HBD-E190/E290/E490/E690

SERVICE MANUAL

Ver. 1.0 2012.02

Photo: HBD-E290

- HBD-E190 is the amplifier, video, HDMI, BD/DVD/CD system, USB, LAN and FM tuner section in BDV-E190.
- HBD-E290 is the amplifier, video, HDMI, BD/DVD/CD system, USB, LAN and FM tuner section in BDV-E290.
- HBD-E490 is the amplifier, video, HDMI, BD/DVD/CD system, USB, LAN and FM tuner section in BDV-E490.
- HBD-E690 is the amplifier, video, HDMI, BD/DVD/CD system, USB, LAN and FM tuner section in BDV-E690.

Canadian Model
UK Model
HBD-E190/E490
AEP Model
E Model
HBD-E190/E290/E490/E690
Australian Model
South African Model
HBD-E190/E290
Saudi Arabia Model
HBD-E490/E690
Taiwan Model
PX Model
HBD-E290

Model Name Using Similar Mechanism	BDP-S390
Mechanism Type	BPX-7
Optical Pick-up Block Name	KEM480AAA

SPECIFICATIONS

Amplifier Section

BDV-E690/BDV-E490/BDV-E290

US models:
AUDIO POWER SPECIFICATIONS
POWER OUTPUT AND TOTAL HARMONIC DISTORTION: (FTC)
Front L + Front R: With 3 ohms loads, both channels driven, from 180 Hz - 20 kHz; rated 50 watts per channel minimum RMS power, with no more than 1% total harmonic distortion from 250 milli watts to rated output.

Other models:
POWER OUTPUT (rated)
Front L/Front R: 75 W + 75 W (at 3 ohms, 1 kHz, 1% THD)
POWER OUTPUT (reference)
Front L/Front R/Surround L/Surround R: 125 W (per channel at 3 ohms,1 kHz)
Center: 250 W (at 6 ohms, 1 kHz)
Subwoofer: 250 W (at 6 ohms, 80 Hz)
Inputs (Analog)
AUDIO (AUDIO IN) Sensitivity: 1 V/400 mV
Inputs (Digital)
TV (Audio Return Channel/OPTICAL) Supported formats: LPCM 2CH (up to 48 kHz), Dolby Digital, DTS

BDV-E190

POWER OUTPUT (rated)
Front L/Front R: 40 W + 40 W (at 3 ohms, 1 kHz, 1% THD)
POWER OUTPUT (reference)
Front L/Front R/Surround L/Surround R: 40 W (per channel at 3 ohms, 1 kHz)
Center: 70 W (at 6 ohms, 1 kHz)
Subwoofer: 70 W (at 6 ohms, 80 Hz)
Inputs (Analog)
AUDIO (AUDIO IN) Sensitivity: 2 V/700 mV
Inputs (Digital)
TV (Audio Return Channel/OPTICAL) Supported formats: LPCM 2CH (up to 48 kHz), Dolby Digital, DTS

Video Section

Outputs: VIDEO: 1 Vp-p 75 ohms

HDMI Section

Connector: Type A (19pin)

BD/DVD/Super Audio CD/CD System

Signal format system: NTSC/PAL (except US, CND and PX only)
NTSC (for US, CND and PX only)

USB Section

(USB) port: Type A (For connecting USB memory, memory card reader, digital still camera, and digital video camera)

LAN Section

LAN (100) terminal: 100BASE-TX Terminal

FM Tuner Section

System: PLL quartz-locked digital synthesizer
Tuning range: 87.5 MHz - 108.0 MHz (50 kHz step) (except US, CND and PX only)
(100 kHz step) (for US, CND and PX only)
Antenna (aerial): FM wire antenna (aerial)
Antenna (aerial) terminals: 75 ohms, unbalanced

General

Power requirements: 220 V - 240 V AC, 50/60 Hz (except US, CND and PX only)
120 V AC, 50/60 Hz (for TW only)
120 V AC, 60 Hz (for US and CND only)
110 V - 240 V AC, 50/60 Hz (for PX only)
Power consumption
BDV-E690/BDV-E490/BDV-E290
On: 130 W
Standby: 0.3 W
(at the Power Saving mode)
BDV-E190
On: 95 W
Standby: 0.3 W
(at the Power Saving mode)
Dimensions (approx.): 430 mm × 50 mm × 275 mm (17 in × 2 in × 10 7/8 in) (w/h/d) incl. projecting parts
Mass (approx.): 2.8 kg (6 lb 2 3/4 oz)

Design and specifications are subject to change without notice.

- Standby power consumption 0.3W.
- Over 85% power efficiency of amplifier block is achieved with the full digital amplifier, S-Master.

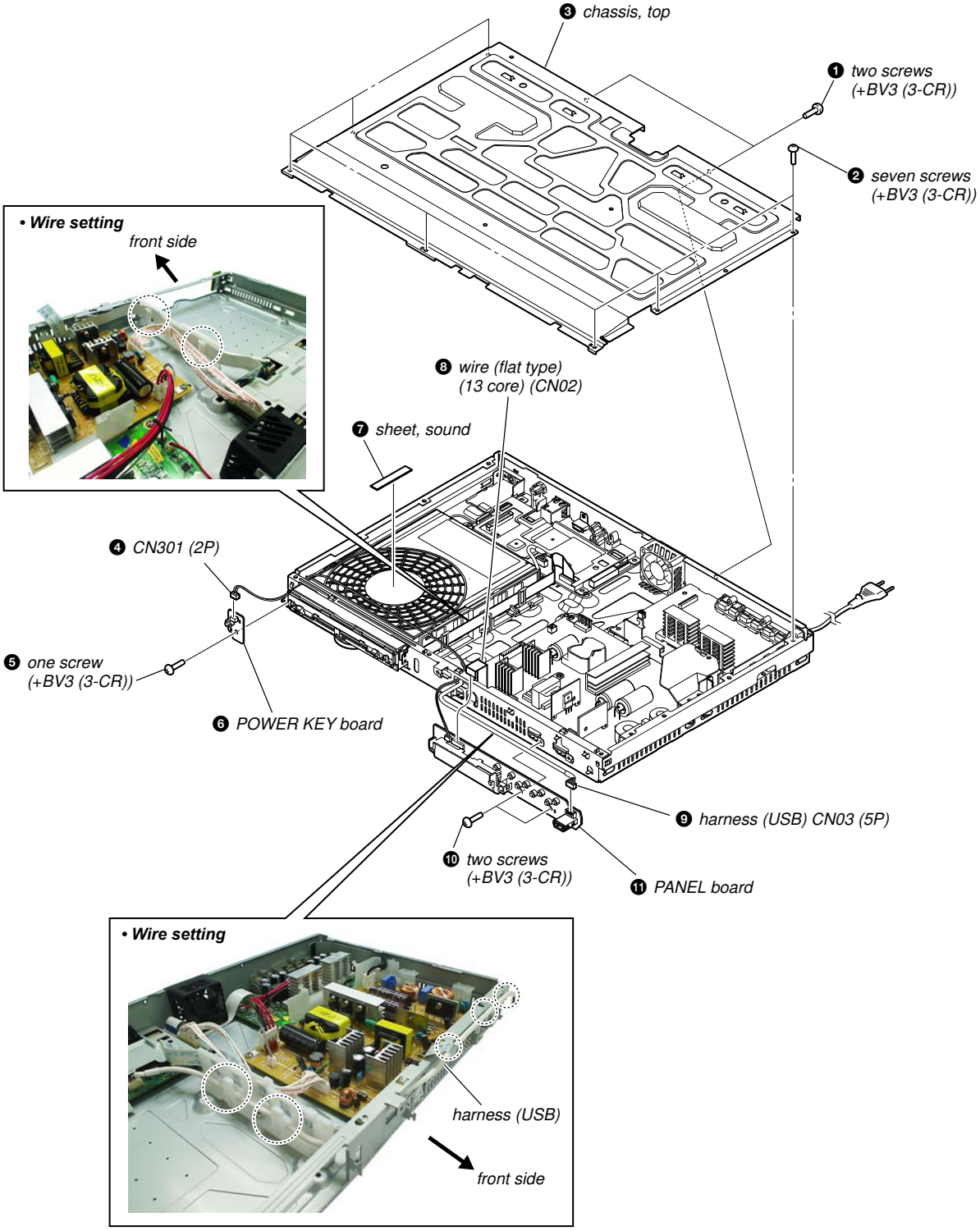
BLU-RAY DISC/DVD RECEIVER

9-890-582-01
2012B80-1

Sony Corporation
Published by Sony EMCS (Malaysia) PG Tec

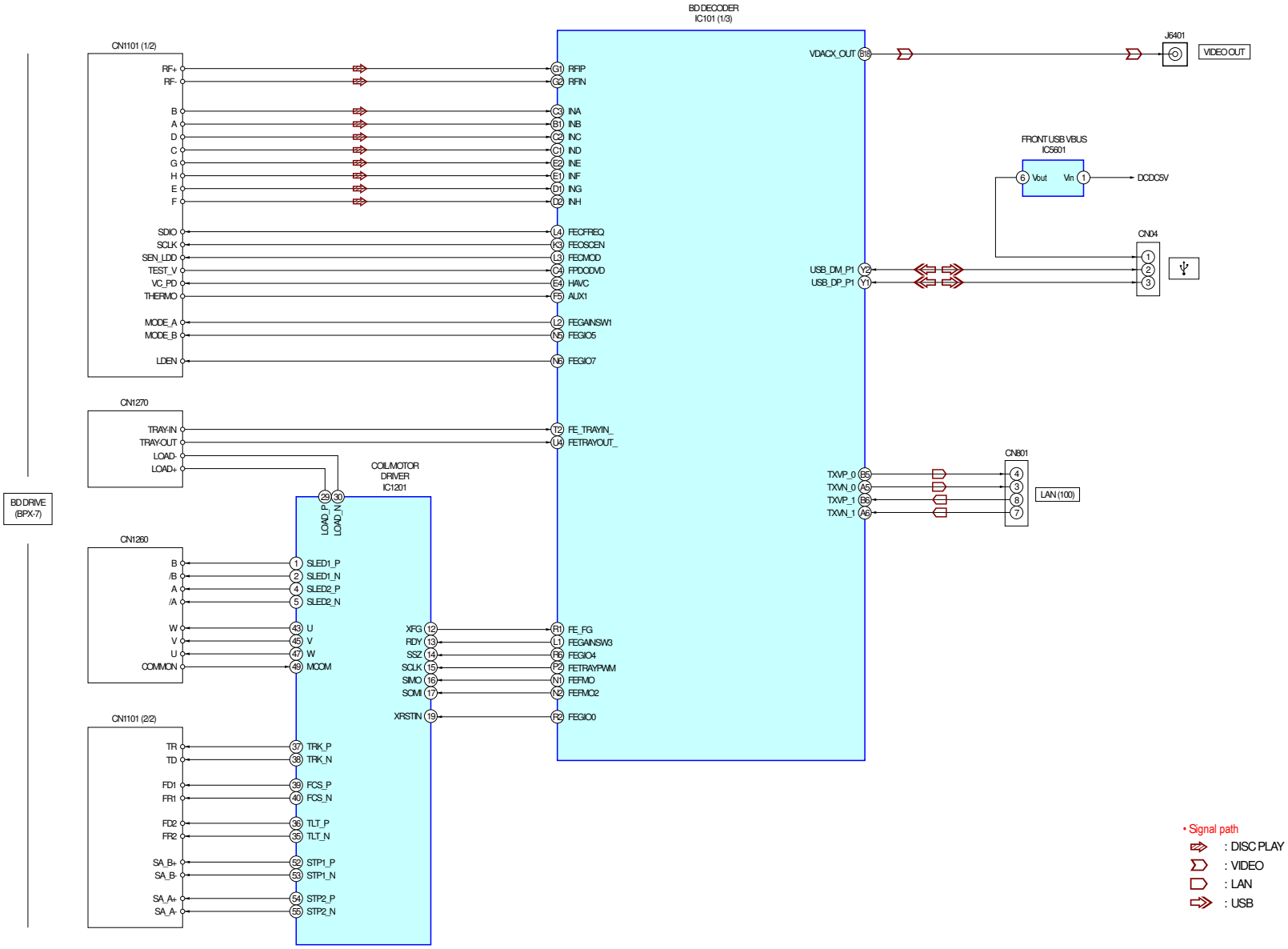
SONY®

2-6. TOP CHASSIS, POWER KEY BOARD, PANEL BOARD

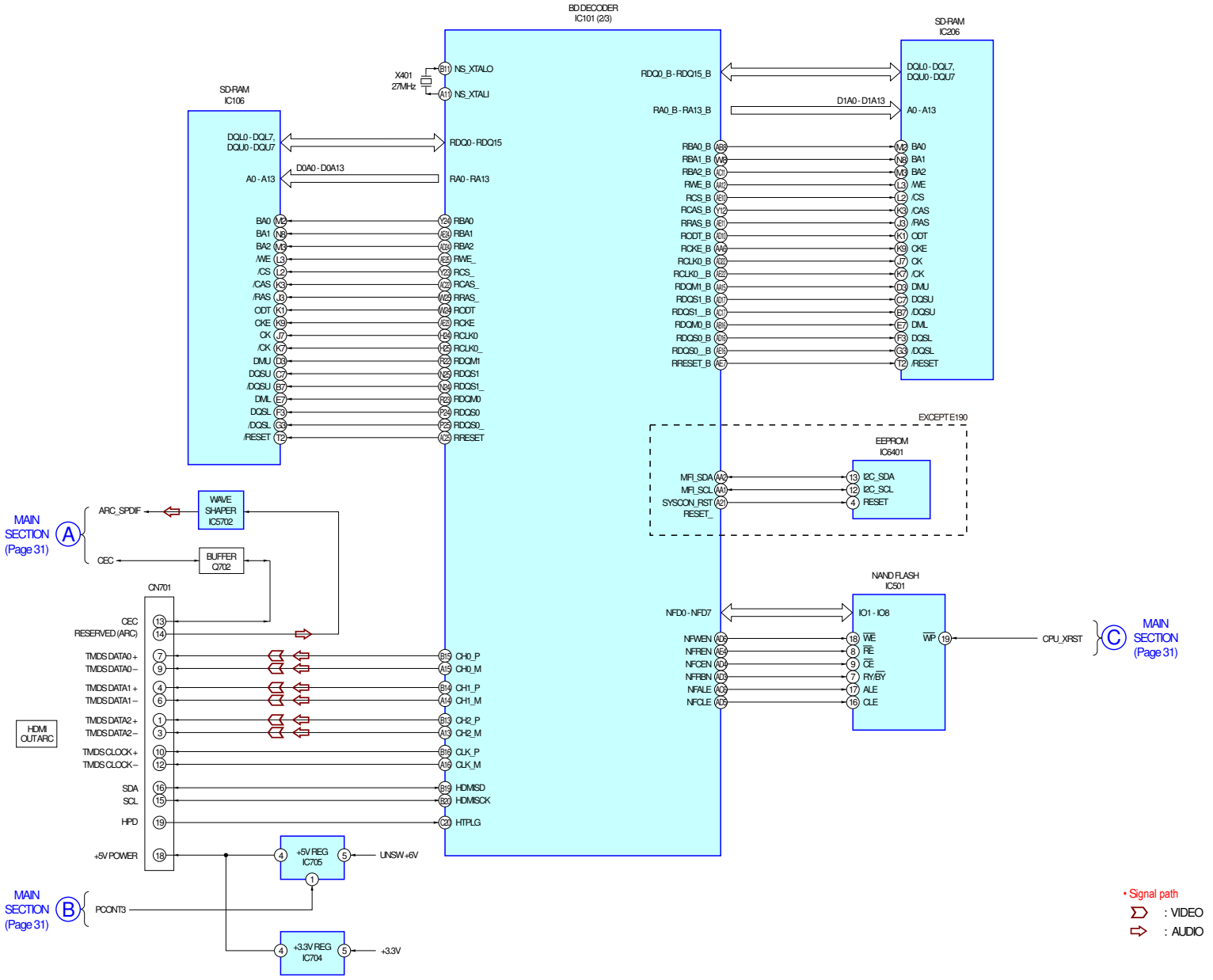


SECTION 5
DIAGRAMS

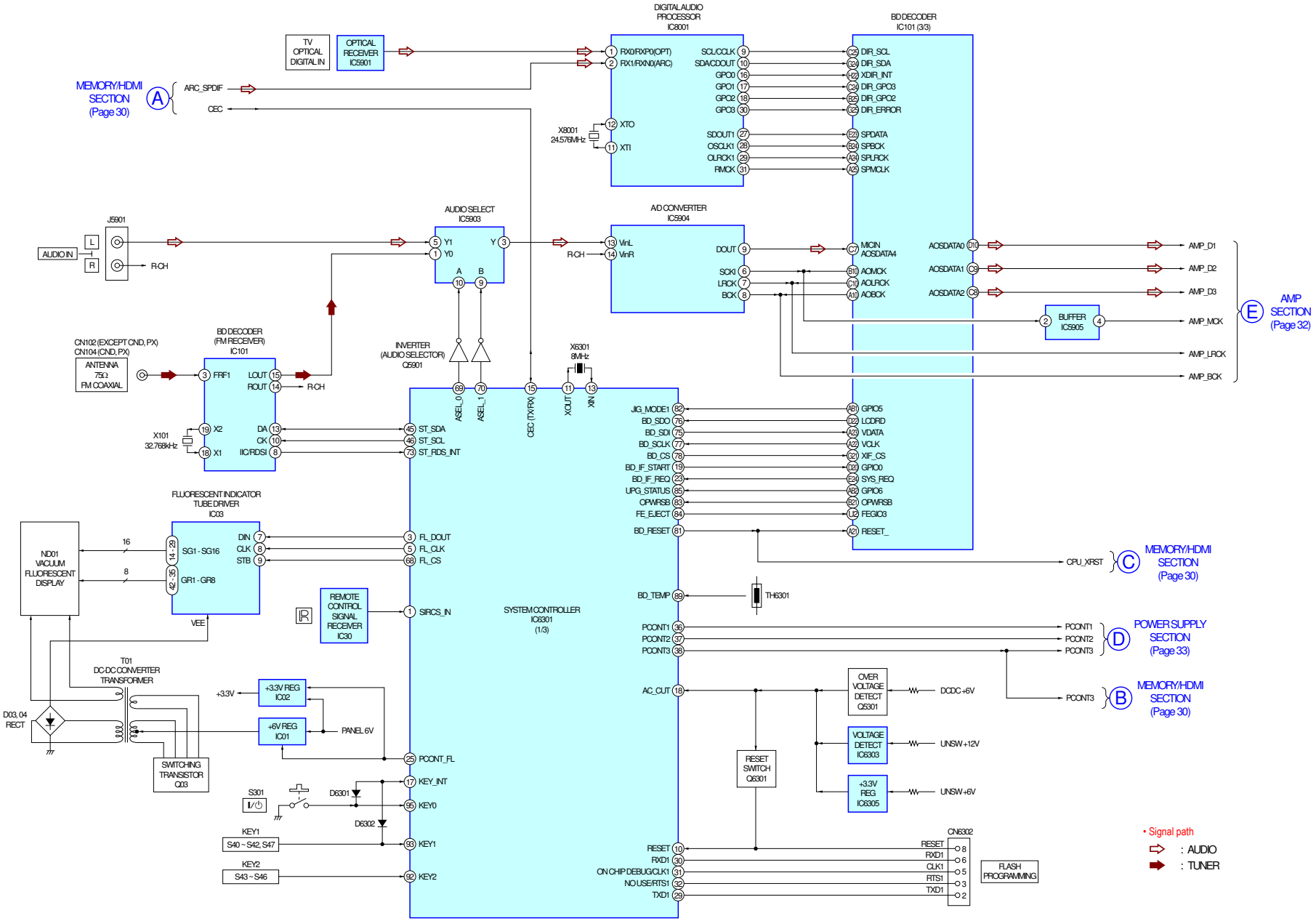
5-1. BLOCK DIAGRAM - SERVO Section -



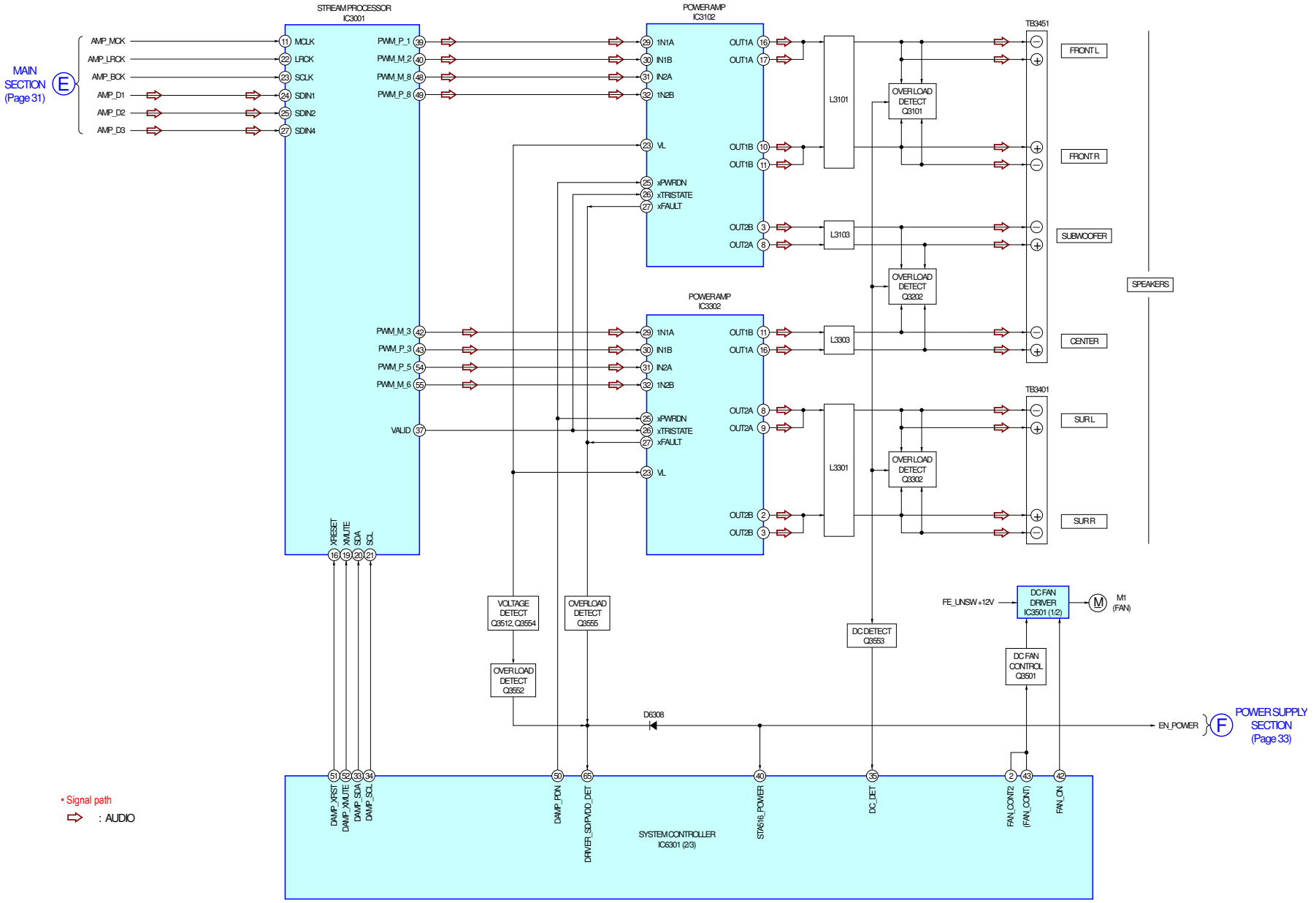
5-2. BLOCK DIAGRAM - MEMORY/HDMI Section -



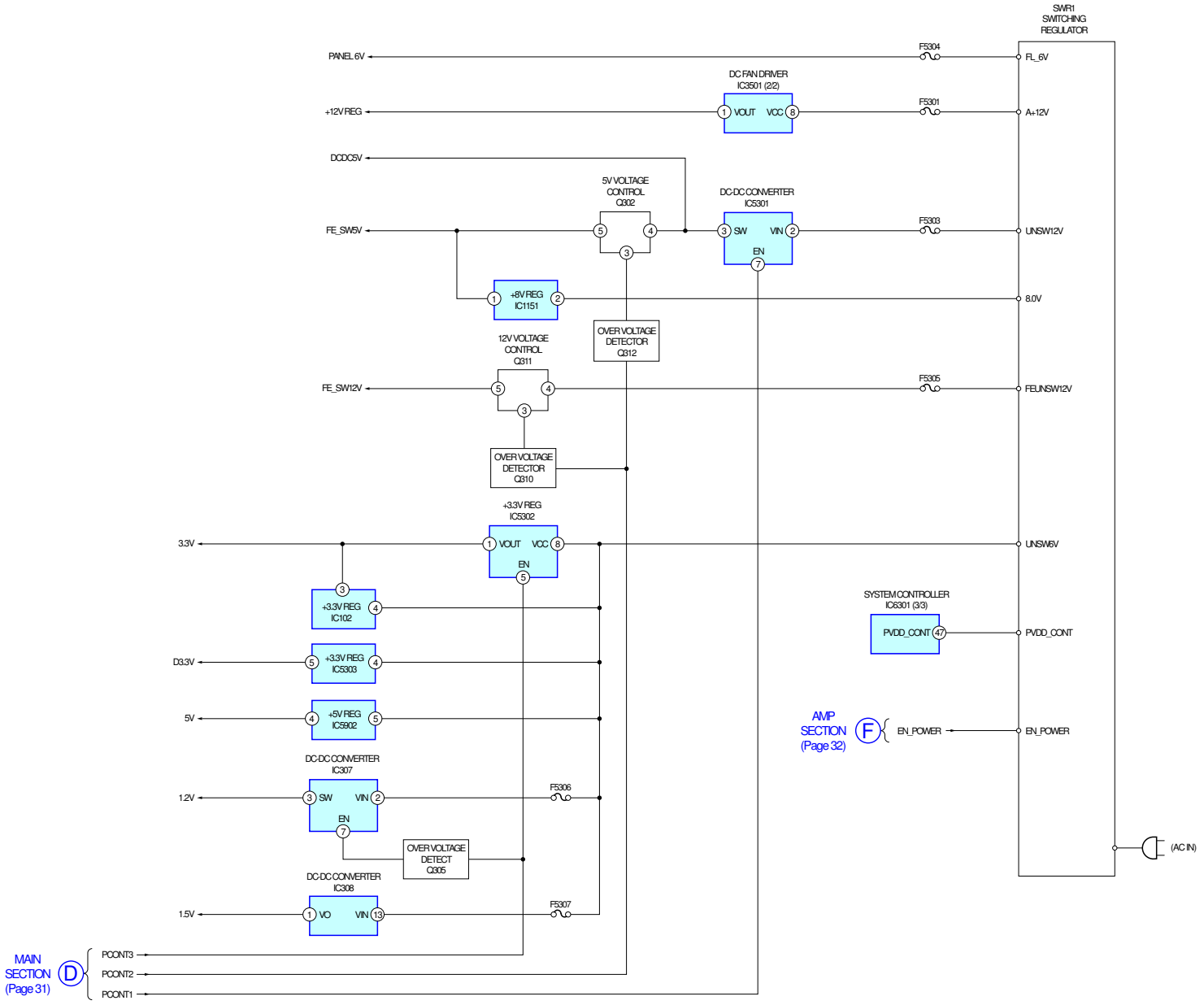
5-3. BLOCK DIAGRAM - MAIN Section -



5-4. BLOCK DIAGRAM - AMP Section -



5-5. BLOCK DIAGRAM - POWER SUPPLY Section -



THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For Printed Wiring Boards.

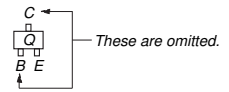
Note:

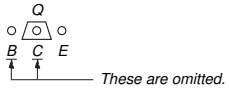
- o——: Parts extracted from the component side.
- ——: Parts extracted from the conductor side.
- △ : Internal component.
- ▬: Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

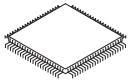
Caution:	
Pattern face side: (SIDE B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (SIDE A)	Parts on the parts face side seen from the parts face are indicated.

- MB148 board is multi-layer printed board. However, the patterns of intermediate-layers have not been included in this diagrams.
- Abbreviation
  AUS : Australian model
  CND : Canadian model
  E3 : 240 V AC area in E model
  E12 : 220-240 V AC area in E model
  E15 : Iran model
  E32 : 110-240 V AC area in E model
  EA : Saudi Arabia model
  MX6 : Latin-American model
  PX : PX model
  SAF : South African model
  SP : Singapore model
  TW : Taiwan model
- Indication of transistor.





- Lead layouts



Lead layout of conventional IC

CSP (Chip Size Package)

* Replacement of IC106 and IC206 on the MB148 board used in this unit requires a special tool.

Note: When the AMP board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC3102 AND IC3302 ON THE AMP BOARD AND THE COMPLETE AMP BOARD" on servicing notes (page 10).

For Schematic Diagrams.

Note:

- All capacitors are in µF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭: panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

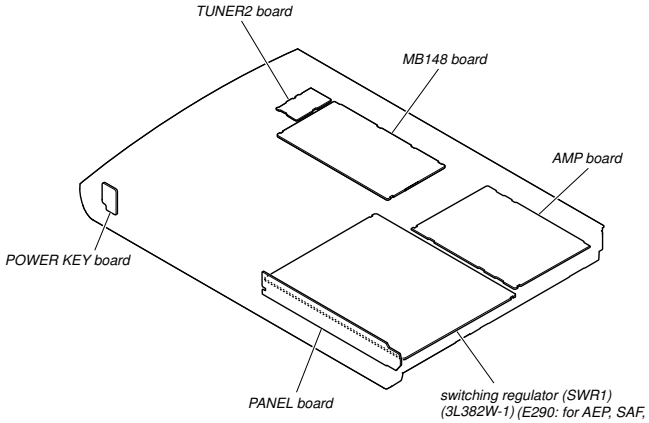
Note: Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- ▬▬: B+ Line.
- ▬ ▬ ▬: B– Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: TUNER
  * : Impossible to measure
- Voltages are taken with VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : AUDIO
  ➡ : TUNER
  ⇨ : USB
  ⇨ : VIDEO
  ⇨ : LAN
  ⇨ : DISC PLAY
- Abbreviation
  AUS : Australian model
  CND : Canadian model
  E3 : 240 V AC area in E model
  E12 : 220-240 V AC area in E model
  E15 : Iran model
  E32 : 110-240 V AC area in E model
  EA : Saudi Arabia model
  MX6 : Latin-American model
  PX : PX model
  SAF : South African model
  SP : Singapore model
  TW : Taiwan model
- The voltage and waveform of CSP (chip size package) cannot be measured, because its lead layout is different from that of conventional IC.

* Replacement of IC106 and IC206 on the MB148 board used in this unit requires a special tool.

Note: When the AMP board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC3102 AND IC3302 ON THE AMP BOARD AND THE COMPLETE AMP BOARD" on servicing notes (page 10).

• Circuit Boards Location



- Abbreviation
  AUS : Australian model
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  E3 : 240 V AC area in E model
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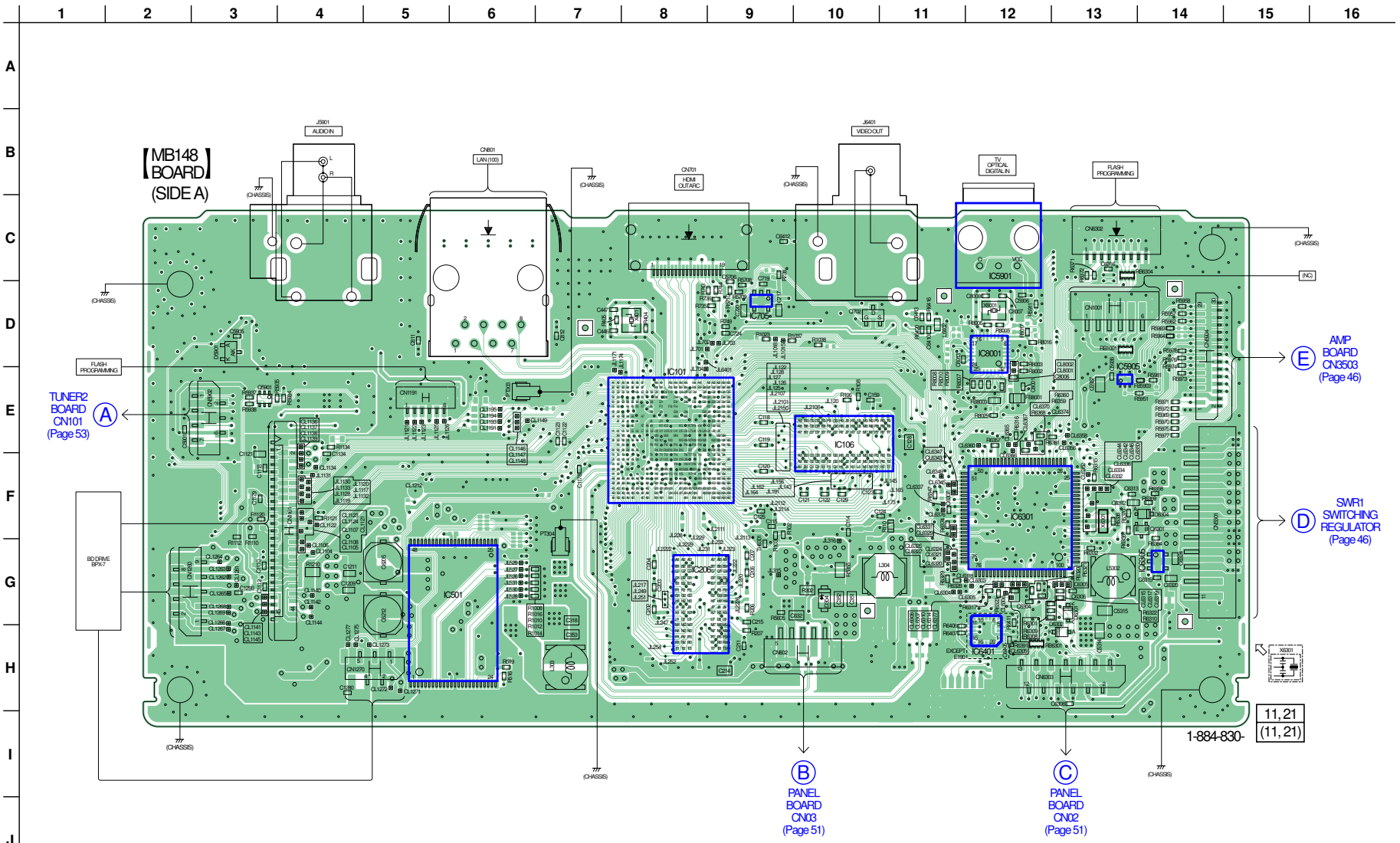
  E15 : Iran model
  E32 : 110-240 V AC area in E model
  EA : Saudi Arabia model
  MX6 : Latin-American model
  PX : PX model
  SAF : South African model
  SP : Singapore model
  TW : Taiwan model

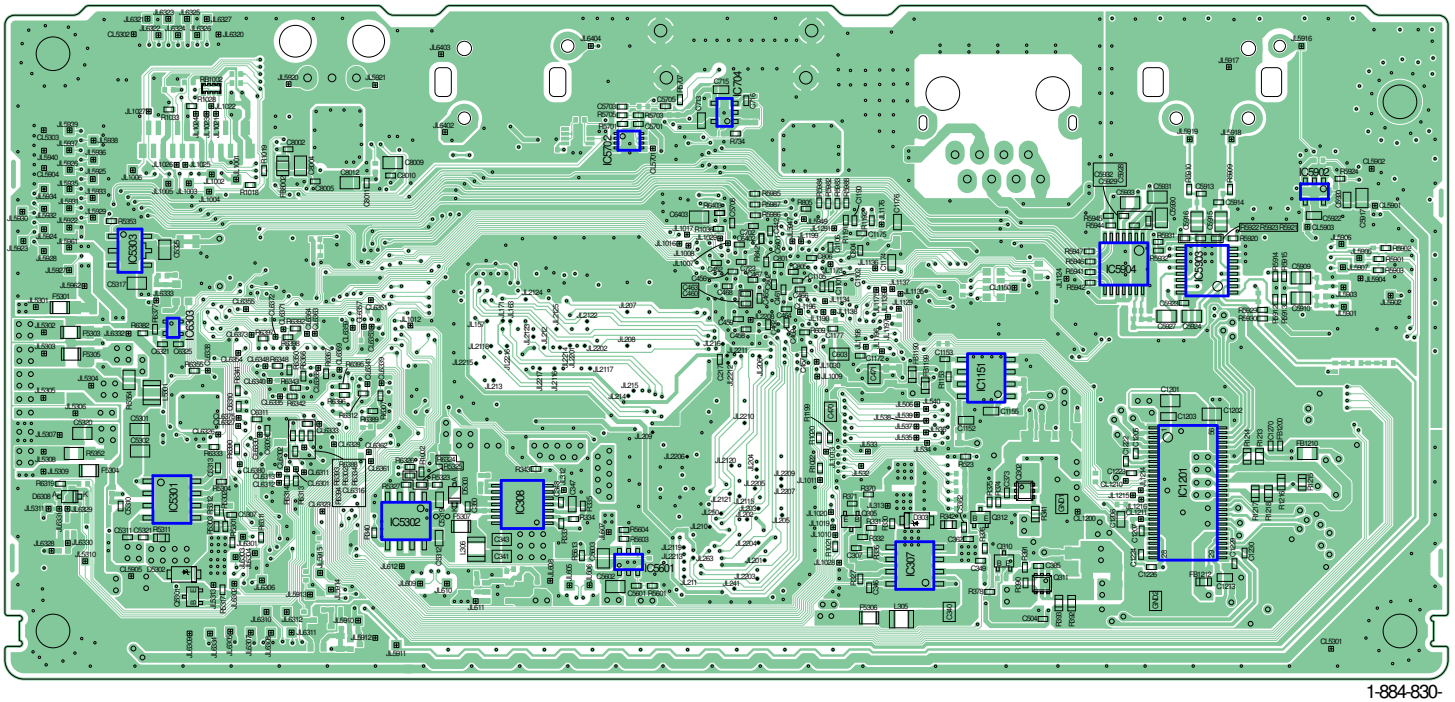
5-6. PRINTED WIRING BOARD - MB148 Board (Side A) - • See page 34 for Circuit Boards Location. • : Uses unleaded solder.



Note: IC101, IC501 and IC8001 on the MB148 board cannot exchange with single. When these parts are damaged, exchange the complete mounted board.

5-7. PRINTED WIRING BOARD - MB148 Board (Side B) - • See page 34 for Circuit Boards Location. • : Uses unleaded solder.

【MB148 BOARD】
(SIDE B)



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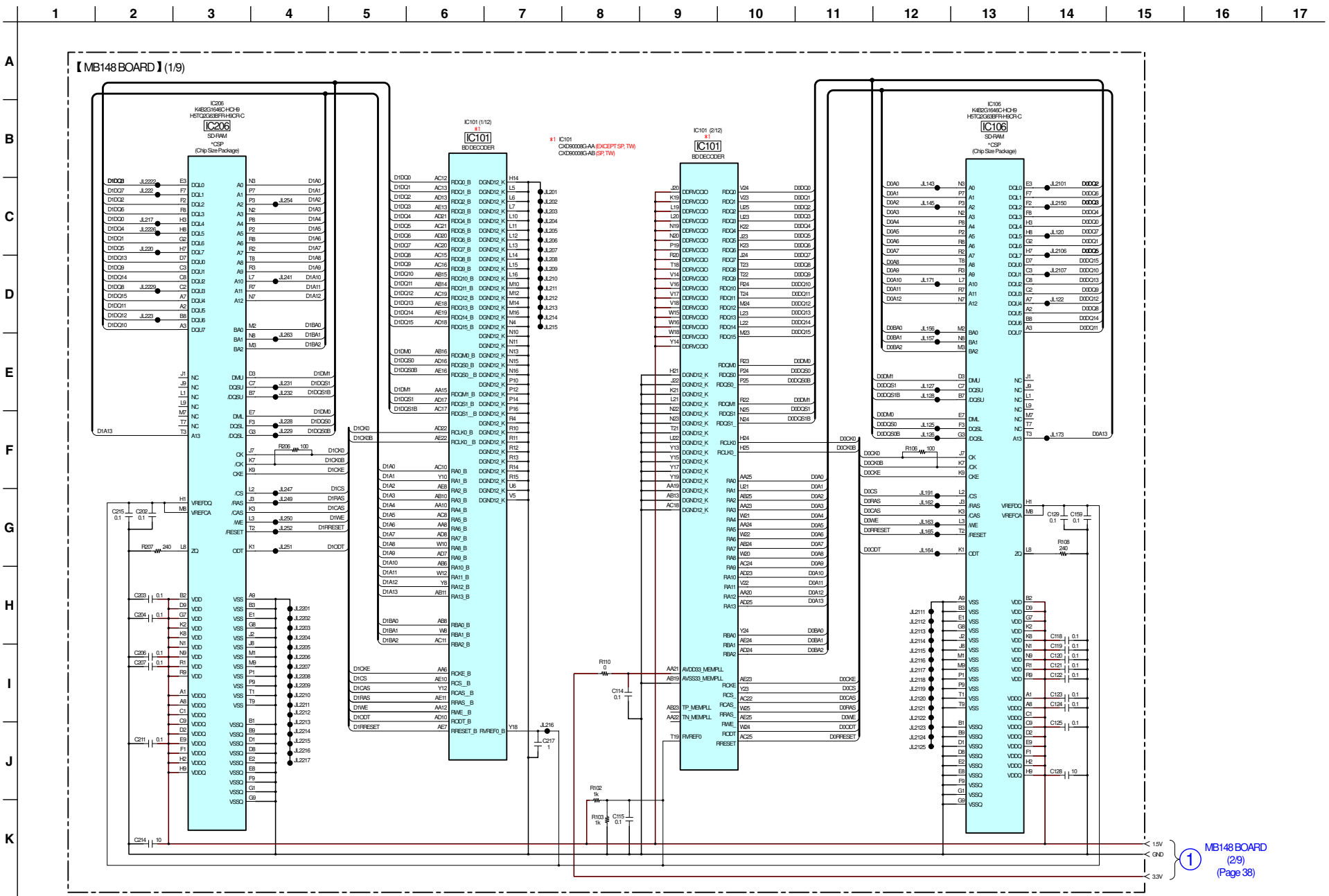
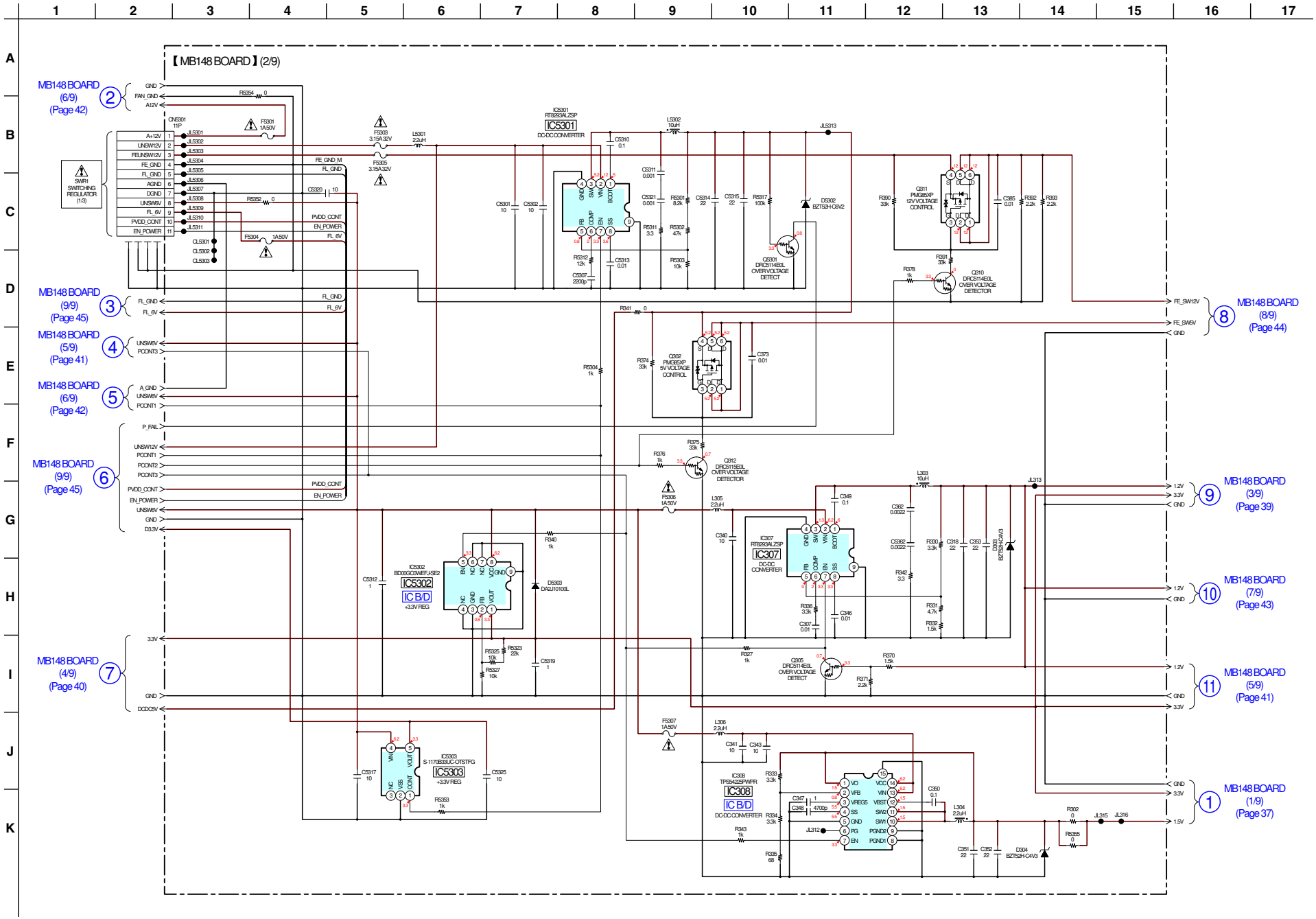
(11, 21)

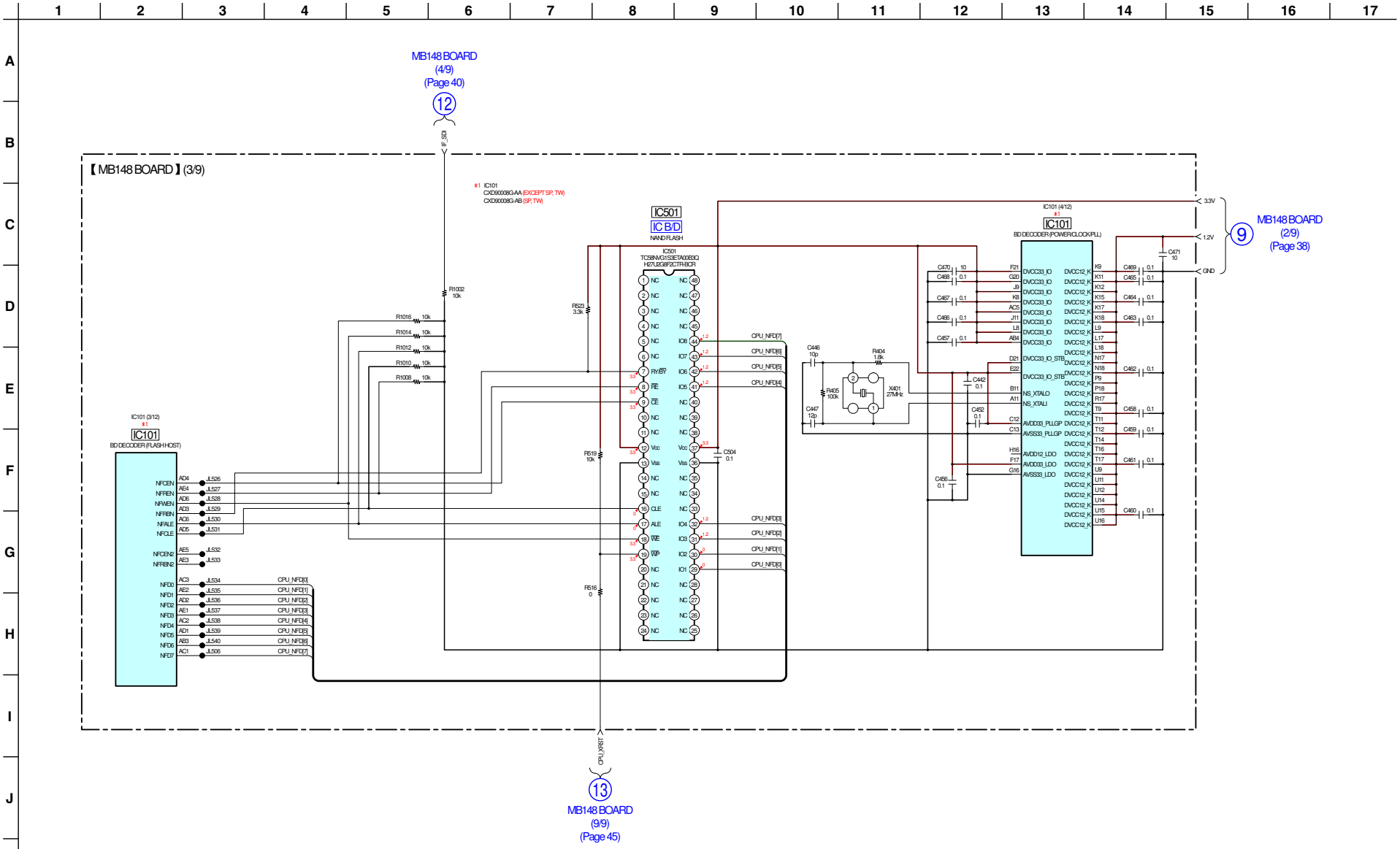
5-8. SCHEMATIC DIAGRAM - MB148 Board (1/9) - • See page 61 for IC Pin Function Descriptions.



5-9. SCHEMATIC DIAGRAM - MB148 Board (2/9) - • See page 55 for IC Block Diagrams.

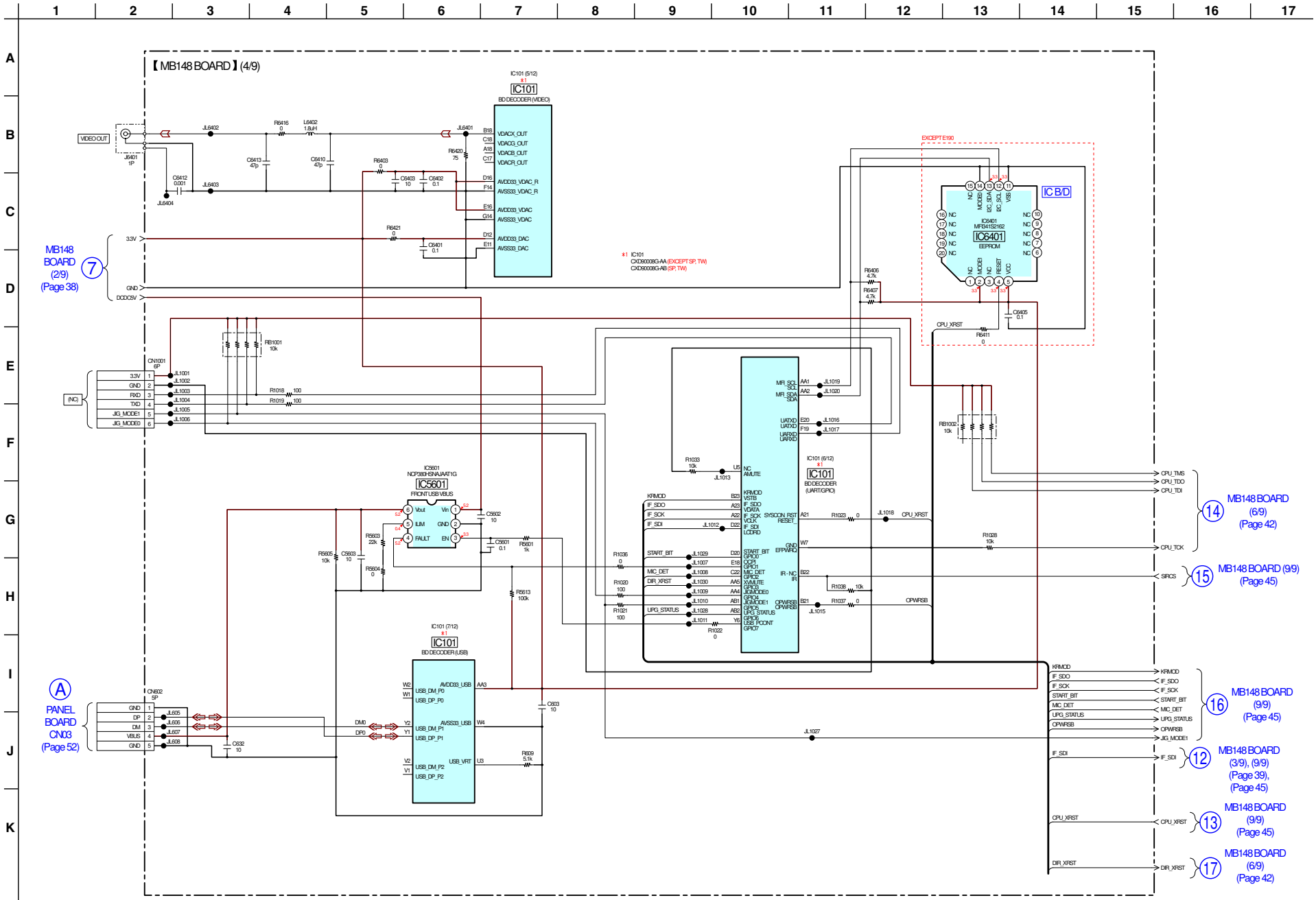


5-10. SCHEMATIC DIAGRAM - MB148 Board (3/9) - • See page 55 for IC Block Diagrams. • See page 61 for IC Pin Function Descriptions.



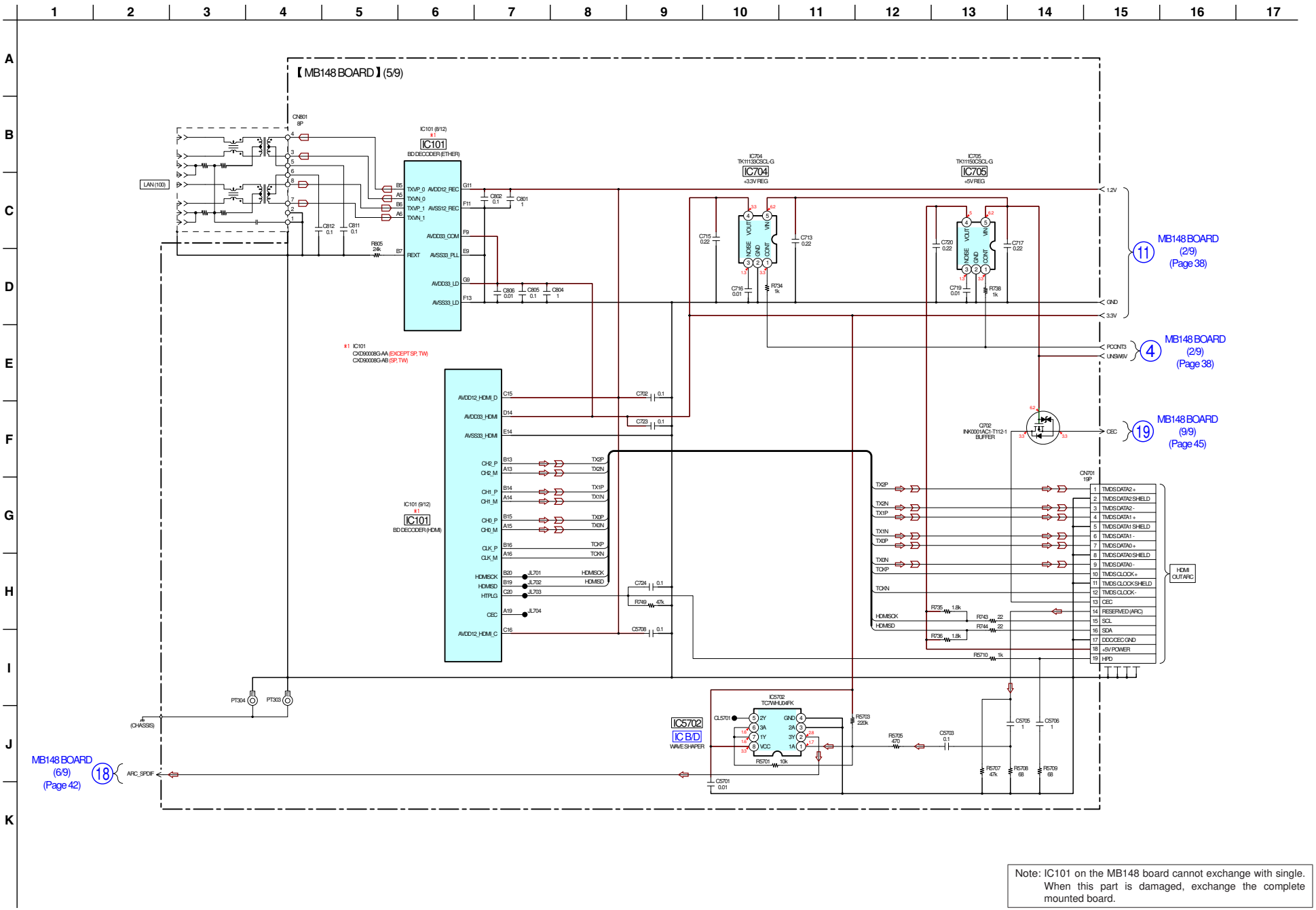
Note: IC101 and IC501 on the MB148 board cannot exchange with single. When these parts are damaged, exchange the complete mounted board.

5-11. SCHEMATIC DIAGRAM - MB148 Board (4/9) - • See page 55 for IC Block Diagrams. • See page 61 for IC Pin Function Descriptions.

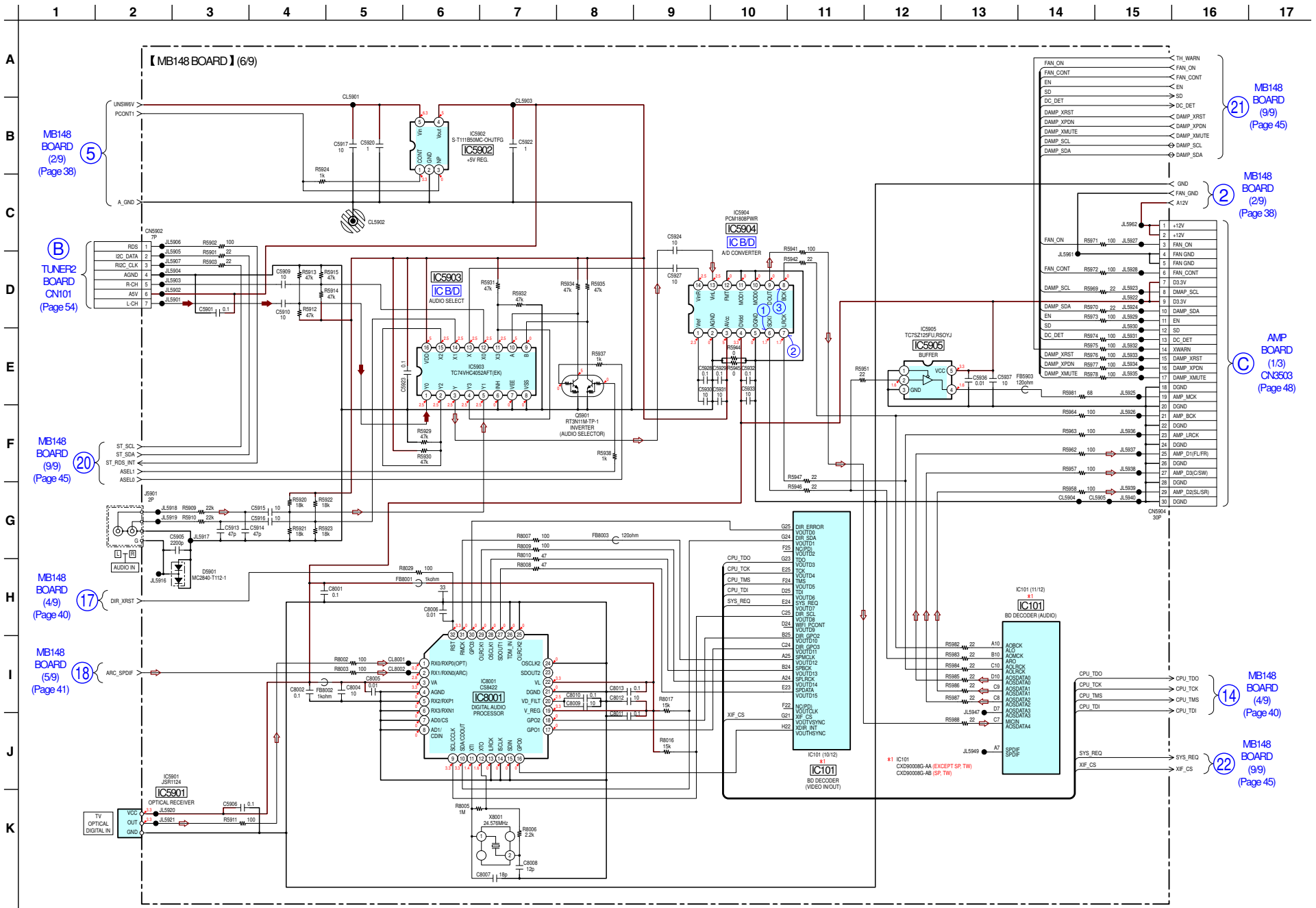


Note: IC101 on the MB148 board cannot exchange with single. When this part is damaged, exchange the complete mounted board.

5-12. SCHEMATIC DIAGRAM - MB148 Board (5/9) - • See page 55 for IC Block Diagrams. • See page 61 for IC Pin Function Descriptions.

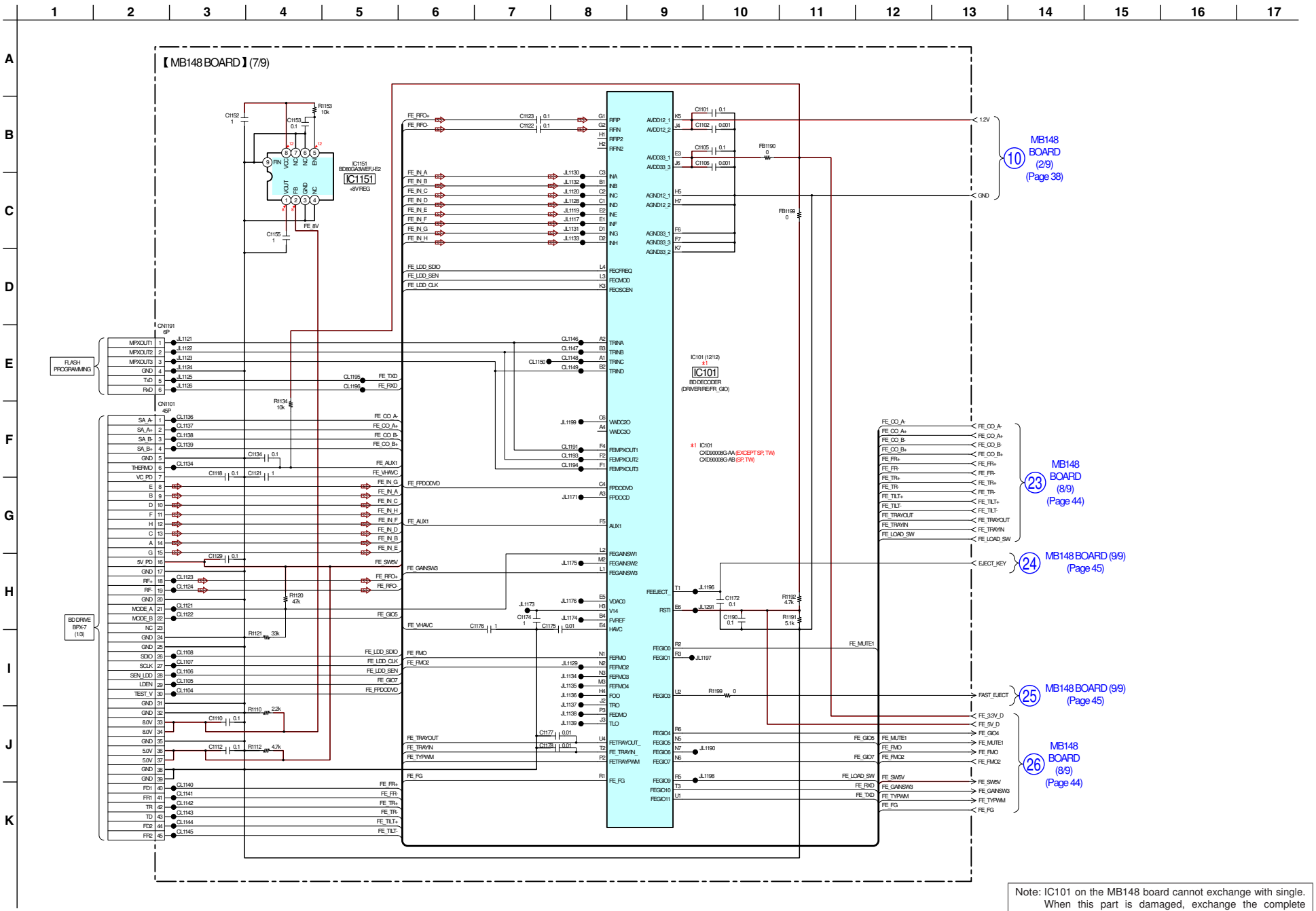


5-13. SCHEMATIC DIAGRAM - MB148 Board (6/9) - • See page 53 for Waveforms. • See page 55 for IC Block Diagrams. • See page 61 for IC Pin Function Descriptions.

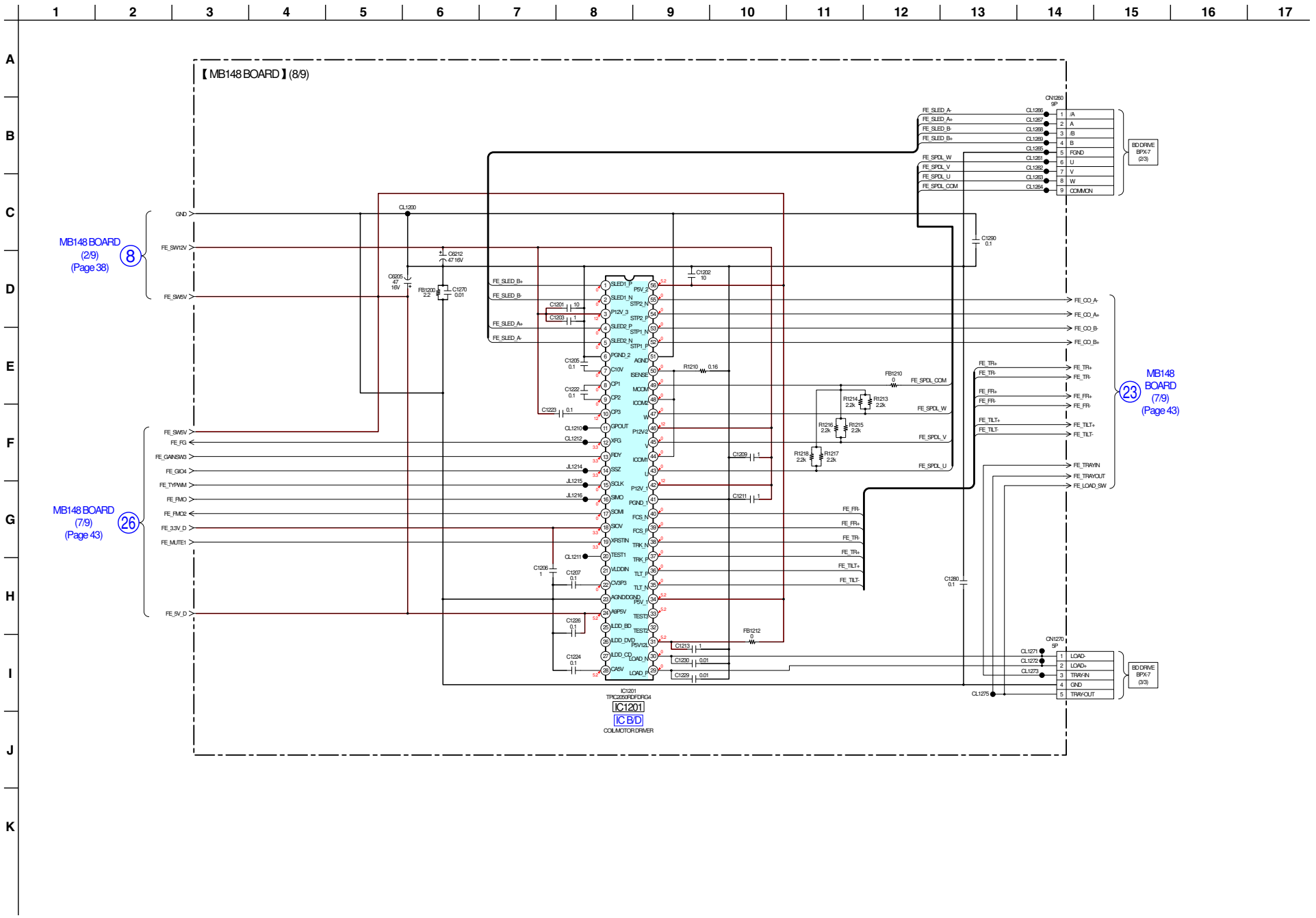


Note: IC101 and IC8001 on the MB148 board cannot exchange with single. When these parts are damaged, exchange the complete mounted board.

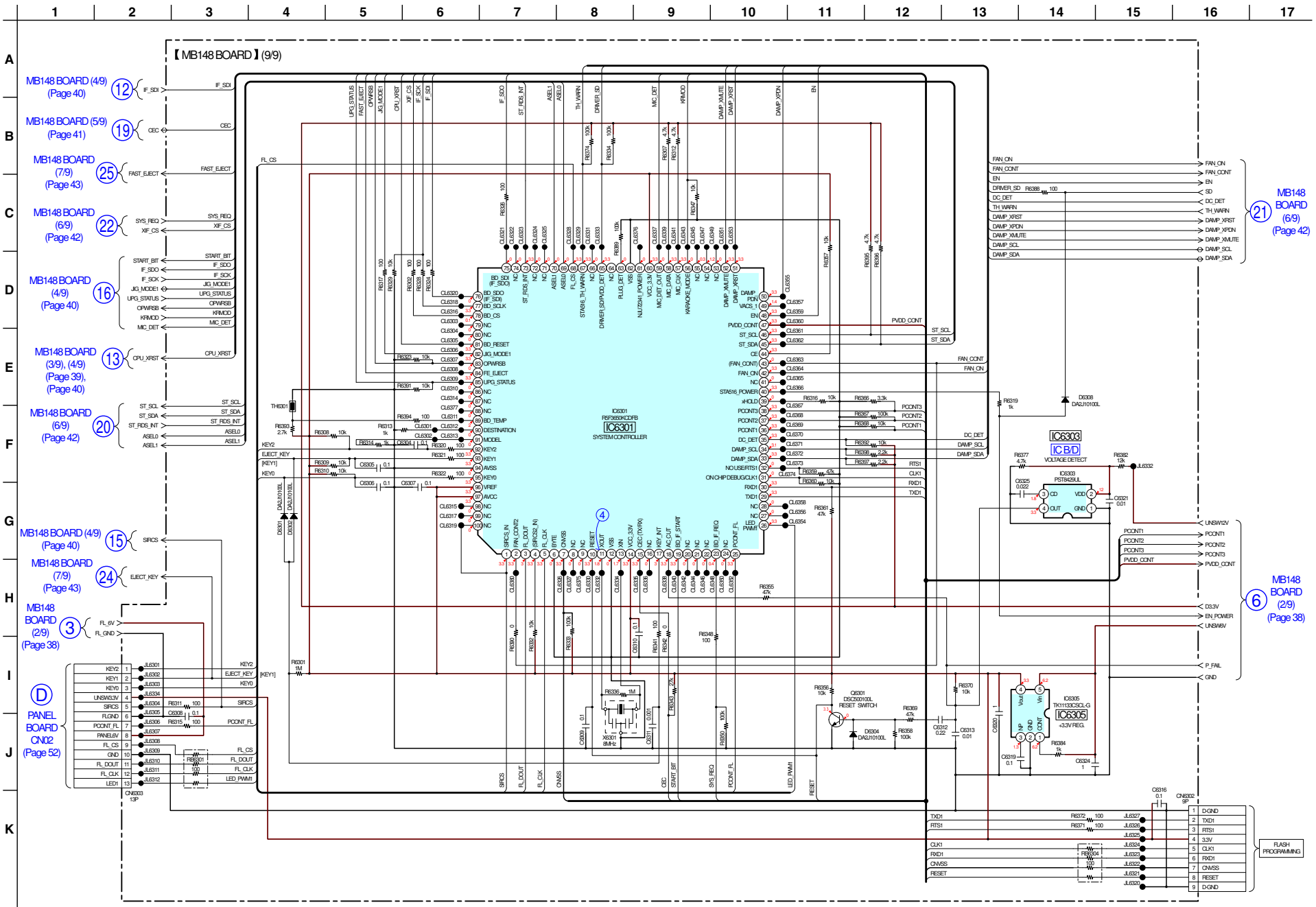
5-14. SCHEMATIC DIAGRAM - MB148 Board (7/9) - • See page 61 for IC Pin Function Descriptions.



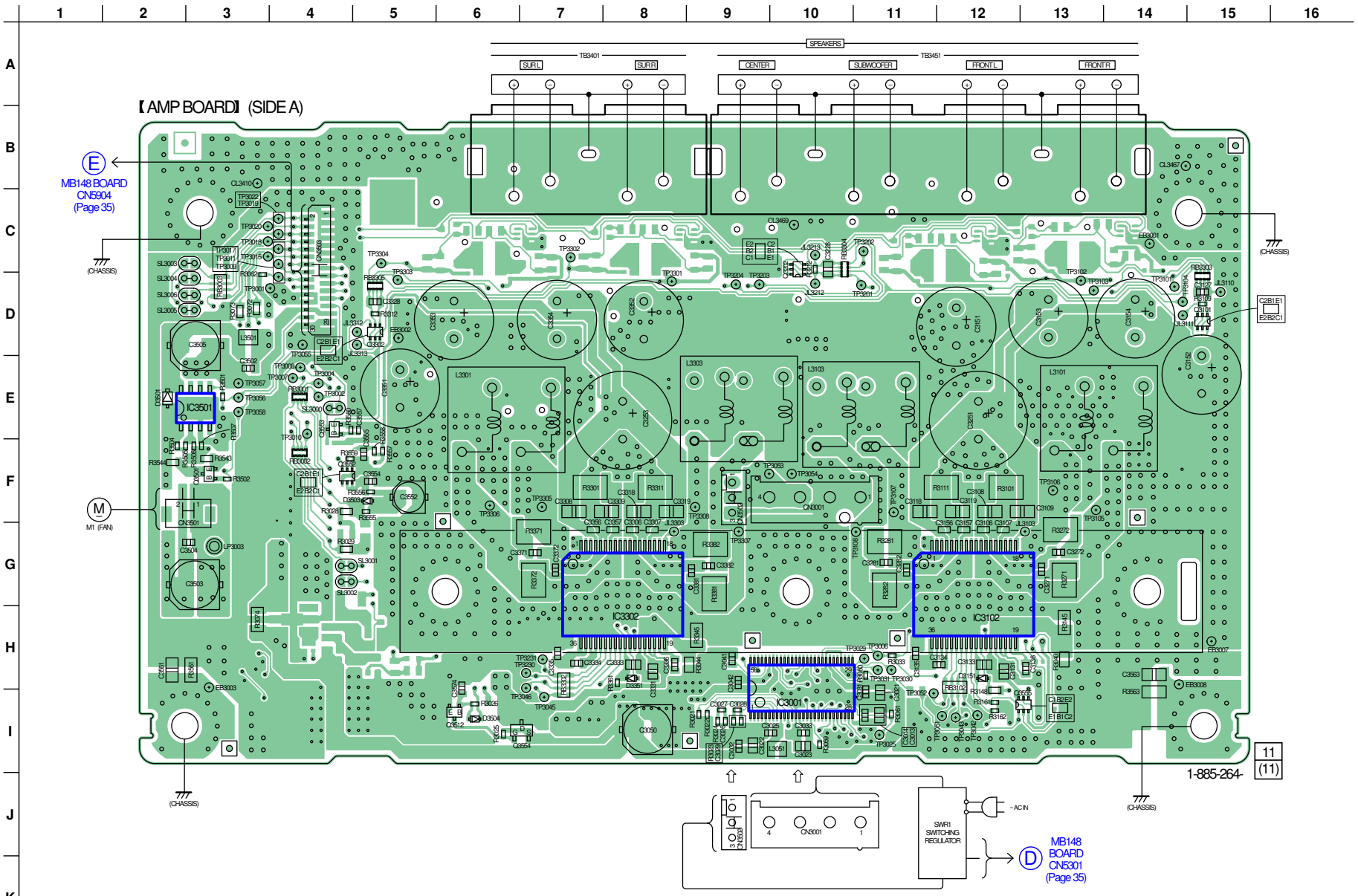
5-15. SCHEMATIC DIAGRAM - MB148 Board (8/9) - • See page 55 for IC Block Diagrams.



5-16. SCHEMATIC DIAGRAM - MB148 Board (9/9) - • See page 53 for Waveforms. • See page 55 for IC Block Diagrams. • See page 61 for IC Pin Function Descriptions.



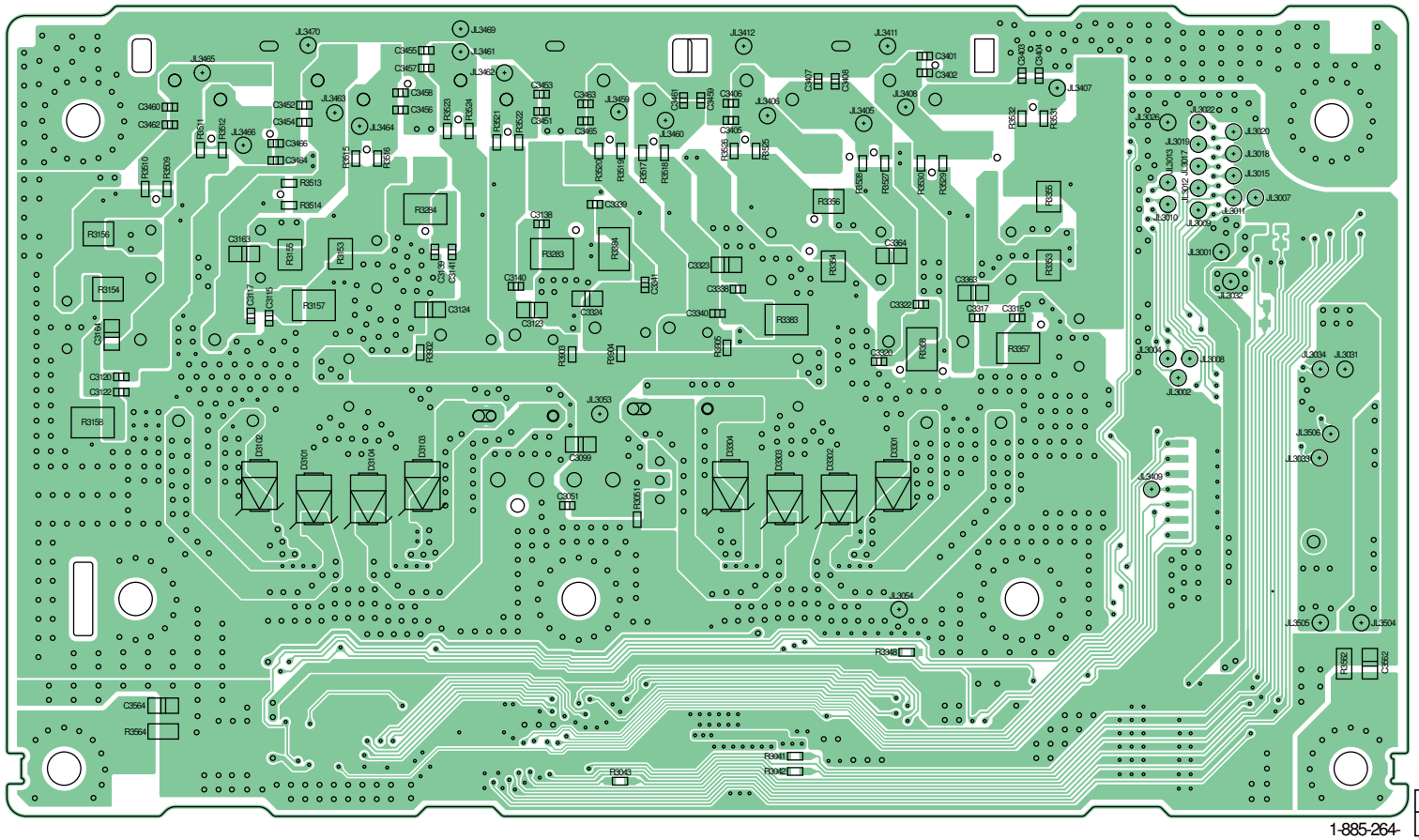
5-17. PRINTED WIRING BOARD - AMP Board (Side A) - • See page 34 for Circuit Boards Location. • : Uses unleaded solder.



Note: When the AMP board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC3102 AND IC3302 ON THE AMP BOARD AND THE COMPLETE AMP BOARD" on servicing notes (page 10).

5-18. PRINTED WIRING BOARD - AMP Board (Side B) - • See page 34 for Circuit Boards Location. • : Uses unleaded solder.

【AMP BOARD】(SIDE B)



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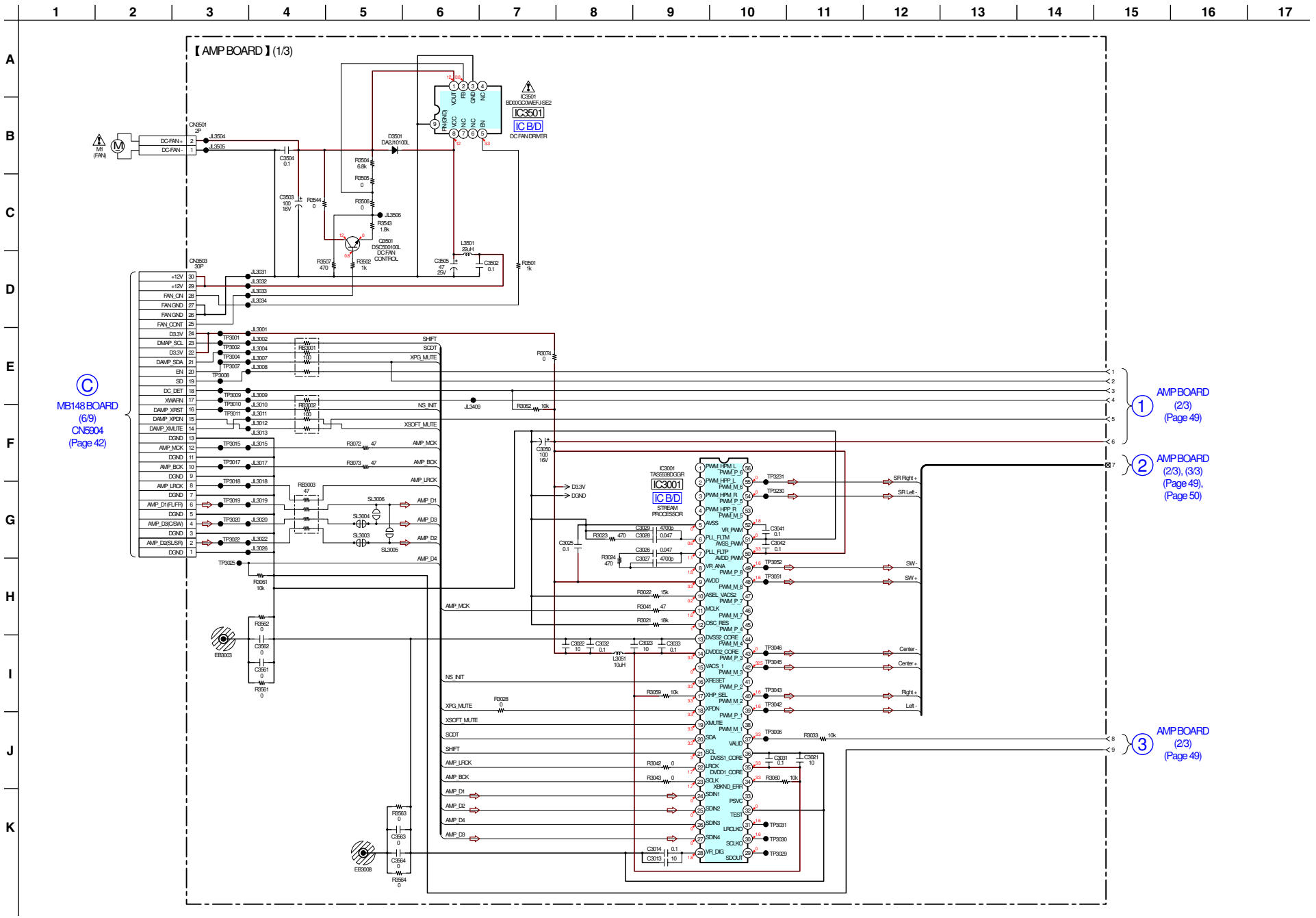
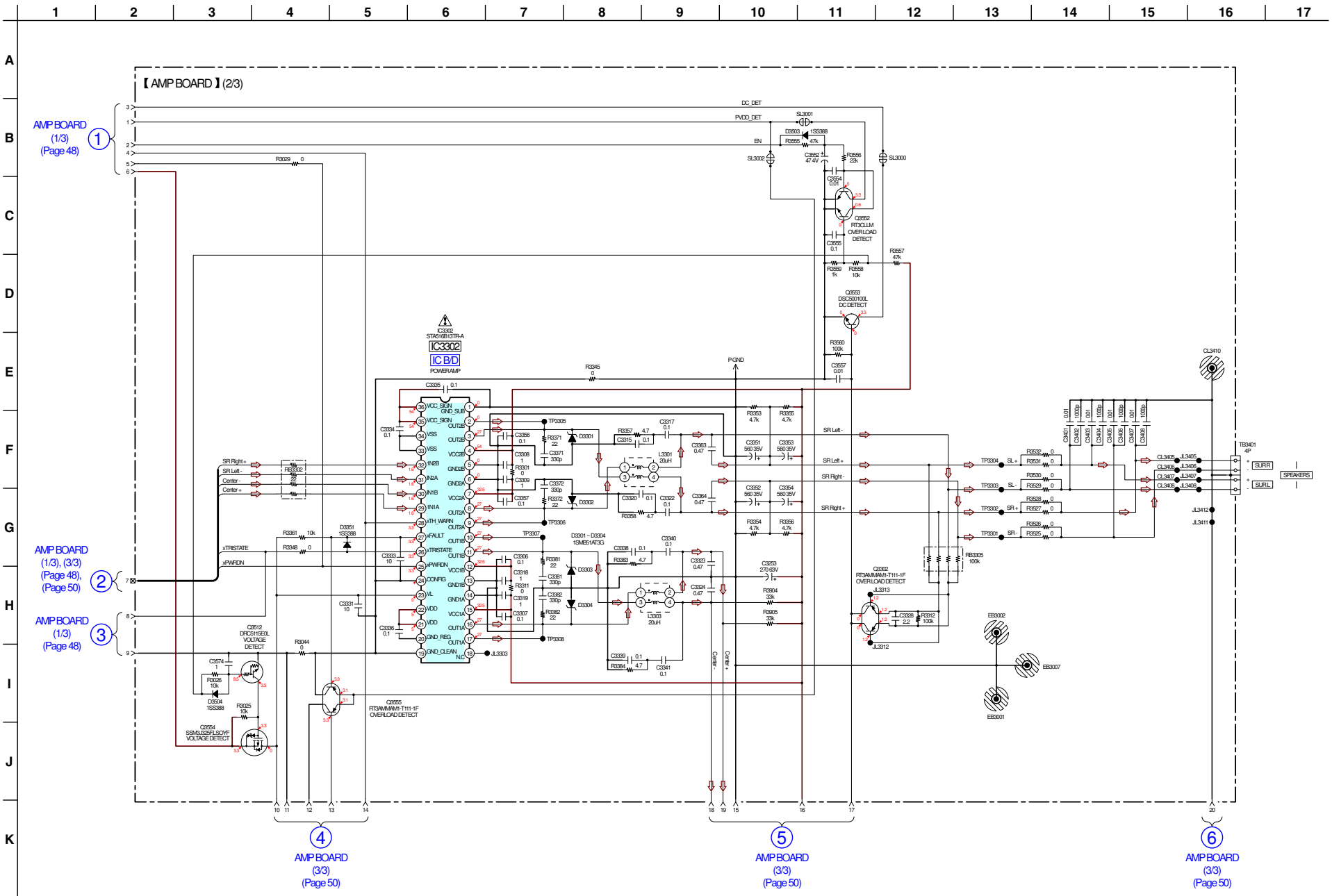
5-19. SCHEMATIC DIAGRAM - AMP Board (1/3) - • See page 55 for IC Block Diagrams.

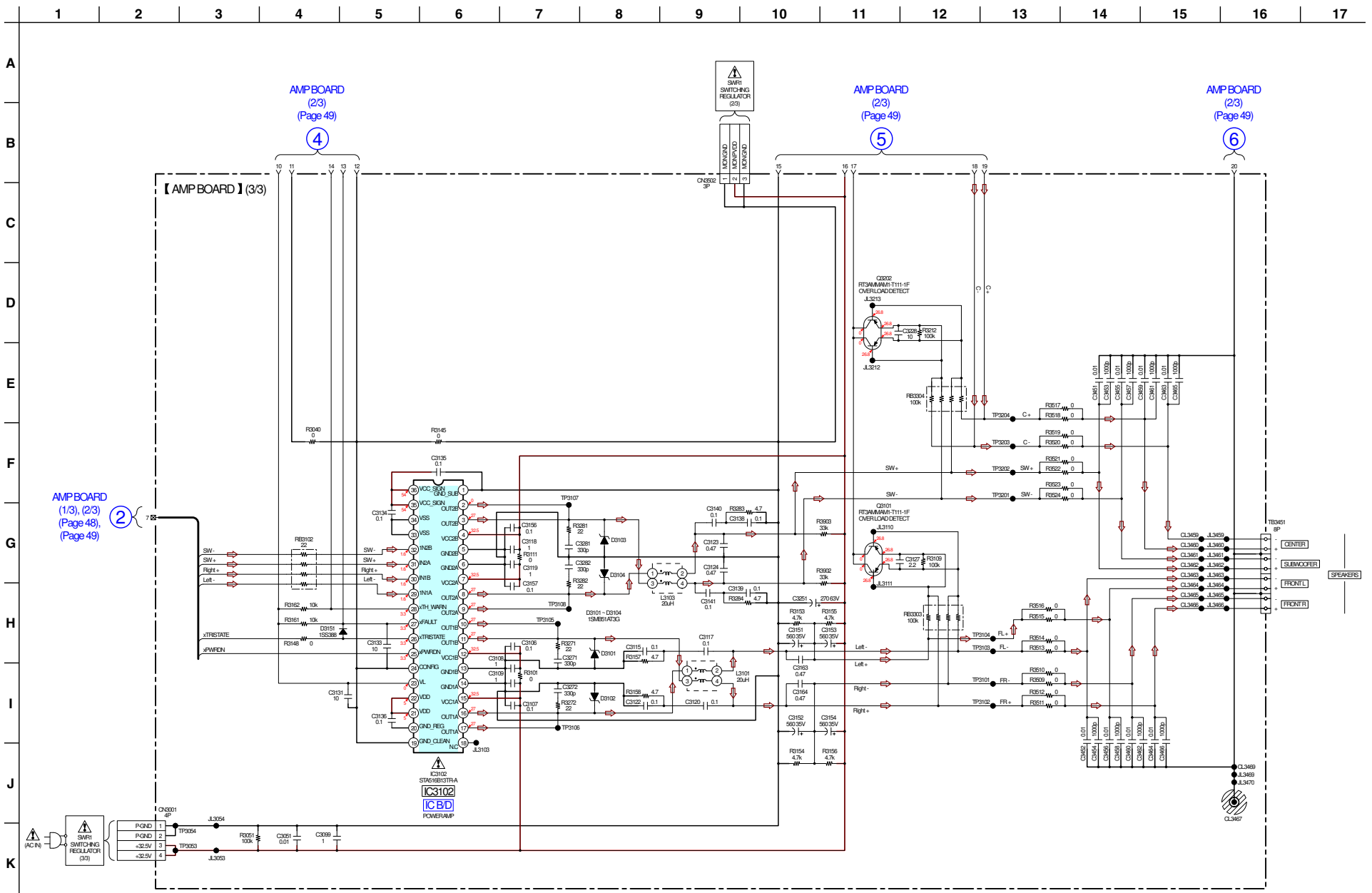


5-20. SCHEMATIC DIAGRAM - AMP Board (2/3) - • See page 55 for IC Block Diagrams.



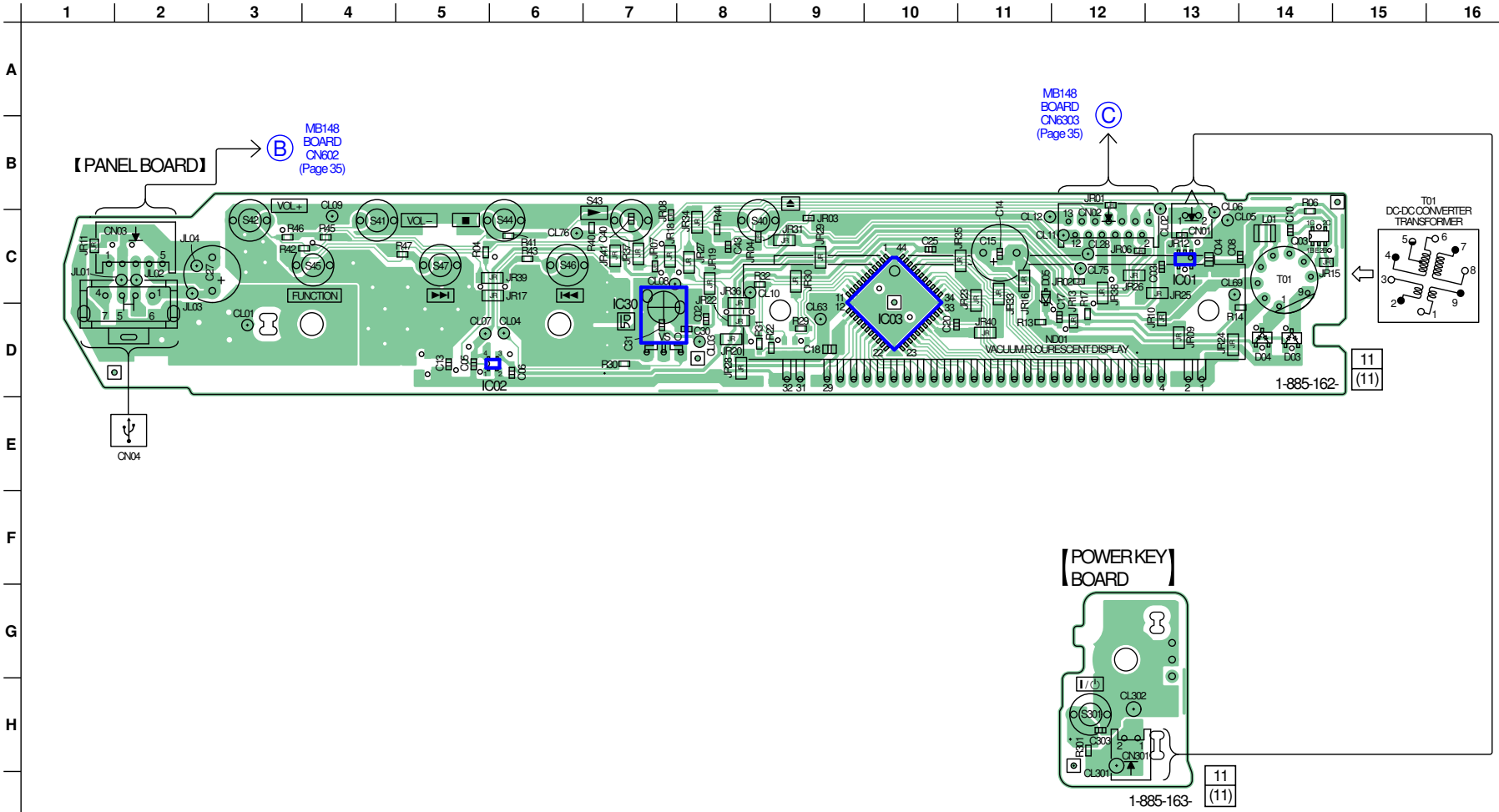
Note: When the AMP board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC3102 AND IC3302 ON THE AMP BOARD AND THE COMPLETE AMP BOARD" on servicing notes (page 10).

5-21. SCHEMATIC DIAGRAM - AMP Board (3/3) - • See page 55 for IC Block Diagrams.

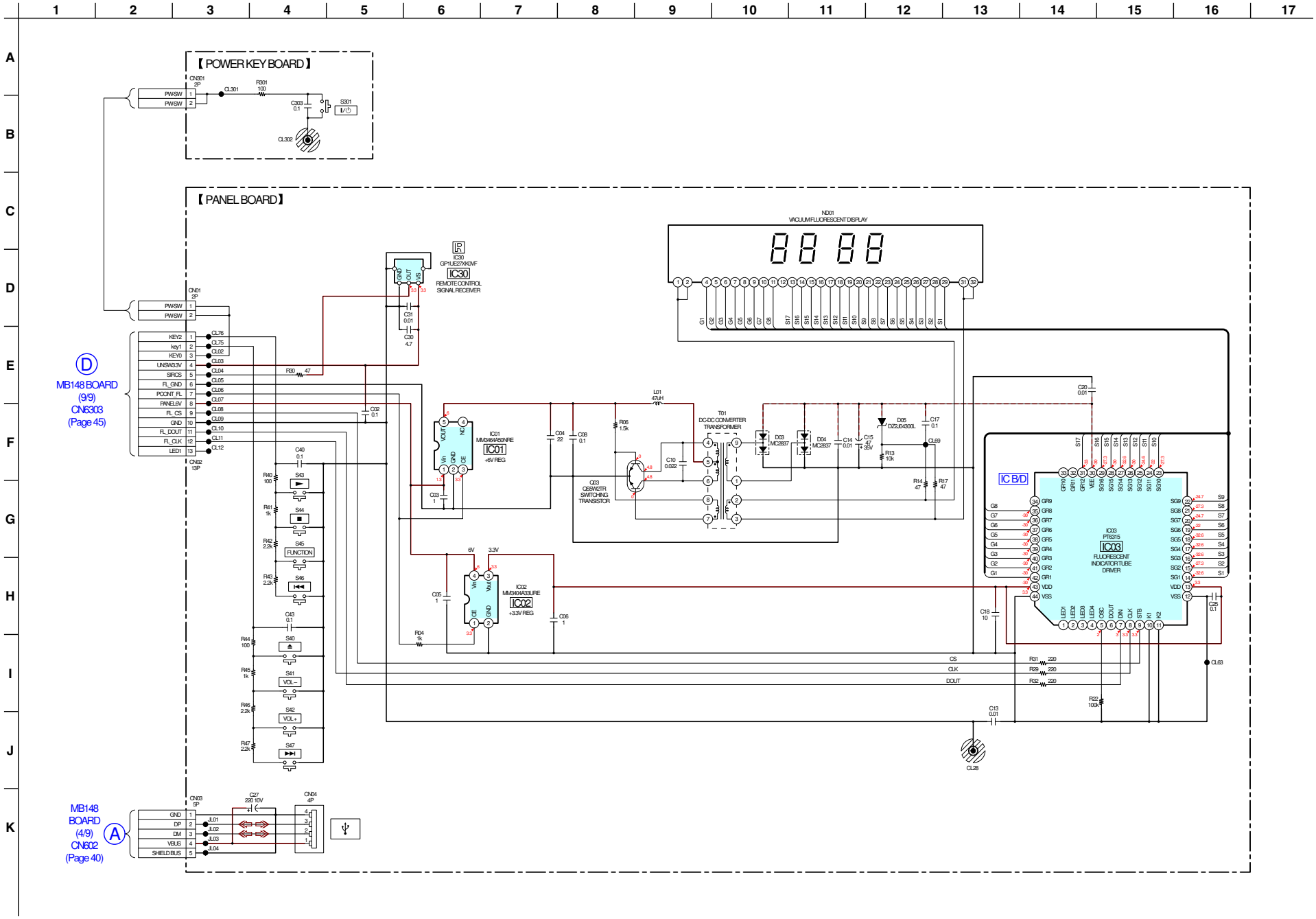


Note: When the AMP board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC3102 AND IC3302 ON THE AMP BOARD AND THE COMPLETE AMP BOARD" on servicing notes (page 10).

5-22. PRINTED WIRING BOARDS - PANEL Section - • See page 34 for Circuit Boards Location. • : Uses unleaded solder.



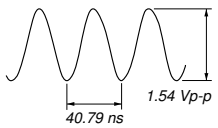
5-23. SCHEMATIC DIAGRAM - PANEL Section - • See page 55 for IC Block Diagrams.



• Waveforms

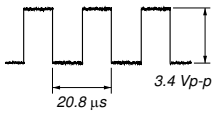
– MB148 Board –

① IC5904 ⑥ (SCKI)



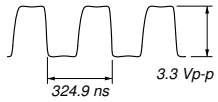
500 mV/DIV, 10 ns/DIV

② IC5904 ⑦ (LRCK)



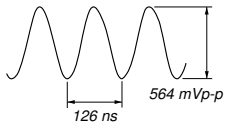
1.0 V/DIV, 5 µs/DIV

③ IC5904 ⑧ (BCK)



500 mV/DIV, 100 ns/DIV

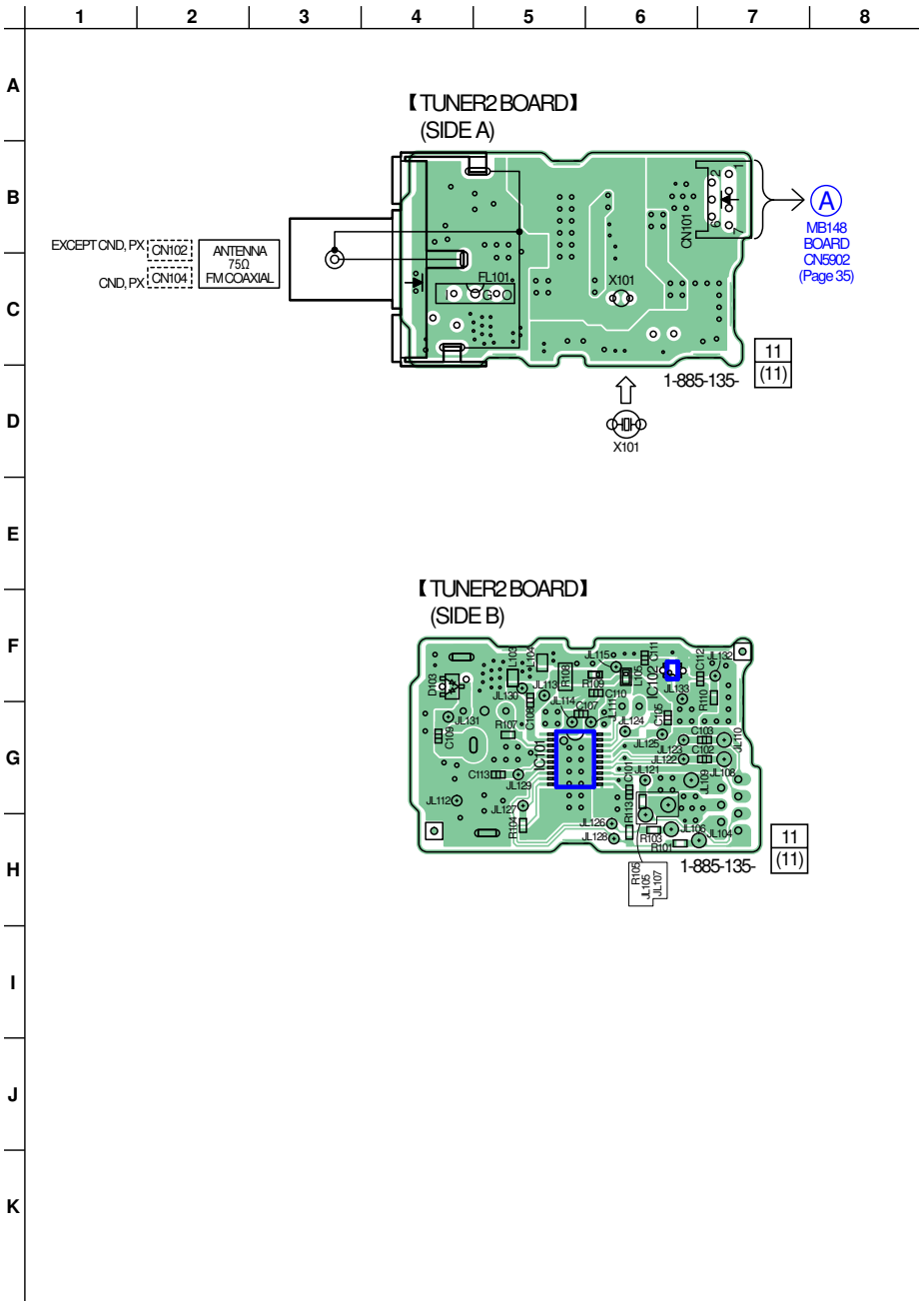
④ IC6301 ⑪ (XOUT)



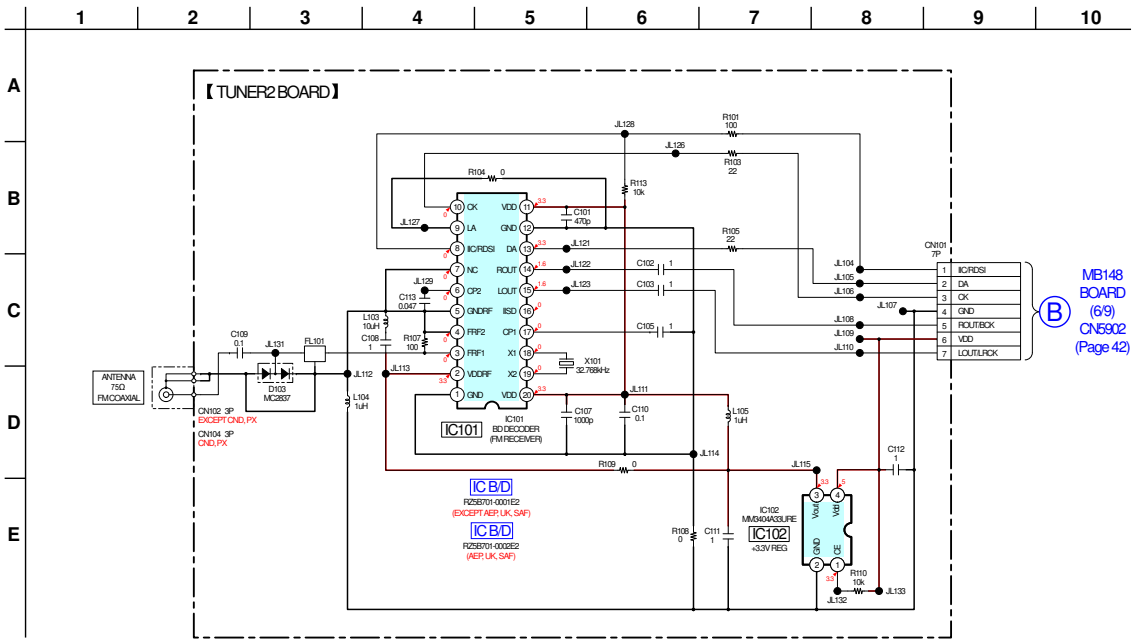
100 mV/DIV, 50 ns/DIV

5-24. PRINTED WIRING BOARD - TUNER2 Board -

• See page 34 for Circuit Boards Location. • : Uses unleaded solder.

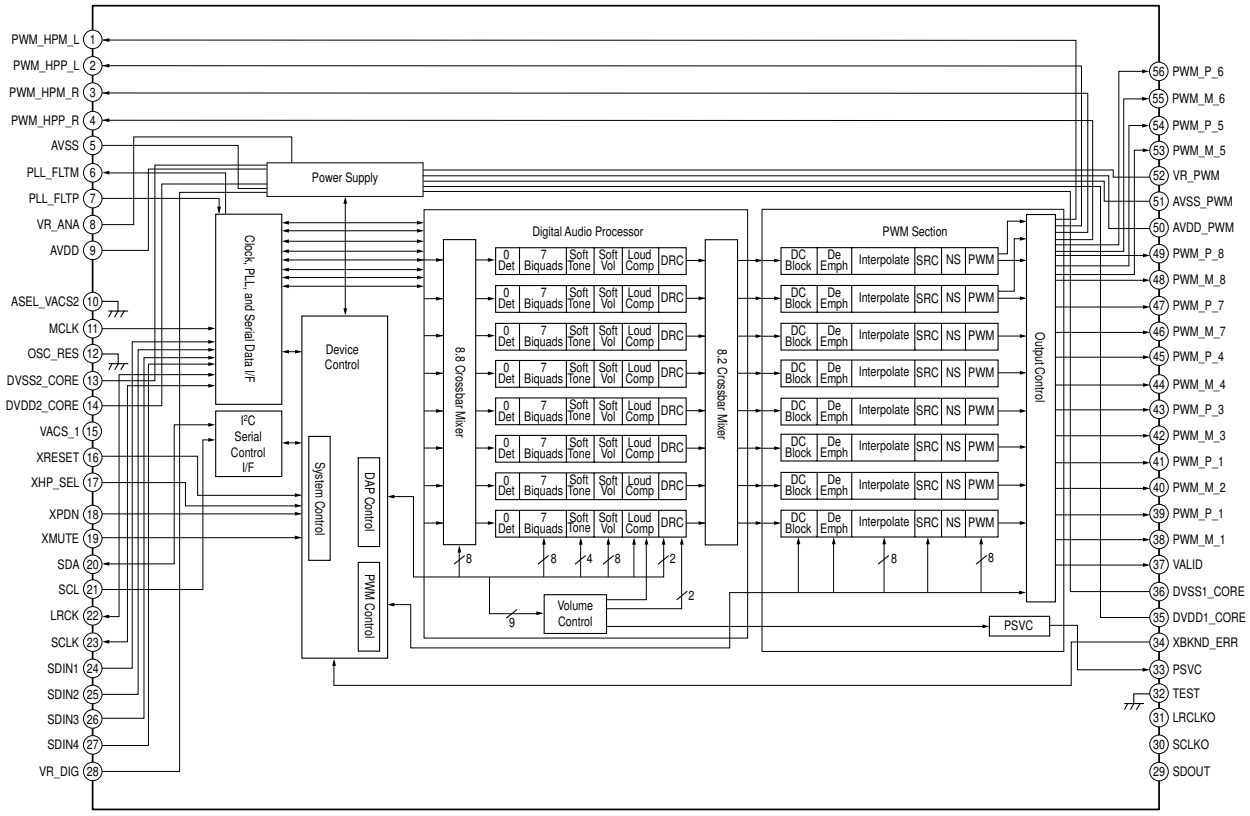


5-25. SCHEMATIC DIAGRAM - TUNER2 Board - • See page 55 for IC Block Diagrams.

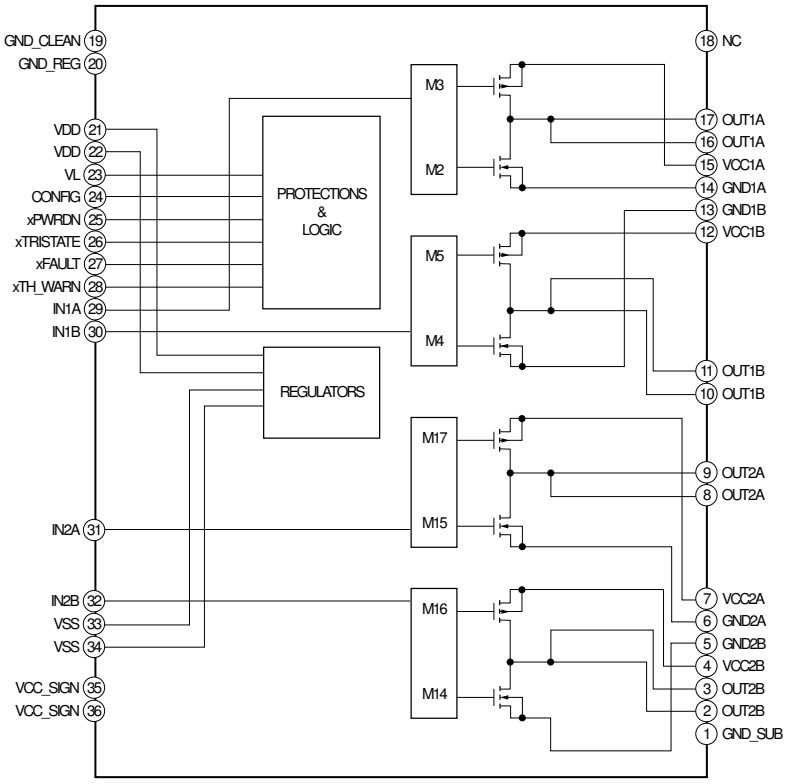


• IC Block Diagrams

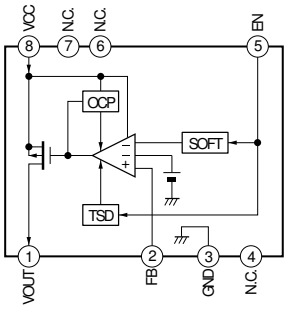
IC3001 TAS5538DGGR (AMP BOARD (1/3))



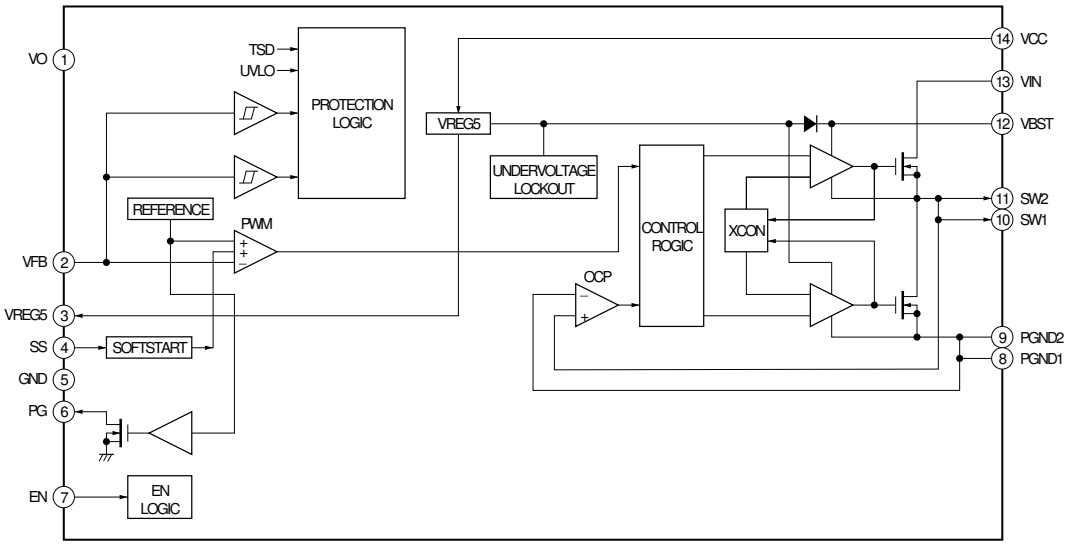
IC3102 STA516B13TR-A (AMP BOARD (3/3))
IC3302 STA516B13TR-A (AMP BOARD (2/3))



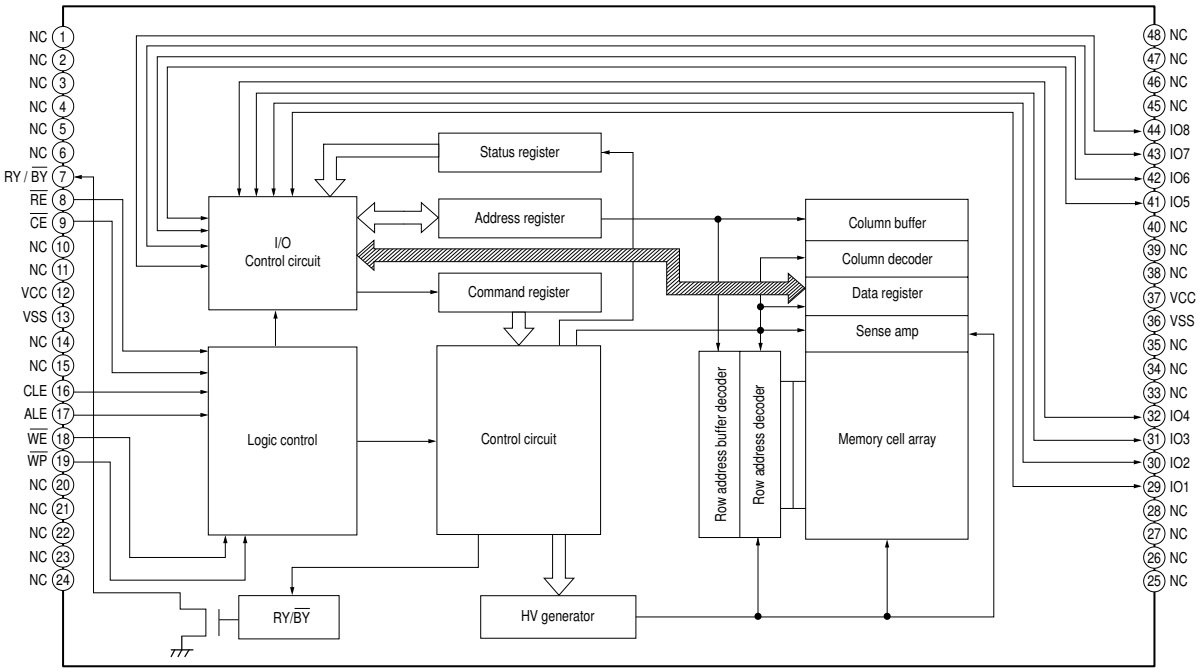
IC3501 BD00GC0WEFJ-SE2 (AMP BOARD (1/3))
IC5302 BD00GC0WEFJ-SE2 (MB148 BOARD (2/9))



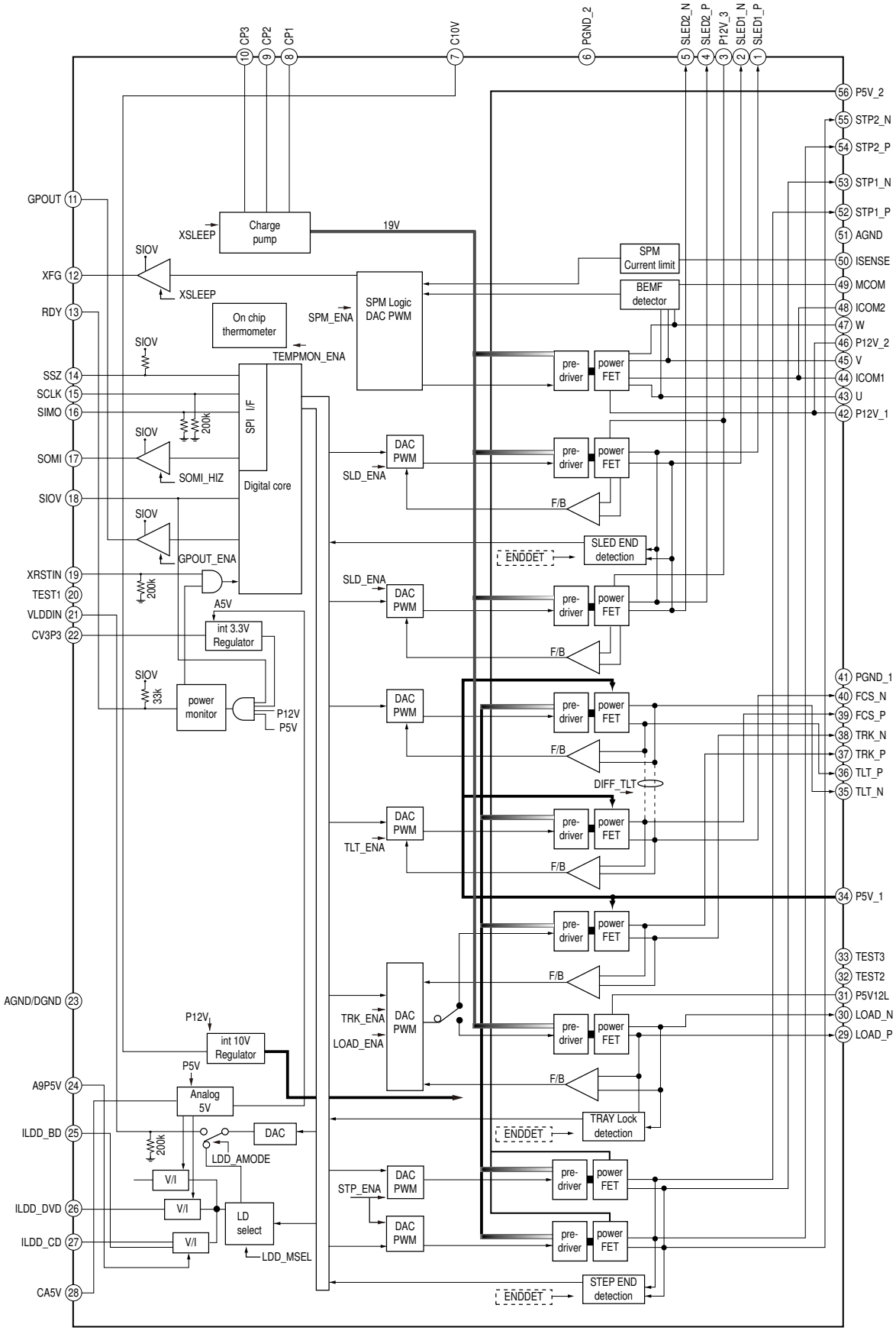
IC308 TPS54225PWPR (MB148 BOARD (2/9))



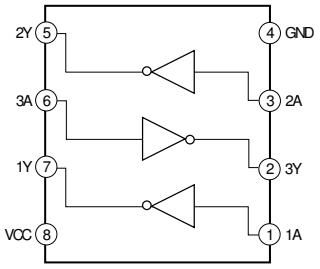
IC501 TC58NVG1S3ETA00B3Q (MB148 BOARD (3/9))
IC501 H27U2G8F2CTR-BCR (MB148 BOARD (3/9))



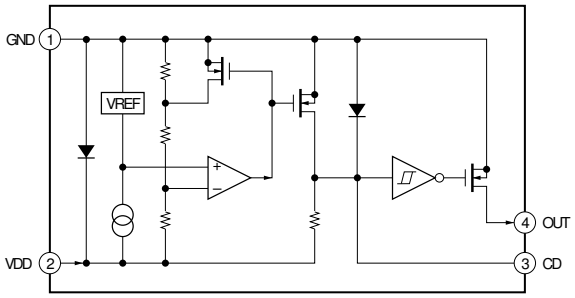
IC1201 TPIC2050RDFDRG4 (MB148 BOARD (8/9))



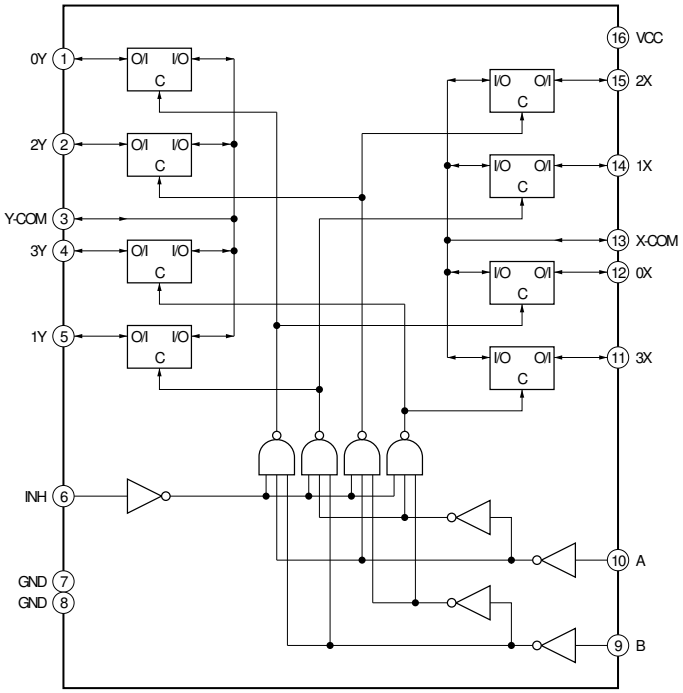
IC5702 TC7WHU04FK (MB148 BOARD (5/9))



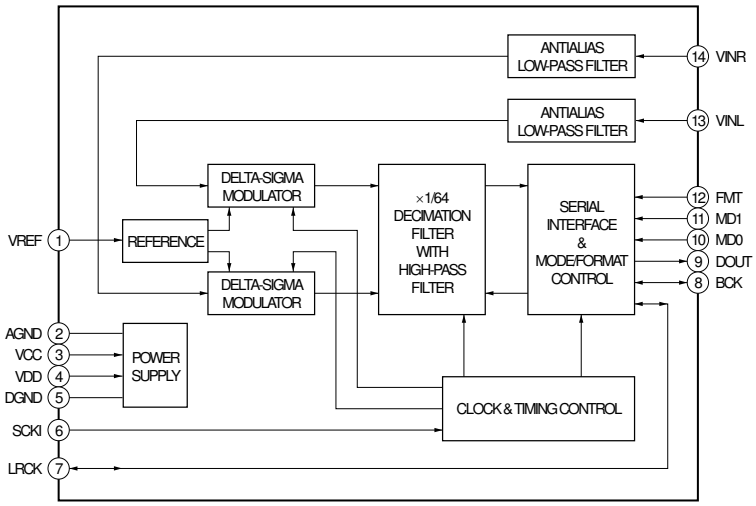
IC6303 PST8429UL (MB148 BOARD (9/9))



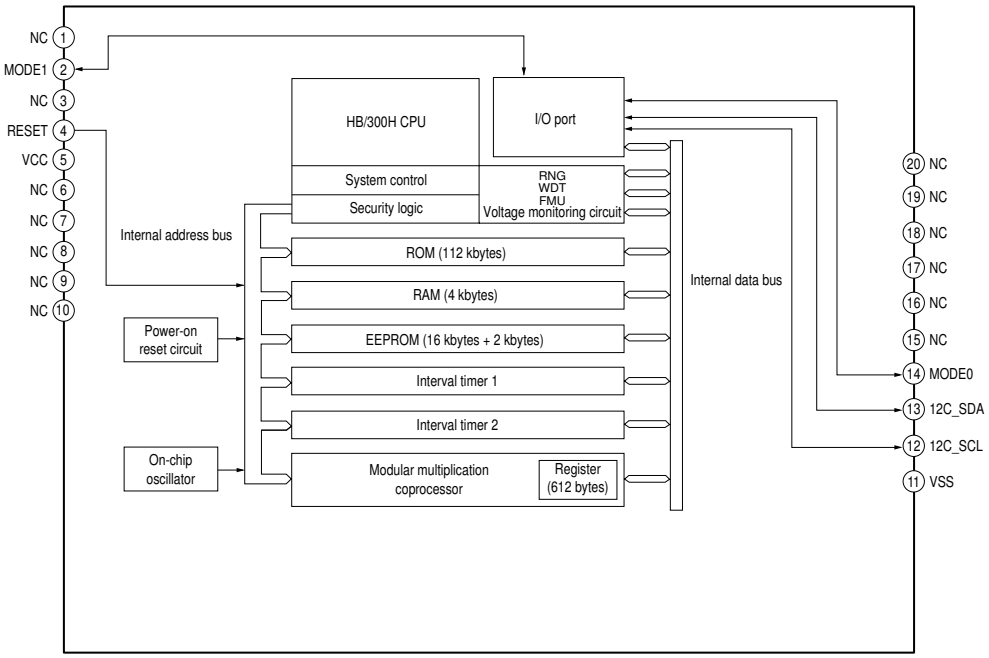
IC5903 TC74VHC4052AFT (EK) (MB148 BOARD (6/9))



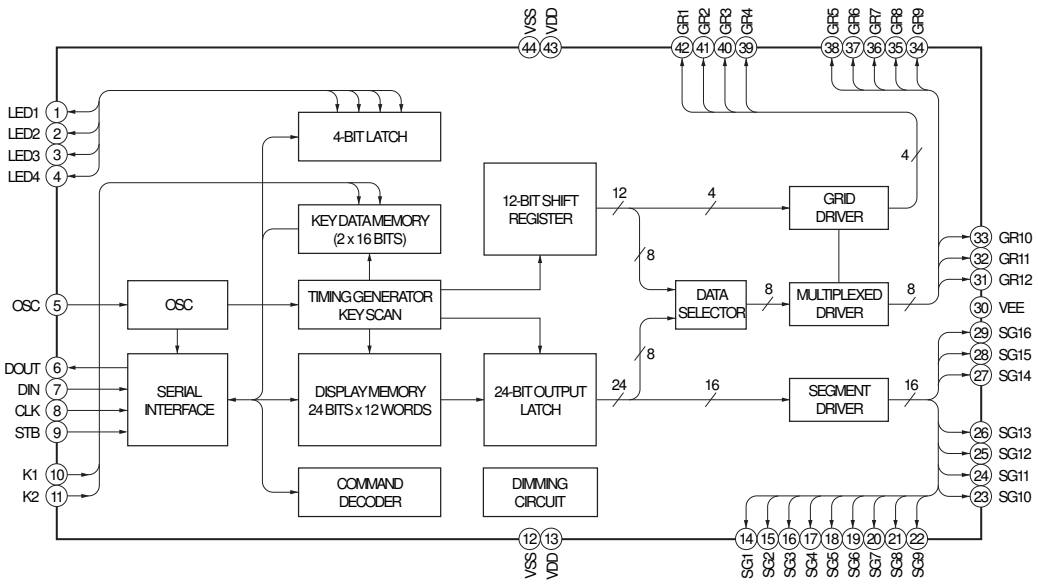
IC5904 PCM1808PWR (MB148 BOARD (6/9))



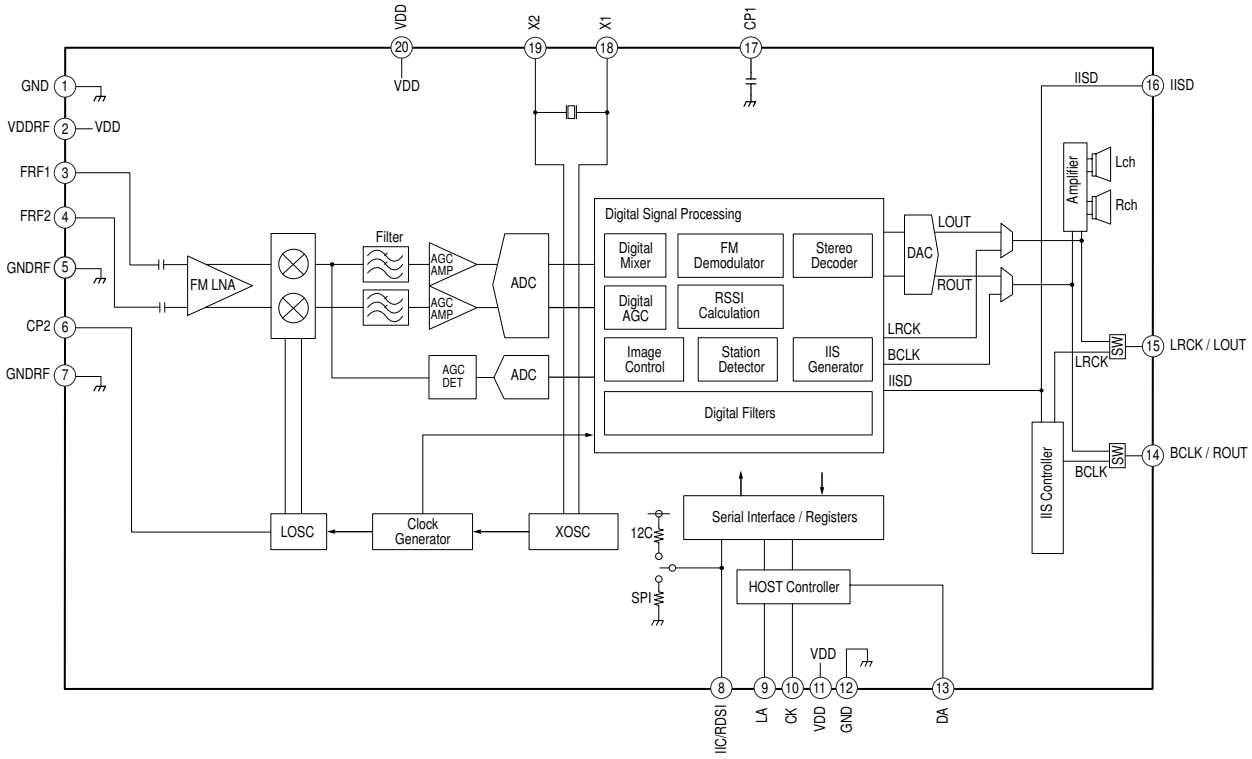
IC6401 MFI341S2162 (MB148 BOARD (4/9)) (except E190 only)



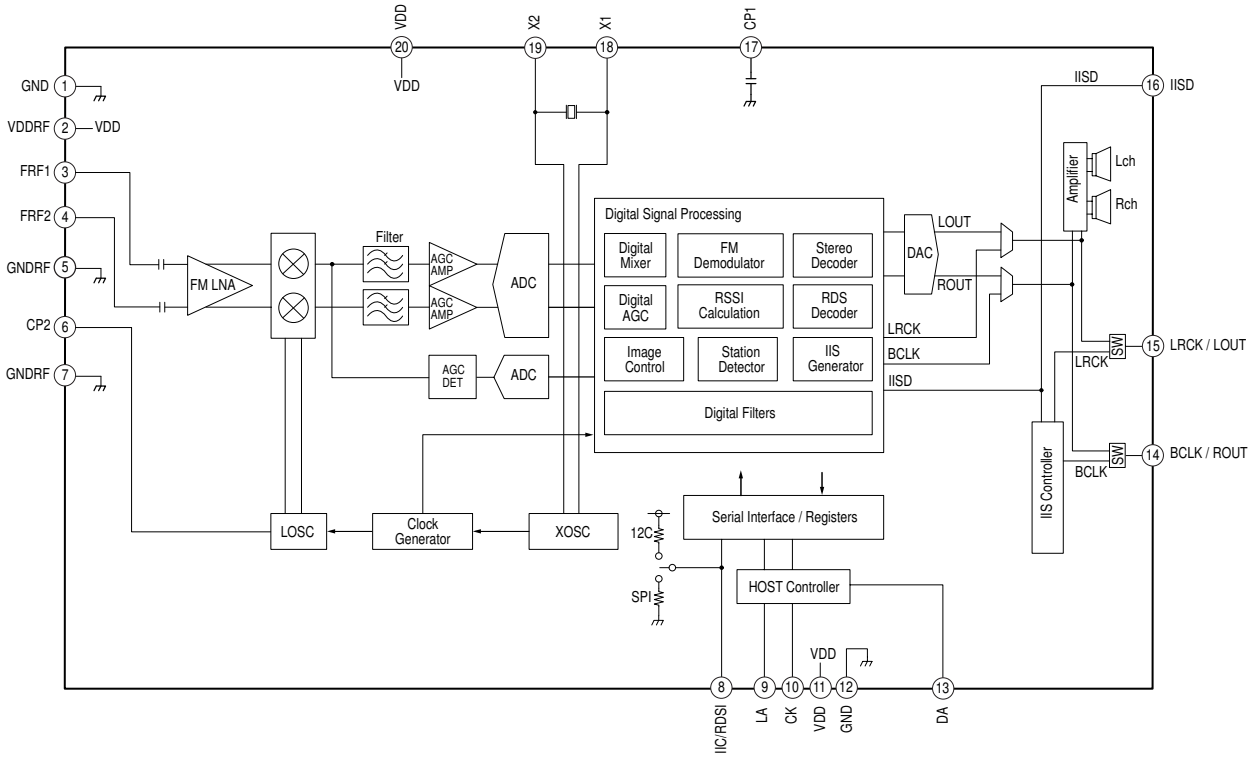
IC03 PT6315 (PANEL BOARD)



IC101 RZ5B701-0001E2 (TUNER2 BOARD) (except AEP, UK and South African only)



IC101 RZ5B701-0002E2 (TUNER2 BOARD) (for AEP, UK and South African only)



• IC Pin Function Descriptions

MB148 BOARD (1/9), (3/9), (4/9), (5/9), (6/9), (7/9) IC101 CXD90008G-AA (except Singapore and Taiwan only) (BD DECODER)
MB148 BOARD (1/9), (3/9), (4/9), (5/9), (6/9), (7/9) IC101 CXD90008G-AB (for Singapore and Taiwan only) (BD DECODER)

Pin No.	Pin Name	I/O	Description
A1	TRINC	I	Input of Tracking Signal (C)
A2	TRINA	I	Input of Tracking Signal (A)
A3	FPDOCD	I	Laser Power Monitor Input for CD APC / Differential negative input
A4	VWDC3O	O	Output Voltage 3 of Laser Diode Control in APC
A5	TXVN_0	I/O	Ethernet TD -
A6	TXVN_1	I/O	Ethernet RD -
A7	SPDIF	I/O	SPDIF digital audio output
A8	NO_USE	-	Not used
A9	NO_USE	-	Not used
A10	AOBCK ALO	I/O	Audio output bit clock
A11	NS_XTALI	-	3.3V power for standby
A12	NO_USE	-	Not used
A13	CH2_M	O	HDMI TX data 2 differential pair (M)
A14	CH1_M	O	HDMI TX data 1 differential pair (M)
A15	CH0_M	O	HDMI TX data 0 differential pair (M)
A16	CLK_M	O	HDMI TX clock differential pair (M)
A17	NO_USE	-	Not used
A18	VDACG_OUT	O	DAC output
A19	CEC	I/O	HDMI CEC
A20	NO_USE	-	Not used
A21	RESET_	I	Power on reset
A22	IF_SCK VCLK	I/O	VFD clock
A23	IF_SDO VDATA	I/O	VFD data
A24	SPLRCK	I/O	SPDIF input left-right clock
A25	SPMCLK	I/O	SPDIF input master clock
B1	INB	I	Input of Main Beam Signal (B)
B2	TRIND	I	Input of Tracking Signal (D)
B3	TRINB	I	Input of Tracking Signal (B)
B4	FVREF	O	Output of Voltage Reference
B5	TXVP_0	I/O	Ethernet TD +
B6	TXVP_1	I/O	Ethernet RD +
B7	REXT	O	External reference resistor
B8	NO_USE	-	Not used
B9	NO_USE	-	Not used
B10	AOMCL ARO	I/O	Audio output master clock
B11	NS_XTALO	I	27MHz Crystal In
B12	NO_USE	-	Not used
B13	CH2_P	O	HDMI TX data 2 differential pair (P)
B14	CH1_P	O	HDMI TX data 1 differential pair (P)
B15	CH0_P	O	HDMI TX data 0 differential pair (P)
B16	CLK_P	O	HDMI TX clock differential pair (P)
B17	NO_USE	-	Not used
B18	VDACX_OUT	O	DAC output
B19	HDMISD	I/O	HDMI I2C data
B20	HDMISCK	I/O	HDMI I2C clock
B21	OPWRSB	I/O	Power Control
B22	NC IR	I/O	Infrared input

Pin No.	Pin Name	I/O	Description
B23	KRMOD VSTB	I/O	GPIO
B24	SPBCK	I/O	SPDIF input bit clock
B25	DIR_GPO2	I/O	GPIO
C1	IND	I	Input of Main Beam Signal (D)
C2	INC	I	Input of Main Beam Signal (C)
C3	INA	I	Input of Main Beam Signal (A)
C4	FPDODVD	I	Laser Power Monitor Input for DVD APC / Differential positive input
C5	NO_USE	-	Not used
C6	VWDD2O	O	Output Voltage 2 of Laser Diode Control in APC
C7	MICIN AOSDATA4	I/O	Audio line input data
C8	AOSDATA2	I/O	Audio output serial data 2
C9	AOSDATA1	I/O	Audio output serial data 1
C10	AOLRCK	I/O	Audio output left-right clock
C11	NO_USE	-	Not used
C12	AVDD33_PLLGP	-	3.3 V Analog Power for PLL Group
C13	AVSS33_PLLGP	-	Analog Ground for PLL Group
C14	NO_USE	-	Not used
C15	AVDD12_HDMI_D	-	1.2 V Analog Power
C16	AVDD12_HDMI_C	-	1.2 V Analog Power
C17	VDACR_OUT	O	DAC output
C18	VDACG_OUT	O	DAC output
C19	NO_USE	-	Not used
C20	HTPLG	I/O	HDMI Hot Plug
C21	NO_USE	-	Not used
C22	MIC_DET GPIO2	I/O	GPIO
C23	NO_USE	-	Not used
C24	DIR_GPO3	I/O	GPIO
C25	DIR_SCL	I/O	GPIO
D1	ING	I	Input of Main Beam Signal (G)
D2	INH	I	Input of Main Beam Signal (H)
D3	NO_USE	-	Not used
D4	NO_USE	-	Not used
D5	NO_USE	-	Not used
D6	NO_USE	-	Not used
D7	NO USE	-	Not used
D8	NO_USE	-	Not used
D9	NO_USE	-	Not used
D10	AOSDATA0	I/O	Audio output serial data 0
D11	NO_USE	-	Not used
D12	AVDD33_DAC	-	3.3 V Analog Power
D13	NO_USE	-	Not used
D14	AVDD33_HDMI	-	3.3 V Analog Power
D15	NO_USE	-	Not used
D16	AVDD33_VDAC_R	-	3.3 V Analog Power
D17	NO_USE	-	Not used
D18	NO_USE	-	Not used
D19	NO_USE	-	Not used
D20	START_BIT GPIO0	I/O	GPIO
D21	DVCC33_IO_STB	-	3.3 V digital IO power for Stand-By Module
D22	IF_SDI LCDRD	I/O	GPIO

Pin No.	Pin Name	I/O	Description
D23	NO_USE	-	Not used
D24	WIFI_PCONT	I/O	GPIO
D25	TDI	I/O	JTAG ICE data in
E1	INF	I	Input of Main Beam Signal (F)
E2	INE	I	Input of Main Beam Signal (E)
E3	AVDD33_1	-	3.3 V Power Pin
E4	HAVC	O	Decoupling Pin for Reference Voltage of Main and Sub Beams
E5	VDAC0	O	Output of General DAC
E6	RSTI	I	Front-End Power on reset
E7	NO_USE	-	Not used
E8	NO_USE	-	Not used
E9	AVSS33_PLL	-	PLL /BG analog ground
E10	NO_USE	-	Not used
E11	AVSS33_DAC	-	Analog Ground
E12	NO_USE	-	Not used
E13	NO_USE	-	Not used
E14	AVSS33_HDMI	-	3.3 V Analog Power
E15	NO_USE	-	Not used
E16	AVDD33_VDAC	-	3.3 V Analog Power
E17	NO_USE	-	Not used
E18	OCPI GPIO1	I/O	GPIO
E19	NO_USE	-	Not used
E20	UATXD	I/O	Reserved for debug-only Uart pins. (1) 1st RS232 TX (2) T8032 RS232 TX
E21	NO_USE	-	Not used
E22	DVCC33_IO_STB	-	3.3 V digital IO power for Stand-By Module
E23	SPDATA	I/O	SPDIF input data
E24	SYS_REQ	I/O	GPIO
E25	TCK	I/O	JTAG ICE clock
F1	FEMPXOUT3	O	Multiplexer Output 3 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternative function: Internal monitored signal output / General output.
F2	FEMPXOUT2	O	Multiplexer Output 2 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternative function: Internal monitored signal output / General output.
F3	NO_USE	-	Not used
F4	FEMPXOUT1	O	Multiplexer Output 1 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternative function: Internal monitored signal output / General output.
F5	AUX1	I/O	Auxiliary Input Alternative function: Signal Monitoring
F6	AGND33_1	-	Analog Ground
F7	AGND33_3	-	Analog Ground
F8	NO_USE	-	Not used
F9	AVDD33_COM	-	PLL / BG 3.3 V analog power
F10	NO_USE	-	Not used
F11	AVSS12_REC	-	ADC analog ground
F12	NO_USE	-	Not used
F13	AVSS33_LD	-	Line driver analog ground
F14	AVSS33_VDAC_R	-	Analog Ground
F15	NO_USE	-	Not used
F16	NO_USE	-	Not used
F17	AVDD33_LD0	-	3.3 V power for standby
F18	NO_USE	-	Not used
F19	UARXD	I/O	Reserved for debug-only Uart pins. (1) 1st RS232 RX (2) T8032 RS232 RX

Pin No.	Pin Name	I/O	Description
F20	NO_USE	-	Not used
F21	DVCC33_IO	-	3.3 V digital IO power
F22	NC (PD)	-	Not used
F23	NO_USE	-	Not used
F24	TMS	I/O	GPIO
F25	NC (PD)	-	Not used
G1	RFIP	I	Differential Input of AC Coupling RF SUM Signal (Positive)
G2	RFIN	I	Differential Input of AC Coupling RF SUM Signal (Negative)
G3	NO_USE	-	Not used
G4	NO_USE	-	Not used
G5	NO_USE	-	Not used
G6	NO_USE	-	Not used
G7	NO_USE	-	Not used
G8	NO_USE	-	Not used
G9	AVDD33_LD	-	Line driver 3.3 V analog power
G10	NO_USE	-	Not used
G11	AVDD12_REC	-	ADC analog power
G12	NO_USE	-	Not used
G13	NO_USE	-	Not used
G14	AVSS33_VDAC	-	Analog Ground
G15	NO_USE	-	Not used
G16	AVSS33_LDO	-	Analog ground for standby
G17	NO_USE	-	Not used
G18	NO_USE	-	Not used
G19	NO_USE	-	Not used
G20	DVCC33_IO	-	3.3 V digital IO power
G21	XIF_CS	I/O	GPIO
G22	NO_USE	-	Not used
G23	TDO	I/O	JTAG ICE data out
G24	DIR_SDA	I/O	GPIO
G25	DIR_ERROR	I/O	GPIO
H1	RFIP2	I	Differential Input of AC Coupling RF SUM Signal (Positive)
H2	RFIN2	I	Differential Input of AC Coupling RF SUM Signal (Negative)
H3	V14	O	Output of Voltage Reference (1.4 V)
H4	FOO	O	Focus servo output. PDM output of focus servo compensator.
H5	AGND12_1	-	Analog Ground
H6	NO_USE	-	Not used
H7	AGND12_2	-	Analog Ground
H8	NO_USE	-	Not used
H9	NO_USE	-	Not used
H10	NO_USE	-	Not used
H11	NO_USE	-	Not used
H12	NO_USE	-	Not used
H13	NO_USE	-	Not used
H14	DGND12_K	-	Digital ground
H15	NO_USE	-	Not used
H16	AVDD12_LDO	-	1.2 V standby power
H17	NO_USE	-	Not used
H18	NO_USE	-	Not used
H19	NO_USE	-	Not used
H20	NO_USE	-	Not used
H21	DGND12_K	-	Digital ground
H22	XDIR_INT	I/O	GPIO

Pin No.	Pin Name	I/O	Description
H23	NO_USE	-	Not used
H24	RCLK0	O	Memory clock 0 positive
H25	RCLK0_	O	Memory clock 0 negative
J1	NO_USE	-	Not used
J2	TRO	O	Tracking servo output. PDM output of tracking servo compensator.
J3	TLO	O	Tilt servo output
J4	AVDD12_2	-	1.2 V Power Pin
J5	NO_USE	-	Not used
J6	AVDD33_3	-	3.3 V Power Pin
J7	NO_USE	-	Not used
J8	NO_USE	-	Not used
J9	DVCC33_IO	-	3.3 V digital IO power
J10	NO_USE	-	Not used
J11	DVCC33_IO	-	3.3 V digital IO power
J12	NO_USE	-	Not used
J13	NO_USE	-	Not used
J14	NO_USE	-	Not used
J15	NO_USE	-	Not used
J16	NO_USE	-	Not used
J17	NO_USE	-	Not used
J18	NO_USE	-	Not used
J19	NO_USE	-	Not used
J20	DDRVCCIO	-	1.5 V digital IO power
J21	NO_USE	-	Not used
J22	DGND12_K	-	Digital ground
J23	RDQ5	I/O	Memory data bit 5
J24	RDQ7	I/O	Memory data bit 7
J25	NO_USE	-	Not used
K1	NO_USE	-	Not used
K2	NO_USE	-	Not used
K3	FEOSCEN	I/O	High frequency modulation enable signal output, or LDD serial interface CLK or I2C SCL. The pin is spike-free at power-on stage.
K4	NO_USE	-	Not used
K5	AVDD12_1	-	1.2 V Power Pin
K6	NO_USE	-	Not used
K7	AGND33_2	-	Analog Ground
K8	DVCC33_IO	-	3.3 V digital IO power
K9	DVCC12_K	-	1.2V digital power
K10	NO_USE	-	Not used
K11	DVCC12_K	-	1.2V digital power
K12	DVCC12_K	-	1.2V digital power
K13	NO_USE	-	Not used
K14	NO_USE	-	Not used
K15	DVCC12_K	-	1.2V digital power
K16	NO_USE	-	Not used
K17	DVCC12_K	-	1.2V digital power
K18	DVCC12_K	-	1.2V digital power
K19	DDRVCCIO	-	1.5 V digital IO power
K20	NO_USE	-	Not used
K21	DGND12_K	-	Digital ground
K22	RDQ4	I/O	Memory data bit 4
K23	RDQ6	I/O	Memory data bit 6
K24	NO_USE	-	Not used
K25	NO_USE	-	Not used

Pin No.	Pin Name	I/O	Description
L1	FEGAINSW3	O	Read gain switch 3.
L2	FEGAINSW1	O	Read gain switch 1.
L3	FECMOD	I/O	High frequency modulation mode selection signal output, or LDD serial interface command enable. The pin is spike-free at power-on stage.
L4	FECFREQ	I/O	Frequency selection signal output, or LDD serial interface data or I2C SDA. The pin is spike-free at power-on stage.
L5	DGND12_K	-	Digital ground
L6	DGND12_K	-	Digital ground
L7	DGND12_K	-	Digital ground
L8	DVCC3_IO	-	3.3 V digital IO power
L9	DVCC12_K	-	1.2V digital power
L10	DGND12_K	-	Digital ground
L11	DGND12_K	-	Digital ground
L12	DGND12_K	-	Digital ground
L13	DGND12_K	-	Digital ground
L14	DGND12_K	-	Digital ground
L15	DGND12_K	-	Digital ground
L16	DGND12_K	-	Digital ground
L17	DVCC12_K	-	1.2V digital power
L18	DVCC12_K	-	1.2V digital power
L19	DDRVCCIO	-	1.5 V digital IO power
L20	DDRVCCIO	-	1.5 V digital IO power
L21	DGND12_K	-	Digital ground
L22	RDQ14	I/O	Memory data bit 14
L23	RDQ13	I/O	Memory data bit 13
L24	NO_USE	-	Not used
L25	NO_USE	-	Not used
M1	NO_USE	-	Not used
M2	FEGAINSW2	O	Read gain switch 2.
M3	FEFMO4	I/O	Feed motor 4 control. DAC output. Alternative function: Auxiliary servo input
M4	NO_USE	-	Not used
M5	NO_USE	-	Not used
M6	NO_USE	-	Not used
M7	NO_USE	-	Not used
M8	NO_USE	-	Not used
M9	NO_USE	-	Not used
M10	DGND12_K	-	Digital ground
M11	NO_USE	-	Not used
M12	DGND12_K	-	Digital ground
M13	NO_USE	-	Not used
M14	DGND12_K	-	Digital ground
M15	NO_USE	-	Not used
M16	DGND12_K	-	Digital ground
M17	NO_USE	-	Not used
M18	NO_USE	-	Not used
M19	NO_USE	-	Not used
M20	NO_USE	-	Not used
M21	NO_USE	-	Not used
M22	NO_USE	-	Not used
M23	RDQ15	I/O	Memory data bit 15
M24	RDQ12	I/O	Memory data bit 12
M25	NO_USE	-	Not used

Pin No.	Pin Name	I/O	Description
N1	FEFMO	O	Feed motor 1 control. DAC output.
N2	FEFMO2	O	Feed motor 2 control. DAC output.
N3	FEFMO3	I/O	Feed motor 3 control. DAC output. Alternative function: Auxiliary servo input
N4	DGND12_K	-	Digital ground
N5	FEGIO5	O	General IO
N6	FEGIO7	I/O	General IO. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout.
N7	FEGIO6	O	Read gain switch 6. The pin is not allowed to pull-up in circuit layout. General IO
N8	NO_USE	-	Not used
N9	NO_USE	-	Not used
N10	DGND12_K	-	Digital ground
N11	DGND12_K	-	Digital ground
N12	NO_USE	-	Not used
N13	DGND12_K	-	Digital ground
N14	NO_USE	-	Not used
N15	DGND12_K	-	Digital ground
N16	DGND12_K	-	Digital ground
N17	DVCC12_K	-	1.2V digital power
N18	DVCC12_K	-	1.2V digital power
N19	DDRVCCIO	-	1.5 V digital IO power
N20	DDRVCCIO	-	1.5 V digital IO power
N21	NO_USE	-	Not used
N22	DGND12_K	-	Digital ground
N23	DGND12_K	-	Digital ground
N24	RDQS1_	I/O	Memory negative data strobe bit 1
N25	RDQS1	I/O	Memory positive data strobe bit 1
P1	NO_USE	-	Not used
P2	FETRAYPWM	O	Tray DAC / PWM control input. Controlled by uP.
P3	FEDMO	O	Disk motor control output. DAC output.
P4	NO_USE	-	Not used
P5	NO_USE	-	Not used
P6	NO_USE	-	Not used
P7	NO_USE	-	Not used
P8	NO_USE	-	Not used
P9	DVCC12_K	-	1.2V digital power
P10	DGND12_K	-	Digital ground
P11	NO_USE	-	Not used
P12	DGND12_K	-	Digital ground
P13	NO_USE	-	Not used
P14	DGND12_K	-	Digital ground
P15	NO_USE	-	Not used
P16	DGND12_K	-	Digital ground
P17	NO_USE	-	Not used
P18	DVCC12_K	-	1.2V digital power
P19	DDRVCCIO	-	1.5 V digital IO power
P20	NO_USE	-	Not used
P21	NO_USE	-	Not used
P22	NO_USE	-	Not used
P23	NO_USE	-	Not used
P24	RDQS0	I/O	Memory positive data strobe bit 0
P25	RDQS0_	I/O	Memory negative data strobe bit 0
R1	FE_FG	I/O	Motor Hall sensor input. The pin is spike-free at power-on stage.

Pin No.	Pin Name	I/O	Description
R2	FEGIO0	I/O	LDD serial interface data. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout. General IO
R3	NO_USE	-	Not used
R4	DGND12_K	-	Digital ground
R5	FEGIO9	I/O	General IO. The pin is spike-free at power-on stage. General IO
R6	FEGIO4	O	Read gain switch 4 General IO
R7	NO_USE	-	Not used
R8	NO_USE	-	Not used
R9	NO_USE	-	Not used
R10	DGND12_K	-	Digital ground
R11	DGND12_K	-	Digital ground
R12	DGND12_K	-	Digital ground
R13	DGND12_K	-	Digital ground
R14	DGND12_K	-	Digital ground
R15	DGND12_K	-	Digital ground
R16	NO_USE	-	Not used
R17	DVCC12_K	-	1.2V digital power
R18	NO_USE	-	Not used
R19	NO_USE	-	Not used
R20	DDRVCCIO	-	1.5 V digital IO power
R21	NO_USE	-	Not used
R22	RDQM1_B	O	Memory data mask bit 1
R23	RDQM0	O	Memory data mask bit 0
R24	RDQ10	I/O	Memory data bit 10
R25	NO_USE	-	Not used
T1	FEEJECT_	I/O	Eject / stop kep input, active low. The pin is spike-free at power-on stage. Alternative function: General IO
T2	FE_TRAYIN_	I/O	Tray_is_in Input, A Logical Low Indicates the Tray is IN. Feedback Flag is from Tray Connector. The pin is spike-free at power-on stage. Alternative function: General IO
T3	FEGIO10	I/O	PC RS232 serial receive data. The pin is spike-free at power-on stage.
T4	NO_USE	-	Not used
T5	NO_USE	-	Not used
T6	NO_USE	-	Not used
T7	NO_USE	-	Not used
T8	NO_USE	-	Not used
T9	DVCC12_K	-	1.2V digital power
T10	NO_USE	-	Not used
T11	DVCC12_K	-	1.2V digital power
T12	DVCC12_K	-	1.2V digital power
T13	NO_USE	-	Not used
T14	DVCC12_K	-	1.2V digital power
T15	NO_USE	-	Not used
T16	DVCC12_K	-	1.2V digital power
T17	DVCC12_K	-	1.2V digital power
T18	DDRVCCIO	-	1.5 V digital IO power
T19	RVREFO	I	Memory VREF
T20	NO_USE	-	Not used
T21	DGND12_K	-	Digital ground
T22	RDQ9	I/O	Memory data bit 9
T23	RDQ8	I/O	Memory data bit 8

Pin No.	Pin Name	I/O	Description
T24	RDQ11	I/O	Memory data bit 11
T25	NO_USE	-	Not used
U1	FEGIO11	I/O	PC RS232 serial transmit data. The pin is spike-free at power-on stage.
U2	FEGIO3	I/O	LED Control Output. Initial 0 Output. The pin is spike-free at power-on stage. General IO
U3	USB_VRT	O	USB reference resistor
U4	FETRAYOUT_	I/O	Tray_is_in Input, A Logical Low Indicates the Tray is OUT. Feedback Flag is from Tray Connector. The pin is spike-free at power-on stage. Alternative function: General IO
U5	NC AMUTE	I/O	Multiple function: (1) 1st Audio DAC mute (2) GPIO
U6	DGND12_K	-	Digital ground
U7	NO_USE	-	Not used
U8	NO_USE	-	Not used
U9	DVCC12_K	-	1.2V digital power
U10	NO_USE	-	Not used
U11	DVCC12_K	-	1.2V digital power
U12	DVCC12_K	-	1.2V digital power
U13	NO_USE	-	Not used
U14	DVCC12_K	-	1.2V digital power
U15	DVCC12_K	-	1.2V digital power
U16	DVCC12_K	-	1.2V digital power
U17	NO_USE	-	Not used
U18	NO_USE	-	Not used
U19	NO_USE	-	Not used
U20	NO_USE	-	Not used
U21	RA1	O	Memory address bit 1
U22	DGND12_K	-	Digital ground
U23	RDQ3	I/O	Memory data bit 3
U24	NO_USE	-	Not used
U25	RDQ2	I/O	Memory data bit 2
V1	USB_DP_P2	I/O	USB port2 differential serial data bus (plus)
V2	USB_DM_P2	I/O	USB port2 differential serial data bus (minus)
V3	NO_USE	-	Not used
V4	NO_USE	-	Not used
V5	DGND12_K	-	Digital ground
V6	NO_USE	-	Not used
V7	NO_USE	-	Not used
V8	NO_USE	-	Not used
V9	NO_USE	-	Not used
V10	NO_USE	-	Not used
V11	NO_USE	-	Not used
V12	NO_USE	-	Not used
V13	NO_USE	-	Not used
V14	DDRVCCIO	-	1.5 V digital IO power
V15	NO_USE	-	Not used
V16	DDRVCCIO	-	1.5 V digital IO power
V17	DDRVCCIO	-	1.5 V digital IO power
V18	DDRVCCIO	-	1.5 V digital IO power
V19	NO_USE	-	Not used
V20	NO_USE	-	Not used
V21	NO_USE	-	Not used
V22	RA11	O	Memory address bit 11

Pin No.	Pin Name	I/O	Description
V23	RDQ1	I/O	Memory data bit 1
V24	RDQ0	I/O	Memory data bit 0
V25	NO_USE	-	Not used
W1	USB_DP_P0	I/O	USB port0 differential serial data bus (plus)
W2	USB_DM_P0	I/O	USB port0 differential serial data bus (minus)
W3	NO_USE	-	Not used
W4	AVSS33_USB	-	Analog ground for USB
W5	NO_USE	-	Not used
W6	NO_USE	-	Not used
W7	GND EFPWRQ	-	2.5 V power for E-fuse programming
W8	RBA1_B	O	Memory bank address bit 1
W9	NO_USE	-	Not used
W10	RA8_B	O	Memory address bit 8
W11	NO_USE	-	Not used
W12	RA11_B	O	Memory address bit 11
W13	NO_USE	-	Not used
W14	NO_USE	-	Not used
W15	DDRVCCIO	-	1.5 V digital IO power
W16	DDRVCCIO	-	1.5 V digital IO power
W17	NO_USE	-	Not used
W18	DDRVCCIO	-	1.5 V digital IO power
W19	NO_USE	-	Not used
W20	RA8	O	Memory address bit 8
W21	RA4	O	Memory address bit 4
W22	RA6	O	Memory address bit 6
W23	NO_USE	-	Not used
W24	RODT_B	O	Memory on die termination enable
W25	RRAS_B	O	Memory row address strobe
Y1	USB_DP_P1	I/O	USB port1 differential serial data bus (plus)
Y2	USB_DM_P1	I/O	USB port1 differential serial data bus (minus)
Y3	NO_USE	-	Not used
Y4	NO_USE	-	Not used
Y5	NO_USE	-	Not used
Y6	USB_PCONT GPIO7	I/O	GPIO
Y7	NO_USE	-	Not used
Y8	RA12_B	O	Memory address bit 12
Y9	NO_USE	-	Not used
Y10	RA1_B	O	Memory address bit 1
Y11	NO_USE	-	Not used
Y12	RCAS_B	O	Memory column address strobe
Y13	DGND12_K	-	Digital ground
Y14	DDRVCCIO	-	1.5 V digital IO power
Y15	DGND12_K	-	Digital ground
Y16	NO_USE	-	Not used
Y17	DGND12_K	-	Digital ground
Y18	RVREF0_B	I	Memory VREF
Y19	DGND12_K	-	Digital ground
Y20	NO_USE	-	Not used
Y21	NO_USE	-	Not used
Y22	NO_USE	-	Not used
Y23	RCS_	O	Memory chip select
Y24	RBA0	O	Memory bank address bit 0

Pin No.	Pin Name	I/O	Description
Y25	NO_USE	-	Not used
AA1	MFI_SCL	I/O	Serial interface control line
AA2	MFI_SDA	I/O	Serial interface data line
AA3	AVDD33_USB	-	3.3 V Analog power for USB
AA4	JIGMODE0 GPIO4	I/O	GPIO
AA5	XVMUTE GPIO3	I/O	GPIO
AA6	RCKE_B	O	Memory clock enable
AA7	NO_USE	-	Not used
AA8	RA6_B	O	Memory address bit 6
AA9	NO_USE	-	Not used
AA10	RA4_B	O	Memory address bit 4
AA11	NO_USE	-	Not used
AA12	RWE_B	O	Memory write enable
AA13	NO_USE	-	Not used
AA14	NO_USE	-	Not used
AA15	RDQM1_B	O	Memory data mask bit 1
AA16	NO_USE	-	Not used
AA17	NO_USE	-	Not used
AA18	NO_USE	-	Not used
AA19	DGND12_K	-	Digital ground
AA20	RA12	O	Memory address bit 12
AA21	AVDD33_MEMPLL	-	3.3 V Analog Power for MEMPLL
AA22	NO_USE	-	Not Used
AA23	RA3	O	Memory address bit 3
AA24	RA5	O	Memory address bit 5
AA25	RA0	O	Memory address bit 0
AB1	JIGMODE1 GPIO5	I/O	GPIO
AB2	UPG_STATUS GPIO6	I/O	GPIO
AB3	NFD6	I/O	NAND Flash Data input/output bit6
AB4	DVCC33_IO	-	3.3 V digital IO power
AB5	NO_USE	-	Not used
AB6	RA10_B	O	Memory address bit 10
AB7	NO_USE	-	Not used
AB8	RBA0_B	O	Memory bank address bit 0
AB9	NO_USE	-	Not used
AB10	RA3_B	O	Memory address bit 3
AB11	RA13_B	O	Memory address bit 13
AB12	NO_USE	-	Not used
AB13	DGND12_K	-	Digital ground
AB14	RDQ11_B	I/O	Memory data bit 11
AB15	RDQ10_B	I/O	Memory data bit 10
AB16	RDQM0_B	O	Memory data mask bit 0
AB17	NO_USE	-	Not used
AB18	NO_USE	-	Not used
AB19	AVSS33_MEMPLL	-	Analog Ground for MEMPLL
AB20	NO_USE	-	Not used
AB21	NO_USE	-	Not used
AB22	NO_USE	-	Not used
AB23	NO_USE	-	Not used
AB24	RA7	O	Memory address bit 7

Pin No.	Pin Name	I/O	Description
AB25	RA2	O	Memory address bit 2
AC1	NFD7	I/O	NAND Flash Data input/output bit7
AC2	NFD4	I/O	NAND Flash Data input/output bit4
AC3	NFD0	I/O	NAND Flash Data input/output bit0
AC4	NO_USE	-	Not used
AC5	DVCC33_IO	-	3.3 V digital IO power
AC6	NFALE	I/O	NAND Flash address latch enable
AC7	NO_USE	-	Not used
AC8	RA5_B	O	Memory address bit 5
AC9	NO_USE	-	Not used
AC10	RA0_B	O	Memory address bit 9
AC11	RBA2_B	O	Memory bank address bit 2
AC12	RDQ0_B	I/O	Memory data bit 0
AC13	RDQ1_B	I/O	Memory data bit 1
AC14	NO_USE	-	Not used
AC15	RDQ8_B	I/O	Memory data bit 8
AC16	RDQ9_B	I/O	Memory data bit 9
AC17	RDQS1_B	I/O	Memory negative data strobe bit 1
AC18	DGND12_K	-	Digital ground
AC19	RDQ12_B	I/O	Memory data bit 12
AC20	RDQ7_B	I/O	Memory data bit 7
AC21	RDQ5_B	I/O	Memory data bit 5
AC22	RCAS_	O	Memory column address strobe
AC23	NO_USE	-	Not used
AC24	RA9	O	Memory address bit 9
AC25	RRESET	O	Memory reset
AD1	NFD5	I/O	NAND Flash Data input/output bit5
AD2	NFD2	I/O	NAND Flash Data input/output bit2
AD3	NFRBN	I/O	NAND Flash ready / busy
AD4	NFCEN	I/O	NAND Flash chip enable
AD5	NFCLE	I/O	NAND Flash command latch enable
AD6	NFWEN	I/O	NAND Flash write enable
AD7	RA9_B	O	Memory address bit 9
AD8	RA7_B	O	Memory address bit 7
AD9	NO_USE	-	Not used
AD10	RODT_B	O	Memory on die termination enable
AD11	NO_USE	-	Not used
AD12	NO_USE	-	Not used
AD13	RDQ2_B	I/O	Memory data bit 2
AD14	NO_USE	-	Not used
AD15	NO_USE	-	Not used
AD16	RDQS0_B	I/O	Memory positive data strobe bit 0
AD17	RDQS1_B	I/O	Memory positive data strobe bit 1
AD18	RDQ15_B	I/O	Memory data bit 15
AD19	NO_USE	-	Not used
AD20	RDQ6_B	I/O	Memory data bit 6
AD21	RDQ4_B	I/O	Memory data bit 4
AD22	RCLK0_B	O	Memory clock 0 positive
AD23	RA10	O	Memory address bit 10
AD24	RBA2	O	Memory bank address bit 2
AD25	RA13	O	Memory address bit 13
AE1	NFD3	I/O	NAND Flash Data input/output bit3
AE2	NFD1	I/O	NAND Flash Data input/output bit1

Pin No.	Pin Name	I/O	Description
AE3	NFRBN2	I/O	NAND Flash 2nd ready / busy
AE4	NFREN	I/O	NAND Flash read enable
AE5	NFCEN2	I/O	NAND Flash 2nd chip enable
AE6	NO_USE	-	Not used
AE7	RRESET_B	O	Memory reset
AE8	RA2_B	O	Memory address bit 2
AE9	NO_USE	-	Not used
AE10	RCS_B	O	Memory chip select
AE11	RRAS_B	O	Memory row address strobe
AE12	NO_USE	-	Not used
AE13	RDQ3_B	I/O	Memory data bit 3
AE14	NO_USE	-	Not used
AE15	NO_USE	-	Not used
AE16	RDQS0_B	I/O	Memory negative data strobe bit 0
AE17	NO_USE	-	Not used
AE18	RDQ13_B	I/O	Memory data bit 13
AE19	RDQ14_B	I/O	Memory data bit 14
AE20	NO_USE	-	Not used
AE21	NO_USE	-	Not used
AE22	RCLK0_B	O	Memory clock 0 negative
AE23	RCKE	O	Memory clock enable
AE24	RBA1	O	Memory bank address bit 1
AE25	RWE_	O	Memory write enable

MB148 BOARD (1/9) IC106, IC206 K4B2G1646C-HCH9 (SD-RAM)
MB148 BOARD (1/9) IC106, IC206 H5TQ2G63BFR-H9CR-C (SD-RAM)

Pin No.	Pin Name	I/O	Description
A1	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
A2	DQU5	I/O	Data Input/output: Bi-directional data bus.
A3	DQU7	I/O	Data Input/output: Bi-directional data bus.
A4	NO_USE	-	Not used
A5	NO_USE	-	Not used
A6	NO_USE	-	Not used
A7	DQU4	I/O	Data Input/output: Bi-directional data bus.
A8	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
A9	VSS	-	Ground
B1	VSSQ	-	DQ Ground
B2	VDD	-	Power Supply: 1.5V +/-0.075
B3	VSS	-	Ground
B4	NO_USE	-	Not used
B5	NO_USE	-	Not used
B6	NO_USE	-	Not used
B7	$\overline{\text{DQSU}}$	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
B8	DQU6	I/O	Data Input/output: Bi-directional data bus.
B9	VSSQ	-	DQ Ground
C1	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
C2	DQU3	I/O	Data Input/output: Bi-directional data bus.
C3	DQU1	I/O	Data Input/output: Bi-directional data bus.
C4	NO_USE	-	Not used
C5	NO_USE	-	Not used
C6	NO_USE	-	Not used
C7	DQSU	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
C8	DQU2	I/O	Data Input/output: Bi-directional data bus.
C9	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
D1	VSSQ	-	DQ Ground
D2	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
D3	DMU	I	Input Data Mask: DM is an input mask signal for write data. Input data is masked when DM is sampled HIGH coincident with that input data during a Write access. DM is sampled on both edges of DQS. For x8 device, the function of DM or TDQS/ $\overline{\text{TDQS}}$ is enabled by Mode Register A11 setting in MR1.
D4	NO_USE	-	Not used
D5	NO_USE	-	Not used
D6	NO_USE	-	Not used
D7	DQU0	I/O	Data Input/output: Bi-directional data bus.
D8	VSSQ	-	DQ Ground
D9	VDD	-	Power Supply: 1.5V +/-0.075
E1	VSS	-	Ground
E2	VSSQ	-	DQ Ground
E3	DQL0	I/O	Data Input/output: Bi-directional data bus.
E4	NO_USE	-	Not used
E5	NO_USE	-	Not used
E6	NO_USE	-	Not used

Pin No.	Pin Name	I/O	Description
E7	DML	I	Input Data Mask: DM is an input mask signal for write data. Input data is masked when DM is sampled HIGH coincident with that input data during a Write access. DM is sampled on both edges of DQS. For x8 device, the function of DM or TDQS/ $\overline{\text{TDQS}}$ is enabled by Mode Register A11 setting in MR1.
E8	VSSQ	-	DQ Ground
E9	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
F1	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
F2	DQL2	I/O	Data Input/output: Bi-directional data bus.
F3	DQSL	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
F4	NO_USE	-	Not used
F5	NO_USE	-	Not used
F6	NO_USE	-	Not used
F7	DQL1	I/O	Data Input/output: Bi-directional data bus.
F8	DQL3	I/O	Data Input/output: Bi-directional data bus.
F9	VSSQ	-	DQ Ground
G1	VSSQ	-	DQ Ground
G2	DQL6	I/O	Data Input/output: Bi-directional data bus.
G3	$\overline{\text{DQSL}}$	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
G4	NO_USE	-	Not used
G5	NO_USE	-	Not used
G6	NO_USE	-	Not used
G7	VDD	-	Power Supply: 1.5V +/-0.075
G8	VSS	-	Ground
G9	VSSQ	-	DQ Ground
H1	VREFDQ	-	Reference voltage for DQ
H2	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
H3	DQL4	I/O	Data Input/output: Bi-directional data bus.
H4	NO_USE	-	Not used
H5	NO_USE	-	Not used
H6	NO_USE	-	Not used
H7	DQL7	I/O	Data Input/output: Bi-directional data bus.
H8	DQL5	I/O	Data Input/output: Bi-directional data bus.
H9	VDDQ	-	DQ Power Supply: 1.5V +/-0.075V
J1	NC	-	No Connect: No internal electrical connection is present.
J2	VSS	-	Ground
J3	$\overline{\text{RAS}}$	I	Command Input: $\overline{\text{RAS}}$ (along with $\overline{\text{CS}}$) define the command being entered.
J4	NO_USE	-	Not used
J5	NO_USE	-	Not used
J6	NO_USE	-	Not used
J7	CK	I	Clock: CK is differential clock input. All address and control input signals are sampled on the crossing of the positive edge of CK. Output (read) data is referenced to the crossing of CK.
J8	VSS	-	Ground
J9	NC	-	No Connect: No internal electrical connection is present.
K1	ODT	I	On Die Termination: ODT (registered HIGH) enables termination resistance internal to the DDR3 SDRAM. When enabled, ODT is only applied to each DQ, DQS, DQS and DM/TDQS, NU/TDQS (When TDQS is enabled via Mode Register A11=1 in MR1) signal for x8 configurations. The ODT pin will be ignored if the Mode Register (MR1) is programmed to disable ODT.
K2	VDD	-	Power Supply: 1.5V +/-0.075

Pin No.	Pin Name	I/O	Description
K3	$\overline{CAS}$	I	Command Input: $\overline{CAS}$ (along with $\overline{CS}$) define the command being entered.
K4	NO_USE	-	Not used
K5	NO_USE	-	Not used
K6	NO_USE	-	Not used
K7	$\overline{CK}$	I	Clock: $\overline{CK}$ is differential clock input. All address and control input signals are sampled on the crossing of the negative edge of $\overline{CK}$. Output (read) data is referenced to the crossing of $\overline{CK}$.
K8	VDD	-	Power Supply: 1.5V +/-0.075
K9	CKE	I	Clock Enable: CKE HIGH activates, and CKE LOW deactivates, internal clock signal and device input buffers and output drivers. Talking CKE LOW provides Precharge Power-Down and Self Refresh operation (all banks idle), or Active Power-Down (Row Active in any bank). CKE is asynchronous for self refresh exit. After V_{REFCA} has become stable during the power on and initialization sequence, it must be maintained during all operations (including Self-Refresh). CKE must be maintained high throughout read and write accesses. Input buffers, excluding CK, $\overline{CK}$, ODT and CKE are disabled during power-down. Input buffers, excluding CKE, are disabled during Self-Refresh.
L1	NC	-	No Connect: No internal electrical connection is present.
L2	$\overline{CS}$	I	Chip Select: All commands are masked when $\overline{CS}$ is registered HIGH. $\overline{CS}$ provides for external Rank selection on system with multiple Ranks. $\overline{CS}$ is considered part of the command code.
L3	$\overline{WE}$	I	Command Input: $\overline{WE}$ (along with $\overline{CS}$) define the command being entered.
L4	NO_USE	-	Not used
L5	NO_USE	-	Not used
L6	NO_USE	-	Not used
L7	A10	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands. Autoprecharge: A10 is sampled during Read/Write commands to determine whether Autoprecharge should be performed to the accessed bank after the Read/Write operation. (HIGH: Autoprecharge; LOW: No Autoprecharge) A10 is sampled during a Precharge command to determine the Percharge applies to one bank (A10 LOW) or all banks (A10 HIGH). If only one bank is to be precharged, the bank is selected by bank adresses.
L8	ZQ	-	Reference Pin for ZQ calibration
L9	NC	-	No Connect: No internal electrical connection is present.
M1	VSS	-	Ground
M2	BA0	I	Bank Address Inputs: BA0 define to which bank an Active, Read, Write or Precharge command is being applied. Bank address also determines if the mode register or extended mode register is to be accessed during a MRS cycle.
M3	BA2	I	Bank Address Inputs: BA2 define to which bank an Active, Read, Write or Precharge command is being applied. Bank address also determines if the mode register or extended mode register is to be accessed during a MRS cycle.
M4	NO_USE	-	Not used
M5	NO_USE	-	Not used
M6	NO_USE	-	Not used
M7	NC	-	No Connect: No internal electrical connection is present.
M8	VREFCA	-	Reference voltage for CA
M9	VSS	-	Ground
N1	VDD	-	Power Supply: 1.5V +/-0.075
N2	A3	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
N3	A0	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
N4	NO_USE	-	Not used
N5	NO_USE	-	Not used
N6	NO_USE	-	Not used
N7	A12	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands. Burst Chop: A12 is sampled during Read and Write commands to determine if burst chop (on-the-fly) will be performed. (HIGH: no burst chop, LOW: burst chopped).

Pin No.	Pin Name	I/O	Description
N8	BA1	I	Bank Address Inputs: BA1 define to which bank an Active, Read, Write or Precharge command is being applied. Bank address also determines if the mode register or extended mode register is to be accessed during a MRS cycle.
N9	VDD	-	Power Supply: 1.5V +/-0.075
P1	VSS	-	Ground
P2	A5	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P3	A2	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P4	NO_USE	-	Not used
P5	NO_USE	-	Not used
P6	NO_USE	-	Not used
P7	A1	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P8	A4	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P9	VSS	-	Ground
R1	VDD	-	Power Supply: 1.5V +/-0.075
R2	A7	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R3	A9	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R4	NO_USE	-	Not used
R5	NO_USE	-	Not used
R6	NO_USE	-	Not used
R7	A11	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R8	A6	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R9	VDD	-	Power Supply: 1.5V +/-0.075
T1	VSS	-	Ground
T2	$\overline{\text{RESET}}$	I	Active Low Asynchronous Reset: Reset is active when $\overline{\text{RESET}}$ is LOW, and inactive when $\overline{\text{RESET}}$ is HIGH. $\overline{\text{RESET}}$ must be HIGH during normal operation. $\overline{\text{RESET}}$ is CMOS rail to rail signal with DC high and low at 80% and 20% of V_{DD}, example, 1.20V for DC high and 0.30V for DC low.
T3	A13	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
T4	NO_USE	-	Not used
T5	NO_USE	-	Not used
T6	NO_USE	-	Not used
T7	NC	-	No Connect: No internal electrical connection is present.
T8	A8	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
T9	VSS	-	Ground

MB148 BOARD (9/9) IC6301 R5F3650KCDFB (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	SIRCS_IN	I	SIRCS signal input from the remote control receiver
2	FAN CONT2	O	Fan motor speed control signal output terminal control by DA converter Port output higher, speed slower
3	FL_D_OUT	O	Serial data output to the fluorescent indicator tube driver
4	NO_USE	-	No used
5	FL_CLK	O	Serial data transfer clock signal output to the fluorescent indicator tube driver
6	BYTE	I	External data bus width selection signal input terminal
7	CNVss	I	Processor mode selection signal input terminal
8	NO_USE	-	No used
9	NO_USE	-	No used
10	RESET	I	System reset signal input from the reset signal generator and reset switch "L": reset For several hundreds msec. After the power supply rises, "L" is input, then it change to "H"
11	Xout	O	System clock output terminal (8MHz)
12	Vss	-	Ground terminal
13	Xin	I	System clock input terminal (5MHz)
14	Vcc1	-	Power supply terminal (+3.3V)
15	CEC_TX_RX	I/O	CEC serial data input/output with the HDMI connector
16	NO_USE	-	No used
17	KEY_INT	I	Key wake-up signal input terminal
18	AC_CUT	I	AC cut detection signal input terminal "L": AC cut
19	BD_IF_START	O	Ready signal output to the BD decoder "H": ready
20	NO_USE	-	No used
21	NO_USE	-	No used
22	NO_USE	-	No used
23	BD_IF_REQ	I	Request signal input from the BD decoder
24	NO_USE	-	No used
25	PCONT_FL	O	Power supply on/off control signal output terminal for fluorescent indicator tube driver "H": power on
26	LED_PWM 1	O	LED drive signal output terminal
27	NO_USE	-	No used
28	NO_USE	-	No used
29	TXD1	O	No used
30	RXD1	I	No used
31	ON CHIP DEBUG / CLK1	I	No used
32	NO USE / RTS1	O	No used
33	DAMP_SDAO	I/O	Two-way data bus with the DAMP processor
34	DAMP_SCLO	I/O	Serial data transfer clock signal output to the DAMP processor
35	DC_DET	I	Speaker DC detection signal input terminal "L": speaker DC is detected
36	PCONT1	O	Power supply on/off control signal output terminal "H": power on
37	PCONT2	O	Power supply control signal output terminal
38	PCONT3	O	Power supply on/off control signal output terminal "H": power on
39	EPM	O	EPM for update used
40	STA516_POWER	O	STA516 IC Power Control, "H": power on
41	NO_USE	-	No used
42	FAN_ON	O	Power supply on/off control signal output terminal for fan motor "H": power on
43	NO_USE	-	No used
44	CE	I	Chip enable signal input terminal
45	ST_SDA	I/O	Two-way data bus with the FM receiver
46	ST_SCL	I/O	Serial data transfer clock signal output to the FM receiver
47	PVDD_CONT	O	Power Supply PVDD control for eco used
48	DRIVER_RST (EN)	O	Reset signal output to the power amplifier "L": reset
49	NO_USE	-	No used

Pin No.	Pin Name	I/O	Description
50	DAMP_PDN	O	DAMP Driver Standby Control
51	DAMP XRST	O	Reset signal output to the DAMP processor "L": reset
52	DAMP_XMUTE	O	Muting on/off control signal output to DAMP processor "L": muting on
53	NO_USE	-	No used
54	NO_USE	-	No used
55	NO_USE	-	No used
56	KARAOKE_MODE	I	Karaoke mode information input terminal
57	MIC_CLK	I/O	Clock signal output terminal
58	MIC_DATA	I/O	Serial data output terminal
59	MIC-DET_OUT	O	Microphone detection signal output terminal
60	Vcc	-	Power supply terminal (+3.3V)
61	NJU72341_POWER	O	Power control for MIC IC
62	Vss	-	Ground terminal
63	PLUG DET / PLUG1 DET / PLUG2 DET	I	Microphone A or B plug insert detection signal input terminal Detection by AD
64	NO_USE	-	No used
65	DRIVE_SD / POWER_ DET	I	Shut down signal input from the power amplifier "L": shut down
66	NO_USE	-	No used
67	STA516_TH_WARN	I	Thermal warning for temperature of the IC STA516 more than 130 °C
68	FL_CS	O	Chip select signal output to the fluorescent indicator tube driver
69	ASEL0	O	Audio selection signal output terminal "L": external audio input, "H": FM
70	ASEL1	O	Audio selection signal output terminal
71	NO_USE	-	No used
72	NO_USE	-	No used
73	ST_RDS_INT	I	RDS interrupt signal input from the FM receiver
74	NO_USE	-	No used
75	BD_SDI (IF_SDO)	O	Serial data output to the BD decoder
76	BD_SDO (IF_SDI)	I	Serial data input from the BD decoder
77	BD_SCLK	I	Serial data transfer clock signal input from the BD decoder
78	BD_CS	O	Chip select signal output to the BD decoder
79	NO_USE	-	No used
80	NO_USE	-	No used
81	BD_RESET	O	Reset signal output to the BD decoder, NAND flash and EEPROM "L": reset
82	JIG MODE1	I/O	Jig mode selection signal input from the BD decoder
83	OPWRSB	I	Power control signal input from the BD decoder
84	FE EJECT	O	Eject/ stop key input detection signal output to the BD decoder
85	UPG STATUS	I	UPG status signal input from the BD decoder
86	NO_USE	-	No used
87	NO_USE	-	No used
88	NO_USE	-	No used
89	BD_TEMP	I	Temperature detection signal input terminal
90	DESTINATION	I	Destination setting terminal
91	MODEL	I	Model setting terminal Fixed at "L" in this unit
92, 93	KEY2, KEY1	I	Key input terminal
94	Vss	-	Ground terminal
95	KEY0	I	Power supply key input terminal
96	Vref	I	Reference voltage (+3.3V) input terminal
97	Vcc	-	Power supply terminal (+3.3V)
98	NO_USE	-	No used
99	NO_USE	-	No used
100	NO_USE	-	No used

SECTION 7
ELECTRICAL PARTS LIST

AMP

Note:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- CAPACITORS
  uF: µF
- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . , uPA. . , µPA. . ,
  uPB. . : µPB. . , uPC. . , µPC. . ,
  uPD. . : µPD. .
- Abbreviation
  AUS : Australian model
  CND : Canadian model
  E3 : 240 V AC area in E model
  E12 : 220-240 V AC area in E model
  E15 : Iran model
  E32 : 110-240 V AC area in E model
  EA : Saudi Arabia model
  MX6 : Latin-American model
  PX : PX model
  SAF : South African model
  SP : Singapore model
  TW : Taiwan model

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by mark 🔒 contain confidential information.
Strictly follow the instructions whenever the components are repaired and/or replaced.

Les composants identifiés par la marque 🔒 contiennent des informations confidentielles.
Suivre scrupuleusement les instructions chaque fois qu'un composant est remplacé et / ou réparé.

Ref. No.	Part No.	Description			Remark
	A-1848-679-A	AMP BOARD, COMPLETE (EXCEPT E190)			
	A-1870-991-A	AMP BOARD, COMPLETE (E190)			
		**********			
		< CAPACITOR >			
C3013	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C3014	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3021	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C3022	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C3023	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C3025	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3026	1-112-779-11	CERAMIC CHIP	0.047uF	10%	25V
C3027	1-112-776-11	CERAMIC CHIP	0.0047uF	10%	50V
C3028	1-112-779-11	CERAMIC CHIP	0.047uF	10%	25V
C3029	1-112-776-11	CERAMIC CHIP	0.0047uF	10%	50V
C3031	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3032	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3033	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3041	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3042	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3050	1-117-681-11	ELECT CHIP	100uF	20%	16V
C3051	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3099	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3106	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3107	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3108	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3109	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3115	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3117	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3118	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3119	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3120	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3122	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3123	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3124	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3127	1-114-869-11	CERAMIC CHIP	2.2uF	10%	6.3V
C3131	1-116-717-11	CERAMIC CHIP	10uF	20%	10V

Ref. No.	Part No.	Description			Remark
C3133	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C3134	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3135	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3136	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3138	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3139	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3140	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3141	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3156	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3157	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3163	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3164	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3228	1-100-909-11	CERAMIC CHIP	10uF	10%	6.3V
C3251	1-118-122-11	ELECT	270uF	20%	63V
C3253	1-118-122-11	ELECT	270uF	20%	63V
C3271	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3272	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3281	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3282	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3306	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3307	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3308	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3309	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3315	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3317	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3318	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3319	1-114-831-91	CERAMIC CHIP	1uF	10%	100V
C3320	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3322	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3323	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3324	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3328	1-114-869-11	CERAMIC CHIP	2.2uF	10%	6.3V
C3331	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C3333	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C3334	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3335	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3336	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V

Note: When the AMP board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC3102 AND IC3302 ON THE AMP BOARD AND THE COMPLETE AMP BOARD" on servicing notes (page 10).

AMP

Ref. No.	Part No.	Description			Remark
C3338	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3339	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3340	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3341	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3356	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3357	1-118-066-11	CERAMIC CHIP	0.1uF	10%	100V
C3363	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3364	1-118-119-91	CERAMIC CHIP	0.47uF	10%	100V
C3371	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3372	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3381	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3382	1-100-154-91	CERAMIC CHIP	330PF	5%	100V
C3401	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3402	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3403	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3404	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3405	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3406	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3407	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3408	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3451	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3452	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3453	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3454	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3455	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3456	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3457	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3458	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3459	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3460	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3461	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3462	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3463	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3464	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3465	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3466	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C3502	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3503	1-117-681-11	ELECT CHIP	100uF	20%	16V
C3504	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3505	1-128-992-21	ELECT CHIP	47uF	20%	25V
C3552	1-126-208-21	ELECT CHIP	47uF	20%	4V
C3554	1-116-405-11	CERAMIC CHIP	0.01uF	10%	100V
C3555	1-114-868-11	CERAMIC CHIP	0.1uF	10%	50V
C3557	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C3561	1-216-296-11	SHORT CHIP	0		
C3562	1-216-296-11	SHORT CHIP	0		
C3563	1-216-296-11	SHORT CHIP	0		
C3564	1-216-296-11	SHORT CHIP	0		
C3574	1-116-734-11	CERAMIC CHIP	1uF	20%	16V
		< CONNECTOR >			
* CN3501	1-695-320-21	PIN, CONNECTOR (1.5MM) (SMD) 2P			
		< DIODE >			
D3101	6-503-733-01	DI 1SMB51AT3G			
D3102	6-503-733-01	DI 1SMB51AT3G			
D3103	6-503-733-01	DI 1SMB51AT3G			
D3104	6-503-733-01	DI 1SMB51AT3G			
D3151	8-719-056-48	DI 1SS388			

Ref. No.	Part No.	Description			Remark
D3301	6-503-733-01	DI 1SMB51AT3G			
D3302	6-503-733-01	DI 1SMB51AT3G			
D3303	6-503-733-01	DI 1SMB51AT3G			
D3304	6-503-733-01	DI 1SMB51AT3G			
D3351	8-719-056-48	DI 1SS388			
D3501	6-502-961-01	DI DA2J10100L			
D3503	8-719-056-48	DI 1SS388			
D3504	8-719-056-48	DI 1SS388			
		< IC >			
IC3001	6-718-103-01	IC TAS5538DGGR			
⚠ IC3102	6-718-443-01	IC STA516B13TR-A			
⚠ IC3302	6-718-443-01	IC STA516B13TR-A			
⚠ IC3501	6-716-739-01	IC BD00GC0WEFJ-SE2			
		< COIL >			
L3051	1-469-525-91	INDUCTOR	10uH		
L3101	1-481-939-11	INDUCTOR	20uH		
L3103	1-481-939-11	INDUCTOR	20uH		
L3301	1-481-939-11	INDUCTOR	20uH		
L3303	1-481-939-11	INDUCTOR	20uH		
L3501	1-469-526-91	INDUCTOR	22uH		
		< TRANSISTOR >			
Q3101	6-552-772-01	TR	RT3AMMAM1-T111-1F		
Q3202	6-552-772-01	TR	RT3AMMAM1-T111-1F		
Q3302	6-552-772-01	TR	RT3AMMAM1-T111-1F		
Q3501	6-552-408-01	TR	DSC500100L		
Q3512	6-552-433-01	TR	DRC5115E0L		
Q3552	6-551-272-01	TRANSISTOR	RT3CLLM		
Q3553	6-552-408-01	TR	DSC500100L		
Q3554	6-552-760-01	TR	SSM3J325F, LSOYF		
Q3555	6-552-772-01	TR	RT3AMMAM1-T111-1F		
		< RESISTOR >			
R3021	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R3022	1-218-967-11	METAL CHIP	15K	5%	1/16W
R3023	1-218-949-11	METAL CHIP	470	5%	1/16W
R3024	1-218-949-11	METAL CHIP	470	5%	1/16W
R3025	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3026	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3028	1-216-864-11	SHORT CHIP	0		
R3029	1-216-864-11	SHORT CHIP	0		
R3033	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3040	1-216-295-91	SHORT CHIP	0		
R3041	1-216-805-11	METAL CHIP	47	5%	1/10W
R3042	1-216-864-11	SHORT CHIP	0		
R3043	1-216-864-11	SHORT CHIP	0		
R3044	1-216-295-91	SHORT CHIP	0		
R3051	1-216-845-11	METAL CHIP	100K	5%	1/10W
R3059	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3060	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3061	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3062	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3072	1-216-805-11	METAL CHIP	47	5%	1/10W
R3073	1-216-805-11	METAL CHIP	47	5%	1/10W
R3074	1-216-296-11	SHORT CHIP	0		
R3101	1-219-365-11	SHORT CHIP	0		
R3109	1-218-977-11	METAL CHIP	100K	5%	1/16W
R3111	1-219-365-11	SHORT CHIP	0		

Note: When the IC3102 and IC3302 on the AMP board are replaced, spread the compound referring to “NOTE OF REPLACING THE IC3102 and IC3302 ON THE AMP BOARD AND THE COMPLETE AMP BOARD” on servicing notes (page 10).

Ref. No.	Part No.	Description			Remark
R3145	1-216-296-11	SHORT CHIP	0		
R3148	1-216-864-11	SHORT CHIP	0		
R3153	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3154	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3155	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3156	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3157	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3158	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3161	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3162	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3212	1-218-977-11	METAL CHIP	100K	5%	1/16W
R3271	1-218-282-11	METAL CHIP	22	5%	1/2W
R3272	1-218-282-11	METAL CHIP	22	5%	1/2W
R3281	1-218-282-11	METAL CHIP	22	5%	1/2W
R3282	1-218-282-11	METAL CHIP	22	5%	1/2W
R3283	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3284	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3301	1-219-365-11	SHORT CHIP	0		
R3311	1-219-365-11	SHORT CHIP	0		
R3312	1-218-977-11	METAL CHIP	100K	5%	1/16W
R3345	1-216-296-11	SHORT CHIP	0		
R3348	1-216-864-11	SHORT CHIP	0		
R3353	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3354	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3355	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3356	1-220-281-11	METAL CHIP	4.7K	5%	1/4W
R3357	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3358	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3361	1-218-965-11	METAL CHIP	10K	5%	1/16W
R3371	1-218-282-11	METAL CHIP	22	5%	1/2W
R3372	1-218-282-11	METAL CHIP	22	5%	1/2W
R3381	1-218-282-11	METAL CHIP	22	5%	1/2W
R3382	1-218-282-11	METAL CHIP	22	5%	1/2W
R3383	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3384	1-218-232-91	METAL CHIP	4.7	10%	1/2W
R3501	1-218-953-11	METAL CHIP	1K	5%	1/16W
R3502	1-218-953-11	METAL CHIP	1K	5%	1/16W
R3504	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R3505	1-218-990-81	SHORT CHIP	0		
R3506	1-218-990-81	SHORT CHIP	0		
R3507	1-208-675-11	METAL CHIP	470	0.5%	1/16W
R3509	1-216-295-91	SHORT CHIP	0		
R3510	1-216-295-91	SHORT CHIP	0		
R3511	1-216-295-91	SHORT CHIP	0		
R3512	1-216-295-91	SHORT CHIP	0		
R3513	1-216-295-91	SHORT CHIP	0		
R3514	1-216-295-91	SHORT CHIP	0		
R3515	1-216-295-91	SHORT CHIP	0		
R3516	1-216-295-91	SHORT CHIP	0		
R3517	1-216-295-91	SHORT CHIP	0		
R3518	1-216-295-91	SHORT CHIP	0		
R3519	1-216-295-91	SHORT CHIP	0		
R3520	1-216-295-91	SHORT CHIP	0		
R3521	1-216-295-91	SHORT CHIP	0		
R3522	1-216-295-91	SHORT CHIP	0		
R3523	1-216-295-91	SHORT CHIP	0		
R3524	1-216-295-91	SHORT CHIP	0		
R3525	1-216-295-91	SHORT CHIP	0		
R3526	1-216-295-91	SHORT CHIP	0		
R3527	1-216-295-91	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remark
R3528	1-216-295-91	SHORT CHIP	0		
R3529	1-216-295-91	SHORT CHIP	0		
R3530	1-216-295-91	SHORT CHIP	0		
R3531	1-216-295-91	SHORT CHIP	0		
R3532	1-216-295-91	SHORT CHIP	0		
R3543	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R3544	1-216-864-11	SHORT CHIP	0		
R3555	1-218-973-11	METAL CHIP	47K	5%	1/16W
R3556	1-218-969-11	METAL CHIP	22K	5%	1/16W
R3557	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R3558	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R3559	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R3560	1-218-977-11	METAL CHIP	100K	5%	1/16W
R3561	1-216-296-11	SHORT CHIP	0		
R3562	1-216-296-11	SHORT CHIP	0		
R3563	1-216-296-11	SHORT CHIP	0		
R3564	1-216-296-11	SHORT CHIP	0		
R3902	1-216-839-11	METAL CHIP	33K	5%	1/10W
R3903	1-216-839-11	METAL CHIP	33K	5%	1/10W
R3904	1-216-839-11	METAL CHIP	33K	5%	1/10W
R3905	1-216-839-11	METAL CHIP	33K	5%	1/10W
		< COMPOSITION CIRCUIT BLOCK >			
RB3001	1-234-372-11	RES, NETWORK 100 (1005X4)			
RB3002	1-234-372-11	RES, NETWORK 100 (1005X4)			
RB3003	1-239-409-11	RES, CHIP NETWORK 47 (3216)			
RB3102	1-233-575-11	RES, CHIP NETWORK 22 (3216)			
RB3302	1-233-575-11	RES, CHIP NETWORK 22 (3216)			
RB3303	1-234-381-11	RES, NETWORK 100K (1005X4)			
RB3304	1-234-381-11	RES, NETWORK 100K (1005X4)			
RB3305	1-234-381-11	RES, NETWORK 100K (1005X4)			
		< TERMINAL >			
TB3401	1-780-452-11	TERMINAL BOARD (SPEAKER) 2P (SPEAKERS SUR R/SUR L)			
TB3451	1-780-951-11	TERMINAL BOARD (SPEAKER) 4P (SPEAKERS FRONT R/FRONT L/SUBWOOFER/CENTER)			

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🔒	A-1871-133-A	MB148 BOARD, COMPLETE (for SERVICE) (E190: CND)
🔒	A-1871-134-A	MB148 BOARD, COMPLETE (for SERVICE) (E190: AEP)
🔒	A-1871-135-A	MB148 BOARD, COMPLETE (for SERVICE) (E190: UK)
🔒	A-1871-137-A	MB148 BOARD, COMPLETE (for SERVICE) (E190: SP)
🔒	A-1871-138-A	MB148 BOARD, COMPLETE (for SERVICE) (E190: AUS)
🔒	A-1871-139-A	MB148 BOARD, COMPLETE (for SERVICE) (E190: SAF)
🔒	A-1871-140-A	MB148 BOARD, COMPLETE (for SERVICE) (MX6)
🔒	A-1871-142-A	MB148 BOARD, COMPLETE (for SERVICE) (PX)
🔒	A-1871-143-A	MB148 BOARD, COMPLETE (for SERVICE) (E290: AEP)
🔒	A-1871-145-A	MB148 BOARD, COMPLETE (for SERVICE) (E290: E12)
🔒	A-1871-146-A	MB148 BOARD, COMPLETE (for SERVICE) (E290: E3)
🔒	A-1871-147-A	MB148 BOARD, COMPLETE (for SERVICE) (E290: SP)
🔒	A-1871-149-A	MB148 BOARD, COMPLETE (for SERVICE) (TW)

MB148

Ref. No.	Part No.	Description	Remark
🔒	A-1871-150-A	MB148 BOARD, COMPLETE (for SERVICE) (E32)	
🔒	A-1871-152-A	MB148 BOARD, COMPLETE (for SERVICE)	(E290: AUS)
🔒	A-1871-176-A	MB148 BOARD, COMPLETE (for SERVICE)	(E290: SAF)
🔒	A-1871-183-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: CND)
🔒	A-1871-184-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: AEP)
🔒	A-1871-185-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: UK)
🔒	A-1871-187-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: E12)
🔒	A-1871-188-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: E3)
🔒	A-1871-189-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: E15)
🔒	A-1871-190-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: EA)
🔒	A-1871-191-A	MB148 BOARD, COMPLETE (for SERVICE)	(E490: SP)
🔒	A-1871-198-A	MB148 BOARD, COMPLETE (for SERVICE)	(E690: AEP)
🔒	A-1871-200-A	MB148 BOARD, COMPLETE (for SERVICE)	(E690: E12)
🔒	A-1871-201-A	MB148 BOARD, COMPLETE (for SERVICE)	(E690: E3)
🔒	A-1871-202-A	MB148 BOARD, COMPLETE (for SERVICE)	(E690: E15)
🔒	A-1871-203-A	MB148 BOARD, COMPLETE (for SERVICE)	(E690: EA)
🔒	A-1871-204-A	MB148 BOARD, COMPLETE (for SERVICE)	(E690: SP)
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		< CAPACITOR >	

	C114	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C115	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C118	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C119	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C120	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C121	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C122	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C123	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C124	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C125	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
*	C128	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
	C129	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C159	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C202	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C203	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C204	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C206	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C207	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
	C211	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
*	C214	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
	C215	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
*	C217	1-116-738-11	CERAMIC CHIP	1uF	10%	6.3V
	C307	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
*	C318	1-116-714-11	CERAMIC CHIP	22uF	20%	6.3V
	C340	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
	C341	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
	C343	1-116-717-11	CERAMIC CHIP	10uF	20%	10V

Ref. No.	Part No.	Description			Remark
C346	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C347	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C348	1-112-776-11	CERAMIC CHIP	0.0047uF	10%	50V
C349	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C350	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C351	1-116-714-11	CERAMIC CHIP	22uF	20%	6.3V
* C352	1-116-714-11	CERAMIC CHIP	22uF	20%	6.3V
* C353	1-116-714-11	CERAMIC CHIP	22uF	20%	6.3V
C362	1-112-775-11	CERAMIC CHIP	0.0022uF	10%	50V
C373	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C385	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C442	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C446	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C447	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C452	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C456	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C457	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C458	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C459	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C460	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C461	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C462	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C463	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C464	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C465	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C466	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C467	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C468	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C469	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C470	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
* C471	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C504	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C603	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
* C632	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C702	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C713	1-112-067-11	CERAMIC CHIP	0.22uF	10%	16V
C715	1-112-067-11	CERAMIC CHIP	0.22uF	10%	16V
C716	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C717	1-112-067-11	CERAMIC CHIP	0.22uF	10%	16V
C719	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C720	1-112-067-11	CERAMIC CHIP	0.22uF	10%	16V
C723	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C724	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C801	1-116-738-11	CERAMIC CHIP	1uF	10%	6.3V
C802	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C804	1-116-738-11	CERAMIC CHIP	1uF	10%	6.3V
C805	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C806	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C811	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C812	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1101	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1102	1-100-905-11	CERAMIC CHIP	0.001uF	10%	50V
C1105	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1106	1-100-905-11	CERAMIC CHIP	0.001uF	10%	50V
C1110	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1112	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1118	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1121	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1122	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1123	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remark
C1129	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1134	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1152	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1153	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1155	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1172	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1174	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1175	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C1176	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1177	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C1178	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C1190	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1201	1-116-716-11	CERAMIC CHIP	10uF	10%	16V
C1202	1-116-716-11	CERAMIC CHIP	10uF	10%	16V
C1203	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1205	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1206	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1207	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1209	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1211	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1213	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C1222	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1223	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1224	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1226	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1229	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C1230	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C1270	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C1280	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C1290	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C5301	1-116-716-11	CERAMIC CHIP	10uF	10%	16V
C5302	1-116-716-11	CERAMIC CHIP	10uF	10%	16V
C5307	1-112-775-11	CERAMIC CHIP	0.0022uF	10%	50V
C5310	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C5311	1-100-905-11	CERAMIC CHIP	0.001uF	10%	50V
C5312	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C5313	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
* C5314	1-116-714-11	CERAMIC CHIP	22uF	20%	6.3V
* C5315	1-116-714-11	CERAMIC CHIP	22uF	20%	6.3V
C5317	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C5319	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C5320	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C5321	1-100-905-11	CERAMIC CHIP	0.001uF	10%	50V
* C5325	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C5362	1-112-775-11	CERAMIC CHIP	0.0022uF	10%	50V
C5601	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C5602	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
* C5603	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C5701	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C5703	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C5705	1-116-738-11	CERAMIC CHIP	1uF	10%	6.3V
* C5706	1-116-738-11	CERAMIC CHIP	1uF	10%	6.3V
C5708	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C5901	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C5905	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C5906	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C5909	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
* C5910	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C5913	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C5914	1-164-866-11	CERAMIC CHIP	47PF	5%	50V

Ref. No.	Part No.	Description			Remark
* C5915	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
* C5916	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C5917	1-116-717-11	CERAMIC CHIP	10uF	20%	10V
C5920	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C5922	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C5923	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C5924	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
* C5927	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C5928	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C5929	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C5930	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
* C5931	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C5932	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C5933	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C5936	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
* C5937	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C6205	1-137-765-21	ELECT CHIP	47uF	20%	16V
C6212	1-137-765-21	ELECT CHIP	47uF	20%	16V
C6304	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6305	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6306	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6307	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6308	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6309	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6310	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6311	1-100-905-11	CERAMIC CHIP	0.001uF	10%	50V
C6312	1-112-067-11	CERAMIC CHIP	0.22uF	10%	16V
C6313	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C6316	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6319	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6320	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C6321	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C6324	1-112-298-91	CERAMIC CHIP	1uF	10%	16V
C6325	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C6401	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C6402	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C6403	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C6405	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V (EXCEPT E190)
C6410	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C6412	1-100-905-11	CERAMIC CHIP	0.001uF	10%	50V
C6413	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C8001	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C8002	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C8004	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C8005	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C8006	1-112-777-11	CERAMIC CHIP	0.01uF	10%	25V
C8007	1-164-856-81	CERAMIC CHIP	18PF	5%	50V
C8008	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
* C8009	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C8010	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
C8011	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
* C8012	1-116-719-11	CERAMIC CHIP	10uF	10%	6.3V
C8013	1-100-916-11	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR/JACK >			
CN602	1-573-768-21	PIN, CONNECTOR (1.5MM) (SMD) 5P			
CN701	1-821-398-21	HDMI CONNECTOR (HDMI OUT ARC)			
CN801	1-819-875-31	UDE ETHERNET CONNECTOR (8P) (LAN (100))			
CN1001	1-573-806-21	PIN, CONNECTOR (1.5MM) (SMD) 6P			
CN1101	1-843-036-11	FFC/FPC CONNECTOR 45P			

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Ref. No.	Part No.	Description	Remark
CN1260	1-820-112-51	CONNECTOR, FFC/FPC 9P	
CN1270	1-794-362-51	CONNECTOR, FFC/FPC 5P	
CN5301	1-794-032-21	PIN, CONNECTOR (PC BOARD) 11P	
CN5902	1-785-466-51	CONNECTOR, FFC/FPC 7P	
CN6302	1-784-861-51	CONNECTOR, FFC (LIF (NON-ZIF)) 9P	
CN6303	1-785-468-51	CONNECTOR, FFC/FPC 13P	
		< DIODE >	
D303	6-503-735-01	DI BZT52H-C4V3	
D304	6-503-735-01	DI BZT52H-C4V3	
D5302	6-503-752-01	DI BZT52H-C6V2	
D5303	6-502-961-01	DI DA2J10100L	
D5901	6-500-848-01	DIODE MC2840-T112-1	
D6301	6-502-961-01	DI DA2J10100L	
D6302	6-502-961-01	DI DA2J10100L	
D6304	6-502-961-01	DI DA2J10100L	
D6308	6-502-961-01	DI DA2J10100L	
		< FUSE >	
⚠ F5301	1-523-132-31	FUSE (1A/50V)	
⚠ F5303	1-523-135-31	FUSE (3.15A/32V)	
⚠ F5304	1-523-132-31	FUSE (1A/50V)	
⚠ F5305	1-523-135-31	FUSE (3.15A/32V)	
⚠ F5306	1-523-132-31	FUSE (1A/50V)	
⚠ F5307	1-523-132-31	FUSE (1A/50V)	
		< RESISTOR/FERRITE BEAD >	
FB1190	1-216-864-11	SHORT CHIP 0	
FB1199	1-216-864-11	SHORT CHIP 0	
FB1200	1-244-161-81	METAL CHIP 2.2 5%	1/16W
FB1210	1-216-295-91	SHORT CHIP 0	
FB1212	1-216-864-11	SHORT CHIP 0	
FB5903	1-400-462-21	FERRITE, EMI (SMD) (1005)	
FB8001	1-469-152-11	FERRITE, EMI (SMD) (2012)	
FB8002	1-469-152-11	FERRITE, EMI (SMD) (2012)	
FB8003	1-500-283-11	INDUCTOR, FERRITE BEAD	
		< IC >	
IC101	(Not supplied)	IC CXD90008G-AA (EXCEPT SP, TW)	
IC101	(Not supplied)	IC CXD90008G-AB (SP, TW)	
@*IC106	6-716-964-01	IC K4B2G1646C-HCH9	
@ IC106	6-718-284-01	IC H5TQ2G63BFR-H9CR-C	
@*IC206	6-716-964-01	IC K4B2G1646C-HCH9	
@ IC206	6-718-284-01	IC H5TQ2G63BFR-H9CR-C	
IC307	6-717-879-01	IC RT8293ALZSP	
IC308	6-714-935-01	IC TPS54225PWPR	
IC501	(Not supplied)	IC TC58NVG1S3ETA00B3Q	
IC501	(Not supplied)	IC H27U2G8F2CTR-BCR	
IC704	6-702-302-01	IC TK11133CSCL-G	
IC705	6-705-337-01	IC TK11150CSCL-G	
IC1151	6-718-188-01	IC BD80GA3WEFJ-E2	
IC1201	6-718-022-11	IC TPIC2050RDFDRG4	
IC5301	6-717-879-01	IC RT8293ALZSP	
IC5302	6-716-739-01	IC BD00GC0WEFJ-SE2	
IC5303	6-711-049-01	IC S-1170B33UC-OTSTFG	
IC5601	6-717-848-01	IC NCP380HSNAJAAT1G	
IC5702	6-709-888-01	IC TC7WHU04FK	
IC5901	6-600-827-01	IC JSR1124 (TV OPTICAL DIGITAL IN)	
IC5902	6-705-313-01	IC S-T111B50MC-OHJTFG	
IC5903	6-712-384-01	IC TC74VHC4052AFT (EK)	
IC5904	6-710-554-01	IC PCM1808PWR	
IC5905	6-715-041-01	IC TC7SZ125FU, RSOYJ	
IC6301	A-1857-997-A	IC R5F3650KCDFB (for SERVICE)	
IC6303	6-713-333-01	IC PST8429UL	
IC6305	6-702-302-01	IC TK11133CSCL-G	
IC6401	6-713-560-01	IC MFI341S2162 (EXCEPT E190)	
IC8001	(Not supplied)	IC CS8422	
		< JACK >	
J5901	1-780-853-11	JACK, PIN 2P (AUDIO IN L/R)	
J6401	1-794-970-11	JACK, PIN 1P (VIDEO OUT)	
		< COIL >	
L303	1-457-995-11	INDUCTOR 10uH	
L304	1-457-771-11	INDUCTOR 2.2uH	
L305	1-400-789-21	INDUCTOR 2.2uH	
L306	1-400-789-21	INDUCTOR 2.2uH	
L5301	1-400-789-21	INDUCTOR 2.2uH	
L5302	1-457-995-11	INDUCTOR 10uH	
L6402	1-412-982-21	INDUCTOR 1.8uH	
		< CONTACT TERMINAL >	
PT303	1-780-945-11	TERMINAL, CONTACT	
PT304	1-780-945-11	TERMINAL, CONTACT	
		< TRANSISTOR >	
Q302	6-553-007-01	TR PMG85XP	
Q305	6-552-430-01	TR DRC5114E0L	
Q310	6-552-430-01	TR DRC5114E0L	
Q311	6-553-007-01	TR PMG85XP	
Q312	6-552-433-01	TR DRC5115E0L	
Q702	6-551-714-01	TR INK0001AC1-T112-1	
Q5301	6-552-430-01	TR DRC5114E0L	
Q5901	6-551-690-01	TRANSISTOR RT3N11M-TP-1	
Q6301	6-552-408-01	TR DSC500100L	
		< RESISTOR >	
R102	1-208-683-11	METAL CHIP 1K 0.5%	1/16W
R103	1-208-683-11	METAL CHIP 1K 0.5%	1/16W
R106	1-218-941-81	METAL CHIP 100 5%	1/16W
R108	1-208-668-11	METAL CHIP 240 0.5%	1/16W
R110	1-216-864-11	SHORT CHIP 0	
R206	1-218-941-81	METAL CHIP 100 5%	1/16W
R207	1-208-668-11	METAL CHIP 240 0.5%	1/16W
R302	1-216-295-91	SHORT CHIP 0	
R327	1-218-953-11	METAL CHIP 1K 5%	1/16W
* R330	1-250-507-11	METAL CHIP 3.3K 1%	1/16W
* R331	1-250-511-11	METAL CHIP 4.7K 1%	1/16W
* R332	1-250-499-11	METAL CHIP 1.5K 1%	1/16W
R333	1-208-695-11	METAL CHIP 3.3K 0.5%	1/16W
R334	1-208-695-11	METAL CHIP 3.3K 0.5%	1/16W
R335	1-208-859-81	METAL CHIP 68 0.5%	1/16W
* R336	1-250-507-11	METAL CHIP 3.3K 1%	1/16W
R340	1-218-953-11	METAL CHIP 1K 5%	1/16W
R341	1-216-864-11	SHORT CHIP 0	
R342	1-216-791-11	METAL CHIP 3.3 5%	1/10W
R343	1-218-953-11	METAL CHIP 1K 5%	1/16W
* R370	1-250-499-11	METAL CHIP 1.5K 1%	1/16W
R371	1-218-957-11	METAL CHIP 2.2K 5%	1/16W
R374	1-218-971-11	METAL CHIP 33K 5%	1/16W

@ Replacement of IC106 and IC206 on the MB148 board used in this unit requires a special tool.

Note: IC101, IC501 and IC8001 on the MB148 board cannot exchange with single. When these parts are damaged, exchange the complete mounted board.

Ref. No.	Part No.	Description			Remark
R375	1-218-971-11	METAL CHIP	33K	5%	1/16W
R376	1-218-953-11	METAL CHIP	1K	5%	1/16W
R378	1-218-953-11	METAL CHIP	1K	5%	1/16W
R390	1-218-971-11	METAL CHIP	33K	5%	1/16W
R391	1-218-971-11	METAL CHIP	33K	5%	1/16W
R392	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R393	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R404	1-218-956-11	METAL CHIP	1.8K	5%	1/16W
R405	1-218-977-11	METAL CHIP	100K	5%	1/16W
R516	1-218-990-81	SHORT CHIP	0		
R519	1-218-965-11	METAL CHIP	10K	5%	1/16W
R523	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W
R609	1-218-864-11	METAL CHIP	5.1K	0.5%	1/10W
R734	1-218-953-11	METAL CHIP	1K	5%	1/16W
R735	1-218-956-11	METAL CHIP	1.8K	5%	1/16W
R736	1-218-956-11	METAL CHIP	1.8K	5%	1/16W
R738	1-218-953-11	METAL CHIP	1K	5%	1/16W
R743	1-218-933-11	METAL CHIP	22	5%	1/16W
R744	1-218-933-11	METAL CHIP	22	5%	1/16W
R749	1-218-973-11	METAL CHIP	47K	5%	1/16W
R805	1-208-920-81	METAL CHIP	24K	0.5%	1/16W
R1002	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1008	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1010	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1012	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1014	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1016	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1018	1-218-941-81	METAL CHIP	100	5%	1/16W
R1019	1-218-941-81	METAL CHIP	100	5%	1/16W
R1020	1-218-941-81	METAL CHIP	100	5%	1/16W
R1021	1-218-941-81	METAL CHIP	100	5%	1/16W
R1022	1-218-990-81	SHORT CHIP	0		
R1023	1-218-990-81	SHORT CHIP	0		
R1028	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1033	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1036	1-218-990-81	SHORT CHIP	0		
R1037	1-218-990-81	SHORT CHIP	0		
R1038	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1110	1-218-957-11	METAL CHIP	2.2K	5%	1/16W
R1112	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R1120	1-250-535-11	METAL CHIP	47K	1%	1/16W
R1121	1-250-531-11	METAL CHIP	33K	1%	1/16W
R1134	1-250-519-11	METAL CHIP	10K	1%	1/16W
R1153	1-218-965-11	METAL CHIP	10K	5%	1/16W
R1191	1-250-512-11	METAL CHIP	5.1K	1%	1/16W
R1192	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R1199	1-218-990-81	SHORT CHIP	0		
R1210	1-248-476-11	RES-CHIP	0.16	1%	1/3W
R1213	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1214	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1215	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1216	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1217	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1218	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R5301	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R5302	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R5303	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R5304	1-218-953-11	METAL CHIP	1K	5%	1/16W
R5311	1-216-791-11	METAL CHIP	3.3	5%	1/10W
R5312	1-218-966-11	METAL CHIP	12K	5%	1/16W
R5317	1-218-977-11	METAL CHIP	100K	5%	1/16W
R5323	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R5325	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R5327	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R5352	1-216-295-91	SHORT CHIP	0		
R5353	1-218-953-11	METAL CHIP	1K	5%	1/16W
R5354	1-216-295-91	SHORT CHIP	0		
R5355	1-216-295-91	SHORT CHIP	0		
R5601	1-218-953-11	METAL CHIP	1K	5%	1/16W
R5603	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R5604	1-218-990-81	SHORT CHIP	0		
R5605	1-218-965-11	METAL CHIP	10K	5%	1/16W
R5613	1-218-977-11	METAL CHIP	100K	5%	1/16W
R5701	1-218-965-11	METAL CHIP	10K	5%	1/16W
R5703	1-218-981-91	METAL CHIP	220K	5%	1/16W
R5705	1-218-949-11	METAL CHIP	470	5%	1/16W
R5707	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5708	1-208-859-81	METAL CHIP	68	0.5%	1/16W
R5709	1-208-859-81	METAL CHIP	68	0.5%	1/16W
R5710	1-218-953-11	METAL CHIP	1K	5%	1/16W
R5901	1-218-933-11	METAL CHIP	22	5%	1/16W
R5902	1-218-941-81	METAL CHIP	100	5%	1/16W
R5903	1-218-933-11	METAL CHIP	22	5%	1/16W
R5909	1-218-969-11	METAL CHIP	22K	5%	1/16W
R5910	1-218-969-11	METAL CHIP	22K	5%	1/16W
R5911	1-218-941-81	METAL CHIP	100	5%	1/16W
R5912	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5913	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5914	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5915	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5920	1-218-968-11	METAL CHIP	18K	5%	1/16W
R5921	1-218-968-11	METAL CHIP	18K	5%	1/16W
R5922	1-218-968-11	METAL CHIP	18K	5%	1/16W
R5923	1-218-968-11	METAL CHIP	18K	5%	1/16W
R5924	1-218-953-11	METAL CHIP	1K	5%	1/16W
R5929	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5930	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5931	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5932	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5934	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5935	1-218-973-11	METAL CHIP	47K	5%	1/16W
R5937	1-218-953-11	METAL CHIP	1K	5%	1/16W
R5938	1-218-953-11	METAL CHIP	1K	5%	1/16W
R5941	1-218-941-81	METAL CHIP	100	5%	1/16W
R5942	1-218-933-11	METAL CHIP	22	5%	1/16W
R5944	1-218-990-81	SHORT CHIP	0		
R5945	1-218-990-81	SHORT CHIP	0		
R5946	1-218-933-11	METAL CHIP	22	5%	1/16W
R5947	1-218-933-11	METAL CHIP	22	5%	1/16W
R5951	1-218-933-11	METAL CHIP	22	5%	1/16W
R5957	1-218-941-81	METAL CHIP	100	5%	1/16W
R5958	1-218-941-81	METAL CHIP	100	5%	1/16W
R5962	1-218-941-81	METAL CHIP	100	5%	1/16W
R5963	1-218-941-81	METAL CHIP	100	5%	1/16W
R5964	1-218-941-81	METAL CHIP	100	5%	1/16W
R5969	1-218-933-11	METAL CHIP	22	5%	1/16W
R5970	1-218-933-11	METAL CHIP	22	5%	1/16W
R5971	1-218-941-81	METAL CHIP	100	5%	1/16W
R5972	1-218-941-81	METAL CHIP	100	5%	1/16W
R5973	1-218-941-81	METAL CHIP	100	5%	1/16W

MB148 PANEL

Ref. No.	Part No.	Description			Remark
R5974	1-218-941-81	METAL CHIP	100	5%	1/16W
R5975	1-218-941-81	METAL CHIP	100	5%	1/16W
R5976	1-218-941-81	METAL CHIP	100	5%	1/16W
R5977	1-218-941-81	METAL CHIP	100	5%	1/16W
R5978	1-218-941-81	METAL CHIP	100	5%	1/16W
R5981	1-208-859-81	METAL CHIP	68	0.5%	1/16W
R5982	1-218-933-11	METAL CHIP	22	5%	1/16W
R5983	1-218-933-11	METAL CHIP	22	5%	1/16W
R5984	1-218-933-11	METAL CHIP	22	5%	1/16W
R5985	1-218-933-11	METAL CHIP	22	5%	1/16W
R5986	1-218-933-11	METAL CHIP	22	5%	1/16W
R5987	1-218-933-11	METAL CHIP	22	5%	1/16W
R5988	1-218-933-11	METAL CHIP	22	5%	1/16W
R6301	1-218-989-11	METAL CHIP	1M	5%	1/16W
R6302	1-218-941-81	METAL CHIP	100	5%	1/16W
R6307	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R6308	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6309	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6310	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6311	1-218-941-81	METAL CHIP	100	5%	1/16W
R6312	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R6313	1-218-953-11	METAL CHIP	1K	5%	1/16W
R6314	1-218-953-11	METAL CHIP	1K	5%	1/16W
R6315	1-218-941-81	METAL CHIP	100	5%	1/16W
R6316	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6317	1-218-941-81	METAL CHIP	100	5%	1/16W
R6319	1-218-953-11	METAL CHIP	1K	5%	1/16W
R6320	1-218-941-81	METAL CHIP	100	5%	1/16W
R6321	1-218-941-81	METAL CHIP	100	5%	1/16W
R6322	1-218-941-81	METAL CHIP	100	5%	1/16W
R6323	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6324	1-218-941-81	METAL CHIP	100	5%	1/16W
R6326	1-218-941-81	METAL CHIP	100	5%	1/16W
R6328	1-218-941-81	METAL CHIP	100	5%	1/16W
R6329	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6332	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6333	1-218-977-11	METAL CHIP	100K	5%	1/16W
R6334	1-218-977-11	METAL CHIP	100K	5%	1/16W
R6336	1-218-989-11	METAL CHIP	1M	5%	1/16W
R6341	1-218-941-81	METAL CHIP	100	5%	1/16W
R6342	1-218-990-81	SHORT CHIP	0		
R6343	1-218-970-11	METAL CHIP	27K	5%	1/16W
R6347	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6348	1-218-941-81	METAL CHIP	100	5%	1/16W
R6350	1-218-977-11	METAL CHIP	100K	5%	1/16W
R6355	1-218-973-11	METAL CHIP	47K	5%	1/16W
R6356	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6357	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6358	1-218-977-11	METAL CHIP	100K	5%	1/16W
R6359	1-218-973-11	METAL CHIP	47K	5%	1/16W
R6360	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6361	1-218-973-11	METAL CHIP	47K	5%	1/16W
* R6366	1-250-507-11	METAL CHIP	3.3K	1%	1/16W
R6367	1-218-977-11	METAL CHIP	100K	5%	1/16W
R6368	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6369	1-218-973-11	METAL CHIP	47K	5%	1/16W
R6370	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6371	1-218-941-81	METAL CHIP	100	5%	1/16W
R6372	1-218-941-81	METAL CHIP	100	5%	1/16W
R6374	1-218-977-11	METAL CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R6377	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R6382	1-208-709-11	METAL CHIP	12K	0.5%	1/16W
R6384	1-218-953-11	METAL CHIP	1K	5%	1/16W
R6388	1-218-941-81	METAL CHIP	100	5%	1/16W
R6389	1-218-977-11	METAL CHIP	100K	5%	1/16W
R6390	1-218-990-81	SHORT CHIP	0		
R6391	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6392	1-218-965-11	METAL CHIP	10K	5%	1/16W
R6393	1-218-958-11	METAL CHIP	2.7K	5%	1/16W
R6394	1-218-941-81	METAL CHIP	100	5%	1/16W
R6395	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R6396	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R6397	1-218-957-11	METAL CHIP	2.2K	5%	1/16W
R6398	1-218-957-11	METAL CHIP	2.2K	5%	1/16W
R6403	1-218-990-81	SHORT CHIP	0		
R6406	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R6407	1-218-961-11	METAL CHIP	4.7K	5%	1/16W
R6411	1-218-990-81	SHORT CHIP	0 (EXCEPT E190)		
R6416	1-218-990-81	SHORT CHIP	0		
R6420	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R6421	1-218-990-81	SHORT CHIP	0		
R8002	1-218-941-81	METAL CHIP	100	5%	1/16W
R8003	1-218-941-81	METAL CHIP	100	5%	1/16W
R8005	1-218-989-11	METAL CHIP	1M	5%	1/16W
R8006	1-218-957-11	METAL CHIP	2.2K	5%	1/16W
R8007	1-218-941-81	METAL CHIP	100	5%	1/16W
R8008	1-218-937-11	METAL CHIP	47	5%	1/16W
R8009	1-218-941-81	METAL CHIP	100	5%	1/16W
R8010	1-218-937-11	METAL CHIP	47	5%	1/16W
R8016	1-218-967-11	METAL CHIP	15K	5%	1/16W
R8017	1-218-967-11	METAL CHIP	15K	5%	1/16W
R8029	1-218-941-81	METAL CHIP	100	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB1001	1-234-378-21	RES, NETWORK 10K (1005X4)			
RB1002	1-234-378-21	RES, NETWORK 10K (1005X4)			
RB6301	1-234-372-11	RES, NETWORK 100 (1005X4)			
RB6304	1-234-372-11	RES, NETWORK 100 (1005X4)			
		< THERMISTOR >			
TH6301	1-804-949-11	THERMISTOR, NTC (SMD)			
		< VIBRATOR >			
X401	1-814-278-11	VIBRATOR, CRYSTAL (27MHz)			
X6301	1-795-313-21	VIBRATOR, CERAMIC (8MHz)			
X8001	1-814-130-11	QUARTZ CRYSTAL UNIT (24.576MHz)			
**********					
	A-1848-680-A	PANEL BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C02	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
C03	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C04	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C05	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C06	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C08	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
C10	1-114-324-11	CERAMIC CHIP	0.022uF	10%	50V
C13	1-114-323-11	CERAMIC CHIP	0.01uF	10%	50V
C14	1-114-323-11	CERAMIC CHIP	0.01uF	10%	50V

Ref. No.	Part No.	Description			Remark
C15	1-119-772-91	ELECT	47uF	20%	35V
C17	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
C18	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C20	1-114-323-11	CERAMIC CHIP	0.01uF	10%	50V
C25	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
C27	1-126-176-11	ELECT	220uF	20%	10V
C30	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C31	1-114-323-11	CERAMIC CHIP	0.01uF	10%	50V
C40	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
C43	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN02	1-779-550-21	CONNECTOR, FFC (LIF (NON-ZIF)) 13P			
CN03	1-564-721-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CN04	1-819-866-11	USB CONNECTOR (A) (Ψ)			
		< DIODE >			
D03	6-501-579-01	DIODE MC2837			
D04	6-501-579-01	DIODE MC2837			
D05	6-503-012-01	DI DZ2J04300L			
		< IC >			
IC01	6-715-891-01	IC MM3464A50NRE			
IC02	6-715-134-01	IC MM3404A33URE			
IC03	6-701-729-01	IC PT6315			
IC30	6-600-665-01	IC GP1UE27XK0VF			
		< JUMPER RESISTOR >			
JR01	1-216-864-11	SHORT CHIP	0		
JR02	1-216-864-11	SHORT CHIP	0		
JR03	1-216-864-11	SHORT CHIP	0		
JR04	1-216-864-11	SHORT CHIP	0		
JR06	1-216-864-11	SHORT CHIP	0		
JR07	1-216-864-11	SHORT CHIP	0		
JR08	1-216-864-11	SHORT CHIP	0		
JR09	1-216-296-11	SHORT CHIP	0		
JR10	1-216-295-91	SHORT CHIP	0		
JR11	1-216-295-91	SHORT CHIP	0		
JR12	1-216-864-11	SHORT CHIP	0		
JR13	1-216-295-91	SHORT CHIP	0		
JR15	1-216-295-91	SHORT CHIP	0		
JR16	1-216-296-11	SHORT CHIP	0		
JR17	1-216-296-11	SHORT CHIP	0		
JR18	1-216-296-11	SHORT CHIP	0		
JR19	1-216-296-11	SHORT CHIP	0		
JR20	1-216-296-11	SHORT CHIP	0		
JR22	1-216-296-11	SHORT CHIP	0		
JR23	1-216-296-11	SHORT CHIP	0		
JR24	1-216-296-11	SHORT CHIP	0		
JR25	1-216-296-11	SHORT CHIP	0		
JR26	1-216-296-11	SHORT CHIP	0		
JR27	1-216-296-11	SHORT CHIP	0		
JR28	1-216-296-11	SHORT CHIP	0		
JR29	1-216-296-11	SHORT CHIP	0		
JR30	1-216-296-11	SHORT CHIP	0		
JR31	1-216-296-11	SHORT CHIP	0		
JR33	1-216-296-11	SHORT CHIP	0		
JR34	1-216-296-11	SHORT CHIP	0		
JR35	1-216-296-11	SHORT CHIP	0		
JR36	1-216-296-11	SHORT CHIP	0		
JR37	1-216-296-11	SHORT CHIP	0		
JR38	1-216-296-11	SHORT CHIP	0		
JR39	1-216-296-11	SHORT CHIP	0		
JR40	1-216-296-11	SHORT CHIP	0		
JR41	1-216-296-11	SHORT CHIP	0		
		< COIL >			
L01	1-481-781-21	INDUCTOR	47uH		
		< FLUORESCENT INDICATOR TUBE >			
ND01	1-483-411-11	VACUUM FLUORESCENT DISPLAY			
		< TRANSISTOR >			
Q03	6-552-713-01	TR	QS5W2TR		
		< RESISTOR >			
R04	1-216-821-11	METAL CHIP	1K	5%	1/10W
R06	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R13	1-216-833-11	METAL CHIP	10K	5%	1/10W
R14	1-216-805-11	METAL CHIP	47	5%	1/10W
R17	1-216-805-11	METAL CHIP	47	5%	1/10W
R22	1-216-845-11	METAL CHIP	100K	5%	1/10W
R29	1-216-813-11	METAL CHIP	220	5%	1/10W
R30	1-216-805-11	METAL CHIP	47	5%	1/10W
R31	1-216-813-11	METAL CHIP	220	5%	1/10W
R32	1-216-813-11	METAL CHIP	220	5%	1/10W
R40	1-216-809-11	METAL CHIP	100	5%	1/10W
R41	1-216-821-11	METAL CHIP	1K	5%	1/10W
R42	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R43	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R44	1-216-809-11	METAL CHIP	100	5%	1/10W
R45	1-216-821-11	METAL CHIP	1K	5%	1/10W
R46	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R47	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
		< SWITCH >			
S40	1-771-410-21	SWITCH, TACTILE (⏏)			
S41	1-771-410-21	SWITCH, TACTILE (VOL –)			
S42	1-771-410-21	SWITCH, TACTILE (VOL +)			
S43	1-771-410-21	SWITCH, TACTILE (►)			
S44	1-771-410-21	SWITCH, TACTILE (■)			
S45	1-771-410-21	SWITCH, TACTILE (FUNCTION)			
S46	1-771-410-21	SWITCH, TACTILE (I◄◄)			
S47	1-771-410-21	SWITCH, TACTILE (►►I)			
		< TRANSFORMER >			
T01	1-697-104-11	DC-DC CONVERTER TRANSFORMER			

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POWER KEY BOARD

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		< CAPACITOR >			
C303	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN301	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P			

POWER KEY | TUNER2

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R301	1-216-809-11	METAL CHIP	100	5%	1/10W
		< SWITCH >			
S301	1-771-410-21	SWITCH, TACTILE (I/⏻)			
**********					
	A-1846-432-A	TUNER2 BOARD, COMPLETE (AEP, UK, SAF)			
	A-1846-434-A	TUNER2 BOARD, COMPLETE (CND, PX)			
	A-1848-566-A	TUNER2 BOARD, COMPLETE (EXCEPT CND, PX, AEP, UK, SAF)			
		**********			
		< CAPACITOR >			
C101	1-100-155-91	CERAMIC CHIP	470PF	5%	100V
C102	1-116-734-11	CERAMIC CHIP	1uF	20%	16V
C103	1-116-734-11	CERAMIC CHIP	1uF	20%	16V
C105	1-116-734-11	CERAMIC CHIP	1uF	20%	16V
C107	1-100-158-91	CERAMIC CHIP	1000PF	5%	100V
C108	1-116-734-11	CERAMIC CHIP	1uF	20%	16V
C109	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
C110	1-114-325-11	CERAMIC CHIP	0.1uF	10%	25V
C111	1-116-734-11	CERAMIC CHIP	1uF	20%	16V
C112	1-116-734-11	CERAMIC CHIP	1uF	20%	16V
C113	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
		< CONNECTOR >			
CN101	1-779-544-21	CONNECTOR, FFC (LIF (NON-ZIF)) 7P			
CN102	1-780-923-11	TERMINAL (PAL) (EXCEPT CND, PX) (ANTENNA 75Ω FM COAXIAL)			
		< DIODE >			
D103	6-501-579-01	DIODE MC2837			
		< FILTER >			
FL101	1-236-711-21	FILTER, BAND PASS			
		< IC >			
IC101	6-717-989-01	IC RZ5B701-0001E2 (EXCEPT AEP, UK, SAF)			
IC101	6-717-990-01	IC RZ5B701-0002E2 (AEP, UK, SAF)			
IC102	6-715-134-01	IC MM3404A33URE			
		< COIL >			
L103	1-481-524-11	INDUCTOR	10uH		
L104	1-481-521-11	INDUCTOR	1uH		
L105	1-481-521-11	INDUCTOR	1uH		
		< RESISTOR >			
R101	1-216-809-11	METAL CHIP	100	5%	1/10W
R103	1-216-801-11	METAL CHIP	22	5%	1/10W
R104	1-216-864-11	SHORT CHIP	0		
R105	1-216-801-11	METAL CHIP	22	5%	1/10W
R107	1-216-809-11	METAL CHIP	100	5%	1/10W
R108	1-216-296-11	SHORT CHIP	0		
R109	1-216-864-11	SHORT CHIP	0		
R110	1-216-833-11	METAL CHIP	10K	5%	1/10W
R113	1-216-833-11	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description	Remark
		< VIBRATOR >	
X101	1-767-317-11	VIBRATOR, CRYSTAL (32.768kHz)	
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		MISCELLANEOUS	
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54	1-968-135-11	HARNESS (USB)	
55	1-828-333-51	WIRE (FLAT TYPE) (13 CORE)	
⚠ 102	1-777-071-23	CORD, POWER (PX)	
⚠ 102	1-777-071-83	CORD, POWER (AEP, SAF, SP, MX6, E3, E32, E15)	
⚠ 102	1-835-068-21	CORD, POWER (AUS)	
⚠ 102	1-837-308-11	CORD, POWER-SUPPLY (CND)	
⚠ 102	1-837-309-21	CORD, POWER-SUPPLY (UK, EA)	
⚠ 102	1-837-345-11	CORD, POWER-SUPPLY (TW)	
⚠ 102	1-839-012-11	CORD, POWER-SUPPLY (E12)	
⚠ 103	1-569-008-33	ADAPTOR, CONVERSION (MX6, PX, E32)	
105	1-828-296-51	WIRE (FLAT TYPE) (7 CORE)	
108	1-828-799-51	WIRE (FLAT TYPE) (30 CORE)	
202	A-1850-153-A	LOADING FOR SERVICE (BPX-7)	
⚠ 205	8-820-452-03	DEVICE, OPTICAL KEM480AAA/C2RP1	
206	1-839-608-61	WIRE (FLAT TYPE) (9 CORE)	
207	1-839-609-11	FLEXIBLE FLAT CABLE (45 CORE)	
208	1-839-611-61	WIRE (FLAT TYPE) (5 CORE)	
⚠ M1	1-855-134-11	FAN, DC	
⚠ SWR1	1-474-368-11	SWITCHING REGULATOR (3L382W-1) (E290: AEP, SAF, SP, AUS, TW/E490: CND, AEP, UK, SP/E690: AEP, SP)	
⚠ SWR1	1-474-368-21	SWITCHING REGULATOR (3L382W) (E3, PX, E12, E32, EA, E15)	
⚠ SWR1	1-474-369-11	SWITCHING REGULATOR (3L383W-1) (E190: CND, AEP, UK, SAF, SP, AUS)	
⚠ SWR1	1-474-369-21	SWITCHING REGULATOR (3L383W) (MX6)	

Note: Wires (flat type) for service is all straight.
Please bend it referring go “HOW TO BEND FFC” on page 13 when you install it in the unit.