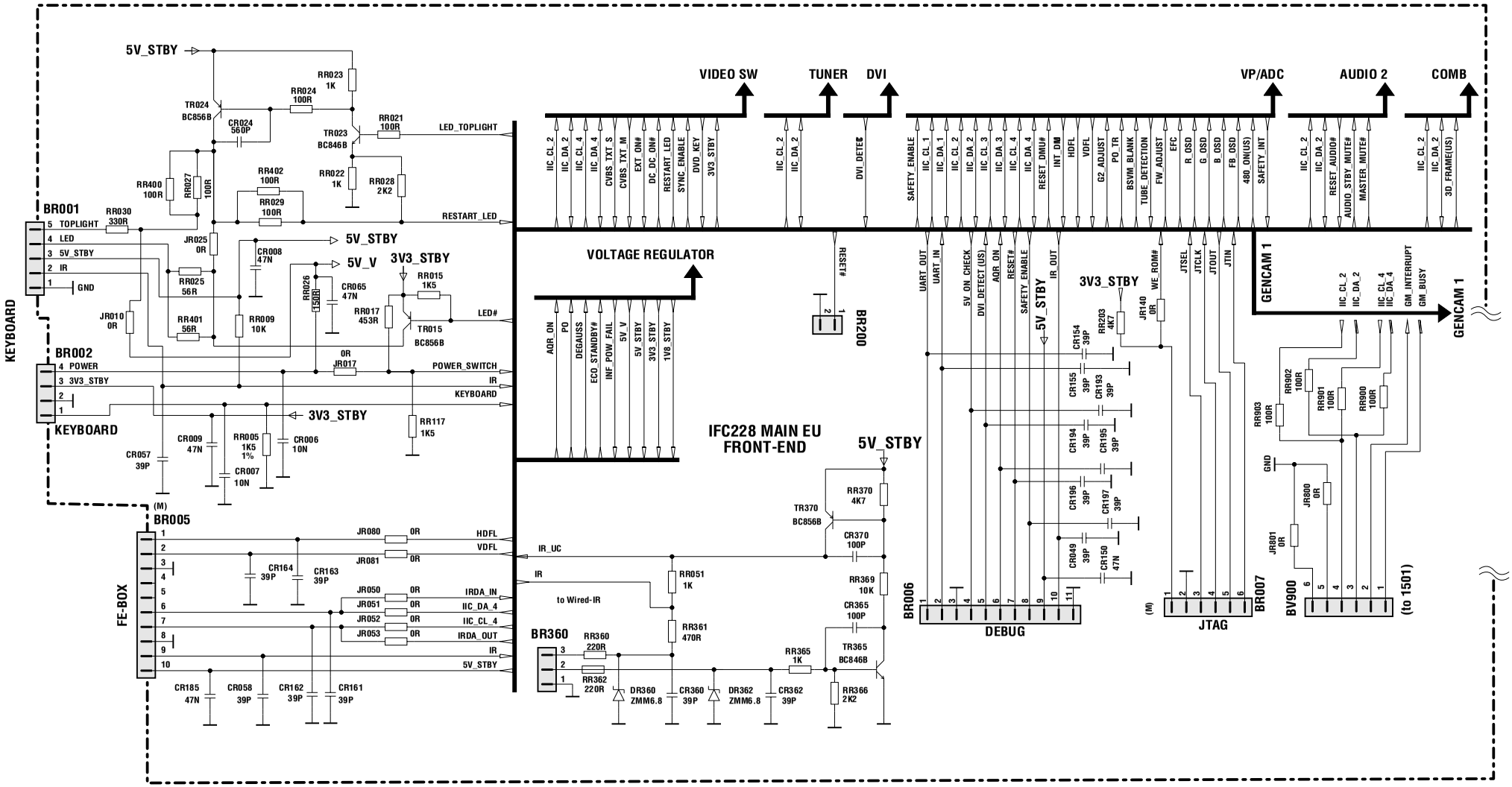


IFC228-LCD
First issue 08 / 04

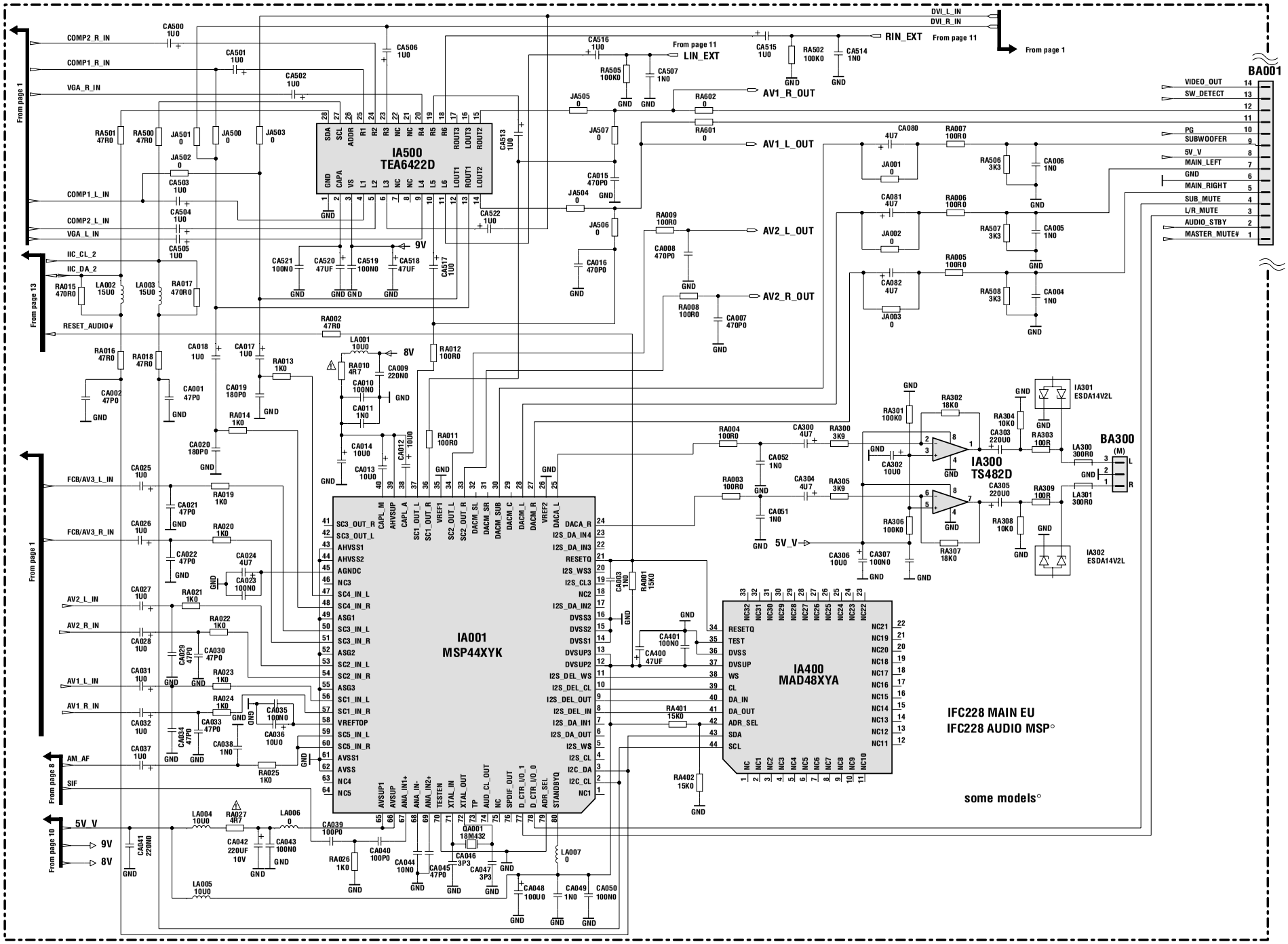

IY001
FLI 2300
FAROUJA
IY002
MT48LC2M32B1
FLI 2300 VIDEO PROCESSOR (OPTION)
IFC228 MAIN EU
VP/ADC
VSP
GENCAM 1
BY001
SINGLE NET
(16/20/24bit output)
3V3_UC
1V8_UC
3V3_DAC
1V8_CORE
1V8_PLL
1V8_DAC
3V3_IO
3V3_A
SDRAM_CLKIN
SDRAM_CLK
XTAL_IN
XTAL_OUT
QY001
13.5MH
SOFT_RESET
IIC_CL_2
IIC_DA_2
5V_STBY
GND
3V3

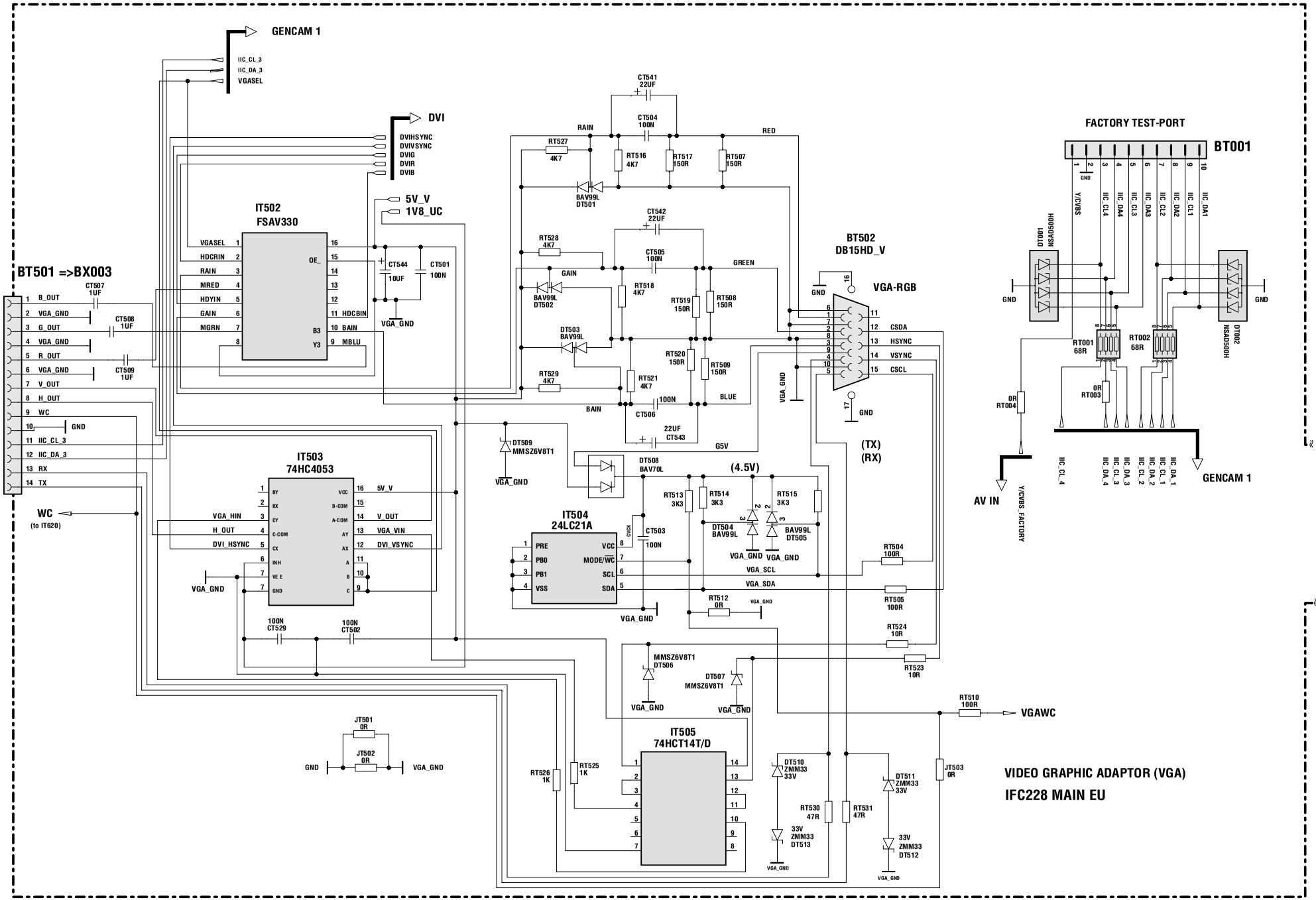

+3.3V_DVI
+5V_DVI
RT603 4K7
DT604 MMSZ6V8T1
MMSZ6V8T1 DT602
MMSZ6V8T1 DT603
IT620 M24C02-WMN6
VCC
WC MODE /
SCL
SDA
PRE
PB0
PB1
VSS
CT604 100NF
WC
(to BT501)
RT613 100R
RT612 12K
RT614 0R
LT601 330NH
BT600
RX2-
RX2+
RT602 100R
DVI_SCL
DVI_SDA
RT601 100R
RX1-
RX1+
HTPLUG
RX0-
RX0+
CT602 100NF 0
TXC+
TXC-
IT607 NSAD500H
IT608 NSAD500H
RT650 10R
RT651 10R
IT600 SII907B
AGND_3
RX2+
RX2-
AGND_2
RX1+
RX1-
AVCC_1
RX0+
RX0-
AGND_1
RXC+
RXC-
AVCC_2
VCC_3
GND_3
DE
DGND_2
ODCK
DVCC_2
SCDT
RESETN
RESERVED
DACVCC
SDAM
DACGND
SCLM
DACGNDB
DACVCCB
IOB
COMP
RSET
DACGNDG
DACVCCG
IOG
DACGNDR
DACVCCR
IOR
VCC_2
GND_2
EXT_RES
PVCC_1
PGND_1
PD
GND_1
VCC_1
SDAS
SCLS
DGND_1
DVCC_1
HSYNC
VSYNC
PD_DAC
CT614 100PF
100PF CT613
CT612 100N
10UF CT611
RT611 412R0
33K RT610
CT621 100PF
100PF CT626
CT622 100PF
RT609 33K
CT615 10UF 16V
CT616 100NF
CT617 100PF
TT601 PMBF170
TT602 PMBF170
RT606 100R
RT605 100R
CT608 100NF
GND
+5V
LT611 330NH
LT612 330NH
LT614 330NH
LT613 330NH
CT607 100NF
CT619 100NF
CT618 10UF
100PF CT620
CT623 10UF 16V
CT624 100NF
100PF CT625
IT630 LD1117DT33
OUT GND IN
6V
CT693 220N
CT691 220UF 10V
CT692 220N
RT635 100K
RT636 1M
CT642 47UF 16V
TT632 BC856B
TT631 BC846B
RT632 300R
RT631 300R
300R RT633
RT634 470R
CT645 100PF
CT646 100NF
CT647 10UF 16V
CT643 10NF
CT644 10UF 16V
RT604 33K
RT637 143R
LT641 330NH
LT642 330NH
LT643 330NH
LT644 330NH
CT654 100PF
CT655 100NF
CT656 10UF 16V
CT652 100NF
CT651 100PF
CT653 10UF 16V
CT649 100NF
CT648 100PF
CT650 10UF 16V
DVI_DETECT
3K3 RT621
GENCAM 1
680NH LT623
RT628 75R
CT633 22PF
CT636 22PF
RT059 0R
RT058 0R
RT057 0R
DVI_B
DVI_G
DVI_R
VGA
RT627 75R
CT632 22PF
LT622 680NH
20506520 CT635 22PF
680NH LT621
RT626 75R
CT631 22PF
CT634 22PF
DVI_VSYNC
DVI_HSYNC
VIDEO SW
470R RT041
RT622 470R
0R RT056
0R RT055
VGA
DIGITAL VISUAL INTERFACE (DVI)
IFC228 MAIN EU

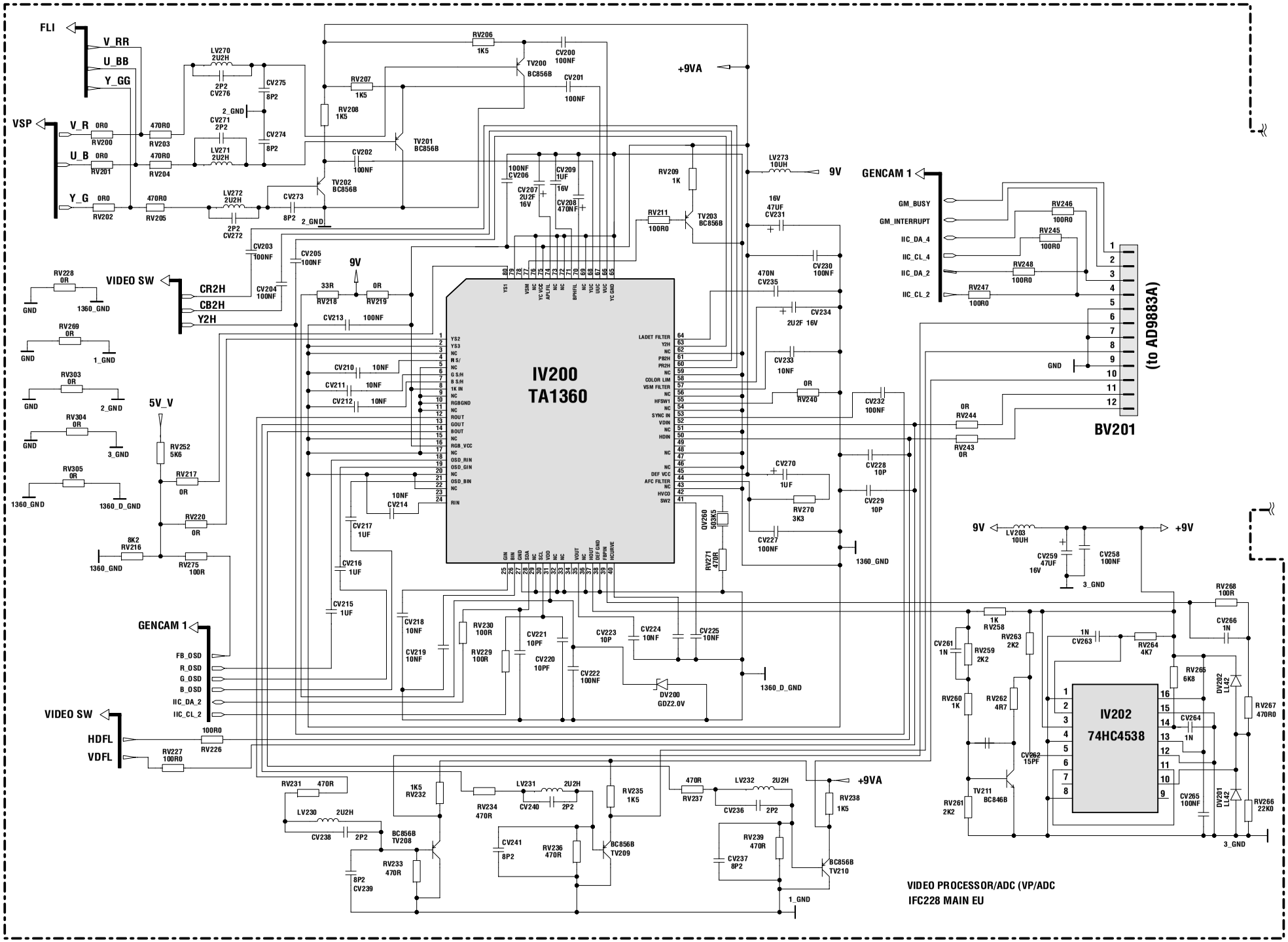
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL

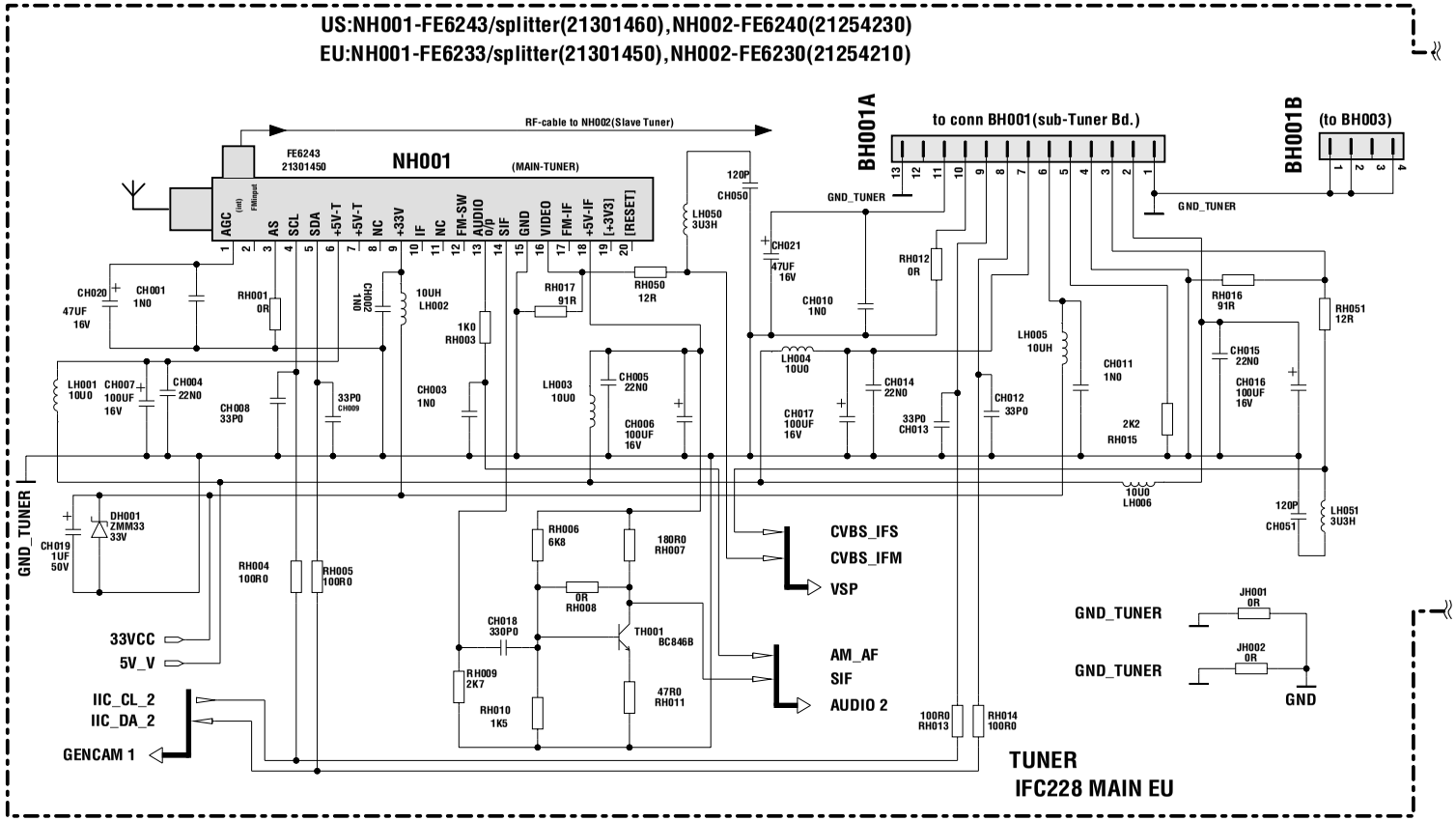


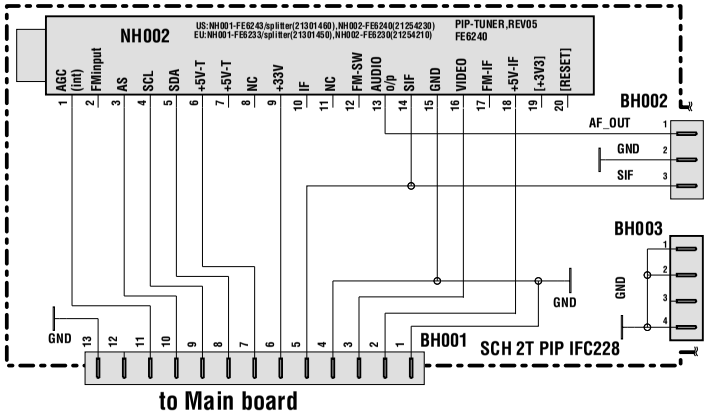
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



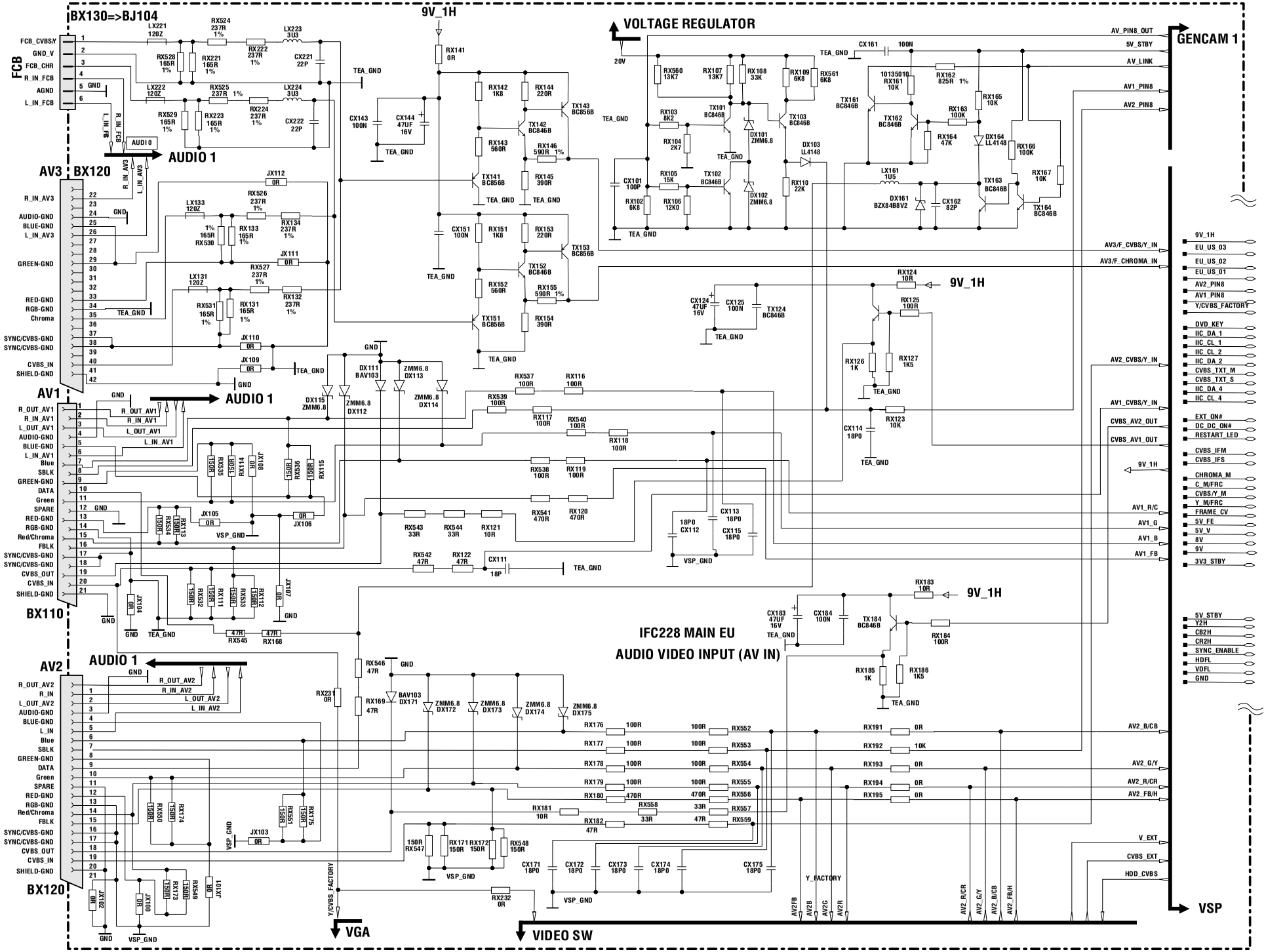

GENCAM 1
IIC_CL_3
IIC_DA_3
VGASEL
DVI
DVIHSYNC
DVIVSYNC
DVIG
DVIR
DVIB
5V_V
1V8_UC
IT502
FSAV330
VGASEL
HDCRIN
RAIN
MRED
HDYIN
GAIN
MGRN
OE_
B3
Y3
HDCBIN
BAIN
MBLU
CT544 10UF
CT501 100N
VGA_GND
BT501 =>BX003
B_OUT
VGA_GND
G_OUT
R_OUT
V_OUT
H_OUT
WC
GND
IIC_CL_3
IIC_DA_3
RX
TX
CT507 1UF
CT508 1UF
CT509 1UF
WC
(to IT620)
IT503
74HC4053
5V_V
V_OUT
VGA_VIN
DVI_VSYNC
VGA_HIN
H_OUT
DVI_HSYNC
100N CT529
100N CT502
IT504
24LC21A
PRE
PB0
PB1
VSS
VCC
MODE/WC
SCL
SDA
CT503 100N
VGA_SCL
VGA_SDA
RT512 0R
DT509 MMSZ6V8T1
DT508 BAV70L
(4.5V)
RT513 3K3
RT514 3K3
RT515 3K3
DT504 BAV99L
DT505 BAV99L
RT504 100R
RT505 100R
RT524 10R
RT523 10R
DT506 MMSZ6V8T1
DT507 MMSZ6V8T1
RT510 100R
VGAWC
JT501 0R
JT502 0R
IT505
74HCT14T/D
RT526 1K
RT525 1K
DT510 ZMM33 33V
DT511 ZMM33 33V
RT530 47R
RT531 47R
33V ZMM33 DT513
33V ZMM33 DT512
JT503 0R
CT541 22UF
CT504 100N
RAIN
RED
RT527 4K7
RT516 4K7
RT517 150R
RT507 150R
BAV99L DT501
CT542 22UF
CT505 100N
GREEN
RT528 4K7
GAIN
BAV99L DT502
RT518 4K7
RT519 150R
RT508 150R
DT503 BAV99L
RT520 150R
RT509 150R
RT529 4K7
RT521 4K7
CT506 100N
BLUE
BAIN
22UF CT543
G5V
BT502
DB15HD_V
VGA-RGB
GND
CSDA
HSYNC
VSYNC
CSCL
VGA_GND
(TX)
(RX)
FACTORY TEST-PORT
BT001
Y/CVBS
IIC_CL4
IIC_DA4
IIC_CL3
IIC_DA3
IIC_CL2
IIC_DA2
IIC_CL1
IIC_DA1
DT001 NSAD500H
DT002 NSAD500H
RT001 68R
RT002 68R
0R RT003
0R RT004
AV IN
Y/CVBS_FACTORY
GENCAM 1
VIDEO GRAPHIC ADAPTOR (VGA)
IFC228 MAIN EU


IV200
TA1360
IV202
74HC4538
BV201
(to AD9883A)
FLI
V_RR
U_BB
Y_GG
VSP
V_R
U_B
Y_G
VIDEO SW
CR2H
CB2H
Y2H
5V_V
GENCAM 1
FB_OSD
R_OSD
G_OSD
B_OSD
IIC_DA_2
IIC_CL_2
HDFL
VDFL
+9VA
9V
GM_BUSY
GM_INTERRUPT
IIC_DA_4
IIC_CL_4
IIC_DA_2
IIC_CL_2
GND
1360_GND
1_GND
2_GND
3_GND
1360_D_GND
1_GND
TV200 BC856B
TV201 BC856B
TV202 BC856B
TV203 BC856B
TV208 BC856B
TV209 BC856B
TV210 BC856B
TV211 BC846B
DV200 GDZ2.0V
DV201 LL42
DV202 LL42
VIDEO PROCESSOR/ADC (VP/ADC
IFC228 MAIN EU


US:NH001-FE6243/splitter(21301460),NH002-FE6240(21254230)
EU:NH001-FE6233/splitter(21301450),NH002-FE6230(21254210)
RF-cable to NH002(Slave Tuner)
FE6243
21301450
NH001
(MAIN-TUNER)
BH001A
to conn BH001(sub-Tuner Bd.)
BH001B
(to BH003)
GND_TUNER
CVBS_IFS
CVBS_IFM
VSP
AM_AF
SIF
AUDIO 2
33VCC
5V_V
IIC_CL_2
IIC_DA_2
GENCAM 1
JH001
JH002
GND
TUNER
IFC228 MAIN EU


NH002
US:NH001-FE6243/splitter(21301460),NH002-FE6240(21254230)
EU:NH001-FE6233/splitter(21301450),NH002-FE6230(21254210)
PIP-TUNER,REV05
FE6240
BH002
AF_OUT
GND
SIF
BH003
BH001
SCH 2T PIP IFC228
to Main board

MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



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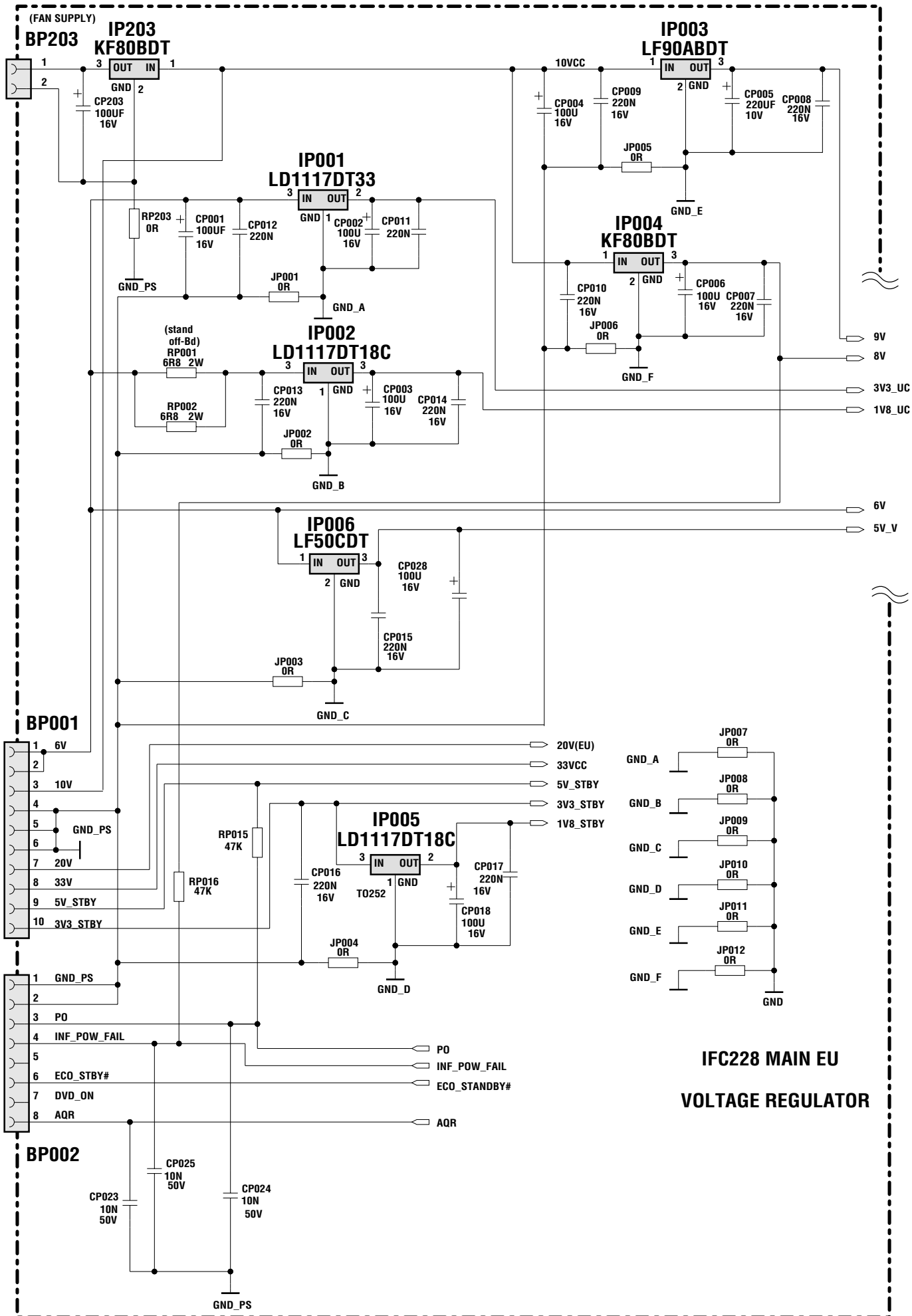
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE
SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE
ESQUEMA DE LA PLATINA PRINCIPAL



IFC228-LCD

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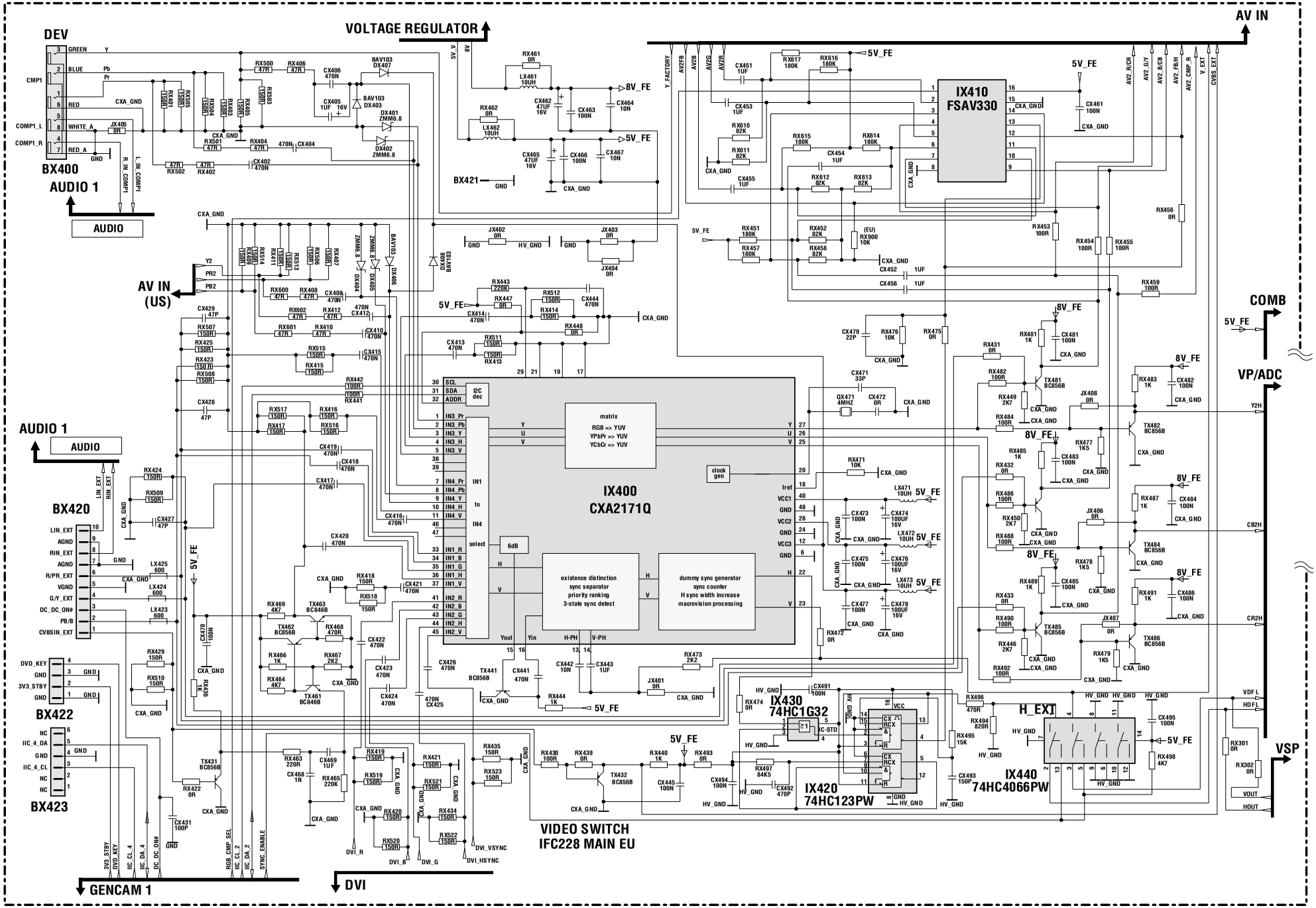
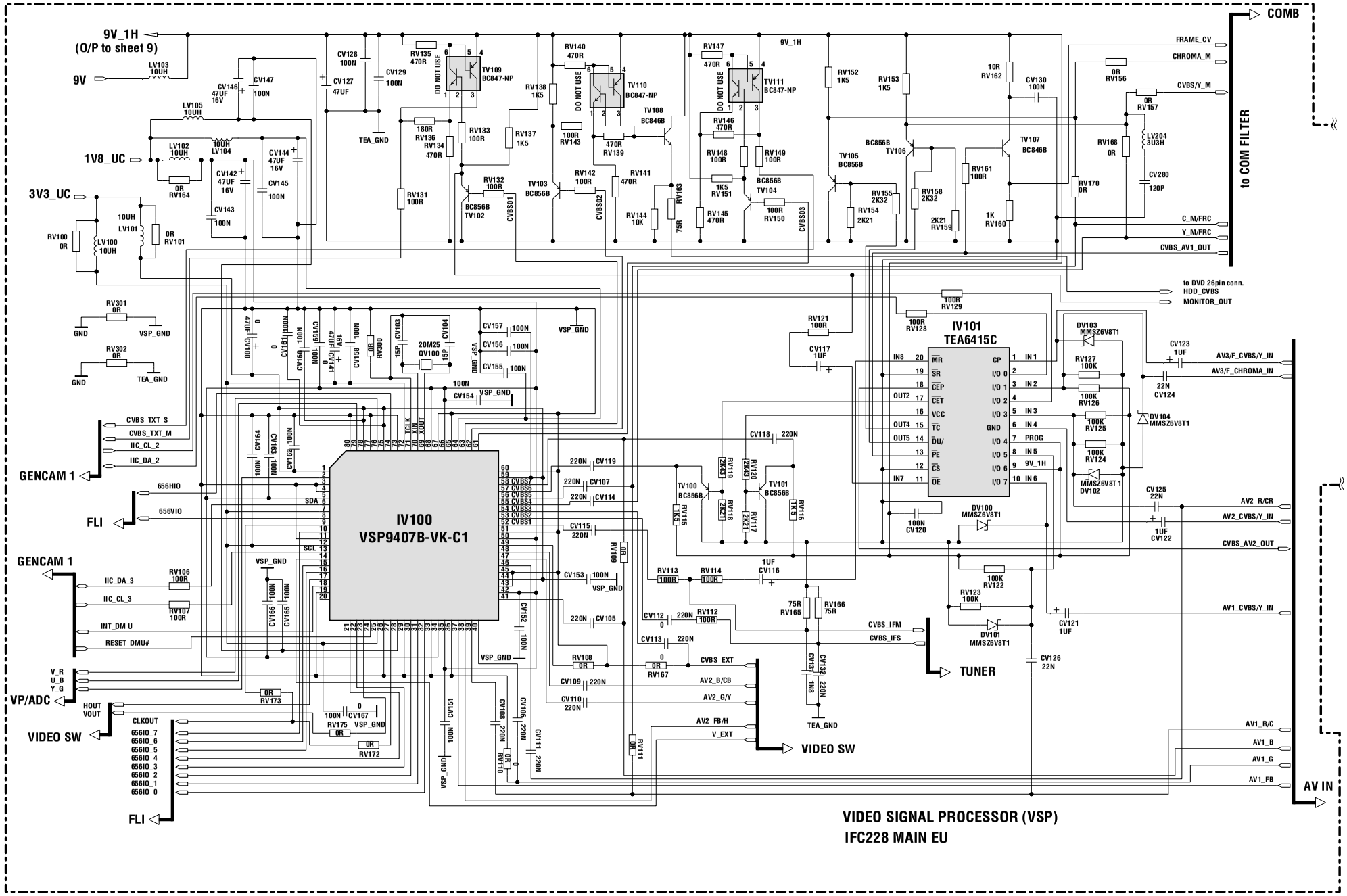
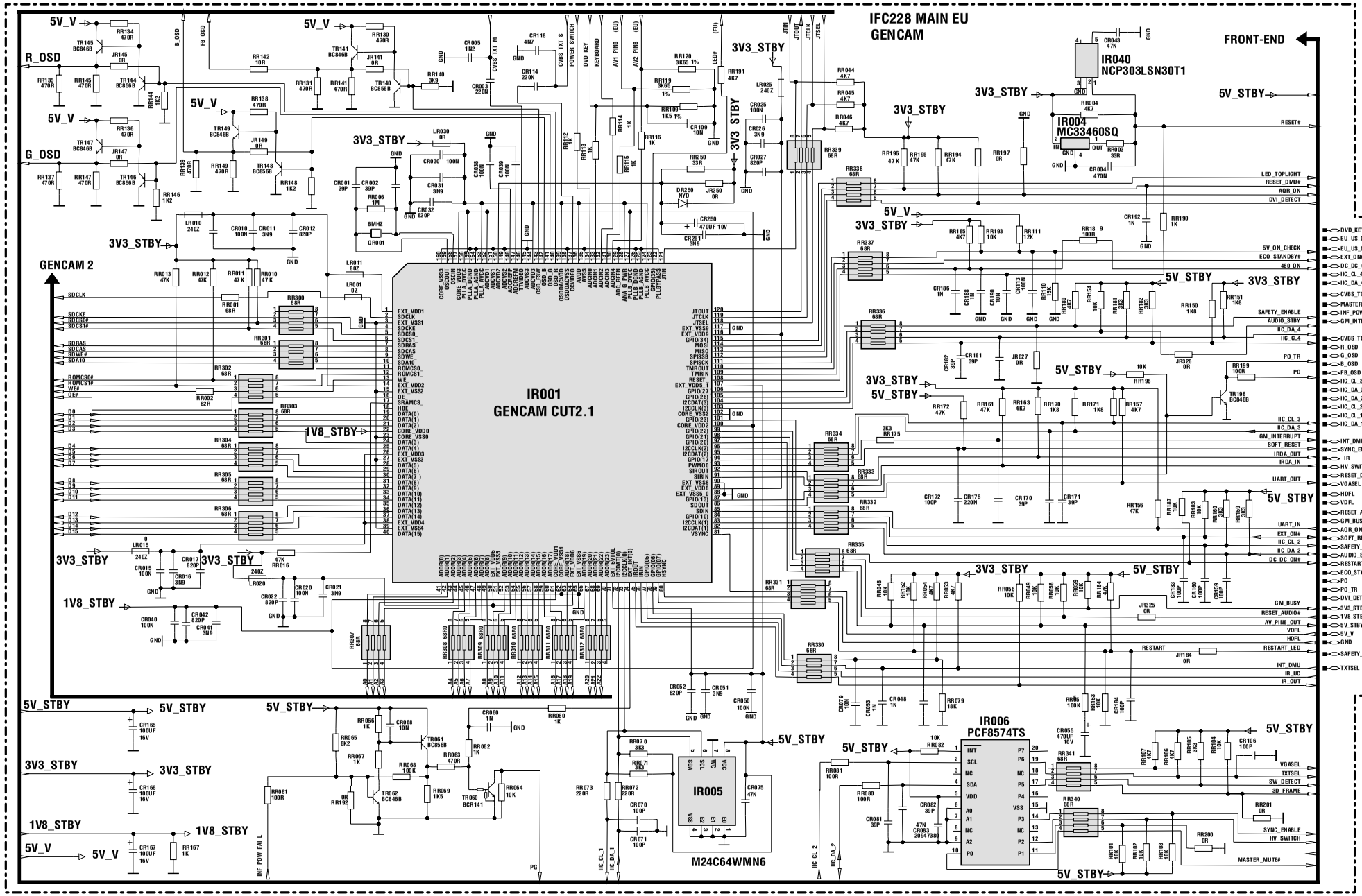
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL

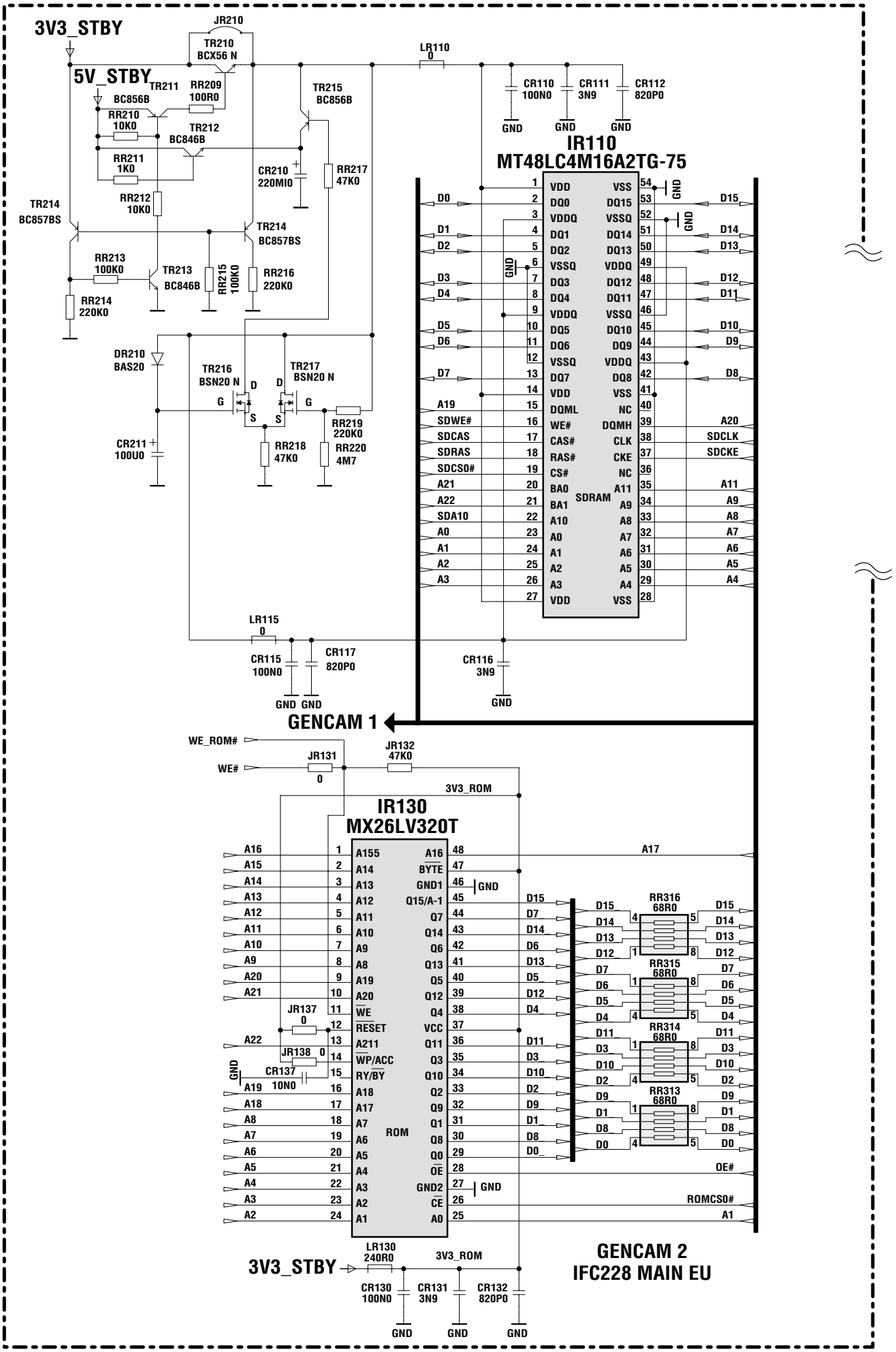



9V_1H
(O/P to sheet 9)
9V
1V8_UC
3V3_UC
COMB
to COM FILTER
FRAME_CV
CHROMA_M
CVBS/Y_M
C_M/FRC
Y_M/FRC
CVBS_AV1_OUT
to DVD 26pin conn.
HDD_CVBS
MONITOR_OUT
IV100
VSP9407B-VK-C1
IV101
TEA6415C
GENCAM 1
FLI
VP/ADC
VIDEO SW
TUNER
AV IN
CVBS_TXT_S
CVBS_TXT_M
IIC_CL_2
IIC_DA_2
656HIO
656VIO
IIC_DA_3
IIC_CL_3
INT_DM U
RESET_DMU#
V_R
U_B
Y_G
HOUT
VOUT
CLKOUT
656IO_7
656IO_6
656IO_5
656IO_4
656IO_3
656IO_2
656IO_1
656IO_0
CVBS_IFM
CVBS_IFS
CVBS_EXT
AV2_B/CB
AV2_G/Y
AV2_FB/H
V_EXT
AV3/F_CVBS/Y_IN
AV3/F_CHROMA_IN
AV2_R/CR
AV2_CVBS/Y_IN
CVBS_AV2_OUT
AV1_CVBS/Y_IN
AV1_R/C
AV1_B
AV1_G
AV1_FB
VIDEO SIGNAL PROCESSOR (VSP)
IFC228 MAIN EU

MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE
SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE
ESQUEMA DE LA PLATINA PRINCIPAL



IFC228-LCD
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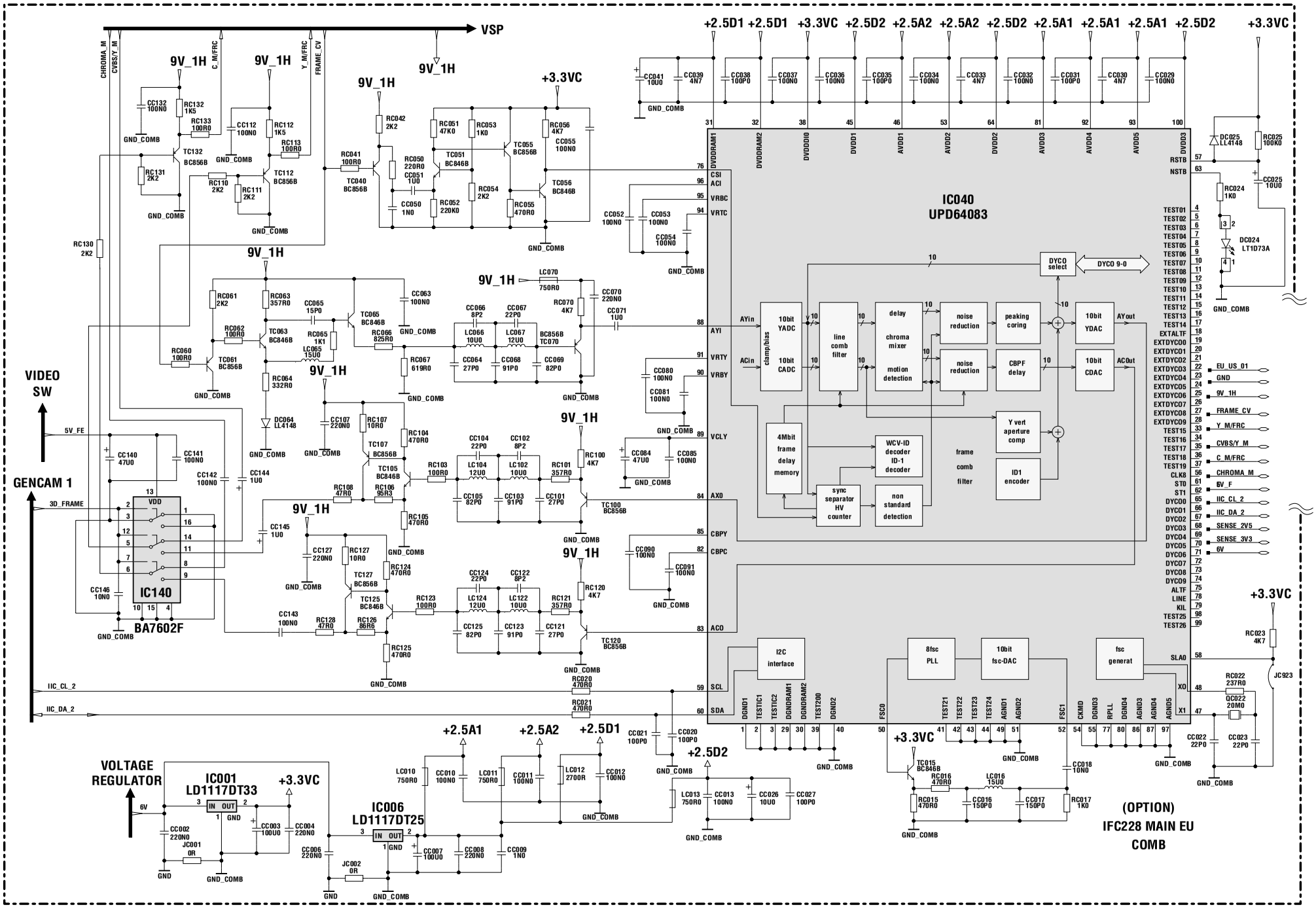
MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD HAUPTPLATINE - SCHEMA DELLA PIASTRA PRINCIPALE- ESQUEMA DE LA PLATINA PRINCIPAL



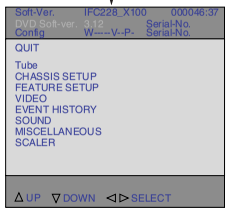
SERVICE MODE (EN)	MODE SERVICE (FR)	SERVICE - MODE (DE)	SERVICE - MODE (IT)	MODO SERVICIO (ES)

I - ENTER/EXIT SERVICE MODE - ENTREE/SORTIE DU MODE SERVICE - EIN-AUSTIEG SERVICE MODE - ACCESSO/USCITA ALLA/DALLA FUNZIONE - ENTRADA/SALIDA MODO SERVICIO

1 ACCESSING SERVICE MODE

TV Control Panel Access

- Switch the TV into "**Standby**" mode by pressing the Standby button on the RCU.
  Wait till the TV goes into the standby.
- Press the **VOL-** button and then the **PR-** button on the TV keyboard.
  Hold them down for more than 8 seconds.
- After the normal switch on time, when the 8 seconds have elapsed, the main service menu appears on the screen.

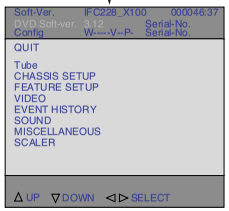


Note :
In service mode :
- Clear any wake-up/sleep/memo/EPG timers
- First installation Mode is overridden.
- Zoom and format are set to standard scanning
- Front Panel lock mode has to be cancelled.
- Pin 8 of the scart plug has to be ignored.
- AV- Link WSS detection and letterbox detection has to be disabled (autoformat).
- EPG and TELETEXT have to be disabled.
- All passwords have to disabled.

1 ACCES AU MODE SERVICE

Accès avec le clavier du téléviseur

- Mettre le téléviseur en position "**veille**" avec la télécommande utilisateur.
- Appuyer sur la touche **VOL-** puis sur la touche **PR-** du clavier du téléviseur.
  Maintenir enfoncées ces touches ensemble plus de 8 secondes.
- Après le temps normal de mise en fonctionnement et lorsque les 8 secondes sont écoulées, le menu principal du Mode Service apparaît.

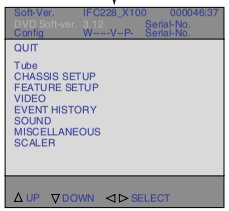


Note :
En mode service:
- La programmation des heures "reveil/matin", mémoire et EPG est annulée.
- Le premier mode d'installation est ignoré.
- Zoom et format sont initialisés au balayage standard.
- Le verrouillage du bloc de commandes du TV est effacé (réinitialisé).
- Pin 8 de la prise SCART ignorée.
- AV- Link , la détection WSS et la détection letterbox ne sont pas validées.
- Les fonctions EPG et Télétexte ne sont pas validées.
- Les mots de passe ne sont pas validés.

1 EINSTIEG IN DEN SERVICE MODE

Zugriff über die Tastatur des Fernsehgeräts

- Schalten Sie das Gerät mit der Fernbedienung in **Standby**.
- Drücken Sie die **VOL-** Taste und dann die **PR-**Taste am Nahbedienteil
  des Gerätes. Halten Sie beide Tasten für länger als 8 Sekunden gedrückt.
- Nach der normalen Einschaltzeit erscheint auf dem Bildschirm das Menü des Service-Modes.

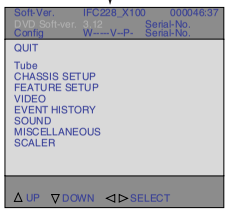


Anmerkung:
Im SERVICE MODE :
- werden alle Weck-, Schlummer-, Memo- und EPG-Timer gelöscht.
- Der Erstinstallations-Mode wird vom Service-Mode überlagert.
- Zoom und Bildformat werden auf Standardwerte gesetzt
- Die Bedienteilsperre wird aufgehoben
- wird die SCART - Schaltspannung nicht ausgewertet.
- AV-Link, WSS- und Letterbox-Detektion (Autoformat) sind abgeschaltet.
- sind Videotext und EPG abgeschaltet.
- werden alle Passworte gelöscht.

1 ACCESSO AL SERVICE MODE

tramite i comandi del televisore

- Posizionare il TV nel modo "**Standby**" usando il tasto standby del telecomando.Attendere che il TV si posizioni in standby.
- Premere prima il tasto **VOL-** e poi il tasto **PR-** sulla tastiera del TV Mantenere premuto idue tasti per più di 8 secondi.
- Dopo circa 8 secondi il TV si accenderà mostrando sullo schermo il menu service.



Nota :
Nel service mode:
- Cancella qualsiasi wake-up/sleep/EPG timers.
- Il primo modo di istallazione è ignorato
- Zoom e Format sono inizializzati alla scansione standard
- Il blocco pannello frontale è stato annullato
- Il piedino 8 della scart è ignorato.
- La rilevazione AV-Link WSS e rilevazione letterbox (formato) è statà disabilitata.
- EPG e TELEVIDEO sono stati disabilitati.
- Tutte le password sono state disabilitate

1 ACCESO AL MODO SERVICIO

Acceso panel control TV

- Con el TV encendido, apagarlo con la tecla "**Standby**" del telemando. Asegurarse de que el aparato ha pasado a "Standby".
- Pulsar primero, la tecla VOL- y después PR- del teclado del TV. Mantenerlas pulsadas al mismo tiempo durante unos 8 segundos
- Después del arranque normal, cuando hayan pasado los 8 segundos, aparecerá el menú principal del Modo Servicio

Nota :
En modo servicio:
- Borrar despertador/función sleep/memorias/temporizadores EPG
- El modo primera instalación es ignorado.
- El zoom y el formato son inicializados a barrido estándar
- El bloqueo del teclado queda cancelado.
- La patilla 8 del SCART es ignorada
- La detecci6n de A V-Link, WSS y "modo buzón" (autoformato) se desactiva.
- EPG y TELETEXTO son desactivados
- Todas las contraseñas son desactivadas

2 TEMPORARY EXIT FROM SERVICE MODE

- Press Exit on the Remote control.
- Everyday use menu can be accessed via Menu button.

- Field Service Menu can be re-entrered via Blue button.

2 SORTIE TEMPORAIRE DU MODE SERVICE

- Utiliser la touche Exit de la télécommande.
- Le menu utilisateur peut être accessible via la touche "Menu.

- Pour entrer à nouveau dans le mode service utliliser la touche bleue.

2 VORÜBERGEHENDES VERLASSEN DES SERVICE MODE

- Auf der Fernbedienung EXIT drücken
- Mit der Taste MENÜ gelangen Sie zum Menü ÜBERSICHT

- Mit der blauen Taste gelangen Sie zurück in den Service-Mode.

2 USCITA TEMPORANEA DAL SERVICE MODE

- Premere Exit sul telecomando.
- Al menu di uso quotidiano si accede attraverso il pulsante Menu

- É possibile rientrate nel Menu Service tramite il pulsante Blue.

2 SALIDA TEMPORAL DEL MODO SERVICIO

- Pulse Salir en el mando a distancia
- Con el botón Menu puede acceder al menú de uso cotidian

- Puede entrar al Menú Servicio con el botón azul.

3 EXITING FROM SERVICE MODE

Remote Control

- Go to the point QUIT in the Field service Mode main menu.
- Press ">" button
- TV mode.

on/off key or Stand-by

- Stand-by function or "off" with on/off key.

Values or adjustments are no stored before exiting from service mode will not be written into the NVM

3 SORTIE DEFINITIVE DU MODE SERVICE

télécommande

- Aller au point "QUIT" dans le menu principal du mode service.
- Appuyer sur ">"
- Mode TV.

Inter M/A ou Stand-by

- Foncion Stand-by ou "off" par M/A

Les valeurs ou réglages non mémorisés avant la sortie ne seront pas écrites en NVM.

3 ENDGÜLTIGES VERLASSEN DES SERVICE MODES

Fernbedienung

- Gehen Sie im Hauptmenü des Service-Modes mit dem Cursor auf die Zeile QUIT.
- Taste ">"drücken
- TV Modus

Netzschalter oder Standby

- Mit Standby-Funktion oder Netzschalter ausschalten

Werte und Einstellungen, die nicht vor dem Verlassen des Service-Modes gespeichert wurden, werden nicht in den Permanentspeicher (EEPROM) übernommen.

3 USCIRE DAL SERVICE MODE

telecomando

- Andare al punto QUIT nel Modo service del Menu principale
- Premere ">"
- Modo TV.

Tasto on/off

- Funzione Stand-by o "off" con il tasto on/off

Valori e regolazioni non memorizzati prima di uscire dal Modo service e non vengono scritti nell'NVM

3 SALIDA DEL MODO SERVICIO

telecomando

- Vaya al punto QUIT del menú principal de modo Servicio
- Pulse el botón ">"
- Modo TV.

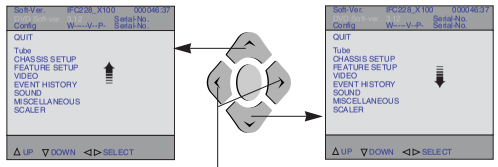
Tecla on/off de

-Stand-by o desconexión (off) con tecla on/off.

Los valores o ajustes no se guardan antes de salir del modo servicio y no se escriben en el NVM

II - NAVIGATION INSIDE THE SERVICE MODE - DEPLACEMENT DANS LE MODE SERVICE SUCHE IN SERVICE MODE - OPZIONI NEL SERVICE MODE - BUSQUEDA EN MODO SERVICIO

1 REMOTE CONTROL - TELECOMMANDE - FERNBEDIENUNG TELECOMANDO - MANDO A DISTANCIA



Naviagation up

Naviagation down

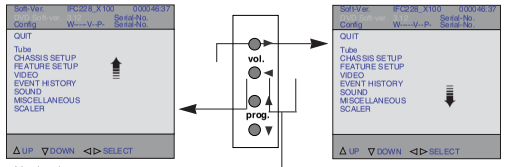
- Select option
- Option anwählen
- Selezionare l'opzione
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor

> → VALUE

< → VALUE

2 TV CONTROL PANEL - CLAVIER TV - TASTATUR DES FERNSEHGERÄTS - COMANDI DEL TELEVISORE -



Navigation up

Navigation down

- Select option
- Option anwählen
- Selezionare l'opzione
- Seleccionar opción

- "Change" value
- Wert "ändern"
- "Cambiare" valore
- "Cambiar" valor

Vol. + → VALUE

Vol. – → VALUE

3 MENUS WITH MULTIPLE PAGES - MENUS A PLUSIEURS PAGES MENÜS MIT MEHREREN SEITEN

Changing page - Changement de page
Seitenwechsel - Cambiare Pagina - Cambio de página

- When the highlight is on the first line of a menu a press on the « ∅ » key display the previous page.
- When the highlight is on the bottom line of a menu a press on the « ∅ » key display the next page.

- Quand la 1ère ligne du menu est en surbrillance, un appui sur la touche « ∅ » affiche la page précédente.
- Quand la dernière ligne du menu est en surbrillance, un appui sur la touche « ∅ » affiche la page suivante.

- When the highlight is on the first line of a menu a press on the key display the previous page.
- When the highlight is on the bottom line of a menu a press on the key display the next page.

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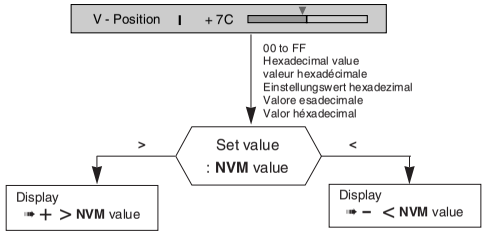
- When the highlight is on the bottom line of a menu a press on the key display the next page.

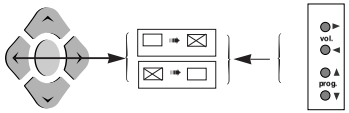
4 DISPLAYING THE VALUE OF THE SETTING - AFFICHAGE DES VALEURS - ANZEIGE DES EINSTELLUNGSWERTES VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - VISUALIZACION DEL VALOR DE AJUSTE



5 TOGGLE FUNCTIONS - VALIDATION DES FONCTIONS EIN-UND AUSSCHALTFUNKTIONEN - FUNZIONI DI COMMUTAZIONE - FUNCION CONMUTACION

To enable a function check (tick) ☒ the box.
Pour valider une fonction cocher ☒ la case correspondante
Zum Implementieren einer Funktion das Kontrollkästchen ☒ aktivieren (ankreuzen)
Per implementare una funzione di verifica, (vistare) ☒ la casella
Para poner en fucionamiento una función verifique (señale) ☒ la casilla

☒ : Implemented function ☐ : No implemented function



6 STORING VALUES IN MEMORY - MEMORISATION DES VALEURS - SPEICHERN DER WERTE - MEMORIZZAEZ I VALORI - VALORES ALMACENADOS EN LA MEMORIA

After setting, the values are stored in NVM.
Après réglages les valeurs sont mémorisées en NVM.
Nach dem Einstellen werden die Werte im NVM gespeichert.
Dopo la regolazione i valori vengono memorizzati in NVM.
Después del ajuste, los valores son almacenados en NVM

The box ☐ becomes ☒
During alignment, values are temporarily stored in RAM.
En cours d'alignement les valeurs sont mémorisées temporairement en RAM
Während des Abgleichs werden die Werte vorübergehend im RAM gespeichert
Durante l'allineamento i valori vengono memorizzati provvisoriamente sulla RAM
Durante el alineamento, los valores son almacenados temporalmente en RAM

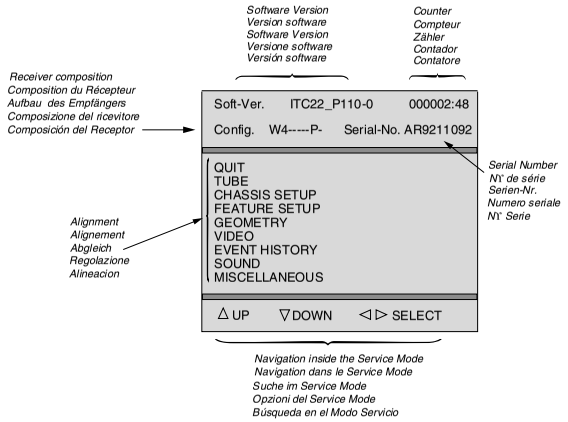
Store ➠ Copîes RAM values into NVM
Copie la valeur RAM en NVM
Kopieren des Wertes von RAM nach NVM
Copiare i valori RAM in NVM
Copiar valores RAM en NVM

Restore ➠ Copies all values from NVM into RAM.
Copie toutes les valeurs des données NVM en RAM
Kopiert alle NVM-Datenwerte in des RAM
Copiare tutti i valori da NVM sulla RAM
Copia todos los valores de NVM a RAM

Default ➠ All the default values of a page in use are stored in RAM.
L'ensemble des valeurs par défaut d'une page courante est chargé en RAM.
Sämtliche Standardwerte der aktuellen Seite werden ins RAM geladen
Tutti i valori di default di una pagina in uso vengono memorizzati sulla RAM
Todos los valores por defecto de la página en curso están almacenados en RAM.

III - LITE-MENU FOR FIELD SERVICE MODE - MENUS DU MODE SERVICE

1 MAIN MENU - MENU PRINCIPAL - HAUPTMENÜ



TV CONFIGURATION - CONFIGURATION DU TV - GERÄTEKONFIGURATION - CONFIGURAZIONE DEL TV - CONFIGURACIÓN Y TV

Config.	W5Z.....V

Character 1 : Tube type : "A"= 4:3 , "W" =16:9
Character 2 : Teletext external memory detected: "T"
Character 3 : Ambiant Sensor : "S"= detected, "-" = not
Character 4 : Chassis variant : "N"=Nicam, "V" =Virtual Dolby, "D"=Dolby digital
Character 5 : Subwoofer: "W" = detected, "-" = not
Character 6 : Guide module : "G" = detected, "-" = not
Character 7 : Flash memory : "F" = detected, "-" = not
Character 8 : Second Tuner (PIP) : "P" = detected, "-" = not
Character 9 : Comb filter : "C" = detected, "-" = not

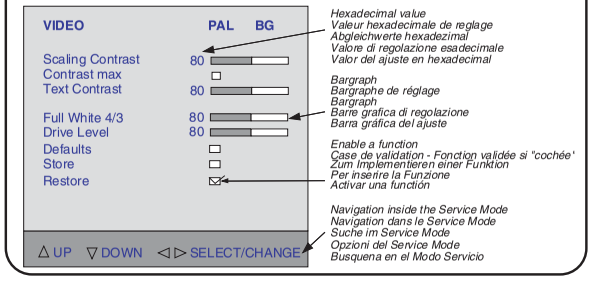
SERIAL-N°	A15...

Character 1 : Factory, A= Angers, B= Tarancon, Z= Zyrardow
Character 2 : Year :, G= 1996, H= 1997 etc. (International code UTEC90511)
Character 3 : Month, from 1= January to 9=September...C=December.
Character 4-9 : Serial N° in the month (from 000000 to 999999)
Character 10-18 : Factory reserved

TIME COUNTER - COMPTEUR DE TEMPS - ZÄHLER - CONTATORE - CONTADOR

The counter indicates the TV's number of service hours.It counts from to 0 to 65535 hours. The display is hexadecimal.
Le compteur de temps indique le nombre d'heures de service du TV. Il compte de 0 à 65535 heures. L'affichage est en hexadécimal.
Der Zähler zeigt an, wieviele Stunden der Fernseher in Betrieb ist. Die Anzeige ist hexadezimal.
Il contatore indica il numero di ore di servizio del TV. Puo' contare da 0 a 65535. La visualizzazione è esadecimale.
El contador indica el número de horas de servicio de la TV. Cuenta de 0 a 65535 horas. El visualizador es hexadecimal.

2 SUBMENU - SOUS-MENU - UNTERMENÜ



ALIGNMENT PROCEDURE - PROCESSUS DE REGLAGES - ABGLEICH - VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - PROCEDIMIENTO DE ALINEACION

TUBE

Return
Tube type 16X9
Store ☑
Restore ☐

△ UP ▽ DOWN ◁ ▷ SELECT/CHANGE

CHASSIS SETUP

Return

Subwoofer ☐
DVI ☑
Top Light ☐

△ UP ▽ DOWN ◁ ▷ SELECT/CHANGE

FEATURE SETUP

Return

Curtains Effect ☑
Opt.Still Pict. ☑
Auto Film Mode ☑
Demo Mode ☑

Welcome Screen ☑
Program Info ☐

△ UP ▽ DOWN ◁ ▷ SELECT/CHANGE

The TV should be warmed up at least 60 minutes

Le TV doit avoir un temps de chauffe de 60 minutes

Vor dem Abgleich sollte der Geräte mindestens 60 Minuten in Betrieb sein.

Il TV deve avere un tempo di riscaldamento almeno di 60 minuti.

El TV debe estar encendido 60 minutos antes.

VIDEO PAL BG

Return
Peak White 80
Black Offset R 80
Black Offset G 80

Scaling Colour 80
Scaling Brightness 80
Whitepoint R 80
Whitepoint G 80

△ UP ▽ DOWN ◁ ▷ SELECT/CHANGE

VIDEO PAL BG

Scaling Contrast 80
Contrast max ☐
Text Contrast 80

Full White 4/3 80
Drive Level 80
Defaults ☐
Store ☐
Restore ☐

△ UP ▽ DOWN ◁ ▷ SELECT/CHANGE

TUBE

Return

Closes the sub-menu and returns to the "Main Service Menu"
Retourne au menu principal.
Schließt das Untermenü, und das Haupt-Menü des Service-Modus erscheint.
Chiude il sottomenu e fa apparire il menu principale Service Mode.
Cierra el submenú. El menú Field Service Mode aparece.
Press </>: remote control; Vol. +/- : TV keyb.

Tube type

After replacing the NVM, the right panel configuration for the TV must be entered. The tube type can be 16x9 or 4x3 panel size. The new values will be stored into NVM only when the Store feature is selected.

Definit la configuration exacte du type d'écran après changement de NVM. La nouvelle valeur de tube est mémorisée en NVM dès que l'option store est sélectionée.

Nach dem Tausch des NVM (EEPROM) muss das Format des Displays eingegeben werden. Tube Type kann 16x9 oder 4x3 sein. Die neuen Werte werden erst mit dem Aktivieren von „Store“ im NVM gespeichert.

Dopo aver sostituito la NVM si deve selezionare la configurazione del pannello. Il tube type può essere 16x9 or 4x3 panel. I nuovi valori saranno memorizzati nella NVM solo quando verrà eseguita la funzione store.

Al cambiar la NVM, hay que configurar el tipo de pantalla del TV. Este puede ser 16x9 ó 4x3. Los nuevos valores serán grabados en la NVM después de seleccionar Store.

➞ After setting ➞ Store ☑

CHASSIS SETUP

Return

Closes the sub-menu and returns to the "Main Service Menu"
Retourne au menu principal.
Schließt das Untermenü, und das Haupt-Menü des Service-Modus erscheint.
Chiude il sottomenu e fa apparire il menu principale Service Mode.
Cierra el submenú. El menú Field Service Mode aparece.
Press </>: remote control; Vol. +/- : TV keyb.

Subwoofer

Enable the subwoofer on equiped set.
Validation du Subwoofer sur les appareils équipés .
Einschalten des Subwoofers (wenn vorhanden).
Abilita il subwoofer negli apparecchi equipaggiati.
Validación de que existe el subwoofer.
☑ Subwoofer enable ☐ Subwoofer disable

DVI

Enable the DVI input on equiped set.
Valide l'entrée DVI sur les appareils équipés.
DVI-Eingang freischalten (wenn vorhanden)
Abilita l'ingresso DVI nei set equipaggiati
Activa la entrada DVI, si disponible.
☑ DVI input enable ☐ DVI input disable

Toplight

Enable the "Toplight" function on equiped set.
Validation de la fonction "Toplight" sur les appareils équipés .
Aktivieren der "Toplight"-Funktion bei entsprechend ausgestatteten Geräten.
Abilitare la funzione "Top Light" nei set equipaggiati
Activa la función "Toplight" en los aparatos equipados con esta opción.
☑ Toplight enable ☐ Toplight disable

FEATURE SETUP

Curtains Effect*

Enables the "Curtains Effect" function in the user preferences menus.
Valide la fonction "Effet de rideau" dans le menu des préférences utilisateurs.
Aktiviert die Funktion "Jalousie-Effekt" im Benutzer-Menü "Präferenzen".
Abilita "Effetto Tendina" funzione disponibile nel menu di preferenze.
Activa la función "Efecto Cortina" en los menús de preferencia del usuario.

☑ Curtains Effect function active.
☐ Curtains Effect function disactivated

Optimised Still Picture*

Enables the "Photo Mode" function in the user "Picture/Advanced use" menus .
Valide la fonction "Photo Mode" dans le menu "Image/Autres Réglages" des menus utilisateurs.
Aktivieren der "Photo-Mode"-Funktion im Benutzer-Menü "Bildeinstellungen/Weitere Einstellungen".
Abilitare nel menu "Immagine/Parametri avanzati" la funzione "Photo Mode".
Activa la función "Modo Foto" en el menú de usuario "Imagen/Otros ajustes".

☑ Opt. Still picture active.
☐ Opt. Still picture disactivated

Auto film Mode*

Enables the "Film mode" function in the user "Picture/Advanced use" menus .
Valide la fonction "Mode film" dans le menu "Image/Autres Réglages" des menus utilisateurs.
Aktivieren der "Filmmode"-Funktion im Benutzer-Menü "Bildeinstellungen/Weitere Einstellungen".
Abilitare nel menu "Immagine/Parametri avanzati" la funzione "Modo film".
Activa la función "Modo Film" en el menú de usuario "Imagen/Otros ajustes".

☑ Auto film active.
☐ Auto film disactivated

Demo Mode*

Enables the "Demo" key on the RCU.
Valide la touche "Demo" sur la télécommande.
Einschalten die Taste "Demo" auf der Fernbedienung.
Abilita il tasto "Demo" del telecomando.
Validación de la tecla "Demo" del mando a distancia.

☑ Demo Mode active.
☐ Demo Mode disactivated

FEATURE SETUP

Welcome Screen*

Determines whether or not a Welcome Screen is shown during the Installation Mode. When this checkbox is unchecked the "Contacts" user Menu will be disabled.
Valide l'écran de bienvenue durant le mode Installation. Lorsque la case "Welcome Screen" n'est pas validée le menu utilisateur "Contacts" n'est pas valide.
Aktiviert den "Willkommen"-Bildschirm bei de Installation. Wenn diese Checkbox nicht markiert ist, wird das Benutzer-Menü "Contacts" nicht angezeigt.
Determina se lo schermo di Benvenuto viene mostrato durante il modo installazione. Se la casella "Contacts" non viene selezionata il menu utilizzatore sarà disabilitato
Determina si durante el modo instalación se muestra o no la pantalla de bienvenida. Cuando no está señalada la casilla el menú del usuario "Contactos" estará desactivado.

☑ Welcome Screen enable
☐ Welcome Screen disable

Program Info*

Enables "Program Info" in the "Overview" menu of user functions.
Valide "Program Info" dans le menu "Sommaire" des fonctions utilisateurs.
Aktivieren der "ProgramInfo"-Funktion im Benutzer-Menü "Übersicht".
Abilitare nel menu "Sommario" la funzione "Programm Info"
Activa la opción "Program Info" en el menú de usuario "Sumario".

☑ Program Info enable.
☐ Program Info disable.

* *Changes are saved directly into NVM*

Tout changement est directement sauvegardé en NVM.

Die Werte werden direkt im NVM gespeichert

I cambiamenti sono salvati direttamente nella NVM.

Los cambios son directamente guardados en la NVM

VIDEO PAL

Return

Closes the sub-menu and returns to the "Main Service Menu"
Retourne au menu principal.
Schließt das Untermenü, und das Haupt-Menü des Service-Modes erscheint.
Chiude il sottomenu e fa apparire il menu principale Service Mode.
Cierra el submenú. El menú Field Service Mode aparece.
Press </>: remote control; Vol. +/- : TV keyb.

Peak-White**

☼+◑ = standard

Peak white test pattern white =100%
PAL, SECAM, RGB, RGB_AUX, COMP1H, COMP2H, VIDEO DVI, PC_RGB, PC_DVI

Colourimeter

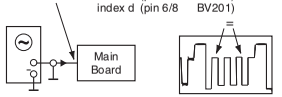
LCD Panel	[Nits]	Plasma Panel	[Nits]
LG 23*	400	Fujitsu H 37*	300
Hansar 23*	400	Fujitsu H 42*	300
ChiMei 27*	400		
Hitachi 32*	400		

Black Offset R / **Black Offset G**: Factory adjusted
Réservé au réglage usine
Reserviert für Fabrikeinstellungen
Riservato alla regolazione di fabbrica
Ajuste reservado fábricas

Scaling Colour*

☼+◑ = standard

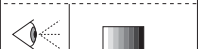
PAL, SECAM, RGB, COMP1H, COMP2H, RGB_AUX, VIDEO DVI
75% Colour bar test pattern



Scalling Brightness: Factory adjusted
Réservé au réglage usine
Reserviert für Fabrikeinstellungen
Riservato alla regolazione di fabbrica
Ajuste reservado fábricas

Whitepoint R*

☼+◑ = standard
Grey scale test pattern white =50%
PAL, SECAM, RGB,RGB_AUX COMP1H, COMP2H, VIDEO DVI,



Whitepoint G*

Colorimeter : Adjust to the Color coordinates at the center:

LCD Panel		Plasma Panel	
x	0.282	x	0.255
y	0.298	y	0.270

VIDEO PAL

Scalling Contrast: Factory adjusted
Réservé au réglage usine
Reserviert für Fabrikeinstellungen
Riservato alla regolazione di fabbrica
Ajuste reservado fábricas

Contrast max

Set (temporary) the user contrast bargraph to max. When "Contrast max." is deselected the user contrast bargraph set back to the previous value.

Met (temporairement) le baragraphe du réglage de contraste utilisateur au maximum. Lorsque "Contrast max." est déselectionné Le baragraphe revient à sa valeur initiale.

Setzt (temporär) den User-Kontrast auf Max.Nach dem Abschalten von 'Contrast max' wird auf der Bar-Graph auf vorherigen Wert zurückgesetzt

Regolare (momentaneamente) la barragrafica del contrasto al massimo.Quando "Contrasto massimo" viene disinserito la barra grafica utilizzatore viene regolata al volume precedente.

Ajusta (temporalmente) la barra de contraste del usuario al máximo. Cuando no esté seleccionado "Contraste Máximo" la barra de contraste del usuario vuelve a su valor anterior.

☑ Contrast max. enable
☐ Contrast max. disable

Text Contrast ☼+◔+◑ = standard

Adjust Text Contrast for V=0.5V at pin10/14 (Main Board index 0) or pin 6/8 (Main board index d) : 60% V peak white.

Ajuster Text Contrast pour obtenir un niveau de sortie V=0,5V au point 10/14 (Main Board index 0) ou au point 6/8 (Main board index d) : 60% V peak white.

Stellen Sie mit Text Contrast V=0.5V an der Pin 10/14 (Main Board index 0) oder Pin 6/8 (Main board index d) : 60% V peak white.

Regolare il guadagno contrast televideo per ottenere un livello pari a V=0.5V al pin10/14 (Main Board index 0) o pin 6/8 (Main board index d) : 60% V peak white.

Ajuste Text contrast para dejar V=0.5V en pin10/14 (Main Board index 0) o pin 6/8 (Main board index d) : 60% V peak white.

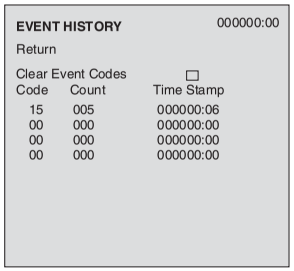
Full White 4/3 (16/9) / **Drive Level**: Factory adjusted
Réservé au réglage usine
Reserviert für Fabrikeinstellungen
Riservato alla regolazione di fabbrica
Ajuste reservado fábricas

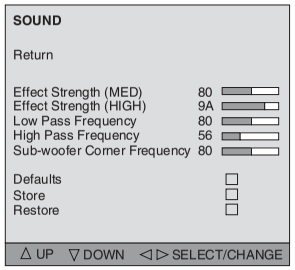
➞ After setting ➞ Store (+) ☑

Note :
* Adjust separate for PAL RF/SECAM RF and RGB_AUX

** After PEAK white adjustment control whitepoints setting.
Repeat the adjustments if necessary.

ALIGNMENT PROCEDURE - PROCESSUS DE REGLAGES - ABGLEICH - VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - PROCEDIMIENTO DE ALINEACION





EVENT HISTORY

Return

Closes the sub-menu and returns to the "Main Service Menu"

Retourne au menu principal.

Schließt das Untermenü, und das Haupt-Menü des Service-Modes erscheint.

Chiude il sottomenu e fa apparire il menu principale Service Mode.

Cierra el submenú. El menú Field Service Mode aparece.

Press </>: remote control; Vol. +/- : TV keyb.

Clear Event Codes

To clear all event codes stored in the NVM. Action:
Long press (> 2.5sec.).

Press </>/OK: remote control.

CODE

1- The last five error codes are stored and displayed with a time stamp from the run time counter
2- If an error occurs that is already in the list the time stamp is updated .
3- The errors are displayed with the most recent error on top of the list. The others follow with descending time stamps.
Displaying Error Codes with LED:
1- In addition to storing an error code it must also be displayed with the TV's Standby LED. Only the last error that occured is displayed.
2- Decimal error codes from 11 to 99
(with second digit not being 0) are signalled.
3- The error code is displayed as two separate digits separated by a suitable pause, this is repeated until the either the TV fixes the fault or the TV is repaired.
For example Error-code : 23 will be displayed thus :
2 flashes and a short pause
3 flashes and a long pause
.....
List of Errors Codes : see table

1- Mémorise les cinq derniers codes erreurs. Le cumul du temps de fonctionnement entre le démarrage initial du chassis en usine et le moment où s'est produit l'erreur est indiquée en colonne "Time stamp".
2. Si une erreur qui est déjà dans la liste survient de nouveau le temps cumulé (Time stamp) est mis à jour.
3- Les erreurs les plus récentes sont affichées en tête de liste. Les autres suivent en descendant.
Affichage des Codes Erreurs par LED:
1- Les Codes erreur sont signalés par le clignotement de la LED Standby du TV .
Seulement la dernière erreur survenue est affichée.
2- Les codes Erreurs décimaux vont de 11 à 99 (le second digit n'est jamais égal à 0) .
3- Le code Erreurs est signalé par deux digits selon une séquence spécifique
Exemple :
Code Erreurs : 23 affiché
2 flashes, courte pause
3 flashes : longue pause
.....
Voir ci-après la liste des codes erreurs

EVENT HISTORY

CODE

1. Es werden die letzten 5 Fehlercodes mit der Laufzeit des Auftretens angezeigt.
2. Tritt ein Fehler auf, der schon in der Liste steht, wird nur die Laufzeitanzeige aktualisiert.
3. Der zuletzt aufgetretene Fehler steht an erster Stelle. Die vorhergegangenen Fehler werden nach abnehmender Laufzeit gelistet.
Anzeige des Fehlercodes über die Standby-LED
1- Der Fehlercode wird nach dem Auftreten des Fehlers zusätzlich über die Standby-LED des TV-Gerätes durch Blinken angezeigt.
2- Es können die Fehlercodes 11 bis 99 (ohne diejenigen , die eine Null als zweite Stelle haben) dargestellt werden.
3- Die beiden Dezimalstellen des Code werden durch Blinken, getrennt von einer Pause angezeigt. Dies wird wiederholt, bis der Fehler
nicht mehr auftritt oder das Gerät repariert wird.
Beispiel der Anzeige für den Fehlercode 23:
Zweimaliges Blinken der LED, kurze Pause
Dreimaliges Blinken der LED, lange Pause.

Aufstellung der Fehlercodes: siehe Tabelle

1- Gli ultimi cinque codici errore vengono memorizzati e visualizzati con un time stamp dal run time counter.
2- Se si manifesta un errore già presente nella lista il time stamp viene aggiornato
3- Gli errori vengono visualizzati con l'errore più recente in cima alla lista.
Gli altri errori seguono con sequenza discendente del time stamp
Lampeggi LED: **Trasmissione messaggi**
1 Oltre alla memorizzazione il codice errore, deve anche essere visualizzato dal LED di standby.
2 Gli errori vengono segnalati con codici decimali da 11 a 99 (non con 0 al secondo digit)
3 Il codice errore viene visualizzato da due digit separati da una pausa,
queto viene ripetuto finchè il difetto è presente o il TV viene riparato
Per esempio il codice errore 23 sarà visualizzato:
2 lampeggi e una breve pausa
3 lampeggi lampeggi e una lunga pausa
.....
Lista Codici Errore: segue tabella

1- Los últimos 5 códigos de error son almacenados desde el contador de tiempo de vida y mostrados en la columna "time stamp"
2- Si ocurre un error que ya existe en la lista, éste se actualizará al último "time stamp"
3- Los errores más recientes son los mostrados en la parte superior de la lista. Los demás siguen en orden descendiente de "time stamp"
Códigos de error mostrados con el LED:
1- Además del almacenamiento, los codigos de error también se muestran con el LED de standby del TV.
Sólo se muestra el último error ocurrido.
2- Sólo se muestran los códigos de error decimales del 11 al 99 (dígito de las decenas empezando por cero, no)
3- El código de error es mostrado como 2 dígitos separados por una pausa corta.
Se repite hasta que se recupere el fallo o el TV sea reparado.
Por ejemplo, el código de error 23 se mostrará como:
2 destellos seguidos de una pausa corta
3 destellos seguidos de una pausa larga
.....
Lista de códigos de error: ver tabla

SOUND SETTINGS

Return

Closes the sub-menu and returns to the "Main Service Menu"

Retourne au menu principal.

Schließt das Untermenü, und das Haupt-Menü des Service-Modes erscheint.

Chiude il sottomenu e fa apparire il menu principale Service Mode.

Cierra el submenú. El menú Field Service Mode aparece.

Press </>: remote control; Vol. +/- : TV keyb.

Adjust "Sound settings" registers according to the TV environments (refer to the below table) when the NVM memory has been replaced.
On entering this menu the sound mode will be switched to normal and the "Dynamic Bass" feature activated.

Règle le contenu des registres "Sound settings" selon l'environnemnt du TV en cas de remplacement de la NVM. (voir table ci-dessous) en entrant dans ce menu le mode son est commuté en normal et les caractéristiques "Dynamic Bass" sont activées.

Wurde das NVM (EEPROM) erneuert, müssen im Menü "SOUND SETTINGS" die Werte entsprechend der unten stehenden Tabelle eingestellt werden.
Beim Aufruf dieses Menüs wird der Sound-Mode auf Normal gesetzt und „Dynamic Bass“ aktiviert.

Quando viene sostituita la memoria NVM regolare i registri "Sound setting" in funzione all'anbientazione TV (riferirsi alla tabella sottoindicata).
Selezionando questo menu, il suono sarà commutato su normale e verrà attivata la caratteristica"Dynamic Bass".

Ajustar los "Parámetros de Sonido" de acuerdo a las características del modelo de TV (ver tabla),después de sustituir la memoria NVM. Entrando en éste menú, el modo de sonido pasará a normal y se activará el "Dynamic Bass".

Effect Strength (MED)	3F
Effect Strength (HIGH)	43
Low Pass Frequency	08
High Pass Frequency	04
Sub-woofer corner Freq.	14

→ After setting → Store (+)

EN

11	I2C bus_1 data line held low
12	I2C Bus_1 clock line held low
13/95	I2C Bus_2 data line held low
14/95	I2C Bus 2 clock line held low
15	I2C Bus_3 data line held low
16	I2C Bus 3 clock line held low
17	I2C Bus_4 data line held low
18	I2C Bus 4 clock line held low
19	Invalid chassis detected
25	Main tuner doesn't answer anymore
26	Secondary tuner (PIP) doesn't answer anymore
27	IX300 (TEA6415C) doesn't answer anymore
28	IV300 (TA1360) doesn't answer anymore
29	9V IV300 Power down detection
41	IA001 (MSP) doesn't answer anymore
42	The reset bit IA001 (MSP) is active
45	Wrong MSP is fitted
48	PIP FI doesn't answere anymore
49	5V PIP FI Power down detection
54	NVM IR005 (M24C64) doesn't answer anymore
55	IR006 (PCF8574) doesn't answer anymore
58	Code validation failed
59	Wrong IR001 is fitted
61	5VON not present
63	Unexpected level on NMI line found
69	H/V Synch. for OSD missing
72	IX400 (CXA2151) doesn't answer anymore
93	IR001 : Err_I2C Bus_1 and Err_I2C Bus_2 (Bus drivers)
94	IR001 : Err_I2C Bus_3 and Err_I2C Bus_4 (Bus drivers)
95	IR001 : Err_I2C. Port driver can not be installed
96	IR001 : ADC driver can not be installed
97	IR001 : AV-link driver can not be installed
98	SDRAM (IR110) Problematic SDRAM timing
99	IR001 Watchdog hit

FR

11	I2C bus_1 data est au niveau bas
12	I2C bus_1 clock est au niveau bas
13/95	I2C bus_2 data est au niveau bas
14/95	I2C bus_2 clock est au niveau bas
15	I2C bus_3 data est au niveau bas
16	I2C bus_3 clock est au niveau bas
17	I2C bus_4 data est au niveau bas
18	I2C bus_4 clock est au niveau bas
19	Erreur de chassis détecté
25	Tuner principal ne répond pas
26	Tuner secondaire (PIP) ne répond pas
27	IX300 (TEA6415C) ne répond pas
28	IV300 (TA1360) ne répond pas
29	Chute de l'alimentation 9V IV300
41	IA001 (MSP) ne répond pas
42	IA001 (MSP) en reset
45	Mauvais MSP monté
48	FI PIP ne répond pas
49	Chute alimentation 5V FI PIP
54	NVM IR005 (M24C64) ne répond pas
55	IR006 (PCF8574) ne répond pas
58	Mauvaise validation de Code erreur
59	Mauvais IR001 monté
61	5V n'apparaît pas au départ
63	Niveau incorrect sur la ligne NMI
69	Synch. H/V (OSD) absente
72	IX400 (CXA2151) ne répond pas
93	IR001 : Problème d'installation des drivers des bus I2C1 et I2C2
94	IR001 : Problème d'installation des drivers des bus I2C3 et I2C4
95	IR001 : Problème d'installation des ports ou des drivers I2C
96	IR001 : Problème d'installation des drivers ADC
97	IR001 : Problème d'installation du driver AV-link
98	Problème du timing SDRAM (IR110)
99	IR001 Watchdog actif

DE

11	I2C Bus_1 Data ist immer L
12	I2C Bus_1 Clock ist immer L
13/95	I2C Bus_2 Data ist immer L
14/95	I2C Bus_2 Clock ist immer L
15	I2C Bus_3 Data ist immer L
16	I2C Bus_3 Clock ist immer L
17	I2C Bus_4 Data ist immer L
18	I2C Bus_4 Clock ist immer L
19	Falsche Chassisvariante
25	Hauptтuner/ZF Tunerteil antwortet nicht
26	Zweiter (PIP-)Tuner Tunerteil antwortet nicht
27	IX300 (TEA6415C) antwortet nicht
28	IV300 (TA1360) antwortet nicht
29	Power Down Detection IV300 (9V zu geringe Betriebsspannung)
41	IA001 Audio-MSP antwortet nicht
42	IA001 Audio-MSP Reset-Bit ist aktiv
45	Falscher MSP-Typ eingesetzt
48	Zweiter (PIP-)Tuner ZF-Teil antwortet nicht
49	Power Down Detection ZF-Teil PIP-Tuner/ZF (5V zu geringe Betriebsspannung)
54	NVM IR005 (M24C64) antwortet nicht
55	IR006 (PCF8574, Portexpander) antwortet nicht
58	Event-Code konnte nicht bestätigt werden
59	Falsche Version des Microcontrollers IR001
61	Geschaltete 5VON nicht vorhanden
63	Unerwarteter Pegel auf POWER_FAIL (NMI-Leitung: z.B. Überschlag im Bildrohr oder zu niedrige Netzspannung)
69	H/V-Synch für OSD fehlen
72	IX400 (CXA2151, Eingangsschalter AV4) antwortet nicht
93	Soft.problem: IR001 konnte Bustreiber für I2C-Bus_1 und II2C-Bus_2 nicht korrekt installieren
94	Soft.problem: IR001 konnte Bustreiber für I2C-Bus_3 und II2C-Bus_4 nicht korrekt installieren
95	Software problem: IR001 konnte Porttreiber für I2C-Busse nicht korrekt installieren
96	Software problem: IR001 konnte Treiber für den ADC nicht korrekt installieren
97	Software problem: IR001 konnte AV-Linktreiber nicht korrekt installieren
98	Software problem: IR001 konnte SDRAM-Timing nicht korrekt installieren
99	Watchdog-Timer im IR001 hat ausgelöst

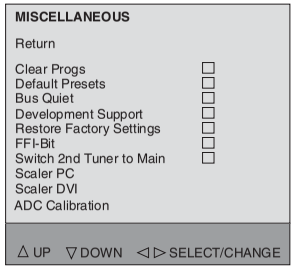
IT

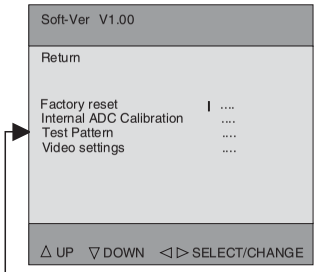
11	I2C bus_1 data linea forzata bassa
12	I2C Bus_1 clock linea forzata bassa
13/95	I2C Bus_2 data linea forzata bassa
14/95	I2C Bus 2 clock linea forzata bassa
15	I2C Bus_3 data linea forzata bassa
16	I2C Bus 3 clock linea forzata bassa
17	I2C Bus_4 data linea forzata bassa
18	I2C Bus 4 clock linea forzata bassa
19	Errorre di riconoscimento chassis
25	Main tuner non risponde
26	Tuner secondario (PIP) non risponde
27	IX300 (TEA6415C) non risponde
28	IV300 (TA1360) non risponde
29	9V IV300 Rilevamento Power down
41	A001 (MSP) non risponde
42	Il bit di reset di IA001 (MSP) è attivo
45	E ' stato inserito un MSP sbagliato'
48	PIP FI non risponde
49	5V PIP FI Rilevamento Power down
54	NVM IR005 (M24C64) non risponde
55	R006 (PCF8574) non risponde
58	Non abilita dei codice errore
59	Versione errata di microprocessore IR001
61	5VON non disponibile alla partenza
63	Indesiderato livello sulla linea NMI
69	H/V Synch. for OSD assente
72	X400 (CXA2151) non risponde
93	IR001 : Err_I2C Bus_1 i Err_I2C Bus_2 (Bus drivers)
94	IR001 : Err_I2C Bus_3 i Err_I2C Bus_4 (Bus drivers)
95	IR001 : Err_I2C. Problema di installazione porta drivers IIC
96	IR001 : ADC Porta drivers non può essere installata
97	IR001 : AV-link driver non possono essere installati
98	SDRAM (IR110) Problematica SDRAM timing
99	IR001 Watchdog attivo

ES

11	Línea Data I2C bus_1 forzada a nivel bajo
12	Línea Clock I2C bus_1 forzada a nivel bajo
13/95	Línea Data I2C bus_2 forzada a nivel bajo
14/95	Línea Clock I2C bus_2 forzada a nivel bajo
15	Línea Data I2C bus_3 forzada a nivel bajo
16	Línea Clock I2C bus_3 forzada a nivel bajo
17	Línea Data I2C bus_4 forzada a nivel bajo
18	Línea Clock I2C bus_4 forzada a nivel bajo
19	Detectado chasis inválido
25	El sintonizador principal no responde
26	El sintonizador secundario (PIP) no responde
27	IX300 (TEA6415C) no responde
28	IV300 (TA1360) no responde
29	Faltan los 9V de IV300
41	A001 (MSP) no responde
42	El bit del reset de IA001 (MSP) está activo
45	MSP averiado
48	La FI del PIP no responde
49	Faltan los 5V de la FI PIP
54	NVM IR005 (M24C64) no responde
55	IR006 (PCF8574) no responde
58	Código de validación fallido
59	IR001 montado, mal o incorrecto
61	Faltan los 5VON
63	Nivel inesperado en la línea NMI
69	Faltan los sincronismos H/V para el OSD
72	IX400 (CXA2151) no responde
93	IR001, Err_I2C Bus_1 y Err_I2C Bus_2 (Bus drivers)
94	IR001, Err_I2C Bus_3 y Err_I2C Bus_4 (Bus drivers)
95	IR001, Err_I2C, Puerto del driver no se puede instalar
96	IR001, driver para ADC no se puede instalar
97	IR001, driver para AV-link no se puede instalar
98	SDRAM (IR110) problemas con el timing
99	IR001 alcanzado Watchdog

ALIGNMENT PROCEDURE - PROCESSUS DE REGLAGES - ABGLEICH - VISUALIZZAZIONE DEL VALORE DELLA REGOLAZIONE - PROCEDIMIENTO DE ALINEACION





MISCELLANEOUS

Return

Closes the sub-menu and returns to the "Main Service Menu"

Retourne au menu principal.

Schließt das Untermenü, und das Haupt-Menü des Service-Modes erscheint.

Chiude il sottomenu e fa apparire il menu principale Service Mode.

Cierra el submenú. El menú Field Service Mode aparece.

Press </>: remote control; Vol. +/- : TV keyb.

Clear Progs.

Clears all programms stored in memory and resets all Picture and Sound settings to the factory defaults. The AUTO INSTALL (out of factory) mode can be initialised by a long press (>2s.) of the selection button.

Efface tous les programmes mémorisés. Valeurs SON et IMAGES: valeurs usines. Fonction valide par une longue pression (>2s.) sur la touche de sélection </>.

Löscht alle Programmplätze und setzt alle Bild- und Toneinstellungen auf Fabrikwerte zurück. Der AUTO-INSTALL-Modus kann durch einen langen Knopfdruck (>2s) initialisiert werden.

Cancella tutti i programmi in memoria e regola i Valori analogici SUONO IMMAGINE: ai livelli di fabbrica.Riportare la TV al modo Selezione: pressione prolungata: 2 sec. su il pulsante </>.

Programa de borrado. Borra todos los programas almacenados en la memoria.Valores analógicos de IMAGEN y SONIDO: valores de fábrica.Regreso a la TV para "salir del modo fábrica".Selección: Presión larga igual a 2s.

☑ Clear Progs enable

☐ Clear Progs disable

Default Presets

Sets the default (ROM) value for all the factory sound and picture presets.

Initialise aux valeurs par défaut (ROM) les réglages usine du son et de l'image.

Aktiviert die Default- (ROM-) Werte für alle Ton- und Bildvoreinstellungen.

Regolare i valori di default (ROM) valori di fabbrica per le regolazioni suono e Video

Fija el valor del valor por defecto (ROM) para todas las precolocaciones del sonido y del cuadro de la fábrica.

☑ Default Presets enable

☐ Default Presets disable

MISCELLANEOUS

Bus Quiet

In "Bus Quiet", the NVM can be read, modified and reprogrammed by means of a NVM Programmer.
To access "Bus Quiet" : Long press ">".
The TV should remain in "Bus Quiet" mode until either Exit, Left, Right, Up,Down or Standby keys on the RCU or local keyboard are pressed; at which point the TV should carry out a warmstart in order to prevent differences between the NVM and RAM contents.
After returning from Bus Quiet, the software checks the NVM content.
If it is not valid, the software perform a new default writing of the NVM content.

En mode bus quiet la NVM peut être lue, modifiée et reprogrammée.
Accès au mode Bus quiet :
Longue pression ">".
Utiliser l'une des touches Exit, Gauche, Droite Haut, Bas, standby ou une des touches du clavier pour sortir le téléviseur du mode bus quiet.
A partir de ce point de sortie le démarrage du téléviseur s'effectue à chaud pour éviter toute différence des contenus RAM et NVM.
En sortie de mode bus quiet, le logiciel contrôle le contenu de la NVM.
S'il n'est pas correct le logiciel exécute une nouvelle écriture par défaut de celle-ci.

Im "Bus Quiet"-Modus kann der Inhalt des NVM mittels eines externen NVM-Programmiergerätes ausgelesen, geändert oder neu programmiert werden. "Bus Quiet" wird einem längeren Druck auf ">" aktiviert.
Das Gerät bleibt solange im "Bus Quiet" - Mode, bis durch Druck auf die EXIT-, LINKS-, RECHTS-, HOCH-, RUNTER- oder STANDBY-Taste (am Gerät oder auf der Fernbedienung) ein Warmstart des Gerätes veranlaßt wird, um unterschiedliche Daten in RAM und NVM zu vermeiden.
Es folgt ein Software-Check des NVM-Inhaltes.
Sollte dieser nicht gültig sein, wird der Inhalt mit Default-Werten überschrieben.

In Modo Bus Quiet, la memoria NVM può essere letta, modificata o riprogrammata.
Per accedere al modo Bus Quiet premere a lungo il tasto ">".
Il TV rimane in modo Bus Quiet fino a che vengono premuti i tasti Exit, o Destro Sinistro, Su o Giù o Standby dal telecomando o dalla tastiera locale; a questo punto il TV riparte per evitare interferenze fra i contenuti della memoria NVM e della RAM.
All'uscita dal modo Bus Quiet, il software controlla il contenuto della memoria NVM. Se tale contenuto non è valido, il software provvede a una nuova programmazione della NVM con l'inserimento dei dati di default.

En bus quieto, la NVM puede ser leída, modificada y reprogramada.
Acceso a bus quieto : Larga presión en ">"
El TV permanecerá en bus quieto hasta que se pulse cualquiera de las teclas siguientes: Exit, "<", "^", "V", ">"o Standby del telemando o del teclado.
En este momento el TV arrancará para evitar cualquier diferencia entre los contenidos de la RAM y NVM.
Al salir del modo bus quieto, el software comprueba el contenido de la NVM.
Si no coincide, el software ejecuta la escritura de los datos en la NVM.

☑ Bus quiet enable ☐ Bus quiet disable

MISCELLANEOUS

Developpement Support

Factory adjusted
Réservé au réglage usine
Reserviert für Fabrikeinstellungen
Riservato alla regolazione di fabbrica
Ajuste reservado fábricas

Restore Factory Settings

Restores the correct "out of box" condition. Some settings will be restored from a reserved backup NVM area and others will be defaulted from the ROM.

Remet les réglages aux valeurs de sortie usine. Certaines valeurs sont restaurées à partir d'une zone de mémoire NVM et d'autres à partir des valeurs par défaut de la ROM.

Überschreibt den jeweiligen Abgleich mit Werten aus dem ROM und aus besonderen, reservierten Bereichen des NVMs.
Der Abgleich entspricht dann dem, den das Gerät beim Verlassen der Produktionsstätte hatte.

Rimettere le regolazioni ai valori di fabbrica Alcune regolazioni saranno ripristinate da una zona riservata dalla memoria NVM, altre regolazioni saranno riprese dalla ROM di default.

Vuelve a poner los ajustes a los valores de salida de la fábrica.
Se restauran algunos valores a partir de una zona de memoria NVM y de otros a partir de los valores por defecto de la ROM.

FFI - Bit

Fast Filter (IF / PLL)
Filtre rapide (FI / PLL)
Schnelles filter (ZF / PLL)
Filtro /rapido (IF / PLL)

☑ Asia ☐ Europe

Switch 2nd Tuner to Main

The current signal on the second tuner is switched to the main screen and the AV1 output.
Changing program/channel on main tuner, the main screen stays on the second tuner.

Commute le signal du second tuner en image principale et en sortie AV1.
L'écran reste sur l'image du secont tuner malgré tout changement de programme/canal sur le tuner principal.

Das jeweilige Eingangssignal des zweiten Tuners wird auf dem Hauptbildschirm dargestellt und auf den AV1-Aushang geschaltet.
Bei einem Programm/Kanalwechsel auf dem Haupttuner bleibt das Bild des zweiten Tuners auf dem Hauptbildschirm sichtbar.

Commutare il segnale del secondo tuner sullo schermo e in uscita AV1
Lo schermo resta sull'immagine del secondo tuner, malgrado tutti i cambiamenti di progamma/canale sul tuner principale

La señal actual en el segundo sintonizador se cambia a la pantalla principal y a la salida AV1. Program/channel que cambia en el sintonizador principal, la pantalla principal permanece en el segundo sintonizador.

☑ Switch 2nd Tuner to Main enable

☐ Switch 2nd Tuner to Main disable

MISCELLANEOUS

Scaler PC

Selects the PC field service menu with VGA as input source: TV in AV4, PC AV source. The signal must be connected to VGA port

Sélectionne le menu PC du mode service avec une source d'entrée VGA : TV en AV4, source AV PC.
La source d'entrée doit être le port VGA

Dieses aktiviert den PC-Service-Mode mit VGA als Eingangssignal: TV an AV4, PC als AV-Quelle. Das Eingangssignal muss am VGA-Eingang anliegen.

Selezionare PC nel menu service con VGA come sorgente ingr.: TV in AV4, PC AVsorgente. Il segnale si deve collegare alla porta VGA

Seleccionar el menú PC del modo servicio con la señal de entrada VGA: TV en AV4, PC en AV La señal debe ser conectada por el puerto VGA.

Scaler DVI

Selects the PC field service menu with DVI as input source: TV in AV5, DVI AV source. The signal must be connected to DVI port.

Sélectionne le menu PC du mode service avec une source d'entrée DVI : TV en AV5, source AV DVI. La source d'entrée doit être le port DVI

Dieses aktiviert den PC-Service-Mode mit DVI als Eingangssignal: TV an AV5, DVI als AV-Quelle. Das Eingangssignal muss am DVI-Eingang anliegen.

Selezionare PC nel menu service con DVI come sorgente ingr: TV in AV5, DVI AV sorg. Il segnale si deve collegare alla porta DVI .

Seleccionar el menú PC del modo servicio con la señal de entrada DVI: TV en AV5, DVI por AV. La señal debe ser conectada por el puerto DVI.

ADC calibration (Ext. ADC)

Start the automatic ADC alignment routine.
Insert a grey test pattern
Select ADC calibration and press left or right button. Alignment will be carried out automatically. When complete the word "done" will be displayed. Menu service can be re- entred via Blue button.

Démarre la routine de réglage automatique ADC. Insérer une mire de barres d'échelle des gris. Selectionner ADC calibration et appuyer sur la touche gauche ou droite. La procédure démarre automatiquement.Lorsque elle est complète le message "done" s'affiche.
On peut entrer à nouveau dans le mode service en utilisant la touche bleue.

Starten Sie die ADC Abgleichroutine.
Speisen Sie einen Graukeil ein. Wählen Sie "ADC Calibration" und drücken die Cursortaste "Links " oder "Rechts". Der Abgleich wird automatisch vorgenommen. Am Ende des Abgleichs wird "Done" angezeigt. Das Service-Menü kann wieder mit der blauen Taste aufgerufen werden.

Iniziare la routine automatica ADC alignement . Inserire un segnale scala di grigi.
Selezionare ADC calibration premere il tasto left o right. L'allineamento partirà automaticamente.
Quando sarà completato "done" verrà vizualizzato.
Si può richiamare il menu service con il tasto blu.

Arranca la rutina de ajustes del scaler ADC interno
Insertar una a de barras de esala de grises
Seleccionar calibración ADC y pulsar la tecla dcha o izda. El ajuste comenzara automáticamente.
Al terminar, aparece la palabra "Done".
Se puede entrar al menú servicio con la tecla azul

Soft-Ver V1.00*

Factory reset

Reset to factory values.

Reinitialisation aux valeurs usine.

Rücksetzen zu den Fabrikwerten.

Regolare alle valori di fabbrica.

Reset a los valores de fábrica.

Internal ADC Calibration

Triggers the scaler internal ADC alignment routine.
Grey scale test pattern input :
- to VGA port for Scaler PC
- to DVI port for Scaler DVI
When complete the word "Done" is displayed. Moving the cursor away will automatically erase the word and ready the system for another calbration is required.

Déclenche la procédure de réglage interne ADC du scaler. Entrer une mire d'échelle des gris :
- sur le port VGA pour le Scaler PC
- sur le port DVI pour le Scaler DVI
A la fin du réglage, le mot "Done" est affiché. Le déplacement du curseur efface automatiquement le mot et prépare le système pour un autre réglage.

Startet die Abgleichroutine der internen Scaler ADCs.
Speisen Sie einen Graukeil ein:
- in den VGA-Eingang für Scaler PC
- in den DVI-Eingang für Scaler DVI
Am Ende des Abgleichs wird „Done" angezeigt. Das Drücken einer der Cursor-Tasten löscht die Meldung und bereitet das Gerät für weitere Einstellungen vor.

Triggerare lo scaler int. ADC alignment routine.
Inserire all'ingresso un segnale scala di grigi :
- Alla porta VGA per Scaler PC
- Alla porta DVI per Scaler DVI
Quando completata "Done" sarà visualizzato. Muovendo il cursore verrà automaticamente cancellata la scritta e preparato il sistema per un'altra calibrazione se richiesta.

Arranca la rutina de ajustes del scaler ADC interno. Entrada de carta de ajuste de escala de grises:
- por el puerto VGA para el scaler del PC
- por el puerto DVI para el scaler DVI
Al terminar, aparece la palabra "Done" Moviendo el cursor fuera, será automáticamente borrada la palabra y dispone al sistema para iniciar otro ajuste.

Test pattern

Displays the internal test pattern.
The ">" button toggles through the colour : White, Black, Red, Green and Blue.
After the last pattern the main menu is displayed.

Affiche la mire de réglage interne.
Les appuis successifs sur la touche ">" commute les mires de couleurs : Blanche, noire, rouge, verte et bleue. Après la dernière mire le menu principal apparaît.

Zeigt die internen Testmuster an. Mit ">" schaltet man die Farben weiter: Weiß, Schwarz, Rot, Grün und Blau. Nach dem letzten Testmuster wird wieder das Hauptmenü angezeigt.

Visualizzare il generatore di test interno .
Il tasto ">" seleziona i colori :
Bianco, Nero, Rosso, Verde e Blu. Dopo l'ultimo segnale di test si avrà il main menu

Muestra la carta de ajuste interna.
La tecla ">" conmuta a través de los colores: Blanco, Negro, Rojo, Verde y Azul. Después de la última carta de ajuste, sale el menú principal

Soft-Ver V1.00*

Video settings

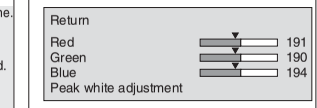
Displays the video submenu below.

Affiche le sous-menu video ci-dessous.

Zeigt das Video-Untermenü an (siehe unten).

Visualizzi il sub-menu video sotto.

Muestra el submenú de vídeo debajo.



Depending on user selection, the changes will either modify PC VGA or PC DVI RGB settings.

Modifie les valeurs de réglages des configurations PC VGA ou PC DVI RVB.

Abhängig von der Wahl des Benutzers werden die Einstellungen von PC VGA oder PC DVI RGB beeinflusst.

Modifica i valori delle regolazioni delle configurazioni PC VGA o PC DVI RGB

Dependiendo de la selección del usuario, los cambios serán entre modificar los ajustes PC VGA o PC DVI RGB.

Note :

If no test pattern is connected and the item return is selected the message "No signal PC" is displayed.
To return to the Service menu it's necessary to press a numeric button and then the Blue button

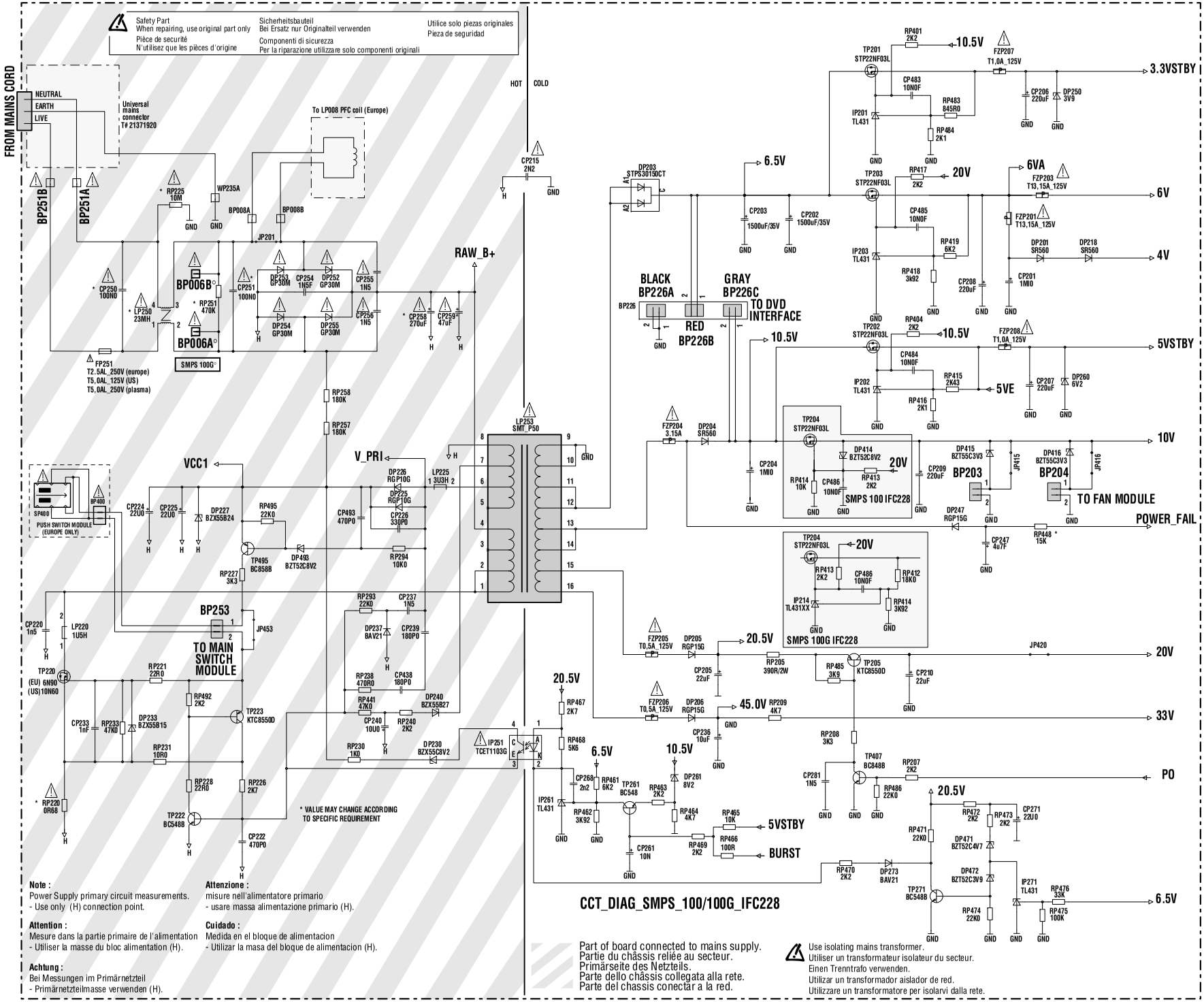
Si aucune source PC n'est connectée le message "Pas de signal PC" s'affiche".
Pour revenir au mode service il est nécessaire d'appuyer sur une touche numérique et ensuite sur la touche bleue de la télécommande.

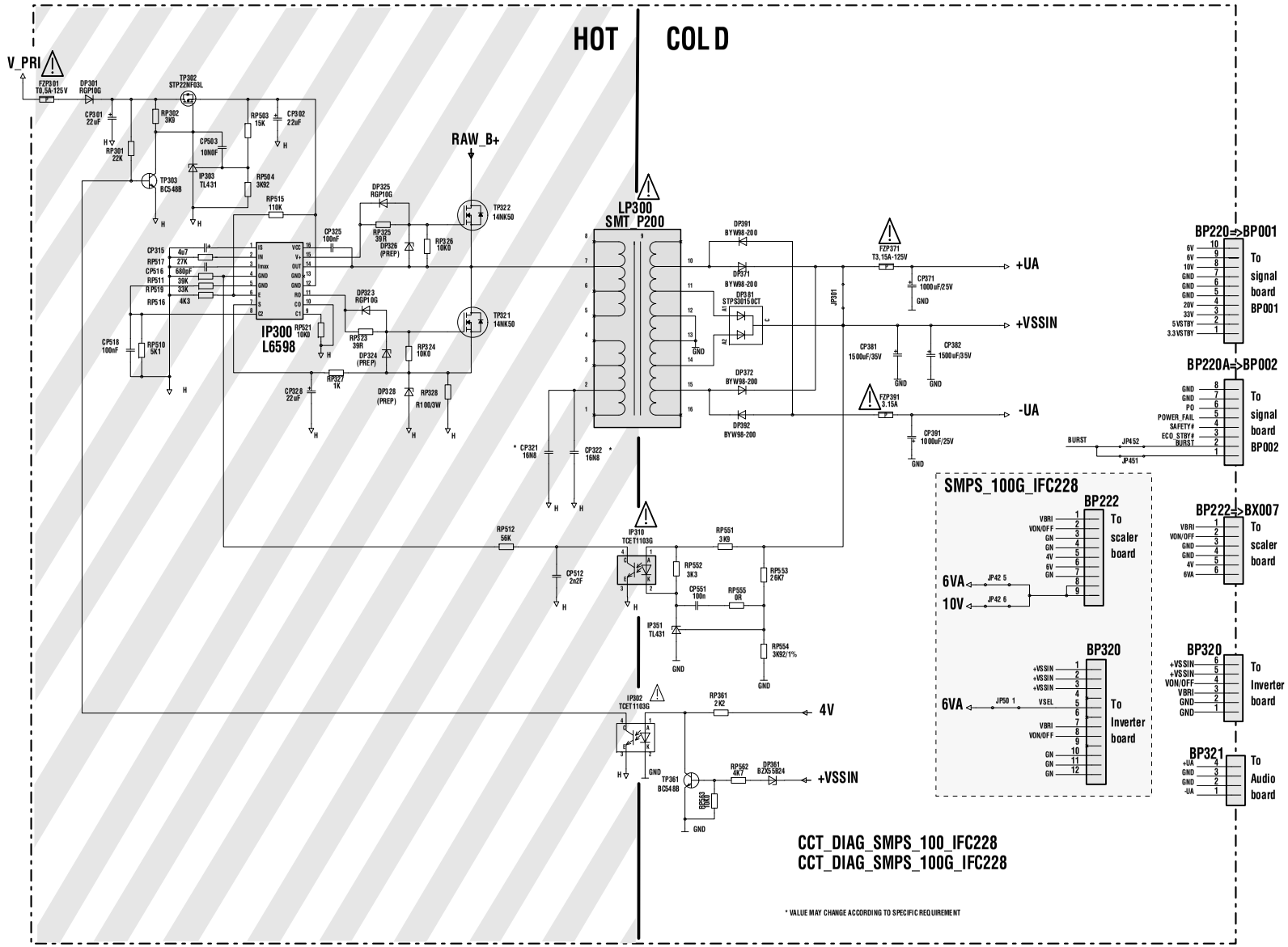
Ist kein Eingangssignal angelegt und es wird "Return" gewählt, kann die Meldung „No signal PC" erscheinen. Um in das Servicemenü zurückzukehren, muss zuerst eine Zahlentaste und dann die blaue Taste gedrückt werden.

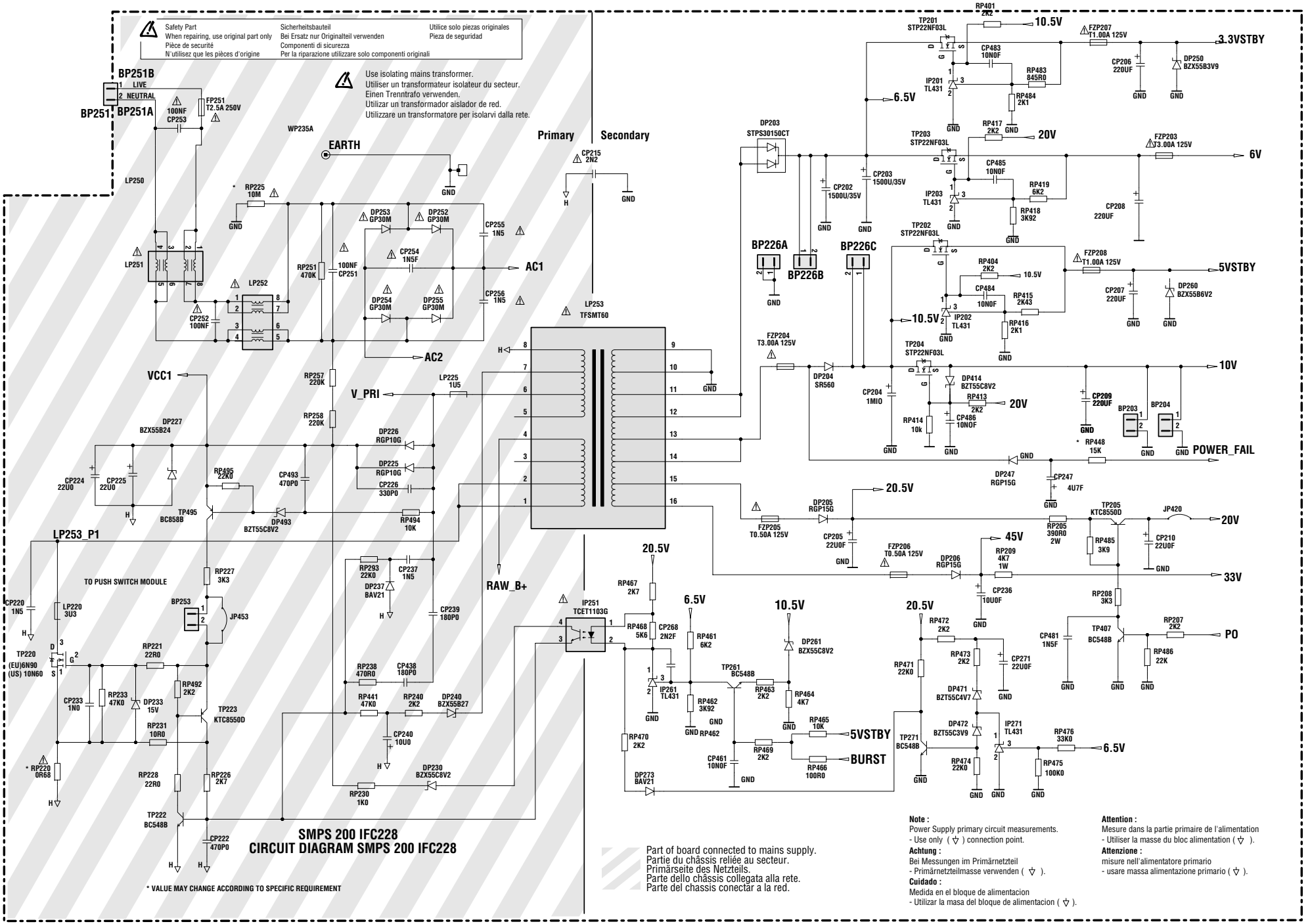
Se nessuna sorgente PC è collegata verrà visualizzato il messaggio " No signal PC."
Per ritornare al modo service è necessario premere un tasto numerico e poi premere Il tasto blu del telecomando.

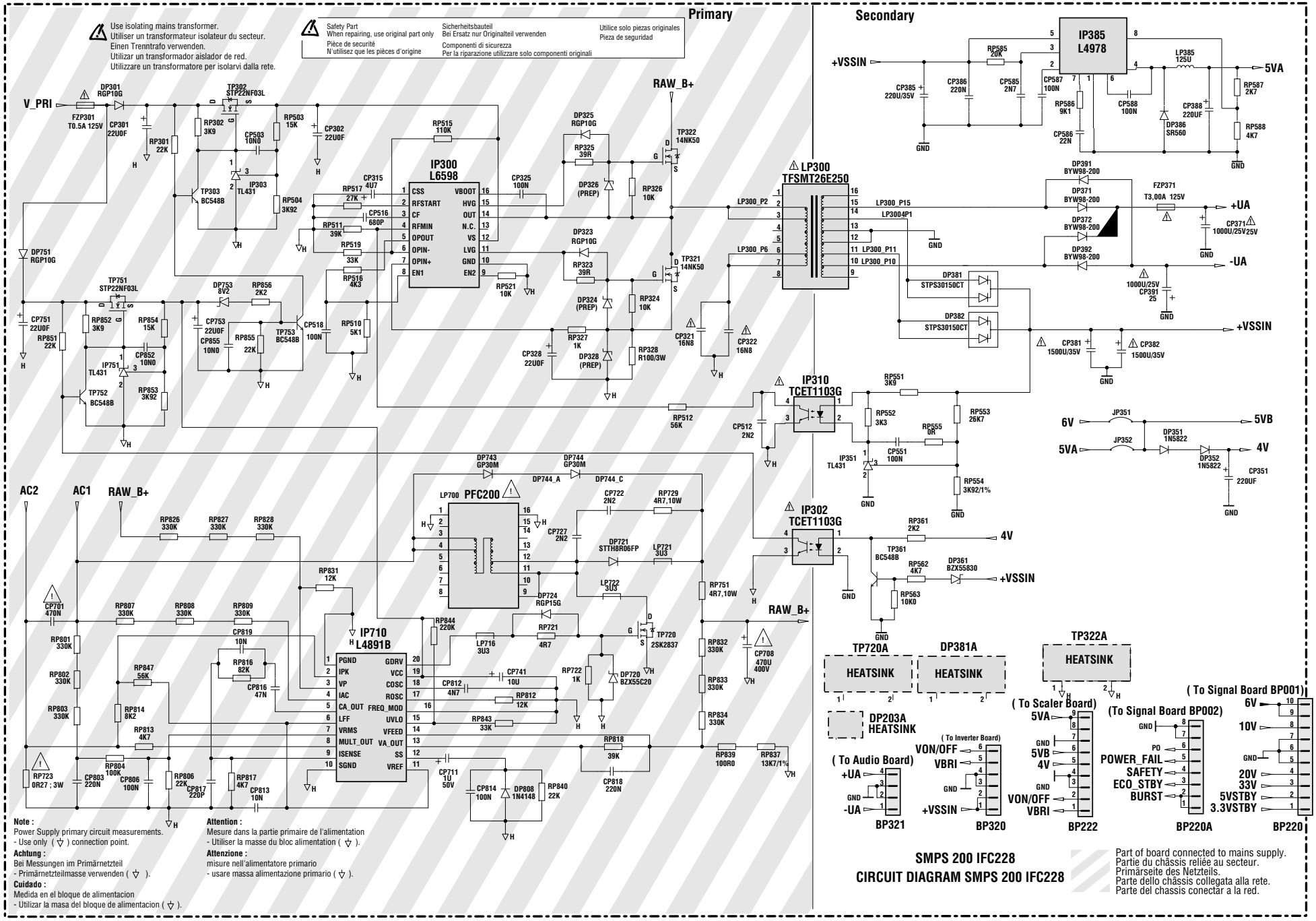
Si no hay conectada una carta de ajuste y cuando se selecciona "return" se muestra el mensaje "No signal PC".
Para volver al Menú de Servicio es necesario pulsar una tecla numérica y después la tecla Azul

POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE - ALIMENTACIÓN




HOT
COLD
V_PRI
RAW_B+
LP300
SMT_P200
IP300
L6598
+UA
+VSSIN
-UA
4V
+VSSIN
SMPS_100G_IFC228
BP222
To scaler board
BP320
To Inverter board
BP220=>BP001
To signal board BP001
BP220A=>BP002
To signal board BP002
BP222=>BX007
To scaler board
BP320
To Inverter board
BP321
To Audio board
CCT_DIAG_SMPS_100_IFC228
CCT_DIAG_SMPS_100G_IFC228
* VALUE MAY CHANGE ACCORDING TO SPECIFIC REQUIREMENT


Safety Part
When repairing, use original part only
Pièce de securité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
Per la riparazione utilizzare solo componenti originali
Utilice solo piezas originales
Pieza de seguridad
Use isolating mains transformer.
Utiliser un transformateur isolateur du secteur.
Einen Trenntrafo verwenden.
Utilizar un transformador aislador de red.
Utilizzare un transformatore per isolarvi dalla rete.
Primary
Secondary
BP251B
BP251A
BP251
FP251 T2.5A 250V
100NF CP253
WP235A
EARTH
LP250
LP251
LP252
CP252 100NF
RP225 10M
RP251 470K
100NF CP251
DP253 GP30M
DP252 GP30M
DP254 GP30M
DP255 GP30M
CP254 1N5F
CP255 1N5
CP256 1N5
CP215 2N2
AC1
AC2
LP253 TFSMT60
VCC1
V_PRI
RAW_B+
LP225 1U5
RP257 220K
RP258 220K
DP227 BZX55B24
CP224 22U0
CP225 22U0
TP495 BC858B
RP495 22K0
DP493 BZT55C8V2
CP493 470P0
DP226 RGP10G
DP225 RGP10G
CP226 330P0
RP494 10K
LP253_P1
TO PUSH SWITCH MODULE
CP220 1N5
LP220 3U3
BP253
JP453
RP227 3K3
TP220 (EU)6N90 (US) 10N60
RP221 22R0
CP233 1N0
RP233 47K0
DP233 15V
RP492 2K2
RP231 10R0
TP223 KTC8550D
* RP220 0R68
RP228 22R0
RP226 2K7
TP222 BC548B
CP222 470P0
RP293 22K0
CP237 1N5
DP237 BAV21
CP239 180P0
RP238 470R0
CP438 180P0
RP441 47K0
RP240 2K2
DP240 BZX55B27
CP240 10U0
DP230 BZX55C8V2
RP230 1K0
IP251 TCET1103G
RP467 2K7
RP468 5K6
CP268 2N2F
IP261 TL431
RP462 3K92
RP461 6K2
TP261 BC548B
RP463 2K2
RP464 4K7
DP261 BZX55C8V2
RP465 10K
RP466 100R0
RP469 2K2
CP461 10N0F
RP470 2K2
DP273 BAV21
5VSTBY
BURST
SMPS 200 IFC228
CIRCUIT DIAGRAM SMPS 200 IFC228
* VALUE MAY CHANGE ACCORDING TO SPECIFIC REQUIREMENT
Part of board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils.
Parte dello châssis collegata alla rete.
Parte del chassis conectar a la red.
RP401 2K2
TP201 STP22NF03L
CP483 10N0F
RP483 845R0
IP201 TL431
RP484 2K1
FZP207 T1.00A 125V
3.3VSTBY
CP206 220UF
DP250 BZX55B3V9
6.5V
DP203 STPS30150CT
CP202 1500U/35V
CP203 1500U/35V
RP417 2K2
TP203 STP22NF03L
20V
FZP203 T3.00A 125V
6V
CP485 10N0F
RP419 6K2
IP203 TL431
RP418 3K92
CP208 220UF
TP202 STP22NF03L
BP226A
BP226B
BP226C
RP404 2K2
10.5V
FZP208 T1.00A 125V
5VSTBY
CP484 10N0F
RP415 2K43
IP202 TL431
RP416 2K1
CP207 220UF
DP260 BZX55B6V2
FZP204 T3.00A 125V
TP204 STP22NF03L
10V
DP204 SR560
CP204 1MI0
DP414 BZT55C8V2
RP413 2K2
20V
RP414 10k
CP486 10N0F
CP209 220UF
BP203
BP204
* RP448 15K
POWER_FAIL
DP247 RGP15G
CP247 4U7F
20.5V
DP205 RGP15G
FZP205 T0.50A 125V
TP205 KTC8550D
JP420
RP205 390R0 2W
RP485 3K9
CP205 22U0F
FZP206 T0.50A 125V
DP206 RGP15G
45V
RP209 4K7 1W
CP210 22U0F
33V
CP236 10U0F
RP208 3K3
RP472 2K2
RP473 2K2
CP271 22U0F
RP471 22K0
DP471 BZT55C4V7
TP407 BC548B
RP207 2K2
PO
CP481 1N5F
RP486 22K
DP472 BZT55C3V9
IP271 TL431
RP476 33K0
6.5V
TP271 BC548B
RP474 22K0
RP475 100K0
Note :
Power Supply primary circuit measurements.
- Use only (⏚) connection point.
Achtung :
Bei Messungen im Primärnetzteil
- Primärnetzteilmasse verwenden (⏚).
Cuidado :
Medida en el bloque de alimentacion
- Utilizar la masa del bloque de alimentacion (⏚).
Attention :
Mesure dans la partie primaire de l'alimentation
- Utiliser la masse du bloc alimentation (⏚).
Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (⏚).


Primary
Secondary
Use isolating mains transformer.
Utiliser un transformateur isolateur du secteur.
Einen Trenntrafo verwenden.
Utilizar un transformador aislador de red.
Utilizzare un transformatore per isolarvi dalla rete.
Safety Part
When repairing, use original part only
Pièce de securité
N'utilisez que les pièces d'origine
Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
Componenti di sicurezza
Per la riparazione utilizzare solo componenti originali
Utilice solo piezas originales
Pieza de seguridad
V_PRI
RAW_B+
IP300 L6598
IP385 L4978
LP300 TFSMT26E250
IP310 TCET1103G
IP302 TCET1103G
IP710 L4891B
LP700 PFC200
TP720A
DP381A
TP322A
HEATSINK
+VSSIN
+UA
-UA
5VA
4V
5VB
6V
-4V
(To Audio Board)
(To Inverter Board)
(To Scaler Board)
(To Signal Board BP002)
(To Signal Board BP001)
BP321
BP320
BP222
BP220A
BP220
SMPS 200 IFC228
CIRCUIT DIAGRAM SMPS 200 IFC228
Part of board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils.
Parte dello châssis collegata alla rete.
Parte del chassis conectar a la red.
Note :
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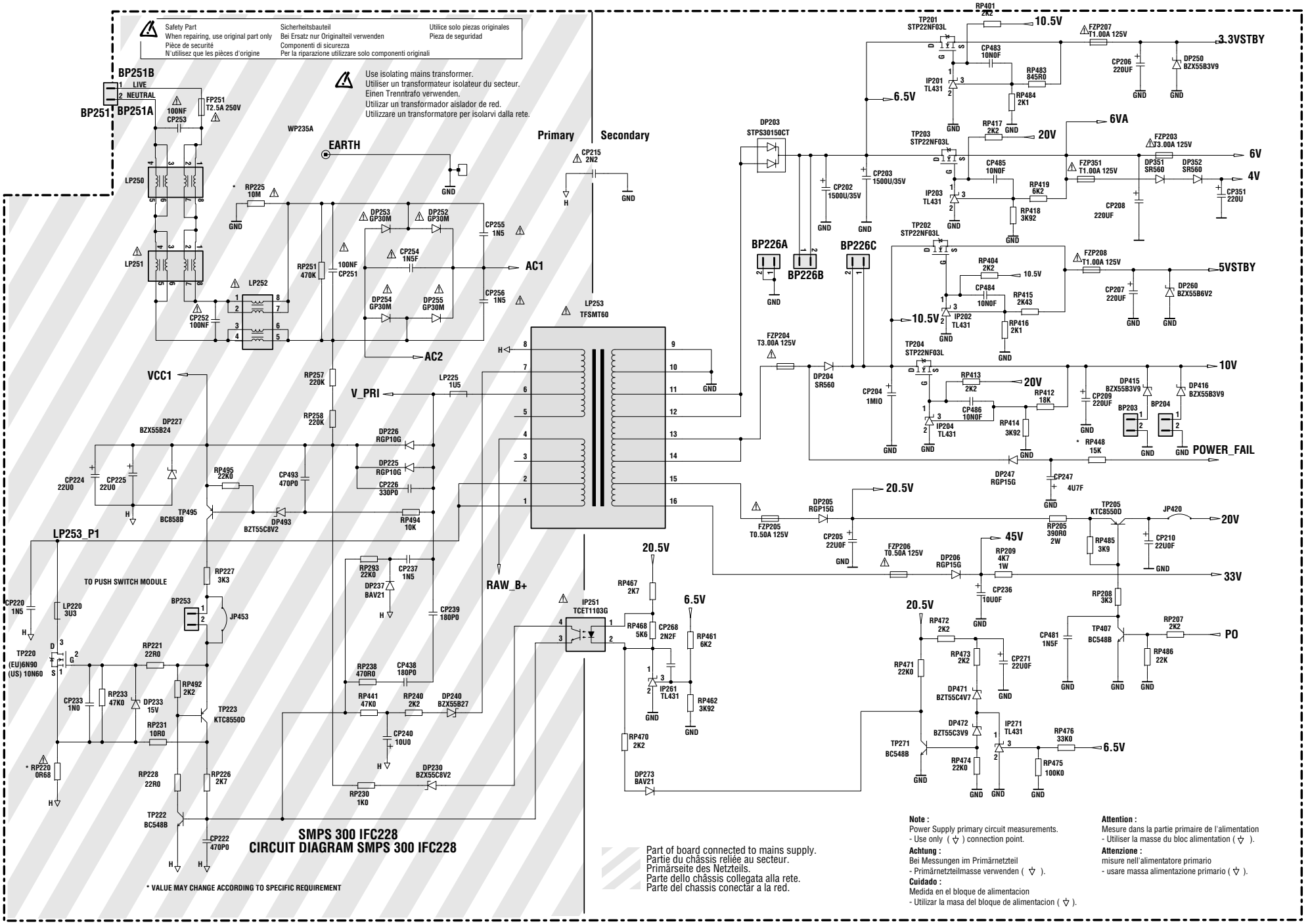
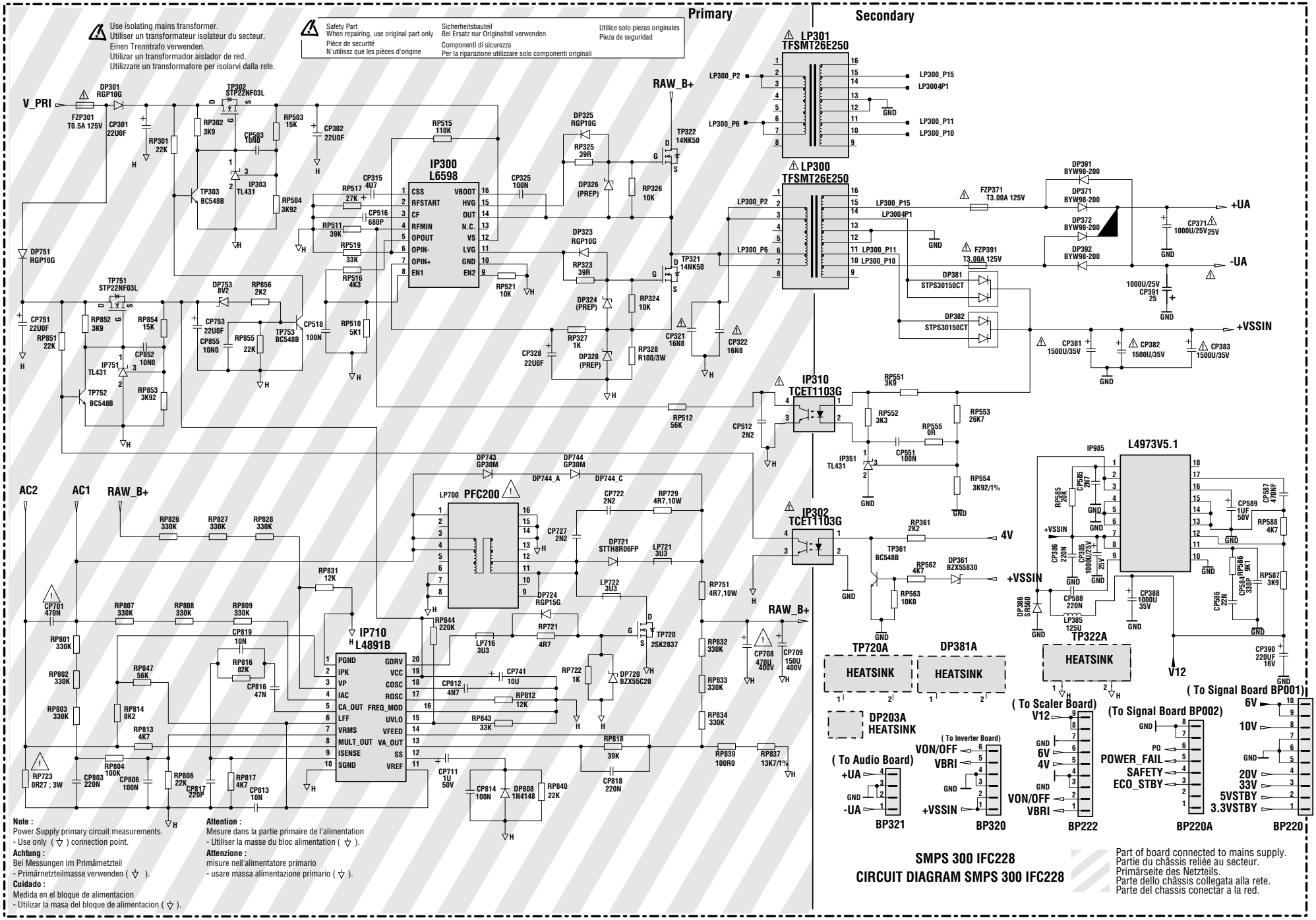
- Utilizar la masa del bloque de alimentacion (⏚).
Attention :
Mesure dans la partie primaire de l'alimentation
- Utiliser la masse du bloc alimentation (⏚).
Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (⏚).

POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE - ALIMENTACIÓN



POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE - ALIMENTACIÓN



Note :
Power Supply primary circuit measurements.
- Use only (⏚) connection point.

Achtung :
Bei Messungen im Primärnetzteil
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Medida en el bloque de alimentacion
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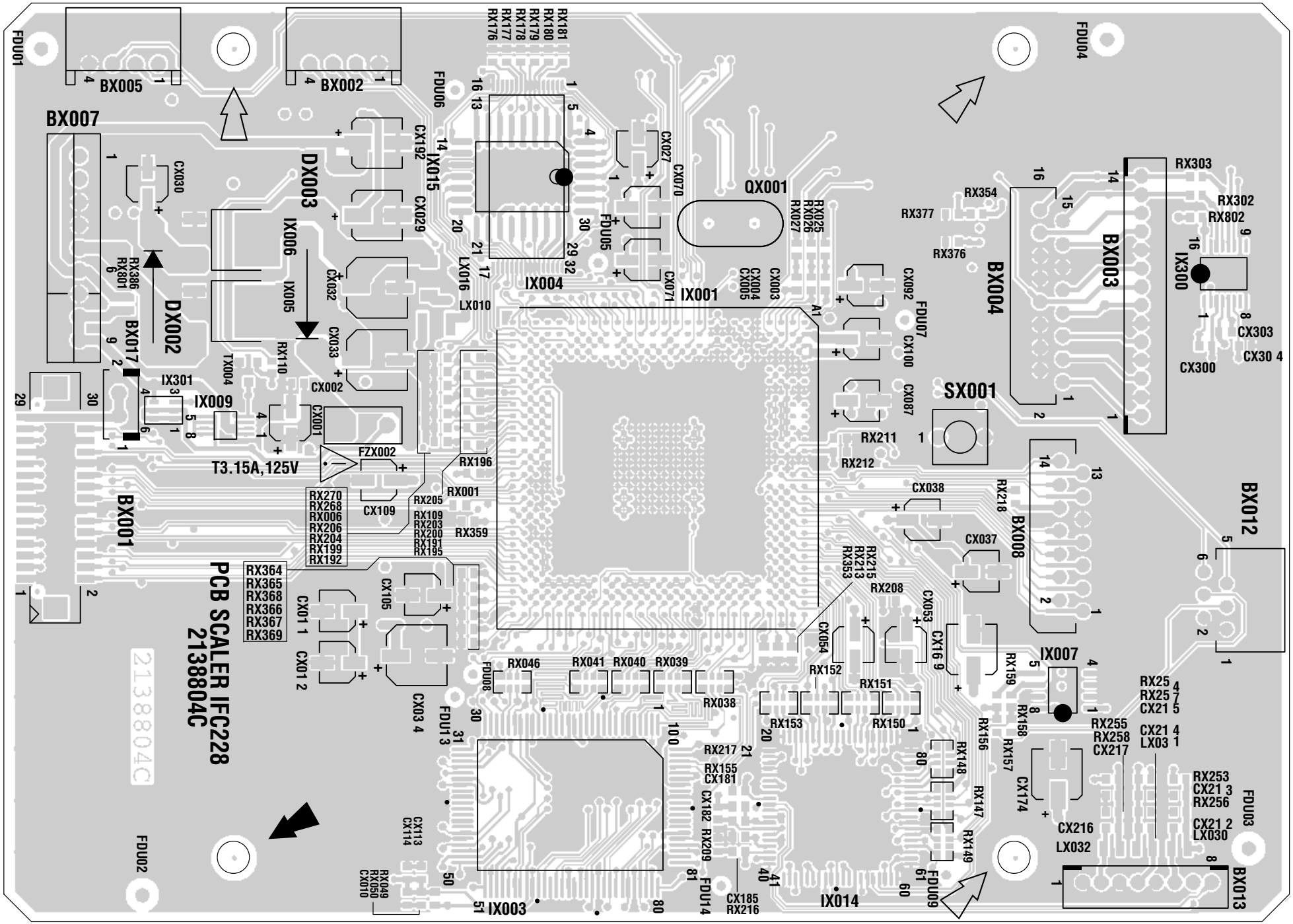
Mesure dans la partie primaire de l'alimentation
- Utiliser la masse du bloc alimentation (⏚).

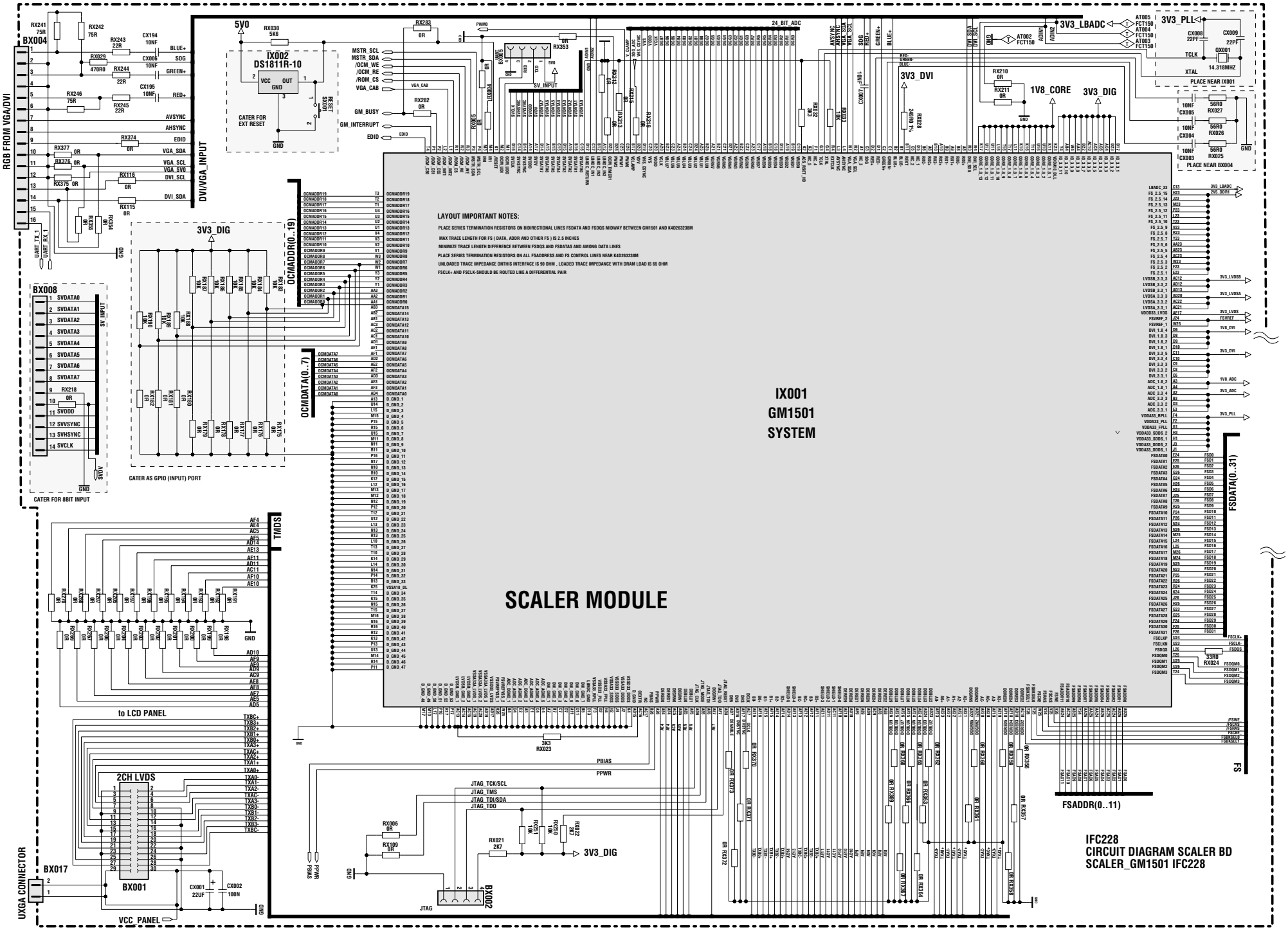
Attenzione :
misure nell'alimentatore primario
- usare massa alimentazione primario (⏚).

SCALER BOARD - PLATINE SCALER - SCALER GRUNDPLATTE - PIASTRA SCALER - PLATINA SCALER

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES



SCALER SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE SCALER - SCHALTBILD SCALER - SCHEMA DELLA PIASTRA SCALER - ESQUEMA DE LA PLATINA SCALER



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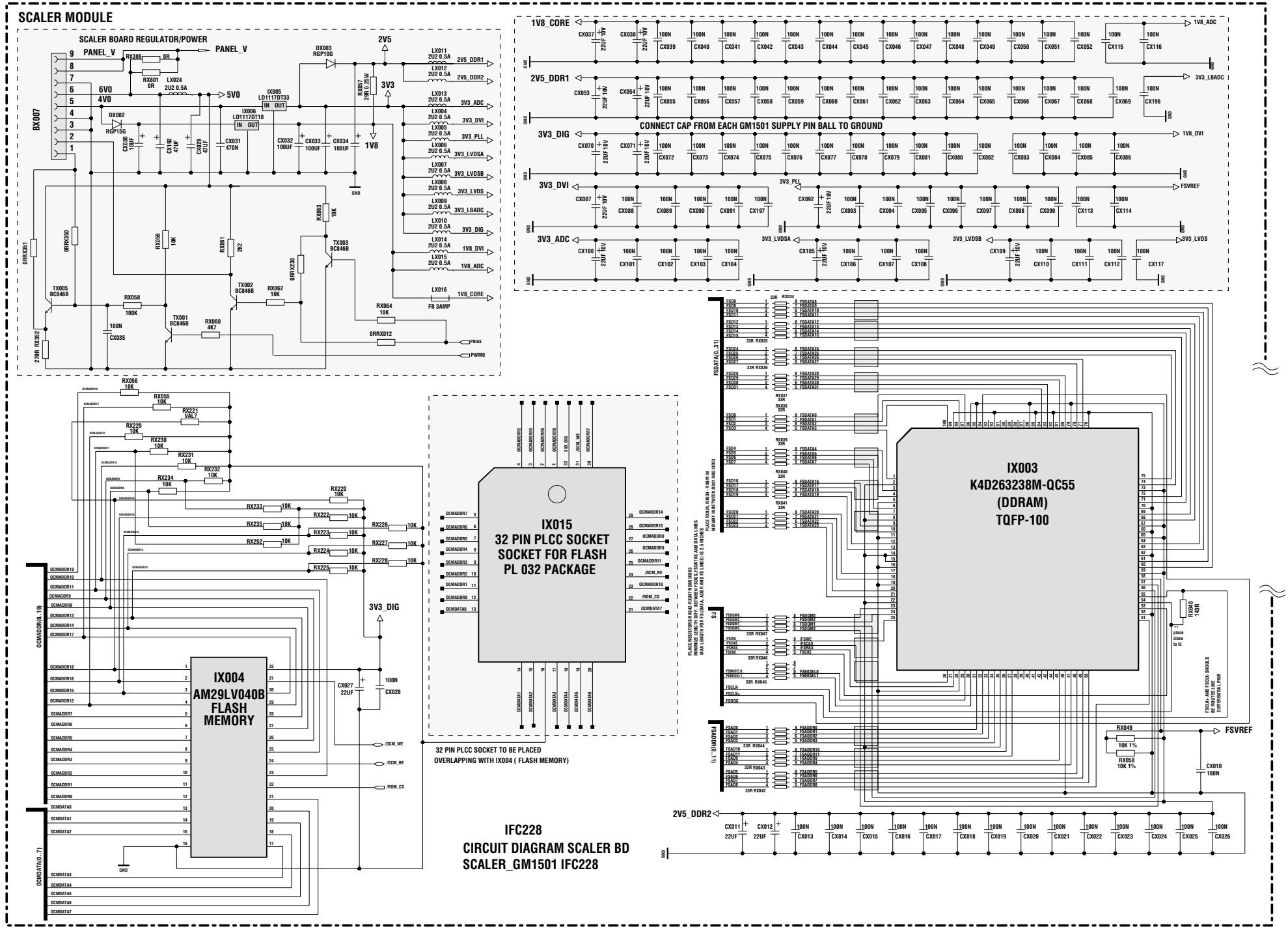

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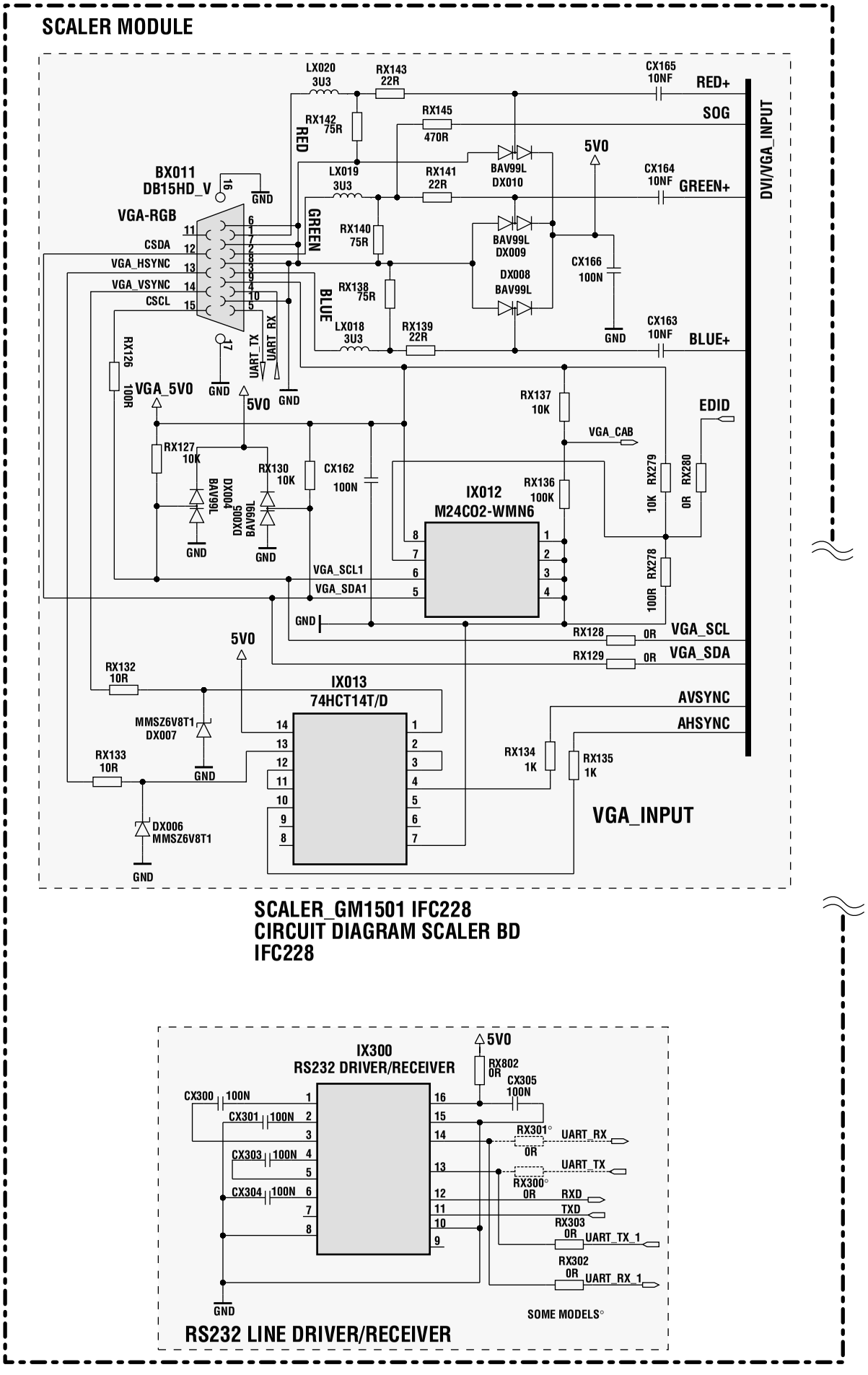
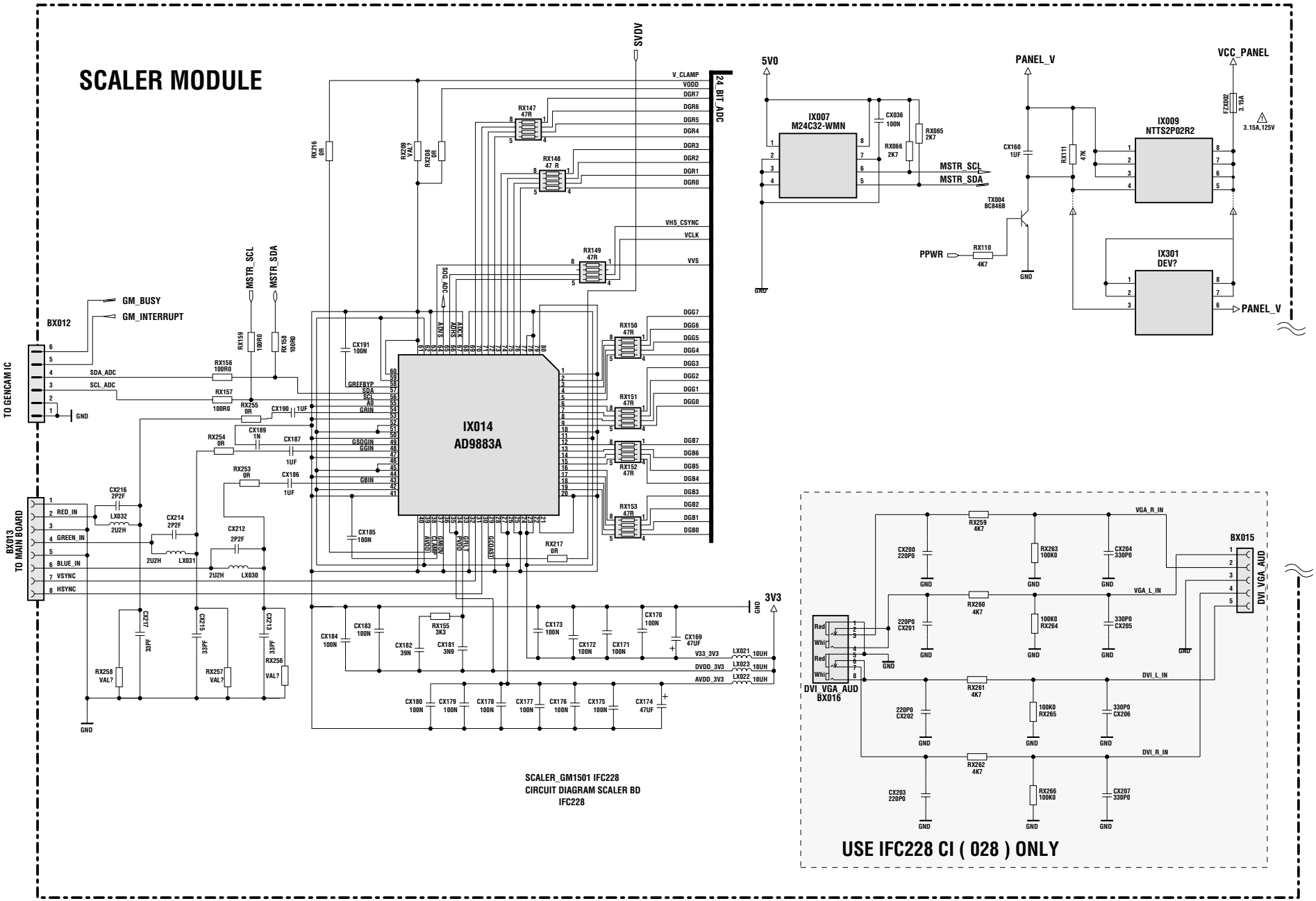
SCALER SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE SCALER
SCHALTBILD SCALER - SCHEMA DELLA PIASTRA SCALER
ESQUEMA DE LA PLATINA SCALER



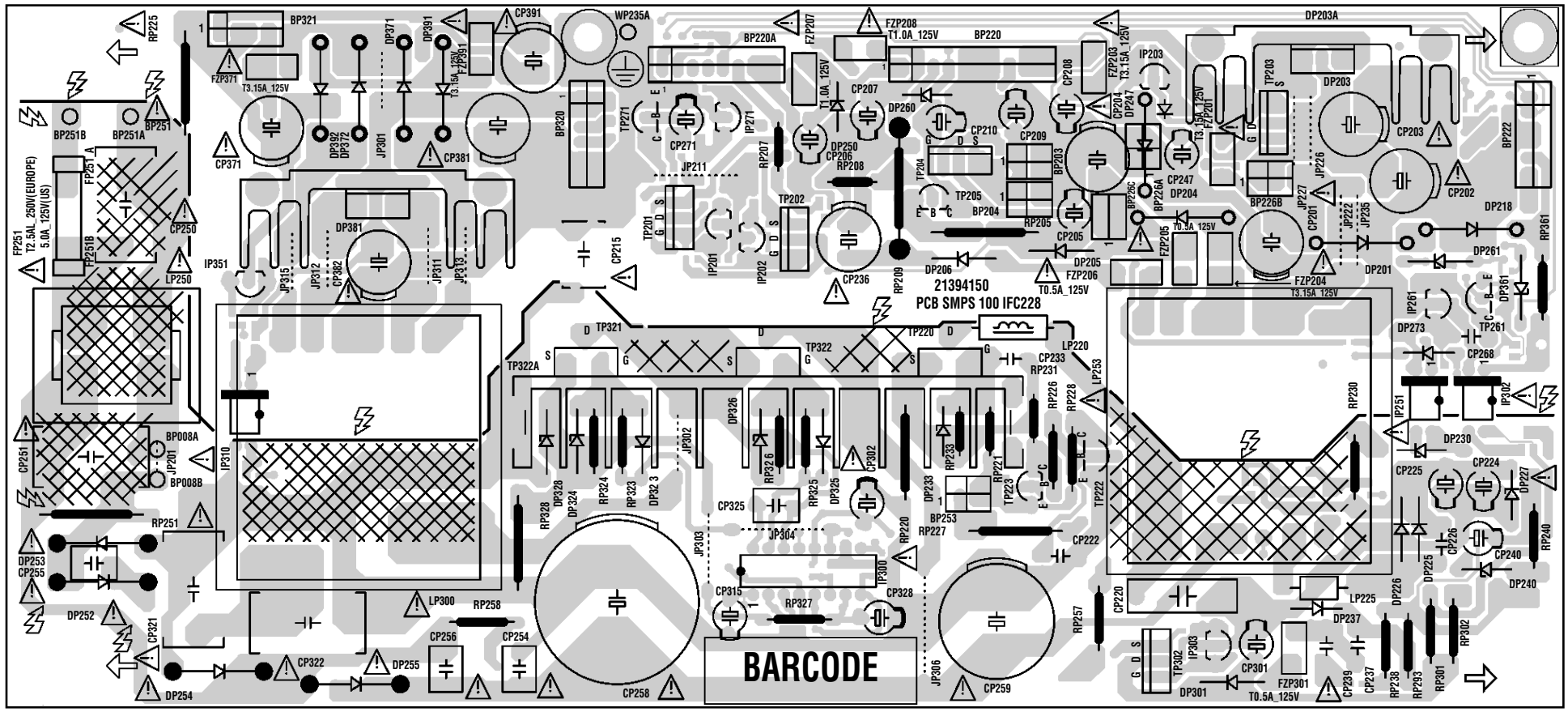


SCALER_GM1501 IFC228
CIRCUIT DIAGRAM SCALER BD
IFC228

POWER SUPPLY CIRCUIT BOARD - CIRCUIT IMPRIME DE L'ALIMENTATION - LEITERPLATTE NETZTEIL - PIASTRA DEI CIRCUITI DI ALIMENTAZIONE - PLATINA ALIMENTACIÓN

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

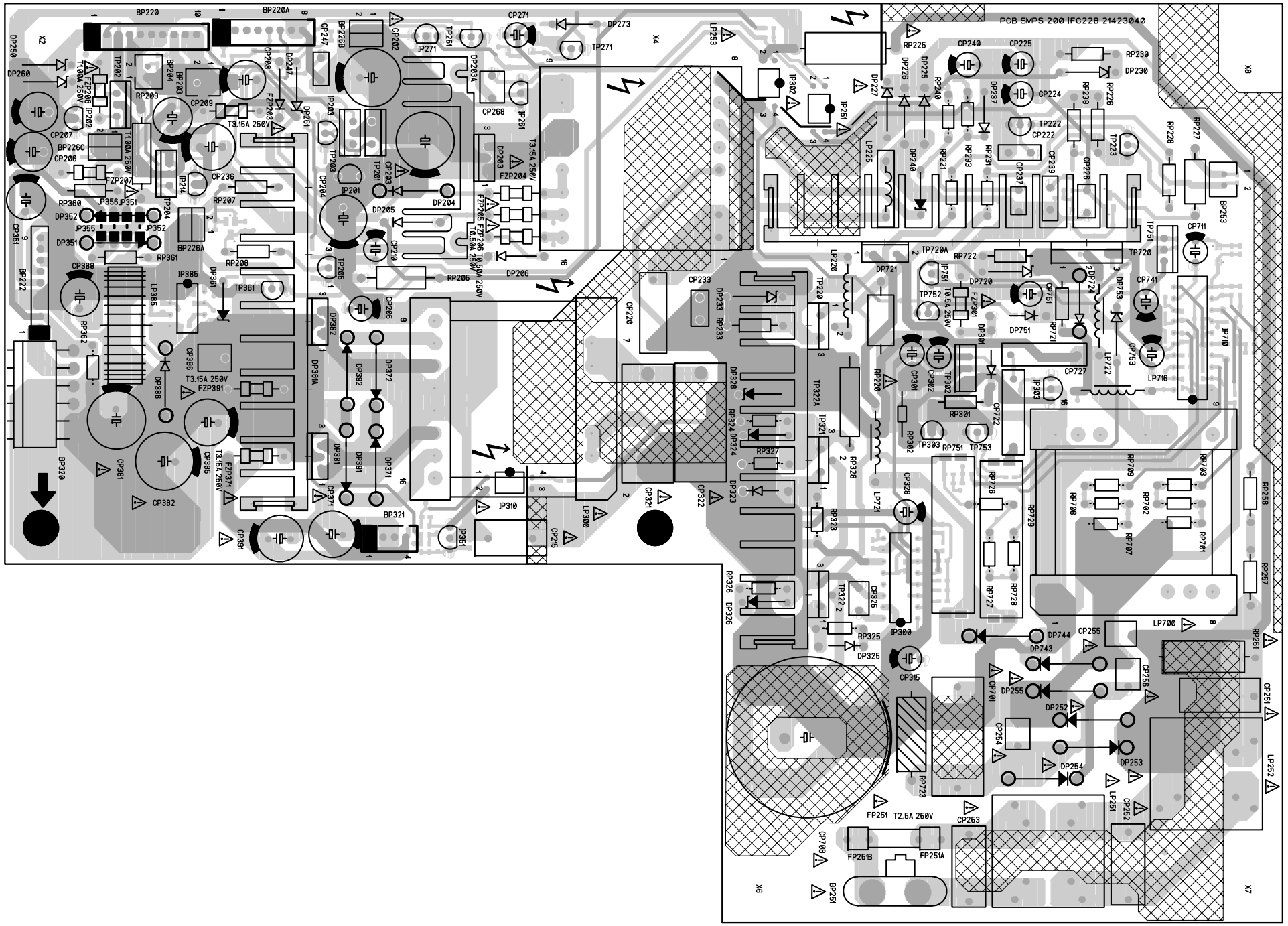
IFC228 (SMPS 100)



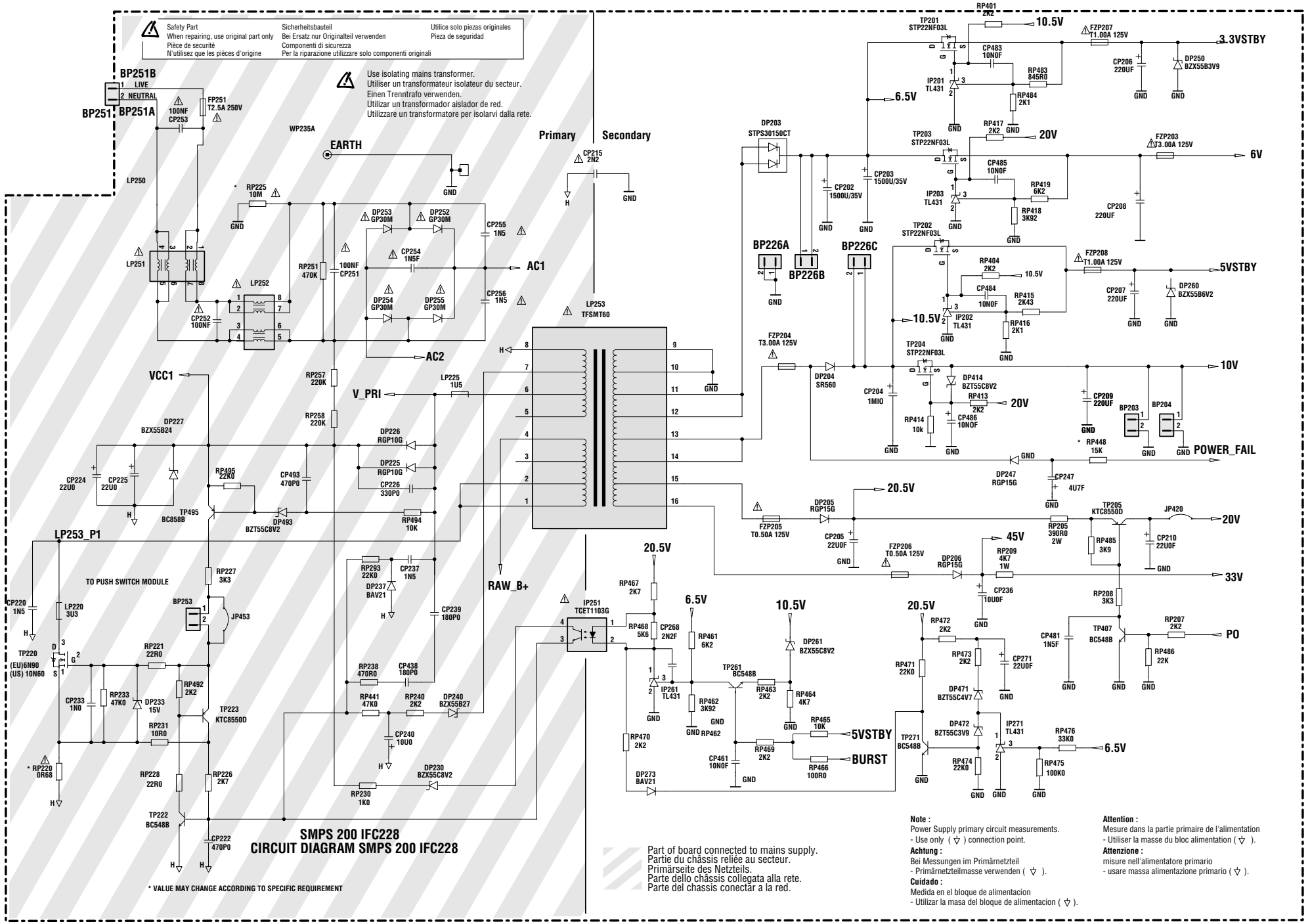
POWER SUPPLY CIRCUIT BOARD - CIRCUIT IMPRIME DE L'ALIMENTATION - LEITERPLATTE NETZTEIL - PIASTRA DEI CIRCUITI DI ALIMENTAZIONE - PLATINA ALIMENTACIÓN

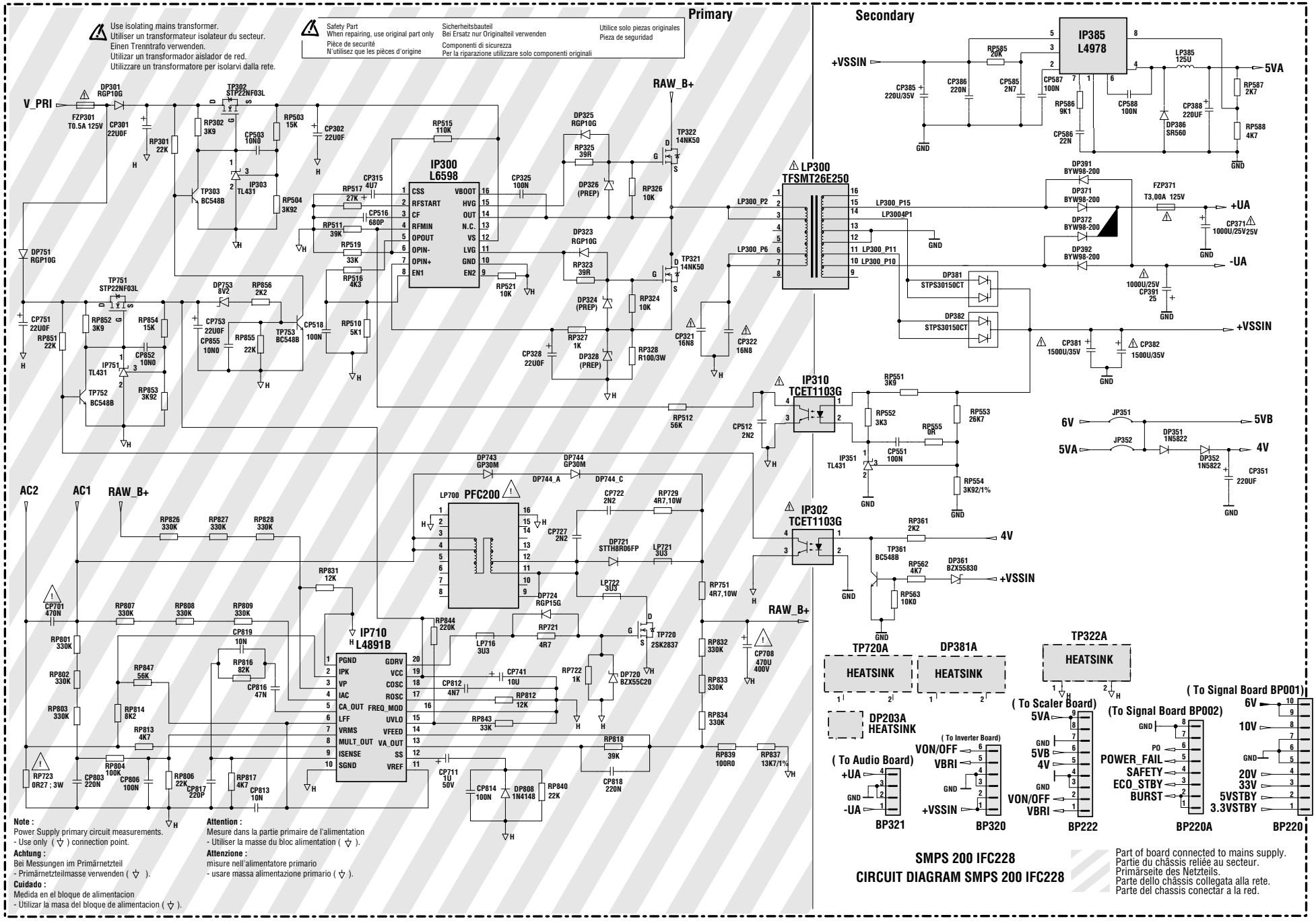
COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

IFC228 (SMPS 200)



POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE - ALIMENTACIÓN




Primary
Secondary
Use isolating mains transformer.
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Einen Trenntrafo verwenden.
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Utilizzare un transformatore per isolarvi dalla rete.
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Utilice solo piezas originales
Pieza de seguridad
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RAW_B+
IP300 L6598
IP385 L4978
LP300 TFSMT26E250
IP310 TCET1103G
IP302 TCET1103G
IP710 L4891B
LP700 PFC200
TP720A
DP381A
TP322A
HEATSINK
+VSSIN
+UA
-UA
5VA
4V
5VB
6V
-4V
(To Audio Board)
(To Inverter Board)
(To Scaler Board)
(To Signal Board BP002)
(To Signal Board BP001)
BP321
BP320
BP222
BP220A
BP220
SMPS 200 IFC228
CIRCUIT DIAGRAM SMPS 200 IFC228
Part of board connected to mains supply.
Partie du châssis reliée au secteur.
Primärseite des Netzteils.
Parte dello châssis collegata alla rete.
Parte del chassis conectar a la red.
Note :
Power Supply primary circuit measurements.
- Use only (⏚) connection point.
Achtung :
Bei Messungen im Primärnetzteil
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Attention :
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Attenzione :
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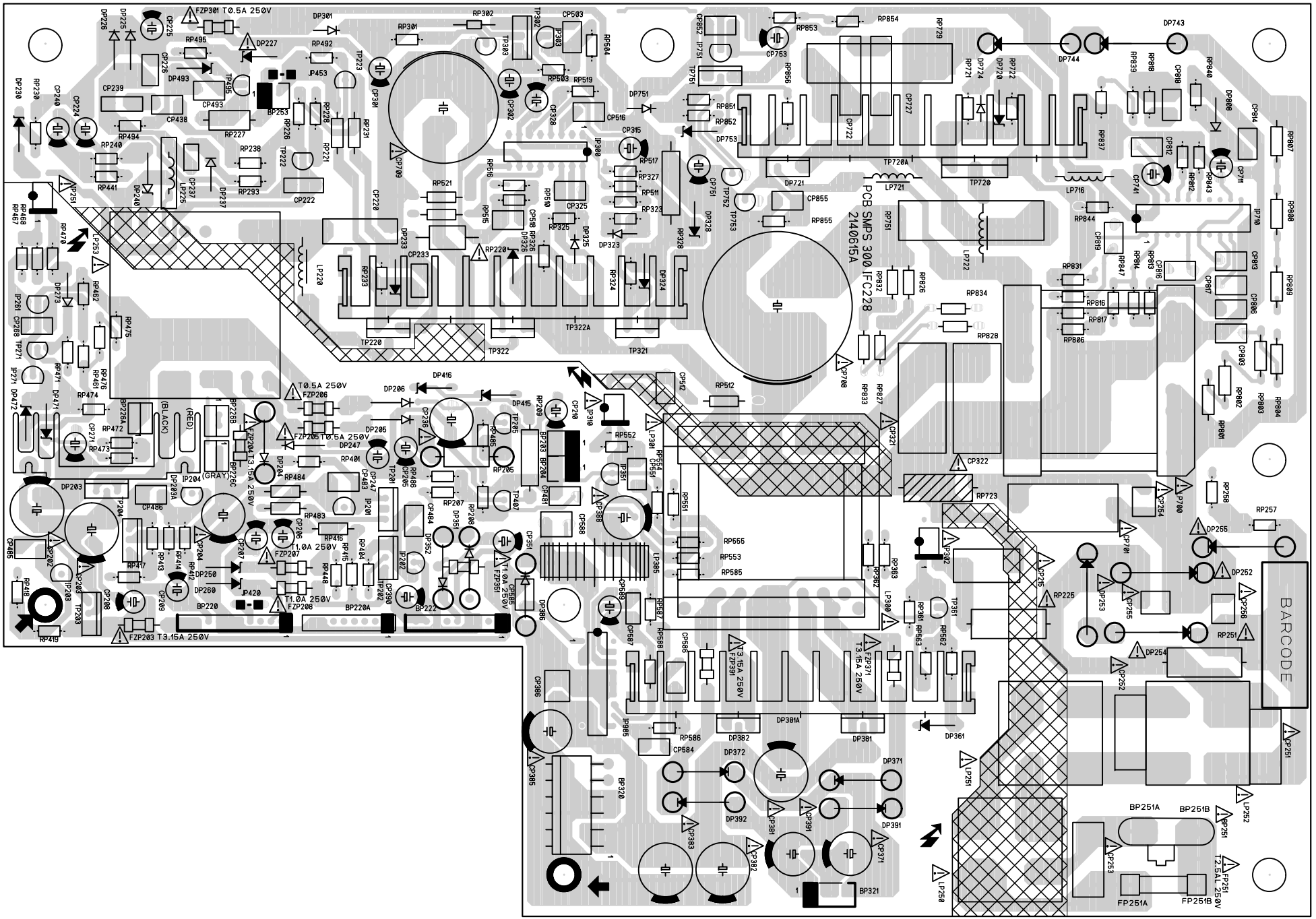
- usare massa alimentazione primario (⏚).

POWER SUPPLY CIRCUIT BOARD - CIRCUIT IMPRIME DE L'ALIMENTATION - LEITERPLATTE NETZTEIL - PIASTRA DEI CIRCUITI DI ALIMENTAZIONE - PLATINA ALIMENTACIÓN

COMPONENT SIDE - COTÉ COMPOSANTS - BESTÜCKUNGSSEITE - LATO COMPONENTI - LADO COMPONENTES

IFC228 (SMPS 300)



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First issue 08 / 04

THOMSON

TV

TECHNICAL GUIDE
GUIDE TECHNIQUE
TECHNISCHE SCHULUNG
GUIDA TECNICA
GUÍA TECNICA

IFC228 LCD

23” - 27” - 32”

LCD - 12/04 - Code : 358 893 50

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THE IFC228 LCD CHASSIS

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AUDIO PROCESSING . . . . . .Page 51

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THOMSON

CENTRE DE FORMATION THOMSON

THOMSON

CENTRE DE
FORMATION THOMSON

POWER SUPPLY

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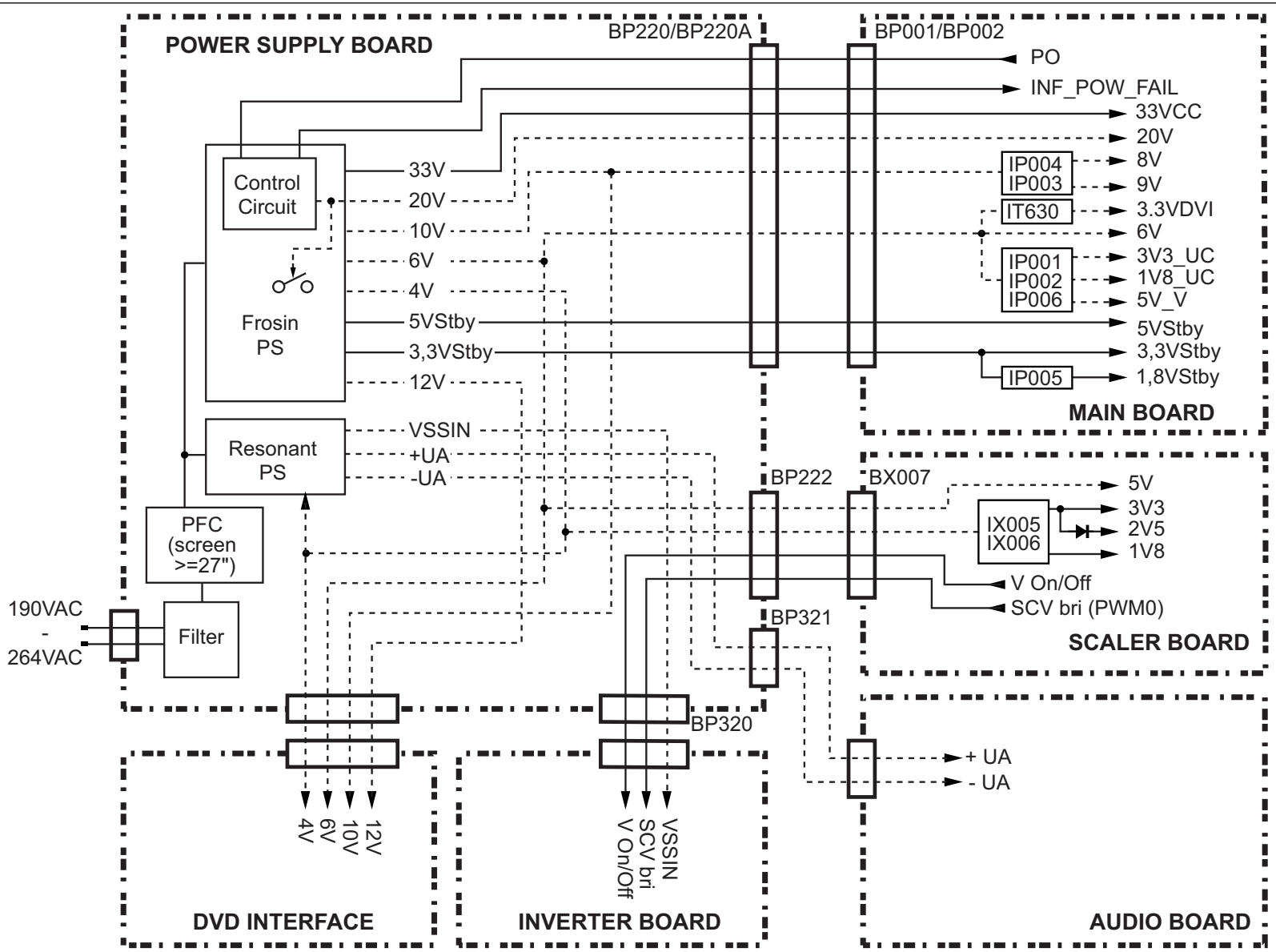
POWER FACTOR CORRECTION CIRCUIT . . . . . .Page 17



THOMSON

CENTRE DE FORMATION THOMSON

OVERALL SCHEMATIC OF POWER SUPPLIES

The power supply to this appliance is located on a dedicated Power Supply Board.

It essentially consists of two parts:

- the FROSIN power supply, which delivers permanent voltages (control power supply) as well as switched voltages for any signal processing carried out on the main board, the scaler board, and optionally, the DVD board.
- the resonant power supply which supplies switched VSSIN voltages for the inverter board (specific power supply circuit for backlighting) as well as +/_UA for the audio board.

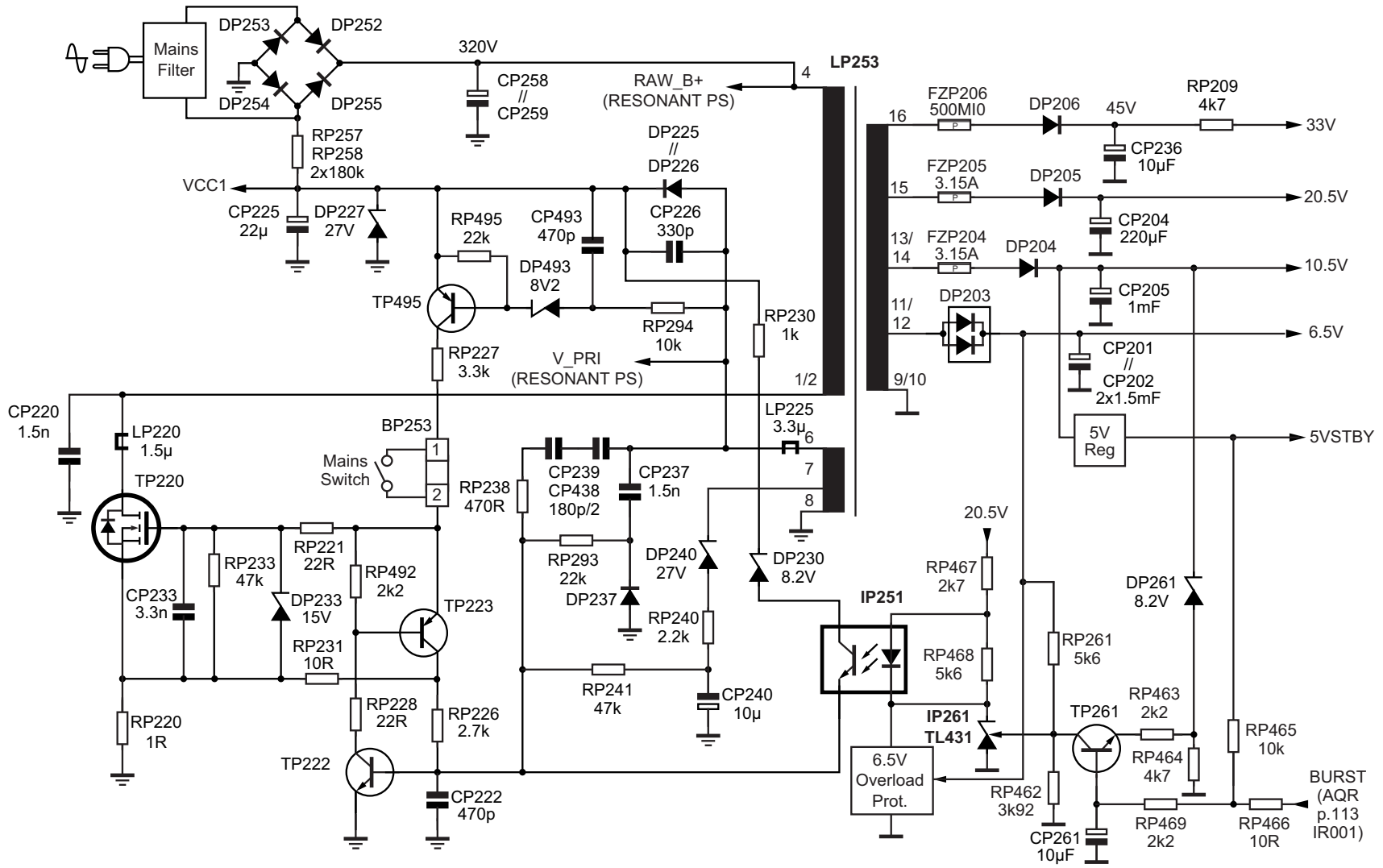
For models that draw a lot of power (27" screen diagonal or bigger), a dynamic power factor correction circuit is inserted between the rectified mains voltage and the resonant PS so as to reduce cos phi and the harmonics reinjected into the mains circuit.

The IR001 microcontroller located on the main board controls the standby output via the PO line. The latter provides switching for the 20 Volts generated by the Frosin power supply, and this voltage in turn activates three other voltages (10V, 6V, 4V). Lastly, the 4V voltage starts up the resonant power supply.

The mains voltage is monitored by the microcontroller via the FROSIN power supply and the INF_POW_FAIL line.

The Genesis circuit on the scaler board controls the start-up of the power supply inverter via the V On/Off line and controls backlighting brilliance via the SCV bri line.

NOTES :


Mains Filter
DP253
DP252
DP254
DP255
320V
CP258 // CP259
RAW_B+ (RESONANT PS)
LP253
4
RP257 RP258 2x180k
VCC1
CP225 22µ
DP227 27V
DP225 // DP226
CP226 330p
RP495 22k
CP493 470p
DP493 8V2
TP495
RP294 10k
RP230 1k
RP227 3.3k
V_PRI (RESONANT PS)
1/2
CP220 1.5n
LP220 1.5µ
TP220
BP253
Mains Switch
1
2
RP238 470R
CP239 CP438 180p/2
CP237 1.5n
LP225 3.3µ
6
7
8
RP293 22k
DP237
DP240 27V
RP240 2.2k
DP230 8.2V
RP241 47k
CP240 10µ
RP233 47k
RP221 22R
RP492 2k2
CP233 3.3n
DP233 15V
TP223
RP231 10R
RP220 1R
RP228 22R
RP226 2.7k
TP222
CP222 470p
IP251
20.5V
RP467 2k7
RP468 5k6
IP261 TL431
6.5V Overload Prot.
RP261 5k6
DP261 8.2V
TP261
RP463 2k2
RP464 4k7
RP465 10k
RP462 3k92
CP261 10µF
RP469 2k2
RP466 10R
BURST (AQR p.113 IR001)
16
15
13/ 14
11/ 12
9/10
FZP206 500MI0
DP206
45V
RP209 4k7
33V
CP236 10µF
FZP205 3.15A
DP205
20.5V
CP204 220µF
FZP204 3.15A
DP204
10.5V
CP205 1mF
DP203
6.5V
CP201 // CP202 2x1.5mF
5V Reg
5VSTBY

THE FROSIN POWER SUPPLY

This power supply, whose concept is in common use in the Group's products, generates the voltages required for standby mode and also delivers switched voltages for any "small signal" processing located on other boards.

A mains voltage of between 190VAC and 264VAC is rectified by the DP252/253/254/255 bridge, filtered by condensers CP258/259, then applied in parallel to transformer LP253 in the Frosin power supply and the push-pull transformer in the resonant power supply (RAW_B+). The MOSFET transistor LP220 and the condenser CP220, in series with the primary of LP253, determine the primary current. The latter is kept in check by resistance RP220.

The start-up current comes from a single mains phase via resistances RP257 and RP 258, via condenser CP225, and via driver transistor TP495. This will only switch when there is a charge of roughly 9 Volts or more coming from CP225, using the threshold effect of zener diode DP493, to ensure clean switching of the MOSFET transistor. Once the power supply is started up, the charge from CP225 is obtained from self-powering (winding 6/8 and diodes DP225/226).
The on/off switch does not act directly on the mains voltage but simply cuts off the control current to the MOSFET transistor (connector BP253).

Chopping transistor TP220 is blocked by transistors TP222/223 (on/off circuit), which short-circuit the gate/source space when they are switched. This works through the combined effect of primary current measurement (RP220 and RP231), of regulation from the opto-coupler (IP251), and of the auxiliary circuits via resistances RP238, RP293, and RP241:

- RP238 and condensers CP239/438 set the minimum saturation time for TP220.
- DP237 and CP237 time the new saturation of TP220, to limit dissipation by switching.
- CP240 and DP240 correspond to the soft-start and mains compensation circuits.

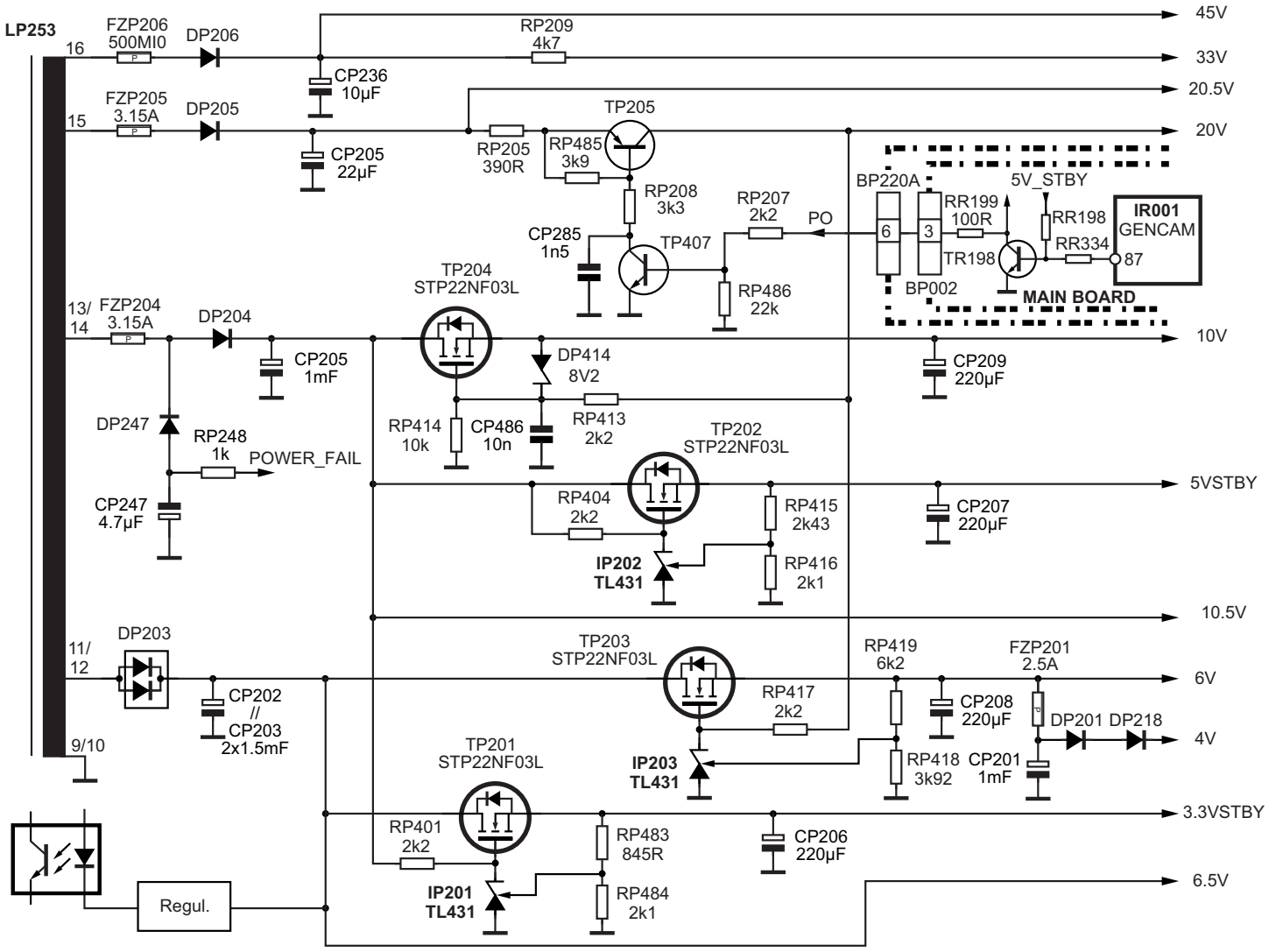
Zener diode DP233 protects the gate/source space in TP220, DP230 blocks the secondary regulation action when the charge on CP225 is too weak (promotes a quicker restart), and DP227 provides protection in cases of overvoltage by going short-circuit if this happens (disappearance of control current on TP220).

Four unswitched voltages are developed on the secondary:

- 33 Volts for the tuner power supply.
- 20.5 Volts.
- 10.5 Volts powering a 5V regulator for supplying the control voltage (5VSTBY).
- 6.5 Volts, chosen for the secondary regulation; this is the origin of 3.3VSTBY.

Secondary regulation makes use of an opto-coupler (IP251) in series with regulation circuit TL431 (IP261). A fraction of the 6.5V applied to IP261 via a divider bridge (RP261/RP462) is taken and compared with the internal 2.5 Volt reference. Any variation in the 6.5 Volts will therefore tend to modulate the current in the opto-coupler, and consequently, the instant when TP222 is switched and TP220 is blocked.
An acquisition mode is provided by the use of transistor TP261. When the base of the latter is released by the AQR line leading from pin 113 of IR001, TP261 applies a 10.5V image (via DP261) to the regulator input, thus ensuring regulation of this voltage also.
In the event of overload of the 6.5 Volts, a protection system short circuits the regulator and saturates the opto-coupler, thus temporarily blocking the chopping transistor.

NOTES :


LP253
16
15
13/
14
11/
12
9/10
FZP206
500MI0
FZP205
3.15A
FZP204
3.15A
DP206
DP205
DP204
DP203
CP236
10µF
CP205
22µF
CP205
1mF
CP247
4.7µF
CP202
//
CP203
2x1.5mF
RP209
4k7
RP205
390R
RP485
3k9
RP208
3k3
RP207
2k2
PO
CP285
1n5
RP486
22k
TP205
TP407
TP204
STP22NF03L
DP414
8V2
RP413
2k2
RP414
10k
CP486
10n
DP247
RP248
1k
POWER_FAIL
TP202
STP22NF03L
RP404
2k2
RP415
2k43
RP416
2k1
IP202
TL431
TP203
STP22NF03L
RP417
2k2
IP203
TL431
TP201
STP22NF03L
RP401
2k2
RP483
845R
RP484
2k1
IP201
TL431
Regul.
BP220A
6
3
RR199
100R
5V_STBY
RR198
RR334
TR198
87
IR001
GENCAM
BP002
MAIN BOARD
CP209
220µF
CP207
220µF
CP206
220µF
RP419
6k2
RP418
3k92
CP208
220µF
FZP201
2.5A
DP201 DP218
CP201
1mF
45V
33V
20.5V
20V
10V
5VSTBY
10.5V
6V
4V
3.3VSTBY
6.5V

SECONDARY SWITCHING ON THE FROSIN POWER SUPPLY

The order to quit standby mode is given from pin 87 of microcontroller IR001 and transmitted via transistor TR198 and connecters BP001 and BP220A. The resulting high state on line PO saturates transistors TP407 and TP205 and switches the 20V voltage when above 20.5V. This voltage will be used in the SCART section but first and foremost it is behind the switching of three other voltages:

- 10V obtained from the 10.5V voltage through the intermediary of MOSFET TP204. This voltage supplies 9V and 8V for general audio and video processing on the signal board.

- 6V and 4V via the IP203 and TP203 regulation circuit. These 6 Volts supply several boards, in particular the 1H/2H IV100 converter on the signal board. The 4 Volts are intended for the scaler board and starting up the resonant power supply.

Two other unswitched voltages are also regulated:

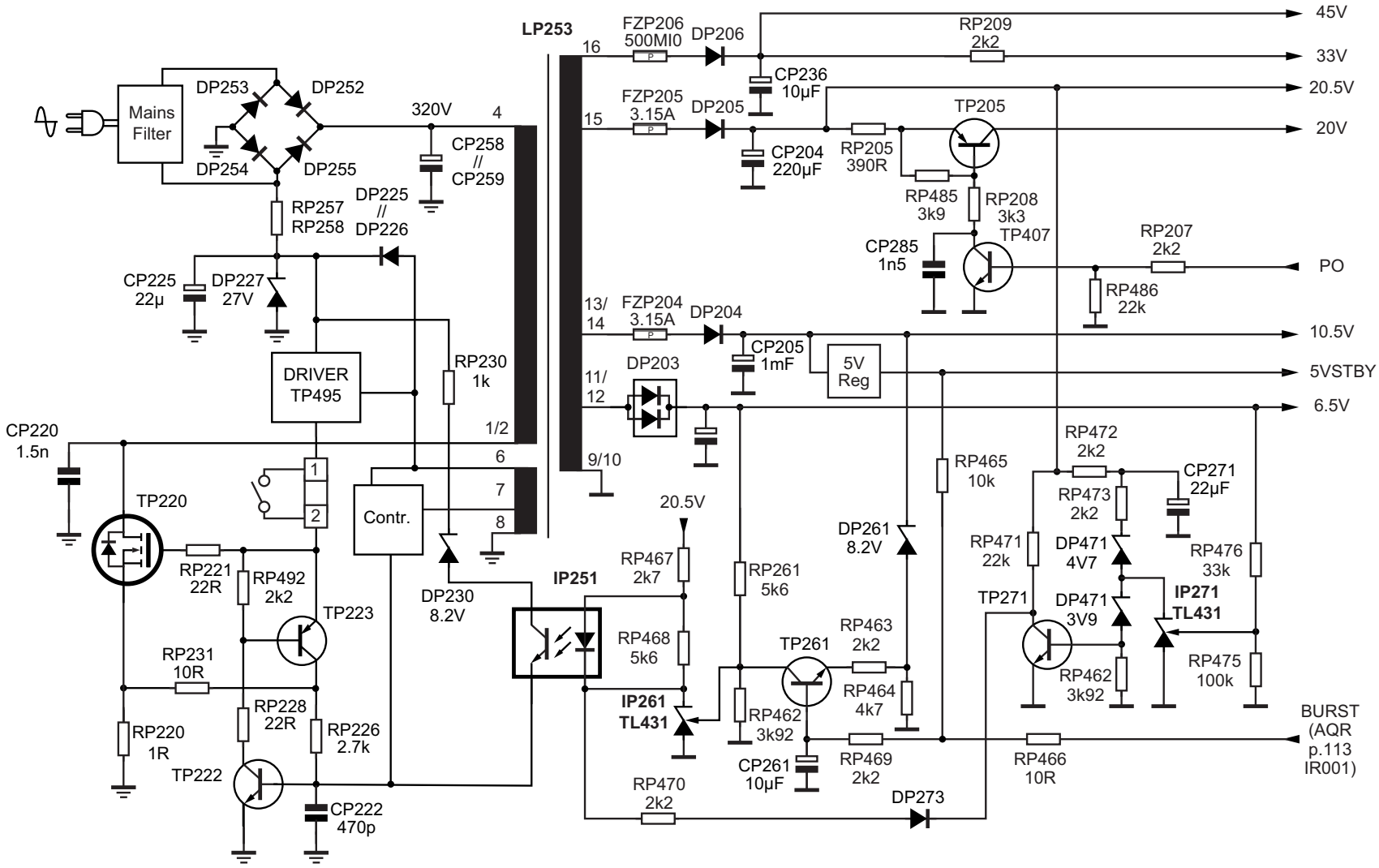
- 5VSTBY obtained from the 10.5V line by a similar stage to that used in the 6V and 4V: divider bridge RP415/416 compares a fraction of the output voltage with the internal 2.5V reference in regulation circuit IP202, consequently modulating the gate voltage of MOSFET TP202.

- 3.3VSTBY obtained from the 6.5V via a regulator assembly which is a replica of the one described above (TP201/IP201).

These two voltages are clearly intended for control.

Voltages	Tolerances	Nom. current	Peak current
33V		10ma	
20V		10ma	
10V	11.8V~12.5V	1.0A	2.0A
6V	6.0V~6.8V	3.0A	4.0A
4V	5.0V~5.8V	2.0A	
5Vstby	4.75V~5.25V	50ma	
3.3Vstby	3.1V~3.5V	500ma	

NOTES



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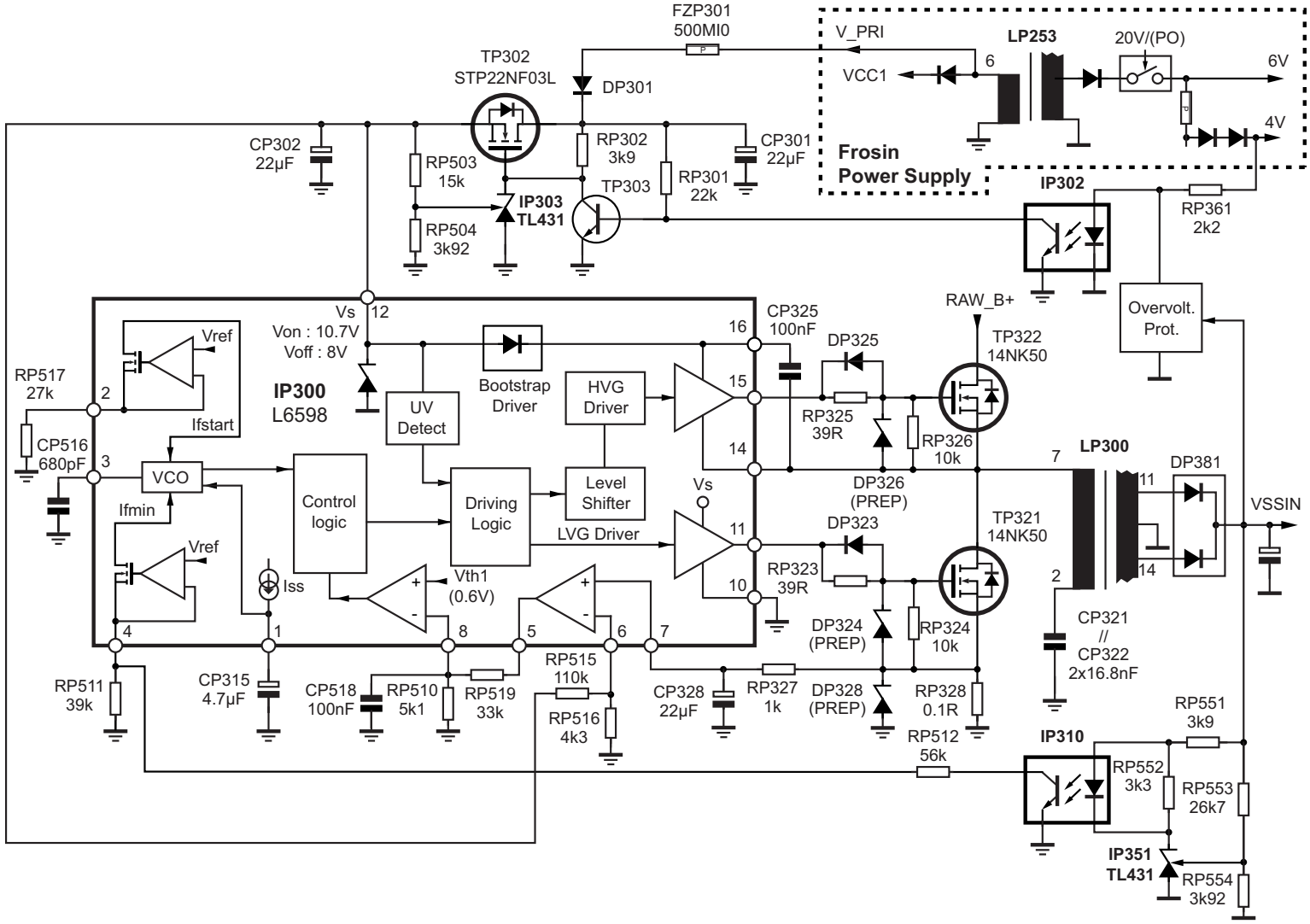
FROSIN POWER SUPPLY PROTECTION CIRCUITS

There is a first safety measure associated with overvoltage, which for example could happen because of a cut-off in secondary regulation. As a reminder, the primary voltage generated by self-powering and applied to condenser CP225 in this case will also increase. When it reaches 27V it will be limited by zener diode DP227, whose current starts rising. Beyond a certain threshold, the zener short-circuits, thus removing the control current from chopping transistor TP220.

The second protection system is related to possible overloading or short-circuiting of the 6.5V voltage.
At start-up, when secondary voltages are still developing, the time constant RP472/CP271 times the polarisation of transistor TP271, whose base is then short-circuited by the conduction of circuit IP271. When the voltage of the 6.5V line exceeds 3.3V, the reference input of IP271 tends to exceed 2.5V via divider bridge RP475/476, thus leading to increased conduction in this component and the continued blocking of TP271. Consequently, in normal working conditions the current in the opto-coupler is controlled solely by regulation from IP261.
Now let's assume heavy overloading on the 6.5V line causes this voltage to collapse below 3.3V. IP271 will then block, thus releasing the polarisation and saturation of transistor TP271, which in turn will saturate the opto-coupler. The chopping transistor is blocked this time by on/off circuit TP222/223 and the power supply closes down.

NOTES :


FZP301
500MI0
V_PRI
LP253
20V/(PO)
6V
4V
VCC1
6
TP302
STP22NF03L
DP301
CP302
22µF
RP503
15k
RP302
3k9
RP301
22k
CP301
22µF
IP303
TL431
TP303
RP504
3k92
Frosin
Power Supply
IP302
RP361
2k2
Overvolt.
Prot.
RAW_B+
Vs
12
Von : 10.7V
Voff : 8V
IP300
L6598
Vref
Ifstart
RP517
27k
CP516
680pF
VCO
Ifmin
Vref
Iss
UV
Detect
Bootstrap
Driver
HVG
Driver
Level
Shifter
LVG Driver
Control
logic
Driving
Logic
Vth1
(0.6V)
CP325
100nF
DP325
TP322
14NK50
RP325
39R
RP326
10k
DP326
(PREP)
LP300
DP381
VSSIN
DP323
TP321
14NK50
RP323
39R
DP324
(PREP)
RP324
10k
CP321
//
CP322
2x16.8nF
RP551
3k9
IP310
RP552
3k3
RP553
26k7
IP351
TL431
RP554
3k92
RP511
39k
CP315
4.7µF
CP518
100nF
RP510
5k1
RP519
33k
RP515
110k
RP516
4k3
CP328
22µF
RP327
1k
DP328
(PREP)
RP328
0.1R
RP512
56k

RESONANT POWER SUPPLY

This second part of the power board supplies energy to the LCD panel in order to provide power to the backlighting (inverter board) in the form of the voltage VSSIN (19 Volts); it also delivers symmetric voltages +/-UA (+/- 15 Volts) to the audio power stage.

The core of the primary circuit is the integrated circuit ST L6598, which is adapted to control an AC/DC converter that uses the principles of resonance and of a half-bridge configuration. In the final stage it comprises two drivers which alternately switch one of two MOSFET transistors. The resonance circuit, which consists of the transformer primary and two condensers in series, is connected between the ground and the common point of these two transistors.

The power supply source for this circuit is the primary of transformer LP253 (V_PRI of the FROSIN stage), rectified by diode DP301 and switched by transistor TP302.
The start-up command signal is the 4 Volts from the FROSIN power supply, this voltage being switched by the micro-controller (PO). It saturates opto-coupler IP302, which blocks transistor TP303, thus releasing the polarisation of MOSFET TP302. On the gate of the latter, regulation circuit IP303 coupled with divider bridge RP503/504 sets voltage Vs (pin 12 of IP300) to roughly 12 Volts (10.7 Volts being the start-up voltage).

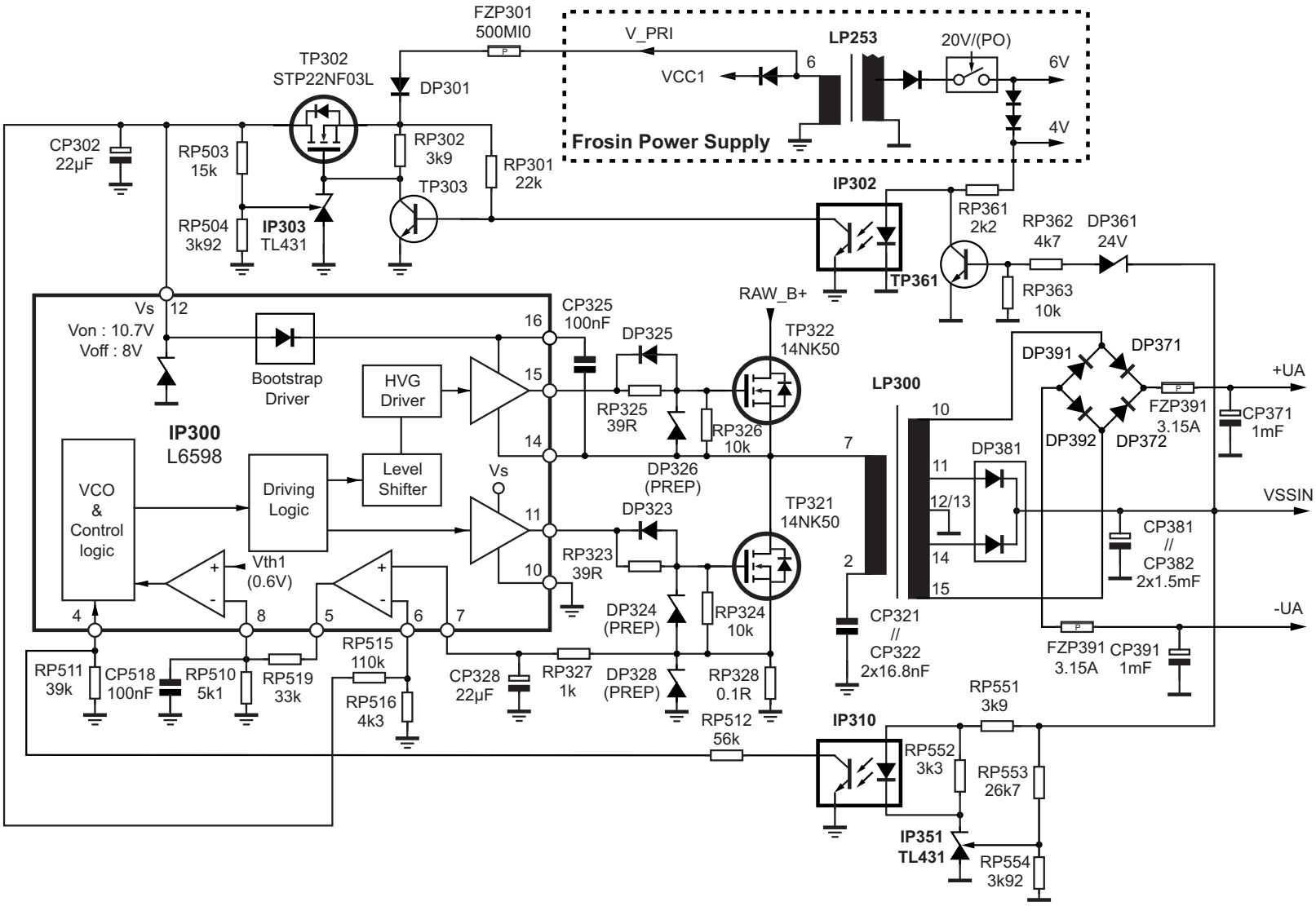
The oscillator incorporated into this circuit generates triangular waves whose frequency is determined by the charging and discharging cycles of condenser CP516 (pin 3). The are the effect of currents Ifstart, Ifmin, and the charge on soft-start condenser CP315 (pin 1). Ifstart is linked to RP517 (Ifstart = Vref / RP517 with Vref = 2V); Ifmin depends on RP511, RP512, and conduction in opto-coupler IP310.
During the first instants of start-up, frequency is a function of the sum of currents Ifmin and Ifstart; then as the latter drops away with the effect of the charge on CP315 (soft start), the frequency does likewise and becomes
fmin = 1.41/(RP511 x CP516) = 53kHz (with IP310 blocked).
To sum all this up, RP511, RP517, and CP516 set the start-up frequency to roughly 100kHz. This then decreases with the soft start (~= 750msec) and drops below 53kHz to settle down at a value that depends on secondary regulation (conduction in IP310).

This triangular signal is then shaped by the logic stages to control the push-pull output, with alternate saturation of TP321 on the up ramp and TP322 on the down ramp, condenser CP325 being jointly used with the integrated bootstrap assembly to ensure clean saturation of TP322.

Maximum energy will be transmitted when the control frequency is the resonant frequency of the primary circuit on transformer LP300 and condensers CP321 and CP322, because the load impedance is then lower and the peak current reaches a maximum value. Increasing the control frequency will consequently result in the lowering of this peak current and thus a reduction in transmitted energy.
Since the control frequency is related to the overall resistance connected to pin 4, modulating the conduction of the opto-coupler will give rise to a modification in the oscillator frequency and thus control the energy transmitted.

Secondary voltage VSSIN is regulated by comparing it via a divider bridge (RP553, RP554) with the internal reference (2.5 Volts) on regulation circuit IP351. When the charge on this line increases, the voltage tends to drop as does the current in the opto-coupler through the action of IP351. The overall resistance seen from pin 4 therefore increases and reduces the frequency of the oscillator and the control, which approaches that of resonating circuit LP300/CP321/CP322. The consequence of this, as explained above, is an increase in transmitted energy.

NOTES :


FZP301
500MI0
V_PRI
LP253
20V/(PO)
6V
4V
VCC1
6
Frosin Power Supply
TP302
STP22NF03L
DP301
CP302
22µF
RP503
15k
RP504
3k92
IP303
TL431
RP302
3k9
TP303
RP301
22k
IP302
RP361
2k2
RP362
4k7
DP361
24V
TP361
RP363
10k
RAW_B+
Vs
12
Von : 10.7V
Voff : 8V
Bootstrap
Driver
HVG
Driver
IP300
L6598
VCO
&
Control
logic
Driving
Logic
Level
Shifter
Vth1
(0.6V)
16
15
14
11
10
CP325
100nF
DP325
RP325
39R
RP326
10k
DP326
(PREP)
TP322
14NK50
DP323
RP323
39R
DP324
(PREP)
RP324
10k
TP321
14NK50
LP300
10
11
12/13
14
15
7
2
DP391
DP371
DP392
DP372
DP381
FZP391
3.15A
CP371
1mF
+UA
VSSIN
-UA
CP381
//
CP382
2x1.5mF
CP321
//
CP322
2x16.8nF
FZP391
3.15A
CP391
1mF
4
8
5
6
7
RP511
39k
CP518
100nF
RP510
5k1
RP519
33k
RP515
110k
RP516
4k3
CP328
22µF
RP327
1k
DP328
(PREP)
RP328
0.1R
RP512
56k
RP551
3k9
IP310
RP552
3k3
RP553
26k7
IP351
TL431
RP554
3k92

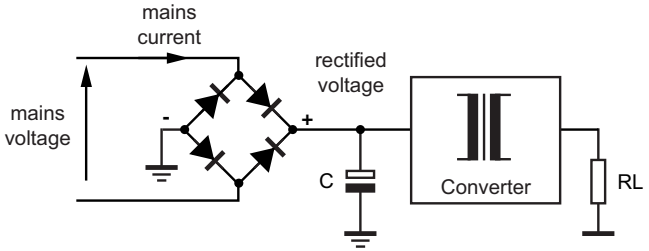
SECONDARIES AND PROTECTION OF THE RESONANT POWER SUPPLY

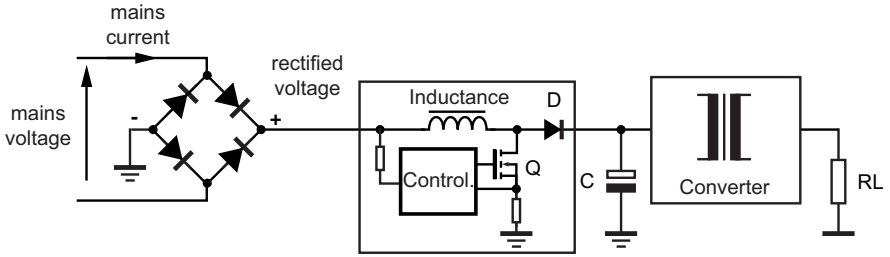
Voltage VSSIN (24 Volts), used for backlighting, is obtained by centre tap dual rectification (double diode DP381), whereas rectifier bridge DP371/372, DP391/392 generates symmetrical voltages +/_ UA for the audio power stage (+/- 14 Volts).

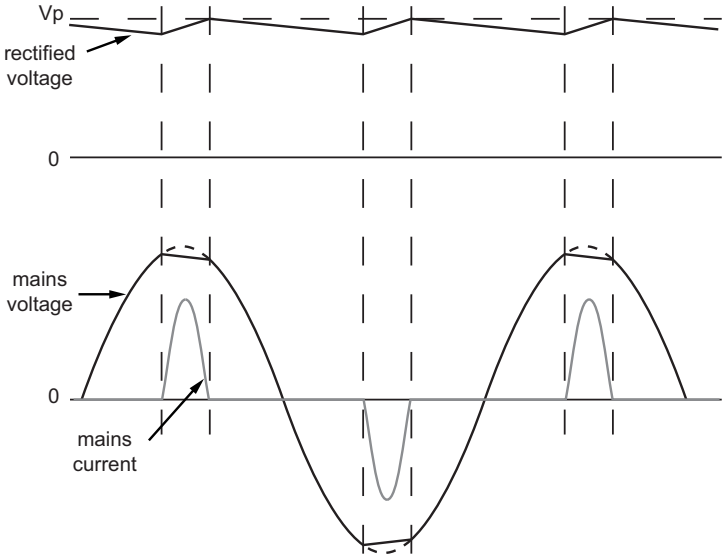
	Voltage	Current
VssIN	24V	4A
+/-UA	14V	1A

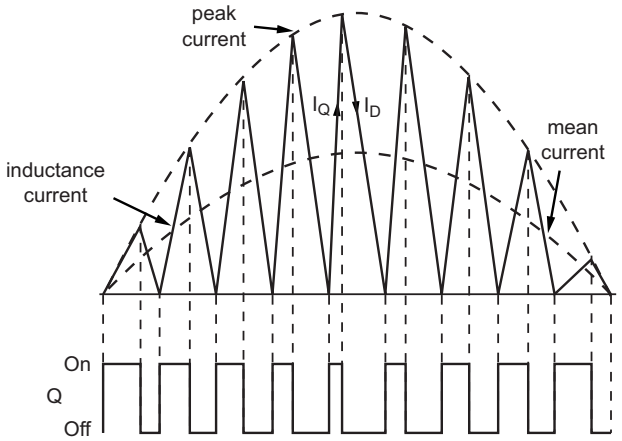
A first protection system detects overvoltages on VSSIN via zener DP361 and transistor TP361. If ever this voltage exceeds 25 Volts, the transistor will saturate and will short circuit opto-coupler IP302, temporarily taking away the power supply to circuit IP300.
A second protection system detects any secondary overloads by checking the primary current. An image of is this picked up on resistance RP328 and applied to the non-inverting input of the amplifier built into IP300 (pin 7), then compared with a reference voltage of 450mV (Vs and RP515/516). In the event of this going over the mark (peak current more than 4.5A), pin 5 changes to the high state and activates the comparator (pin 8), which causes the oscillator to stop and blocks the two MOSFET transistors.

NOTES :


mains
current
mains
voltage
rectified
voltage
-
+
C
Converter
RL


mains
current
mains
voltage
rectified
voltage
-
+
Inductance
D
Control.
Q
C
Converter
RL


Vp
rectified
voltage
0
mains
voltage
0
mains
current


peak
current
I_Q
I_D
mean
current
inductance
current
On
Q
Off

DYNAMIC POWER FACTOR CORRECTION (PFC) CIRCUIT CONCEPT.

Screens measuring 27 inches or more consume large amounts of power, making power factor correction necessary (PFC) in order to restrict the generation of harmonics in the mains. A simple rectification circuit draws energy from the mains only when the instantaneous alternating voltage exceeds the charge voltage on the filter head condenser. This takes place at values close to the peak voltage of each half-cycle; the result is current spikes whose shape is a long way from the desired sinusoid (see diagram on left).

In order to achieve this aim, an inductance is fitted between the rectifier bridge and the filtering condenser. The mean current of this inductance must be sinusoidal and in phase with the rectified voltage. To achieve this, a power transistor Q, controlled at a frequency higher than the mains frequency, chops the rectified unfiltered voltage across this inductance. The frequency or the cyclic ratio must be proportional to this rectified voltage so as to modulate the peak current following a sinusoidal wave envelope (see diagram on right).

When the transistor is blocked, the induced voltage at the terminals of this inductance is inversed, unblocking diode D, which supplies power to filtering condenser C and to the standard converter.

NOTES :

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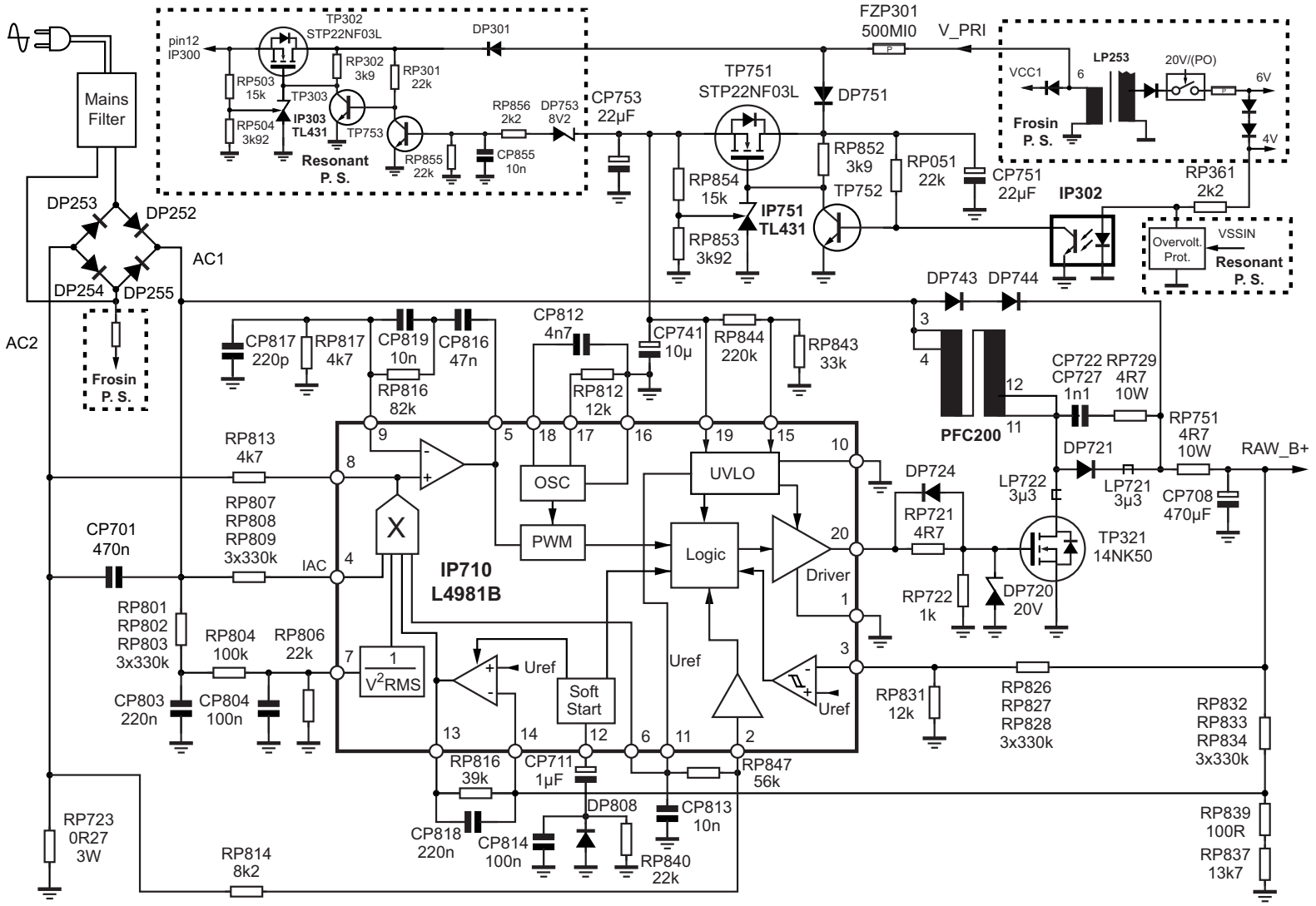

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16

POWER FACTOR CORRECTION CIRCUIT.

As previously explained, the power factor correction circuit reduces the level of harmonics reinjected into the mains circuit by the power supply. It also contributes to regulating the voltage generated at the terminals of the filtering condenser (370 Volts), thereby facilitating the work of the downstream power supplies.

Control of this stage is provided by an L4981B circuit from ST. Its power supply is obtained from the switched 4 Volts of the Frosin power supply. Opto-coupler IP302 transmits commands to the IP751/ TP751 primary regulation circuit via transistor TP752. The resulting voltage (approx. 12V) supplies the input Vcc to pin 19 of the circuit and activates a second regulation circuit, IP303/TP302, used for starting up the resonant power supply.
Divider bridge RP844/RP843 uses the voltage applied to pin 15 to set hysteresis thresholds on the internal power supply of 12V for Vcc on and 10.1V for Vcc off.
A reference voltage is available on pin 11 (5.1 Volts).
The 45kHz frequency of the internal oscillator is set by resistance RP812 (pin 17) and condenser CP812 (pin 18).

The cyclic ratio of the chopping transistor control signal must be inversely proportional to the rectified input voltage, i.e., must vary sinusoidally. The current picked up at the output of the rectifier bridge by resistances RP807/808/809 and applied to the input on pin 4 supplies the required reference. Resistances RP801/802/803 form a filter in conjunction with components CP803/CP804 and RP804/806, supplying data that is proportional to the RMS mains voltage in order to take account of any variations in the latter (pin 7). Lastly, the output voltage is picked up by divider bridge RP832/833/834/837/839 and applied to the error amplifier located between pins 13 and 14.
These 3 pieces of data are then associated through a multiplier. The resulting current (pin 8) is added to the image of the inductance current (RP723) via resistance RP813 then applied to the non-inverting input of the error amplifier.
The circuit located between pins 5 and 9 sets the gain for this stage.
The CA-OUT signal available on pin 5 is then compared with the sawtooth oscillator wave in the PWM stage to supply a variable cyclic ratio that controls chopping transistor TP321 via the logic and driver stages and via pin 20.

Condenser CP711 (pin 12) determines the soft start criteria for the stage so as to limit peak current in the chopping transistor when establishing the voltage Raw_B+. The TP321 command appears when there is a voltage of 1.5V or more on pin 12. This condenser is discharged each time the overvoltage (pin 3) or undervoltage (pin 19) safety system is activated.

As far as protection goes, three parameters are controlled in this stage:

- the minimum supply voltage on pin 19 of circuit L4981B. This voltage's threshold value of 10.1V is set by resistances RP844 and RP844 (pin 15). When the threshold is reached, the circuit switches to standby mode, blocking the chopping transistor and discharging the soft start condenser
- the maximum output voltage via pin 3. This is set to 426 Volts by divider bridge RP826/827/828, RP831 and the internal 5.1V reference. In the event of overshooting, there are the same consequences as with the previous protection
- the peak current in inductance PFC200 measured by resistance RP723 is applied to pin 2 via divider bridge RP814/RP847. In the event of an current overload, the voltage on pin 2, normally negative, reaches 0V and the chopping transistor is immediately blocked.

NOTES :

CONTROLS

CONTENTS

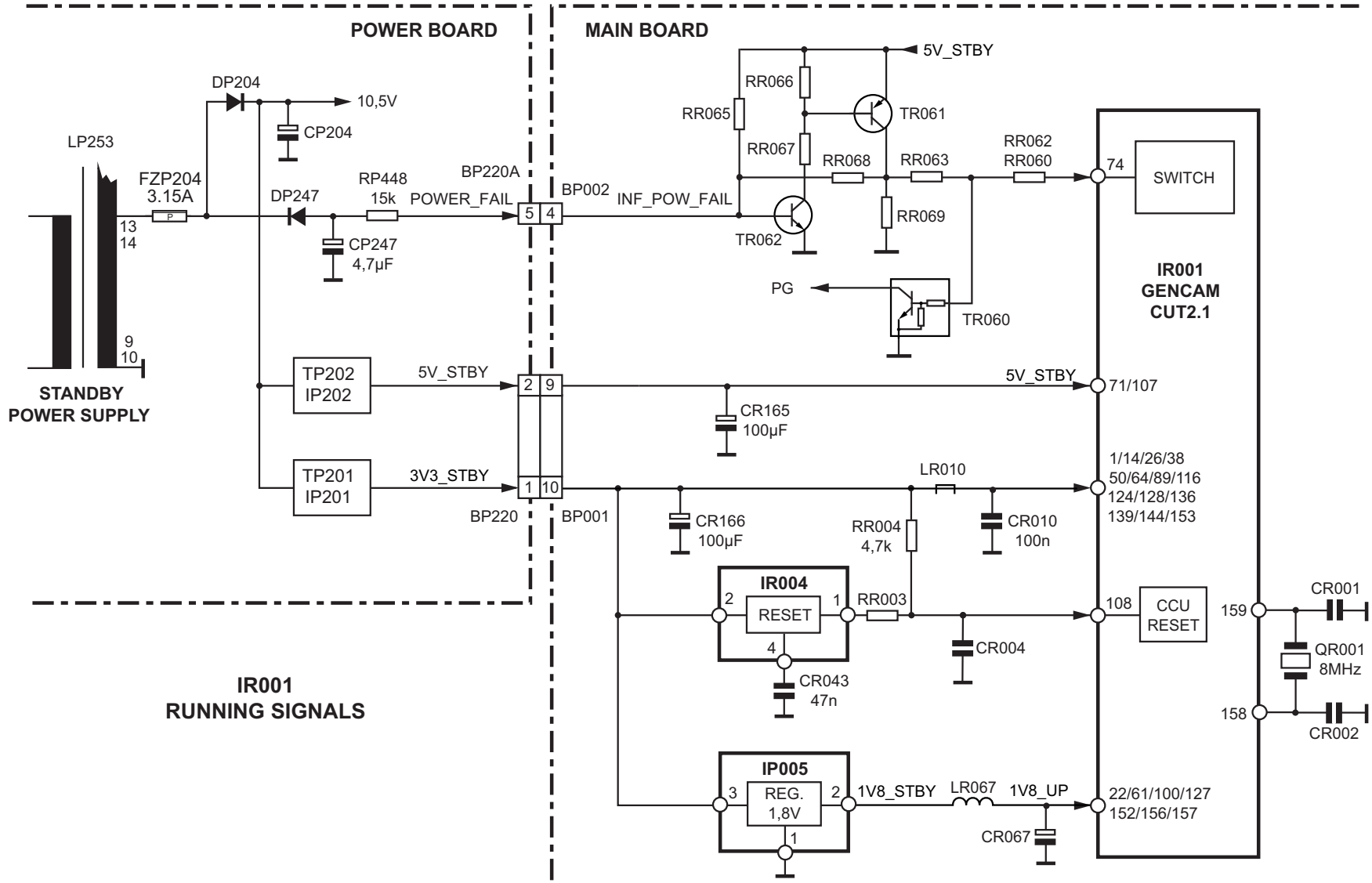
POWER SUPPLY / CLOCK / RESETTING / HALTING . .Page 21

KEYBOARD / REMOTE CONTROL / LED . . . . . .Page 23

COMPUTER ARCHITECTURE . . . . . .Page 25

O.S.D. / TELETEXT . . . . . .Page 27

FAULT CODES . . . . . .Page 29


POWER BOARD
MAIN BOARD
DP204
10,5V
CP204
LP253
FZP204
3.15A
DP247
RP448
15k
POWER_FAIL
BP220A
BP002
INF_POW_FAIL
5V_STBY
RR066
RR065
TR061
RR067
RR068
RR063
RR062
RR060
74
SWITCH
TR062
RR069
PG
TR060
IR001
GENCAM
CUT2.1
13
14
CP247
4,7µF
9
10
STANDBY
POWER SUPPLY
TP202
IP202
5V_STBY
2
9
71/107
CR165
100µF
TP201
IP201
3V3_STBY
1
10
BP220
BP001
LR010
1/14/26/38
50/64/89/116
124/128/136
139/144/153
CR166
100µF
RR004
4,7k
CR010
100n
IR004
RESET
RR003
108
CCU
RESET
CR004
CR043
47n
CR001
159
QR001
8MHz
158
CR002
IP005
REG.
1,8V
1V8_STBY
LR067
1V8_UP
22/61/100/127
152/156/157
CR067
IR001
RUNNING SIGNALS

20

POWER SUPPLIES TO IR001

These come from the voltages 5V_STBY and 3V3_STBY generated by the Frosin power supply. A voltage of 1V8_UP, obtained from 3V3_STBY and regulator IP005, supplies the CPU of IR001.

IR001 CLOCK

A VCO/PLL assembly internal to IR001 clocks the microcontroller. The QR001 8MHz quartz timer acts as the reference for this loop. The VCO working frequency is 72MHz when running.

IR001 RESET

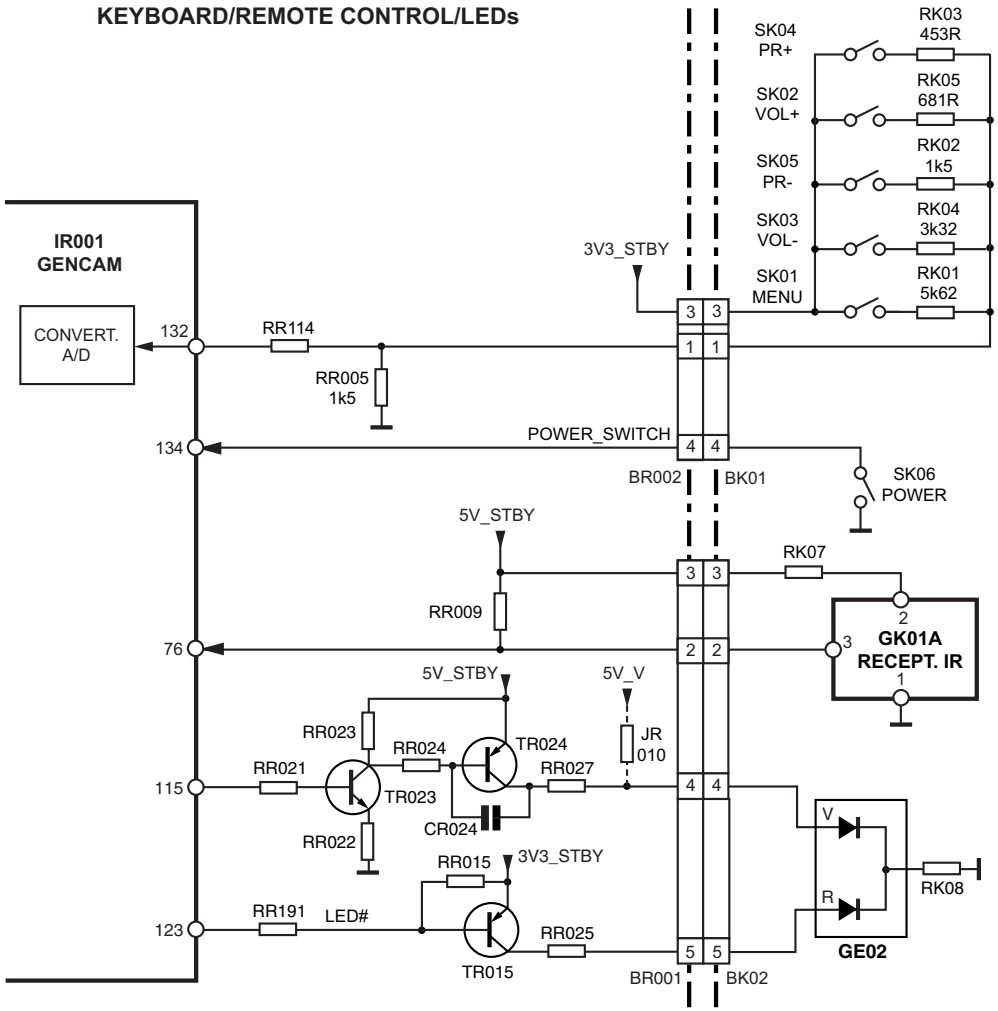
Integrated circuit IR004 coupled with condenser CR043 generates the reset signal. Pin 108 receives the RESET information.

IR001 HALT

A mains cut-off detection stage enables the TV set configuration to be saved if ever the mains voltage drops. Rectification and filtering of the voltage that is induced in pins 13/14 of LP253 by DP247 and CP247 gives a voltage in the region of –40V. Next, transistors TR061 and TR062 are blocked and pin 74 of IR001 goes to 0. If the mains voltage drops below 140VAC, transistors TR061 and TR062 saturate. Pin 74 on IR001 changes to the high state (> 4V) and a back-up routine is triggered. Furthermore, because transistor TR060 is saturated, audio muting is effected.
Once powered up, if pin 74 on IR001 is at 5V, the appliance remains on standby and fault code 63 is stored in the EPROM.

NOTES

KEYBOARD/REMOTE CONTROL/LEDs



KEYBOARD

The keyboard is made from resistive dividers. The range of continuous voltages on pin 132 of IR001 is as follows:

- PR+: 2.51V to 2.78V
- V+: 2.23V to 2.25V
- PR– and V–: 1.9V to 2.17V (service mode).
- PR–: 1.59V to 1.86V
- V–: 0.94V to 1.21V
- Menu: 0.59V to 0.86V
- no keypress: 0 to 0.42V

REMOTE CONTROL

The remote control function codes arrive on pin 76 of IR001. They are comprised of:
- 4 address bits
- 1 call bit
- 7 function bits, defined by the key pressed

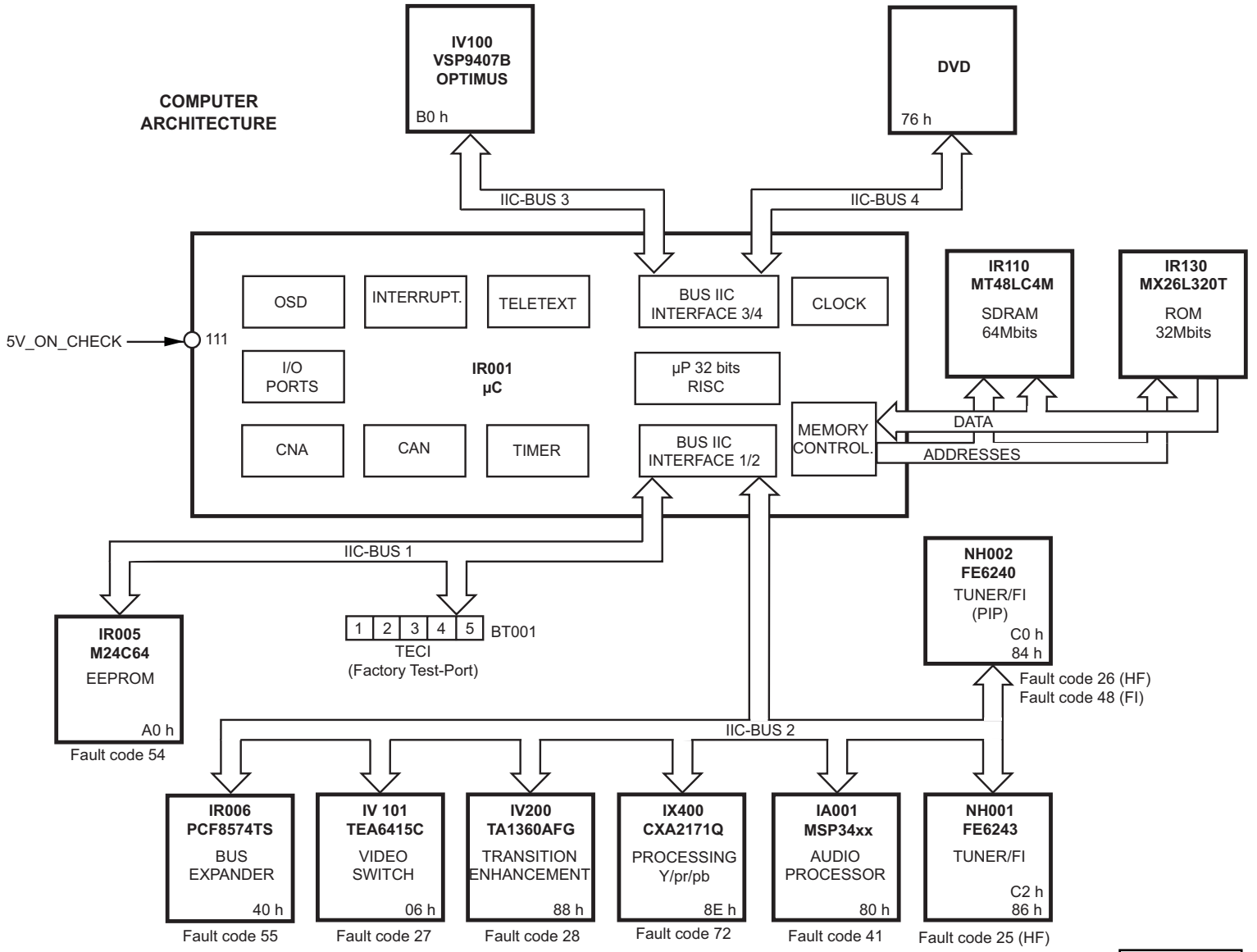
The high state of the impulses must be above 4.5V. The low state of the impulses must be below 0.6V.

These codes repeat every 80ms.

LED

Output 123 from IR001 controls the red LED via transistor TR015. This LED comes on in standby mode.
Output 115 from IR001 controls the green LED via transistors TR023/024. This LED lights up when the set is on. Its brightness depends on the value set by the user in the preferences menu. A PWM signal (T= 62.5 KHz) is output from pin 115 of IR001.
In certain models, transistors TR023/024 are not wired up. The green LED lights up when the set is on, getting its power from the 5V_V voltage.

NOTES


COMPUTER ARCHITECTURE
IV100
VSP9407B
OPTIMUS
B0 h
DVD
76 h
IIC-BUS 3
IIC-BUS 4
OSD
INTERRUPT.
TELETEXT
BUS IIC INTERFACE 3/4
CLOCK
5V_ON_CHECK
111
I/O PORTS
IR001
µC
µP 32 bits RISC
CNA
CAN
TIMER
BUS IIC INTERFACE 1/2
MEMORY CONTROL.
IR110
MT48LC4M
SDRAM
64Mbits
IR130
MX26L320T
ROM
32Mbits
DATA
ADDRESSES
IIC-BUS 1
IR005
M24C64
EEPROM
A0 h
Fault code 54
1 2 3 4 5
BT001
TECI
(Factory Test-Port)
NH002
FE6240
TUNER/FI
(PIP)
C0 h
84 h
Fault code 26 (HF)
Fault code 48 (FI)
IIC-BUS 2
IR006
PCF8574TS
BUS EXPANDER
40 h
Fault code 55
IV 101
TEA6415C
VIDEO SWITCH
06 h
Fault code 27
IV200
TA1360AFG
TRANSITION ENHANCEMENT
88 h
Fault code 28
IX400
CXA2171Q
PROCESSING Y/pr/pb
8E h
Fault code 72
IA001
MSP34xx
AUDIO PROCESSOR
80 h
Fault code 41
NH001
FE6243
TUNER/FI
C2 h
86 h
Fault code 25 (HF)

COMPUTER ARCHITECTURE

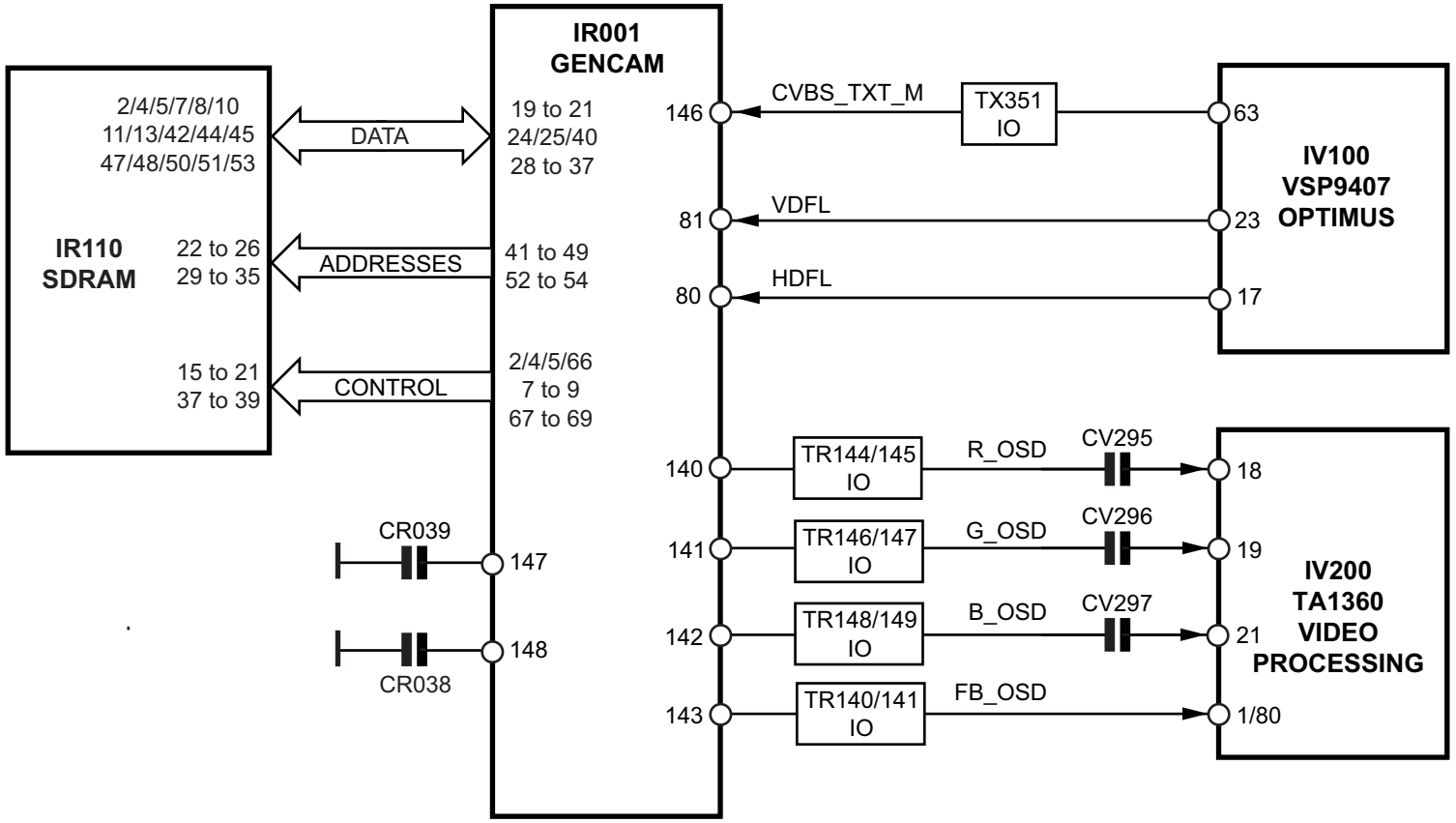
The IR001 microcontroller is linked to 3 memories:

- memory IR130 containing the software and the default values for the service mode; this is a 32Mbit ROM
- memory IR005 containing the service mode, the TV channels, and the analogue values; this is an 8kB EEPROM. Bus I2C1 controls this memory
- data storage and teletext display memory IR110; this is a 64 Mbit SDRAM

Microcontroller IR001 drives several integrated circuits as well as the tuners via buses I2C1, I2C2, I2C3, and I2C4.

NOTES

O.S.D. / TELETEXT



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OSD AND TELETEXT

IR001 controls menus and teletext. Memory IR110 (SDRAM) stores up to 1600 teletext pages.

Teletext data is extracted from the CVBS_TXT signal input on pin 146 of IR001. RGB (0.7VDC) and fast switching (1.4VDC) are available on pins 140 to 143 of IR001.
The VDFL signals (frame impulse of 3.3VDC) and HDFL (line impulse of 3.3VDC) set the position for text incrustation. If these signals are absent, fault code 69 is stored in the EEPROM.

NOTES

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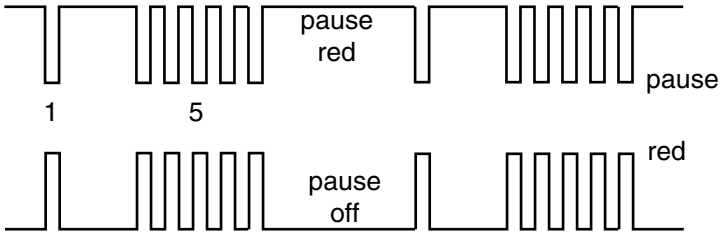
FAULT CODES

These fault codes are stored in the E2PROM. Fault codes relating to the IIC buses can be identified by examining the red LED.

These codes consist of two sequential digits separated by a pause of 0.7 seconds. The fault codes are continually repeated. A lapse of 1.7 seconds separates the emission of two successive fault codes.

SIGNAL RATE OF 5 ON PIN 001



CODES		CODES	
11	I2Cbus_1 data at low level	48	FI PIP not responding
12	I2Cbus_1 clock at low level	49	Drop in 5V power supply FI PIP
13/95	I2Cbus_2 data at low level	54	NVM IR005 (M24C64) not responding
14/95	I2Cbus_2 clock at low level	55	IR006 (PCF8574TS) not responding
15	I2Cbus_3 data at low level	58	Bad validation of error code
16	I2Cbus_3 clock at low level	59	Bad IR001 fitted
17	I2Cbus_4 data at low level	61	5V not appearing at start-up
18	I2Cbus_4 clock at low level	63	Wrong level on NMI line
19	Chassis error detected	69	H/V (OSD) sync absent
25	Main tuner not responding	72	IX400 (CXA2151) not responding
26	Secondary tuner (PIP) not responding	93	IR001: driver installation problem for buses I2C1 and I2C2
27	IV101 (TEA6415C) not responding	94	IR001: driver installation problem for buses I2C3 and I2C4
28	IV200 (TA1360) not responding	95	IR001: port or driver installation problem on I2C
29	Drop in 9V power supply (IV200)	96	IR001: ADC Driver installation problem
41	IA001 (MSP) not responding	97	IR001: AV-link driver installation problem
42	IA001 (MSP) in reset	98	SDRAM (IR110) timing problem
45	Bad MSP fitted	99	IR001 Watchdog active

VIDEO / RGB / YPrPb
VGA / DVI
SWITCHING

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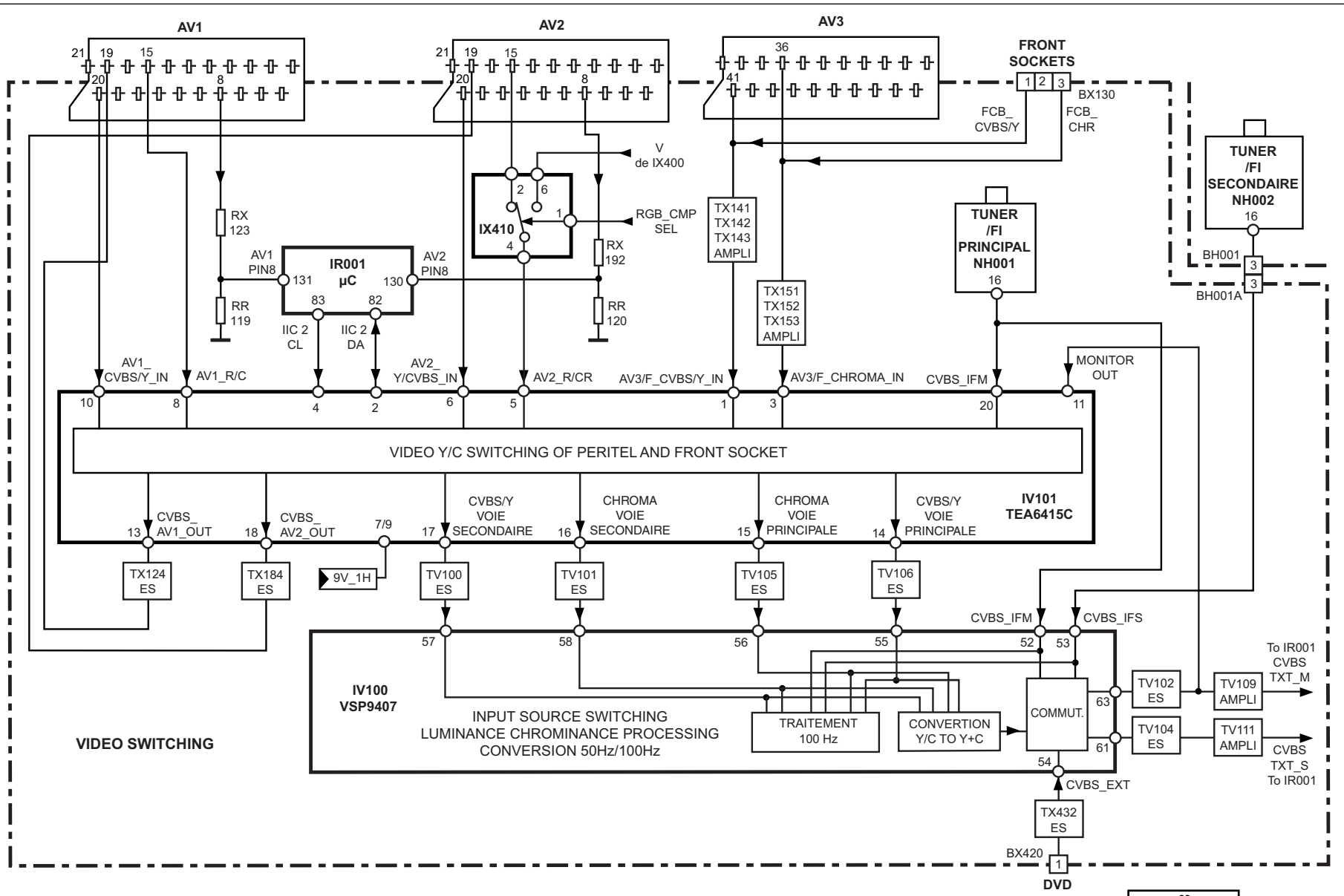
RGB AND Y/Cr/Cb SWITCHING . . . . . .Page 37

COMPONENT SIGNAL AND DVI SWITCHING . . . . . .Page 39


AV1
AV2
AV3
FRONT SOCKETS
BX130
FCB_ CVBS/Y
FCB_ CHR
V de IX400
RGB_CMP SEL
IX410
RX 123
RR 119
RX 192
RR 120
AV1 PIN8
AV2 PIN8
IR001 µC
IIC 2 CL
IIC 2 DA
TX141 TX142 TX143 AMPLI
TX151 TX152 TX153 AMPLI
TUNER /FI PRINCIPAL NH001
TUNER /FI SECONDAIRE NH002
BH001
BH001A
AV1_ CVBS/Y_IN
AV1_R/C
AV2_ Y/CVBS_IN
AV2_R/CR
AV3/F_CVBS/Y_IN
AV3/F_CHROMA_IN
CVBS_IFM
MONITOR OUT
VIDEO Y/C SWITCHING OF PERITEL AND FRONT SOCKET
CVBS_ AV1_OUT
CVBS_ AV2_OUT
CVBS/Y VOIE SECONDAIRE
CHROMA VOIE SECONDAIRE
CHROMA VOIE PRINCIPALE
CVBS/Y VOIE PRINCIPALE
IV101 TEA6415C
TX124 ES
TX184 ES
9V_1H
TV100 ES
TV101 ES
TV105 ES
TV106 ES
CVBS_IFS
IV100 VSP9407
INPUT SOURCE SWITCHING
LUMINANCE CHROMINANCE PROCESSING
CONVERSION 50Hz/100Hz
TRAITEMENT 100 Hz
CONVERTION Y/C TO Y+C
COMMUT.
TV102 ES
TV104 ES
TV109 AMPLI
TV111 AMPLI
To IR001 CVBS TXT_M
CVBS TXT_S To IR001
CVBS_EXT
TX432 ES
BX420
DVD
VIDEO SWITCHING

VIDEO SWITCHING

GENERAL MATTERS

The IFC228 chassis offers a variety of possibilities:
- 3 peritel sockets AV1/AV2 and AV3 (AV1 priority)
- front socket for camcorder
- demodulated tuner signal, available on video output AV1
- signal selected on the screen, available on video output AV2
- detection of slow switching of AV1 and AV2 between 4/3 and 16/9
- Y/C inputs for AV2/AV3 and front sockets
- YPrPb input component input 1H or 2H by rear socket CMP1
- RGB for AV1 and AV2 with selective control of fast switching (FB).
- DVI graphic or video inputs
- VGA inputs comprising VGA, SVGA, XGA, SXGA, UXGA and WUXGA standards.
- TV wake-up by detecting the presence of slow switching and automatic selection of the input in question.

Initial video source switching between rear peritel sockets AV1, AV2, AV3, the front socket, and the main tuner is carried out in integrated circuit IV101. Then a second source switching operation is carried out by OPTIMUS circuit IV100 between the signals leaving circuit IV101 and those from the two tuners.

Integrated circuit IV101 (TEA6415) has 8 independent inputs and 6 independent outputs. It is a matrix that can switch any input to any output. The same input signal can be switched to different outputs.
Circuit IV100 has 7 inputs and 2 outputs:

MONITOR OUT, pin 63, for the AV2 and teletext outputs.
HDD-CVBS, pin 62, for a future option.

Inputs 57/ 58 (secondary channel) and inputs 55/ 56 (main channel) of circuit IV100 receive selected separated luminance Y and chrominance signals from input AV1 or AV2 or AV3; circuit IV100 directs these signals to the main or secondary channel. The signals from socket AV1 or AV2 are converted to composite video and leave IV100 by the MONITOR OUT line, pin 63, to be sent to the AV2 output via IV101.
In incrustation mode, the signal leaving the main tuner principal is injected into IV100 pin 52 and this leaves the secondary tuner on pin 53 to be directed to the selected channel or channels. The signal used for the main channel leaves pin 63 (MONITOR OUT) and is directed via IV101 pin 11 to the AV2 output.

The signal from the main tuner, present on pin 20 of IX300, is directed to the AV1 output.

All VIDEO inputs from sockets AV1/AV2 and AV3 are protected from electrostatic discharges by zener diodes in order to protect the OPTIMUS IU100 integrated circuit.

VIDEO SIGNAL OUTPUTS FROM CIRCUIT IV101

The SCART standard states that the video signal from the tuner must always be present on video output AV1; it leaves on pin 13.
The signal on the AV2 output is selected following WYSIWYG (What You See Is What You Get) logic; it leaves on pin 18.
Signals Y and C leave circuit IV101 respectively on pins 14 &15 for the main channel and 16 & 17 for the secondary channel then are directed to circuit IV100 for 2H processing.

The signal used for teletext leaves pin 63 of IV001; it is directed via an impedance adapter TV102 to control circuit IR001.

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	0PTIMUS (IV100)		IV101 (TEA6415)			
SOURCES	**INPUTS**		**INPUTS**			
MAIN TUNER	CVBS-IFM Br 52	CVBS-IFM BR 52	MONITOR OUT Br 11	CVBS-IFM Br 20	CVBS-IFM Br 20	CVBS-IFM Br 20
SECONDARY TUNER	***	***	***	***	***	***
CVBS AV1	CVBS/Y MASTER Br 55	CVBS/Y MASTER Br 55	MONITOR OUT Br 11	AV1 Y/CVBS Br 10	AV1-Y/CVBS Br 10	CVBS Br 20
Y/C AV1	Y Br 55 CHROMA Br 56 MASTER	CVBS	MONITOR OUT Br 11	AV1 CHROMA Br 08	AV1-Y Br 10	CVBS Br 20
CVBS AV2	CVBS/Y MASTER Br 55	CVBS/Y MASTER Br 55	MONITOR OUT Br 11	AV2 Y/CVBS Br 06	AV2-Y/CVBS Br 06	AV2-Y/CVBS Br 06
Y/C AV2	Y Br 55 CHROMA Br 56 MASTER	CVBS	MONITOR OUT Br 11	AV2 CHROMA Br 05	AV2-Y Br 06	MONITOR OUT Br 11
CVBS AV3/FRONT	CVBS/Y MASTER Br 55	CVBS/Y MASTER Br 55	MONITOR OUT Br 11	AV3 F Y/CVBS Br 01	AV3 F Y/CVBS Br 01	AV3 F Y/CVBS Br 01
Y/C AV3 / FRONT	Y Br 55 CHROMA Br 56 MASTER	CVBS	MONITOR OUT Br 11	AV3/F CHROMA Br 03	AV3 F Y/CVBS Br 01	MONITOR OUT Br 11
DVD HDD	CVBS EXT Br 54	CVBS EXT Br 55	MONITOR OUT Br 11	MONITOR OUT Br 11	MONITOR OUT Br 11	MONITOR OUT Br 11
OUTPUT	**CAN PRINCIPAL**	**MONITOR OUT Br 63**	**Br 18 AV2 OUT**	**Br 15 MASTER C**	**Br 14 MASTER Y**	**Br 13 AV1 OUT**

INPUT/OUTPUT RELATIONS FOR MAIN IMAGE

	OPTIMUS (IV100)	IV101 (TEA6415)	
SOURCES	**INPUTS**	**INPUTS**	
MAIN TUNER	***	CVBS-IFM Br 20	CVBS-IFM Br 20
SECONDARY TUNER	CVBS-IFS Br 53	***	***
CVBS AV1	CVBS/Y SECONDARY Br 57	AV1 Y/CVBS Br 10	AV1 Y/CVBS Br 10
Y/C AV1	Y Br 57 CHROMA Br 58 SECONDARY	AV1 Y Br 10	AV1 CHROMA Br 08
CVBS AV2	CVBS/Y SECONDARY Br 57	AV2 Y/CVBS Br 06	AV2 Y/CVBS Br 06
Y/C AV2	Y Br 57 CHROMA Br 58 SECONDARY	AV2 Y Br 06	AV2 CHROMA Br 05
CVBS AV3/FRONT	CVBS/Y SECONDARY Br 57	AV3 F Y/CVBS Br 01	AV3 F Y/CVBS Br 01
Y/C AV3 FRONT	Y Br 57 CHROMA Br 58 SECONDARY	AV3 Y Br 01	AV3/F CHROMA Br 03
DVD HDD	CVBS EXT Br 54	MONITOR OUT Br 11	MONITOR OUT Br 11
OUTPUT	**CAN SECONDARY**	**Br 16 SECONDARY Y**	**Br 17 SECONDARY C**

INPUT/OUTPUT RELATIONS FOR SECONDARY IMAGE

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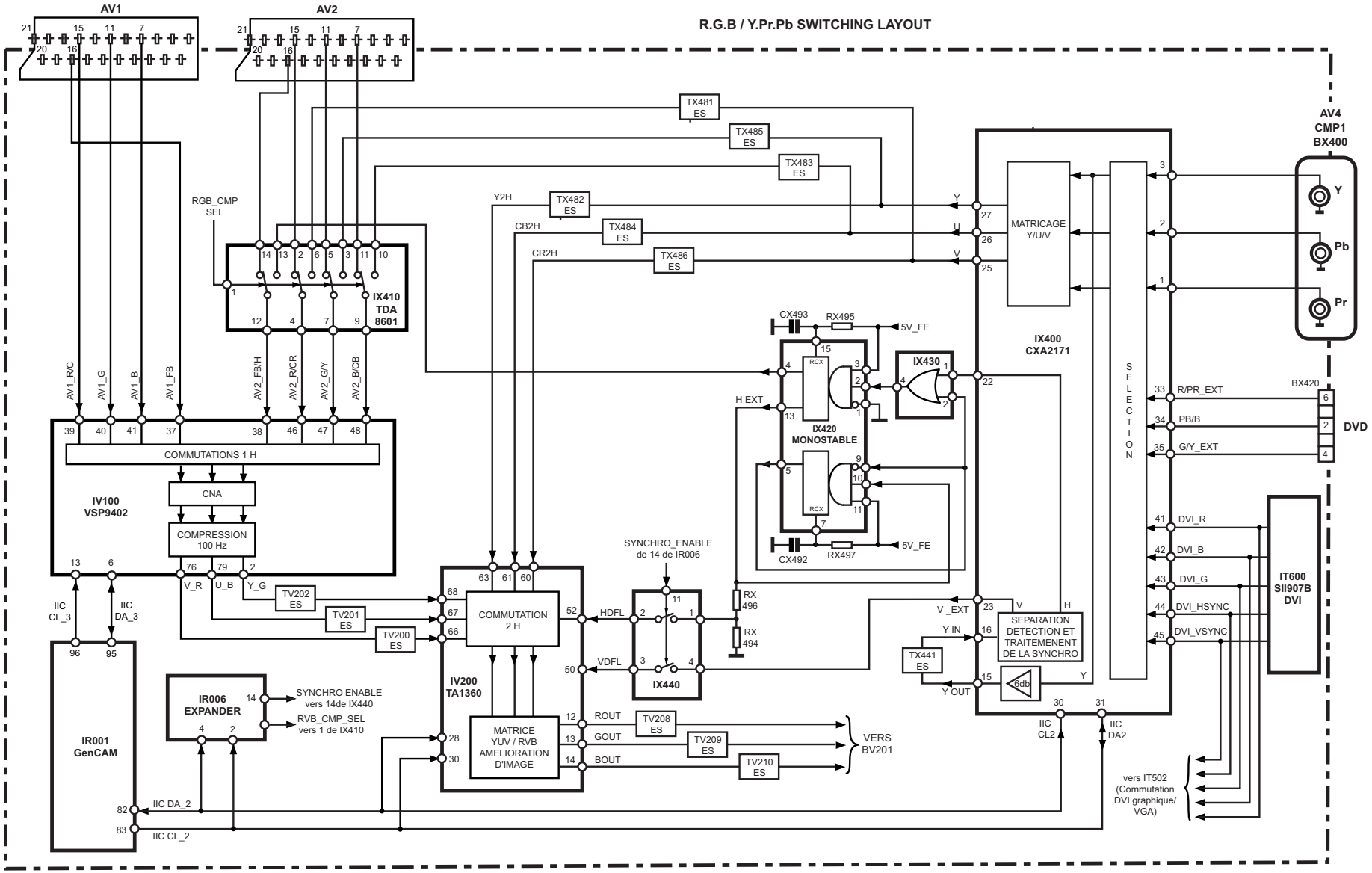

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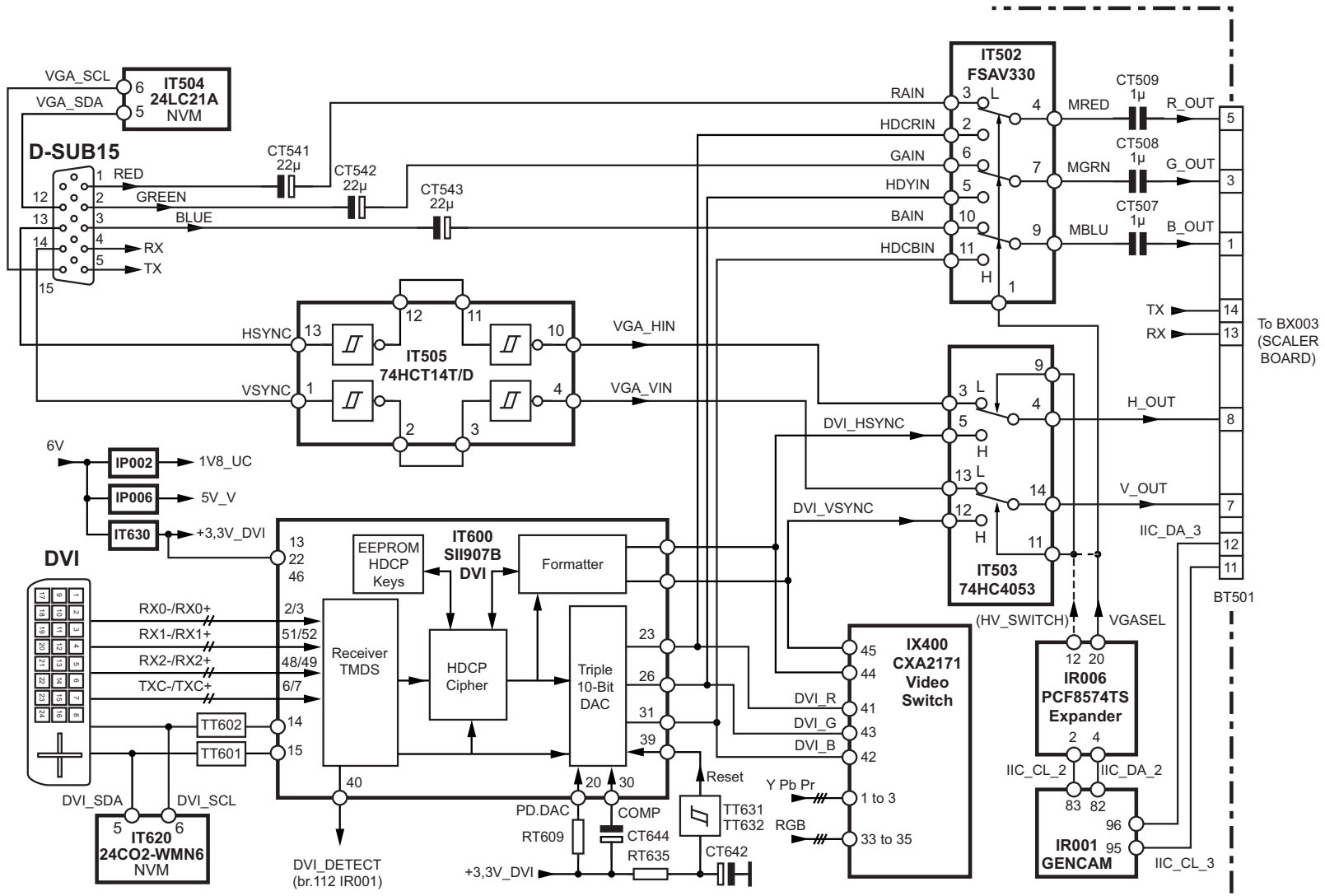
RGB AND Y/Pr/Pb SWITCHING

The R.G.B signals from peritel socket AV1 are applied directly to pins 39, 40, and 41 of circuit IV100. These signals are associated with the fast switching signal on pin 37.
The R.G.B signals from peritel socket AV2 are switched by IX410 with the component signals coming from socket CMP1, which have been matrixed by IX400 into Y/U/V 1H. With no AV2 fast switching signal, signals Y/U/V 1H are the ones that are switched. The signals resulting from this switching are applied to pins 46.47 and 48 of IV100.
The fast switching signal will also be switched by IX410. For socket AV2 the FB signal traditionally comes from pin16; for the signals for the Y/U/V 1H components, this signal will be obtained by synchro line 1H separated from signal Y in circuit IX400 via 1H/2H detection circuit IX430 and monostable IX420.
When the Y/U/V component signals are at the 2H frequency, circuit IX410 doesn't perform the switching but circuit IV200 does. At the output from circuit IX400, signals Y/U/V 2H are applied on pins 60, 61 and 63 of IV200.
The switching will be performed by the HDFL signal obtained by acknowledging synchro line 2H via circuit IX430 and monostable IX420.
IV200 will perform the switching between the Y/U/V 2H signals coming from circuit IX400 and the Y/Cr/Cb 2H signals coming from circuit IV100. The resulting signal will be directed to the R.G.B matrixing circuit then on to the Scaler module.

NOTES



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VGA AND DVI SWITCHING

The DVI standard uses TMDS coding (Transition Minimized Differential Signaling). First, eight bits of video data are converted to a 10 bit word so as to reduce transitions; then these are serialised and transmitted in the form of differential signals. The role of the receiver is therefore to convert this serial data back to an 8-bit word. Consequently, a digital RGB transmission requires 3 TMDS signals (RX0-/RX0+, RX1-/RX1+, RX2-/RX2+) accompanied by a clock tick (TXC-/TXC+), all of this combining to form a TMDS link.
The decoding function is provided by circuit IT600, which receives a 3.3V supply and is reinitialised by time constant RT635/CT642. EEPROM IT620 contains the display identification data (EDID).
Depending on its origin, the RGB signal available at the output of this circuit is then directed

- to IX400 for video switching with component or RGB DVD sources
- to IT502 for switching of graphic sources with VGA input

The VGA source transits via the main board to be digitised in the Genesis circuit on the Scaler board.
Its synchronisation signals are shaped by the double trigger IT500 then switched with the DVI graphic source (IT503).
EEPROM IT504 contains the display identification data (EDID).

The sub15 D-socket can be used via lines Tx, Rx for updating the software in the Scaler module.

NOTES

VIDEO SIGNAL PROCESSING

CONTENTS

TUNER / FI FE 6231A AND FE 6230A MODULE . . . . . .Page 43

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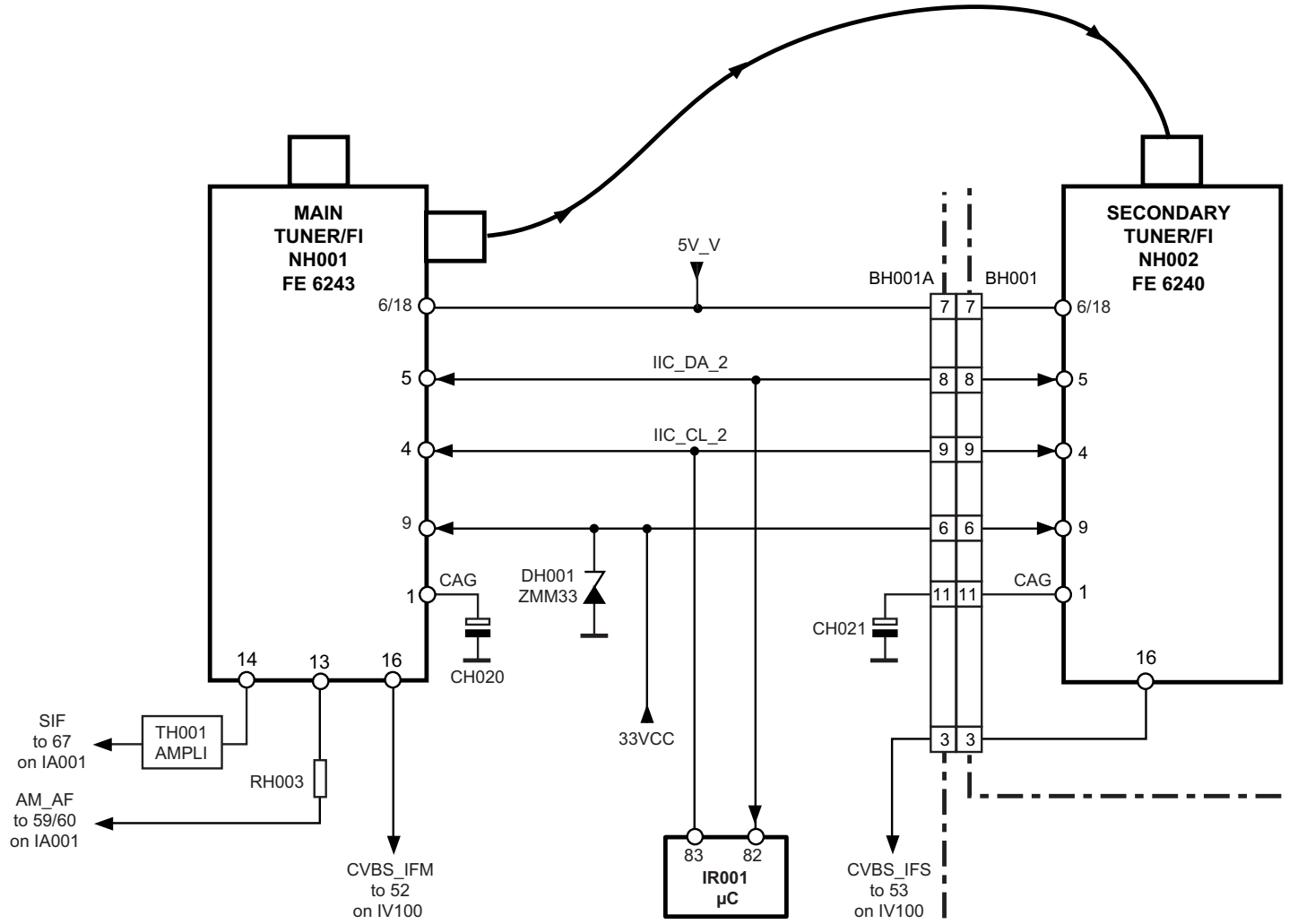

MAIN
TUNER/FI
NH001
FE 6243
SECONDARY
TUNER/FI
NH002
FE 6240
5V_V
BH001A
BH001
6/18
IIC_DA_2
IIC_CL_2
CAG
DH001
ZMM33
CH021
CH020
14
13
16
SIF
to 67
on IA001
TH001
AMPLI
RH003
AM_AF
to 59/60
on IA001
33VCC
CVBS_IFM
to 52
on IV100
83
82
IR001
µC
CVBS_IFS
to 53
on IV100

TUNER / FI FE 6243 AND FE 6240 MODULE

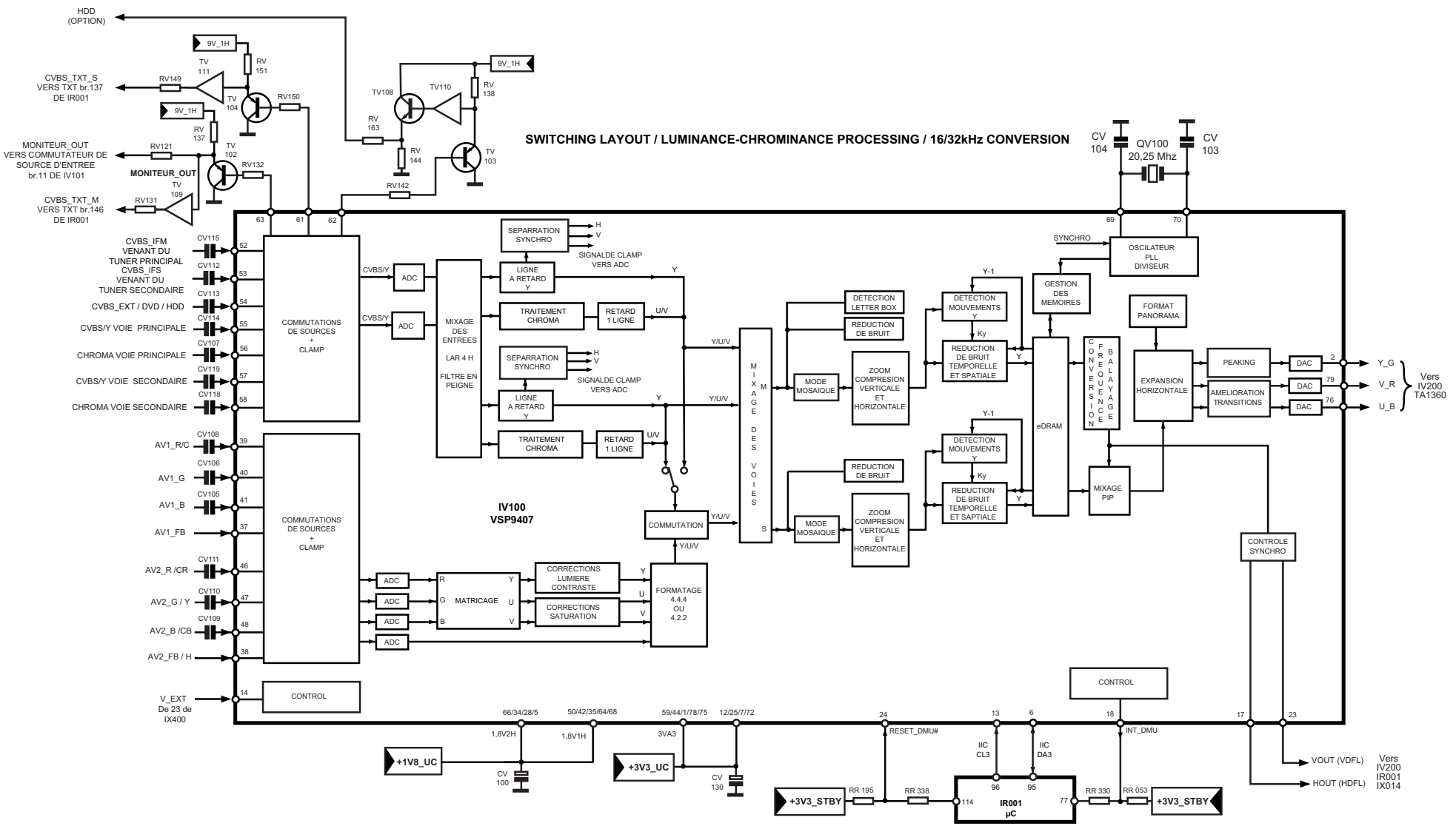
The ITC222 chassis comprises two tuners, the first for the main channel NH001 (FE6243) and the second for the secondary channel NH002 (FE6240).

For the main channel, the TUNER / FI FE 6243 module has frequency synthesis functionality. It is controlled by master microcontroller IR001 via bus IIC(2) for switching between standards and for managing channels.
The TUNER / FI module also demodulates the image (pin 16) and AM sound (pin 13). It outputs the FM subcarriers and NICAM (pin 14).
The HF AGC and various trapdoors are integrated into this module.

For the secondary channel, the TUNER/FI FE6240 module also has frequency synthesis. It is controlled by the same bus IIC(2) from IR001 as the tuner on the main channel, enabling both tuners to be adjusted at the same time for switching between standards and managing channels. The
TUNER / FI module also demodulates the image (pin 16) but does not supply audio signals.

The two tuners are supplied from the 5V_V voltage on pins 6 and 18 and receive the 33VCC varicap voltage from the Frosin power supply, stabilised by zener DH001 on pin 9.

NOTES



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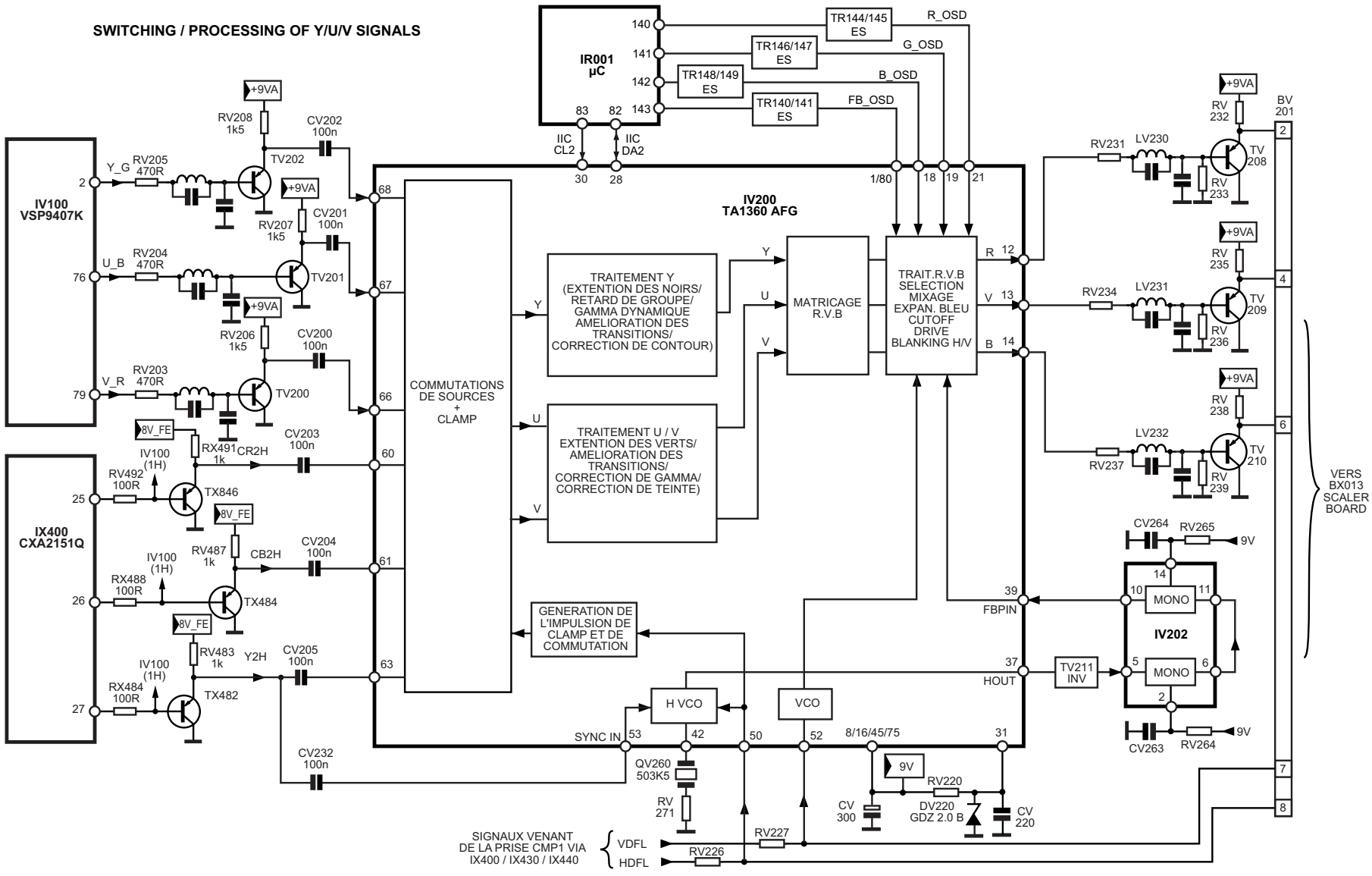
2H CONVERSION, OPTIMUS CIRCUIT

Numerical processing is performed by the OPTIMUS IV100 circuit.
This circuit incorporates all necessary functions for a 2H TV:

- selection of input: main or secondary video, peritel
- output of composite video signal from the main and secondary channel for TXT
- output of composite video signal for recording to hard disk
- analogue/digital conversion of main or secondary video or peritel in
- decoding of different standards: PAL, SECAM, NTSC
- selection of RGB inputs
- analogue/digital conversion of RGB then matrixing to Y/U/V
- mixing of different Y/U/V channels to main and secondary channel
- transition enhancement
- noise reduction
- detection of letter box format
- 1H to 2H conversion
- scan frequency conversion
- PIP / PAP / PAT mixing
- synchro extraction
- digital/analogue conversion

NOTES

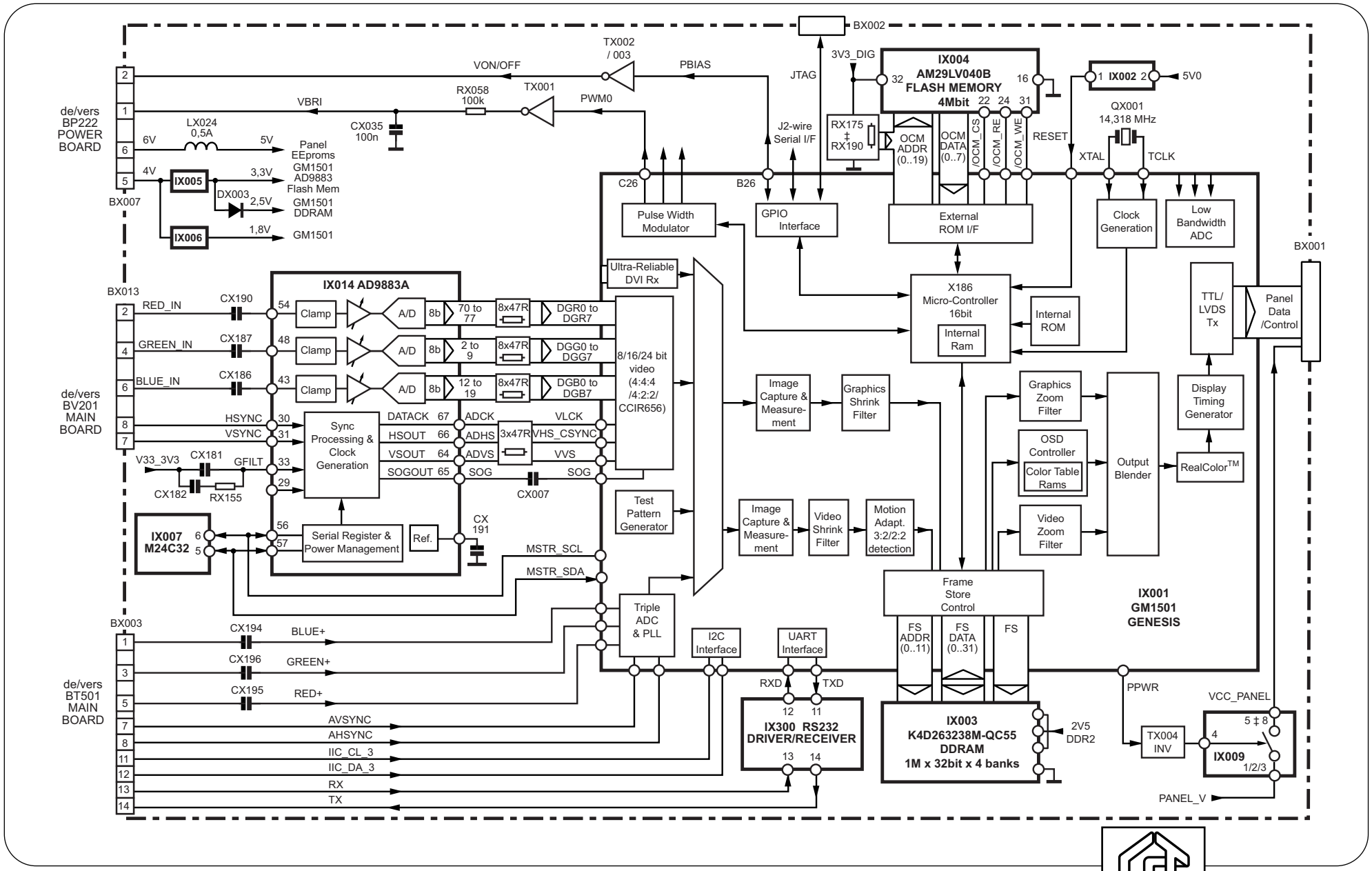
SWITCHING / PROCESSING OF Y/U/V SIGNALS



VIDEO PROCESSING

Processing of the Y/U/V signal is performed by circuit IV200, TA 1360.
This receives signals Y UC, U UC, and V UC from circuit IV100 on pins 68, 67, and 66 respectively.
It switches these signals with those coming from socket CMP1 (Y/Pr/Pb components) via IX400. Then it processes the Y signals on one hand and U/V on the other before matrixing them into RGB. These signals become available on pins 12, 13 and 14 and are directed to the scaler module in order to adapt the signal to the native screen resolution.

NOTES



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THE SCALER MODULE

The main purpose of the Scaler module is to adapt the selected signal to the native resolution of the LCD panel. To do so, the video or graphic signals are digitised then resampled by the Genesis circuit (IX001) to achieve the requested format (zoom, Cinerama, etc).

The video signal from the Main Board in RGB analogue format is first of all digitised by converter AD IX014 (AD9883A). The 110MHz pixel clock is generated by an internal PLL synchronised to the HSYNC data. The format obtained from the output of this circuit corresponds to a digital RGB signal coded over 24 bits.
This data is then sent to the selection circuit at the input to IX001, where it is switched with the graphic DVI or VGA sources from the Main Board and digitised by a triple converter built into IX001 (the direct DVI input is not used on this product).

The Genesis circuit (IX001) incorporates a 16-bit microcontroller which uses the software stored in the IX004 flash memory, whose capacity is 4Mbits. Four lines of the memory's address bus are used at start-up for configuring the resolution of the screen used (RX175 to 190). This circuit is linked with the Main Board control via bus I2C3 (BX003) and with the Sub15 D-socket (VGA) via the UART bus (software updating).

Processing involves oversampling or undersampling the incoming signal, depending on the desired format and resolution at the output. The Genesis circuit uses the 128Mbit DDR SDRAM (Double Data Rate Synchronous RAM) IX003 for this purpose.
After chromatic readjustment, the signal is available via an 2-channel LVDS (Low Voltage Differential Signal) emitter built into IX001 on the BX001 connector, where it is joined by VCC_PANEL for controlling the LCD panel.
An OSD generator included in this circuit can embed test patterns in service mode.

The VON/OFF and VBRI commands present on connector BX007 are intended for controlling backlighting.

The power supply for this board comes from the 4 Volt line via two regulators IX005 and IX006:

Voltages	Max power drawn.
3.3Volts	524mA
2.5Volts	360mA
1.8Volts	545mA

NOTES

AUDIO PROCESSING

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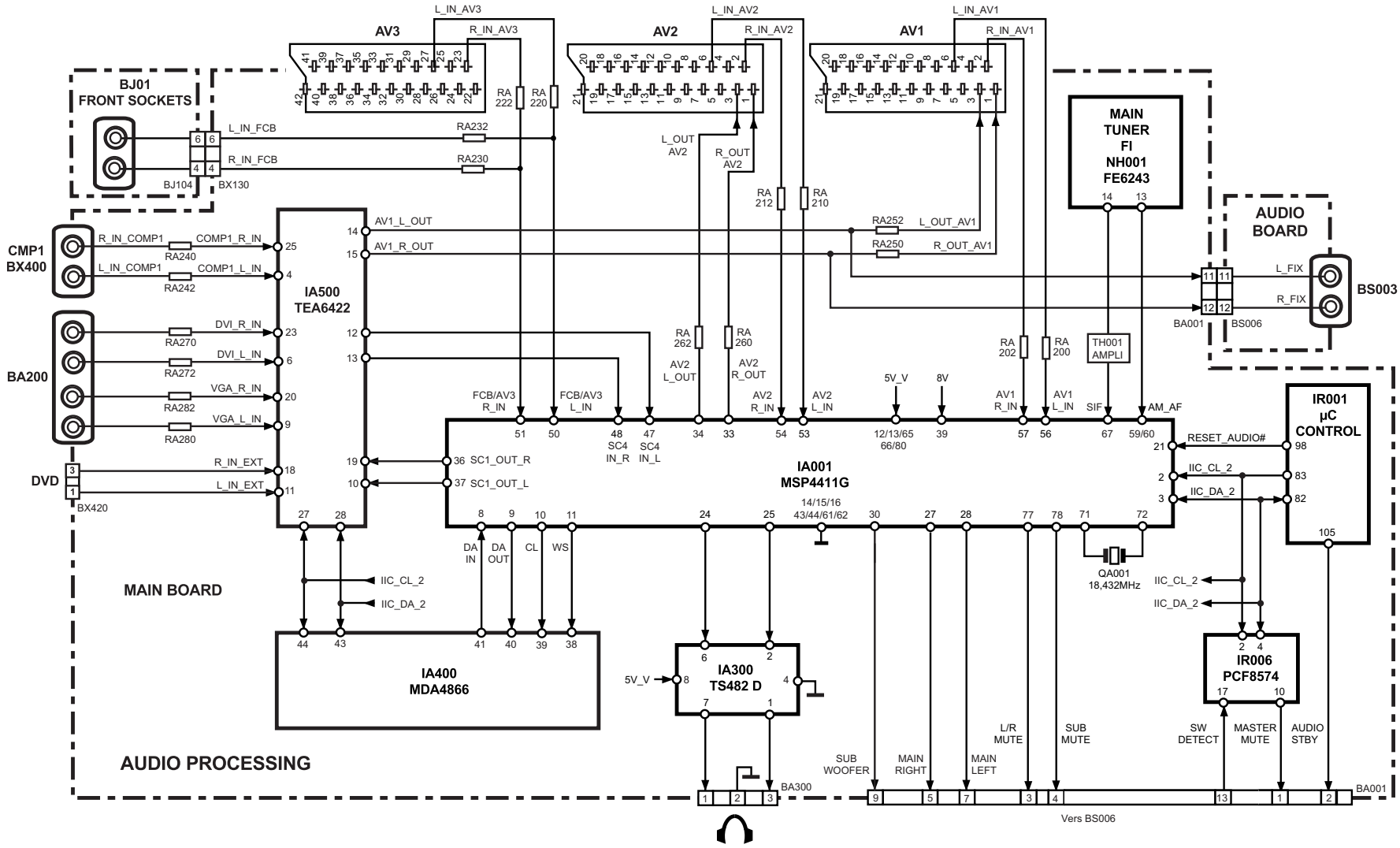
BASS POWER AMPLIFICATION . . . . . .Page 57



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AUDIO PROCESSING

Circuit IA001, MSP3411G lies at the core of this processing. It is driven by a 18.432MHz clock and is controlled via bus I2C2 by control circuit IR001. The latter is also responsible for reset pin 21 on IA001.

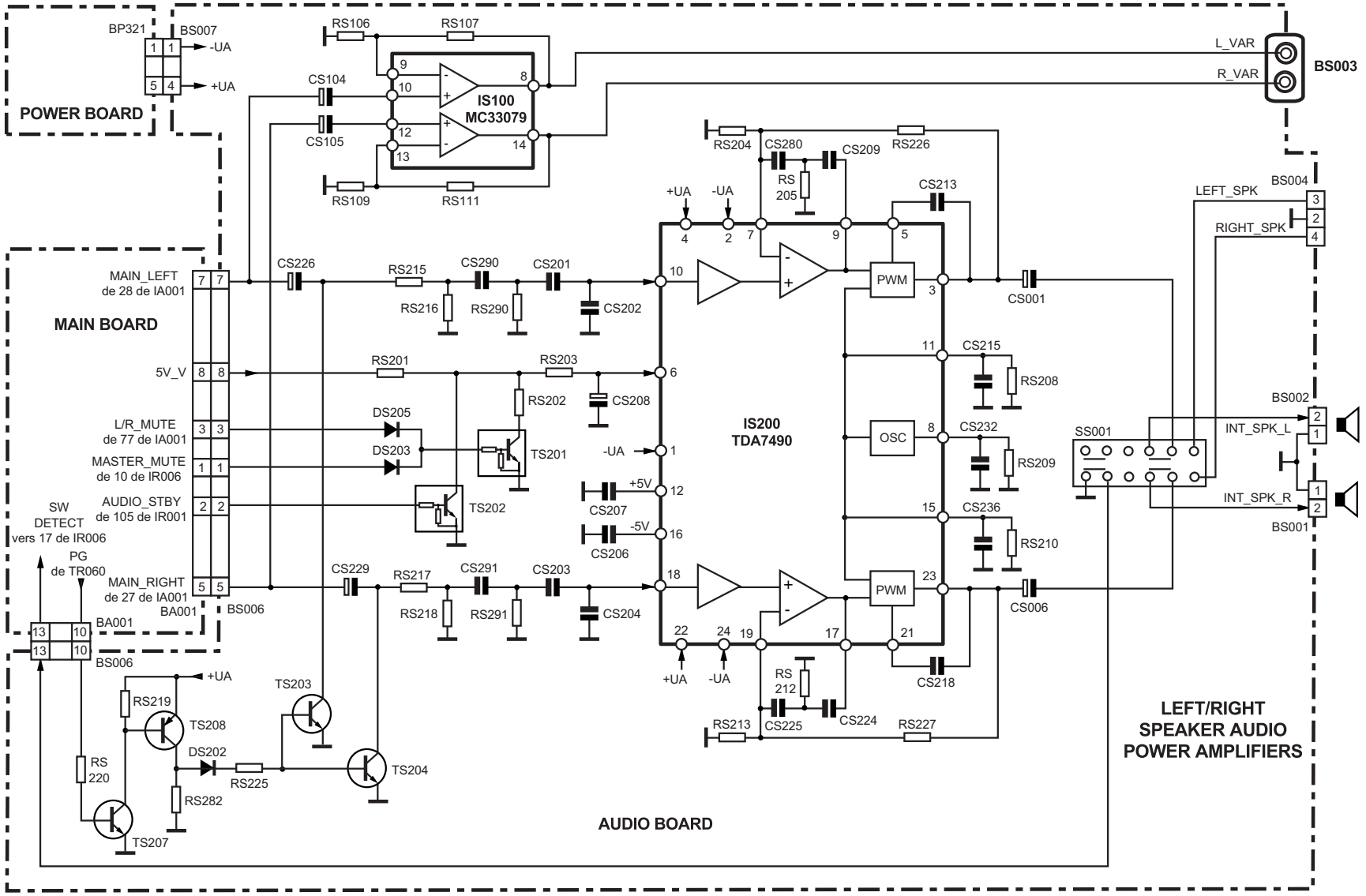
This circuit
- demodulates the FM audio intercarriers
- demodulates NICAM audio
- switches the various analogue audio sources for the peritel outputs
- performs ADC on the various audio sources
- corrects these digital audio signals (tone, pseudo-stereo, spatial stereo, volume, Dolby virtual, etc.)
- performs DACE

Switching circuit IA500 (TEA6422) is required for preselecting the component, DVI, VGA or DVD sources. This circuit is controlled by the microcontroller via bus I2C2 and directs the chosen source to inputs 47 and 48 on IA001 for sound output. IA500 also supplies audio outputs from the AV1 socket and RCA (fixed level) sockets. To do so it receives a selection signal from IA500 (pins 10 and 19) whose origin could be HF, AV2, or AV3.

Complex digital processing causes the video to lag behind the sound. To compensate for this, version K of circuit MSP4411 comprises a programmable delay circuit with a maximum delay of 20msec per channel (for 2 loudspeaker channels and 2 headphone channels). The inclusion of circuit IA400 (MDA4866) in the processing adds a maximum time lag of 600msec.

For the headphone channel, outputs are available on pins 24 and 25 of circuit IA001. IA003 performs amplification for this channel.
The loudspeaker channel signals are present on outputs 27 and 28 of IA001, accompanied by the sub-woofer signal from pin 30. They are sent to connector BA001 to be amplified by the power module.

NOTES


POWER BOARD
BP321
BS007
-UA
+UA
RS106
RS107
CS104
CS105
IS100
MC33079
RS109
RS111
L_VAR
R_VAR
BS003
RS204
CS280
CS209
RS226
RS 205
CS213
+UA
-UA
LEFT_SPK
BS004
RIGHT_SPK
MAIN_LEFT
de 28 de IA001
MAIN BOARD
CS226
RS215
CS290
CS201
RS216
RS290
CS202
PWM
CS001
5V_V
RS201
RS203
RS202
CS208
CS215
RS208
DS205
DS203
L/R_MUTE
de 77 de IA001
MASTER_MUTE
de 10 de IR006
TS201
IS200
TDA7490
OSC
CS232
RS209
BS002
INT_SPK_L
SS001
AUDIO_STBY
de 105 de IR001
SW
DETECT
vers 17 de IR006
TS202
-UA
+5V
CS207
-5V
CS206
CS236
RS210
INT_SPK_R
BS001
PG
de TR060
MAIN_RIGHT
de 27 de IA001
BA001
BS006
CS229
RS217
CS291
CS203
RS218
RS291
CS204
CS006
BA001
BS006
+UA
RS219
TS208
TS203
DS202
RS225
TS204
RS
220
RS282
TS207
RS
212
CS225
CS224
RS213
RS227
CS218
LEFT/RIGHT
SPEAKER AUDIO
POWER AMPLIFIERS
AUDIO BOARD

L/R POWER AMPLIFICATION

Power amplification takes place in circuit IS200 (TDA 7490). This is a D-class stereo amplifier that enables some 2 x 15 Watts of power (THD=1%) to be achieved with the minimum dissipation commensurate with the narrowness of the listening space.
The +/_ 14Volt power supply obtained from the resonant power supply is applied to pins 2 and 4 on IS200.

The left and right signals generated by the Main Board are applied to the pin 10 and 16 inputs. In the event of a mains power cut, the Power Good (PG) signal saturates transistors TS207/208 and TS203/204, thereby short-circuiting the inputs to ground to avoid rattling the loudspeaker cones.

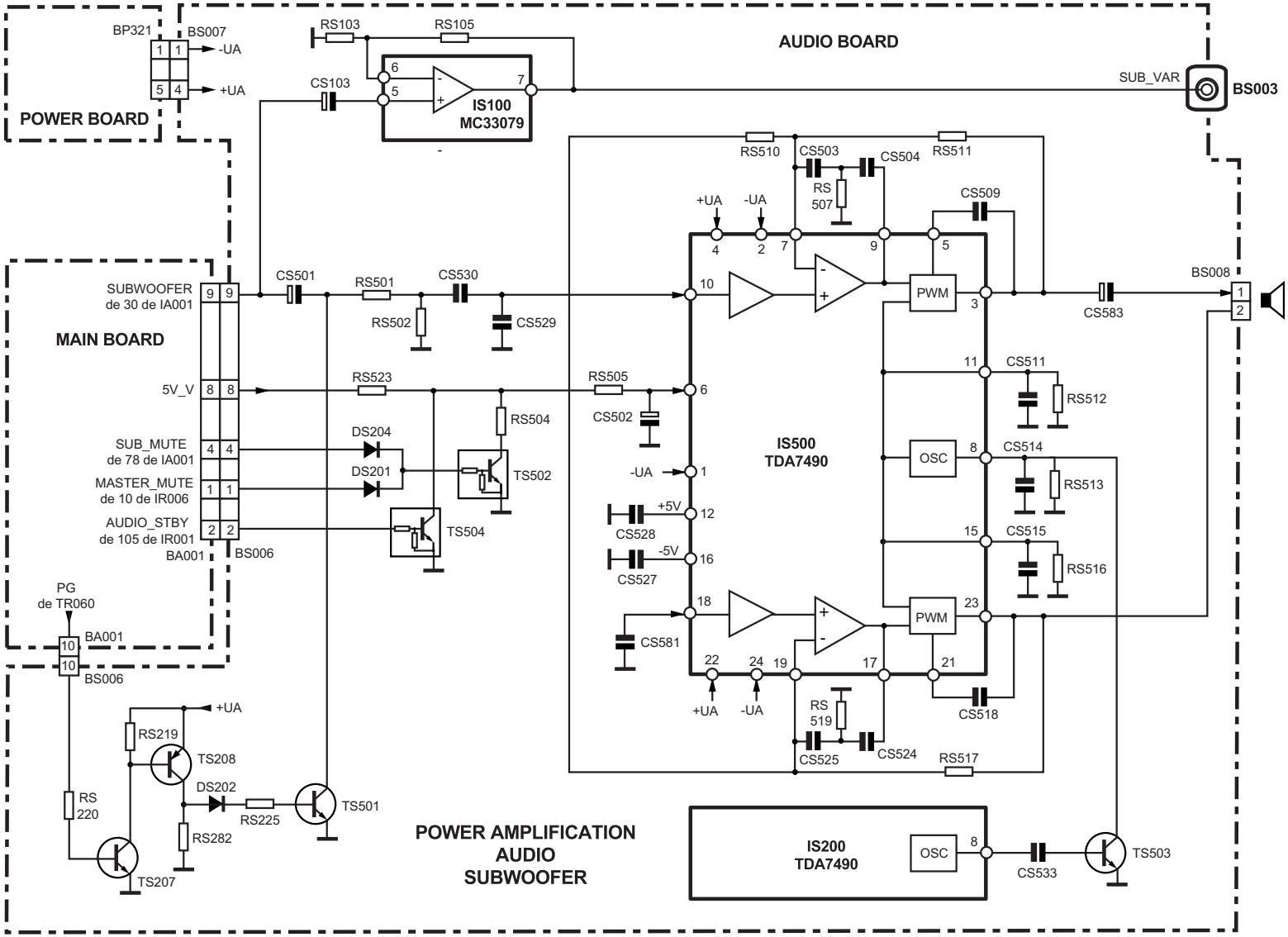
Because of its threshold, the voltage on pin 6 provides control over the circuit's standby, mute, and ON modes
- through TS202, the audio_stby command sets the voltage to less than 0.7V for standby mode
- through TS201 and diodes DS203/DS205, the L/R_MUTE and MASTER_MUTE lines generate a voltage of between 1.7V and 2.5V for mute mode
- by blocking transistors TS201 and TS202, the 5V_V line brings this pin to a potential of between 4V and 5V for ON mode.

For each channel, a 2.5 gain preamplifier precedes an integrator stage whose external circuit is connected across pins 9/7 and 19/17. The signal obtained is then applied to the pulse width modulator (PMW) stage, synchronised to the master oscillator. The frequency of the latter is linked to components CS232 and RS209 (pin 8) for a typical value of 200kHz. We can observe the triangular signals on pins 11 and 15.
Items CS213 and CS218 are bootstrap condensers for the final stages, whereas the counter-reaction circuit is comprised of resistances RS226/RS204 and RS227/RS213.
Condensers CS001 and CS006 integrate the signals for application to the loudspeakers.

Switch SS001 enables changeover between built-in and external loudspeakers and has a contact that informs the microcontroller via expander IR006, allowing this to limit power to 2 x 5W for the internal left and right channels and to 10W for the internal bass channel.

An IS100 (MC33079) amplifier delivers variable levels to two RCA (BS003) sockets for external amplification that remains under the control of the TV set.

NOTES


AUDIO BOARD
POWER BOARD
MAIN BOARD
BP321
BS007
-UA
+UA
RS103
RS105
CS103
IS100
MC33079
SUB_VAR
BS003
RS510
CS503
CS504
RS511
RS
507
CS509
+UA
-UA
CS501
RS501
CS530
SUBWOOFER
de 30 de IA001
RS502
CS529
BS008
PWM
CS583
RS523
RS505
5V_V
CS502
RS504
DS204
SUB_MUTE
de 78 de IA001
DS201
MASTER_MUTE
de 10 de IR006
TS502
IS500
TDA7490
OSC
CS511
RS512
CS514
RS513
CS515
RS516
AUDIO_STBY
de 105 de IR001
BA001
BS006
TS504
CS528
+5V
-5V
CS527
CS581
CS518
RS
519
CS525
CS524
RS517
PG
de TR060
RS219
TS208
DS202
RS225
TS501
RS
220
RS282
TS207
POWER AMPLIFICATION
AUDIO
SUBWOOFER
IS200
TDA7490
CS533
TS503

BASS POWER AMPLIFICATION

A second TDA7490 (IS500) is used for reproducing bass sounds. Its two channels are used in a bridge configuration (the loudspeaker is connected across the two outputs), thereby doubling the power of this monophonic channel. To do so the inverting input (pin 19) of the second integrator is linked through resistance RS510 to that of the first integrator (pin 7), whereas the input of the second preamplifier is grounded through condenser CS581 (pin 18).

The subwoofer signal generated by the Main Board is applied to input pin 10 on IS500. In the event of a mains power cut, the Power Good (PG) signal saturates transistors TS207/208 and TS501, thereby short-circuiting the input to ground so as to avoid rattling the loudspeaker cones.

Because of its threshold, the voltage on pin 6 provides control over the circuit's standby, mute, and ON modes
- through TS504, the audio_stby command sets the voltage to less than 0.7V for standby mode
- through TS502 and diodes DS204/DS201, the SUBMUTE and MASTER_MUTE lines generate a voltage of between 1.7V and 2.5V for mute mode
- by blocking transistors TS502 and TS504, the 5V_V line brings this pin to a potential of between 4V and 5V for ON mode.

The oscillator in IS500 is synchronised to that of IS200 via transistor TS503 to avoid any beat phenomena.

A third amplifier built into IS100 (MC33079), along with the variable level subwoofer signal, completes the left and right outputs described on the previous page.

NOTES

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TROUBLESHOOTING

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LOW VOLTAGE TROUBLESHOOTING METHODS . . . .Page 60

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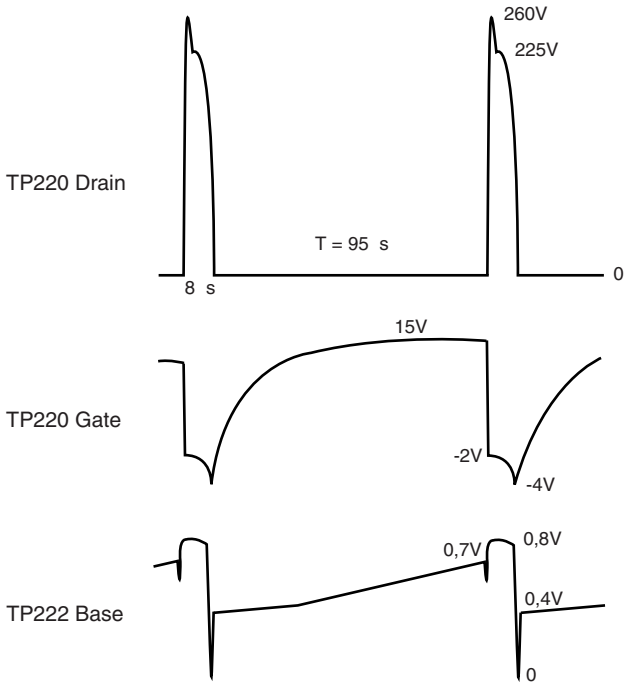
LOW VOLTAGE TROUBLESHOOTING METHODS FOR THE FROSIN AND RESONANT POWER SUPPLIES

FROSIN POWER SUPPLY

- Discharge both condensers CP258 and CP259
- Wire a 10k resistance between the cathode of DP255 and the cathode of DP225
- Wire a 10k resistance between the cathode of DP206 and the ground of the secondary
- Disconnect connectors BP001 and BP002 on the main board
- Disconnect connector BX007 on the scaler board
- Apply 12 volts DC between the cathode of DP255 (+12V) and the ground of the primary
- Set the on/off switch to ON.

SIGNALS:



PERMANENT VOLTAGES:

DP225 cathode: 15.4V (ground of the primary)
DP203 cathode (radiator) (6.5V): 6.38V
DP204 cathode (10.5V): 11.5V
DP205 cathode (20.5V): 21.7V
DP206 cathode (45V): 48V
5VSTBY: 5.3V
3.3VSTBY: 3.5V

SWITCHED VOLTAGES

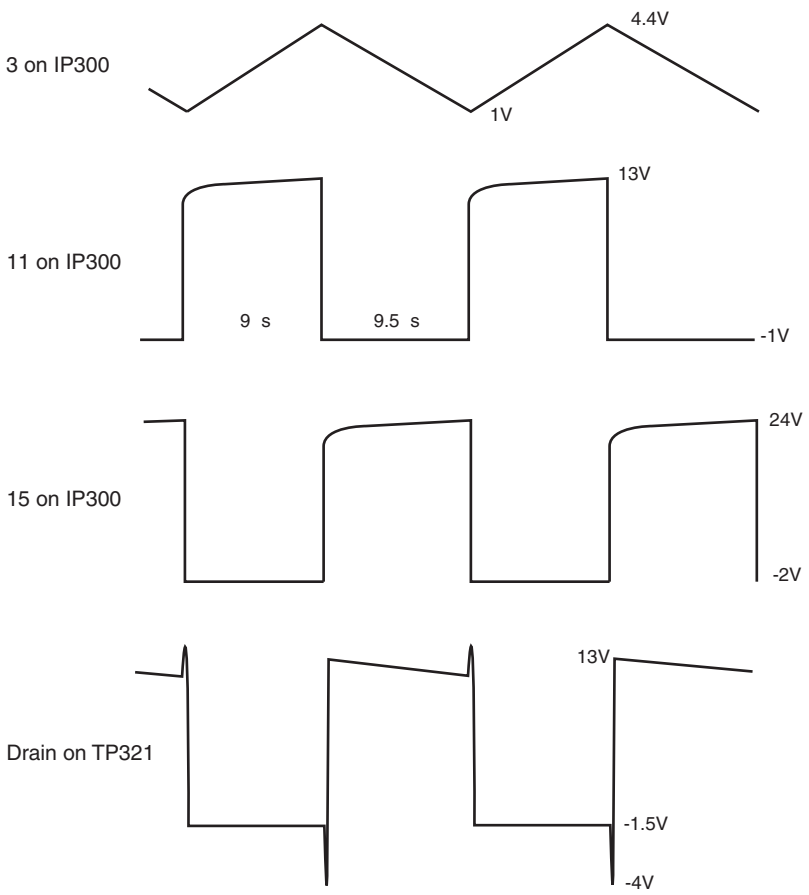
- Put the gate on TP302 to the ground of the primary
- Link the source on TP201 to point PO (RP207, BP220A connector side)

TP205 collector (20V): 19.1V
TP204 source (10V): 11.5V
TP203 source (6V): 6.38V
DP218 cathode (4V): 6V

RESONANT POWER SUPPLY

- Remove the strap from the gate on TP302

SIGNALS:



VOLTAGES:

12 on IP300: 11.6V (ground of the primary)
VSSIN: 1.7V
+UA: 0.8V
-UA: -0.8V

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END-OF-COURSE SURVEY

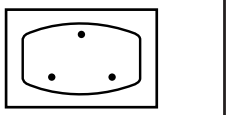
DATE ..... COURSE .....

LAST NAME ..... FIRST NAME ..... POSITION .....

To help develop our information base, we invite you to give your opinions about this course. Please put a circle round each choice.

						COMMENTS
1.	With respect to requirements, you found the course content to be	New	Up to date	Standard	Out of date	
2.	To tackle this course, your knowledge level was	Fine	Good enough	Weak	Inadequate	
3.	Goals have been achieved	Totally	Satisfactorily	Insufficiently	Very poorly	
4.	You consider the help you have derived from this course to be	Effective	Reasonable	Limited	Poor	
5.	The content corresponds to the programme	Exactly	Nearly	Averagely	Hardly	
6.	The content corresponded to your needs	Exactly	Nearly	Averagely	Hardly	
7.	The rhythm was	Fine	Acceptable	Inadequate	Poor	
8.	The teaching aids and materials were	Suitable	Adequate	Inadequate	Unsuitable	
9.	The running of the course was	Suitable	Adequate	Inadequate	Unsuitable	
10.	The reception structure was	Perfect	Pleasant	Poor	Unsuitable	
11.	You chose this course	On your own	With your superiors		Other	
12.	Would you recommend this course to a colleague	Absolutely	Yes	At a pinch	No	
13.	Overall, do you consider this course to be	Very useful	Useful	Of limited use	Useless	
14.	Are you going away with precise plans for improving yourself	Absolutely	Yes	No	Difficult	
15.	What other subjects would you like training on					

Thank you



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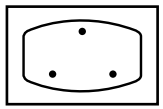

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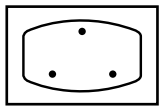

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PRINTING THE SERVICE MANUAL

The PDF of this service manual is not designed to be printed from cover to cover. The pages vary in size, and must therefore be printed in sections based on page dimensions.

NON-SCHEMATIC PAGES

Data that does NOT INCLUDE schematic diagrams are formatted to 8.5 x 11 inches and can be printed on standard letter-size and/or A4-sized paper.

SCHEMATIC DIAGRAMS

The schematic diagram pages are provided in two ways, full size and tiled. The full-sized schematic diagrams are formatted on paper sizes between 8.5" x 11" and 18" x 30" depending upon each individual diagram size. Those diagrams that are LARGER than 11" x 17" in full-size mode have been tiled for your convience and can be printed on standard 11" x 17" (tabloid-size) paper, and reassembled.

TO PRINT FULL SIZE SCHEMATIC DIAGRAMS

If you have access to a large paper plotter or printer capable of outputting the full-sized diagrams, output as follows:

1) Note the page size(s) of the schematics you want to output as indicated in the middle window at the bottom of the viewing screen.

2) Go to the File menu and select Print Set-up. Choose the printer name and driver for your large format printer. Confirm that the printer settings are set to output the indicated page size or larger.

3) Close the Print Set Up screen and return to the File menu. Select "Print..." Input the page number of the schematic(s) you want to print in the print range window. Choose OK.

TO PRINT TILED VERSION OF SCHEMATICS

Schematic pages that are larger than 11" x 17" full-size are provided in a 11" x 17" printable tiled format near the end of the document. These can be printed to tabloid-sized paper and assembled to full-size for easy viewing.

If you have access to a printer capable of outputting the tabloid size (11" x 17") paper, then output the tiled version of the diagram as follows:

1) Note the page number(s) of the schematics you want to output as indicated in the middle window at the bottom of the viewing screen.

2) Go to the File menu and select Print Set-up. Choose the printer name and driver for your printer. Confirm that the plotter settings are set to output 11" x 17", or tabloid size paper in landscape (▭) mode.

3) Close the Print Set Up screen and return to the File menu. Select "Print..." Input the page number of the schematic(s) you want to print in the print range window. Choose OK.

TO PRINT SPECIFIC SECTIONS OF A SCHEMATIC

To print just a particular section of a PDF, rather than a full page, access the Graphics Select tool in the Acrobat Reader tool bar.

1) To view the Graphics Select Tool, press and HOLD the mouse button over the Text Select Tool which looks like:
This tool will expand to reveal to additional tools.
Choose the Graphics Select tool by placing the cursor over the button on of the far right that looks like:

2) After selecting the Graphics Select Tool, place your cursor in the document window and the cursor will change to a plus (+) symbol. Click and drag the cursor over the area you want to print. When you release the mouse button, a marquee (or dotted lined box) will be displayed outlining the area you selected.

3) With the marquee in place, go to the file menu and select the "Print..." option. When the print window appears, choose the option under the section called "Print Range" which says "Selected Graphic".

Select OK and the output will print only the area that you outlined with the marquee.

(continued >)