

SERVICE MANUAL



For Original DAB Module up to S/N A86C71512400

C715 & C715 DAB
CD Receiver

C715 & C715 DAB
CD Receiver

SECTION 1

SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY. NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER.

WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM AC LINE SHOCK.

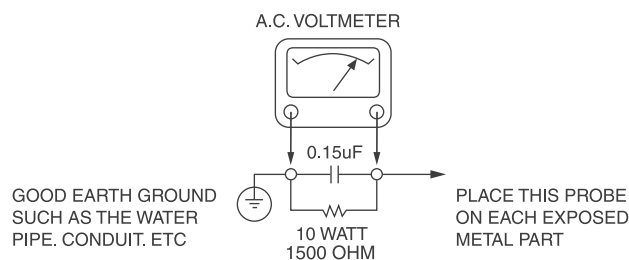
SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRECTED. A CHECK SHOULD BE MADE OF THE FOLLOWING.

SUBJECT : FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS. FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING AC CORD). AND REPLACE IF NECESSARY FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECEIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUDING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES, DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN AC LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS. HANDLE AND SCREWS) TO BE SURE THE SET IS SAFET TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN AC VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD, 150V AC TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME.
MEASURE THE AC VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR.
REVERSE THE AC PLUG AND REPEAT AC VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART.

VOLTAGE MEASURE MUST NOT EXCEED 75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMPS AC ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



SUBJECT : GRAPHIC SYMBOLS



THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.



THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.

SUBJECT : TIPS ON PROPER INSTALLATION

1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS, CUBBYHOLE OR CLOSELY FITTING SHELF SPACE. OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PLACEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM, BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION, UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERICALLY APPROVED FOR USE WITH T.V.'S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS, EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.

SERVICING PRECAUTIONS

CAUTION : Before servicing the A/V Receiver covered by this service data and its supplements and addends, read and follow the **SAFETY PRECAUTIONS**. **NOTE** : if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.

Remember Safety First:

General Servicing Precautions

1. Always unplug the A/V Receiver AC power cord from the AC power source before:
 - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
 - (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
 - (3) Connecting a test substitute in parallel with an electrolytic capacitor.

Caution : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this A/V Receiver or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cottontipped swab, or comparable soft applicator.
Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this A/V Receiver and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
6. Always connect test instrument ground lead to the appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical Es devices are integrated circuits and some field effect transistors and semiconductor chip components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified a "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freonpropelled chemicals. These can generate electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

SPECIFICATIONS (C715)

AMPLIFIER SECTION

| | |
|---|--|
| Power output Stereo Mode | 25W (6 ohms within rated distortion, 1kHz) |
| IHF dynamic power (6 ohms) | 28W |
| Total harmonic distortion at rated power | 0.15% |
| Damping factor (6 ohms) | >102 |
| Input sensitivity and impedance (Tape IN) | 370mV/27k Ω |
| Frequency response | +1 dB/-3dB (Ref. 1 kHz, 10Hz – 80kHz) |
| Signal/noise ratio | 95dB (Ref. rated power/ 6 ohms A-WTD) |
| Signal/noise ratio | 80dB (Ref. 1W / 6 ohms A-WTD) |

TUNER SECTION

AM SECTION

| | |
|---------------------------|--|
| Tuning range | 520kHz - 1710kHz (North America version, 10kHz steps) 522kHz - 1629kHz (Europe version, 9kHz steps) |
| Usable sensitivity | 60dBuV |
| S/N ratio | 40dB |
| Total Harmonic Distortion | 1.5% |
| Selectivity | 25dB |
| Frequency response | -6dB (Ref. 400Hz, 80Hz – 2.2kHz) |

FM SECTION

| | |
|-----------------------------------|---------------------------------|
| Tuning range | 87.50MHz – 108MHz (50kHz steps) |
| Usable sensitivity, MONO | 10dBuV |
| S/N Ratio MONO | 60dB |
| S/N Ratio STEREO | 55dB |
| Total Harmonic Distortion, MONO | 0.3% |
| Total Harmonic Distortion, STEREO | 0.5% |
| Frequency response | -3dB (Ref. 1 kHz, 30Hz – 12kHz) |
| Channel Separation | 35dB |
| RDS decode sensitivity | 29dBuV |

CD SECTION

| | |
|--|-----------------------------|
| Output level | 1.16V |
| Frequency response (ref. 0dB 1kHz, 20Hz-20kHz) | +1dB |
| Total harmonic distortion (ref. 1kHz, VIDEO OUT) | 0.04% |
| Signal/Noise ratio (A-weighted, ref. 1kHz VIDEO OUT) | 100dB |
| Channel balance (ref. 0dB 1kHz) | 0.5dB |
| Dynamic range (A-WTD, VIDEO OUT) | 82dB |
| Channel separation | 78dB (1kHz) 78dB (10kHz) |

PHYSICAL SPECIFICATIONS

| | |
|------------------------|--|
| Dimensions (W x H x D) | 213 x 103 x 324 mm (Net) 213 x 116 x 362 mm (Gross) |
| Net weight | 4.5kg |
| Shipping weight | 6.0kg |

Note: Gross dimensions include feet, extended buttons and rear panel terminals.

Specifications are subject to change without notice. For updated documentation and features, please log onto www.NADelectronics.com for the latest information about C 715.

SPECIFICATIONS (C715 DAB)

AMPLIFIER SECTION

| | |
|---|--|
| Power output Stereo Mode | 25W (6 ohms within rated distortion, 1kHz) |
| IHF dynamic power (6 ohms) | 28W |
| Total harmonic distortion at rated power | 0.15% |
| Damping factor (6 ohms) | >102 |
| Input sensitivity and impedance (Tape IN) | 370mV/27kΩ |
| Frequency response | +1 dB/-3dB (Ref. 1 kHz, 10Hz – 80kHz) |
| Signal/noise ratio, | 95dB (Ref. rated power/ 6 ohms A-WTD) |
| Signal/noise ratio | 80dB (Ref. 1W / 6 ohms A-WTD) |

TUNER SECTION

AM SECTION

| | |
|---------------------------|--|
| Tuning range | 520kHz -1710kHz (North America version, 10kHz steps) 522kHz -1629kHz (Europe version, 9kHz steps) |
| Usable sensitivity | 60dBuV |
| S/N ratio | 40dB |
| Total Harmonic Distortion | 1.5% |
| Selectivity | 25dB |
| Frequency response | -6dB (Ref. 400Hz, 80Hz – 2.2kHz) |

FM SECTION

| | |
|-----------------------------------|---------------------------------|
| Tuning range | 87.50MHz – 108MHz (50kHz steps) |
| Usable sensitivity, MONO | 10dBuV |
| S/N Ratio MONO | 60dB |
| S/N Ratio STEREO | 55dB |
| Total Harmonic Distortion, MONO | 0.3% |
| Total Harmonic Distortion, STEREO | 0.5% |
| Frequency response | -3dB (Ref. 1 kHz, 30Hz – 12kHz) |
| Channel Separation | 35dB |
| RDS decode sensitivity | 29dBuV |

DAB SECTION

| | |
|----------------------------|---|
| Tuning range | Band III 174MHz – 240MHz |
| Maximum signal | -3dBm |
| Sensitivity | -96dBm |
| Adjacent Channel Rejection | -35dB |
| Audio Output Stereo | 2.5Vp-p |
| Optical S/PDIF | 24 bit sample resolution 48kHz sample rate |

CD SECTION

| | |
|--|-----------------------------|
| Output level | 1.16V |
| Frequency response (ref. 0dB 1kHz, 20Hz-20kHz) | +1dB |
| Total harmonic distortion (ref. 1kHz, VIDEO OUT) | 0.04% |
| Signal/Noise ratio (A-weighted, ref. 1kHz VIDEO OUT) | 100dB |
| Channel balance (ref. 0dB 1kHz) | 0.5dB |
| Dynamic range (A-WTD, VIDEO OUT) | 82dB |
| Channel separation | 78dB (1kHz) 78dB (10kHz) |

PHYSICAL SPECIFICATIONS

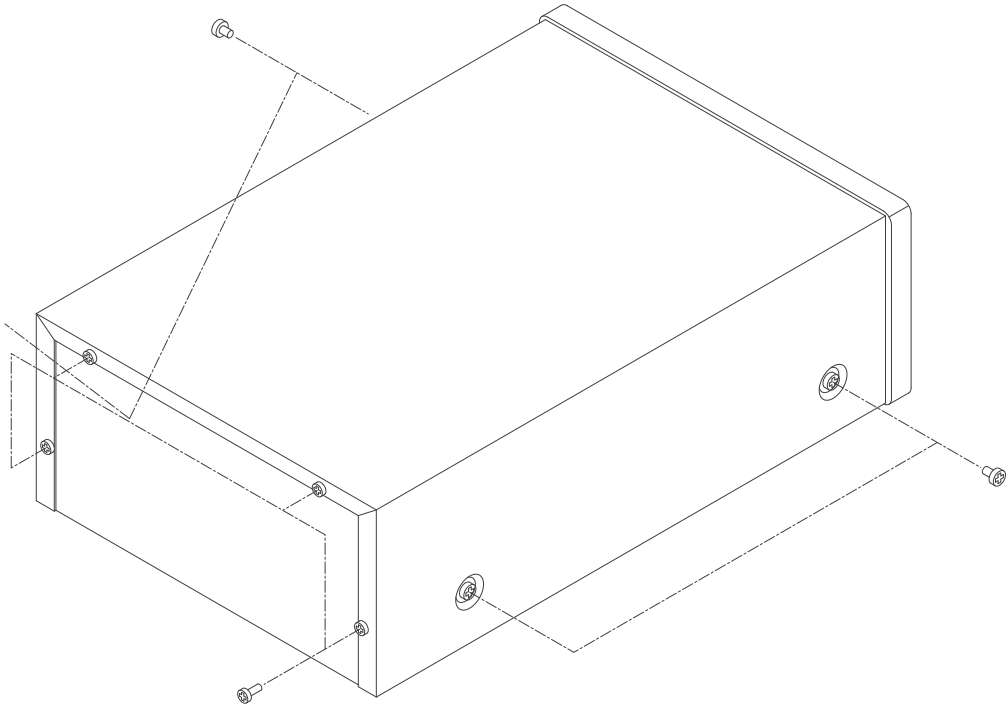
| | |
|------------------------|--|
| Dimensions (W x H x D) | 213 x 103 x 324 mm (Net) 213 x 116 x 362 mm (Gross) |
| Net weight | 4.5kg |
| Shipping weight | 6.0kg |

Note: Gross dimensions include feet, extended buttons and rear panel terminals.

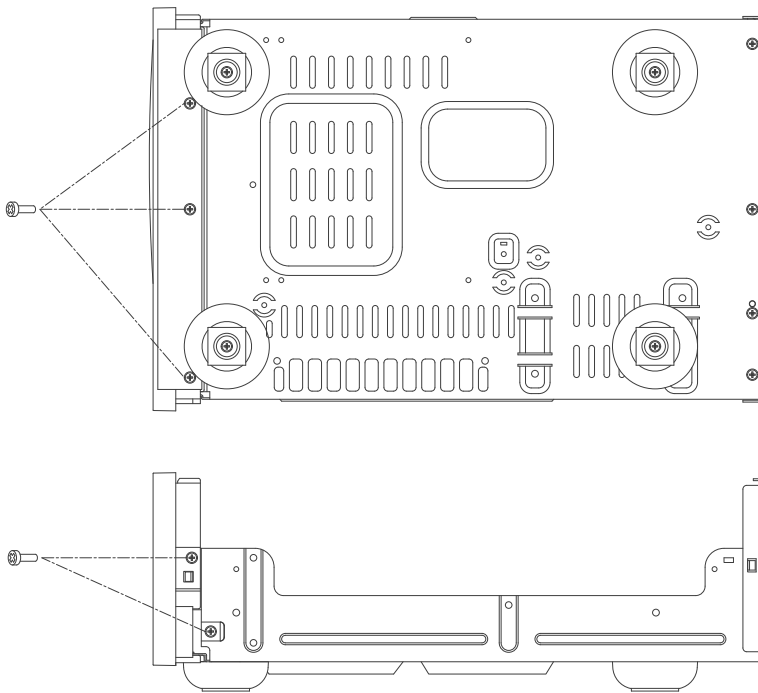
Specifications are subject to change without notice. For updated documentation and features, please log onto www.NADelectronics.com for the latest information about C 715 DAB.

DISASSEMBLY

REMOVAL OF TOP COVER

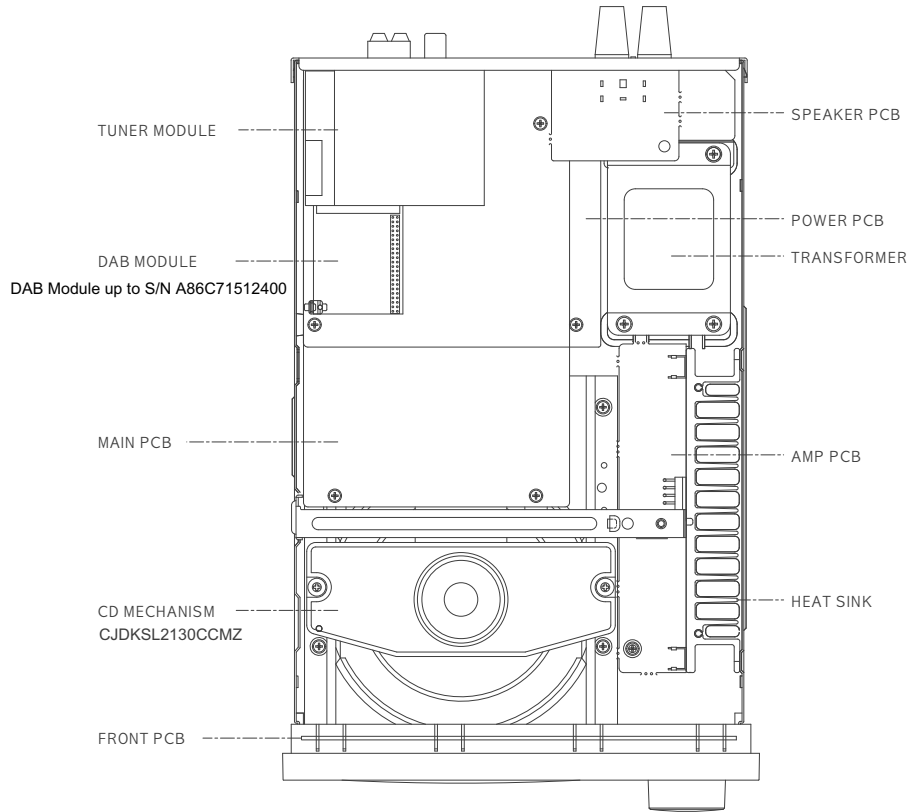


REMOVAL OF FRONT PANEL

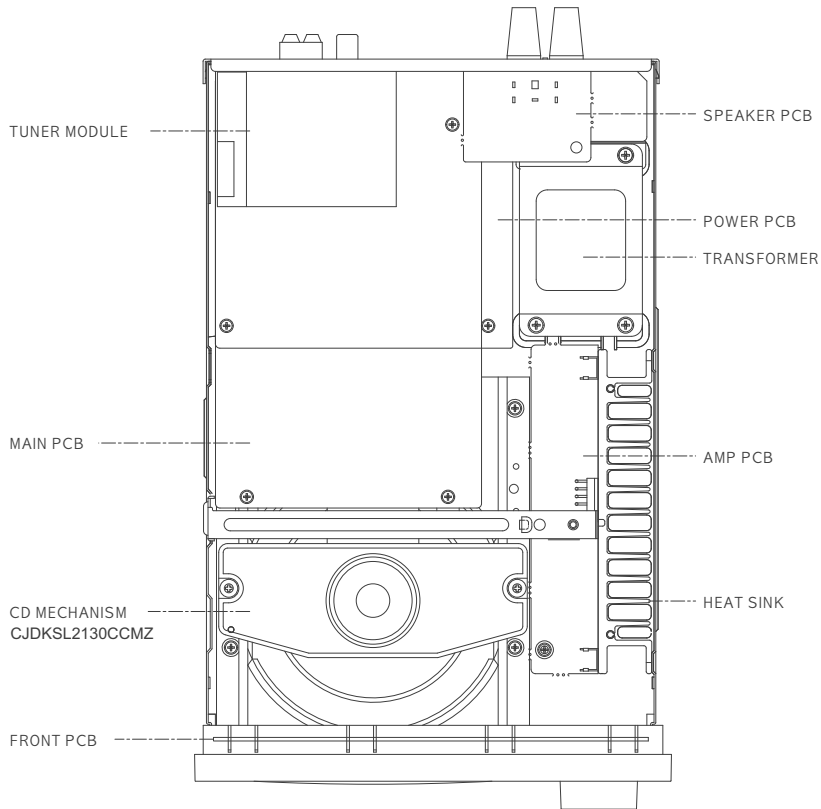


PRINCIPAL PARTS LOCATION

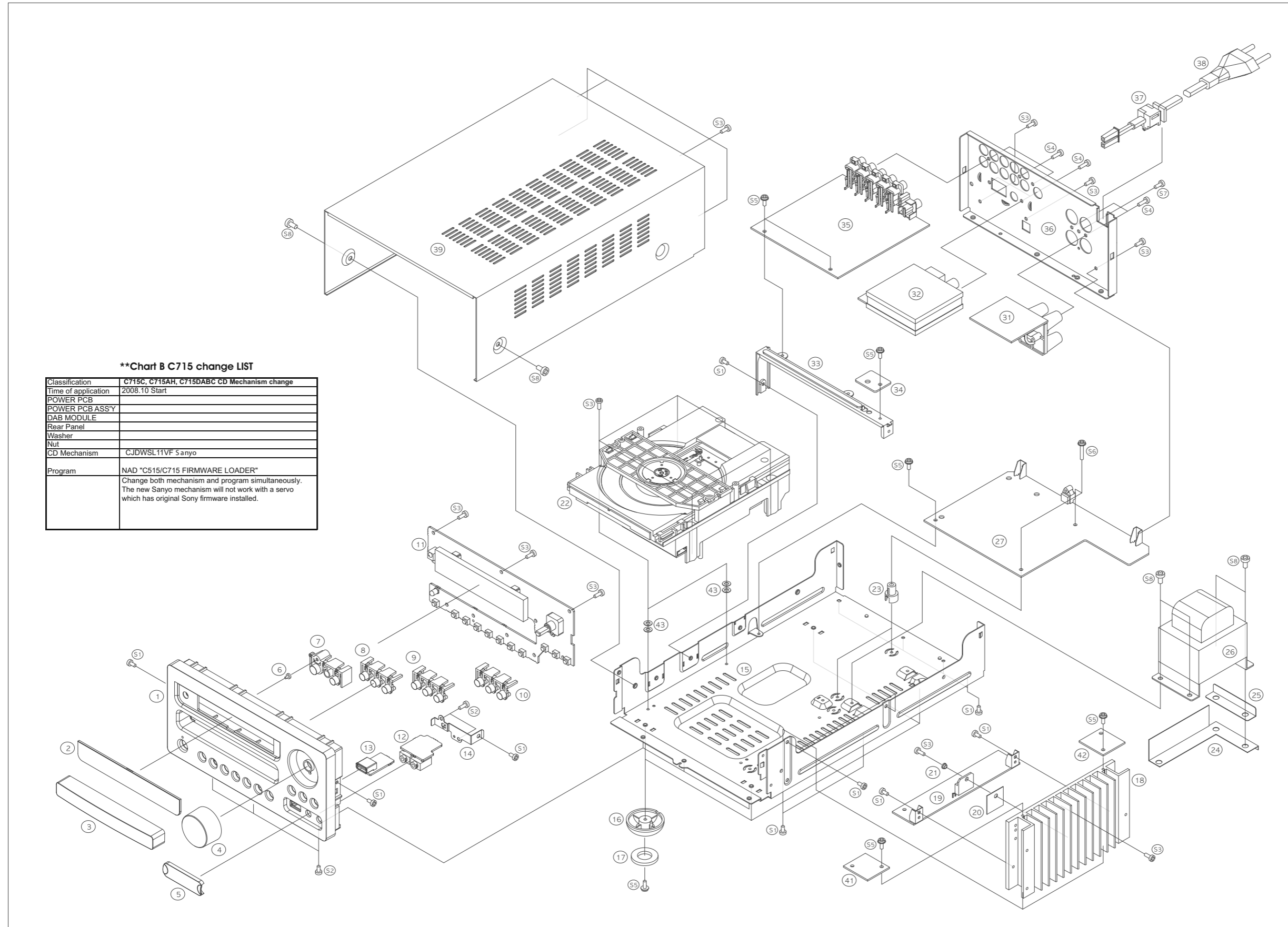
C715DABC



C715AH & C715C



C715AH EXPLODED VIEW (120V North American version)



**Chart B C715 change LIST

| | |
|---------------------|--|
| Classification | C715C, C715AH, C715DABC CD Mechanism change |
| Time of application | 2008.10 Start |
| POWER PCB | |
| POWER PCB ASS'Y | |
| DAB MODULE | |
| Rear Panel | |
| Washer | |
| Nut | |
| CD Mechanism | CJDWSL11VF 5 anyo |
| Program | NAD "C515/C715 FIRMWARE LOADER" Change both mechanism and program simultaneously. The new Sanyo mechanism will not work with a servo which has original Sony firmware installed. |

C715AH EXPLODED PART LIST PARTS

| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |
|-----|----------------|---------------------|-----|----------|
| 43 | CNW2A028 | WASHER | 4 | O.K |
| 42 | COP12019D-9 | PCB, GUIDE | 1 | N.A |
| 41 | COP12019D-8 | PCB, GUIDE | 1 | N.A |
| 40 | CHG1A113 | BUBBER | 4 | O.K |
| 39 | CKC1A156B22 | CABINET, TOP | 1 | O.K |
| 38 | CJA523FBYA | CORD, POWER | 1 | O.K |
| 37 | KHR1A028 | BUSHING, AC CORD | 1 | O.K |
| 36 | CKF1A282MK1 | PANEL, REAR | 1 | O.K |
| 35 | COP12018D | MAIN PCB ASS'Y | 1 | O.K |
| 34 | COP12019D-7 | PCB, GUIDE | 1 | N.A |
| 33 | CMD1A565 | BRACKET, PCB | 1 | O.K |
| 32 | CNVMB014MA08L5 | TUNER MODULE USA | 1 | O.K |
| 31 | COP12019D-4 | SPEAKER PCB ASS'Y | 1 | N.A |
| 30 | | | | |
| 29 | | | | |
| 28 | | | | |
| 27 | COP12019D-5 | POWER PCB ASS'Y | 1 | O.K |
| 26 | CLT5P045ZU | TRANS, POWER | 1 | O.K |
| 25 | CGX1A361 | SHEET, HIGH | 1 | O.K |
| 24 | CGX1A406 | SHEET, COVER | 1 | O.K |
| 23 | CHE1A030 | HOLDER, PCB | 2 | O.K |
| 22 | CJDKSL2130CCMZ | CD Mechansim Sony** | 1 | O.K |
| 21 | KMX1A112 | BUSHING, TR | 1 | O.K |
| 20 | KMKCM08A | MICA | 1 | O.K |
| 19 | COP12019D-6 | AMP PCB ASS'Y | 1 | N.A |
| 18 | CMY1A233 | HEAT SINK | 1 | O.K |
| 17 | CHG1A297 | CUSHION, FOOT | 4 | O.K |
| 16 | CKL1A086 | FOOT | 4 | O.K |
| 15 | CUA1A248 | CHASSIS, BOTTOM | 1 | O.K |
| 14 | CMC1A324 | BRACKET, JACK | 1 | O.K |
| 13 | COP12019D-1 | USB PCB ASS'Y | 1 | N.A |
| 12 | COP12019D-2 | PHONE PCB ASS'Y | 1 | N.A |
| 11 | COP12019D-3 | FRONT PCB ASS'Y | 1 | N.A |
| 10 | CBT1A1061XB29 | KNOB, OPEN | 1 | O.K |
| 9 | CBT1A1061YB29 | KNOB, TIME | 1 | O.K |
| 8 | CBT1A1061ZB29 | KNOB, BAND | 1 | O.K |
| 7 | CBT1A1060B29 | KNOB, POWER | 1 | O.K |
| 6 | CGL1A263 | INDICATOR, POWER | 1 | O.K |
| 5 | CGR1A440B29 | COVER, JACK | 1 | O.K |
| 4 | CBN1A208B29 | KNOB, VOLUME | 1 | O.K |
| 3 | CGR1A433B29 | ORNAMENT, DOOR | 1 | O.K |
| 2 | CGU2A406Y | WINDOW, FIP | 1 | O.K |
| 1 | CGW1A442RJZB29 | PANEL, FRONT | 1 | O.K |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

PCB ASS'Y

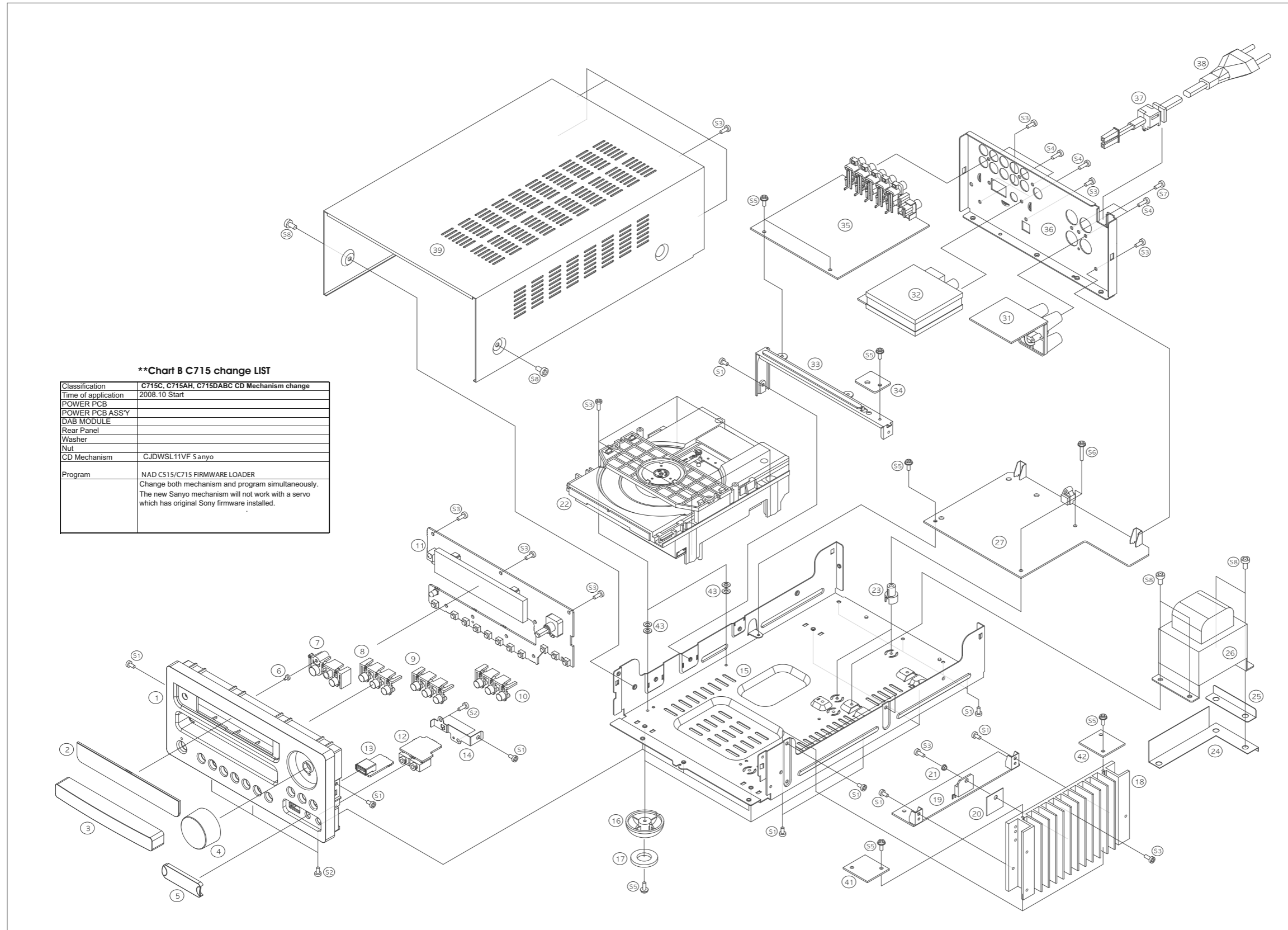
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |
|-----|-------------|-------------------|-----|----------|
| | COP12019D | POWER PCB ASS'Y | 1 | O.K |
| 42 | COP12019D-9 | PCB, GUIDE | 1 | N.A |
| 41 | COP12019D-8 | PCB, GUIDE | 1 | N.A |
| 34 | COP12019D-7 | PCB, GUIDE | 1 | N.A |
| 19 | COP12019D-6 | AMP PCB ASS'Y | 1 | N.A |
| 27 | COP12019D-5 | POWER PCB ASS'Y | 1 | O.K |
| 31 | COP12019D-4 | SPEAKER PCB ASS'Y | 1 | N.A |
| 11 | COP12019D-3 | FRONT PCB ASS'Y | 1 | N.A |
| 12 | COP12019D-2 | PHONE PCB ASS'Y | 1 | N.A |
| 13 | COP12019D-1 | USB PCB ASS'Y | 1 | N.A |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

| 35 | COP12018D | MAIN PCB ASS'Y | 1 | O.K |
|-----|-----------|----------------|-----|----------|
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

SCREW

| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |
|-----|-------------|-------------|-----|----------|
| S8 | CTB4+6FFZR | SCREW | 6 | O.K |
| S7 | CTBD3+8JFZR | SCREW | 1 | O.K |
| S6 | CTW3+18JR | SCREW | 2 | O.K |
| S5 | CTW3+8JR | SCREW | 10 | O.K |
| S4 | CTB3+10JFZR | SCREW | 7 | O.K |
| S3 | CTB3+8JFZR | SCREW | 27 | O.K |
| S2 | CTB3+6FFZR | SCREW | 3 | O.K |
| S1 | CTB3+6JR | SCREW | 11 | O.K |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

C715C EXPLODED VIEW (230V European version without DAB receiver)



****Chart B C715 change LIST**

| | |
|---------------------|--|
| Classification | C715C, C715AH, C715DABC CD Mechanism change |
| Time of application | 2008.10 Start |
| POWER PCB | |
| POWER PCB ASS'Y | |
| DAB MODULE | |
| Rear Panel | |
| Washer | |
| Nut | |
| CD Mechanism | CJDWSL11VF Sanyo |
| Program | NAD C515/C715 FIRMWARE LOADER Change both mechanism and program simultaneously. The new Sanyo mechanism will not work with a servo which has original Sony firmware installed. |

C715C EXPLODED PART LIST

PARTS

| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |
|-----|----------------|---------------------|-----|----------|
| 43 | CNW2A028 | WASHER | 4 | O.K |
| 42 | COP12019C-9 | PCB, GUIDE | 1 | N.A |
| 41 | COP12019C-8 | PCB, GUIDE | 1 | N.A |
| 40 | CHG1A113 | BUBBER | 4 | O.K |
| 39 | CKC1A156B22 | CABINET, TOP | 1 | O.K |
| 38 | CJA2B043ZA | CORD, POWER | 1 | O.K |
| 37 | KHR1A028 | BUSHING, AC CORD | 1 | O.K |
| 36 | CKF1A2820K1 | PANEL, REAR | 1 | O.K |
| 35 | COP12018C | MAIN PCB ASS'Y | 1 | O.K |
| 34 | COP12019C-7 | PCB, GUIDE | 1 | N.A |
| 33 | CMD1A565 | BRACKET, PCB | 1 | O.K |
| 32 | CNVMB144MA18L | TUNER MODULE USA | 1 | O.K |
| 31 | COP12019C-4 | SPEAKER PCB ASS'Y | 1 | N.A |
| 30 | | | | |
| 29 | | | | |
| 28 | | | | |
| 27 | COP12019C-5 | POWER PCB ASS'Y | 1 | O.K |
| 26 | CLT5P045ZE | TRANS, POWER | 1 | O.K |
| 25 | CGX1A361 | SHEET, HIGH | 1 | O.K |
| 24 | CGX1A406 | SHEET, COVER | 1 | O.K |
| 23 | CHE1A030 | HOLDER, PCB | 2 | O.K |
| 22 | CJDKSL2130CCMZ | CD Mechanism Sony** | 1 | O.K |
| 21 | KMX1A112 | BUSHING, TR | 1 | O.K |
| 20 | KMKCM08A | MICA | 1 | O.K |
| 19 | COP12019C-6 | AMP PCB ASS'Y | 1 | N.A |
| 18 | CMY1A233 | HEAT SINK | 1 | O.K |
| 17 | CHG1A297 | CUSHION, FOOT | 4 | O.K |
| 16 | CKL1A086 | FOOT | 4 | O.K |
| 15 | CUA1A248 | CHASSIS, BOTTOM | 1 | O.K |
| 14 | CMC1A324 | BRACKET, JACK | 1 | O.K |
| 13 | COP12019C-1 | USB PCB ASS'Y | 1 | N.A |
| 12 | COP12019C-2 | PHONE PCB ASS'Y | 1 | N.A |
| 11 | COP12019C-3 | FRONT PCB ASS'Y | 1 | N.A |
| 10 | CBT1A1061XB29 | KNOB, OPEN | 1 | O.K |
| 9 | CBT1A1061YB29 | KNOB, TIME | 1 | O.K |
| 8 | CBT1A1061ZB29 | KNOB, BAND | 1 | O.K |
| 7 | CBT1A1060B29 | KNOB, POWER | 1 | O.K |
| 6 | CGL1A263 | INDICATOR, POWER | 1 | O.K |
| 5 | CGR1A440B29 | COVER, JACK | 1 | O.K |
| 4 | CBN1A208B29 | KNOB, VOLUME | 1 | O.K |
| 3 | CGR1A433B29 | ORNAMENT, DOOR | 1 | O.K |
| 2 | CGU2A406Y | WINDOW, FIP | 1 | O.K |
| 1 | CGW1A442R1ZB29 | PANEL, FRONT | 1 | O.K |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

PCB ASS'Y

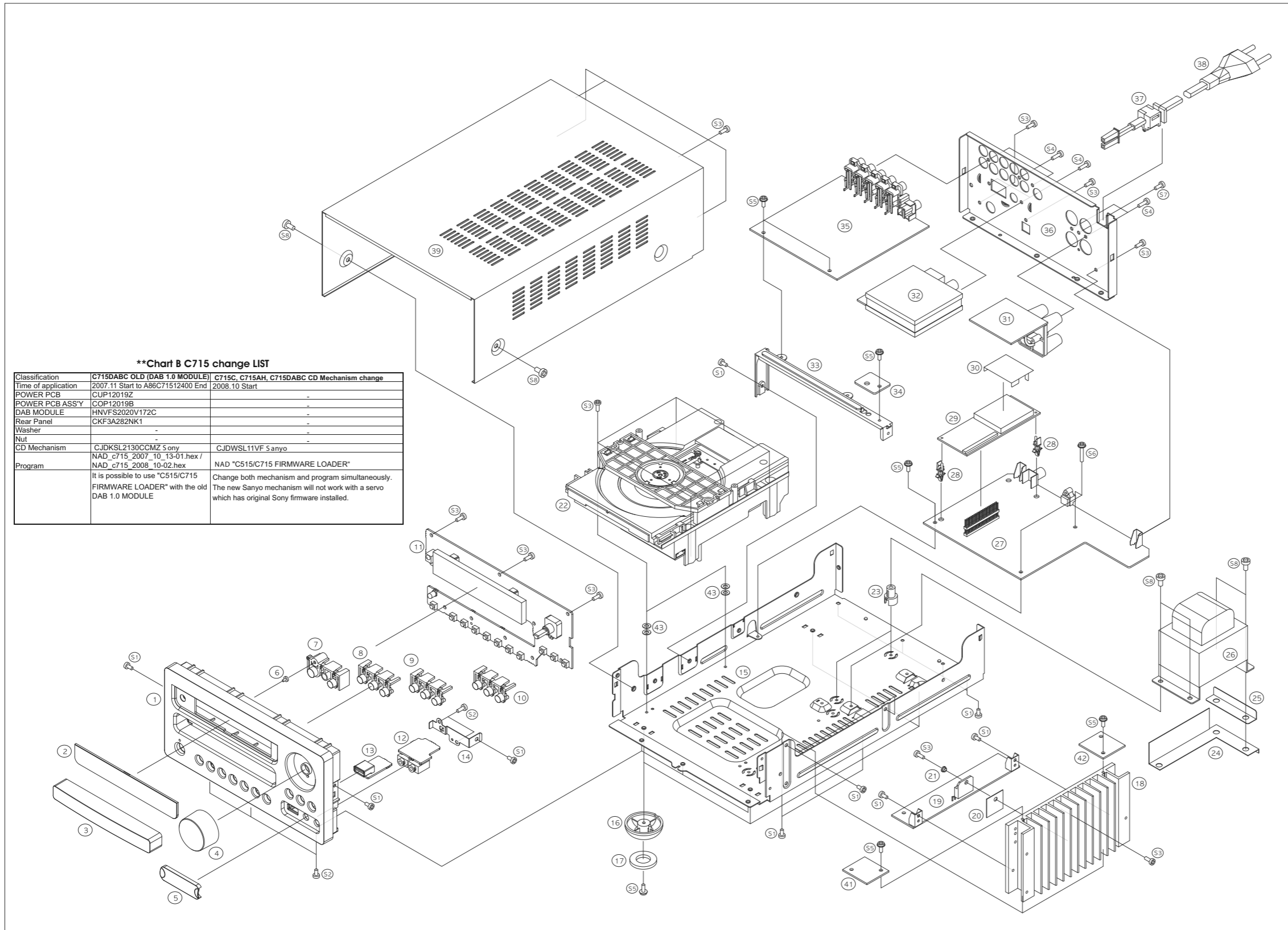
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |
|-----------|-------------|-------------------|-----|----------|
| COP12019C | | POWER PCB ASS'Y | 1 | O.K |
| 42 | COP12019C-9 | PCB, GUIDE | 1 | N.A |
| 41 | COP12019C-8 | PCB, GUIDE | 1 | N.A |
| 34 | COP12019C-7 | PCB, GUIDE | 1 | N.A |
| 19 | COP12019C-6 | AMP PCB ASS'Y | 1 | N.A |
| 27 | COP12019C-5 | POWER PCB ASS'Y | 1 | O.K |
| 31 | COP12019C-4 | SPEAKER PCB ASS'Y | 1 | N.A |
| 11 | COP12019C-3 | FRONT PCB ASS'Y | 1 | N.A |
| 12 | COP12019C-2 | PHONE PCB ASS'Y | 1 | N.A |
| 13 | COP12019C-1 | USB PCB ASS'Y | 1 | N.A |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

| 35 | COP12018C | MAIN PCB ASS'Y | 1 | O.K |
|-----|-----------|----------------|-----|----------|
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

SCREW

| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |
|-----|-------------|-------------|-----|----------|
| S8 | CTB4+6FFZR | SCREW | 6 | O.K |
| S7 | CTBD3+8JFZR | SCREW | 1 | O.K |
| S6 | CTW3+18JR | SCREW | 2 | O.K |
| S5 | CTW3+8JR | SCREW | 10 | O.K |
| S4 | CTB3+10JFZR | SCREW | 7 | O.K |
| S3 | CTB3+8JFZR | SCREW | 27 | O.K |
| S2 | CTB3+6FFZR | SCREW | 3 | O.K |
| S1 | CTB3+6JR | SCREW | 11 | O.K |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

C715DABC EXPLODED VIEW (230V European version with DAB receiver)



****Chart B C715 change LIST**

| Classification | C715DABC OLD (DAB 1.0 MODULE) | C715C, C715AH, C715DABC CD Mechanism change |
|---------------------|--|---|
| Time of application | 2007.11 Start to A86C71512400 End | 2008.10 Start |
| POWER PCB | CUP12019Z | - |
| POWER PCB ASS'Y | COP12019B | - |
| DAB MODULE | HNVFS2020V172C | - |
| Rear Panel | CKF3A282NK1 | - |
| Washer | - | - |
| Nut | - | - |
| CD Mechanism | CJDKSL2130CCMZ 5ony | CJDWSL11VF 5anyo |
| Program | NAD_c715_2007_10_13-01.hex / NAD_c715_2008_10-02.hex | NAD "C515/C715 FIRMWARE LOADER" |
| | It is possible to use "C515/C715 FIRMWARE LOADER" with the old DAB 1.0 MODULE | |
| | Change both mechanism and program simultaneously. The new Sanyo mechanism will not work with a servo which has original Sony firmware installed. | |

C715DABC EXPLODED PART LIST

PARTS

| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |
|-----|----------------|----------------------------|-----|-------------|
| 43 | CNW2A028 | WASHER | 4 | O.K |
| 42 | COP12019B-9 | PCB, GUIDE | 1 | N.A |
| 41 | COP12019B-8 | PCB, GUIDE | 1 | N.A |
| 40 | CHG1A113 | BUBBER | 4 | O.K |
| 39 | CKC1A156B22 | CABINET, TOP | 1 | O.K |
| 38 | CJA2B043ZA | CORD, POWER | 1 | O.K |
| 37 | KHR1A028 | BUSHING, AC CORD | 1 | O.K |
| 36 | CKF3A282NK1 | PANEL, REAR | 1 | O.K |
| 35 | COP12018B | MAIN PCB ASS'Y | 1 | O.K |
| 34 | COP12019B-7 | PCB, GUIDE | 1 | N.A |
| 33 | CMD1A565 | BRACKET, PCB | 1 | O.K |
| 32 | CNVMB114MA18L | TUNER MODULE(EUR) | 1 | O.K |
| 31 | COP12019B-4 | SPEAKER PCB ASS'Y | 1 | N.A |
| 30 | CMC1A253 | PLATE, EARTH | 1 | O.K |
| 29 | HNVFS2020V172C | DAB MODULE W/O F-Connector | 1 | See chart B |
| 28 | CMH1A226 | BRACKET, PCB | 2 | O.K |
| 27 | COP12019B-5 | POWER PCB ASS'Y | 1 | O.K |
| 26 | CLT5P045ZE | TRANS, POWER | 1 | O.K |
| 25 | CGX1A361 | SHEET, HIGH | 1 | O.K |
| 24 | CGX1A406 | SHEET, COVER | 1 | O.K |
| 23 | CHE1A030 | HOLDER, PCB | 2 | O.K |
| 22 | CJDKSL2130CCMZ | CD Mechanism Sony ** | 1 | See chart B |
| 21 | KMX1A112 | BUSHING, TR | 1 | O.K |
| 20 | KMKCM08A | MICA | 1 | O.K |
| 19 | COP12019B-6 | AMP PCB ASS'Y | 1 | N.A |
| 18 | CMY1A233 | HEAT SINK | 1 | O.K |
| 17 | CHG1A297 | CUSHION, FOOT | 4 | O.K |
| 16 | CKL1A086 | FOOT | 4 | O.K |
| 15 | CUA1A248 | CHASSIS, BOTTOM | 1 | O.K |
| 14 | CMC1A324 | BRACKET, JACK | 1 | O.K |
| 13 | COP12019B-1 | USB PCB ASS'Y | 1 | N.A |
| 12 | COP12019B-2 | PHONE PCB ASS'Y | 1 | N.A |
| 11 | COP12019B-3 | FRONT PCB ASS'Y | 1 | N.A |
| 10 | CBT1A1061XB29 | KNOB, OPEN | 1 | O.K |
| 9 | CBT1A1061YB29 | KNOB, TIME | 1 | O.K |
| 8 | CBT1A1061ZB29 | KNOB, BAND | 1 | O.K |
| 7 | CBT1A1060B29 | KNOB, POWER | 1 | O.K |
| 6 | CGL1A263 | INDICATOR, POWER | 1 | O.K |
| 5 | CGR1A440B29 | COVER, JACK | 1 | O.K |
| 4 | CBN1A208B29 | KNOB, VOLUME | 1 | O.K |
| 3 | CGR1A433B29 | ORNAMENT, DOOR | 1 | O.K |
| 2 | CGU2A406Y | WINDOW, FIP | 1 | O.K |
| 1 | CGW1A442RJYB29 | PANEL, FRONT | 1 | O.K |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

PCB ASS'Y

| COP12019B | POWER PCB ASS'Y | 1 | O.K | |
|-----------|-----------------|-------------------|-----|----------|
| 42 | COP12019B-9 | PCB, GUIDE | 1 | N.A |
| 41 | COP12019B-8 | PCB, GUIDE | 1 | N.A |
| 34 | COP12019B-7 | PCB, GUIDE | 1 | N.A |
| 19 | COP12019B-6 | AMP PCB ASS'Y | 1 | N.A |
| 27 | COP12019B-5 | POWER PCB ASS'Y | 1 | O.K |
| 31 | COP12019B-4 | SPEAKER PCB ASS'Y | 1 | N.A |
| 11 | COP12019B-3 | FRONT PCB ASS'Y | 1 | N.A |
| 12 | COP12019B-2 | PHONE PCB ASS'Y | 1 | N.A |
| 13 | COP12019B-1 | USB PCB ASS'Y | 1 | N.A |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

| 35 | COP12018B | MAIN PCB ASS'Y | 1 | O.K |
|-----|-----------|----------------|-----|----------|
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

SCREW

| S8 | CTB4+6FFZR | SCREW | 6 | O.K |
|-----|-------------|-------------|-----|----------|
| S7 | CTBD3+8JFZR | SCREW | 1 | O.K |
| S6 | CTW3+18JR | SCREW | 2 | O.K |
| S5 | CTW3+8JR | SCREW | 10 | O.K |
| S4 | CTB3+10JFZR | SCREW | 7 | O.K |
| S3 | CTB3+8JFZR | SCREW | 27 | O.K |
| S2 | CTB3+6FFZR | SCREW | 3 | O.K |
| S1 | CTB3+6JR | SCREW | 11 | O.K |
| NO. | PARTS NO. | DESCRIPTION | QTY | A/S PART |

SECTION 2

ELECTRICAL CONTENTS

CONTENTS

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IC BLOCK DIAGRAMS & PIN DESCRIPTION

74HC4066D

Quad bilateral switch

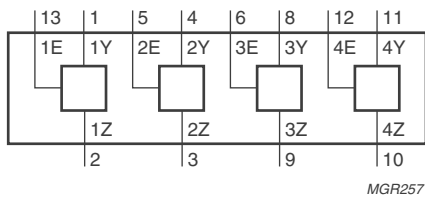


Fig.5 Functional diagram.

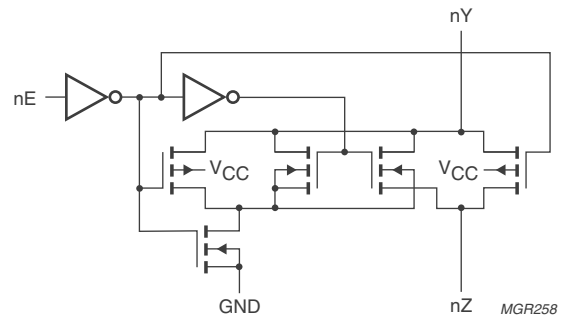
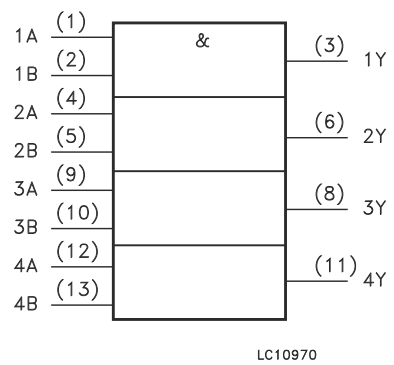
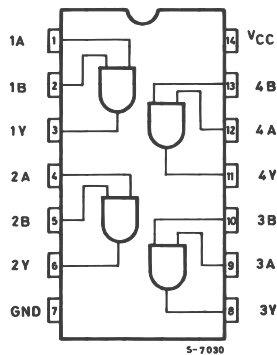


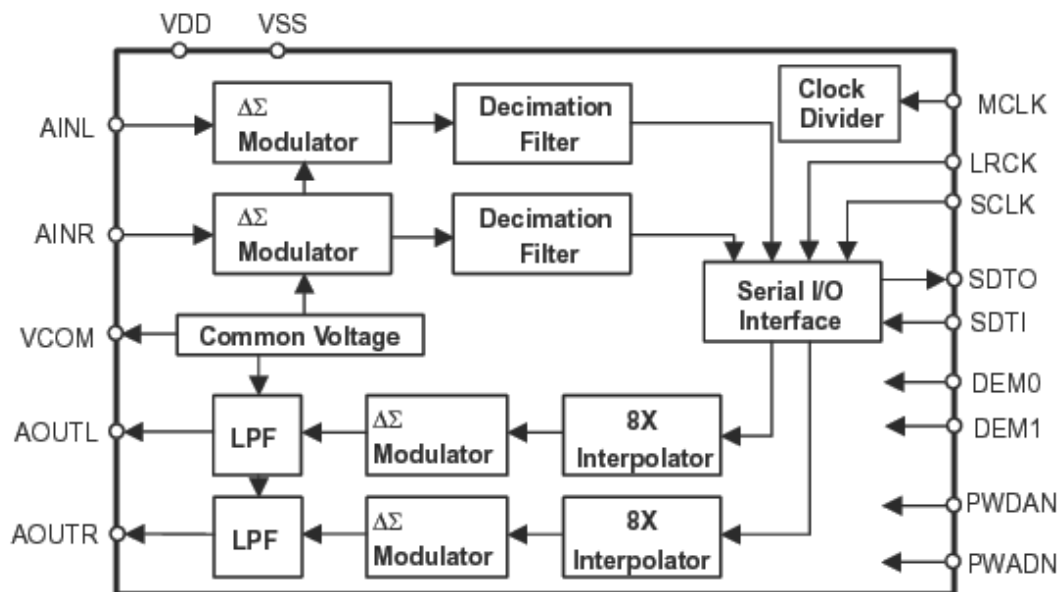
Fig.6 Schematic diagram (one switch).

74VHC08TTR

PIN CONNECTION AND IEC LOGIC SYMBOLS



AK4554

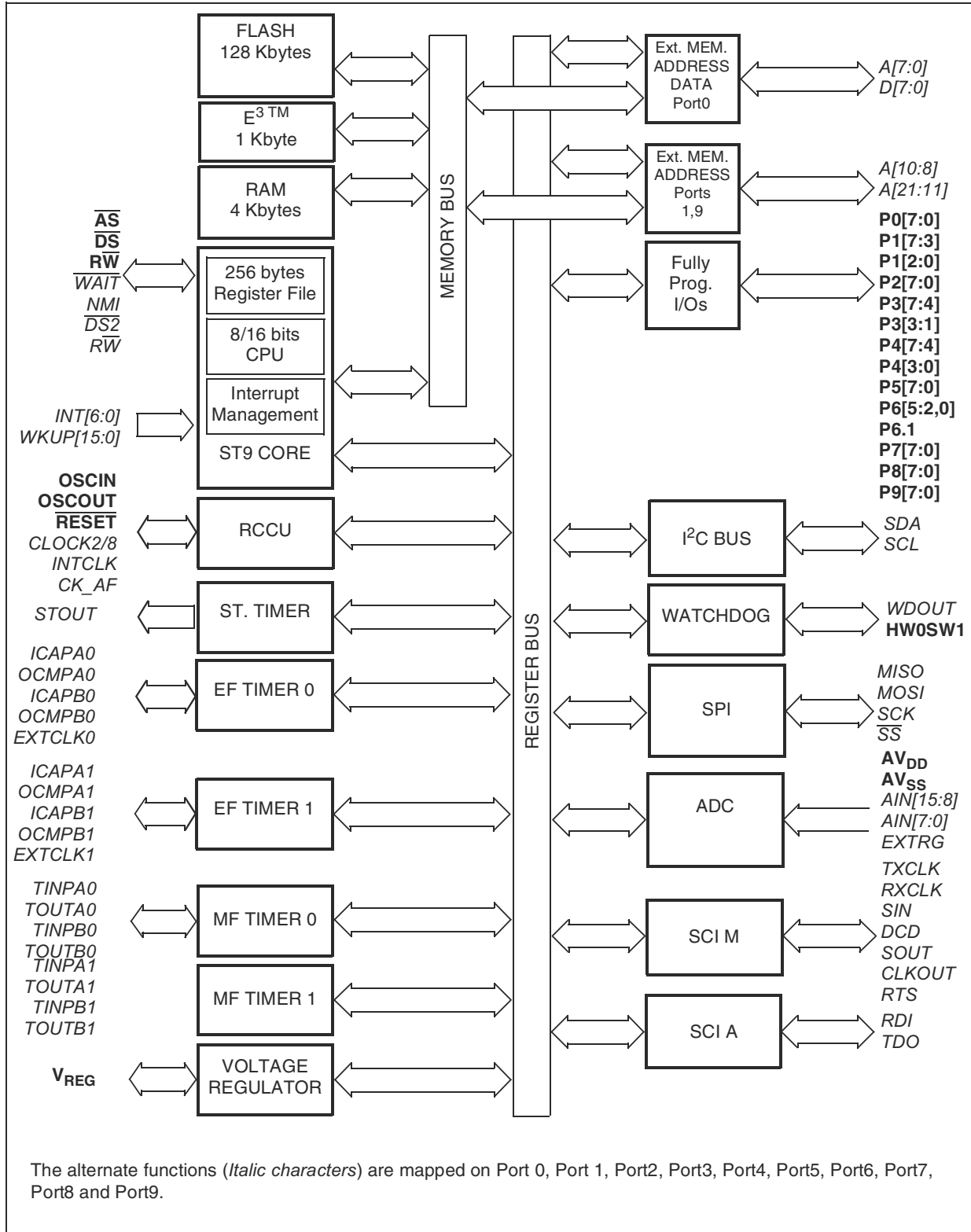


| PIN/FUNCTION | | | |
|--------------|----------|-----|---|
| No. | Pin Name | I/O | Function |
| 1 | VCOM | O | Common Voltage Output Pin, 0.5 x VDD |
| 2 | AINR | I | Rch Analog Input Pin |
| 3 | AINL | I | Lch Analog Input Pin |
| 4 | VSS | - | Ground Pin |
| 5 | VDD | - | Power Supply Pin |
| 6 | DEM0 | I | De-emphasis Control Pin |
| 7 | DEM1 | I | De-emphasis Control Pin |
| 8 | SDTO | O | Audio Serial Data Output Pin |
| 9 | SDTI | I | Audio Serial Data Input Pin |
| 10 | LRCK | I | Input/Output Channel Clock Pin |
| 11 | MCLK | I | Master Clock Input Pin |
| 12 | SCLK | I | Audio Serial Data Clock Pin |
| 13 | PWADN | I | ADC Power-Down & Reset Mode Pin “L”: Power down. ADC should always be reset upon power-up. |
| 14 | PWDAN | I | DAC Power-Down & Reset Mode Pin “L”: Power down. DAC should always be reset upon power-up. |
| 15 | AOUTL | O | Lch Analog Output Pin |
| 16 | AOUTR | O | Rch Analog Output Pin |

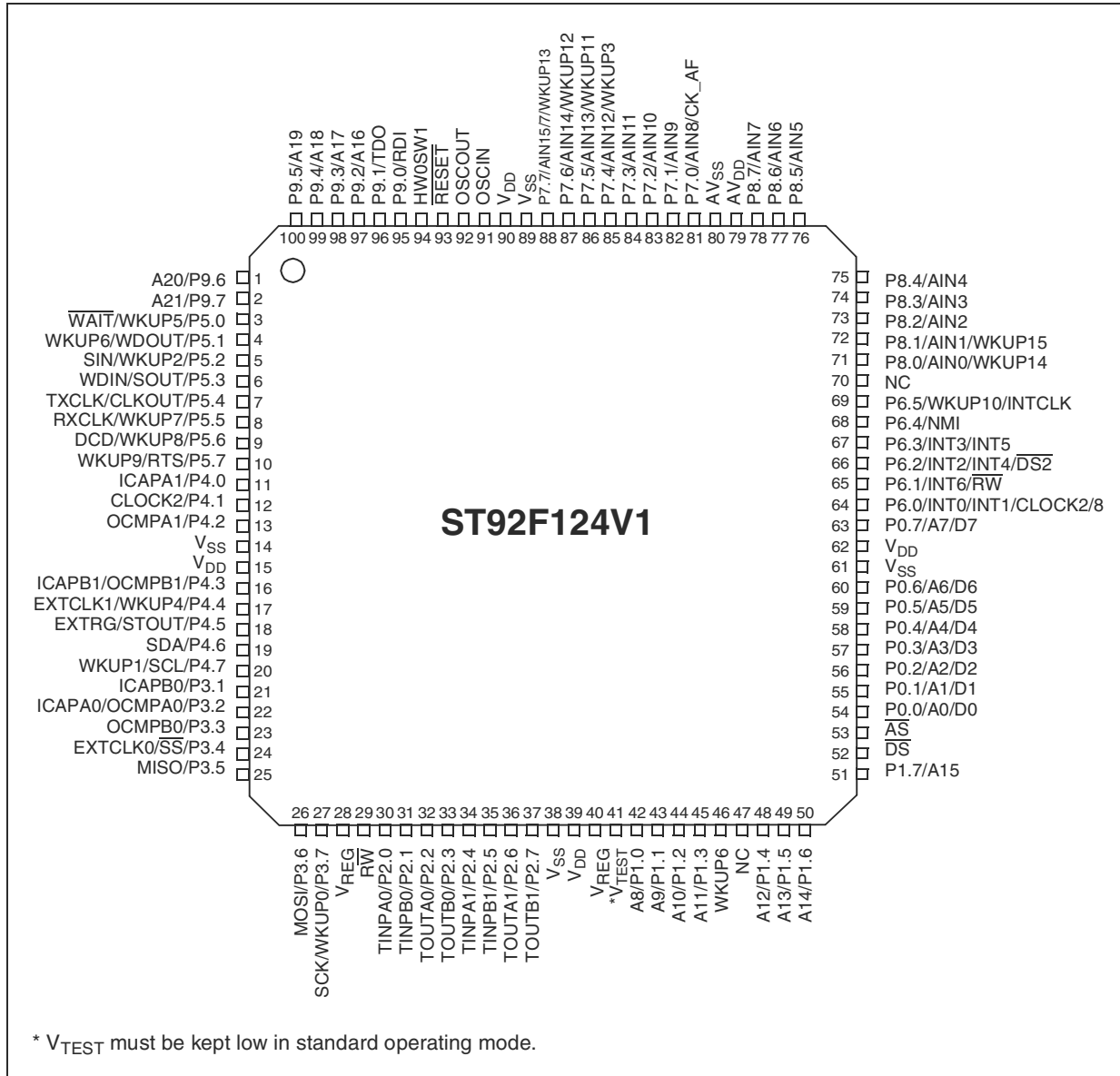
Note: All input pins except analog input pins (AINR and AINL) should not be left floating.

ST92F124V

ST92F124V1: Architectural Block Diagram



ST92F124V1: Pin Configuration (Top-view TQFP100)



| pin No | Port Name | I/O | use | Name | Note |
|--------|-------------------------|-----|-----|-------------|---|
| 1 | A20/P9.6 | I/O | O | VFD-CE | VFD chip enable pin |
| 2 | A21/P9.7 | I/O | | NC | |
| 3 | WAIT/WKUP5/P5.0 | I/O | I | DAB-DI | DAB data in |
| 4 | WKUP6/WDOOUT/P5.1 | I/O | I/O | DAB-CLK | DAB clock |
| 5 | SIN/WKUP2/P5.2 | I/O | I/O | DAB-DO | DAB data out/update port |
| 6 | WDIN/SOUT/P5.3 | I/O | I | DAB-ON | update port |
| 7 | TXCLK/CLKOUT/P5.4 | I/O | I | | update port |
| 8 | RXCLK/WKUP7/P5.5 | I/O | I/O | STANBY | Standby LED on (active "H")/update port |
| 9 | DCD/WKUP8/P5.6 | I/O | O | F-MUTE | System mute (active "H") |
| 10 | WKUP9/RTS/P5.7 | I/O | O | TCC-CE | TCC760 chip enable(USB host I.C) |
| 11 | ICAPA1/P4.0 | I/O | I | Option | FM frequency step (low : 50kHz, high : 100 kHz) |
| 12 | CLOCK2/P4.1 | I/O | I | Option | AM frequency step (low : 10kHz, high : 9kHz) |
| 13 | OCMPA1/P4.2 | I/O | I | Option | RDS on,off (low : off, high : on) |
| 14 | VSS | | | GND | GND |
| 15 | VDD | | | VDD | +5V |
| 16 | ICAPB1/OCMPB1/P4.3 | I/O | I | Option | Real time mode(low : 12 hours, high : 24 hours) |
| 17 | EXTCLK1/WKUP4/P4.4 | I/O | I/O | R/T SDA | Real time i.c serial data |
| 18 | EXTRG/STOUT/P4.5 | I/O | I/O | R/T SCL | Real time i.c serial clock |
| 19 | SDA/P4.6 | I/O | I | R/T IRQ | Real time i.c interrupt output |
| 20 | WKUP1/SCL/P4.7 | I/O | O | F-STB | Function i.c strobe output |
| 21 | ICAPB0/P3.1 | I/O | I | Option | DAB on,off (low : off, high : on) |
| 22 | ICAPA0/OCMPA0/P3.2 | I/O | I | Option | RESERVED |
| 23 | OCMPB0/P3.3 | I/O | O | TCC-RST | TCC760 i.c reset(USB host I.C), active"L" |
| 24 | EXTCLK0/SS/P3.4 | I/O | I | GND | GND |
| 25 | MISO/P3.5 | I/O | O | TCC-DI | TCC760 i.c data in |
| 26 | MOSI/P3.6 | I/O | I | TCC-DO | TCC760 i.c data out |
| 27 | SCK/WKUP0/P3.7 | I/O | I/O | TCC-SCLK | TCC760 i.c serial clock |
| 28 | VREG | | | VREG | Stabilization capacitor(s) for internal voltage regulator |
| 29 | RW | | | NC | |
| 30 | TINPA0/P2.0 | I/O | I | PROTECT | Protect in, active "L" |
| 31 | TINPB0/P2.1 | I/O | O | SP-ON | Speaker on, active "H" |
| 32 | TOUTA0/P2.2 | I/O | I | H/P-IN | Headphone in, active "L" |
| 33 | TOUTB0/P2.3 | I/O | | NC | |
| 34 | TINPA1/P2.4 | I/O | O | T-MUTE | Tuner mute, active "H" |
| 35 | TINPB1/P2.5 | I/O | O | V-CLK | VFD clock pin |
| 36 | TOUTA1/P2.6 | I/O | O | V-DATA | VFD serial data |
| 37 | TOUTB1/P2.7 | I/O | I | BACK-UP | Back-up, active "L" |
| 38 | VSS | | | GND | GND |
| 39 | VDD | | | VDD | +5V |
| 40 | VREG | | | VREG | Stabilization capacitor(s) for internal voltage regulator |
| 41 | VTEST | | | GND | Must be kept low in standard operating mode |
| 42 | A8/P1.0 | I/O | O | CD-OPEN-M | CD open motor pin |
| 43 | A9/P1.1 | I/O | | NC | |
| 44 | A10/P1.2 | I/O | O | CD-CCE | communication chip enable with CD DSP |
| 45 | A11/P1.3 | I/O | O | CD-BUCK | communication clock with CD DSP |
| 46 | WKUP6 | | | NC | |
| 47 | NC | | | NC | |
| 48 | A12/P1.4 | I/O | | NC | |
| 49 | A13/P1.5 | I/O | O | CD-POWER | optical out change of DAB and CD |
| 50 | A14/P1.6 | I/O | O | MT-STBY | Motor drive i.c standby pin |
| 51 | P1.7/A15 | I/O | O | CD-RST | CD dsp reset pin |
| 52 | DS | | | NC | |
| 53 | AS | | | NC | |
| 54 | P0.0/A0/D0 | I/O | I/O | CD-BUS0 | receive data or send command for CD DSP |
| 55 | P0.1/A1/D1 | I/O | I/O | CD-BUS1 | receive data or send command for CD DSP |
| 56 | P0.2/A2/D2 | I/O | I/O | CD-BUS2 | receive data or send command for CD DSP |
| 57 | P0.3/A3/D3 | I/O | I/O | CD-BUS3 | receive data or send command for CD DSP |
| 58 | P0.4/A4/D4 | I/O | I | CD-OPEN-SW | CD open switch pin |
| 59 | P0.5/A5/D5 | I/O | I | CD-CLOSE-SW | CD close switch pin |
| 60 | P0.6/A6/D6 | I/O | I | CD-LIMIT-SW | CD inner switch pin |
| 61 | VSS | | | GND | GND |
| 62 | VDD | | | VDD | +5V |
| 63 | P0.7/A7/D7 | I/O | O | CD-CLOSE-M | CD close motor pin |
| 64 | P6.0/INT0/INT1/CLOCK2/8 | I/O | | NC | |
| 65 | P6.1/INT6/RW | I/O | I | REMOTE | Remote in pin |
| 66 | P6.2/INT2/INT4/DS2 | I/O | I | RDS-CLK | RDS serial clock |
| 67 | P6.3/INT3/INT5 | I/O | I | MP3-REQ | Request pin for MP3 DSP |
| 68 | P6.4/NMI | I/O | O | MP3-STBY | 1Mb sram standby pin |
| 69 | P6.5/WKUP10/INTCLK | I/O | | NC | |
| 70 | NC | | | NC | |
| 71 | P8.0/AIN0/WKUP14 | I/O | I | KEY2 | Key input 2 |
| 72 | P8.1/AIN1/WKUP15 | I/O | I | KEY1 | Key input 1 |

| | | | | | |
|-----|-------------------|-----|---|-----------|---|
| 73 | P8.2/AIN2 | I/O | | NC | |
| 74 | P8.3/AIN3 | I/O | I | JOG1 | Volume encoder in + |
| 75 | P8.4/AIN4 | I/O | I | JOG2 | Volume encoder in - |
| 76 | P8.5/AIN5 | I/O | | NC | |
| 77 | P8.6/AIN6 | I/O | | NC | |
| 78 | P8.7/AIN7 | I/O | | NC | |
| 79 | AVDD | | | VDD | +5V |
| 80 | AVSS | | | GND | GND |
| 81 | P7.0/AIN8/CK_AF | I/O | O | POWER-H | Power on pin, active "H" |
| 82 | P7.1/AIN9 | I/O | O | P/F-DATA | Tuner and function i.c serial data |
| 83 | P7.2/AIN10 | I/O | O | P/F-CLK | Tuner and function i.c serial clock |
| 84 | P7.3/AIN11 | I/O | I | PLL-DI | Tuner data in pin |
| 85 | P7.4/AIN12/WKUP3 | I/O | O | PLL-CE | Tuner enable pin |
| 86 | P7.5/AIN13/WKUP11 | I/O | I | TUNED-IN | Tuned in pin, active"L" |
| 87 | P7.6/AIN14/WKUP12 | I/O | I | STEREO-IN | Stereo in pin, active"L" |
| 88 | P7.7/AIN15/WKUP13 | I/O | I | RDS-DATA | RDS serial data |
| 89 | VSS | | | GND | GND |
| 90 | VDD | | | VDD | +5V |
| 91 | OSCIN | I | I | OSCIN | Oscillator in |
| 92 | OSCOU | O | O | OSCOU | Oscillator out |
| 93 | RESET | I | I | RESET | Reset, active "L" |
| 94 | HW0SW1 | I | I | HW0SW1 | watchdog HW/SW enabling selection, active "H" |
| 95 | P9.0/RDI | I/O | | NC | |
| 96 | P9.1/TDO | I/O | | NC | |
| 97 | P9.2/A16 | I/O | | NC | |
| 98 | P9.3/A17 | I/O | O | VFD-DI | VFD serial data out |
| 99 | P9.4/A18 | I/O | O | VFD-CLK | VFD serial clock out |
| 100 | P9.5/A19 | I/O | O | VFD-RST | VFD reset, active "L" |

FS2020 (Venice) HW Spec 1.2

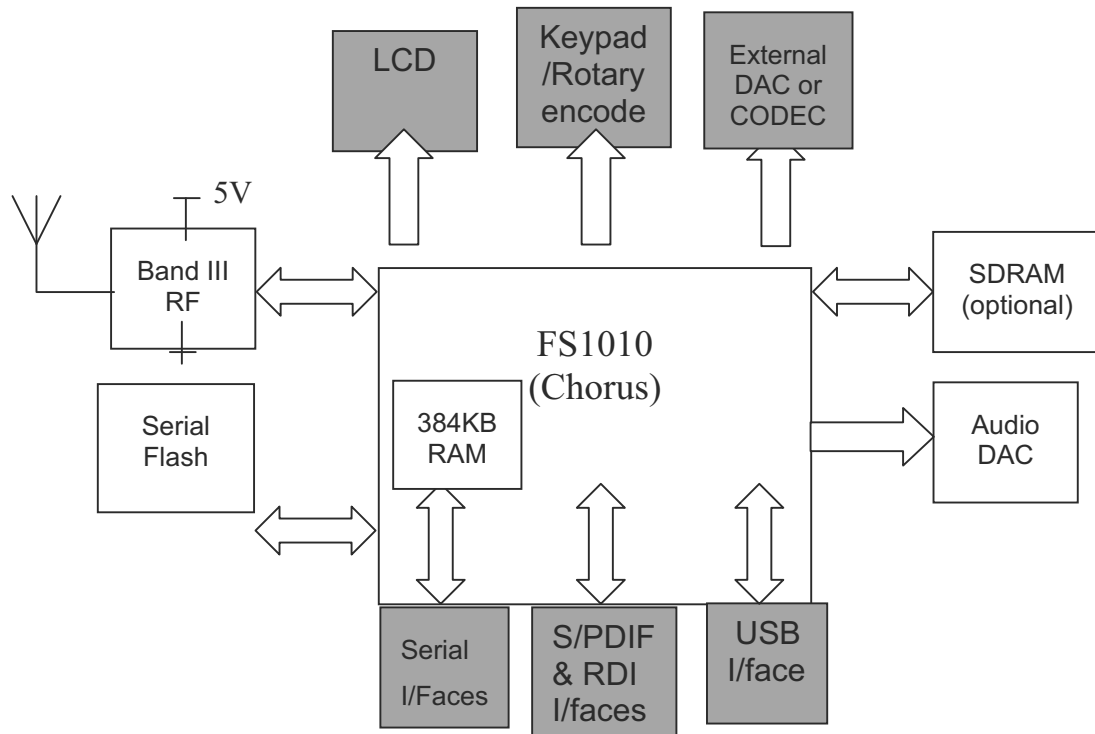


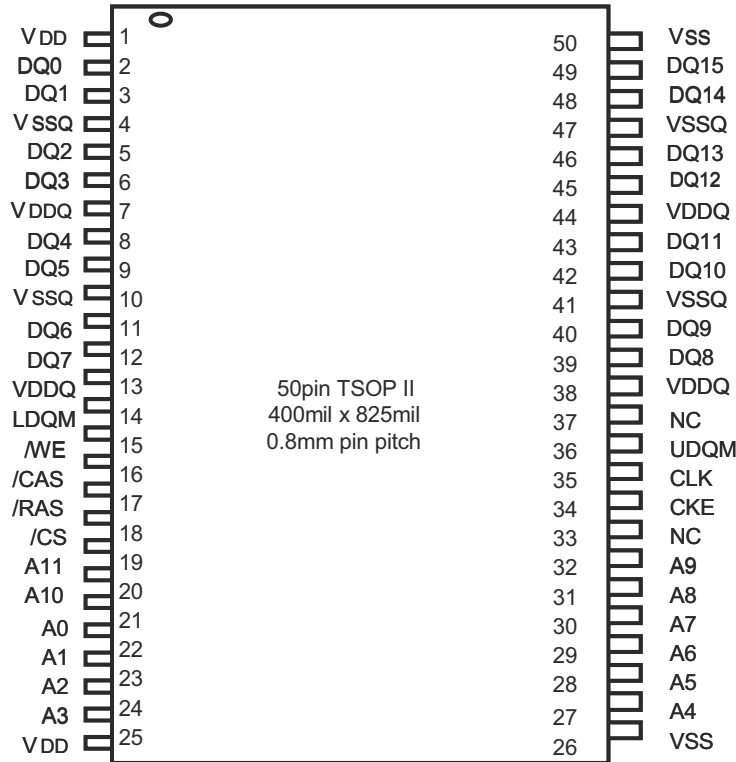
Figure 1 - Venice module block diagram (functions in white are on board, in grey are external)

The pin-out for CN1 is as follows:

| Pin | Description | Pin | Description |
|-----|-----------------|-----|-------------|
| 1 | 5V | 23 | AUD_SCLK |
| 2 | 5V | 24 | AUD_MCLK |
| 3 | Audio Left Out | 25 | LCD DAT 0 |
| 4 | Audio Ground | 26 | LCD DAT 1 |
| 5 | Audio Right Out | 27 | LCD DAT 2 |
| 6 | GND | 28 | LCD DAT 3 |
| 7 | GND | 29 | LCD DAT 4 |
| 8 | USB DM | 30 | LCD DAT 5 |
| 9 | USB DP | 31 | LCD DAT 6 |
| 10 | GND | 32 | LCD DAT 7 |
| 11 | GND | 33 | LCD_F |
| 12 | SPDIF Out | 34 | LCD_LRS |
| 13 | GND | 35 | LCD_M |
| 14 | GND | 36 | LCD_PE |
| 15 | S1_DIN | 37 | SPDIF In |
| 16 | S1_DOUT | 38 | RDI Out |
| 17 | 3.3V | 39 | SCP_CLK |
| 18 | 3.3V | 40 | SCP_DAT |
| 19 | 3.3V | 41 | PDM Out |
| 20 | GND | 42 | AUD_SDOUT1 |
| 21 | AUD_SFR | 43 | AUD_SDOUT2 |
| 22 | AUD_SDOU0 | 44 | AUD_SDIN |

HY57V161610ET

PIN CONFIGURATION

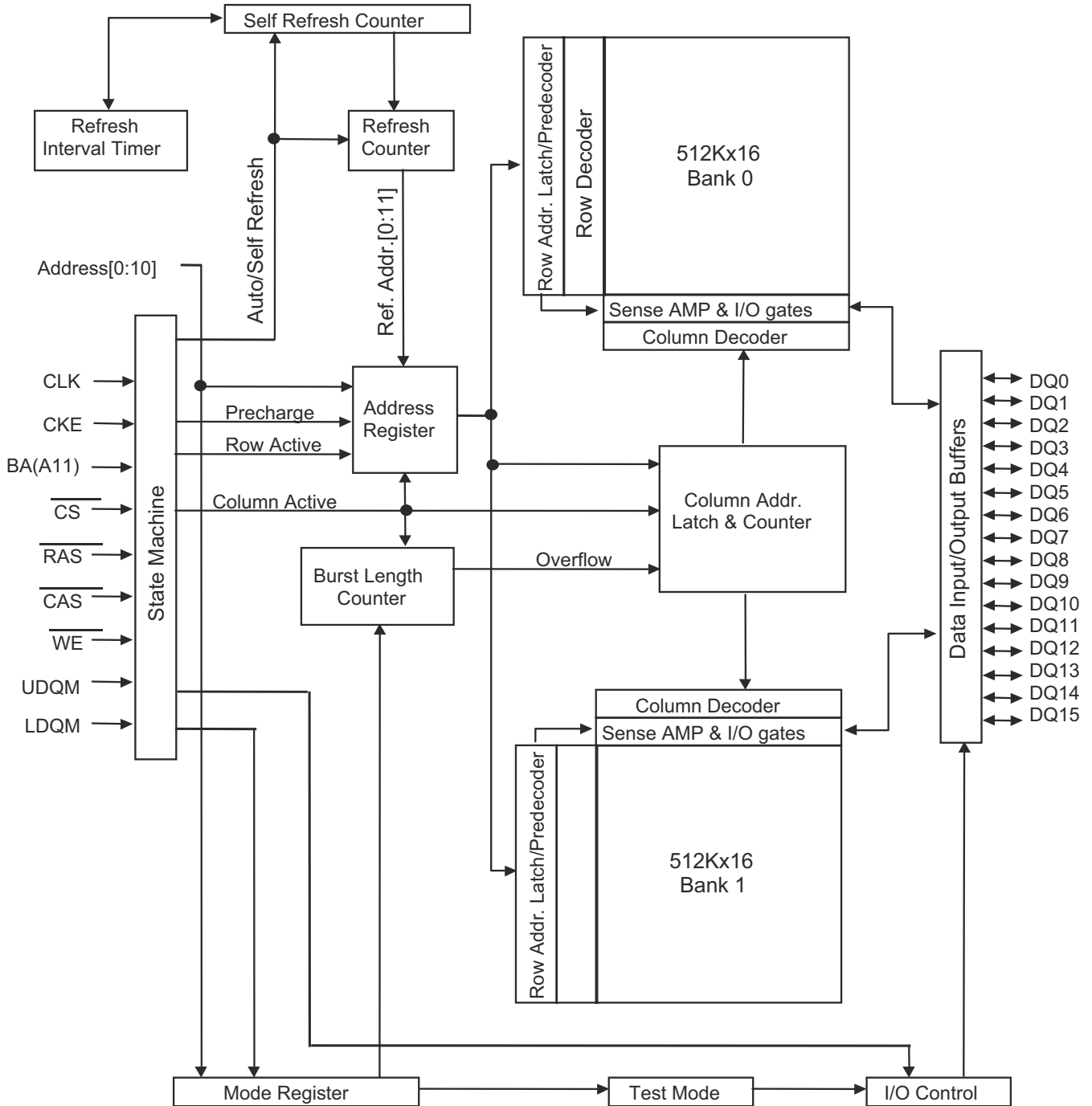


PIN DESCRIPTION

| PIN | PIN NAME | DESCRIPTION |
|---|---|---|
| CLK | Clock | The system clock input. All other inputs are referenced to the SDRAM on the rising edge of CLK. |
| CKE | Clock Enable | Controls internal clock signal and when deactivated, the SDRAM will be one of the states among power down, suspend or self refresh. |
| \overline{CS} | Chip Select | Command input enable or mask except CLK, CKE and DQM |
| BA | Bank Address | Select either one of banks during both \overline{RAS} and \overline{CAS} activity. |
| A0 ~ A10 | Address | Row Address : RA0 ~ RA10, Column Address : CA0 ~ CA7 Auto-precharge flag : A10 |
| \overline{RAS} , \overline{CAS} , \overline{WE} | Row Address Strobe, Column Address Strobe, Write Enable | \overline{RAS} , \overline{CAS} and \overline{WE} define the operation. Refer function truth table for details |
| LDQM, UDQM | Data Input/Output Mask | DQM control output buffer in read mode and mask input data in write mode |
| DQ0 ~ DQ15 | Data Input/Output | Multiplexed data input / output pin |
| VDD/VSS | Power Supply/Ground | Power supply for internal circuit and input buffer |
| VDDQ/VSSQ | Data Output Power/Ground | Power supply for DQ |
| NC | No Connection | No connection |

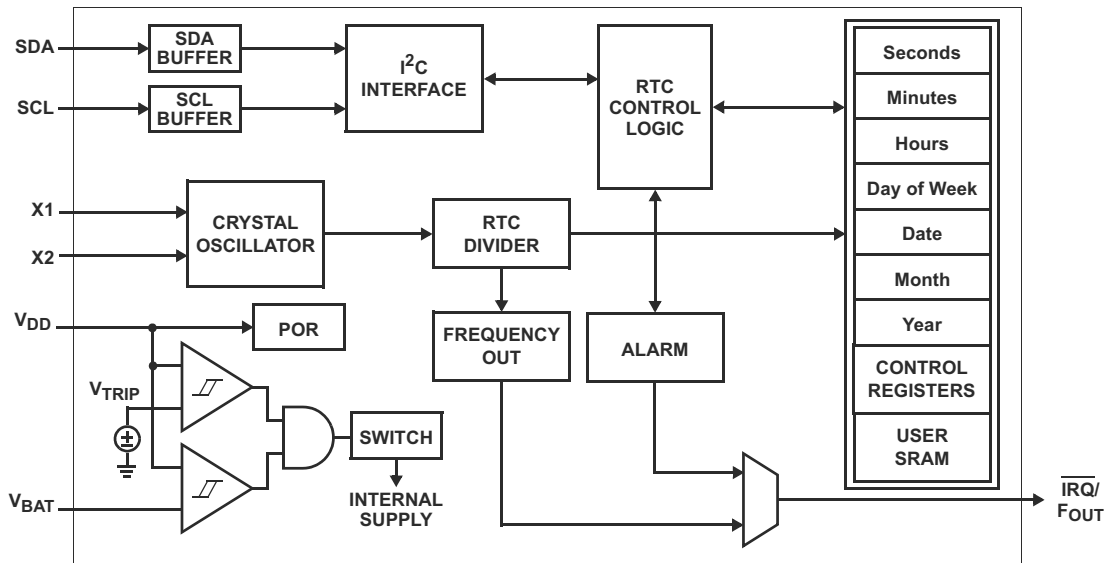
FUNCTIONAL BLOCK DIAGRAM

1Mx16 Synchronous DRAM



ISL 1208

Block Diagram

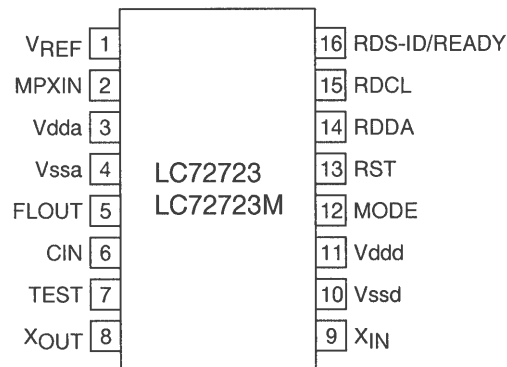


Pin Descriptions

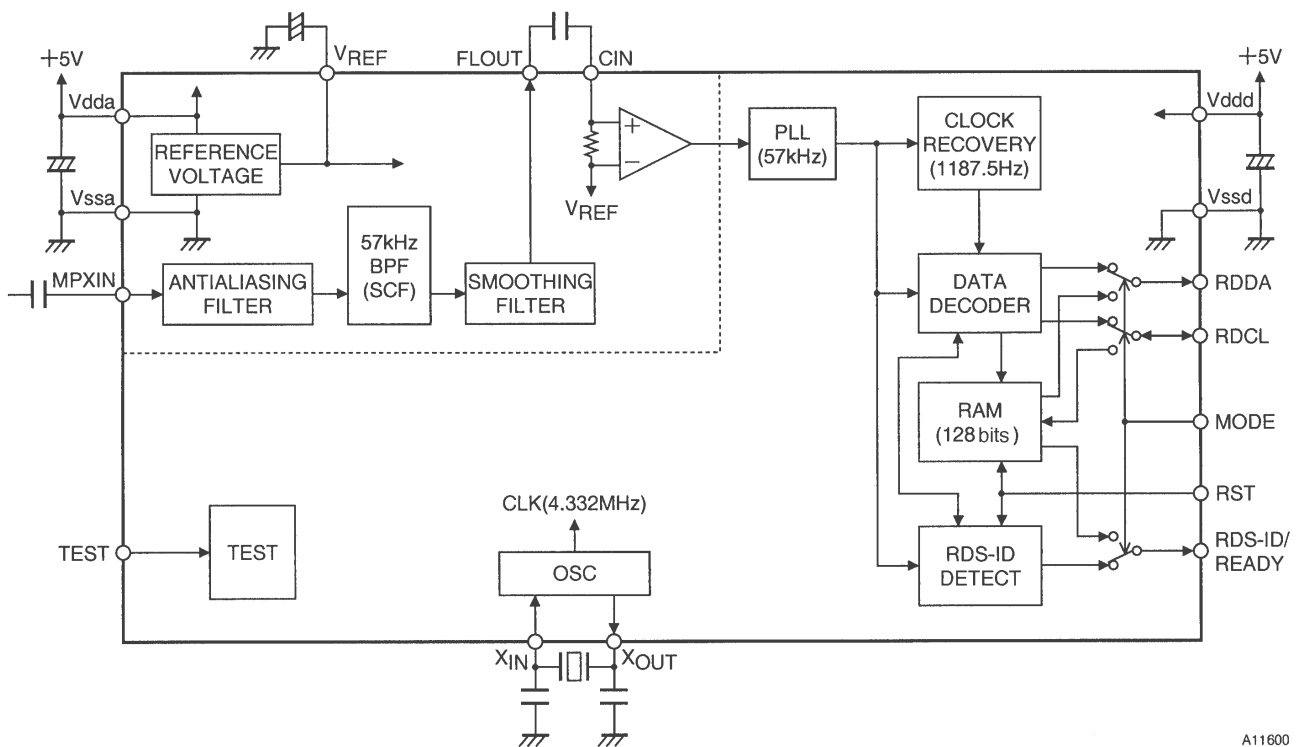
| PIN NUMBER | SYMBOL | DESCRIPTION |
|------------|---|---|
| 1 | X1 | The X1 pin is the input of an inverting amplifier and is intended to be connected to one pin of an external 32.768kHz quartz crystal. X1 can also be driven directly from a 32.768kHz source. |
| 2 | X2 | The X2 pin is the output of an inverting amplifier and is intended to be connected to one pin of an external 32.768kHz quartz crystal. |
| 3 | V _{BAT} | This input provides a backup supply voltage to the device. V _{BAT} supplies power to the device in the event that the V _{DD} supply fails. This pin should be tied to ground if not used. |
| 4 | GND | Ground. |
| 5 | SDA | Serial Data (SDA) is a bidirectional pin used to transfer serial data into and out of the device. It has an open drain output and may be wire OR'ed with other open drain or open collector outputs. |
| 6 | SCL | The Serial Clock (SCL) input is used to clock all serial data into and out of the device. |
| 7 | $\overline{\text{IRQ}}/\text{F}_{\text{OUT}}$ | Interrupt Output/Frequency Output is a multi-functional pin that can be used as interrupt or frequency output pin. The function is set via the configuration register. |
| 8 | V _{DD} | Power supply. |

LC72723M

Pin Assignment (DIP16/MFP16)

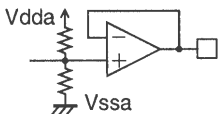
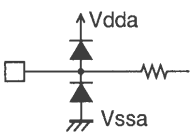
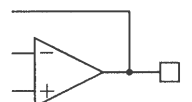
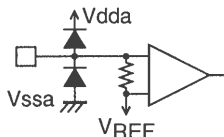
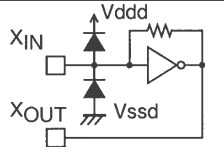
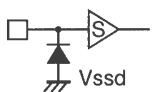
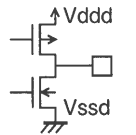
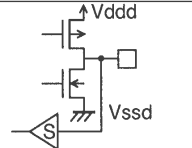
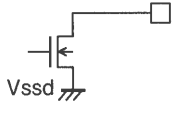


Block Diagram



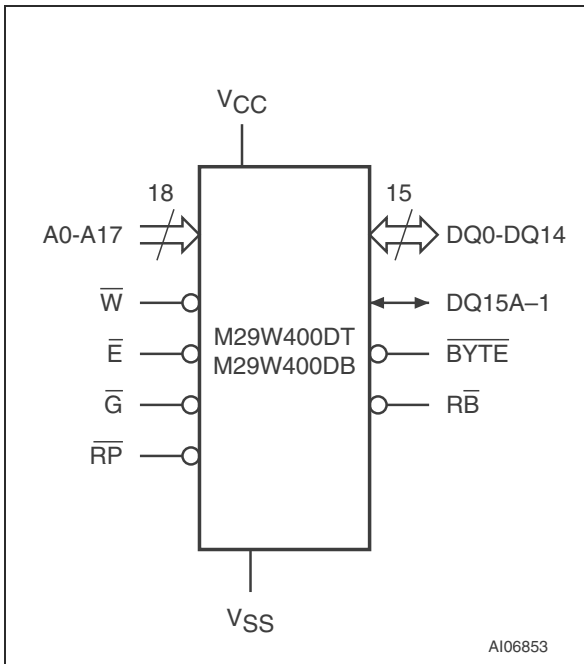
A11600

Pin Descriptions

| Pin No. | Pin | Function | I/O | Pin circuit type |
|---------|--------------|--|--------|---|
| 1 | VREF | Reference voltage output ($V_{dda}/2$) | Output |  |
| 2 | MPXIN | Base band (multiplex) signal input | Input |  |
| 5 | FLOUT | Subcarrier output (filter output) | Output |  |
| 6 | CIN | Subcarrier input (comparator input) | Input |  |
| 3 | Vdda | Analog system power supply (+5 V) | — | — |
| 4 | Vssa | Analog system ground | — | — |
| 8 | XOUT | Crystal element output (4.332 MHz) | Output |  |
| 9 | XIN | Crystal element input (or external reference signal input) | Input | |
| 7 | TEST | Test input | | |
| 12 | MODE | Readout mode setting (0: master, 1: slave) | | |
| 13 | RST | RDS ID and RAM reset (Active high logic) | Output |  |
| 14 | RDDA | RDS data output | |  |
| 15 | RDCL | RDS clock output (master mode) RDS clock input (slave mode) | I/O |  |
| 16 | RDS-ID/READY | RDS ID/ready output (Active low) | Output |  |
| 11 | Vddd | Digital system power supply (+5 V) | — | — |
| 10 | Vssd | Digital system ground | — | — |

M29W400D

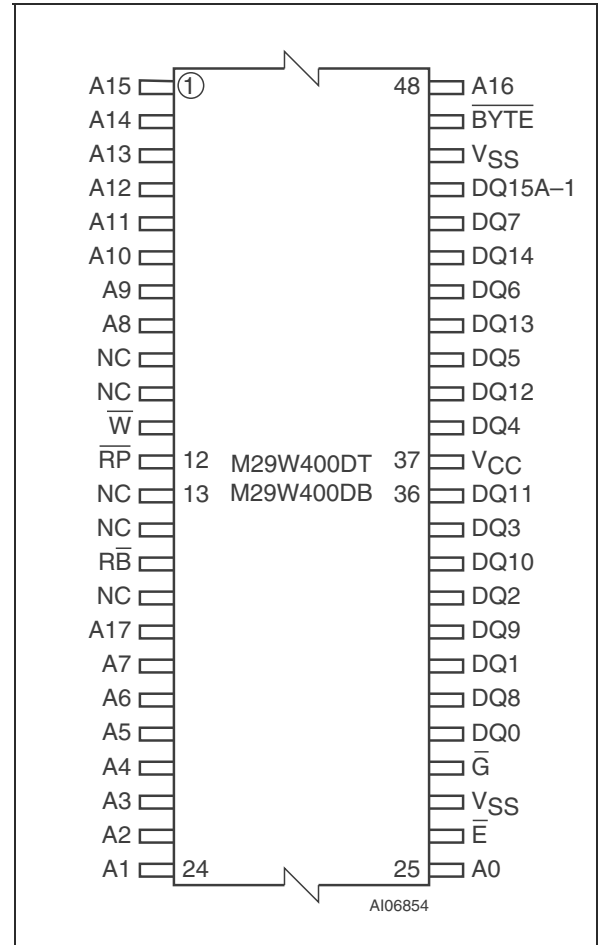
Logic Diagram



Signal Names

| | |
|-----------------|------------------------------------|
| A0-A17 | Address Inputs |
| DQ0-DQ7 | Data Inputs/Outputs |
| DQ8-DQ14 | Data Inputs/Outputs |
| DQ15A-1 | Data Input/Output or Address Input |
| \bar{E} | Chip Enable |
| \bar{G} | Output Enable |
| \bar{W} | Write Enable |
| \bar{RP} | Reset/Block Temporary Unprotect |
| \bar{RB} | Ready/Busy Output |
| \bar{BYTE} | Byte/Word Organization Select |
| V _{CC} | Supply Voltage |
| V _{SS} | Ground |
| NC | Not Connected Internally |

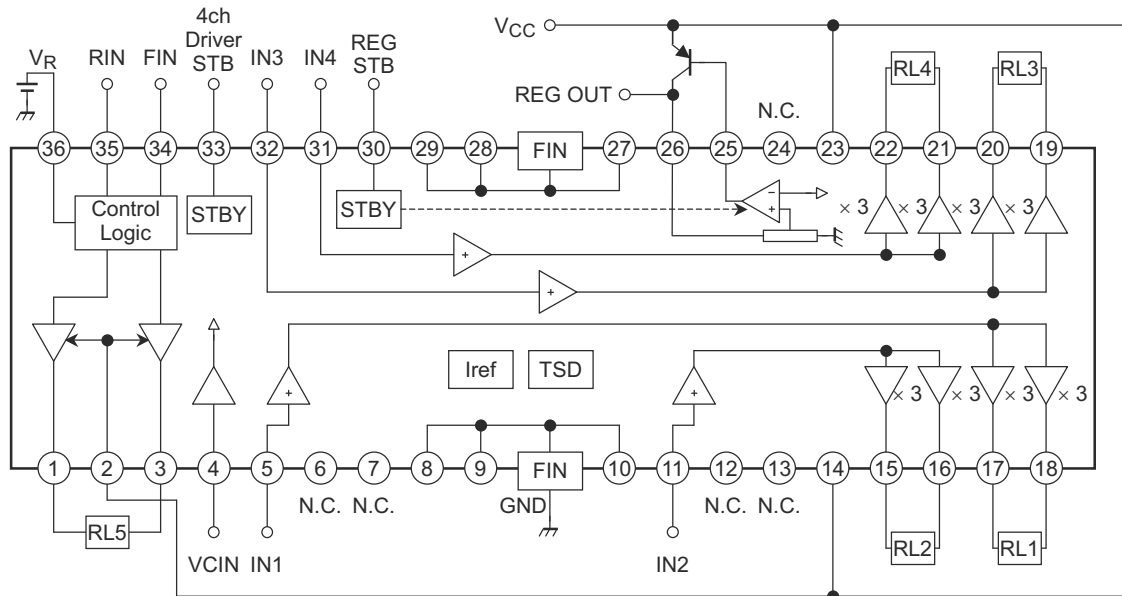
TSOP Connections



Note: 1. NC = Not Connected

TA2125AF

Block Diagram

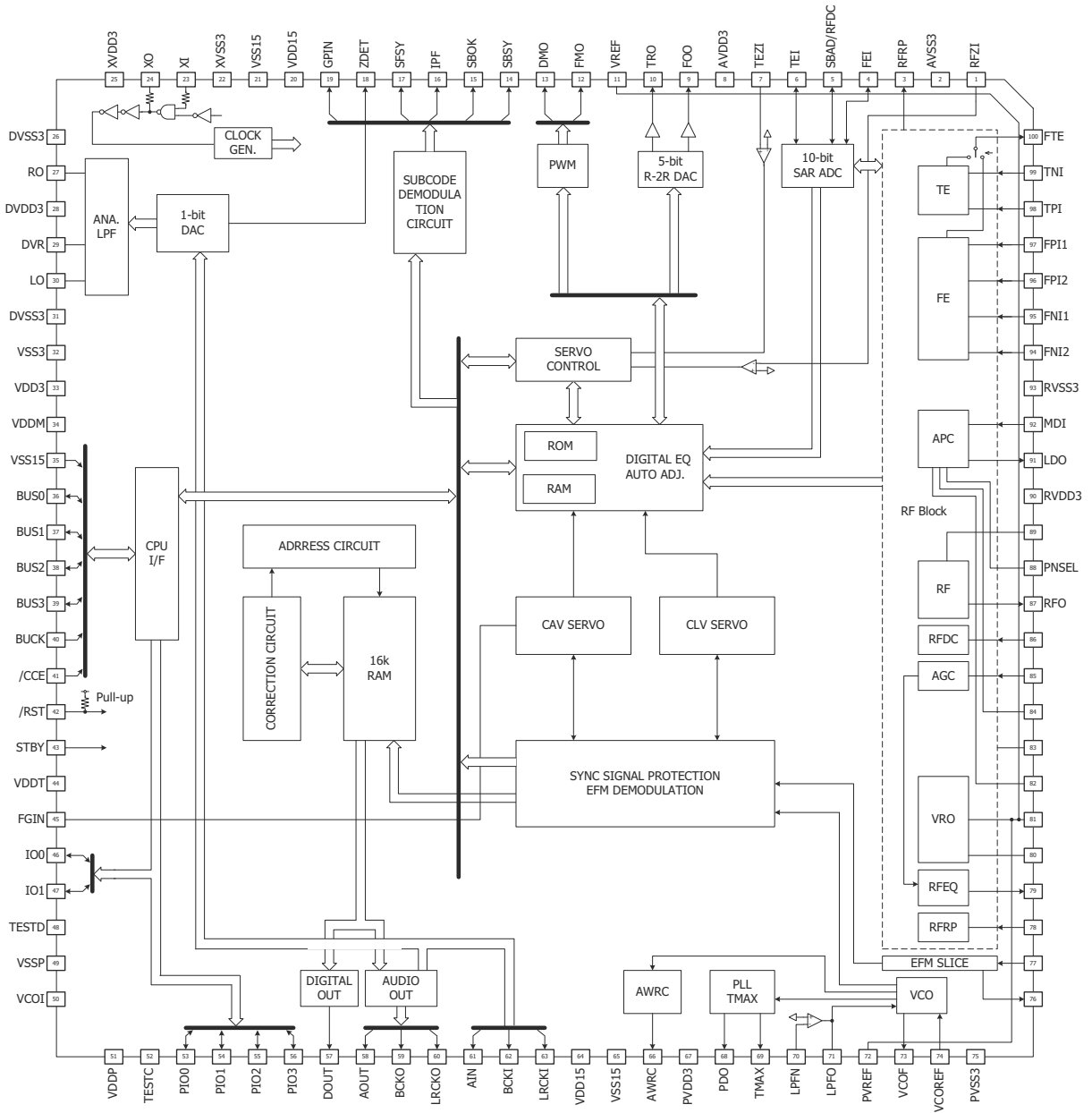


Terminal Explanation

| No. | Symbol | Function | |
|-----|------------------|--|-----------|
| 1 | OUT5A | Output terminal | H-bridge |
| 2 | V _M | Supply voltage terminal for Logic | H-bridge |
| 3 | OUT5B | Output terminal | H-bridge |
| 4 | V _{CIN} | Input reference voltage | 4ch BTL |
| 5 | IN1 | Input for ch1 | 4ch BTL |
| 6 | N.C. | Open | — |
| 7 | N.C. | Open | — |
| 8 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) | — |
| 9 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) | — |
| 10 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) | — |
| 11 | IN2 | Input for ch2 | 4ch BTL |
| 12 | N.C. | Open | — |
| 13 | N.C. | Open | — |
| 14 | V _{CC1} | Supply voltage terminal for ch1/ch2 | 4ch BTL |
| 15 | OUT2M | Inverted output for ch2 | 4ch BTL |
| 16 | OUT2P | Non-inverted output for ch2 | 4ch BTL |
| 17 | OUT1M | Inverted output for ch1 | 4ch BTL |
| 18 | OUT1P | Non-inverted output for ch1 | 4ch BTL |
| 19 | OUT3P | Non-inverted output for ch3 | 4ch BTL |
| 20 | OUT3M | Inverted output for ch3 | 4ch BTL |
| 21 | OUT4P | Non-inverted output for ch4 | 4ch BTL |
| 22 | OUT4M | Inverted output for ch4 | 4ch BTL |
| 23 | V _{CC2} | Supply voltage terminal for ch3/ch4 | 4ch BTL |
| 24 | N.C. | Open | — |
| 25 | REG | Connection with BASE of PNP Tr | Regulator |
| 26 | REG OUT | Output for regulator (5 V) | Regulator |
| 27 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) | — |
| 28 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) | — |
| 29 | N.C. | 8, 9, 10, 27, 28, 29 are connected to PW GND (FIN) | — |
| 30 | REG STBY | Standby control for regulator | Regulator |
| 31 | IN4 | Input for ch4 | 4ch BTL |
| 32 | IN3 | Input for ch3 | 4ch BTL |
| 33 | STBY | Standby control for 4ch BTL | 4ch BTL |
| 34 | FIN | Logic control input | H-bridge |
| 35 | RIN | Logic control input | H-bridge |
| 36 | VR | Supply voltage terminal for motor driver | H-bridge |

TC94A54MFG

1. Pin Configuration and Block Diagram



3. Pin Functions

Note: 3AI/F : 3 V circuit analog input/output pin

3I/F : 3 V circuit digital input/output pin

1.5AI/F : 1.5 V circuit analog input/output pin

| Pin No. | Pin name | I/O | Description | Remark |
|---------|--------------------------|------------|---|--|
| 1 | RFZI | I 3AI/F | Input pin for the RF ripple zero-cross signal. | To be connected to the RFRP via 0.033 uF. |
| 2 | AVSS3 | — | Grounding pin for 3.3 V analog circuits. | — |
| 3 | RFRP | O 3AI/F | RF ripple signal output pin. | — |
| 4 | FEI | O 3AI/F | Focus error signal input pin. | Monitor pin for various signals. |
| 5 | SBAD/RFDC | O 3AI/F | Subbeam addition signal input pin. | |
| 6 | TEI | O 3AI/F | Tracking error signal input pin. | |
| 7 | TEZI | I 3AI/F | Input pin for tracking error signal zero-cross. | To be connected to the TEI via 0.033 uF. |
| 8 | AVDD3 | — | Supply voltage pin for 3.3 V analog circuit. | — |
| 9 | FOO | O 3AI/F | Focus equalizer output pin. | — |
| 10 | TRO | O 3AI/F | Tracking equalizer output pin. | — |
| 11 | VREF | O 3AI/F | Analog reference supply voltage pin. | Connected to the VRO and PVREF within the IC. To be connected to 0.1 uF. |
| 12 | FMO | O 3AI/F | Speed error/feed equalizer output pin. | PWM ternary output (AVDD3, GND, and VREF). |
| 13 | DMO | O 3AI/F | Disc equalizer output pin. | |
| 14 | SBSY (SPCK) | O 3I/F | Pin for outputting the subcode block sync signal. It is "H" at position S1 when the subcode sync signal is detected. (CD Processor Status Read Clock(176.4KHz) output) | "H" at S1 when Subcode Sync is detected. |
| 15 | SBOK (FOK) (CLCK) (MBOV) | O 3I/F | Pin for outputting the CRCC check result of a subcode Q data check. It is "H" when the check result is OK. (Focus OK signal) (Input/output pin for the clock used in reading the subcode P to W data.) (CD Buffer memory overflow output) | — |
| 16 | IPF (SPDA) | O 3I/F | Correction flag output pin. "H" if the AOUT pin outputs an uncorrectable symbol in C2 correction. (CD Processor Status signal output) | — |

| Pin No. | Pin name | I/O | Description | Remark |
|---------|-------------------------------------|-------------|---|---|
| 17 | SFSY (EMPH) (LOCK) (MONIT) | O 3I/F | Pin for outputting the playback frame sync signal. (Emphasis flag output pin. ENPH on: "H". EMPH off: "L". The output polarity can be switched, using a command.) (LOCK signal) (Pin for monitoring signals in the DSP.) | 7.35kHz (At this pin, flags in the DSP and PLL-circuit clock can be monitored, using microcontroller commands. The pin also outputs text data serially.) |
| 18 | ZDET (DATA) (COFS) | O 3I/F | Output pin for zero detection flag for the 1-bit DAC. (Pin for outputting subcode P to W data) (Error Correction Frame Clock 7.35kHz output) | Valid also for 1-bit DAC external inputs. |
| 19 | GPIN | I/O 3I/F | General-purpose I/O (DSP) | General-purpose I/O (input after a reset). |
| 20 | VSS1 | — | 1.5V grounding pin dedicated to the Digital circuit. | — |
| 21 | VDD1 | — | 1.5 V supply voltage pin dedicated to the Digital circuit. | — |
| 22 | XVSS3 | — | Grounding pin for the system clock oscillation circuit. | — |
| 23 | XI | I 3AI/F | Input pin for the system clock oscillation circuit. | — |
| 24 | XO | O 3AI/F | Output pin for the system clock oscillation circuit. | Input to the internal MCK. |
| 25 | XVDD3 | — | 3.3 V supply voltage pin for the system clock oscillation circuit. | — |
| 26 | DVSS3 | — | Grounding pin for the 1-bit DAC. | — |
| 27 | RO | O 3AI/F | Output pin for normal R-channel data for the 1-bit DAC. | No capacitor is required at the DVR pin unless the built-in 1-bit DAC is used. 3.3 V must be applied across the DVDD3 and DVSS3 pins, however. |
| 28 | DVDD3 | — | 3.3 V supply voltage pin for the 1-bit DAC. | |
| 29 | DVR | O | Reference voltage pin for the 1-bit DAC. | |
| 30 | LO | O 3AI/F | Output pin for normal L-channel data for the 1-bit DAC. | — |
| 31 | DVSS3 | — | Grounding pin for the 1-bit DAC. | |
| 32 | VSS3 | — | 3.3 V grounding pin dedicated to the I/F circuit. | — |
| 33 | VDD3 | — | 3.3 V supply voltage pin dedicated to the I/F circuit. | — |
| 34 | VDDM | — | 1.5 V supply voltage pin dedicated to the DSP/1Mbit SRAM circuit. | — |
| 35 | VSS1 | — | 1.5V grounding pin dedicated to the DSP/1Mbit SRAM circuit. | — |

| Pin No. | Pin name | I/O | Description | Remark | | | |
|---------|--------------|--------------|--|--|-------|------|----------------|
| 36 | BUS0 | I/O 3I/F | Data input/output pin for the microcontroller interface. | To be fixed at "H" or "L" when communication is not in progress, so that the pin will not become HiZ. | | | |
| 37 | BUS1 | I/O 3I/F | | | | | |
| 38 | BUS2 | I/O 3I/F | | | | | |
| 39 | BUS3 | I/O 3I/F | | | | | |
| 40 | BUCK | I 3I/F | Clock input pin for the microcontroller interface. | To be fixed at "H" when communication is not in progress, so that the pin will not become HiZ. | | | |
| 41 | /CCE | I 3I/F | Chip enable signal input pin for the microcontroller interface. BUS3 to BUS0 are active if this pin is "L". | To be connected to 0.1 uF. | | | |
| 42 | /RST | I 3I/F | Reset signal input pin. The internal registers and servo section registers are reset, respectively, when the reset signal is "L" and on the positive-going edge of the reset signal. | — | | | |
| 43 | STBY | I 3I/F | STANBY control pin dedicated to the DSP/1Mbit SRAM circuit. | — | | | |
| 44 | VDDT | — | 3.3 V supply voltage pin dedicated to the Digital I/O circuit. | — | | | |
| 45 | FGIN | I 3AI/F | FG signal input pin for CAV. CLV: "L". CAV: FG input. | — | | | |
| 46 | IO0A (/HSO) | I/O 3I/F | General-purpose input/output pins. (Pin for outputting the playback speed mode flag.) | General-purpose I/O (input after a reset). The playback speed mode flag output can be switched, using command bits. | | | |
| 47 | IO1A (/UHSO) | I/O 3I/F | | | /UHSO | /HSO | Playback speed |
| | | | | | H | H | Normal speed |
| | | | | | H | L | 2 times |
| L | H | 4 times | | | | | |
| 48 | TESTD | I 3I/F | DSP/Test input pin. Usually fixed at "L". | — | | | |
| 48 | VSSP | — | 1.5 V grounding pin dedicated to the DSP/VCO circuit. | — | | | |
| 50 | VC0I | O 1.5AI/F | PD output pin dedicated to the DSP/VCO circuit. | — | | | |
| 51 | VDDP | — | 1.5 V supply voltage pin dedicated to the DSP/VCO circuit. | — | | | |
| 52 | TESTC | I 3I/F | CD/ Test input pin. Usually fixed at "L". | — | | | |
| 53 | PIO0 | I/O 3I/F | General-purpose I/O (CD/DSP) | General-purpose I/O (input after a reset). | | | |
| 54 | PIO1 | I/O 3I/F | General-purpose I/O (CD/DSP) | | | | |
| 55 | PIO2 | I/O 3I/F | General-purpose I/O (DSP) | | | | |
| 56 | PIO3 | I/O 3I/F | General-purpose I/O (DSP) | | | | |

| Pin No. | Pin name | I/O | Description | Remark |
|---------|----------|------------|---|---|
| 57 | DOUT | O 3I/F | Digital-out output pin. Digital data for up to double speed can be output when a frequency of 16.9344 MHz is used. | As per CP-1201 |
| 58 | AOUT | O 3I/F | Audio data output pin. Which bit is first (MSB first or LSB first) can be selected, using a command. | — |
| 59 | BCK | O 3I/F | Bit clock output pin. 32fs, 48fs, and 64fs can be selected, using a command. | Normal speed : 32fs = 1.4112 MHz |
| 60 | LRCK | O 3I/F | LR channel clock output pin. "L" for the L-channel and "H" for the R-channel. The output polarity can be inverted, using a command. | Normal speed: 44.1 kHz |
| 61 | AIN | I 3I/F | 1-bit DAC external input: AIN | 1-bit DAC external input |
| 62 | BCKI | I 3I/F | 1-bit DAC external input: BCKI | |
| 63 | LRCKI | I 3I/F | 1-bit DAC external input: LRCKI | |
| 64 | VDD1 | — | 1.5 V supply voltage pin dedicated to the DSP circuit. | |
| 65 | VSS1 | — | 1.5 V grounding pin dedicated to the DSP circuit. | |
| 66 | AWRC | O 3AI/F | VCO control pin for active wide range. | Controllable in CLV/CAV. |
| 67 | PVDD3 | — | 3.3 V supply voltage pin dedicated to the PLL circuit. | — |
| 68 | PDO | O 3AI/F | Pin for outputting a phase difference signal between the EFM signal and PLCK signal. | Quaternary output (PVDD3, HiZ, VSS, and PVREF). |
| 69 | TMAX | O 3AI/F | Pin for outputting the result of TMAX detection. The TMAX pin output the same signal. | Ternary output (PVDD3, VSS, and Hiz). |
| 70 | LPFN | I 3AI/F | Pin for receiving an inverted output of the PLL-circuit low-pass filter amp. | The resistance side is connected. See an applicable circuit diagram. |
| 71 | LPFO | O 3AI/F | Pin for the PLL-circuit low-pass filter amp output. | The capacitor side is connected. See an applicable circuit diagram. |
| 72 | PVREF | — | 1.65 V reference supply voltage pin dedicated to the PLL circuit. | Connected to the VREF and PVREF within the IC. A 0.1 uF capacitor is connected. |
| 73 | VCOF | O 3AI/F | VCO filter pin. | — |
| 74 | VCOREF | I 3AI/F | Input pin for the VCO center frequency reference level. | To be connected to the PVREF if the AWRC is not used. |

| Pin No. | Pin name | I/O | Description | Remark |
|---------|----------|------------|--|--|
| 75 | PVSS3 | — | 3.3 V grounding pin dedicated to the PLL circuit. | — |
| 76 | SLCO | O 3AI/F | EFM slice level output pin. For both analog and digital slice modes, the output impedance $\cong 2.5 \text{ k}\Omega$. | A capacitor to be connected is selected according to the servo operation band. |
| 77 | RFI | I 3AI/F | RF signal input pin. The input resistance can be selected, using a command. | Zin: 20k Ω , 10k Ω , 5k Ω |
| 78 | RFRPI | I 3AI/F | RF ripple signal input pin. | — |
| 79 | RFEQO | O 3AI/F | RF equalizer circuit output pin. | To be connected to the RFRPI via 0.1 μF and to the RFI via 4700 pF or higher. |
| 80 | RESIN | I 3AI/F | Pin for connecting a reference current generating resistance. | To be connected to 22 k Ω and 680 pF in parallel. |
| 81 | VRO | O 3AI/F | 1.65 V reference voltage output pin. | Connected to the V_{REF} and PV_{REF} within the IC. To be connected to 0.1 μF and 100 μF . |
| 82 | VMDIR | — | Reference voltage output pin for the APC circuit. | To be connected to 0.1 μF . |
| 83 | TESTR | O 3AI/F | LPF pin for RFEQO offset correction. | To be connected to 0.015 μF or higher. |
| 84 | INVSEL | I 3AI/F | Test pin, usually fixed at "L". | — |
| 85 | AGCI | I 3AI/F | Pin for RF signal amplitude adjustment amp input. | — |
| 86 | RFDCI | I 3AI/F | RF signal peak detection input pin. | — |
| 87 | RFO | O 3AI/F | RF signal generation amp output pin. | To be connected directly to the RFDCI. To be connected to the AGCI via 0.1 μF . |
| 88 | PNSEL | I 3AI/F | Test pin, usually fixed at "H". | — |
| 89 | EQSET | O 3AI/F | External connection pin for the RF signal equalizer. | To be kept open when the RFEQ is used. |
| 90 | RVDD3 | — | 3.3V Supply voltage pin for the RFamp core section | — |
| 91 | LDO | O 3AI/F | Laser diode amp output pin. | — |
| 92 | MDI | I 3AI/F | Monitor photodiode amp input pin. | Reference to 178 mV (typ.) |
| 93 | RVSS3 | — | 3.3 V grounding pin for the RF amp core section. | — |

| Pin No. | Pin name | I/O | Description | Remark |
|---------|----------|------------|---|-----------------------------|
| 94 | FNI2 | I 3AI/F | Main beam input pin. Connected to PIN diode C. | — |
| 95 | FNI1 | I 3AI/F | Main beam input pin. Connected to PIN diode A. | — |
| 96 | FPI2 | I 3AI/F | Main beam input pin. Connected to PIN diode D. | — |
| 97 | FPI1 | I 3AI/F | Main beam input pin. Connected to PIN diode B. | — |
| 98 | TPI | I 3AI/F | Subbeam amp input pin. Connected to PIN diode F. | — |
| 99 | TNI | I 3AI/F | Subbeam amp input pin. Connected to PIN diode E. | — |
| 100 | FTE | O 3AI/F | Focus/tracking signal output. (Test pin for servo characteristic measurement.) | Switchable using a command. |

Note: "3AI/F : 3 V circuit analog input/output pin."

"3I/F : 3 V circuit digital input/output pin."

"1.5AI/F : 1.5 V circuit analog input/output pin."

TC9163

PIN CONNECTION (TOP VIEW)

TC9162AN / AF

| | | | |
|--------|----|----|--------|
| VSS | 1 | 28 | VDD |
| L-S1 | 2 | 27 | R-S1 |
| L-S2 | 3 | 26 | R-S2 |
| L-COM1 | 4 | 25 | R-COM1 |
| L-S3 | 5 | 24 | R-S3 |
| L-S4 | 6 | 23 | R-S4 |
| L-COM2 | 7 | 22 | R-COM2 |
| L-S5 | 8 | 21 | R-S5 |
| L-S6 | 9 | 20 | R-S6 |
| L-COM3 | 10 | 19 | R-COM3 |
| L-S7 | 11 | 18 | R-S7 |
| L-COM4 | 12 | 17 | R-COM4 |
| ST | 13 | 16 | DATA |
| GND | 14 | 15 | CK |

TC9163AN / AF

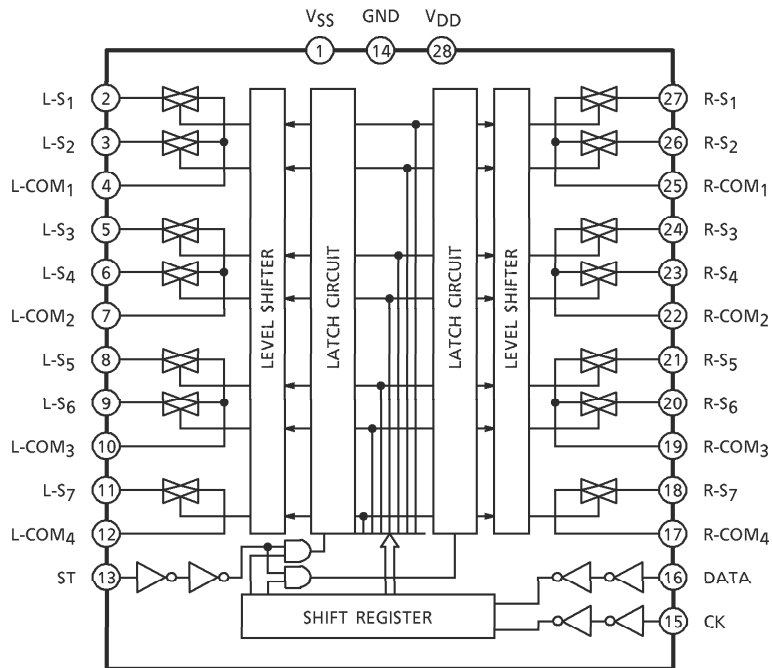
| | | | |
|--------|----|----|--------|
| VSS | 1 | 28 | VDD |
| L-S1 | 2 | 27 | R-S1 |
| L-S2 | 3 | 26 | R-S2 |
| L-S3 | 4 | 25 | R-S3 |
| L-COM1 | 5 | 24 | R-COM1 |
| L-S4 | 6 | 23 | R-S4 |
| L-S5 | 7 | 22 | R-S5 |
| L-S6 | 8 | 21 | R-S6 |
| L-COM2 | 9 | 20 | R-COM2 |
| L-S7 | 10 | 19 | R-S7 |
| L-S8 | 11 | 18 | R-S8 |
| L-COM3 | 12 | 17 | R-COM3 |
| ST | 13 | 16 | DATA |
| GND | 14 | 15 | CK |

TC9164AN / AF

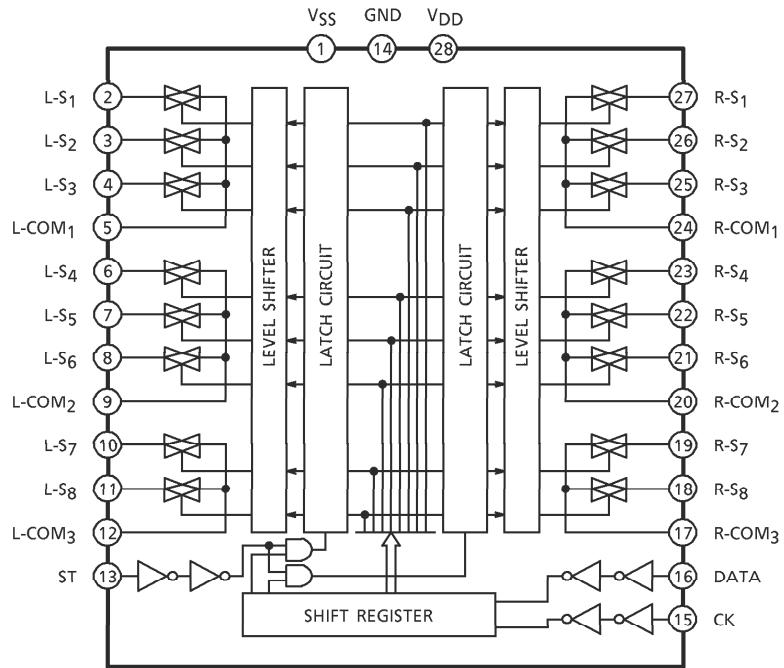
| | | | |
|--------|----|----|--------|
| VSS | 1 | 28 | VDD |
| L-S1 | 2 | 27 | R-S1 |
| L-S2 | 3 | 26 | R-S2 |
| L-S3 | 4 | 25 | R-S3 |
| L-S4 | 5 | 24 | R-S4 |
| L-COM1 | 6 | 23 | R-COM1 |
| L-S5 | 7 | 22 | R-S5 |
| L-S6 | 8 | 21 | R-S6 |
| L-COM2 | 9 | 20 | R-COM2 |
| L-S7 | 10 | 19 | R-S7 |
| L-S8 | 11 | 18 | R-S8 |
| L-COM3 | 12 | 17 | R-COM3 |
| ST | 13 | 16 | DATA |
| GND | 14 | 15 | CK |

BLOCK DIAGRAM

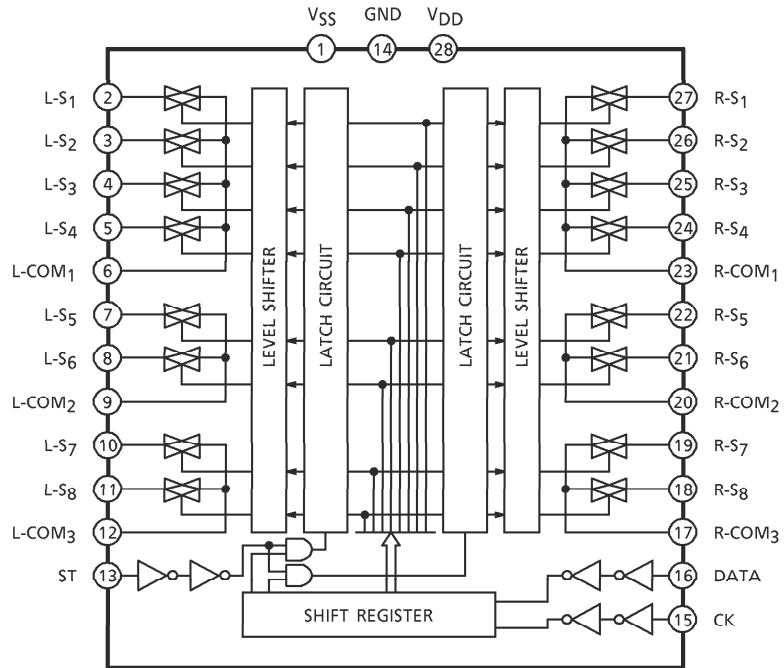
TC9162AN / AF



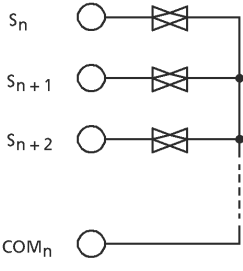
TC9163AN / AF



TC9164AN / AF

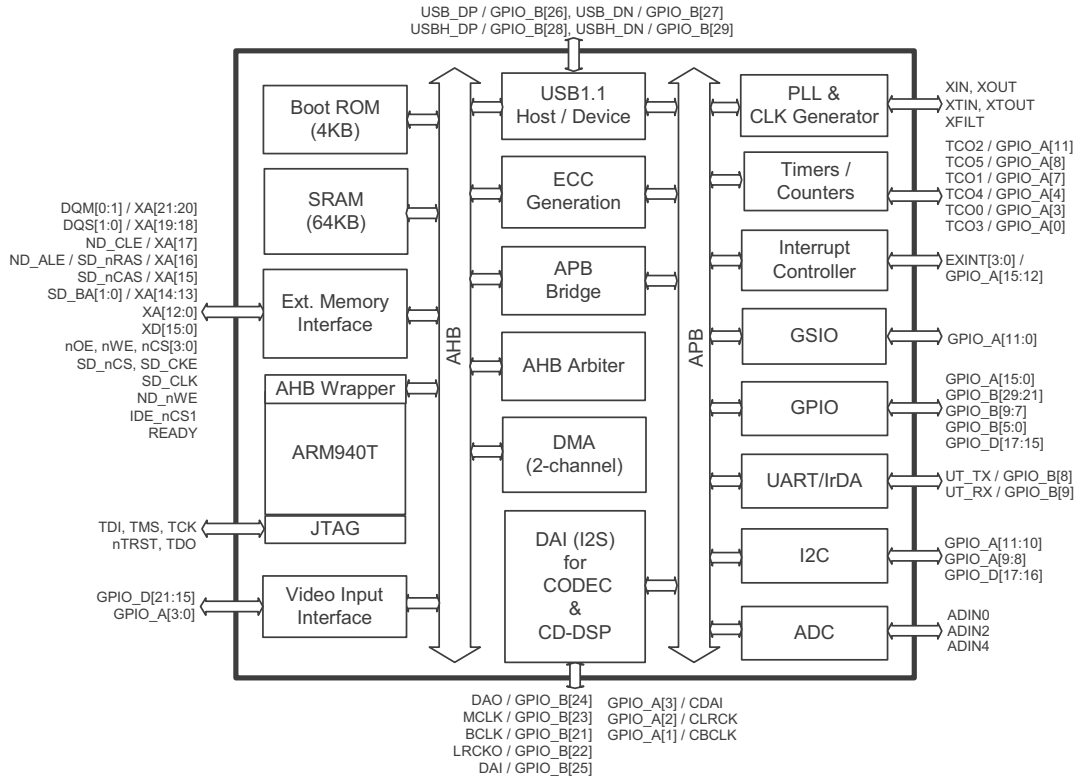


DESCRIPTION OF PIN FUNCTIONS (L-ch / R-ch)

| PIN No. | | | SYMBOL | PIN NAME | FUNCTION & OPERATION | NOTE |
|-----------------|-----------------|-----------------|-----------------|------------------------|--|------------------------------|
| TC9162 AN/AF | TC9163 AN/AF | TC9164 AN/AF | | | | |
| 1 | | | V _{SS} | - Power Terminal | Applies Supply Voltage. | — |
| 14 | | | GND | Ground Terminal | | |
| 28 | | | V _{DD} | + Power Terminal | | |
| 2 / 27 | 2 / 27 | 2 / 27 | S ₁ | Switch Input Terminal | Input & Output Terminal for Analog Switch  | — |
| 3 / 26 | 3 / 26 | 3 / 26 | S ₂ | | | |
| 5 / 24 | 4 / 25 | 4 / 25 | S ₃ | | | |
| 6 / 23 | 6 / 23 | 5 / 24 | S ₄ | | | |
| 8 / 21 | 7 / 22 | 7 / 22 | S ₅ | | | |
| 9 / 20 | 8 / 21 | 8 / 21 | S ₆ | | | |
| 11 / 18 | 10 / 19 | 10 / 19 | S ₇ | | | |
| — | 11 / 18 | 11 / 18 | S ₈ | | | |
| 4 / 25 | 5 / 24 | 6 / 23 | COM1 | Switch Output Terminal | | |
| 7 / 22 | 9 / 20 | 9 / 20 | COM2 | | | |
| 10 / 19 | 12 / 17 | 12 / 17 | COM3 | | | |
| 12 / 17 | — | — | COM4 | | | |
| 13 | | | ST | Strobe Input Terminal | Strobe Input for Data Interrupt | Low Threshold Input Terminal |
| 15 | | | CK | Clock Input Terminal | Clock Input for Data Transfer | |
| 16 | | | DATA | Data Input Terminal | Serial Data Input for Switch Setting | |

TCC760

Block Diagram



Functional Block Diagram of TCC760

Pin Description

The status of the following GPIO pins are latched at the rising edge of nRESET and used to determine the system bus width and boot mode. External devices must not drive output levels onto these pins during reset period.

| Pin Name | State during reset | State after reset | During normal function with DAI enabled |
|--|-------------------------------|------------------------|---|
| GPIO_A[9] / BW[1] GPIO_A[8] / BW[0] | Bus Width Configuration Input | Normal GPIO Input Mode | GPIO Output Mode for 2-Wire Interface Clock and Data |
| GPIO_B[24] / BM[2] GPIO_B[22] / BM[1] GPIO_B[21] / BM[0] | Boot Mode Configuration Input | Normal GPIO Input Mode | DAO (I2S Digital Audio Output) LRCK (I2S Word Clock Output) BCLK (I2S Bit Clock Output) |

Refer to sections "BOOTING PROCEDURE" and "MEMORY CONTROLLER" for detailed description of BW[1:0] and BM[2:0].

In case of the TCC763, TCC764 and TCC766, GPIO_B[22:21]/BM[1:0] signals are connected to internal audio CODEC pins which have on-chip pull-down resistor. If external pull-up resistors are required for these pins, 4.7kΩ is recommended.

The TCC76x is a CMOS device. Floating level on input signals cause unstable device operation and abnormal current consumption. Pull-up or pull-down resistors should be used appropriately for input or bidirectional pins.

Notation

| | |
|-------|---------------|
| I : | Input |
| O : | Output |
| I/O : | Bidirectional |
| AI : | Analog Input |
| AO : | Analog Output |
| PWR : | Power |
| GND : | Ground |

TCC760 Pin Description

Table 1.2 TCC760 Pin Description

| Signal Name | Shared Signal | Pin # | Type | Description – TCC760 |
|---------------------------------------|---------------------|-------|------|--|
| External Memory Interface Pins | | | | |
| SD_CKE | GPIO_B[0] | 56 | I/O | SDRAM Clock Enable signal. Active high. / GPIO_B[0] |
| SD_CLK | GPO | 44 | I/O | SDRAM Clock / GPO. SD_CLK can be used as a general purpose output. Refer to section "MEMORY CONTROLLER". (MCFG register Bit[3] and Bit[1]) |
| SD_nCS | SD_nCLK / GPIO_B[1] | 46 | I/O | Chip select signal for SDRAM, Active low / Inverted SD_CLK for DDR SDRAM / GPIO_B[1] |
| XA[21:20] | DQM[0:1] | 43:42 | I/O | External Bus Address Bit [21:20] / Data I/O Mask 0, 1 |
| XA[19:18] | DQS[1:0] | 40:39 | I/O | External Bus Address Bit [19:18] / DDR SDRAM Data Strobe [1:0] |
| XA[17] | ND_CLE | 38 | I/O | External Bus Address Bit [17] / CLE for NAND Flash |
| XA[16] | SD_nRAS / ND_ALE | 37 | I/O | External Bus Address Bit [16] / SDRAM RAS signal / ALE for NAND Flash |
| XA[15] | SD_nCAS | 36 | I/O | External Bus Address Bit [15] / SDRAM CAS signal |
| XA[14] | SD_BA[1] | 35 | I/O | External Bus Address Bit [14] / SDRAM Bank Address 1 |
| XA[13] | SD_BA[0] | 34 | I/O | External Bus Address Bit [13] / SDRAM Bank Address 0. |
| XA[12:7] | | 31:26 | I/O | External Bus Address Bits [12:0] |
| XA[6:0] | | 23:17 | | |
| XD[15:9] | | 15:9 | I/O | External Bus Data Bit [15:0] |
| XD[8:4] | | 6:2 | | |

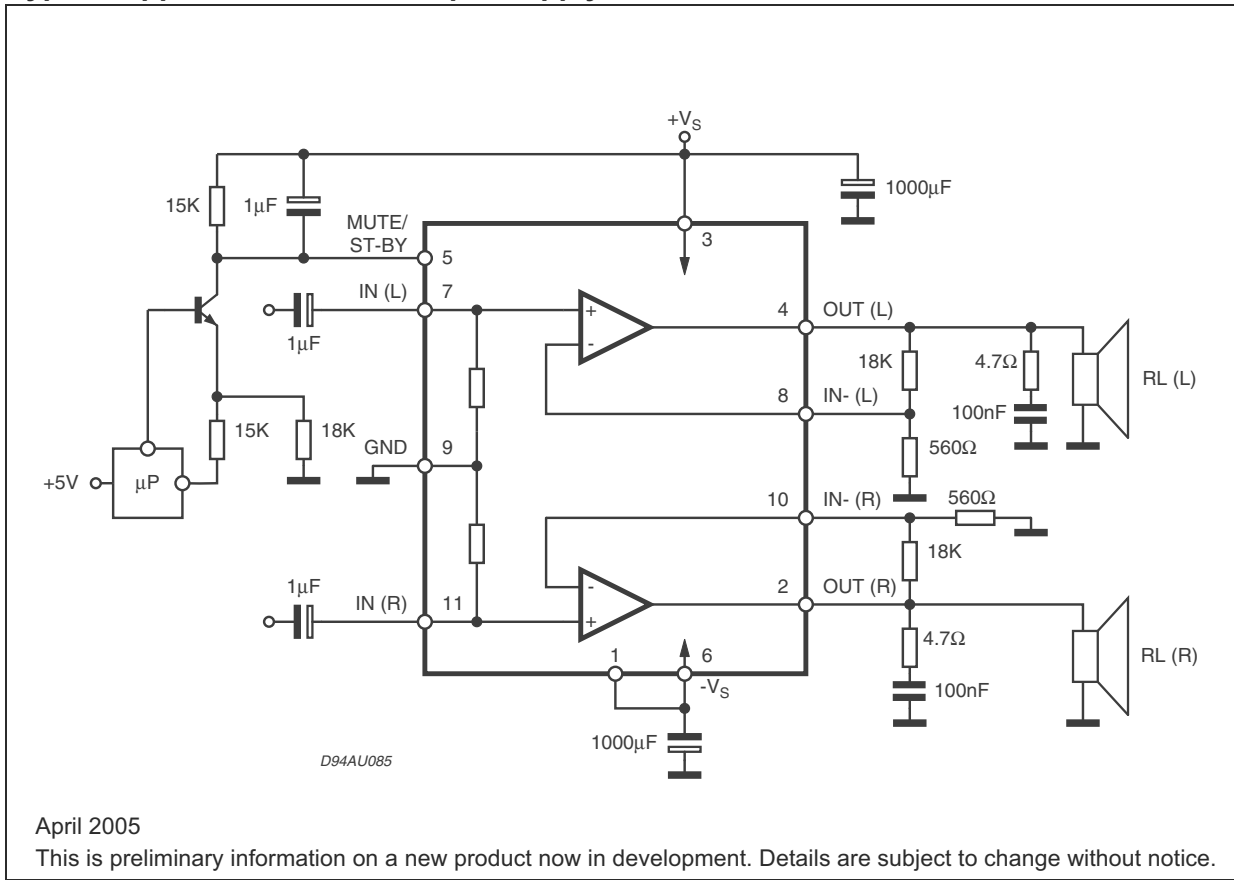
| Signal Name | Shared Signal | Pin # | Type | Description – TCC760 |
|--|--|--------------------------|------|---|
| XD[3:0] | | 128:125 | | |
| NCS[3:0] | ND_nOE[3:0] / GPIO_B[5:2] | 50:47 | I/O | External Bus Chip Select [3:0] / NAND Flash Output Enable [3:0] / GPIO_B[5:2] |
| ND_nWE | GPIO_B[7] | 57 | I/O | NAND flash WE. Active low. / GPIO_B[7] |
| nWE | | 58 | I/O | Static Memory Write Enable signal. Active low. |
| nOE | | 59 | I/O | Static Memory Output Enable signal. Active low. |
| READY | | 73 | I | Ready information from external device. |
| USB/UART/IrDA Interface Pins | | | | |
| USB_DP | GPIO_B[26] | 51 | I/O | USB Function D+ signal / GPIO_B[26] |
| USB_DN | GPIO_B[27] | 52 | I/O | USB Function D- signal / GPIO_B[27] |
| USBH_DP | GPIO_B[28] | 53 | I/O | USB Host D+ signal / GPIO_B[28] |
| USBH_DN | GPIO_B[29] | 54 | I/O | USB Host D- signal / GPIO_B[29] |
| UT_TX | GPIO_B[8] / SD_nCS | 60 | I/O | UART or IrDA TX data / GPIO_B[8] / DDR SDRAM Chip Select |
| UT_RX | GPIO_B[9] / IDE_nCS1 | 61 | I/O | UART or IrDA RX data / GPIO_B[9] / IDE Chip Select 1 |
| Audio Interface Pins | | | | |
| BCLK | GPIO_B[21] / BM[0] | 62 | I/O | I2S Bit Clock / GPIO_B[21] / Boot Mode Bit 0 |
| LRCK | GPIO_B[22] / BM[1] | 63 | I/O | I2S Word Clock / GPIO_B[22] / Boot Mode Bit 1 |
| MCLK | GPIO_B[23] | 66 | I/O | I2S System Clock / GPIO_B[23] |
| DAO | GPIO_B[24] / BM[2] | 67 | I/O | I2S Digital Audio data Output / GPIO_B[24] / Boot Mode Bit 2 |
| DAI | GPIO_B[25] | 68 | I/O | I2S Digital Audio data Input / GPIO_B[25] |
| CD DSP Interface Pins | | | | |
| CBCLK | GPIO_A[1] | 105 | I/O | CD Data Bit Clock Input / GPIO_A[1] |
| CLRCK | GPIO_A[2] | 106 | I/O | CD Data Word Clock Input / GPIO_A[2] |
| CDAI | GPIO_A[3] | 107 | I/O | CD Data Input / GPIO_A[3] |
| External Interrupt Pins | | | | |
| EXINT[3] | GPIO_A[15] | 124 | I/O | External Interrupt Request [3] / GPIO_A[15] |
| EXINT[2:0] | GPIO_A[14:12] / FGPIO[14:12] | 123:121 | I/O | External Interrupt Request [2:0] / GPIO_A[14:12] / FGPIO[14:12] |
| Camera Interface Pins | | | | |
| CISHS | GPIO_D[17] | 92 | I/O | Horizontal Sync. Input / GPIO_D[17] |
| CISVS | GPIO_D[16] | 91 | I/O | Vertical Sync. Input / GPIO_D[16] |
| CISCLK | GPIO_D[15] | 90 | I/O | Clock Input / GPIO_D[15] |
| CISD[7:4] | GPIO_D[21:18] | 96:93 | I/O | Data Input[7:0] / GPIO_D[21:18], GPIO_A[3:0] |
| CISD[3:0] | GPIO_A[3:0] | 107:104 | | |
| General Purpose I/O Pins | | | | |
| GPIO_A[15] | EXINT[3] | 124 | I/O | GPIO_A[15] / External Interrupt 3 |
| GPIO_A[14:12] | EXINT[2:0] / FGPIO[14:12] | 123:121 | I/O | GPIO_A[15:12] / External Interrupt 3 ~ 0 / Fast GPIO bits 14 ~ 12 |
| GPIO_A[11] GPIO_A[10] GPIO_A[9] / BW[1] GPIO_A[8] / BW[0] | SDI2 / FGPIO[11] / SCL FRM2 / FGPIO[10] / SDA SCK2 / FGPIO[9] / SCL SDO2 / FGPIO[8] / SDA | 118:115 | I/O | GPIO_A[11:8] / Bus Width bits 1 ~ 0 / General Purpose Serial I/O 2 Fast GPIO bits 11 ~ 8 / I2C signals. The status of BW[1:0] is latched at the rising edge of nRESET and used to determine external bus width. Refer to section "MEMORY CONTROLLER" for BW[1:0] description. |
| GPIO_A[7:4] | SDI1 / FGPIO[7] FRM1 / FGPIO[6] SCK1 / FGPIO[5] SDO1 / FGPIO[4] | 114 113 111 108 | I/O | GPIO_A[7:4] / General Purpose Serial I/O 1 / Fast GPIO bits 7 ~ 4 |
| GPIO_A[3:1] | SDI0 / CDAI / FGPIO[3] FRM0 / CLRCK / FGPIO[2] SCK0 / CBCLK / FGPIO[1] | 107:105 | I/O | GPIO_A[3:1] / General Purpose Serial I/O 0 / CD Interface Signals / Fast GPIO bits 3 ~ 1 |

| Signal Name | Shared Signal | Pin # | Type | Description – TCC760 |
|----------------------------|--------------------------|-----------------------|------|--|
| GPIO_A[0] | SDO0 / FGPIO[0] | 104 | I/O | GPIO_A[0] / General purpose serial I/O 0 Serial Data Output FGPIO[0] |
| GPIO_B[29:28] | USBH_DN, USBH_DP | 54:53 | I/O | GPIO_B[29:28] / USBH_DN, USBH_DP |
| GPIO_B[27:26] | USB_DN, USB_DP | 52:51 | I/O | GPIO_B[27:26] / USB_DN, USB_DP |
| GPIO_B[25] | DAI | 68 | I/O | GPIO_B[25:21] / Boot Mode bits 2 ~ 0 / I2S Interface Signals. The status of BM[2:0] is latched at the rising edge of nRESET and used to determine the system boot mode. Refer to sections "BOOTING PROCEDURE" and "MEMORY CONTROLLER" for detailed description on BM[2:0]. |
| GPIO_B[24] / BM[2] | DAO | 67 | | |
| GPIO_B[23] | MCLK | 66 | | |
| GPIO_B[22] / BM[1] | LRCK | 63 | | |
| GPIO_B[21] / BM[0] | BCLK | 62 | | |
| GPIO_B[9] | UT_RX | 61 | I/O | GPIO_B[9] / UART RX Signal |
| GPIO_B[8] | UT_TX / SD_nCS | 60 | I/O | GPIO_B[8] / UART TX Signal / DDR SDRAM Chip Select |
| GPIO_B[7] | ND_nWE | 57 | I/O | GPIO_B[7] / Write Enable for NAND Flash |
| GPIO_B[5:2] | nCS[3:0] | 50:47 | I/O | GPIO_B[5:2] / External Chip Select 3 ~ 0 |
| GPIO_B[1] | SD_nCS / SD_nCLK | 46 | I/O | GPIO_B[1] / Chip select for SDRAM / Inverted Clock for DDR SDRAM. |
| GPIO_B[0] | SD_CKE | 56 | I/O | GPIO_B[0] / SDRAM clock control |
| GPIO_D[21:18] | FGPIO[13:10] / CISD[7:4] | 96:93 | I/O | GPIO_D[21:18] / Fast GPIO bits 13 ~ 10 / Camera Interface Data Inputs 3 ~ 0. Internal pull-up resistors are enabled at reset. |
| GPIO_D[17] | FGPIO[9] / SCL / CISHS | 92 | I/O | GPIO_D[17] / Fast GPIO bit 9 / I2C SCL / Camera Interface Hsync. |
| GPIO_D[16] | FGPIO[8] / SDA / CISVS | 91 | I/O | GPIO_D[16] / Fast GPIO bit 8 / I2C SDA / Camera Interface Vsync. |
| GPIO_D[15] | CISCLK | 90 | I/O | GPIO_D[15] / Camera Interface Clock |
| ADC Input Pins | | | | |
| ADIN_0 | - | 82 | AI | General purpose multi-channel ADC input 0 |
| ADIN_2 | - | 83 | AI | General purpose multi-channel ADC input 2 |
| ADIN_4 | - | 84 | AI | General purpose multi-channel ADC input 4 |
| Clock Pins | | | | |
| XIN | - | 74 | I | Main Crystal Oscillator Input for PLL. 12MHz Crystal must be used if USB Boot Mode is required. Input voltage must not exceed VDD_OSC (1.95V max). |
| XOUT | - | 75 | O | Main Crystal Oscillator Output for PLL |
| XFILT | - | 78 | AO | PLL filter output |
| XTIN | - | 69 | I | Sub Crystal Oscillator Input. 32.768kHz is recommended. Input voltage must not exceed VDD_OSC (1.95V max). |
| XTOUT | - | 70 | O | Sub Crystal Oscillator Output |
| Mode Control Pins | | | | |
| MODE1 | - | 98 | I | Mode Setting Input 1. Pull-down for normal operation. |
| PKG1 | - | 89 | I | Package ID1, Pull-up for normal operation. |
| nRESET | - | 72 | I | System Reset. Active low. |
| JTAG Interface Pins | | | | |
| TDI | - | 99 | I | JTAG serial data input for ARM940T |
| TMS | - | 100 | I | JTAG test mode select for ARM940T |
| TCK | - | 101 | I | JTAG test clock for ARM940T |
| TDO | - | 102 | I/O | JTAG serial data output for ARM940T. External pull-up resistor is required to prevent floating during normal operation. |
| nTRST | - | 103 | I | JTAG reset signal for ARM940T. Active low. |
| Power Pins | | | | |
| VDDIO | - | 112 76 33 16 | PWR | Digital Power for I/O (1.8V ~ 3.3V) |

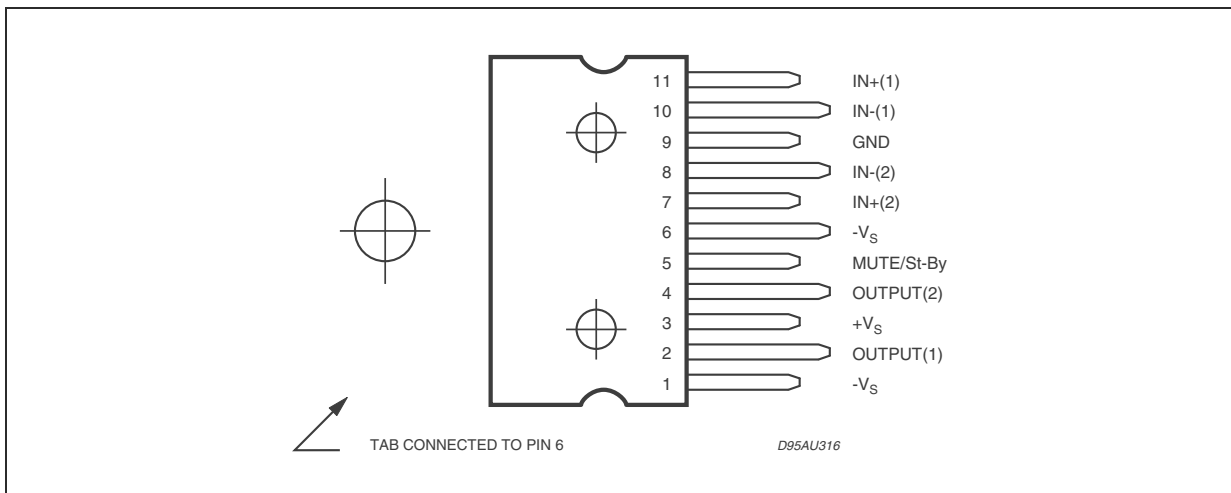
| Signal Name | Shared Signal | Pin # | Type | Description – TCC760 |
|-------------|---------------|-----------------------------|------|--|
| VDD_USB | - | 64 | PWR | Power for USB I/O (3.3V) |
| VDD_OSC | - | 71 | PWR | Digital Power for Oscillators (1.8V) |
| VDDI | - | 119 109 41 24 7 | PWR | Digital Power for Internal Core (1.8V) |
| VDDI_ADC | - | 87 | PWR | Digital Power for ADC (1.8V) |
| VDDA_ADC | - | 81 | PWR | Analog Power for ADC (3.3V) |
| VDDA_PLL | - | 77 | PWR | Analog & Digital Power for PLL (1.8V) |
| VSSIO | - | 97 65 45 32 1 | GND | Digital Ground for I/O |
| VSSI | - | 120 110 55 25 8 | GND | Digital Ground for Internal |
| VSSI_ADC | - | 88 | GND | Digital Ground for ADC |
| VBBA_ADC | - | 86 | GND | Analog Ground for ADC |
| VSSA_ADC | - | 85 | GND | Analog Ground for ADC |
| VBBA_PLL | - | 80 | GND | Analog Ground for PLL |
| VSSA_PLL | - | 79 | GND | Analog Ground for PLL |

TDA 7292

Typical Application Circuit in Split Supply

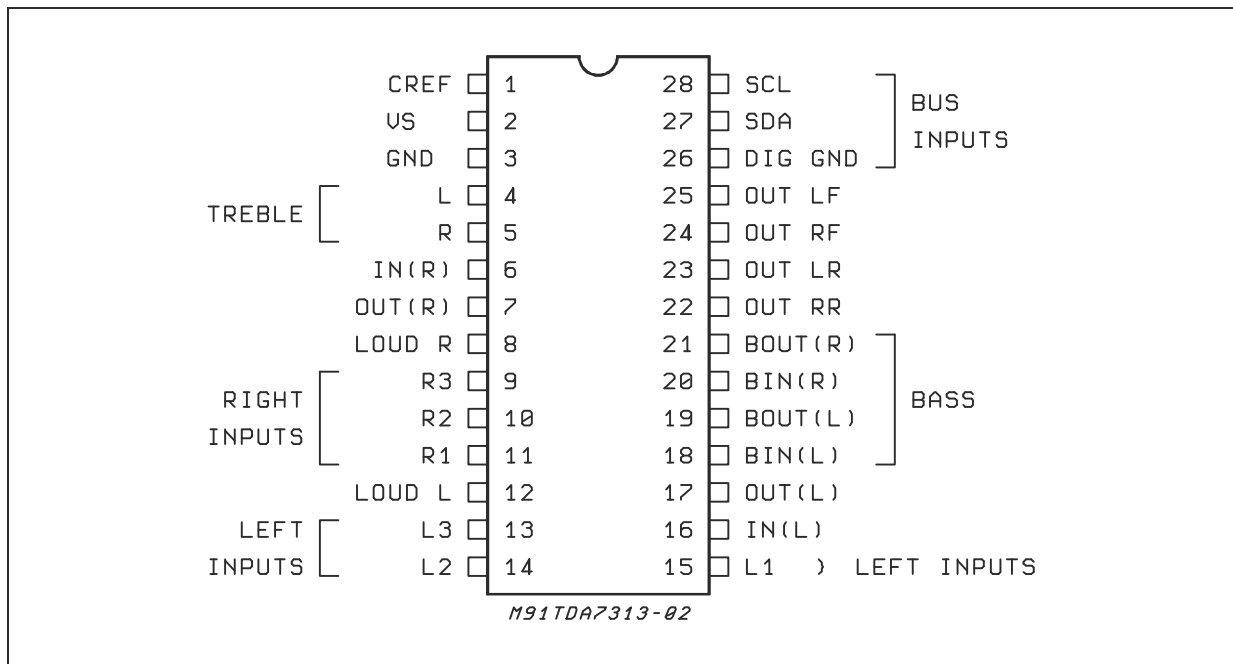


Pin Connection (Top view)

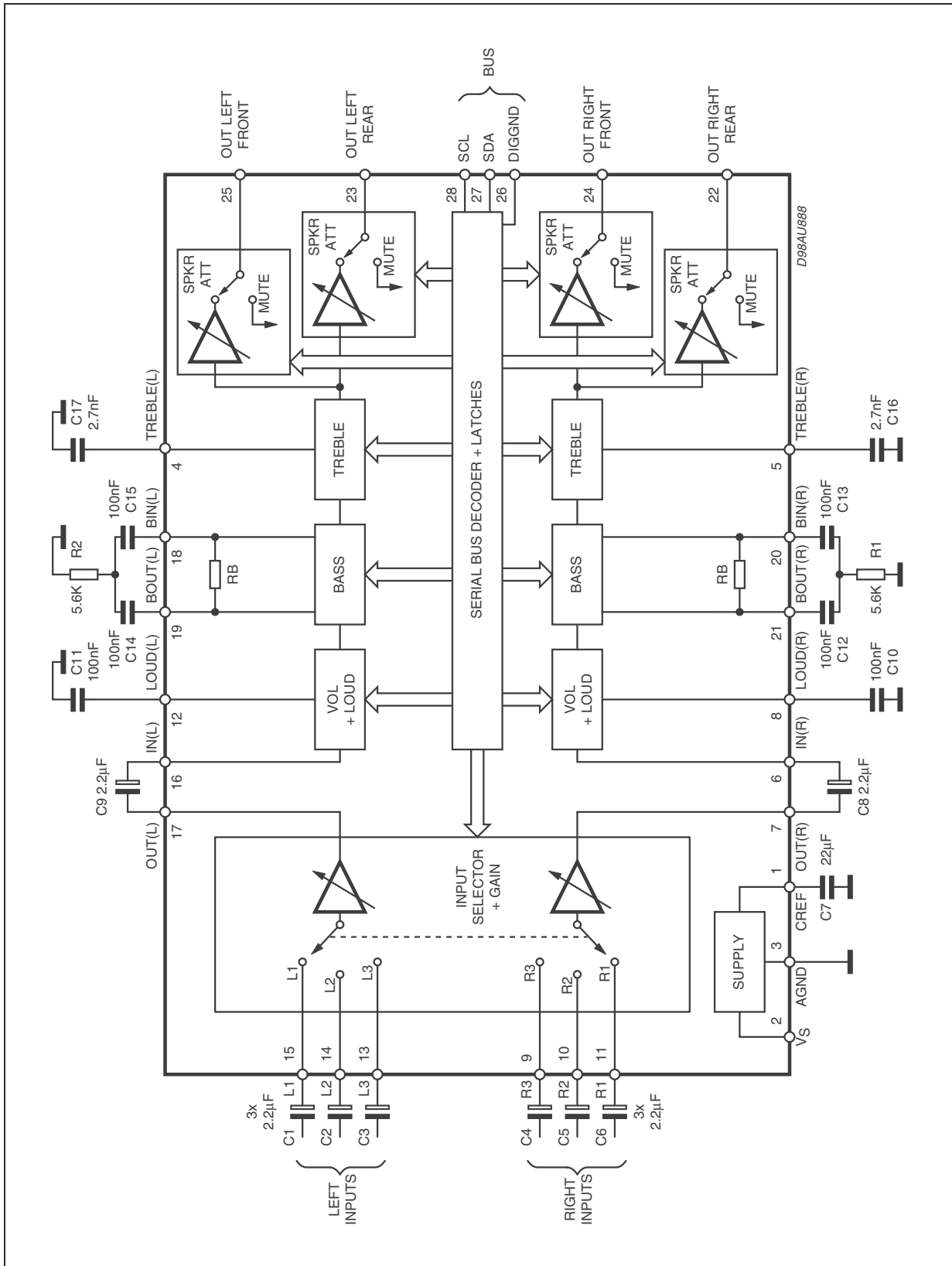


TDA 7313

PIN CONNECTION (Top view)



BLOCK DIAGRAM

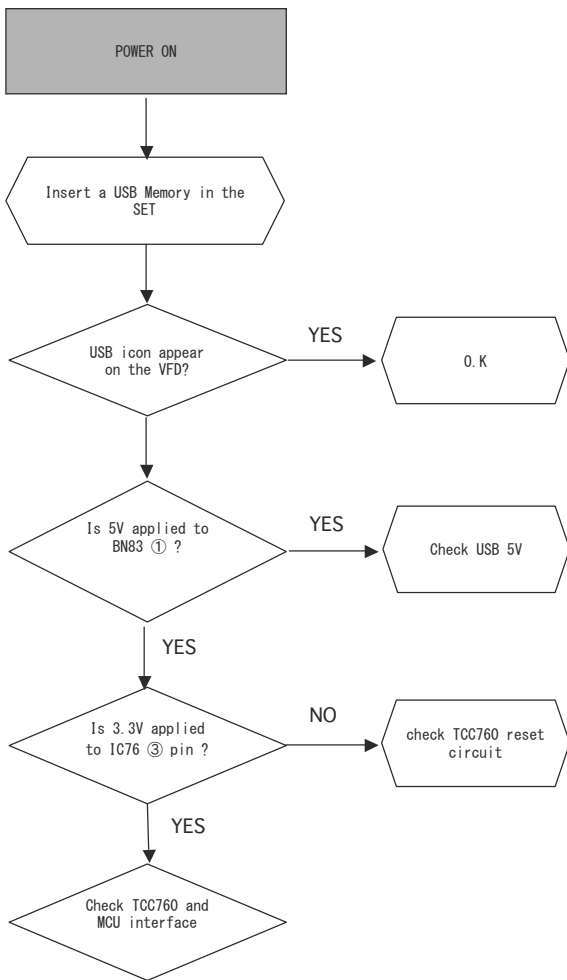


ELECTRICAL TROUBLESHOOTING GUIDE

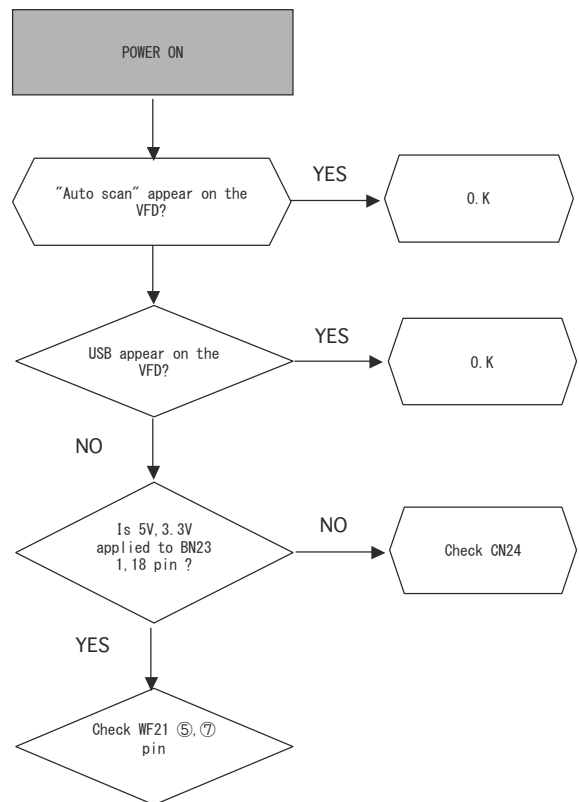
1. POWER CHECK



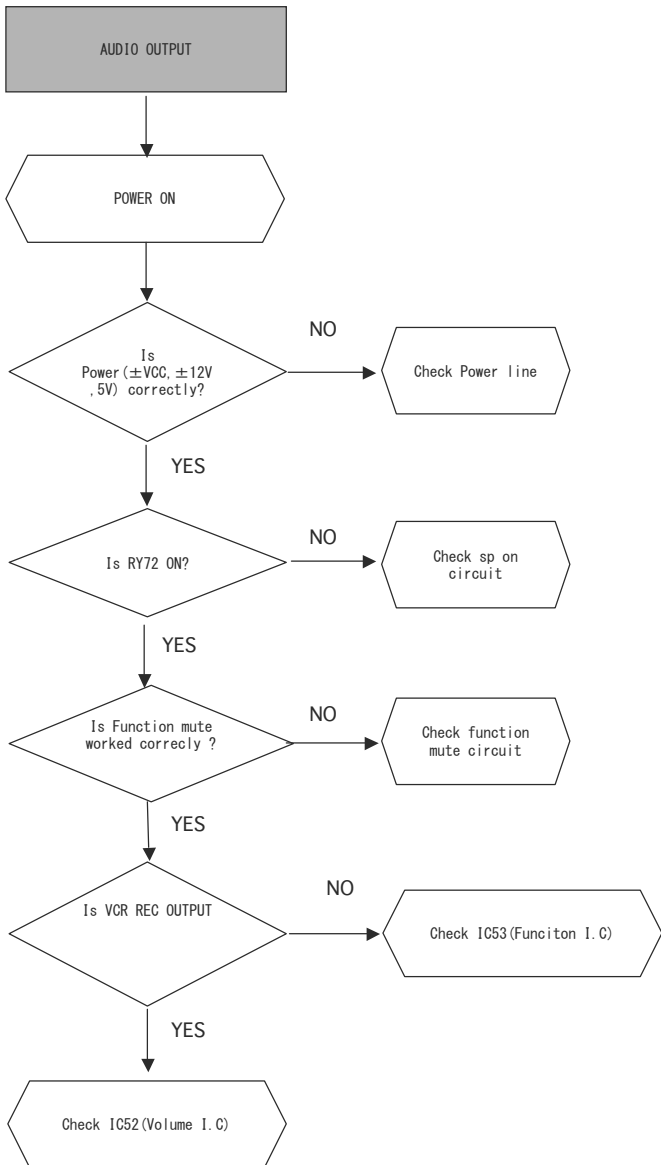
2. USB PART CHECK



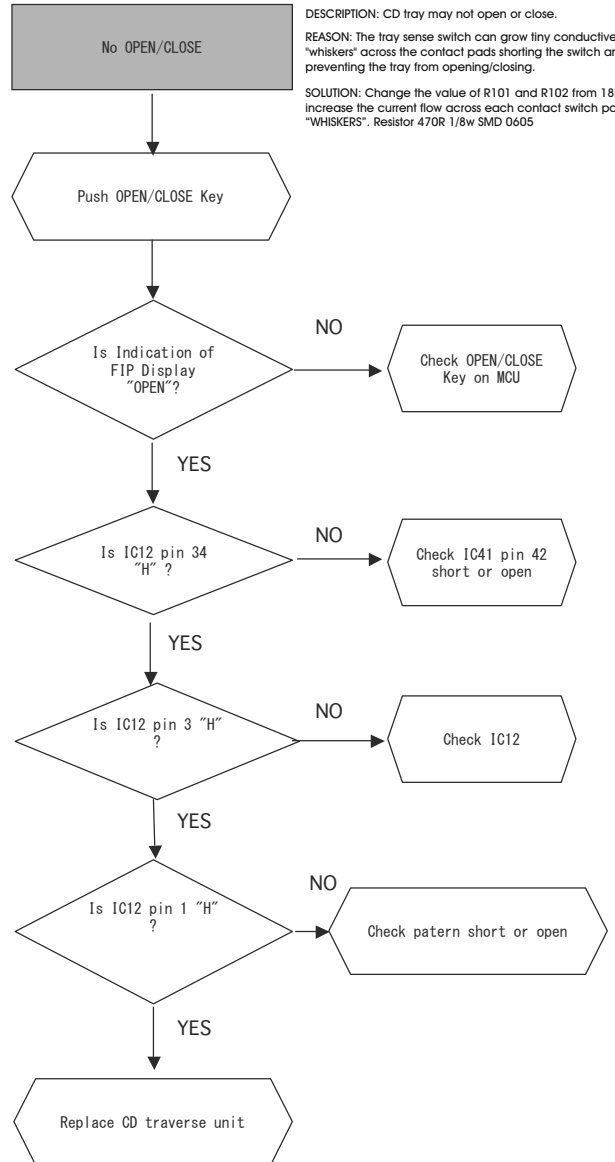
3. DAB PART CHECK



4. AUDIO PART CHECK

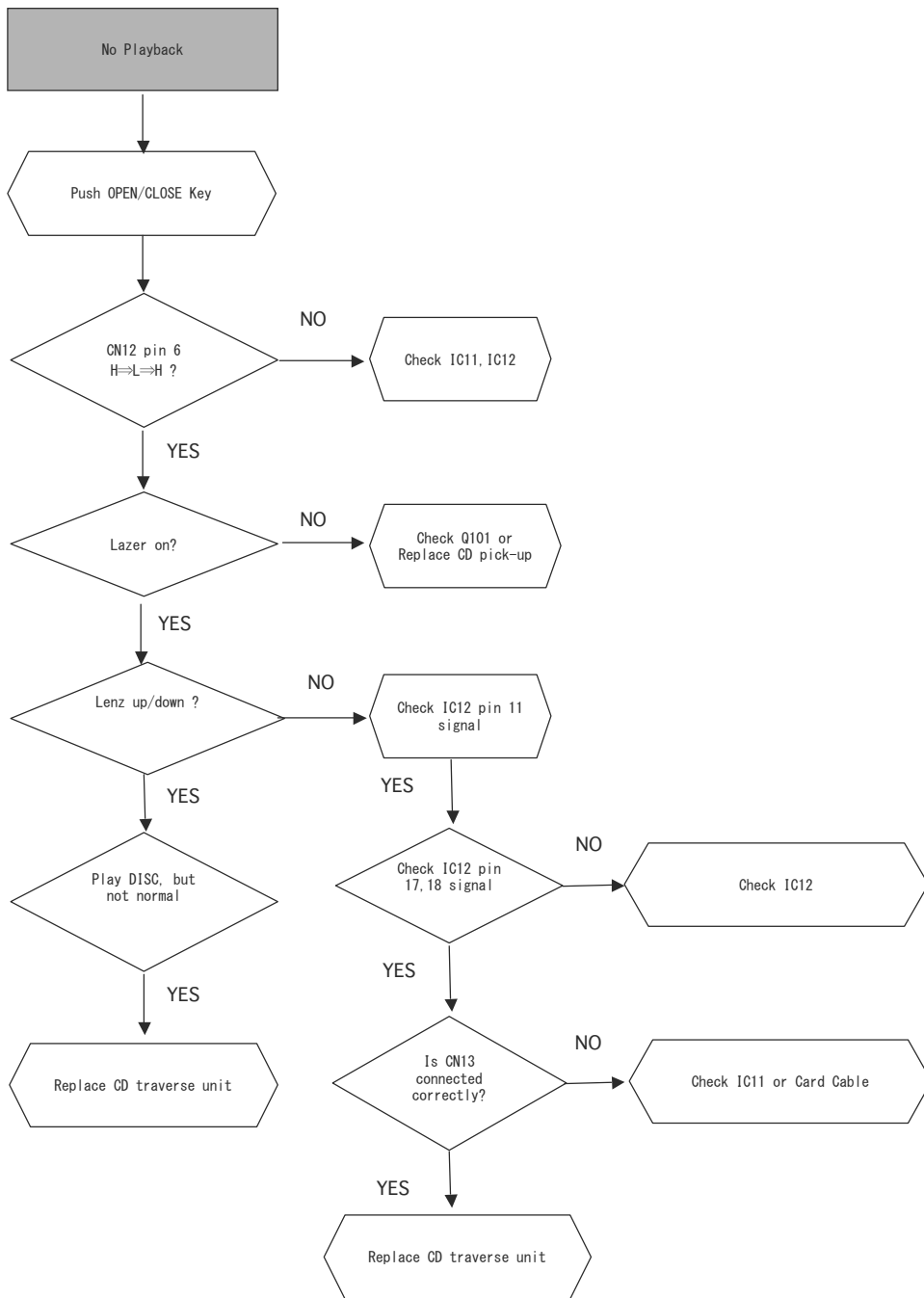


5. NO OPEN/CLOSE

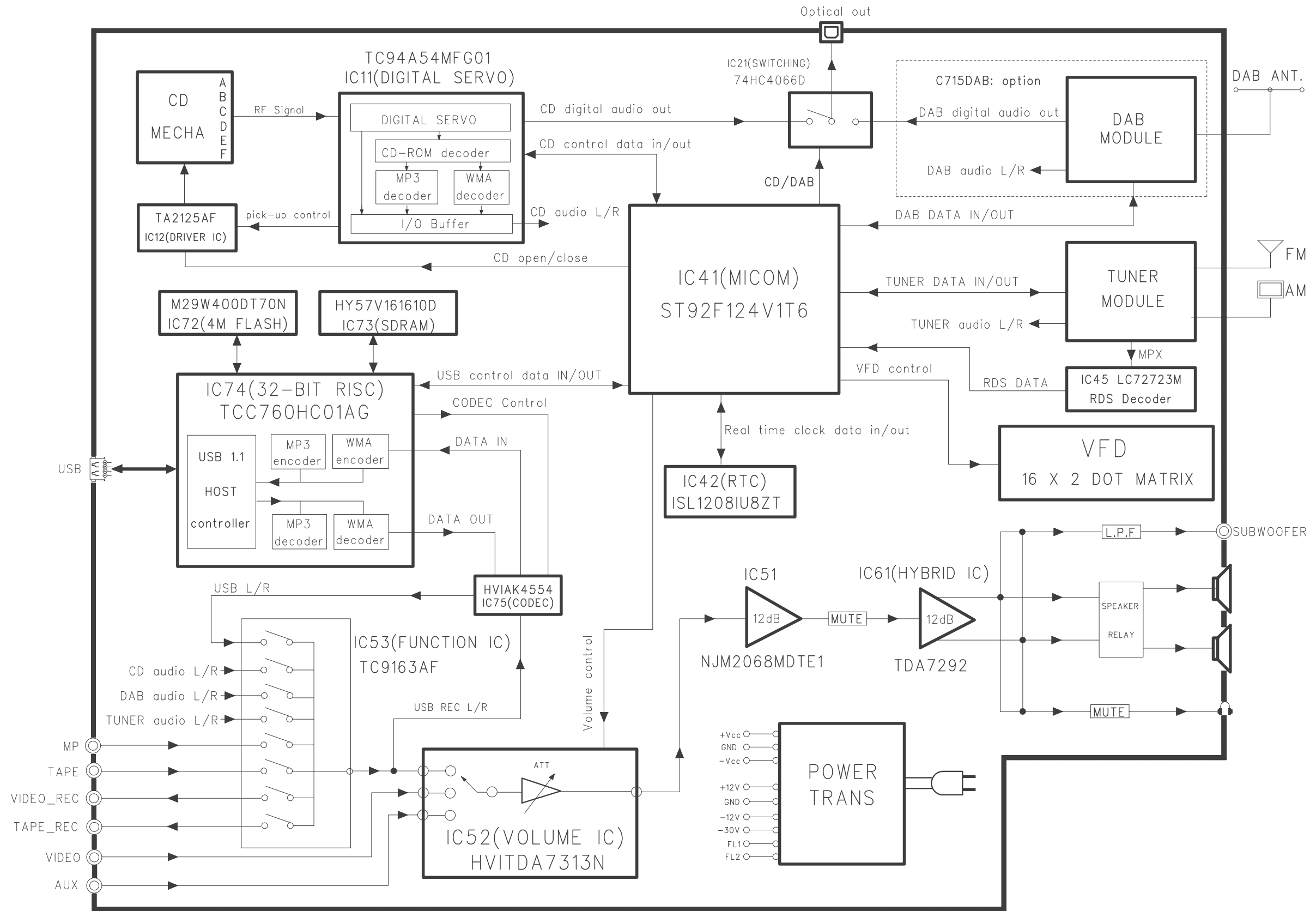


DESCRIPTION: CD tray may not open or close.
 REASON: The tray sense switch can grow tiny conductive "whiskers" across the contact pads shorting the switch and preventing the tray from opening/closing.
 SOLUTION: Change the value of R101 and R102 from 18K to 470 ohm to increase the current flow across each contact switch pads eliminating the "WHISKERS". Resistor 470R 1/8W SMD 0605

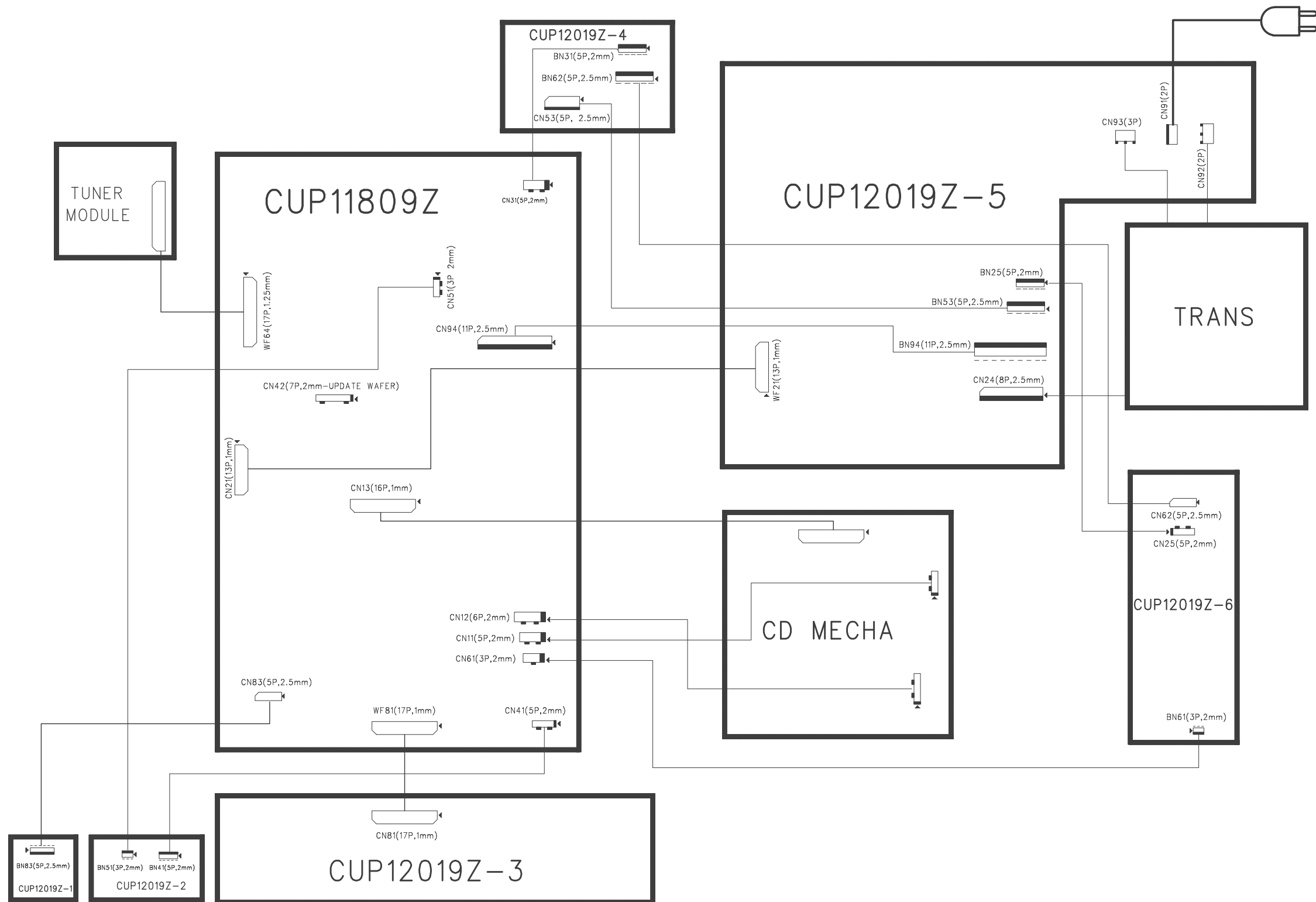
5. No PLAYBACK



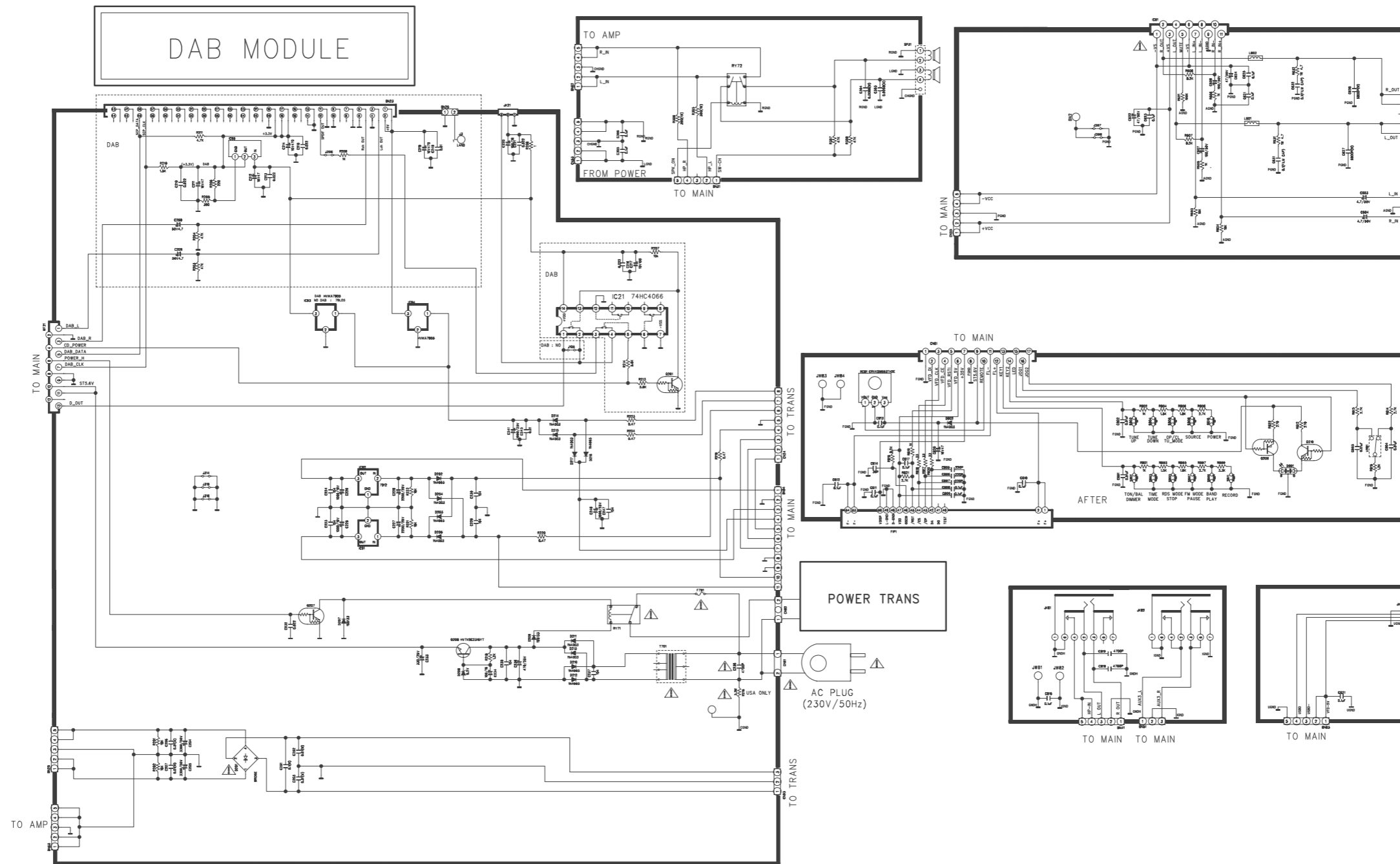
1. BLOCK DIAGRAM



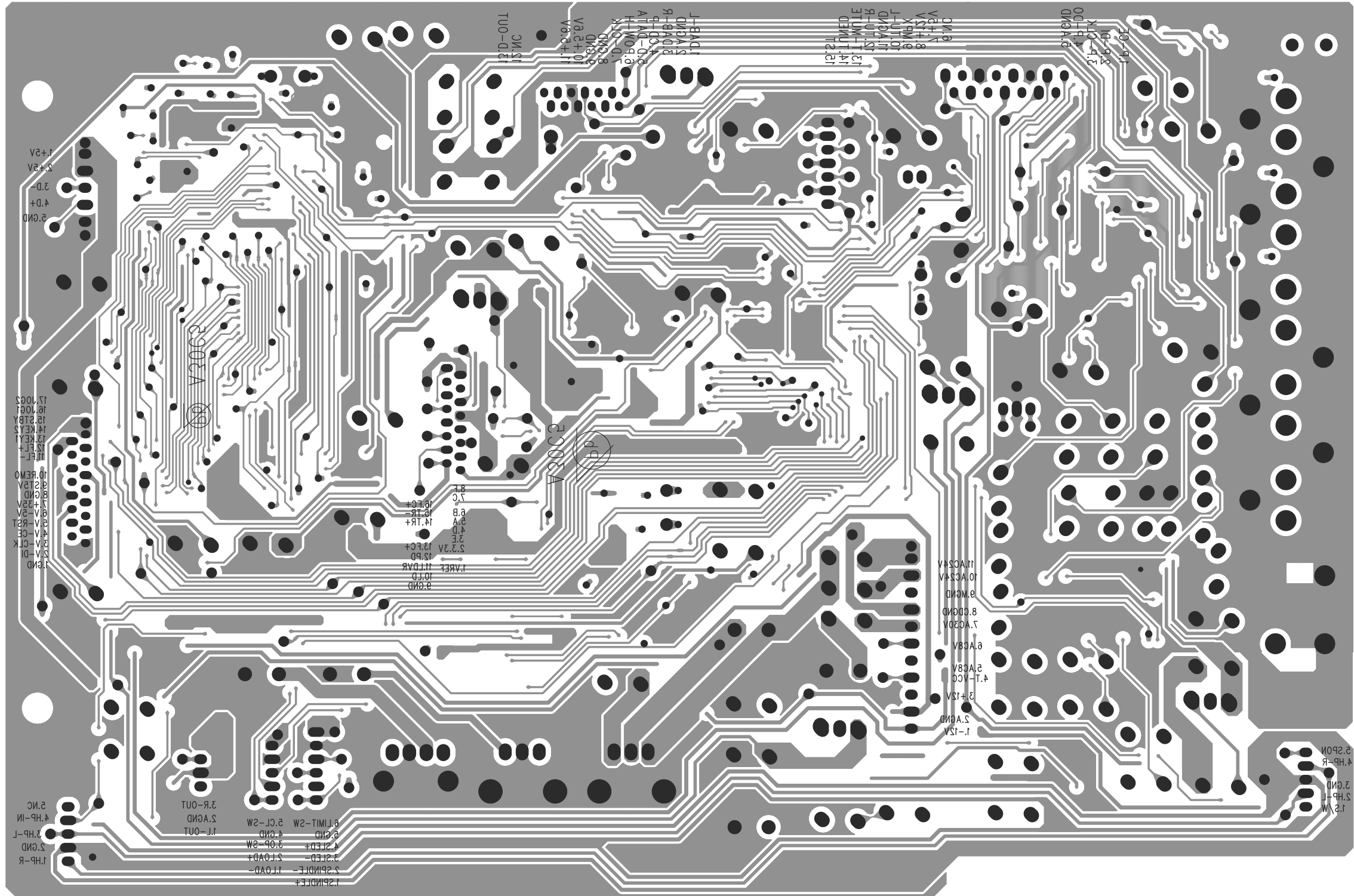
2. WIRING DIAGRAM



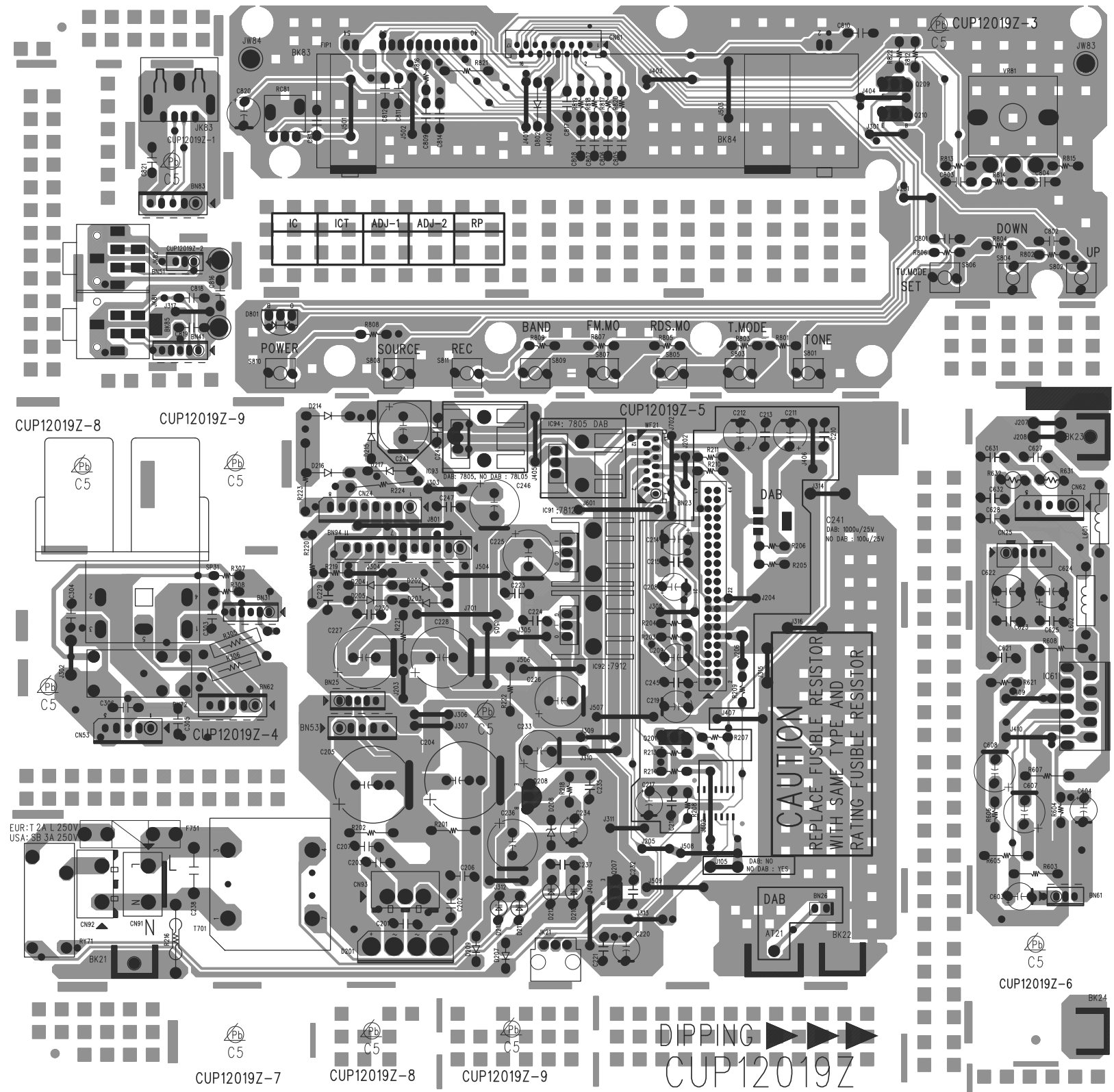
POWER & POWER AMP & KEYBOARD PART



MAIN PCB DATA VIEW (BOTTOM)



POWER PCB DATA VIEW



SECTION 3

ELECTRICAL PARTS LIST

| | | |
|--|---|--|
| MAIN PCB ASS'Y (DABC : COP12018B, C : COP12018C, AH : COP12018D) | | |
| CUP12018Z | PCB , MAIN C715(291X216, FR-4, 2 ARRAY) | |

| REF NO. | PART NO. | DESCRIPTION | REMARKS |
|-----------|-------------|--------------------------|---------------|
| CUP12018Z | MAIN BOARD | | |
| C101 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C103 | CCUS1H222KC | CAP , CHIP 2200PF 50V K | |
| C104 | CCUS1H222KC | CAP , CHIP 2200PF 50V K | |
| C108 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C110 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C111 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C113 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C114 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C115 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C116 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C117 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C120 | CCUS1H101JA | CAP , CHIP 100PF 50V J | |
| C121 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C122 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C126 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C127 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C128 | CCUS1H471JA | CAP , CHIP 470PF 50V J | |
| C129 | CCUS1H471JA | CAP , CHIP 470PF 50V J | |
| C130 | CCUS1H333KC | CAP , CHIP 0.033UF 50V K | |
| C131 | CCUS1H333KC | CAP , CHIP 0.033UF 50V K | |
| C132 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C133 | CCUS1H150JA | CAP , CHIP 15PF 50V J | |
| C134 | CCUS1H150JA | CAP , CHIP 15PF 50V J | |
| C135 | CCUS1H102KC | CAP , CHIP 1000PF 50V K | |
| C136 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C137 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C138 | CCUS1H222KC | CAP , CHIP 2200PF 50V K | |
| C140 | CCUS1H153KC | CAP , CHIP 0.015UF 50V K | |
| C141 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C142 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C143 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C144 | CCUS1H470JA | CAP , CHIP 47PF 50V J | |
| C145 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C146 | CCUS1H472KC | CAP , CHIP 4700PF 50V K | |
| C147 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C149 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C150 | CCUS1H681JA | CAP , CHIP 680PF 50V J | |
| C151 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C152 | CCUS1H153KC | CAP , CHIP 0.015UF 50V K | |
| C153 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C154 | CCUS1H680JA | CAP , CHIP 68PF 50V J | |
| C155 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C156 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C157 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C401 | CCUS1H101JA | CAP , CHIP 100PF 50V J | |
| C403 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C405 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C408 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C409 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C411 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C412 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C413 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C414 | CCUS1H561JA | CAP , CHIP 560PF 50V J | |
| C415 | CCUS1H561JA | CAP , CHIP 560PF 50V J | |
| C416 | CCUS1H220JA | CAP , CHIP 22PF 50V J | |
| C417 | CCUS1H220JA | CAP , CHIP 22PF 50V J | |
| C418 | CCUS1H220JA | CAP , CHIP 22PF 50V J | |
| C422 | CCUS1H221JA | CAP , CHIP 220PF 50V J | |
| C423 | CCUS1H221JA | CAP , CHIP 220PF 50V J | |
| C424 | CCUS1H221JA | CAP , CHIP 220PF 50V J | |
| C425 | CCUS1H221JA | CAP , CHIP 220PF 50V J | |
| C426 | CCUS1H221JA | CAP , CHIP 220PF 50V J | |
| C429 | CCUS1H150JA | CAP , CHIP 15PF 50V J | |
| C430 | CCUS1H150JA | CAP , CHIP 15PF 50V J | |
| C431 | CCUS1H101JA | CAP , CHIP 100PF 50V J | C715DABC ONLY |
| C432 | CCUS1H101JA | CAP , CHIP 100PF 50V J | C715DABC ONLY |
| C433 | CCUS1H103KC | CAP , CHIP 0.01UF 50V K | |
| C434 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C435 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |
| C436 | CCUS1H104KC | CAP , CHIP 0.1UF 50V K | |

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|------|---------------|---------------|-----------------|--|
| C437 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C438 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C439 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C451 | CCUS1H102KC | CAP , CHIP | 1000PF 50V K | |
| C452 | CCUS1H102KC | CAP , CHIP | 1000PF 50V K | |
| C454 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C456 | CCUS1H561JA | CAP , CHIP | 560PF 50V J | |
| C457 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C458 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C459 | CCUS1H102KC | CAP , CHIP | 1000PF 50V K | |
| C501 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C502 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C503 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C504 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C505 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C506 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C507 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C508 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C509 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C510 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C511 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C512 | CCUS1H153KC | CAP , CHIP | 0.015UF 50V K | |
| C513 | CCUS1H223KC | CAP , CHIP | 0.022UF 50V K | |
| C514 | CCUS1H223KC | CAP , CHIP | 0.022UF 50V K | |
| C517 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C518 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C519 | CCUS1H221JA | CAP , CHIP | 220PF 50V J | |
| C520 | CCUS1H221JA | CAP , CHIP | 220PF 50V J | |
| C524 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C525 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C545 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C548 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C549 | CCUS1H331JA | CAP , CHIP | 330PF 50V J | |
| C553 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C554 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C555 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C556 | CCUS1H181JA | CAP , CHIP | 180PF 50V J | |
| C702 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C703 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C704 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C705 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C706 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C707 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C709 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C710 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C711 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C712 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C717 | CCUS1H222KC | CAP , CHIP | 2200PF 50V K | |
| C718 | CCUS1H222KC | CAP , CHIP | 2200PF 50V K | |
| C721 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C722 | CCUS1H220JA | CAP , CHIP | 22PF 50V J | |
| C723 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C724 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C725 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C726 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C727 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C728 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C729 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C730 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C732 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C734 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C735 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C901 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C911 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C912 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C918 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C920 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| C921 | CCUS1H104KC | CAP , CHIP | 0.1UF 50V K | |
| C923 | CCUS1H103KC | CAP , CHIP | 0.01UF 50V K | |
| D101 | CVD1SS355T | DIODE , CHIP | | |
| D401 | HVDUDZS4.3BSR | DIODE , ZENER | 4.3V, 1712 TYPE | |
| D402 | CVD1SS355T | DIODE , CHIP | | |
| D403 | CVD1SS355T | DIODE , CHIP | | |
| D404 | CVD1SS355T | DIODE , CHIP | | |
| D405 | CVD1SS355T | DIODE , CHIP | | |
| D406 | CVD1SS355T | DIODE , CHIP | | |

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|------|-----------------|---------------------|-----------------|---------------|
| D501 | CVD1SS355T | DIODE , CHIP | | |
| D502 | CVD1SS355T | DIODE , CHIP | | |
| D901 | HVDUDZS27BSR | DIODE , ZENER | 27V, 1712 TYPE | |
| D902 | HVDUDZS9.1BSR | DIODE , ZENER | 9.1V, 1712 TYPE | |
| D905 | HVDUDZS4.3BSR | DIODE , ZENER | 4.3V, 1712 TYPE | |
| D906 | CVD1SS355T | DIODE , CHIP | | |
| IC11 | HVITC94A54MFG01 | I.C , DIGITAL SERVO | | |
| IC12 | HVITA2125AFG | I.C , MOTOR DRIVER | | |
| IC41 | HVIST92F124V1T6 | I.C , MCU | ST92F124V1T6 | |
| IC42 | HVIISL1208IU8ZT | I.C , RTC | | |
| IC43 | HVIRH5VT28C | I.C , RESET | | |
| IC45 | HVILC72723M | IC , PLL (RDS) | | |
| IC51 | HVINJM2068MDTE1 | I.C , OP AMP | NJM2068MD-TE1 | |
| IC52 | HVITDA7313NDTR | I.C , VOLUME | | |
| IC53 | HVITC9163CFG | I.C , FUNCTION SW | | |
| IC72 | HVIM29W400DT70N | 4M FLASH | | |
| IC73 | HVI57V161610ET7 | SDRAM 16M 7NS | HY57V161610ET-7 | |
| IC74 | KVITCC760HC01AG | 32BIT RISC CPU | | |
| IC75 | HVIAK4554VT | I.C , CODEC(16BIT) | | |
| IC76 | HVI74VHC08TTR | I.C , AND-GATE | 74VHC08 | |
| IC96 | HVILM1117S-ADJ | I.C , REGULATOR | LM1117-ADJ | |
| IC97 | HVILM1117S-ADJ | I.C , REGULATOR | LM1117-ADJ | |
| IC98 | HVILM1117S-ADJ | I.C , REGULATOR | LM1117-ADJ | |
| L101 | CLQ08E100KRZ | COIL , CHIP | 10uH, 2012 | |
| L102 | CLQ08E100KRZ | COIL , CHIP | 10uH, 2012 | |
| Q402 | HVTKRA107ST | T.R , CHIP | KRA107S | |
| Q403 | HVTKTD1304T | T.R , CHIP | KTD1304 | |
| Q404 | HVTKTD1304T | T.R , CHIP | KTD1304 | |
| Q406 | HVTKRC107S | T.R , CHIP | KRC107S | C715DABC ONLY |
| Q407 | HVTKRC107S | T.R , CHIP | KRC107S | C715DABC ONLY |
| Q408 | HVTKRC107S | T.R , CHIP | KRC107S | C715DABC ONLY |
| Q409 | HVTKRA107ST | T.R , CHIP | KRA107S | |
| Q410 | HVTKRC107S | T.R , CHIP | KRC107S | |
| Q501 | HVTKTD1304T | T.R , CHIP | KTD1304 | |
| Q502 | HVTKTD1304T | T.R , CHIP | KTD1304 | |
| Q503 | HVTKRA107ST | T.R , CHIP | KRA107S | |
| R101 | CRJ10DJ471T | RES , CHIP | 1608 SIZE | |
| R102 | CRJ10DJ471T | RES , CHIP | 1608 SIZE | |
| R103 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R104 | CRJ10DJ471T | RES , CHIP | 1608 SIZE | |
| R105 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R106 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R107 | CRJ10DJ682T | RES , CHIP | 1608 SIZE | |
| R108 | CRJ10DJ332T | RES , CHIP | 1608 SIZE | |
| R109 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R110 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R111 | CRJ10DJ105T | RES , CHIP | 1608 SIZE | |
| R112 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R113 | CRJ10DJ271T | RES , CHIP | 1608 SIZE | |
| R114 | CRJ10DJ271T | RES , CHIP | 1608 SIZE | |
| R115 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R116 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R117 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R118 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R119 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R120 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R121 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R122 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R123 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R124 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R125 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R127 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R128 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R129 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R130 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R131 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R132 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R133 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R134 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R138 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R139 | CRJ10DJ154T | RES , CHIP | 1608 SIZE | |
| R140 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R141 | CRJ10DJ223T | RES , CHIP | 1608 SIZE | |
| R142 | CRJ10DJ153T | RES , CHIP | 1608 SIZE | |
| R143 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R144 | CRJ10DJ683T | RES , CHIP | 1608 SIZE | |

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|------|-------------|------------|-----------|-----------------|
| R145 | CRJ10DJ223T | RES , CHIP | 1608 SIZE | |
| R146 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R148 | CRJ10DJ100T | RES , CHIP | 1608 SIZE | |
| R149 | CRJ10DJ100T | RES , CHIP | 1608 SIZE | |
| R401 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R402 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R403 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R404 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R405 | CRJ10DJ100T | RES , CHIP | 1608 SIZE | |
| R406 | CRJ10DJ100T | RES , CHIP | 1608 SIZE | |
| R407 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R408 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R409 | CRJ10DJ153T | RES , CHIP | 1608 SIZE | |
| R410 | CRJ10DJ153T | RES , CHIP | 1608 SIZE | |
| R411 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R412 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R413 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R414 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R415 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R416 | CRJ10DJ330T | RES , CHIP | 1608 SIZE | |
| R417 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R418 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R419 | CRJ10DJ271T | RES , CHIP | 1608 SIZE | |
| R420 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R421 | CRJ10DJ271T | RES , CHIP | 1608 SIZE | |
| R422 | CRJ10DJ271T | RES , CHIP | 1608 SIZE | |
| R423 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R424 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R425 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R426 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R427 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R428 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R429 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R430 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R431 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R432 | CRJ10DJ470T | RES , CHIP | 1608 SIZE | |
| R433 | CRJ10DJ470T | RES , CHIP | 1608 SIZE | |
| R434 | CRJ10DJ470T | RES , CHIP | 1608 SIZE | |
| R435 | CRJ10DJ470T | RES , CHIP | 1608 SIZE | |
| R436 | CRJ10DJ470T | RES , CHIP | 1608 SIZE | |
| R437 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R438 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R439 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | C715DABC, C715C |
| R444 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | C715AH ONLY |
| R440 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R441 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R442 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R448 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | C715DABC ONLY |
| R450 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | C715C, C715AH |
| R449 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R451 | CRJ10DJ153T | RES , CHIP | 1608 SIZE | |
| R452 | CRJ10DJ153T | RES , CHIP | 1608 SIZE | |
| R453 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R454 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R455 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R456 | CRJ10DJ183T | RES , CHIP | 1608 SIZE | |
| R457 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R501 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R502 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R503 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R504 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R505 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R506 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R507 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R508 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R509 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R510 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R511 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R512 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R513 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R514 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R515 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R516 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
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| R518 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R519 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |

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|------|-------------|------------|-----------|--|
| R520 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R521 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R522 | CRJ10DJ101T | RES , CHIP | 1608 SIZE | |
| R523 | CRJ10DJ123T | RES , CHIP | 1608 SIZE | |
| R524 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R525 | CRJ10DJ153T | RES , CHIP | 1608 SIZE | |
| R526 | CRJ10DJ104T | RES , CHIP | 1608 SIZE | |
| R527 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R528 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R529 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R530 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R531 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R532 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R533 | CRJ10DJ822T | RES , CHIP | 1608 SIZE | |
| R534 | CRJ10DJ822T | RES , CHIP | 1608 SIZE | |
| R535 | CRJ10DJ222T | RES , CHIP | 1608 SIZE | |
| R536 | CRJ10DJ222T | RES , CHIP | 1608 SIZE | |
| R537 | CRJ10DJ273T | RES , CHIP | 1608 SIZE | |
| R538 | CRJ10DJ273T | RES , CHIP | 1608 SIZE | |
| R539 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R540 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R541 | CRJ10DJ4R7T | RES , CHIP | 1608 SIZE | |
| R542 | CRJ10DJ4R7T | RES , CHIP | 1608 SIZE | |
| R545 | CRJ10DJ272T | RES , CHIP | 1608 SIZE | |
| R546 | CRJ10DJ272T | RES , CHIP | 1608 SIZE | |
| R547 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R548 | CRJ10DJ562T | RES , CHIP | 1608 SIZE | |
| R549 | CRJ10DJ683T | RES , CHIP | 1608 SIZE | |
| R550 | CRJ10DJ683T | RES , CHIP | 1608 SIZE | |
| R551 | CRJ10DJ4R7T | RES , CHIP | 1608 SIZE | |
| R552 | CRJ10DJ4R7T | RES , CHIP | 1608 SIZE | |
| R553 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R554 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R555 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R556 | CRJ10DJ221T | RES , CHIP | 1608 SIZE | |
| R557 | CRJ10DJ272T | RES , CHIP | 1608 SIZE | |
| R558 | CRJ10DJ472T | RES , CHIP | 1608 SIZE | |
| R559 | CRJ10DJ272T | RES , CHIP | 1608 SIZE | |
| R702 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R704 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R705 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R706 | CRJ10DJ755T | RES , CHIP | 1608 SIZE | |
| R708 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R709 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R710 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R711 | CRJ10DJ472T | RES , CHIP | 1608 SIZE | |
| R714 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R715 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R716 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R717 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R718 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R719 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R720 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R721 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R722 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R723 | CRJ10DJ101T | RES , CHIP | 1608 SIZE | |
| R724 | CRJ10DJ101T | RES , CHIP | 1608 SIZE | |
| R725 | CRJ10DJ101T | RES , CHIP | 1608 SIZE | |
| R726 | CRJ10DJ101T | RES , CHIP | 1608 SIZE | |
| R727 | CRJ10DJ101T | RES , CHIP | 1608 SIZE | |
| R728 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| R729 | CRJ10DJ472T | RES , CHIP | 1608 SIZE | |
| R730 | CRJ10DJ472T | RES , CHIP | 1608 SIZE | |
| R731 | CRJ10DJ472T | RES , CHIP | 1608 SIZE | |
| R732 | CRJ10DJ472T | RES , CHIP | 1608 SIZE | |
| R733 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R734 | CRJ10DJ102T | RES , CHIP | 1608 SIZE | |
| R901 | CRJ10DJ561T | RES , CHIP | 1608 SIZE | |
| R902 | CRJ10DJ331T | RES , CHIP | 1608 SIZE | |
| R903 | CRJ10DJ681T | RES , CHIP | 1608 SIZE | |
| R904 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R905 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R906 | CRJ10DJ181T | RES , CHIP | 1608 SIZE | |
| R907 | CRJ10DJ331T | RES , CHIP | 1608 SIZE | |
| R908 | CRJ10DJ182T | RES , CHIP | 1608 SIZE | |
| R910 | CRJ10DJ474T | RES , CHIP | 1608 SIZE | |

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|------|---------------|-----------------|-------------------|--|
| R911 | CRJ10DJ471T | RES , CHIP | 1608 SIZE | |
| R912 | CRJ10DJ101T | RES , CHIP | 1608 SIZE | |
| R914 | CRJ10DJ0R0T | RES , CHIP | 1608 SIZE | |
| R917 | CRJ10DJ122T | RES , CHIP | 1608 SIZE | |
| R918 | CRJ10DJ181T | RES , CHIP | 1608 SIZE | |
| R919 | CRJ10DJ473T | RES , CHIP | 1608 SIZE | |
| R920 | CRJ10DJ330T | RES , CHIP | 1608 SIZE | |
| R921 | CRJ10DJ271T | RES , CHIP | 1608 SIZE | |
| R922 | CRJ10DJ103T | RES , CHIP | 1608 SIZE | |
| C102 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C105 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C106 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C107 | CCEA1HH220T | CAP , ELECT | 22UF 50V | |
| C109 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C112 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C123 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C139 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C148 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C402 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C404 | CCEA1CH221T | CAP , ELECT | 220UF 16V | |
| C406 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C410 | CCEA1HH100T | CAP , ELECT | 10UF 50V | |
| C453 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C455 | CCEA1HH100T | CAP , ELECT | 10UF 50V | |
| C515 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C516 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C521 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C522 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C523 | CCEA1HH100T | CAP , ELECT | 10UF 50V | |
| C526 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C527 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C528 | HCQI1H104JZT | CAP , MYLAR | 0.1UF 50V J | |
| C529 | HCQI1H104JZT | CAP , MYLAR | 0.1UF 50V J | |
| C530 | HCQI1H104JZT | CAP , MYLAR | 0.1UF 50V J | |
| C531 | HCQI1H104JZT | CAP , MYLAR | 0.1UF 50V J | |
| C532 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C533 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C534 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C535 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C536 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C537 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C538 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C539 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C540 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C541 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C542 | HCQI1H272JZT | CAP , MYLAR | 2700PF 50V J | |
| C543 | HCQI1H272JZT | CAP , MYLAR | 2700PF 50V J | |
| C544 | CCEA1HH220T | CAP , ELECT | 22UF 50V | |
| C546 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C547 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C551 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C552 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C559 | CCEA1HH100T | CAP , ELECT | 10UF 50V | |
| C713 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C714 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C715 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C716 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C719 | CCEA1HH2R2T | CAP , ELECT | 2.2UF 50V | |
| C720 | CCEA1CH471T | CAP , ELECT | 470UF 16V | |
| C736 | CCEA1CH471T | CAP , ELECT | 470UF 16V | |
| C903 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C905 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C907 | CCEA1CH470T | CAP , ELECT | 47UF 16V | |
| C910 | CCEA1HH470T | CAP , ELECT | 47UF 50V | |
| C913 | CCEA1HH220T | CAP , ELECT | 22UF 50V | |
| C914 | CCEA1CH221T | CAP , ELECT | 220UF 16V | |
| C917 | CCEA1CH101T | CAP , ELECT | 100UF 16V | |
| C922 | CCEA1CH471T | CAP , ELECT | 470UF 16V | |
| D903 | CVD1N4003SRT | DIODE , RECT | 1N4003 | |
| D904 | CVD1N4003SRT | DIODE , RECT | 1N4003 | |
| D907 | CVD1N4003SRT | DIODE , RECT | 1N4003 | |
| D908 | CVD1N4003SRT | DIODE , RECT | 1N4003 | |
| IC55 | HVIKA78L08AZT | I.C , REGULATOR | KA78LXXAZTA , +8V | |
| Q101 | HVTKTA1266YT | T.R | TKTA1266YT | |
| Q405 | HVTKSB811YT | T.R | KSB811Y | |
| Q901 | HVTKSC2316YT | T.R | KSC2316Y | |

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|------|----------------|--------------------|------------|
| Q902 | HVTKSC2316YT | T.R | KSC2316Y |
| CN11 | CJP05GA19ZY | WAFER , STRAIGHT | |
| CN12 | CJP06GA19ZY | WAFER , STRAIGHT | |
| CN13 | CJP16GA117ZY | WAFER | |
| CN21 | CJP13GA117ZY | WAFER , CARD CABLE | |
| CN31 | CJP05GA19ZY | WAFER , STRAIGHT | |
| CN41 | CJP05GA19ZY | WAFER , STRAIGHT | |
| CN42 | CJP07GA19ZY | WAFER , STRAIGHT | |
| CN51 | CJP03GA19ZY | WAFER , STRAIGHT | |
| CN61 | CJP03GA19ZY | WAFER , STRAIGHT | |
| CN83 | CJP05GA01ZY | WAFER | |
| CN94 | CJP11GA01ZY | WAFER | |
| C421 | CCESDX5R5V334U | CAP , DYNA | 0.33F 5.5V |
| C902 | CCEA1AH102E | CAP , ELECT | 1000UF 10V |
| C909 | CCEA1JH101E | CAP , ELECT | 100UF 63V |
| C919 | CCEA1EH222E | CAP , ELECT | 2200UF 25V |
| C924 | CCEA1AH102E | CAP , ELECT | 1000UF 10V |
| IC22 | CVIKA78R05VA | I.C , REGULATOR | + 5V |
| IC90 | CVIKIA7808A | I.C , REGULATOR | + 8V |
| IC99 | CVIKIA7805A | I.C , REGULATOR | + 5V |
| JK51 | CJJ4M056W | JACK , BOARD | |
| JK52 | CJJ4P019W | JACK , RCA | |
| JK53 | CJJ4R020W | JACK , BOARD | |
| L401 | KLZ9H001Z | BEAD , CORE | |
| WF64 | CJP15GA115ZY | WAFER , CARD CABLE | |
| WF81 | CJP17GA117ZY | WAFER | |
| X101 | HOX16934E120C | CRYSTAL | 16.934MHZ |
| X401 | HOX04000E150C | CRYSTAL | 4MHZ |
| X402 | HOX00032K120I | CRYSTAL | 32.768KHZ |
| X403 | HOX04332E200C | CRYSTAL | 4.332KHZ |
| X701 | HOX12000E200C | CRYSTAL | 12MHZ |

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| POWER PCB ASS'Y (DABC : COP12019B, C : COP12019C, AH : COP12019D) | | |
| CUP12019Z | PCB , POWER C715(240X251, FR-1) | |

| REF NO. | PART NO. | DESCRIPTION | REMARKS |
|------------|--------------|-----------------------------|-------------|
| CUP12018-1 | | USB BOARD | |
| BN83 | CWZC715BN83 | SHIEL WIRE ASS'Y(5P, 250MM) | |
| C821 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| JK83 | HJJ9X001Z | JACK, USB | |

| REF NO. | PART NO. | DESCRIPTION | REMARKS |
|------------|---------------|-------------------------------|--------------|
| CUP12018-2 | | PHONE BOARD | |
| BK85 | CMC1A324 | BRACKET , JACK C715 | |
| BN41 | CWB2B005180EN | WIRE ASS'Y(5P, 180MM) | |
| BN51 | CWZC715BN51 | SHIEL WIRE ASS'Y(3P, 400MM) | |
| C816 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C818 | HCBS1C472MXT | CAP , CERAMIC | 4700PF 16V M |
| C819 | HCBS1C472MXT | CAP , CERAMIC | 4700PF 16V M |
| JK81 | CJJ2E028Z | JACK , HEADPHONE(3.5mm, GOLD) | PJ-323AG-7 |
| JK82 | CJJ2E028Z | JACK , HEADPHONE(3.5mm, GOLD) | PJ-323AG-7 |

| REF NO. | PART NO. | DESCRIPTION | REMARKS |
|------------|----------------|------------------------------|-----------------|
| CUP12018-3 | | FRONT BOARD | |
| BK83 | CMD1A468 | BRACKET , FLT | |
| BK84 | CMD1A468 | BRACKET , FLT | |
| C801 | HCBS1H103ZFT | CAP , CERAMIC | 0.01UF 50V Z |
| C802 | HCBS1H103ZFT | CAP , CERAMIC | 0.01UF 50V Z |
| C803 | HCBS1H103ZFT | CAP , CERAMIC | 0.01UF 50V Z |
| C804 | HCBS1H103ZFT | CAP , CERAMIC | 0.01UF 50V Z |
| C805 | HCBS1H221KBT | CAP , CERAMIC | 220PF 50V K |
| C806 | HCBS1H221KBT | CAP , CERAMIC | 220PF 50V K |
| C807 | HCBS1H221KBT | CAP , CERAMIC | 220PF 50V K |
| C808 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C809 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C810 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C811 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C812 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C813 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C814 | HCBS1H390JT | CAP , CERAMIC | 39PF 50V J |
| C817 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C820 | CCEA1CH470T | CAP , ELECT | 47UF 16V |
| CN81 | CJP17GB113ZY | WAFER | |
| D801 | CVD50BOBBWGA | L.E.D , 2 COLOR (ORG , BLUE) | TOL-50BOBBWGA |
| D802 | CVD1N4003ST | DIODE , RECT | 1N4003 |
| FIP1 | HFLHCA-17SM03T | FIP | |
| JW83 | CWE8102080RV | WIRE(1P) | |
| JW84 | CWE8102080RV | WIRE(1P) | |
| Q209 | HVTKRA107MT | T.R | KRA107M |
| Q210 | HVTKRC107MT | T.R | KRC107M |
| R801 | CRD20TJ102T | RES , CARBON | 1K OHM 1/5W J |
| R802 | CRD20TJ102T | RES , CARBON | 1K OHM 1/5W J |
| R803 | CRD20TJ152T | RES , CARBON | 1.5K OHM 1/5W J |
| R804 | CRD20TJ152T | RES , CARBON | 1.5K OHM 1/5W J |
| R805 | CRD20TJ182T | RES , CARBON | 1.8K OHM 1/5W J |
| R806 | CRD20TJ182T | RES , CARBON | 1.8K OHM 1/5W J |
| R807 | CRD20TJ272T | RES , CARBON | 2.7K OHM 1/5W J |
| R808 | CRD20TJ272T | RES , CARBON | 2.7K OHM 1/5W J |
| R809 | CRD20TJ332T | RES , CARBON | 3.3K OHM 1/5W J |
| R812 | CRD20TJ271T | RES , CARBON | 270 OHM 1/5W J |
| R813 | CRD20TJ272T | RES , CARBON | 2.7K OHM 1/5W J |
| R814 | CRD20TJ272T | RES , CARBON | 2.7K OHM 1/5W J |
| R815 | CRD20TJ122T | RES , CARBON | 1.2K OHM 1/5W J |
| R816 | CRD20TJ822T | RES , CARBON | 8.2K OHM 1/5W J |
| R817 | CRD20TJ330T | RES , CARBON | 33 OHM 1/5W J |
| R818 | CRD20TJ330T | RES , CARBON | 33 OHM 1/5W J |
| R819 | CRD20TJ102T | RES , CARBON | 1K OHM 1/5W J |
| R820 | CRD20TJ330T | RES , CARBON | 33 OHM 1/5W J |
| R821 | CRD25TJ272T | RES , CARBON | 2.7K OHM 1/4W J |
| R822 | CRD20TJ271T | RES , CARBON | 270 OHM 1/5W J |
| RC81 | CRVKSM603TH2E | SENSOR , REMOCON | KSM603TH2E |
| S801 | CST1A0122T | SW , TACT | SKHV10910G |
| S802 | CST1A0122T | SW , TACT | SKHV10910G |
| S803 | CST1A0122T | SW , TACT | SKHV10910G |
| S804 | CST1A0122T | SW , TACT | SKHV10910G |
| S805 | CST1A0122T | SW , TACT | SKHV10910G |
| S806 | CST1A0122T | SW , TACT | SKHV10910G |
| S807 | CST1A0122T | SW , TACT | SKHV10910G |
| S808 | CST1A0122T | SW , TACT | SKHV10910G |
| S809 | CST1A0122T | SW , TACT | SKHV10910G |
| S810 | CST1A0122T | SW , TACT | SKHV10910G |
| S811 | CST1A0122T | SW , TACT | SKHV10910G |
| VR81 | CSR2A036Z | ENCODER VR | |

| REF NO. | PART NO. | DESCRIPTION | REMARKS |
|------------|---------------|------------------------|----------------|
| CUP12018-4 | | SPEAKER BOARD | |
| BN31 | CWB2B005050EN | WIRE ASS'Y | |
| BN62 | CWB1C005200BM | WIRE ASS'Y(5P, 200MM) | |
| C303 | HCQI1H682JZT | CAP , MYLAR | 6800PF 50V J |
| C304 | HCQI1H682JZT | CAP , MYLAR | 6800PF 50V J |
| C305 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| C306 | HCBS1H104ZFT | CAP , CERAMIC | 0.1UF 50V Z |
| CN53 | CJP05GA01ZY | WAFER(YMW025-05R) | |
| R305 | CRG1ANJ391H | RES , METAL OXIDE FILM | 390 OHM 1W J |
| R306 | CRG1ANJ391H | RES , METAL OXIDE FILM | 390 OHM 1W J |
| R307 | CRD20TJ473T | RES , CARBON | 47K OHM 1/5W J |
| R308 | CRD20TJ473T | RES , CARBON | 47K OHM 1/5W J |
| RY72 | HSL4A004ZU | RELAY | OSA-SS-212DM3 |
| SP31 | CJJ5P012Z | TERMINAL , SPEAKER | |

| REF NO. | PART NO. | DESCRIPTION | REMARKS |
|------------|-----------------|--------------------------|-----------------|
| CUP12018-5 | | POWER BOARD | |
| AT21 | CJJ3G012Z | TERMINAL , ANT DAB | RF - 055A |
| BK21 | CMD1A387 | BRACKET , PCB | C715DABC ONLY |
| BK22 | CMD1A387 | BRACKET , PCB | |
| BN23 | CJP44TT153ZY | PIN , HEADER DAB(2.00MM) | DAB2025 |
| BN25 | CWB2B005250EN | WIRE ASS'Y | C715DABC ONLY |
| BN26 | CJP02TT155ZY | PIN , HEADER (2.54MM) | DAB2025 |
| BN53 | CWB1C005100BM | WIRE ASS'Y(5P, 100MM) | |
| BN94 | CWB1C011150BM | WIRE ASS'Y(11P, 150MM) | |
| C201 | CCME2A104JXT | CAP , METALLIZED FILM | HMFS104J2AP050T |
| C202 | HCQI1H103JZT | CAP , MYLAR | 0.01UF 50V J |
| C203 | HCQI1H103JZT | CAP , MYLAR | 0.01UF 50V J |
| C204 | CCET1HKLH332KK8 | CAP , ELECT | 3300UF 50V |
| C205 | CCET1HKLH332KK8 | CAP , ELECT | 3300UF 50V |
| C206 | HCQI1H103JZT | CAP , MYLAR | 0.01UF 50V J |
| C207 | HCQI1H103JZT | CAP , MYLAR | 0.01UF 50V J |
| C208 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V |
| C209 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V |
| C210 | CCFT1H223ZF | CAP , CERAMIC | 0.022UF 50V Z |
| C211 | CCEA1CH470T | CAP , ELECT | 47UF 16V |
| C212 | CCEA1CH470T | CAP , ELECT | 47UF 16V |
| C213 | CCFT1H223ZF | CAP , CERAMIC | 0.022UF 50V Z |
| C214 | CCEA1AH471T | CAP , ELECT | 470UF 10V |
| C215 | CCFT1H223ZF | CAP , CERAMIC | 0.022UF 50V Z |
| C216 | CCFT1H223ZF | CAP , CERAMIC | 0.022UF 50V Z |
| C217 | CCEA1CH101T | CAP , ELECT | 100UF 16V |
| C219 | CCEA1AH471T | CAP , ELECT | 470UF 10V |
| C220 | CCEA1CH101T | CAP , ELECT | 100UF 16V |
| C221 | CCFT1H223ZF | CAP , CERAMIC | 0.022UF 50V Z |
| C223 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z |
| C224 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z |
| C225 | CCEA1CH102E | CAP , ELECT | 1000UF 16V |
| C226 | CCEA1CH102E | CAP , ELECT | 1000UF 16V |
| C227 | CCEA1EH222E | CAP , ELECT | 2200UF 25V |
| C228 | CCEA1EH222E | CAP , ELECT | 2200UF 25V |
| C229 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z |
| C230 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z |
| C232 | CCFT1H223ZF | CAP , CERAMIC | 0.022UF 50V Z |
| C233 | CCEA1EH331T | CAP , ELECT | 330UF 25V |
| C234 | CCEA1CH101T | CAP , ELECT | 100UF 16V |
| C235 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z |
| C236 | CCEA1EH471E | CAP , ELECT | 470UF/25V |
| C237 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z |
| C238 | KCKDKS472ME | CAP , CERAMIC(X1/Y2/SC) | 0.0047UF/2.5KV |
| C241 | CCEA1EH102E | CAP , ELECT | 1000UF 25V |
| C241 | CCEA1EH331T | CAP , ELECT | 330UF 25V |
| C243 | CCFT1H103ZF | CAP , CERAMIC | 0.01UF 50V Z |
| C245 | CCFT1H103ZF | CAP , CERAMIC | 0.01UF 50V Z |
| C246 | CCEA1EH102E | CAP , ELECT | 1000UF 25V |
| C247 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z |
| CN24 | CJP08GA01ZY | WAFER, STRAIGHT, 8PIN | |
| CN91 | CJP02KA060ZY | WAFER | |
| CN92 | CJP02GA89ZY | WAFER | |
| CN93 | CJP03GA90ZY | WAFER | |
| D201 | HVDPBU604F | DIODE , BRIDGE | US PBU604F |
| D202 | CVD1N4003ST | DIODE , RECT | 1N4003 |
| D203 | CVD1N4003ST | DIODE , RECT | 1N4003 |
| D204 | CVD1N4003ST | DIODE , RECT | 1N4003 |
| D205 | CVD1N4003ST | DIODE , RECT | 1N4003 |
| D207 | CVD1SS133MT | DIODE | 1SS133 |
| D208 | HVDMTZJ6.2BT | DIODE , ZENER | 6.2V |
| D209 | CVD1SS133MT | DIODE | 1SS133 |
| D210 | CVD1N4003SRT | DIODE , RECT | 1N4003 |
| D211 | CVD1N4003SRT | DIODE , RECT | 1N4003 |
| D212 | CVD1N4003SRT | DIODE , RECT | 1N4003 |

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|------|-----------------|----------------------|-------------------|-----------------|
| D213 | CVD1N4003SRT | DIODE , RECT | 1N4003 | |
| D214 | CVD1N4003ST | DIODE , RECT | 1N4003 | |
| D215 | CVD1N4003ST | DIODE , RECT | 1N4003 | |
| D216 | CVD1N4003ST | DIODE , RECT | 1N4003 | |
| D217 | CVD1N4003ST | DIODE , RECT | 1N4003 | |
| ET91 | CNE75 | PLATE , EARTH | | |
| F751 | KBA2C2000TLEZ | FUSE | T 2A L 250V | C715DABC, C715C |
| F751 | KBA2C3000TLUZ | FUSE | SB 3A 250V | C715AH ONLY |
| IC21 | HVI74HC4066D | I.C , SWITCHING | 74HC4066D | C715DABC ONLY |
| IC91 | CVIKIA7812A | I.C , REGULATOR | + 12V | |
| IC92 | CVIKIA7912A | I.C , REGULATOR | - 12V | |
| IC93 | CVIKIA7805A | I.C , REGULATOR | + 5V | C715DABC ONLY |
| IC93 | HVIKA78L05AZT | I.C , REGULATOR | + 5V | C715C, C715AH |
| IC94 | CVIKIA7805A | I.C , REGULATOR | + 5V | C715DABC ONLY |
| IC95 | HVILM1117S-ADJ | I.C , REGULATOR | LM1117-ADJ | C715DABC ONLY |
| JK21 | HJSTOTX177L | MODULE , OPTICAL(TX) | TOTX177L | |
| Q201 | HVTKRC107MT | T.R | KRC107M | C715DABC ONLY |
| Q207 | HVTKRC107MT | T.R | KRC107M | |
| Q208 | HVTKSC2316YT | T.R | KSC2316Y | |
| R201 | CRD25TJ183T | RES , CARBON | 18K OHM 1/4W J | |
| R202 | CRD25TJ183T | RES , CARBON | 18K OHM 1/4W J | |
| R203 | CRD20TJ473T | RES , CARBON | 47K OHM 1/5W J | C715DABC ONLY |
| R204 | CRD20TJ473T | RES , CARBON | 47K OHM 1/5W J | C715DABC ONLY |
| R205 | CRD20TJ391T | RES , CARBON | 20K OHM 1/5W J | C715DABC ONLY |
| R206 | CRD20TJ221T | RES , CARBON | 220 OHM 1/5W J | C715DABC ONLY |
| R207 | CRD20TJ103T | RES , CARBON | 10K OHM 1/5W J | C715DABC ONLY |
| R208 | CRD20TJ1R0T | RES , CARBON | 1 OHM 1/5W J | C715DABC ONLY |
| R209 | CRD20TJ102T | RES , CARBON | 1K OHM 1/5W J | C715DABC ONLY |
| R210 | CRD20TJ152T | RES , CARBON | 1.5K OHM 1/5W J | C715DABC ONLY |
| R211 | CRD20TJ472T | RES , CARBON | 4.7K OHM 1/5W J | C715DABC ONLY |
| R213 | CRD20TJ562T | RES , CARBON | 5.6K OHM 1/5W J | C715DABC ONLY |
| R214 | CRD20TJ562T | RES , CARBON | 5.6K OHM 1/5W J | C715DABC ONLY |
| R216 | HRDERC12UGK335T | RES , CARBON | ERC12UGK 3.3M OHM | |
| R218 | CRD20TJ122T | RES , CARBON | 1.2K OHM 1/5W J | |
| R219 | CRQ1AJR47H | RES , FUSE | | |
| R220 | CRQ1AJR47H | RES , FUSE | | |
| R221 | CRD25TJ183T | RES , CARBON | | |
| R222 | CRD25TJ183T | RES , CARBON | | |
| R223 | CRQ1AJR47H | RES , FUSE | | |
| R224 | CRQ1AJR47H | RES , FUSE | | |
| RY71 | HSL1D016ZE | RELAY | SDT-S-109DMR | |
| T701 | CLT5I002ZE | TRANS , SUB | | |
| T701 | CLT5I002ZU | TRANS , SUB | | |
| WF21 | CJP13GA117ZY | WAFER , CARD CABLE | | |

| REF NO. | PART NO. | DESCRIPTION | | REMARKS |
|------------|---------------|---------------------------|-----------------|---------|
| CUP12018-6 | | AMP BOARD | | |
| BK23 | CMD1A387 | BRACKET , PCB | | |
| BK24 | CMD1A387 | BRACKET , PCB | | |
| BN61 | CWB2B003180EN | WIRE ASS'Y(3P, 180MM) | | |
| C603 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C604 | CCEA1HH4R7T | CAP , ELECT | 4.7UF 50V | |
| C607 | CCEA1HH101T | CAP , ELECT | 100UF 50V | |
| C608 | CCEA1HH101T | CAP , ELECT | 100UF 50V | |
| C621 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z | |
| C622 | CCEA1HH470T | CAP , ELECT | 47UF 50V | |
| C623 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z | |
| C624 | CCEA1HH470T | CAP , ELECT | 47UF 50V | |
| C625 | CCFT1H104ZF | CAP , SEMICONDUCTOR | 0.1UF 50V Z | |
| C627 | HCQI1H682JZT | CAP , MYLAR | 6800PF 50V J | |
| C628 | HCQI1H682JZT | CAP , MYLAR | 6800PF 50V J | |
| C631 | CCME2A104JXT | CAP , METALLIZED FILM | HMFS104J2AP050T | |
| C632 | CCME2A104JXT | CAP , METALLIZED FILM | HMFS104J2AP050T | |
| CN25 | CJP05GA19ZY | WAFER , STRAIGHT | | |
| CN62 | CJP05GA01ZY | WAFER(YMW025-05R) | | |
| IC61 | CVITDA7292 | I.C , AMP | 40WX2CH | |
| L601 | KLZ9H001Z | BEAD , CORE | | |
| L602 | KLZ9H001Z | BEAD , CORE | | |
| R603 | CRD25TJ183T | RES , CARBON | 18K OHM 1/4W J | |
| R604 | CRD20TJ183T | RES , CARBON | 18K OHM 1/5W J | |
| R605 | CRD25TJ102T | RES , CARBON | 1K OHM 1/4W J | |
| R606 | CRD20TJ102T | RES , CARBON | 1K OHM 1/5W J | |
| R607 | CRD25TJ822T | RES , CARBON | 8.2K OHM 1/5W J | |
| R608 | CRD25TJ822T | RES , CARBON | 8.2K OHM 1/5W J | |
| R621 | CRD20TJ104T | RES , CARBON | 100K OHM 1/5W J | |
| R631 | KRG1SANJ4R7RT | RES , METAL(OXIDE)FILM,5% | 4.7/1W(RADIAL) | |
| R632 | KRG1SANJ4R7RT | RES , METAL(OXIDE)FILM,5% | 4.7/1W(RADIAL) | |

Service Hint

Product: C715

Hardware Technical Bulletin: C715-H2009-01

Date: APRIL 1 2009

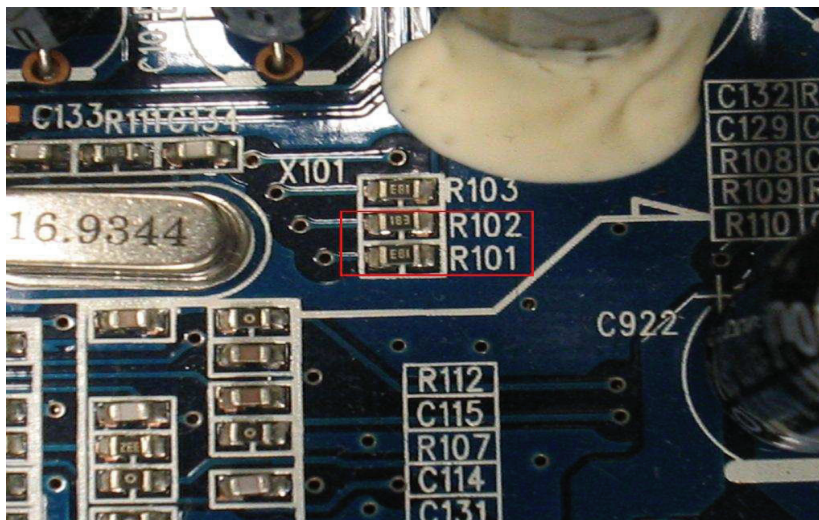
Subject: TRAY FUNCTIONALITY

Note: This condition only affects a small number of units produced with this batch of leaf switches

DESCRIPTION: CD tray may not open or close.

REASON: The tray sense switch can grow tiny conductive "whiskers" across it's contact pads shorting the switch and preventing the tray from opening/closing.

SOLUTION: Change the value of R101 and R731102 from 18K to 470 ohm to increase the current flow across each contact switch pads eliminating the "WHISKERS". Resistor 470R 1/8w SMD 0805.



SERVICE MANUAL

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