Contents

CAUTION: THE BOSE® LIFESTYLE® 235 MODULE CONTAINS NO USER SERVICEABLE PARTS. TO PREVENT WARRANTY INFRACTIONS, REFER SERVICING TO WARRANTY SERVICE STATIONS OR FACTORY SERVICE.

SAFETY INFORMATION

1. Parts that have special safety characteristics are identified by the  symbol on schematics or by special notes on the parts list. Use only replacement parts that have critical characteristics recommended by the manufacturer.

2. Make leakage current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the unit to the customer.
Use the following checks to perform these measurements:

A. Leakage Current Hot Check-With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 “Leakage Current for Appliances” and Underwriters Laboratories (UL) 6500/60065 / IEC 60065 paragraph 9.1.1. With the unit AC switch first in the ON position and then in OFF position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the unit (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse the unit power cord plug in the outlet and repeat test. ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE UNIT TO THE CUSTOMER.

B. Insulation Resistance Test Cold Check-(1) Unplug the power supply and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the unit. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and each exposed metallic cabinet part on the unit. When testing 3 wire products, the resistance measured to the product enclosure should be between 2 and infinite MOhms. Also, the resistance measured to exposed input/output connectors should be between 4 and infinite MOhms. When testing 2 wire products, the resistance measured to exposed input/output connectors should be between 4 and infinite MOhms. If it is not within the limits specified, there is the possibility of a shock hazard, and the unit must be repaired and rechecked before it is returned to the customer.

ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICE HANDLING

This unit contains ESDS devices. We recommend the following precautions when repairing, replacing or transporting ESDS devices:

• Perform work at an electrically grounded work station.

• Wear wrist straps that connect to the station or heel straps that connect to conductive floor mats.

• Avoid touching the leads or contacts of ESDS devices or PC boards even if properly grounded. Handle boards by the edges only.

• Transport or store ESDS devices in ESD protective bags, bins, or totes. Do not insert unprotected devices into materials such as plastic, polystyrene foam, clear plastic bags, bubble wrap or plastic trays.

Product Description

The Lifestyle® 235 Home Entertainment System consists of a control console (AV35), an Acoustimass® module, two Gemstone® ES speaker arrays, and a remote control (RC23).

System Features:

- Unify intelligent integration system to help you easily add devices to your system
- ADAPTiQ audio calibration system that optimizes system performance for your room
- RF remote control
- HDMI® connectivity
- Video up-conversion to 1080p
- Photo viewing using a USB flash drive
- Interface and dock compatible with iPod/iPhone devices
- AM/FM radio
- Can deliver sound in up to 14 additional rooms or locations

Note: Refer to the AV35 console service manual 317084-SM for to service the console.

Specifications

Remote control
Frequency: 2.4 GHz
Range: 33 ft (10 m)

Control console power supply rating
AC input: 100-240V 50/60 Hz, 0.5A
DC output: 12V 20W Max.

Acoustimass® module rating
USA/Canada: 100-120V 50/60 Hz 350W
International: 220-240V 50/60 Hz 350W
Dual voltage: 100-120/220-240V 50/60 Hz 350W

Part List Notes

1. This part is not normally available from customer service. Approval from the Field Service Manager is required before ordering.

2. The individual parts located on the PCB are listed in the part list.

3.  This part is critical for safety purposes. Failure to use a substitute replacement with the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards.

System Components

Refer to the AV35 STCH manual for Series III components and packaging

Description	Part Number	Qty	Note
REMOTE, RF, RC35T-L, USA/EU	314596-009	1	
CONSOLE ASSY, AV-25/35, US, SERVICE CONSOLE ASSY, AV-25/35, EURO, SERVICE CONSOLE ASSY, AV-25/35, JAPAN, SERVICE CONSOLE ASSY, AV-25/35, APAC, SERVICE	330769-151S 330769-254S 330769-351S 330769-551S	1	
BASSBOX ASSY, LS235, DUAL, BLK, SERVICE BASSBOX ASSY, LS235, 230V, BLK, SERVICE BASSBOX ASSY, LS235, 230V, WHT, SERVICE	326084-610S 326084-213S 326084-223S	1	
ARRAY ASSY, RIGHT, BLACK ARRAY ASSY, RIGHT, WHITE	330391-0010 330391-0020	1	
ARRAY ASSY, LEFT, BLACK ARRAY ASSY, LEFT, WHITE	330391-0110 330391-0120	1	
DOCK, IPOD, LIFESTYLE	318585-1011	1	
DRIVE, FLASH, USB W/O SILICONE CASE	353201-0010	1	
CABLE, DIN-9/DIN-9	302580-1001	1	
CABLE, ARRAY, 9PIN, BLACK CABLE, ARRAY, 9PIN, WHITE	331294-1010 331294-0020	1	
CABLE, HDMI	326853-0110	1	
CABLE, RCA, 6 FT	185931-101	1	
LINE CORD , 120V, US LINE CORD, 220V, EUR, DET, BLK, 1500 LINE CORD, 230V, UKS, DET, BLK, 1500 LINE CORD, 100V, JPN, DET, BLK, 1500 LINE CORD, 230V, KOREA, BLK, 1500 LINE CORD, 240V, AUS, DET, BLK, 1500	258491-101 280135-1310 280138-1310 280136-1310 311668-1310 284243-1310	2	3 
PWR PACK, FLR, UNVSL, 12V, 20W, BLK	316263-103	1	3 
3 EMITTER IR DONGLE	324714-1010	1	
ANTENNA, FM DIPOLE, F CONN ANTENNA, FM DIPOLE, PAL CONN	347426-0010 347423-0010	1	
ANTENNA ASSY, AM, CD20	199824-002	1	
FOOT, CLEAR, .312x.085, 4'	178321-0	2	
BUMPER, RECESSED, FOOT, .88"	142839	4	
KIT, ADAPTIQ® HEADSET	307702-001	1	
GUIDE, SETUP, AIM GUIDE, SETUP, EUROPE GUIDE, SETUP, APAC GUIDE, SETUP, BKK	328338-0010 328339-0010 328340-0010 328779-0010	1	
GUIDE, OPERATING, AIM GUIDE, OPERATING, EUROPE GUIDE, OPERATING, APAC GUIDE, OPERATING, BKK	343989-0010 343990-0010 343991-0010 343992-0010		
REMOTE BATTERY DOOR	322542-001S	1	

System Packaging

Refer to the AV35 STCH manual for Series III components and packaging

Refer to page 4 for system component part numbers

Item	Description	Part Number	Qty
1	CONSOLE KIT, LS 235	-	1
	CARTON, CORR, D-C,20.25X16X5.88, 200	320600-0010	1
2	SAT PACK, GS ES ARRAY	-	1
	CARTON,, DC,200B, 9.88 X 16.00 X 4.25	328131-0010	1
	ARRAY CARTON,125E,6X2.63X4.38	328129-0010	2
3	ESSENTIALS KIT, LS 235	-	1
	CARTON,D-C,12.88X16.00X4.25	320599-0010	1
	PACKING,TRAY, PULP	321500-0010	1
4	CARTON, RSC	348414-0010	1
5	PACKING,FOAM,EPS,BBOX	293513-001	1
6	PACKING,FOAM,EPS,BB-BTM	295444-001	1
7	BAG,POLY,HDPE	196638	1
8	COMMITMENT LETTER	251001	1
60	CARTON, HSC-FOL,D-C,CORR	325008-0010	1
61	LINE CORD KIT	-	1

Figure 1. Packaging View

Main Assembly Part List

Item	Description	Part Number	Qty	Note
1	PCB ASSY, LS235, POWER SUPPLY , DUAL V PCB ASSY, LS235, POWER SUPPLY, 230V EUP	301749-003 328923-001S	1	3
2	PCB DSP SLAB, LS235, SERVICE	329003-031S	1	
3	LABEL, I/O, D-SUB CONN	327478-0010	1	
4	CABLE, FFC, 10 POS	289482-10	1	3
5	GASKET, I/O CONNECTORS, D-SUB	327479-0010	1	
6	SHIELD, EMI, POWER PCB	286776-001	1	
7	HEATSINK, POWER AMP	286779-001	1	
8	CLIP, SPRING	142864	1	
9	HEATSINK, TWID AMP	289739-002	1	
10	PAD, SIL, TWID AMPS	289734-001	1	
11	PAD, SIL, BASS AMP	289735-001	1	
12	COVER, AMP, D-SUB, BLACK COVER, AMP, D-SUB, WHITE	312274-021 312274-022	1	
13	BRACKET, AMP COVER SECURE	286955-001	2	
14	SPACER, POWER AMP, WEB	313593-001	1	
15	SCREW, TAPP, 8-11x.75, PAN, XRC/SQ	289388-012	18	
16	SCREW, TT, 8-32X0.5, PAN, XREC/SQ (BLACK) SCREW, 8-32X.5, RLX, PN, QDRX, ZNC (WHITE)	289393-008 292354-08	10	
17	SCREW, TAPP, 8-11x.437, PAN, XRC/S	289388-007	6	
18	SCREW, TORX, , 5-15X..625, ROUND HD, POLYFAST	320005-0010	3	
19	SCREW, TAPP, M3.5x16, PAN, TRX	288593-010	3	
20	SCREW, 8-32X.87, RLX, PN, QDRX, ZNC	292354-14	7	
21	GASKETING, EMI	256826-003	1	
22	GASKET, EMI, ELASTOMER, Ni/C	294531-001	1	
23	SCREW, TT, 8-32X2.00, PAN, XREC/SQ	289393-032	2	
24	BAFFLE, STEEL, PLATE	293243-001	1	
25	LOGO, BOSE, BLACK LOGO, BOSE, WHITE	286744-101 286744-102	2	
-	CABLE, DC POWER	289873-101	1	3
-	CABLE, AC POWER	289872-101	1	3

Note: The woofers are not accessible
Item numbers reference call outs in Figure 2 on next page

Item number call outs are referenced in the main assembly part list on the previous page

The woofers are not accessible

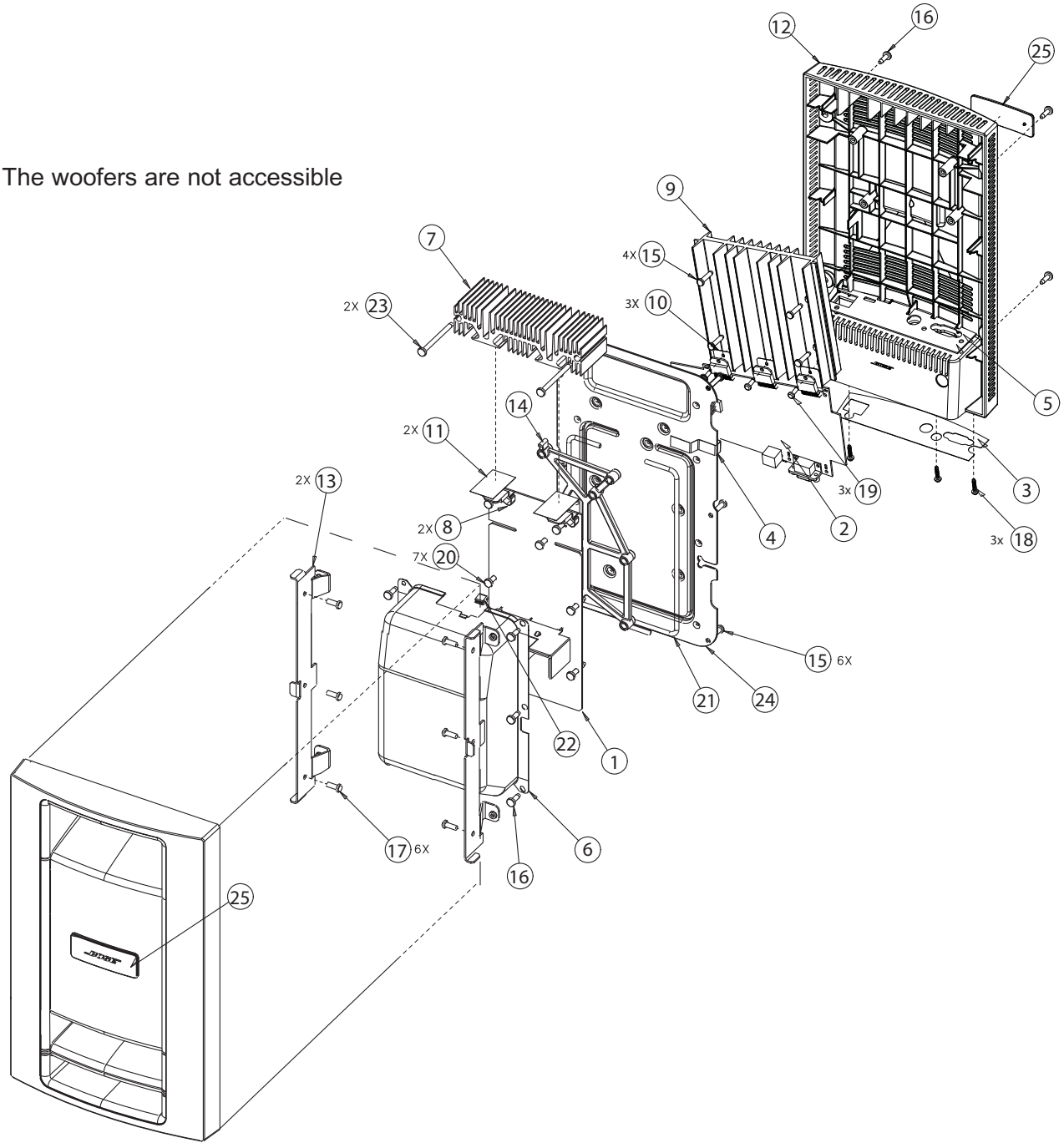


Figure 2. Main Assembly Part List

DSP PCB Part List

Resistors

Reference Designator	Description	Part Number	Note
R3	7.87K, 0603, .1W, 1%	191465-7871	
R4	15K, 0603, .1W, 1%	191465-1502	
R7	4.75K, 0603, .1W, 1%	191465-4751	
R8	4.75K, 0603, .1W, 1%	191465-4751	
R9	7.15K, 0603, .1W, 1%	191465-7151	
R10	10K, 0603, .1W, 1%	191465-1002	
R11	10K, 0603, .1W, 1%	191465-1002	
R20	47.5K, 0603, .1W, 1%	191465-4752	
R21	470 OHMS, 0603, .1W, 5%	199403-471	
R38	1.82K, 0603, 1/10W, 1%	191465-1821	
R40	1.82K, 0603, 1/10W, 1%	191465-1821	
R42	7.5K, 0603, .1W, 1%	191465-7501	
R43	7.5K, 0603, .1W, 1%	191465-7501	
R47	274 OHM, 0603, .1W, 1%	191465-2740	
R51	274 OHM, 0603, .1W, 1%	191465-2740	
R69	1.82K, 0603, 1/10W, 1%	191465-1821	
R70	1.82K, 0603, 1/10W, 1%	191465-1821	
R71	1.82K, 0603, 1/10W, 1%	191465-1821	
R72	7.5K, 0603, .1W, 1%	191465-7501	
R73	7.5K, 0603, .1W, 1%	191465-7501	
R74	7.5K, 0603, .1W, 1%	191465-7501	
R75	274 OHM, 0603, .1W, 1%	191465-2740	
R76	274 OHM, 0603, .1W, 1%	191465-2740	
R77	274 OHM, 0603, .1W, 1%	191465-2740	
R78	330 OHMS, 0603, .1W, 5%	199403-331	
R79	330 OHMS, 0603, .1W, 5%	199403-331	
R81	100 OHM, 0603, .1W, 5%	199403-101	
R82	100 OHM, 0603, .1W, 5%	199403-101	
R83	100 OHM, 0603, .1W, 5%	199403-101	
R84	100 OHM, 0603, .1W, 5%	199403-101	
R90	20 OHM, 0805, 1/10W, 5%	133626-2005	
R101	47.5K, 0603, .1W, 1%	191465-4752	
R102	47.5K, 0603, .1W, 1%	191465-4752	
R111	17.4K, 0603, .1W, 1%	191465-1742	
R112	10K, 0603, .1W, 1%	191465-1002	
R114	4.70 OHM, 0603, 100MW, 1%, SMD	191465-4R70	
R115	ARRAY, SMT, 4 POS, 5%, 10K	186433-1034	
R710	4.75K, 0603, .1W, 1%	191465-4751	
R711	4.75K, 0603, .1W, 1%	191465-4751	
R712	4.75K, 0603, .1W, 1%	191465-4751	
R713	4.75K, 0603, .1W, 1%	191465-4751	
R714	100 OHM, 0603, .1W, 5%	199403-101	
R717	47.5K, 0603, .1W, 1%	191465-4752	
R718	100K, 0603, .1W, 1%	191465-1003	
R719	332K, 0603, .1W, 1%	191465-3323	
R720	2K, 0603, .1W, 1%	191465-2001	
R721	365 OHM, 0603, .1W, 1%	191465-3650	
R722	11K, 0603, .1W, 1%	191465-1102	
R723	7.87K, 0603, .1W, 1%	191465-7871	
R724	2.0 OHM, 0603, SMD, 100mW	199403-2R0	
R738	10K, 0603, .1W, 1%	191465-1002	
R739	10K, 0603, .1W, 1%	191465-1002	

DSP PCB Part List

Resistors

Reference Designator	Description	Part Number	Note
R746	1.02K, 0603, .1W, 1%	191465-1021	
R747	1.02K, 0603, .1W, 1%	191465-1021	
R748	1.62K, 0603, .1W, 1%	191465-1621	
R800	1.02K, 0603, .1W, 1%	191465-1021	
R801	9.09K, 0603, .1W, 1%	191465-9091	
R802	9.09K, 0603, .1W, 1%	191465-9091	
R803	9.09K, 0603, .1W, 1%	191465-9091	
R805	1.02K, 0603, .1W, 1%	191465-1021	
R806	1.02K, 0603, .1W, 1%	191465-1021	
R807	1.02K, 0603, .1W, 1%	191465-1021	
R809	560 OHM, 0603, .1W, 1%	191465-5600	
R810	560 OHM, 0603, .1W, 1%	191465-5600	
R811	300 OHMS, 0603, .1W, 5%	199403-301	
R812	9.09K, 0603, .1W, 1%	191465-9091	
R818	9.09K, 0603, .1W, 1%	191465-9091	
R819	9.09K, 0603, .1W, 1%	191465-9091	
R820	2.0 OHM, 0603, SMD, 100mW	199403-2R0	
R821	2.0 OHM, 0603, SMD, 100mW	199403-2R0	
R823	2.0 OHM, 0603, SMD, 100mW	199403-2R0	
R825	4.70 OHM, 0603, 100MW, 1%, SMD	191465-4R70	
R828	4.70 OHM, 0603, 100MW, 1%, SMD	191465-4R70	
R829	100K, 0603, .1W, 1%	191465-1003	
R830	100K, 0603, .1W, 1%	191465-1003	
R832	100K, 0603, .1W, 1%	191465-1003	
R833	100K, 0603, .1W, 1%	191465-1003	
R834	100K, 0603, .1W, 1%	191465-1003	
R835	100K, 0603, .1W, 1%	191465-1003	
R836	47.5K, 0603, .1W, 1%	191465-4752	
R837	47.5K, 0603, .1W, 1%	191465-4752	
R838	5.1K, 0603, .1W, 5%	199403-512	
R900	9.09K, 0603, .1W, 1%	191465-9091	
R901	9.09K, 0603, .1W, 1%	191465-9091	
R902	1.02K, 0603, .1W, 1%	191465-1021	
R903	1.02K, 0603, .1W, 1%	191465-1021	
R904	560 OHM, 0603, .1W, 1%	191465-5600	
R905	560 OHM, 0603, .1W, 1%	191465-5600	
R907	9.09K, 0603, .1W, 1%	191465-9091	
R909	9.09K, 0603, .1W, 1%	191465-9091	
R910	2.0 OHM, 0603, SMD, 100mW	199403-2R0	
R911	2.0 OHM, 0603, SMD, 100mW	199403-2R0	
R912	56K, 0603, .1W, 5%	199403-563	
R913	4.70 OHM, 0603, 100MW, 1%, SMD	191465-4R70	
R914	4.70 OHM, 0603, 100MW, 1%, SMD	191465-4R70	
R915	15K, 0603, .1W, 1%	191465-1502	
R917	56K, 0603, .1W, 5%	199403-563	
R919	15K, 0603, .1W, 1%	191465-1502	
R920	75K, 0603, .1W, 5%	199403-753	
R921	5.1K, 0603, .1W, 5%	199403-512	
R922	56K, 0603, .1W, 5%	199403-563	
R923	15K, 0603, .1W, 1%	191465-1502	
R924	56K, 0603, .1W, 5%	199403-563	
R925	15K, 0603, .1W, 1%	191465-1502	

DSP PCB Part List

Resistors

Reference Designator	Description	Part Number	Note
R926	75K, 0603, .1W, 5%	199403-753	
R927	5.1K, 0603, .1W, 5%	199403-512	
R7128	10K, 0603, .1W, 1%	191465-1002	
R7129	10K, 0603, .1W, 1%	191465-1002	
R7130	100K, 0603, .1W, 1%	191465-1003	
R7131	18.2K, 0603, .1W, 1%	191465-1822	
R7134	1.02K, 0603, .1W, 1%	191465-1021	
R7135	4.75K, 0603, .1W, 1%	191465-4751	
R7136	4.75K, 0603, .1W, 1%	191465-4751	
R7137	4.75K, 0603, .1W, 1%	191465-4751	
R7138	4.75K, 0603, .1W, 1%	191465-4751	
R7139	4.75K, 0603, .1W, 1%	191465-4751	
R7140	4.75K, 0603, .1W, 1%	191465-4751	
R7141	4.75K, 0603, .1W, 1%	191465-4751	
R7142	4.75K, 0603, .1W, 1%	191465-4751	
R7143	4.75K, 0603, .1W, 1%	191465-4751	
R7144	4.75K, 0603, .1W, 1%	191465-4751	
R7145	4.75K, 0603, .1W, 1%	191465-4751	
R7146	4.75K, 0603, .1W, 1%	191465-4751	
R7147	4.75K, 0603, .1W, 1%	191465-4751	
R7149	750 OHM, 0603, .1W, 1%	191465-7500	
R7150	750 OHM, 0603, .1W, 1%	191465-7500	
R7151	750 OHM, 0603, .1W, 1%	191465-7500	
R7152	9.09K, 0603, .1W, 1%	191465-9091	
R7153	JUMPER, CHIP, 0603	196042	
R7154	100K, 0603, .1W, 1%	191465-1003	
R7155	4.75K, 0603, .1W, 1%	191465-4751	
R9213	2.32K, 0603, .1W, 1%	191465-2321	
R9214	2.32K, 0603, .1W, 1%	191465-2321	
R9215	750 OHM, 0603, .1W, 1%	191465-7500	
R9216	750 OHM, 0603, .1W, 1%	191465-7500	
R9226	1 OHM, 0805, 1/10W, 5%	133626-1R05	
R9227	1 OHM, 0805, 1/10W, 5%	133626-1R05	
R9228	1 OHM, 0805, 1/10W, 5%	133626-1R05	
R9229	1 OHM, 0805, 1/10W, 5%	133626-1R05	
R9230	5.1K, 0603, .1W, 5%	199403-512	
R9231	5.1K, 0603, .1W, 5%	199403-512	
R9232	100K, 0603, .1W, 1%	191465-1003	
R9233	1.62K, 0603, .1W, 1%	191465-1621	
R9234	150 OHMS, 0603, .1W, 1%	191465-1500	
R9235	10K, 0603, .1W, 1%	191465-1002	
R9236	7.15K, 0603, .1W, 1%	191465-7151	
R9237	49.9K, 0603, .1W, 1%	191465-4992	
R9238	2.32K, 0603, .1W, 1%	191465-2321	
R9239	9.09K, 0603, .1W, 1%	191465-9091	
R9242	10 OHM, 0603, .1W, 5%	199403-100	
R9243	10 OHM, 0603, .1W, 5%	199403-100	
R9245	1.62K, 0603, .1W, 1%	191465-1621	
R9251	1.00K, 0805, 1/10W, 5%	133626-1025	
R9259	JUMPER, CHIP, 0603	196042	
R9260	JUMPER, CHIP, 0603	196042	
R9261	JUMPER, CHIP, 0603	196042	

DSP PCB Part List

Resistors

Reference Designator	Description	Part Number	Note
R9286	10K, 0603, .1W, 1%	191465-1002	
R9287	1.02K, 0603, .1W, 1%	191465-1021	
R9288	7.32K, 0603, .1W, 1%	191465-7321	
R9292	1.02K, 0603, .1W, 1%	191465-1021	
R9293	2.32K, 0603, .1W, 1%	191465-2321	
R9297	33.2K, 0603, .1W, 1%	191465-3322	
R9298	100 OHM, 0603, .1W, 5%	199403-101	
R9299	1.02K, 0603, .1W, 1%	191465-1021	
R9300	7.87K, 0603, .1W, 1%	191465-7871	
R9301	1.02K, 0603, .1W, 1%	191465-1021	
R9302	10K, 0603, .1W, 1%	191465-1002	
R9303	8.45K, 0603, .1W, 1%	191465-8451	
R9304	1.02K, 0603, .1W, 1%	191465-1021	

Capacitors

Reference Designator	Description	Part Number	Note
C1	.033uF, 0603, X7R, 50V, 10%	191470-333	
C2	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C3	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C4	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C5	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C6	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C8	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C9	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C10	180pF, 0603, COG, 50V	188454-181	
C11	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C12	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C13	10uF, EL, 85, 16V, 20%	177902-100C	
C17	.01uF, 0603, X7R, 50V	191470-103	
C18	.01uF, 0603, X7R, 50V	191470-103	
C20	22pF, 0603, COG, 50V, 5%	188454-220	
C22	22pF, 0603, COG, 50V, 5%	188454-220	
C25	680 pF, 0603, COG, SMD, 25V, 5%	268368-681	
C26	680 pF, 0603, COG, SMD, 25V, 5%	268368-681	
C28	1.0nF , 0603, COG, SMD, 25V, 5%	268368-102	
C30	1.0nF , 0603, COG, SMD, 25V, 5%	268368-102	
C44	680 pF, 0603, COG, SMD, 25V, 5%	268368-681	
C45	680 pF, 0603, COG, SMD, 25V, 5%	268368-681	
C46	680 pF, 0603, COG, SMD, 25V, 5%	268368-681	
C47	1.0nF , 0603, COG, SMD, 25V, 5%	268368-102	
C48	1.0nF , 0603, COG, SMD, 25V, 5%	268368-102	
C51	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C52	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C53	1.0nF , 0603, COG, SMD, 25V, 5%	268368-102	
C57	4700pF, 0603, X7R, 50V	191470-472	
C58	4700pF, 0603, X7R, 50V	191470-472	
C92	4.7pF, 0603, COG, 50V	188454-4R7	
C125	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C126	33000pF, X7R SMD, 0603, 25V	257154-333K25	

DSP PCB Part List

Capacitors

Reference Designator	Description	Part Number	Note
C127	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C128	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C129	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C130	10uF, EL, 85, 16V, 20%	177902-100C	
C132	10uF, EL, 85, 16V, 20%	177902-100C	
C135	22uF, EL, 85, 20%, 16V	177902-220C	
C137	10uF EL, 85, 20%, 35V	177902-100V	
C138	10uF, EL, 85, 16V, 20%	177902-100C	
C139	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C140	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C141	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C142	100pF, 0603, COG, 50V, 5%	188454-101	
C143	0.1uF, x7r, 0603, 10%, 50V	191470-104	
C144	2200pF, 0603, X7R, 50V	191470-222	
C145	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C146	470pF, 0603, COG, 50V, 5%	188454-471	
C147	.01uF, 0603, X7R, 50V	191470-103	
C150	0.1uF, x7r, 0603, 10%, 50V	191470-104	
C151	0.01uF , 0805, X7R, 50V, 10%	286499-103	3 ⚠
C153	100uF , 7343, tant, 10%, lo-R, 10V	275411-107	
C154	.047uF, 0603, X7R, 50V	191470-473	
C155	1uF, EL, 85, 50V, 20%	177902-010H	
C162	EL, SMD, 105, 35V, 20%, 47uF	306169-470VF	
C163	180pF, 0603, COG, 50V	188454-181	
C164	180pF, 0603, COG, 50V	188454-181	
C165	180pF, 0603, COG, 50V	188454-181	
C166	180pF, 0603, COG, 50V	188454-181	
C201	180pF, 0603, COG, 50V	188454-181	
C202	180pF, 0603, COG, 50V	188454-181	
C700	22pF , COG, 0402, 50V, 5%	268364-220	
C701	22pF , COG, 0402, 50V, 5%	268364-220	
C704	22pF , COG, 0402, 50V, 5%	268364-220	
C705	22pF , COG, 0402, 50V, 5%	268364-220	
C706	22pF , COG, 0402, 50V, 5%	268364-220	
C707	22pF , COG, 0402, 50V, 5%	268364-220	
C708	22pF , COG, 0402, 50V, 5%	268364-220	
C709	22pF , COG, 0402, 50V, 5%	268364-220	
C710	22pF , COG, 0402, 50V, 5%	268364-220	
C711	22pF , COG, 0402, 50V, 5%	268364-220	
C712	22pF , COG, 0402, 50V, 5%	268364-220	
C713	22pF , COG, 0402, 50V, 5%	268364-220	
C714	22pF , COG, 0402, 50V, 5%	268364-220	
C715	22pF , COG, 0402, 50V, 5%	268364-220	
C716	22pF , COG, 0402, 50V, 5%	268364-220	
C717	22pF , COG, 0402, 50V, 5%	268364-220	
C718	22pF , COG, 0402, 50V, 5%	268364-220	
C719	22pF , COG, 0402, 50V, 5%	268364-220	
C720	22pF , COG, 0402, 50V, 5%	268364-220	
C722	22pF , COG, 0402, 50V, 5%	268364-220	
C723	22pF , COG, 0402, 50V, 5%	268364-220	
C724	22pF , COG, 0402, 50V, 5%	268364-220	
C725	22pF , COG, 0402, 50V, 5%	268364-220	

DSP PCB Part List

Capacitors

Reference Designator	Description	Part Number	Note
C726	22pF , COG, 0402, 50V, 5%	268364-220	
C727	22pF , COG, 0402, 50V, 5%	268364-220	
C728	22pF , COG, 0402, 50V, 5%	268364-220	
C729	22pF , COG, 0402, 50V, 5%	268364-220	
C730	22pF , COG, 0402, 50V, 5%	268364-220	
C731	22pF , COG, 0402, 50V, 5%	268364-220	
C732	22pF , COG, 0402, 50V, 5%	268364-220	
C733	22pF , COG, 0402, 50V, 5%	268364-220	
C734	22pF , COG, 0402, 50V, 5%	268364-220	
C802	10uF, EL, 85, 16V, 20%	177902-100C	
C804	1uF, EL, 85, 50V, 20%	177902-010H	
C805	1uF, EL, 85, 50V, 20%	177902-010H	
C808	22uF, EL, 85, 20%, 16V	177902-220C	
C810	.01uF, 0603, X7R, 50V	191470-103	
C811	.01uF, 0603, X7R, 50V	191470-103	
C812	.047uF, 0603, X7R, 5%, 25V	196999-473	
C814	.0068uF, 0603, X7R, 50V	191470-682	
C815	.0068uF, 0603, X7R, 50V	191470-682	
C816	.047uF, 0603, X7R, 5%, 25V	196999-473	
C817	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C819	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C820	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C821	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C822	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C827	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C828	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C829	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C830	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C832	0.1uF , 0805, X7R, 50V, 10%	286499-104	3
C833	1000pF, 0603, X7R, 50V	191470-102	
C835	1000pF, 0603, X7R, 50V	191470-102	
C836	0.01uF , 0805, X7R, 50V, 10%	286499-103	3
C839	0.01uF , 0805, X7R, 50V, 10%	286499-103	3
C841	4.7pF, 0603, COG, 50V	188454-4R7	
C842	4.7pF, 0603, COG, 50V	188454-4R7	
C844	4.7pF, 0603, COG, 50V	188454-4R7	
C845	4.7pF, 0603, COG, 50V	188454-4R7	
C850	4.7pF, 0603, COG, 50V	188454-4R7	
C852	4.7pF, 0603, COG, 50V	188454-4R7	
C853	4.7pF, 0603, COG, 50V	188454-4R7	

DSP PCB Part List

Capacitors

Reference Designator	Description	Part Number	Note
C855	4.7pF, 0603, COG, 50V	188454-4R7	
C856	4.7pF, 0603, COG, 50V	188454-4R7	
C858	4.7pF, 0603, COG, 50V	188454-4R7	
C859	4.7pF, 0603, COG, 50V	188454-4R7	
C860	4.7pF, 0603, COG, 50V	188454-4R7	
C861	4.7pF, 0603, COG, 50V	188454-4R7	
C862	4.7pF, 0603, COG, 50V	188454-4R7	
C863	4.7pF, 0603, COG, 50V	188454-4R7	
C864	4.7pF, 0603, COG, 50V	188454-4R7	
C865	4.7pF, 0603, COG, 50V	188454-4R7	
C866	4.7pF, 0603, COG, 50V	188454-4R7	
C867	4.7pF, 0603, COG, 50V	188454-4R7	
C868	4.7pF, 0603, COG, 50V	188454-4R7	
C869	4.7pF, 0603, COG, 50V	188454-4R7	
C901	1uF, EL, 85, 50V, 20%	177902-010H	
C902	1uF, EL, 85, 50V, 20%	177902-010H	
C904	.01uF, 0603, X7R, 50V	191470-103	
C905	.01uF, 0603, X7R, 50V	191470-103	
C906	.0068uF, 0603, X7R, 50V	191470-682	
C907	.0068uF, 0603, X7R, 50V	191470-682	
C908	0.1uF , 0805, X7R, 50V, 10%	286499-104	3 
C911	0.1uF , 0805, X7R, 50V, 10%	286499-104	3 
C912	0.1uF , 0805, X7R, 50V, 10%	286499-104	3 
C913	0.1uF , 0805, X7R, 50V, 10%	286499-104	3 
C914	0.1uF , 0805, X7R, 50V, 10%	286499-104	3 
C915	0.1uF , 0805, X7R, 50V, 10%	286499-104	3 
C916	1000pF, 0603, X7R, 50V	191470-102	
C917	1000pF, 0603, X7R, 50V	191470-102	
C918	0.01uF , 0805, X7R, 50V, 10%	286499-103	3 
C919	0.01uF , 0805, X7R, 50V, 10%	286499-103	3 
C920	0.1uF, x7r, 0603, 10%, 50V	191470-104	
C921	0.1uF, x7r, 0603, 10%, 50V	191470-104	
C922	1000pF, 0603, X7R, 50V	191470-102	
C923	180pF, 0603, COG, 50V	188454-181	
C950	4.7pF, 0603, COG, 50V	188454-4R7	
C952	4.7pF, 0603, COG, 50V	188454-4R7	
C953	4.7pF, 0603, COG, 50V	188454-4R7	
C954	4.7pF, 0603, COG, 50V	188454-4R7	
C955	4.7pF, 0603, COG, 50V	188454-4R7	
C956	4.7pF, 0603, COG, 50V	188454-4R7	
C957	4.7pF, 0603, COG, 50V	188454-4R7	
C958	4.7pF, 0603, COG, 50V	188454-4R7	
C959	4.7pF, 0603, COG, 50V	188454-4R7	

DSP PCB Part List

Capacitors

Reference Designator	Description	Part Number	Note
C960	4.7pF, 0603, COG, 50V	188454-4R7	
C9203	10uF EL, 85, 20%, 35V	177902-100V	
C9204	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C9205	EL., SMD, 105, 50V, 20%, 22uF	306245-220FD	
C9206	EL., SMD, 105, 50V, 20%, 22uF	306245-220FD	
C9209	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C9210	470pF, 0603, COG, 50V, 5%	188454-471	
C9211	.022uF, 0603, X7R, 25V	196999-223	
C9212	.0068uF, 0603, X7R, 50V	191470-682	
C9213	7343, tant, 10%, lo-R, 47u/16V	275411-476	
C9216	180pF, 0805, COG, 50V, 5%	133622-181	
C9223	180pF, 0603, COG, 50V	188454-181	
C9224	180pF, 0603, COG, 50V	188454-181	
C9225	180pF, 0603, COG, 50V	188454-181	
C9226	180pF, 0603, COG, 50V	188454-181	
C9227	180pF, 0603, COG, 50V	188454-181	
C9236	0.1uF , 0805, X7R, 50V, 10%	286499-104	
C9237	.01uF, 0603, X7R, 50V	191470-103	
C9238	180pF, 0603, COG, 50V	188454-181	
C9239	180pF, 0603, COG, 50V	188454-181	
C9240	1.0uF, 1206, X7R, 16V	181998-105	
C9241	0.01uF , 0805, X7R, 50V, 10%	286499-103	3 ⚠
C9242	1210, X7R, 50V, 1.0uF, 10%	294151-105	
C9243	180pF, 0603, COG, 50V	188454-181	
C9245	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C9246	.047uF, 0603, X7R, 50V	191470-473	
C9247	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C9248	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C9249	33000pF, X7R SMD, 0603, 25V	257154-333K25	
C9251	1000pF, 0603, X7R, 50V	191470-102	
C9252	1000pF, 0603, X7R, 50V	191470-102	
C9253	1000pF, 0603, X7R, 50V	191470-102	
C9254	1000pF, 0603, X7R, 50V	191470-102	
C9260	10uF, EL, 85, 16V, 20%	177902-100C	

Diodes

Reference Designator	Description	Part Number	Note
D1	DIODE, SCHOTTKY, 70V, 2nS, BAS70, SOT-23	329354-0010	
D2	DIODE, ZEN, SOD-123, 6V, .5W, 5%	174265-5233	
D901	SWTCHING, SCHOTTKY, 1A/40V	195637-3	
D903	RECTIFYING, MINI-DIODE	188455-001	
D904	RECTIFYING, MINI-DIODE	188455-001	
DS1	LED, SMD, GREEN	256781-002	
DS2	LED, SMD, YELLOW	256781-003	
ZR1	DIODE, SOT-23, BAV 99	147239	

DSP PCB Part List

Transistors

Reference Designator	Description	Part Number	Note
Q7005	BPLR, N, 40V, 200mA, SOT23	146819	
Q7006	BPLR, P, 40V, 200mA, SOT23	148596	
Q7007	BPLR, P, 40V, 200mA, SOT23	148596	
Q800	BPLR, N, 55V, 150mA, SOT23	134741	
Q801	P, 50V, 150MA, SOT	258007	
Q802	BPLR, N, 40V, 200mA, SOT23	146819	
Q900	BPLR, N, 55V, 150mA, SOT23	134741	
Q902	P, 50V, 150MA, SOT	258007	
Q903	BPLR, N, 55V, 150mA, SOT23	134741	
Q904	P, 50V, 150MA, SOT	258007	
Q9028	BPLR, N, 40V, 200mA, SOT23	146819	
Q9031	PNP, SOT-223, 60V, 1A	269870-002	
Q9034	BPLR, N, 40V, 200mA, SOT23	146819	
Q9035	BPLR, N, 40V, 200mA, SOT23	146819	
Q9036	N, MFET, 2.5V, SOT-23	252043	

Integrated Circuits

Reference Designator	Description	Part Number	Note
U1	MEMORY, FLASH, PROGRAMED **(UPDATE BASS MODULE AFTER REPLACING)**	317330-001S	
U2	VOLTAGE COMPARATOR, LM339	187618-001	
U3	uC, SHARC, ADSP-21366, BGA	287375-001	
U9	QUAD, TLO74D, SOIC	186112	
U10	QUAD, TLO74D, SOIC	186112	
U21	DAC, 6-CH, 24-bit, 192kHz	288578-001	
U22	VOLT REG, NEG, 7908, SOT89	260688-08	
U23	VOLT REG, SMD, POS, SOT89, +10V	258167-10	
U24	DIFFERENTIAL LINE RCVR, 400	288291-001	
U25	SWITCHING, 1MHZ, BUCK CONV	288281-001	
U26	VOLT REG, SMD, POS, SOT89, 3.3V	258167-33	
U28	INVERTER, SMD	266582-001	
U800, U801, U900	PWR, AMP, FORMED, SINGLE PACK	309605-001	
	PWR, AMP, FORMED, TWO PACK	309605-002	
	PWR, AMP, FORMED, THREE PACK	309605-003	
U901	MOSFET, DUAL N, 50V, 3A	289259-001	
U902	BUCKCTLR, SO-8, PWM, 500KH, 40V	275415-004	
U903	VOLT REG, SMD, POS, SOT89, +5V	258167-05	
U904	RESET, 2.93VT, SOT23, DBV	289604-033	

DSP PCB Part List

Inductors/Ferrite Beads

Reference Designator	Description	Part Number	Note
L1	330 OHM, FERRITEBD, IND0603, 200MA	268373-331	
L2	0.72A, 33uH, +/-20%, SMT	290997-330T	
L800	100nH, CHIP, 5%, 0603	270394-101J	
L801	100nH, CHIP, 5%, 0603	270394-101J	
L803	100nH, CHIP, 5%, 0603	270394-101J	
L900	100nH, CHIP, 5%, 0603	270394-101J	
L901	100nH, CHIP, 5%, 0603	270394-101J	
L902	0.22A, 560uH+/-20%, SMT	289382-561T	
L903	BEAD, FERRITE, CHIP, 1806	256116-181	
L904	330 OHM, FERRITE BD, IND0603, 200MA	268373-331	
FB1	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB2	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB3	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB4	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB5	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB6	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB7	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB8	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB9	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB10	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB11	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB12	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	

Miscellaneous

Reference Designator	Description	Part Number	Note
J909	CONN, HEADER, INLINE, 3P, BLACK	133220-103	
J7001	CONN, DIN, 9-POS, SINGLE, SQ-KEY	301997-002	
J7002	CONN, HOUSING, AC, 2 POS, FEMALE	260116-001	3 
J7003	.CONN, HEADER, LOCKING, TOP ENTRY	193369-002	3 
J7004	CONN, D-SUB, R/A, 9 PIN, SOCKET	285805-09	
J7006	CONN, HDR, 10POS, VERT, SMT, ZIFF	287518-T10	
F2	FUSE, 4.0 AMPS, AXIAL	325540-4000	3 
T1	CHOKE, COMMON MODE, SMD	276389-001	
RT1	THERMISTOR, 10K, 5%, 0805	197229	
VR1	VARISTOR, MET OX, 275V, 75JOULE	170189	3 
X2	CRYSTAL, SMD, 105, AT41CD2, 16.9344MZ	269923-16R9C16	
SHLD7000	SHIELD, FENCE	269853-002	
	SHIELD, COVER, BOTTOM	273478-002	
	SHIELD, COVER, TOP	281527-002	
	SCREW, TAPP, 4-16X.38, PAN, XREC	288372-006	

Power Supply PCB Part List

Resistors

Reference Designator	Description	Part Number	Note
R101	10 OHM, 1206, 1/4W, 5%	124895-1005	
R102	33 OHM, 1206, 1/4W, 5%	124895-3305	
R103	10 OHM, 1206, 1/4W, 5%	124895-1005	
R104	100 OHM, 1206, 1/4W, 5%	124895-1015	
R106	1.80K, 1206, 1/4W, 5%	124895-1825	
R111	43.2K, 0603, .1W, 1%	191465-4322	
R112	60.4K, 0603, .1W, 1%	191465-6042	
R113	47.5K, 0603, .1W, 1%	191465-4752	
R122	75.0K, 1206, 1/4W, 1%	124894-7502	
R123	261K, 1206, 1/4W, 1%	124894-2613	
R124	261K, 1206, 1/4W, 1%	124894-2613	
R150	681 OHM, 1206, 1/4W, 1%	124894-6810	
R153	261K, 1206, 1/4W, 1%	124894-2613	
R155	75.0K, 1206, 1/4W, 1%	124894-7502	
R156	75.0K, 1206, 1/4W, 1%	124894-7502	
R158	220 OHM, 1206, 1/4W, 5%	124895-2215	
R159	220 OHM, 1206, 1/4W, 5%	124895-2215	
R160	220 OHM, 1206, 1/4W, 5%	124895-2215	
R161	220 OHM, 1206, 1/4W, 5%	124895-2215	
R162	75.0K, 1206, 1/4W, 1%	124894-7502	
R207	100K, 0603, .1W, 1%	191465-1003	
R208	10K, 0603, .1W, 1%	191465-1002	
R216	68.1K, 0603, .1W, 1%	191465-6812	
R217	13.7K, 0603, 0.1W, .1%	191465-1372	
R218	5.11K, 0603, .1W, 1%	191465-5111	
R219	2.1K, 0603, .1W, 1%	191465-2101	
R220	432 OHM, 0603, 100MW, 1%	191465-4320	
R223	316 OHM, 1206, 1/4W, 1%	124894-3160	
R224	2.0K, 0603, .1W, 5%	199403-202	
R225	49.9K, 0603, .1W, 1%	191465-4992	
R230	100K, 0603, .1W, 1%	191465-1003	
R231	100K, 0603, .1W, 1%	191465-1003	
R232	49.9K, 0603, .1W, 1%	191465-4992	
R233	49.9K, 0603, .1W, 1%	191465-4992	
R234	5.9K, 0603, .1W, 1%	191465-5901	
R238	80.6K, 0603, .1W, 1%	191465-8062	
R403	261K, 1206, 1/4W, 1%	124894-2613	
R404	18.7K, 0603, .1W, 1%	191465-1872	
R405	91K, 0603, .1W, 5%	199403-913	
R406	390 OHM, 0603, .1W, 5%	199403-391	

Power Supply PCB Part List

Resistors

Reference Designator	Description	Part Number	Note
R407	261K, 1206, 1/4W, 1%	124894-2613	
R410	261K, 1206, 1/4W, 1%	124894-2613	
R411	261k, 1206, 1/4W, 1%	124894-2613	
R412	10 OHM, 0805, .125W, 1%	133625-10R0	
R413	10 OHM, 0805, .125W, 1%	133625-10R0	
R420	100K, 0603, .1W, 1%	191465-1003	
R422	510 OHM, 1206, 1/4W, 5%	124895-5115	
R423	510 OHM, 1206, 1/4W, 5%	124895-5115	
R424	100 OHM, 0603, .1W, 5%	199403-101	
R425	100 OHM, 0603, .1W, 5%	199403-101	
R426	100 OHM, 0603, .1W, 5%	199403-101	
R427	510 OHM, 1206, 1/4W, 5%	124895-5115	
R428	510 OHM, 1206, 1/4W, 5%	124895-5115	

Capacitors

Reference Designator	Description	Part Number	Note
C101	0.1uF, FILM, X2, 275VAC, 15MM	268166-104B	3 
C102	0.1uF, FILM, X2, 275VAC, 15MM	268166-104B	3 
C103	1500pF, CER, Y1, 500VAC	269857-152	3 
C104	1500pF, CER, Y1, 500VAC	269857-152	3 
C110	470 uF, EL, 105, 250V, 20%	289961-471A	3 
C111	470 uF, EL, 105, 250V, 20%	289961-471A	3 
C112	.047uF, FILM, 630VDC, 85, 10%	260357-473T21	
C113	470pF, MICA, 5%, 500V	254164-471B	
C114	470pF, MICA, 5%, 500V	254164-471B	
C115	18000pF, FILM, 2KVDC, 5%	258419-183C	
C117	10uF, EL, 105, 25V, 20%	196991-100E	
C118	10uF, EL, 105, 25V, 20%	196991-100E	
C119	.47uF, BOX, 85, 50V, 5%	137127-474	
C121	.01uF, 0603, X7R, 50V	191470-103	
C122	100pF, 0603, COG, 50V, 5%	188454-221	
C126	0.1uF, 0805, X7R, 50V, 10%	286499-104	
C201	5.6uF, FILM, 10%, 100VDC	260333-565C	
C202	5.6uF, FILM, 10%, 100VDC	260333-565C	
C211	1.0uF, FILM, 10%, 100VDC	260333-105A	
C212	1.0uF, FILM, 10%, 100VDC	260333-105A	
C215	.022uF, 0603, X7R, 25V	196999-223	
C219	.047uF, 0805, X7R, 50V, 10%	133623-473	
C220	.047uF, 0805, X7R, 50V, 10%	133623-473	

Power Supply PCB Part List

Capacitors

Reference Designator	Description	Part Number	Note
C233	.001uF, BOX, 85, 100V, 5%	137127-102	
C234	.001uF, BOX, 85, 100V, 5%	137127-102	
C235	.001uF, BOX, 85, 100V, 5%	137127-102	
C236	.001uF, BOX, 85, 100V, 5%	137127-102	
C237	3300pF, 0805, X7R, 50V, 10%	286499-332	3 ⚠
C239	3300pF, 0805, X7R, 50V, 10%	286499-332	3 ⚠
C401	100pF, 0603, COG, 50V, 5%	188454-101	
C402	220uF, EL, 105, 16V, 20%	144000-221N	
C408	.047uF, FILM, 630VDC, 85, 10%	260357-473T21	
C412	.22uF, FILM, 630VDC, 85, 10%	260357-224B34	
C415	33pF, CER, RADIAL	269857-330	3 ⚠
C416	33pF, CER, RADIAL	269857-330	3 ⚠
C417	100pF, 0603, COG, 50V, 5%	188454-101	
C418	100pF, 0603, COG, 50V, 5%	188454-101	
C421	.047uF, 0603, X7R, 50V	191470-473	
C424	100pF, 0603, COG, 50V, 5%	188454-101	

Diodes

Reference Designator	Description	Part Number	Note
BR1	RECTIFIER, BRIDGE, 600V, 4A	256789-600	
D101	SWITCHING, 75V, 200mA	148582	
D102	SWITCHING, 75V, 200mA	148582	
D106	SWITCHING, 75V, 200mA	148582	
D108	SCHOTTKY, 60V, 0.5A, SOD-123	319453-060	
D112	SCHOTTKY, 60V, 0.5A, SOD-123	319453-060	
D154	261K, 1206, 1/4W, 1%	124894-2613	
D202	SWITCHING, 75V, 200mA	148582	
D203	PWR SCHOTTKY, 8A, 80V	258437-080	
D204	PWR SCHOTTKY, 8A, 80V	258437-080	
D205	SWITCHING, 75V, 200mA	148582	
D206	SWITCHING, 75V, 200mA	148582	
D207	SOT-23, BAV 70	147249	
D209	SMT, S1AB	178380-1	
D210	SMT, S1AB	178380-1	
D211	SOT-23, BAV 99	147239	
D405	SOT-23, BAV 99	147239	
D406	PWR SCHOTTKY, 8A, 80V	258437-080	
D407	PWR SCHOTTKY, 8A, 80V	258437-080	
ZR101	ZEN, 13V, 225MW, 5%, SOT-23	135247-5243	

Power Supply PCB Part List

Transistors

Reference Designator	Description	Part Number	Note
Q101	MOSFET, 550V, 12A	294192-001	
Q102	MOSFET, 550V, 12A	294192-001	
Q201	BPLR, N, 40V, 200mA, SOT23	146819	
Q401	TRIAC, AUTO VOLT SW, AVS12CB	254188-001	
Q402	NPN	256095-001	
Q403	PNP	256096-001	
Q404	BPLR, N, 40V, 200mA, SOT23	146819	

Transistors

Reference Designator	Description	Part Number	Note
Q101	MOSFET, 550V, 12A	294192-001	
Q102	MOSFET, 550V, 12A	294192-001	
Q201	BPLR, N, 40V, 200mA, SOT23	146819	
Q401	TRIAC, AUTO VOLT SW, AVS12CB	254188-001	
Q402	NPN	256095-001	
Q403	PNP	256096-001	
Q404	BPLR, N, 40V, 200mA, SOT23	146819	

Integrated Circuits

Reference Designator	Description	Part Number	Note
U101	HV RESONANT CONTROL, L6598	254119-001	
U102	OPTOISOLATOR, CNY17F-1	254120-001	3 ⚠
U103	OPTOISOLATOR, CNY17F-1	254120-001	3 ⚠
U203	OP AMP, QUAD, TLO74D, SOIC	186112	
U401	AUTO V, SW, 110/220V, 50/60HZ	254187-001	

Inductors

Reference Designator	Description	Part Number	Note
L101	FIXED, 2.2UH	309310-2R2M	3 ⚠
L102	FIXED, 2.2UH	309310-2R2M	3 ⚠
L103	1.5MH, 2.0A, TOROIDAL	269334-001	3 ⚠
L201	12.5uH, FMD, ROHS	290843-001	
L202	12.5uH, FMD, ROHS	290843-001	
L203	FIXED, 2.2UH	309310-2R2M	3 ⚠
L204	FIXED, 2.2UH	309310-2R2M	3 ⚠

Power Supply PCB Part List

Miscellaneouse

Reference Designator	Description	Part Number	Note
RT100	PTC, TEMP SENSE, 16V, 125C, 20%	258497-125	
RT101	THERMISTOR, 10K, 5%, 0805	197229	
RT102	THERMISTOR, 10K, 5%, 0805	197229	
T101	3mH, CHOKE, LINE, COMMON MODE	260371-002	3 
T102	XFORMER, PWR, HIGH-FREQ, EE42/20	258422-002	3 
VR102	VARISTOR, MET OX, 150V, 45 JOULE	170186	3 
VR103	VARISTOR, MET OX, 150V, 45 JOULE	170186	3 
J103	CONN, HEADER, LOCKING, TOP ENTRY	193369-002	3 
J106	CONN, ZIF, 1MM, 10 POS, SMT	191479-10	
J108	CONN, HEADER, INLINE, PCB MNT, 4P	133220-04	
J109	CONN, HEADER, INLINE, 3P, BLACK	133220-103	
	CLIP, TINNERMAN	258354	
	HEATSINK, SHIELD, PWR, ASSY	293200-001	

Array Assembly Part List

Item Number	Description	Part Number	QTY
1	NAMEPLATE, ARRAY, LEFT, BLACK	326167-0010	1
	NAMEPLATE, ARRAY, RIGHT, BLACK	326168-0010	1
	NAMEPLATE, ARRAY, LEFT, WHITE	326167-0020	1
	NAMEPLATE, ARRAY, RIGHT, WHITE	326168-0020	1
2	GRILLE ARRAY LS235 BLK	345688-0010	1
	GRILLE ARRAY LS235 WHITE	345688-0020	
3	SCREW,TAPP,4-16X.38,PAN,XREC	288372-006	13
4	TWIDDLER, 50MM	291636-001 or 359302-0010	2
5	TWIDDLER, 50MM, SEALED BASKET	326170-0010	1

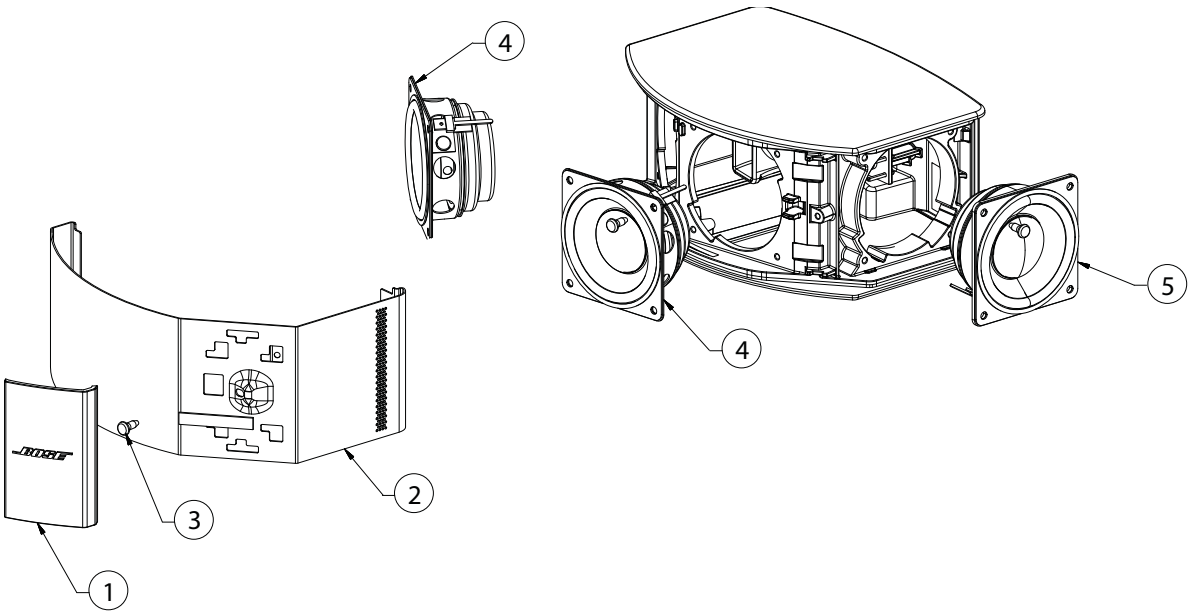


Figure 3. Array Exploded View

Disassembly Procedures

1. Front Cover Removal

1.1 Remove the four screws indicated. Pull off the front cover.
Note: The DSP PCB is attached to the front panel. Cables from the Power Supply (SPS) PCB attach to the DSP PCB.

1.2 Remove the connectors from the DSP PCB.

Important Note: When replacing the front cover, twist the foam wrapped cable as shown to ensure when assembled, the cable is poistioned away from the area of the PCB where the MOV is located.

2. DSP PCB Removal

2.1 Perform procedure 1.

2.2 On the front cover connection panel, remove the three screws indicated.

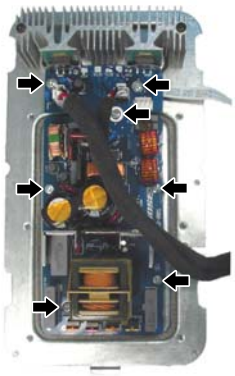
2.3 Remove the three screws indicated securing the outputs to the heatsink. Lift out the DSP PCB.

Disassembly Procedures

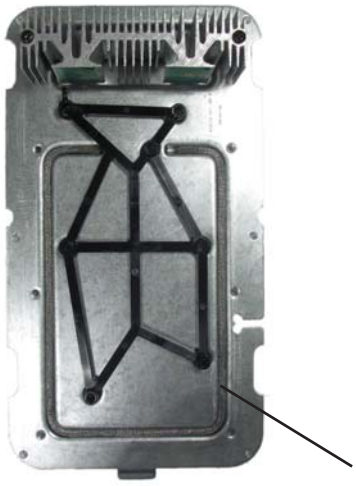
3. Steel Baffle Plate/ SPS Removal

3.1 Remove the six screws that secure the baffle to the cabinet.
Note: The SPS module is attached to this plate.

3.2 Remove the six screws indicated that secure the EMI power supply shield to the steel baffle plate. Lift off the EMI shield.



3.3 Remove the six screws indicated that secure the SPS PCB to the steel baffle plate. Lift off the SPS PCB.



EMI Gasket

3.4 Inspect the EMI gasket. If the EMI gasket is deformed and cannot be reshaped properly, replace the EMI gasket.

Dissasembly Procedures

4. Cube Grille and Twiddler Removal

4.1 At the points indicated, use the tips of your fingers to release the Bose® logo and slide it off.

4.2 Remove the screw indicated.

4.3 Using a pointed tool, pull outward on the side of the grill to release the grill tabs from the cube housing. Once the side is released, the front grille tab can be released from the cube housing.

4.4 Remove the four screws from the driver you wish to remove.

4.5 Lift the driver out of the cabinet.

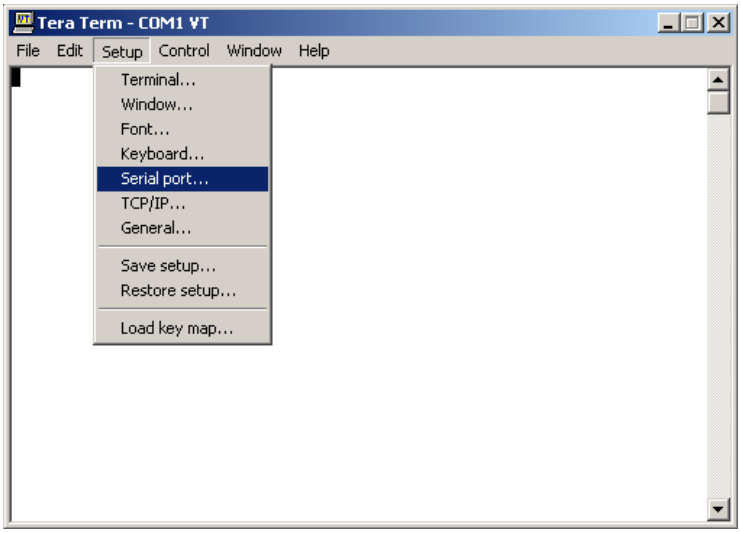
4.6 Record the color of the wires and terminal. Refer to this when replacing the driver.

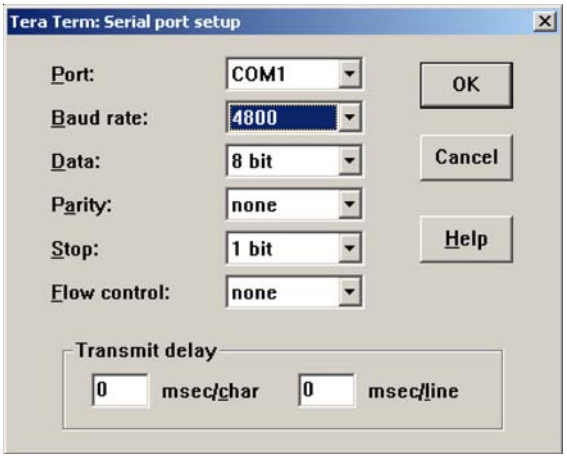
Set up a Computer to Issue Tap Commands

1. Set up the Terminal Emulator

1.1 Download the terminal emulator TeraTerm from the Lifestyle® 235 Bass Module product page located on the service web site - http://serviceops.bose.com

1.2 Setup a terminal emulator as shown below. TeraTerm terminal emulator is shown.





4800 baud
8 data bits
No parity
1 stop bit
No flow control

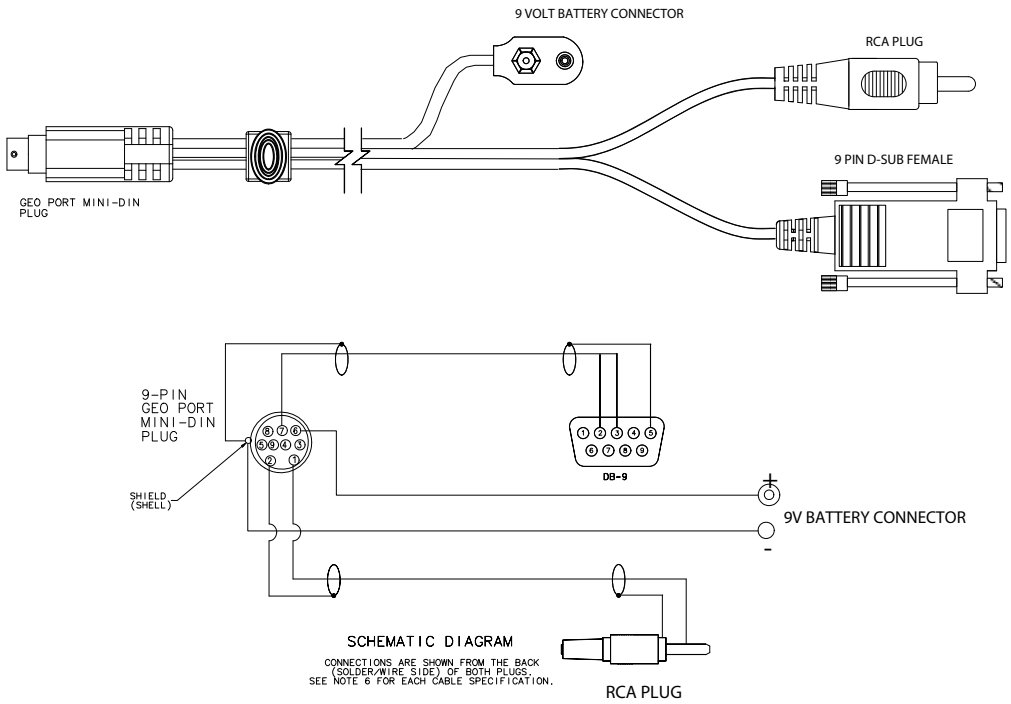


Figure 4. TAP Cable 299656

Issuing TAP Commands to the Bass Module

Items Needed

1. TeraTerm terminal emulator - download from PS18/28/35/38/48 III product page - http://serviceops.bose.com
2. PC3macro.zip files - download from PS18/28/35/38/48 III product page - http://serviceops.bose.com
3. RS232-TTL Converter - B&B electronics Model 232LPTTL or similar - http://bb-elec.com
4. TAP cable part number 299656 - order from Bose

1. Download Macros

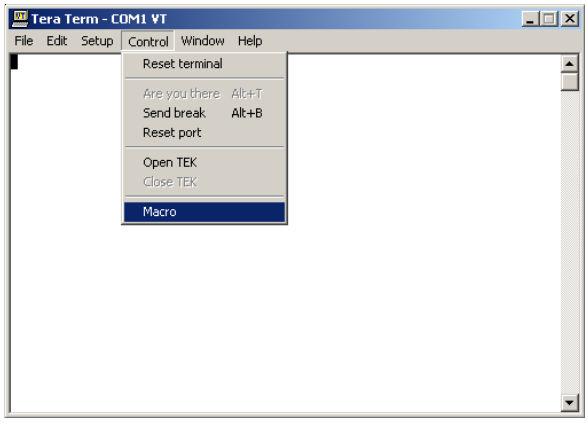
1.1 Download the file ps3macro.zip from the PS18/28/35/38/48 III product page located on the service web site - http://serviceops.bose.com. Unzip the files and place them in the folder where your terminal emulator is located .

1.2 Open TeraTerm and set it as described on the previous page - Setting up a Computer to Issue TAP Commands.

1.3 Connect TAP cable part number 299656 to a computer and the bass module. A RS232-TTL converter is needed to connect to the computer- B&B electronics Model 232LPTTL or similar - http://bb-elec.com. To simulate a turn on signal, connect a 9 Volt battery to the TAP cable's 9 Volt battery connector.

1.4 In the TeraTerm tools menu, select Control. Scroll down to Macro.

1.5 In the Open Macro window, select the omnibus.ttl macro and click Open. The bass module is now ready to receive further TAP commands. Refer to the test procedures



Check if the bass module is ready to receive TAP by issuing the TAP command ST S.

Type:
ST S
Press Return
A similar reply would be:
SAMPLE RATE: 44102.34
SPKR TYPE :10
LCRB_MUTE :0
LSRS_MUTE :0
SPDIFE# :00000000
SERIAL# :1234567890ABCDEFG

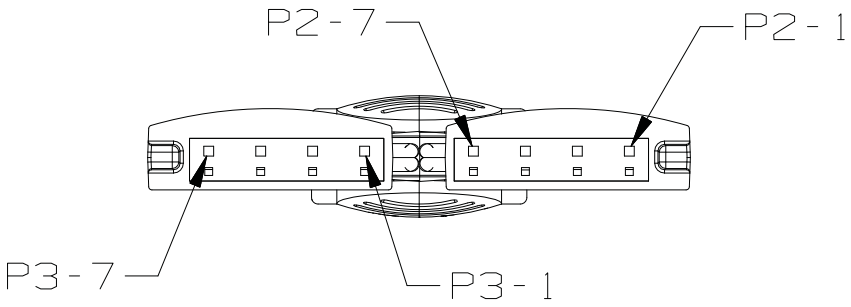
Note: There are three files in ps3macro.zip. The macro file omnibus.ttl sends the following commands - enter TAP, select 5 speaker mode, bypass all processing, send left input to all channels, set volume to max, unmute the DSP, and unmute the power amps. The two .INI files set the TeraTerm terminal emulator program. All three files should be placed in the same folder as the TeraTerm program.

Array Output Test Cable

Using the system array cable part number 331294-0010 or -0020, create a test cable to connect to the bass module DSUB cube output connector.

Cut off the speaker connectors. Using the tables and drawings below, make a test cable to connect to your test equipment.

Note: You can also probe the cable connectors instead of creating a test cable.



PIN OUT

7	5	3	1
8	6	4	2

WIRE TABLE			
9 POSITION DSUB PLUG	**SIGNAL**	**CONNECTION**	**WIRE COLOR**
P1-1	LC-	P3-3	BLUE
P1-2	LC+	P3-1	GREEN
P1-3	GND	DSUB SHELL	BLACK
P1-4	RC+	P3-7	RED
P1-5	RC-	P2-5	BLACK
P1-6	LS+	P3-7	RED
P1-7	LS-	P3-5	BLACK
P1-8	RS-	P2-3	BLUE
P1-9	RS+	P2-1	GREEN

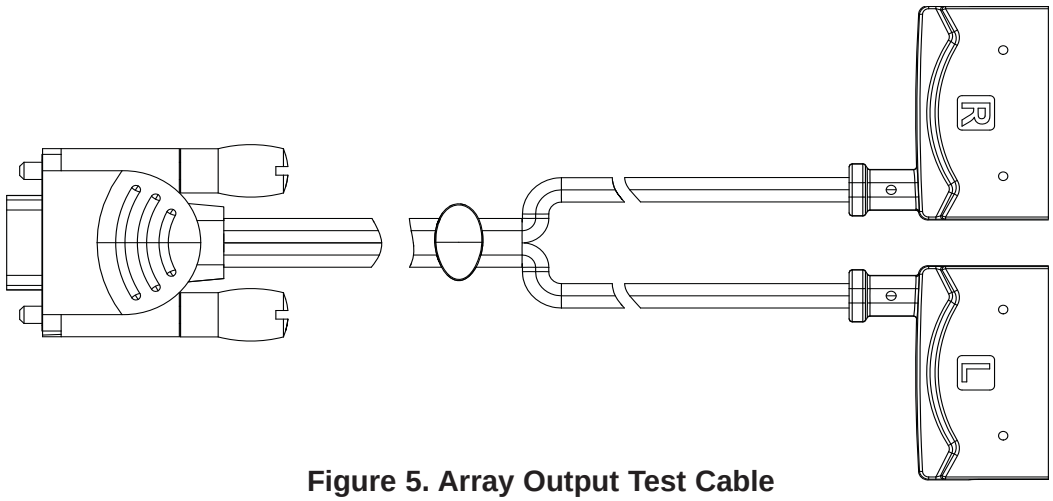


Figure 5. Array Output Test Cable

System Level Test

Test setup procedure

Set up the bass module to receive TAP commands. Reference the manual pages “Setting up a Computer to Issue TAP Commands” and “Issuing TAP Commands to the Bass Module”.

A digital audio input is required. Connect the analog output of an oscillator to the left analog input of an Analog to Digital (A-D) converter. Connect the test cable’s RCA connector to the A-D converter S/PDIF output. (The TAP command “SO ALL DL” issued in the omnibus.ttl macro set the system to send left channel information to all outputs)

Using a system array cable part number 331294-0010 or -0020, create the cube output test cable. Refer to page 27 for instructions

1. Check for S/PDIF, EQ Setting, Software Version

1.1 Issue the TAP command “ST S”. The bass module should respond similar to the following.

```
>ST S
SAMPLE RATE: 44102.34
SPKR TYPE :02
LCRB_MUTE :0
LSRS_MUTE :0
SPDIFE# :00000000
SERIAL# :1234567890ABCDEFG
>
```

Sample Rate: 44100 Hz + 2%

1.2 Issue the TAP command “TN 4”. The bass module should respond similar to the following.
012345678,010201
The first number is the checksum and the second is the firmware version. The latest software version is posted on http://serviceops.bose.com.

2. Thermistor Test

2.1 Issue the TAP command “ST T”. The bass modules should respond similar to the following.

```
>ST T
Rev : 010100
BassThrm : 0.6992
PS Thrm : 0.6914
BasAThrm : 0.4961
Rate : 192012.56
SPDIFE# : 00000000
>
```

2.2 Verify the results are within the following limits.
BassThrm: Limit: 0.65+/- 0.08
BassThrm : 0.6992 Limit: 0.3< BassThrm< 0.8
PS Thrm : 0.6914 Limit: 0.3< PS Thrm < 0.8

3. PSC Test (Power Supply Control)

3.1 Issue the TAP command “PS MAX”. Wait 250ms. Issue the TAP command “TN5”.

3.2 Verify the response is “PS Passed”.

4. Bass Module Frequency Sweep Test

4.1 Apply a 200mVrms, 100 Hz signal to the bass module.

4.2 Sweep the oscillator from 40 Hz to 300 Hz.
Note: No extraneous noises such as rubbing, scraping or ticking should be heard. To distinguish between normal suspension noise, rubs and ticks, displace the woofer cone with your finger. If the sound can be made to go away or get worse, it’s a rub or tick and the woofer should be replaced. If the noise stays the same, it’s normal suspension noise and it will not be heard with regular program material.

5. Air Leak Test

5.1 Apply a 200mVrms, 40 Hz signal to the bass module. Check for air leaks from the cabinet particularly from where the SPS PCB EMI can mounts to the cabinet.

6. Cube Output Test

6.1 Apply a 1 kHz, 125 mVms signal to the bass module.

6.2 Set the bass module to bypass mode by issuing the TAP command “BY ALL”. This bypasses the system signal processing.

6.3 Measure each of the cube outputs and ensure they are > 1Vrms

PCB Level Performance Verification Tests

Test Setup

Set up the bass module to receive TAP commands. Refer to the procedures listed on the pages - Setting up a Computer to Issue TAP Commands and Issuing TAP Commands to the Bass Module.

Remove the DSP and SPS PCB from the cabinet. Reconnect the DSP PCB and SPS PCB while outside the cabinet. Leave the DSP assembled to the heat sink. Refer to the disassembly procedures.

1. DSP Status Check

Issue the TAP command “ST S” . Typical response shown below.

```
>ST S
SAMPLE RATE: 192015.67
SPKR TYPE  :02
LCRB_MUTE  :0
LSRS_MUTE  :0
SPDIFE#    :00000000
SERIAL#    :1234567890ABCDEFG
>
```

Issue the TAP command “ST T”. Typical response shown below.

```
>ST T
Rev : 010100
BassThrm : 0.6992
PS  Thrm : 0.6914
BasAThrm : 0.4961
Rate :  192012.56 (S/PDIF Sample Rate)
SPDIFE# : 00000000 (S/PDIF Error Rate)
>
```

Rev : 010100 (Software version)
BassThrm: Limit 0.65 ± 0.8 (A/D converters)
PS Thrm: Limit 0.65 ± 0.8 (A/D converters)
BasAThrm: Limit 0.60 ± 0.13 (A/D converters)
Rate : (S/PDIF Sample Rate)
SPDIFE#: should be 0 - error count reset during “STS” command (S/PDIF Error Rate)

Verify the results are within the following limits.

BassThrm: Limit 0.3 <Bass Thrm <0.8
PS Thrm: Limit 0.3 <PS Thrm <0.8

Test Setup

The bass module requires a digital audio input. Connect the analog output of an oscillator to the analog input of an Analog to Digital (A-D) converter. Connect the test cable’s RCA connector to the A-D converter S/PDIF output.

Outputs are not loaded unless specified.

To deliver a signal to all 6 amplifier channels the signal should be encoded on the left S/PDIF channel.

Issue TAP commands
“SP 5”
“BY ALL”
“SO ALL DL”

Caution: Before handling the Power Supply PCB (SPS) PCB after power has been removed, connect a 1K, 5W resistor across C110 and then across C111 for 2 seconds to discharge the two caps. C110 and C111 must be discharged before the board can be safely handled. Failure to discharge the caps could result in electrical shock.

2. Mid Frequency Gain, All Channels

2.1 Apply a 1Vrms, 400 Hz SPDIF signal to the bass module.

2.2 Measure the amplifier outputs according to the following table.

Measurement Point	Measurement
LC Output	8.5 Vrms ±10%
RC Output	8.5 Vrms ±10%
LS Output	8.5 Vrms ±10%
RS Output	8.5 Vrms ±10%
Bass Output – J108	8.5 Vrms ±10%

Note: J108 is located on the power supply PCB

PCB Level Performance Verification Tests

3. Mute, All Channels

3.1 Apply a 1Vrms, 400 Hz SPDIF signal to the bass module.

3.2 Issue the TAP command “MU AMP ON” to place the amplifiers in the muted state.

3.3 Measure the amplifier outputs according to the following table.

3.4 When complete, issue the TAP command “MU AMP OFF” to unmute the amps.

Measurement Point	Measurement
LC Output – RCA	< 1 mVrms
RC Output – RCA	< 1 mVrms
LS Output – RCA	< 1 mVrms
RS Output – RCA	< 1 mVrms
Bass Output – J108	< 1 mVrms

Note: J108 is located on the power supply PCB

4. Satellite High Frequency Gain

4.1 Apply a 1Vrms, 15 kHz sine wave audio signal via the S/PDIF input.

4.2 Measure the amplifier outputs according to the following table.

Measurement Point	Measurement
LC Output – RCA	8.0 Vrms ±10%
RC Output – RCA	8.0 Vrms ±10%
LS Output – RCA	8.0 Vrms ±10%
RS Output – RCA	8.0 Vrms ±10%

5. Satellite Low Frequency Gain

5.1 Apply a 1Vrms, 100 Hz sine wave audio signal via the S/PDIF input.

4.2 Measure the amplifier outputs according to the following table.

Measurement Point	Measurement
LC Output – RCA	8.0 Vrms ±10%
RC Output – RCA	8.0 Vrms ±10%
LS Output – RCA	8.0 Vrms ±10%
RS Output – RCA	8.0 Vrms ±10%

6. Bass Low Frequency Gain

6.1 Apply a 1Vrms, 30 Hz sine wave audio signal via the S/PDIF input.

6.2 Measure the bass output at J108. It should be 8.0Vrms ± 10%.

7. DC Offset, All Channels

7.1 Short the analog inputs to the D/A converter.

7.2 Measure the amplifier outputs according to the following table.

Measurement Point	Measurement
LC Output – RCA	< 70 mVdc
RC Output – RCA	< 70 mVdc
LS Output – RCA	< 70 mVdc
RS Output – RCA	< 70 mVdc
Bass Output – J108	< 25 mVdc

Note: J108 is located on the power supply PCB

8. Satellite Channel Small Signal Distortion

8.1 Connect a 8 Ohm, 1/2 watt resistor to the amplifier output being tested.

8.2 Apply a 6.0 kHz signal at a level to obtain 1/10 watt output at each channel (0.89 volts measured across the 8 ohm load).

8.3 Measure the amplifier outputs with a 30 kHz LPF

Measurement Point	Measurement
LC Output – RCA	< 0.2% THD+N
RC Output – RCA	< 0.2% THD+N
LS Output – RCA	< 0.2% THD+N
RS Output – RCA	< 0.2% THD+N

PCB Level Performance Verification Tests

9. Satellite Channel Large Signal Distortion

9.1 Connect a 8 Ohm, 20 watt resistor to the amplifier output being measured. Load only one channel at a time.

9.2 Apply a 1.0 kHz signal at a level to obtain 10 watt output at each channel (8.9 volts measured across the 8 ohm load).

9.3 Measure the amplifier outputs with a 30 kHz LPF.

Measurement Point	Measurement
L Output – RCA	< 0.1% THD+N
R Output – RCA	< 0.1% THD+N
LS Output – RCA	< 0.1% THD+N
RS Output – RCA	< 0.1% THD+N

10. Bass Channel Small Signal Distortion

10.1 Connect a 8 Ohm, 1/10 watt resistor to the amplifier output being measured.

10.2 Apply a 300 Hz signal at a level to obtain 1/10 watt output at the bass channel output J108 (0.89 volts measured across the 8 ohm load).

10.3 Measure the bass channel output at J108. It should measure <0.2% THD+N

11. Bass Channel Large Signal Distortion

11.1 Connect a 8 Ohm, 20 watt resistor to the amplifier output being measured.

11.2 Apply a 100 Hz signal at a level to obtain 10 watt output at the bass channel output J108 (8.9 volts measured across the 8 ohm load).

11.3 Measure the bass channel output at J108. It should measure <0.2% THD+N

⚠ **Caution:** Remove power. If handling the SPS PCB, connect a 1K, 5W resistor across C110 and then across C111 for 2 seconds to discharge the two caps. C110 and C111 must be discharged before the board can be safely handled. Failure to discharge the caps could result in electrical shock.

12. Speaker Variant

A replacement DSP PCB will be set to the proper speaker variant but there will be no serial number stored. To store a serial number, perform the following.

12.1 Issue TAP command SE C,SERIAL#,ON.

12.2 Issue TAP command ST S. Ensure the speaker type is 10.

A similar reply would be:
SAMPLE RATE: 44102.34
SPKR TYPE :10
LCRB_MUTE :0
LSRS_MUTE :0
SPDIFE# :00000000
SERIAL# :1234567890ABCDEFG

Revision History

DATE	REV	ECN	Description
	00		Initial Release
	01	49592	New Operator Guides
	02	49314	New HDMI Cable
03/16/11	03	NA	Added Cube Grilles
12/23/2011	04	51363	New power pack and doc
01/19/12	05	NA	Added speaker type/serial number TAP command
02/23/2012	06	-	New line cords
02/28/2012	07	-	New Cables
07/17/2012	08	53312	Updated Twiddler part number pg23
09/28/2012	09	-	Updated assembly instruction regarding wire dressing – pg24
02/24/2014	10		Added two and three pack for output ICs

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Service Manual

Reference Number 326084-SM REV 10
Electronic copy only

Specifications and Features Subject to Change Without Notice

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