


**FreeSpace[®] Integrated Zone Amplifier /
Zone Amplifier**
**Models IZA 190-HZ, IZA 250-LZ,
ZA 190-HZ and ZA 250-LZ**



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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 / IEC 60056 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.

CAUTION: The Bose® FreeSpace® Integrated Zone Amplifier and Zone Amplifier contain no user-serviceable parts. To prevent warranty infractions, refer servicing to warranty service stations or factory service.

PROPRIETARY INFORMATION

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF BOSE CORPORATION WHICH IS BEING FURNISHED ONLY FOR THE PURPOSE OF SERVICING THE IDENTIFIED BOSE PRODUCT BY AN AUTHORIZED BOSE SERVICE CENTER OR OWNER OF THE BOSE PRODUCT, AND SHALL NOT BE REPRODUCED OR USED FOR ANY OTHER PURPOSE.

WARRANTY

The Bose FreeSpace Integrated Zone Amplifier and Zone Amplifier are covered by a 5-year limited warranty.

SPECIFICATIONS

Power Rating				
Amplifier Power	Model IZA 250-LZ: 2 x 50W @ 4Ω; 2 x 32W @ 8Ω Model IZA 190-HZ: 1 x 90W @ 70/100V			
Audio Performance Specifications				
Frequency Response	Model IZA 250-LZ: 40 Hz - 18 kHz (+0/-3 dB, @ 1W reference 1 kHz) Model IZA 190-HZ: 60 Hz - 18 kHz (+0/-3 dB, @ 1W reference 1 kHz)			
THD+N (at full rated power)	≤ 0.3%			
Crosstalk (below rated power, 1 kHz)	≤ -60dB			
Dynamic Range	88 dB			
Inputs				
Input Type	Line Inputs	Mic/Line Input	Page Input	Aux Input
Number of Input Channels	2 unbalanced	1 balanced	1 balanced	1 unbalanced
Input Connectors	Stereo RCA	Combo XLR - 1/4" (6.5mm) TRS	4-pin Euroblock	1/8" (3.5 mm) TRS
Input Range	-10 dBv - +10 dBv	-60 dBv - +10 dBv	-60 dBv - +10 dBv	0 dBv - +10 dBv
Adjustment Range	-20 dB - +20 dB	0 dB - +50 dB	0 dB - +50 dB	Fixed
Input Impedance	20 kΩ	2 kΩ	2 kΩ	20 kΩ
Maximum Input Level	+10 dBv	+10 dBv	+10 dBv	+10 dBv
Sensitivity	NA	NA	NA	0 dBv
Nominal Input Level	0 dBv	-40 dBv	-40 dBv	0 dBv
Outputs				
Output Type	Amplifier Outputs		Auxiliary Outputs	
Output Channels	2		1 unbalanced	
Output Connectors	2-terminal barrier strip		Stereo RCA	
Output Impedance	4Ω		400 Ω	
Output Level	2 x 50W @ 4Ω (min); 2 x 32W @ 8Ω		0 dBv (max)	
Integrated Loudspeaker DSP				
A/D and D/A Conversion	24-bit / 48 kHz			
Loudspeaker EQ Presets	High-Pass Filter (HPF), FreeSpace DS 16 and DS 40 loudspeakers			
High-Pass Filter Frequency	Model IZA 250-LZ : 40 Hz Model IZA 190-HZ: 60 Hz			
Front Panel Controls and Indicators				
LED Status Indicators	Power - blue, Input Clip - red			
Input Clip Indicator, Threshold Value	-3 dBFS			
Controls	Power On/Off, Input Select (1/2), Tone Controls (Treble/Bass)			
Level Controls	Mic Level, Master Level			
Rear Panel Controls				
Controls	Amplifier Mode DIP Switches, Loudspeaker EQ Preset Selector			
DIP Switch Functions	Page/Mic (Normal/Bypass Master) Output (Mono/Stereo) Page/Mic (Mix/Duck) Aux Out (EQ/Flat)			
Loudspeaker EQ Preset Selector Options	HPF / DS16 / DS40			
Level Controls	Input Gain, Output Levels			
User Interface Controls	Remote input for Volume Control (with A/B Select) User Interface, Mute input for amplifier muting via contact closure			
Electrical Specifications				
AC Line Voltage Requirement (+/-10%)	100V AC - 240V AC (50/60 Hz)			
AC Power Consumption	15W (Idle), 105W (Full)			
AC Mains Connector	Standard IEC (C14)			
Physical				
Rack Space Units	1 RU high, half rack wide			
Dimensions	12.2"L x 8.4"W x 1.8"H (310 mm x 214 mm x 45 mm)			
Shipping Weight	6.5 lb (3 kg)			
Product Weight	4.7 lb (2 kg)			
Cooling System	Natural convection			
General				
Accessories	Volume Control User Interface, Volume Control with A/B Switch User Interface, Rack Mount Kit			

SPECIFICATIONS

Amplifier Power	Model ZA 250-LZ: 2 x 50W @ 4Ω; 2 x 32W @ 8Ω Model ZA 190-HZ: 1 x 90W @ 70/100V	
Audio Performance Specifications		
Frequency Response	Model ZA 250-LZ: 20 Hz - 18 kHz (+0/-3 dB, @ 1W reference 1 kHz) Model ZA 190-HZ: 60 Hz - 18 kHz (+0/-3 dB, @ 1W reference 1 kHz)	
THD+N (at full rated power)	≤ 0.3%	
Crosstalk (below rated power, 1 kHz)	≤ -60 dB	
Dynamic Range	88 dB	
Inputs		
Input Type	Line Inputs	
Number of Input Channels	1 unbalanced	
Input Connectors	Stereo RCA	
Input Range	-10 dBv - +10 dBv	
Input Impedance	20 kΩ	
Maximum Input Level	+10 dBv	
Sensitivity	NA	
Nominal Input Level	0 dBv	
Amplifier Output		
Model	Model ZA 250-LZ	Model ZA 190-HZ
Output Channels	2	1
Output Connectors	2-terminal barrier strip	3-Pin Euroblock
Output Level (continuous power)	2 x 50W @ 4Ω (min); 2 x 32W @ 8Ω	1 x 90W @ 70/100V
Front Panel Controls and Indicators		
LED Status Indicators	Power - blue	
Controls	Power On/Off	
Rear Panel Controls		
Controls	Mono/Stereo amplifier mode switch	
Level Controls	Output Levels	
Electrical Specifications		
AC Line Voltage Requirement (+/-10%)	100V AC - 240V AC (50/60 Hz)	
AC Power Consumption	15W (Idle), 105W (Full)	
AC Mains Connector	Standard IEC (C14)	
Physical		
Dimensions	11.9"L x 8.4"W x 1.8"H (302 mm x 214 mm x 45 mm)	
Rack Space Units	1 RU high, half rack wide	
Shipping Weight	6.2 lb (3 kg)	
Product Weight	4.3 lb (2 kg)	
Cooling System	Natural convection	
General		
Accessories	Rack Mount Kit	

PRODUCT DESCRIPTION

The Bose® FreeSpace® Integrated Zone Amplifier / Zone Amplifier System is a new 1 unit high, 1/2 rack width power amplifier family of products that are used to drive the Bose DS16 and the DS40 speaker systems with individual EQ settings to match.

There are 4 chassis in this product family; Hi-Z Master, Hi-Z Slave, Lo-Z Master and Lo-Z Slave.

There are two Hi-Z units; a Master unit that has all of the required input and output connectors to accommodate an installation along with built-in DSP for the required EQ's. The Hi-Z Master unit puts out 90 Watts in either 70 or 100V mode. The associated Hi-Z Slave unit is a 1 unit high, 1/2 rack width unit that would be used with the Hi-Z master to provide another channel of 90 Watts of power at either 70 or 100V output. The Hi-Z Slave unit is driven by an output from the Hi-Z Master unit.

There are two Lo-Z units; a Master unit that has all of the required input and output connectors to accommodate an installation along with built-in DSP for the required EQ's. The Lo-Z Master unit puts out 50 Watts per channel, with 2 channels of output at 4 ohms. The associated Lo-Z Slave unit is a 1 unit high, 1/2 rack width unit that would be used with the Lo-Z master to provide another 2 channels of 50 Watts each into 4 ohms. The Lo-Z Slave unit is driven by an output from the Lo-Z Master unit.

Available in 5 SKU's (with the various IEC power connections) :

- USA/Canada
- Europe
- UK
- Australia
- Japan

Manufacturing Versions:

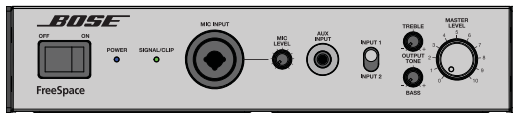
Material Master Number	Product Description
Master Version Units	
344871-1410	AMP ASSY,FS IZA 190-HZ,120V, N. AMER.
344871-1420	AMP ASSY,FS IZA 250-LZ,120V, N. AMER.
344871-2410	AMP ASSY,FS IZA 190-HZ,240V, AUS
344871-2420	AMP ASSY,FS IZA 250-LZ,240 AUS
344871-3410	AMP ASSY,FS IZA 190-HZ,100V, JPN
344871-3420	AMP ASSY,FS IZA 250-LZ,100V, JPN
344871-4410	AMP ASSY,FS IZA 190-HZ,230V, EURO
344871-4420	AMP ASSY,FS IZA 250-LZ,230V, EURO
344871-5410	AMP ASSY,FS IZA 190-HZ,230V, UK
344871-5420	AMP ASSY,FS IZA 250-LZ,230V, UK
Slave Version Units	
344872-1410	AMP ASSY,FS ZA 190-HZ,120V, N. AMER.
344872-1420	AMP ASSY,FS ZA 250-LZ,120V, N. AMER.
344872-2410	AMP ASSY,FS ZA 190-HZ,240V, AUS
344872-2420	AMP ASSY,FS ZA 250-LZ,240V, AUS
344872-3410	AMP ASSY,FS ZA 190-HZ,100V, JPN
344872-3420	AMP ASSY,FS ZA 250-LZ,100V, JPN
344872-4410	AMP ASSY,FS ZA 190-HZ,230V, EURO
344872-4420	AMP ASSY,FS ZA 250-LZ,230V, EURO
344872-5410	AMP ASSY,FS ZA 190-HZ,230V, UK
344872-5420	AMP ASSY,FS ZA 250-LZ,230V, UK

PRODUCT DESCRIPTION

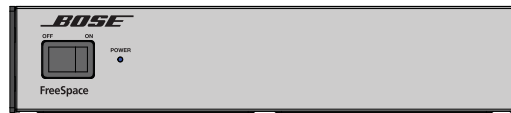
Front Panel Inputs and Controls

Power Led	Blue color LED
Power Switch	Rocker switch
Clip LED	Red color LED
Mike / Line XLR Combo	XLR / Line Combo input jack
Combo in level	XLR / Line Combo jack. Level control potentiometer
Media Player Input	1/8" or 3.5mm mini phone jack
Source Select	Slide switch two positions
Output tone treble / bass	Control potentiometer
Master Volume	Rotary volume potentiometer

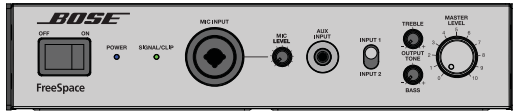
Front Panel layout diagrams



High Z Master Front Panel



High Z Slave Front Panel



Lo Z Master Front Panel

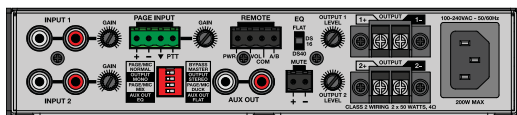


Lo Z Slave Front Panel

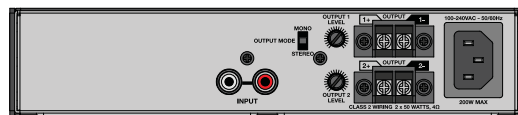
Rear Panel Controls and Connections

Inputs 1, 2	RCA jacks x2 pairs with Rotary gain control
Input 3	4 pin Euro Block for Paging input with Rotary gain control
Remote	4 pin Euro Block for Remote control input
Mute control	2 pin Euro Block for Mute control input
Aux output	RCA jacks x2
Bypass On/Off switch Mon/Stereo switch Mic input MIX/DUCK switch Aux Out EQ / Aux Out Flat switch	4 position dip switch
EQ selector	3 position slide switch (D16, D40, HPF)
Output	3 pin Speaker terminal, Rotary gain control
AC Inlet	Snap-In ICE Connector

Rear Panel layout diagrams



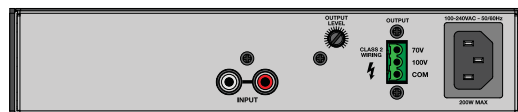
Lo Z Master Rear Panel



Lo Z Slave Rear Panel



High Z Master Rear Panel



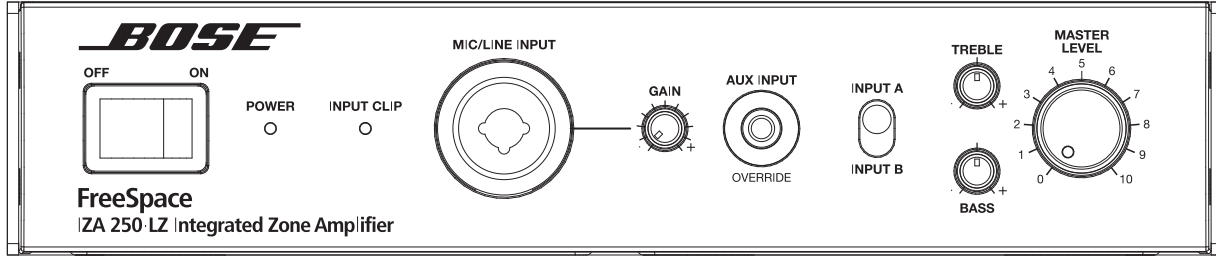
High Z Slave Rear Panel

PRODUCT DESCRIPTION

Front Panel

Note: Front Panel controls and indicators are identical on the FreeSpace® IZA 190-HZ amplifier.

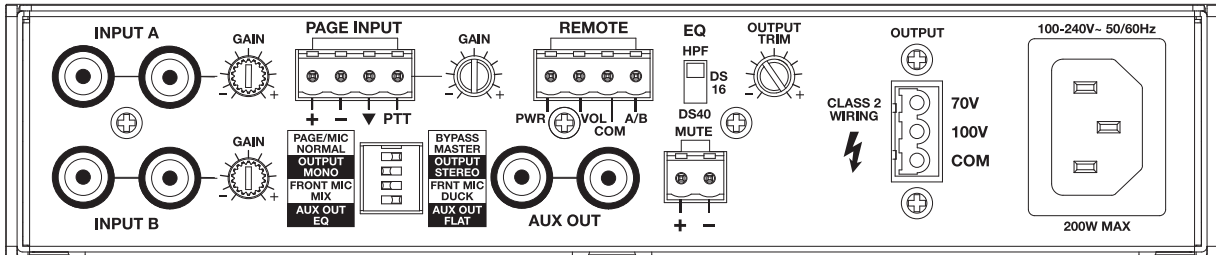
FreeSpace IZA-190 and IZA 250-LZ



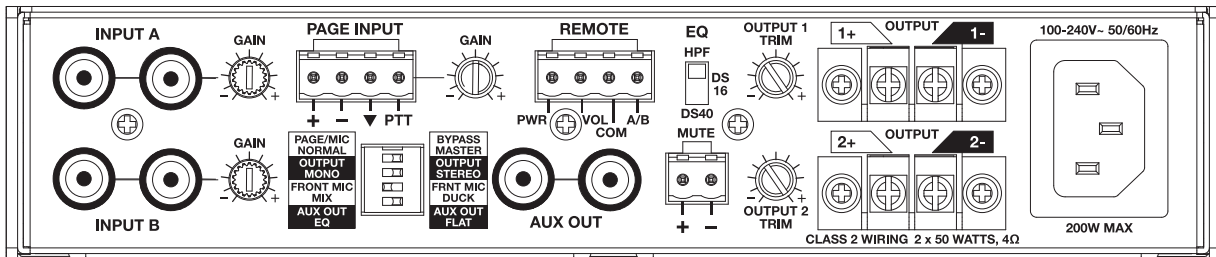
Setup and Operation

Rear Panel

FreeSpace IZA 190-HZ



FreeSpace IZA 250-LZ



PRODUCT DESCRIPTION

Loudspeaker Connections

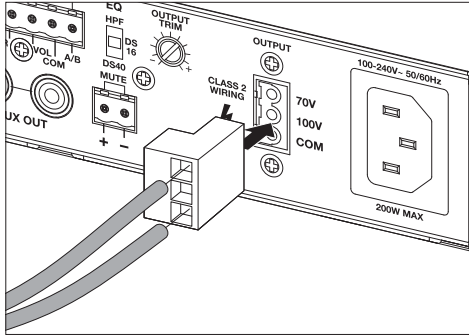
Use 18 AWg (0.8 mm²) to 14 AWg (2.0 mm²) size wire only.

Making loudspeaker connections (IZA 190-HZ)

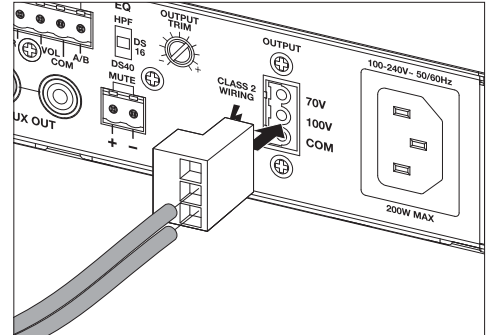
Note: Loudspeaker connections are the same for the ZA 190-HZ amplifier.

Wire the 3-pin Euroblock:

Use pins 1 (70V) and 3 (COM) for 70V operation.



Use pins 2 (100V) and 3 (COM) for 100V operation

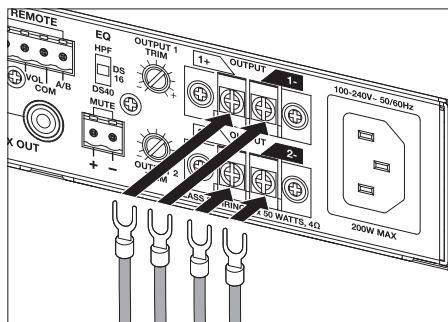


Making loudspeaker connections (IZA 250-LZ)

Note: Loudspeaker connections are the same for the ZA 250-LZ amplifier.

1. Attach included crimp-on spade lug connectors to loudspeaker wiring. Blue spade lug connectors are compatible with 16-14 AWG wire. Red spade lug connectors are compatible with 22-16 AWG wire.

Note: You may need to bend the spade lugs to fit.



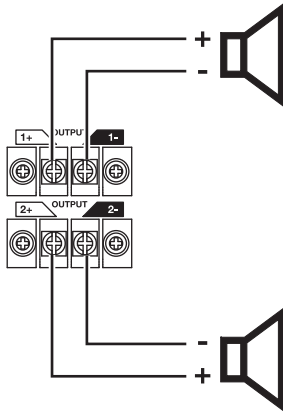
PRODUCT DESCRIPTION

2. Make a single loudspeaker connection or connect two loudspeakers in parallel. When connecting the loudspeakers in parallel:

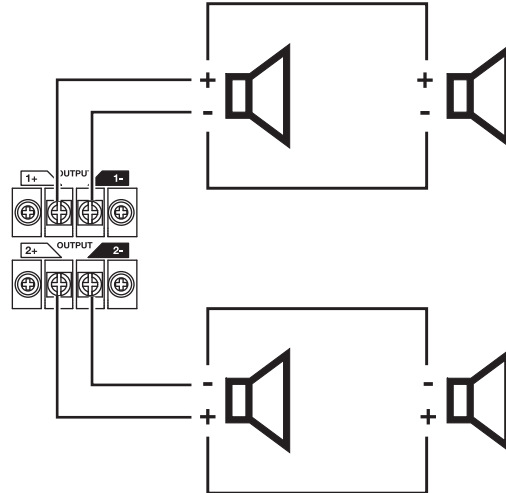
- Connect the wires from the amplifier to the matching positive (+) and negative (-) terminals on the first loudspeaker.
- Connect the positive (+) and negative (-) terminals of the first loudspeaker to the positive (+) and negative (-) terminals of the second loudspeaker.

CAUTION: Do not connect more than two loudspeakers together in this manner. Doing so could damage the amplifier.

Single 4-8 ohm loudspeaker



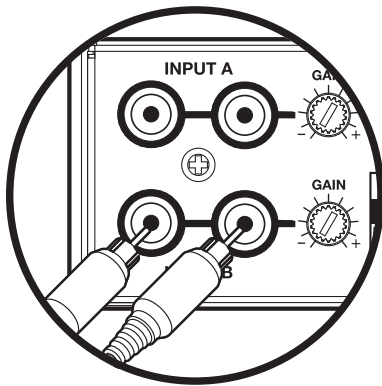
Two 8 ohm loudspeakers in parallel



Input Connections

RCA input connections

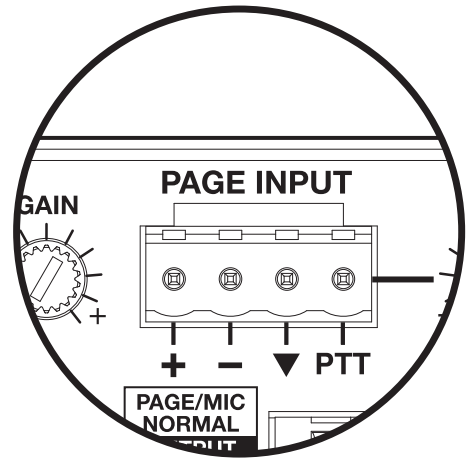
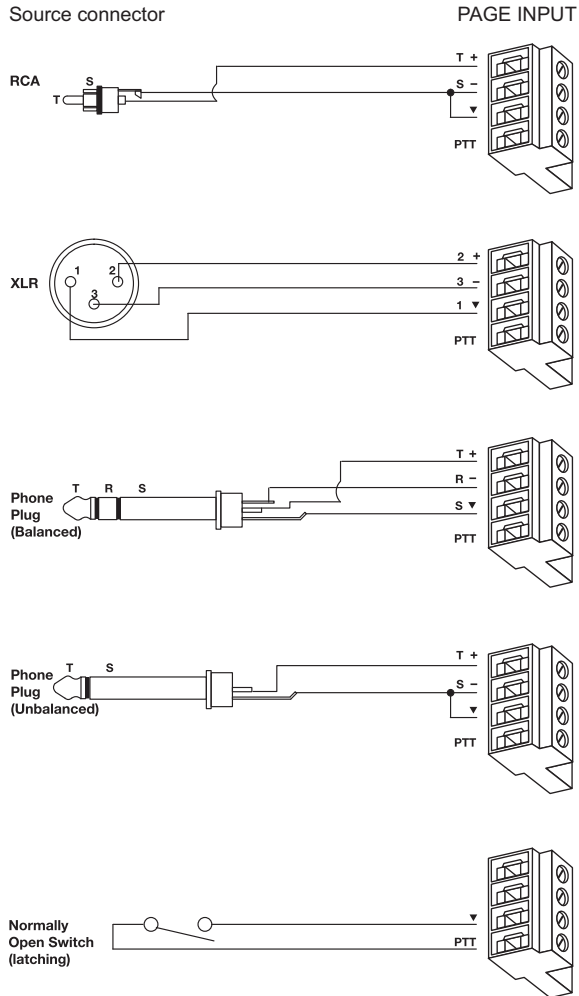
Insert the RCA plugs into the INPUT A or INPUT B connectors.



PRODUCT DESCRIPTION

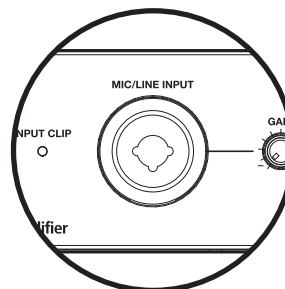
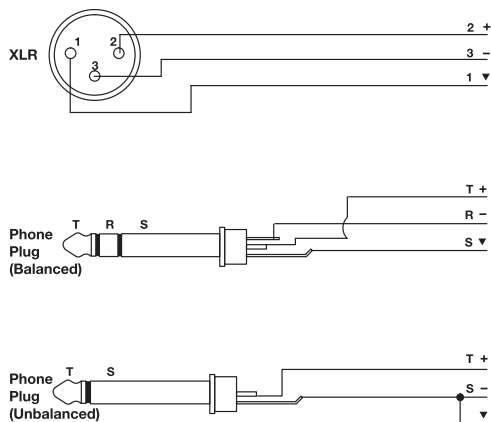
Page Input Connections

The PAGE INPUT is a mic/line input with a trigger contact closure. This input signal is routed to all outputs (including AUX OUT) when the trigger is detected. This is designed for push-to-talk paging microphones and telephone paging systems. See the diagrams below for input wiring configurations. Use a 4-pin Euroblock connector.



Mic/Line input connections (Front-panel)

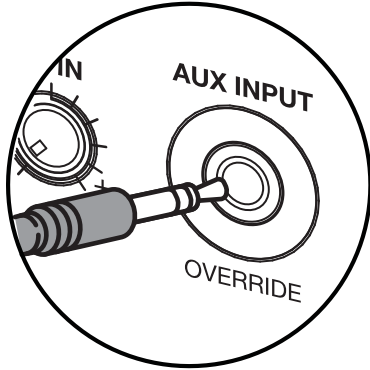
The MIC/LINE INPUT connector is designed for use with handheld dynamic microphones and XLR, TRS, or TS 1/4" micro-phone cables. Line-level sources also can be used with this input. See the diagrams below for input wiring configurations.



PRODUCT DESCRIPTION

Aux input (Front-panel)

The front panel auxiliary stereo line input connector is designed for connecting portable audio devices like MP3 players and laptops. When a 1/8" (3.5 mm) TRS input jack is connected to the AUX INPUT, the selected INPUT A/B is automatically overridden, even if the audio source connected to AUX INPUT is not playing.

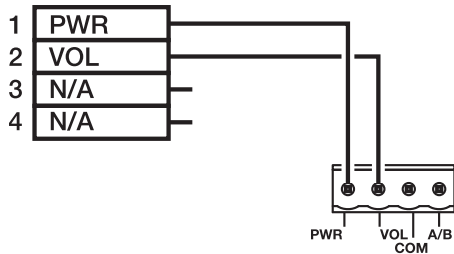


Remote Control Connections

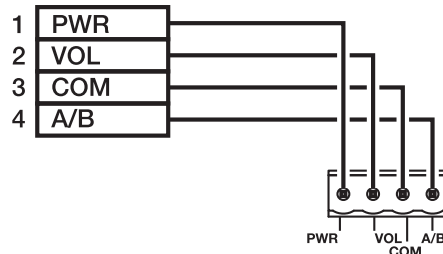
Remote Volume Control

The amplifier is designed to work with the Bose Volume Control User Interface (PC 041966) and Volume Control with A/B Select User Interface (PC 041967) accessories. The REMOTE connector on the rear panel of the amplifier is labeled to match the connectors on the user interfaces. Use a 4-pin Euroblock connector.

Volume Control User Interface



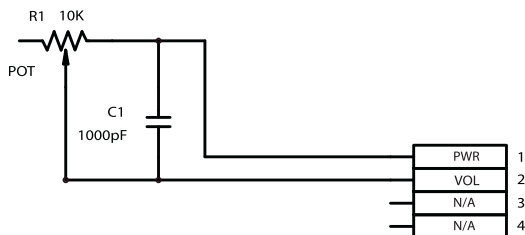
Volume Control with A/B Select User Interface



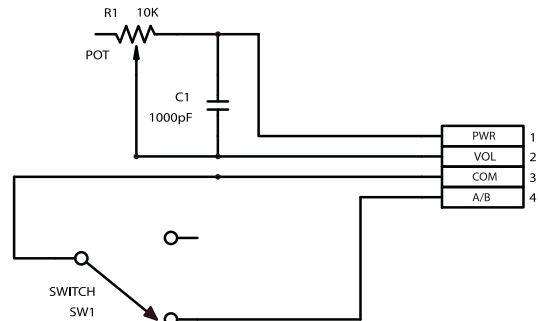
Refer to the Bose® Volume Control User Interface and Volume Control with A/B Select User Interface install guide for more details.

Note: The amplifier also can be controlled with a standard linear taper 10k potentiometer and switch.

Volume Control



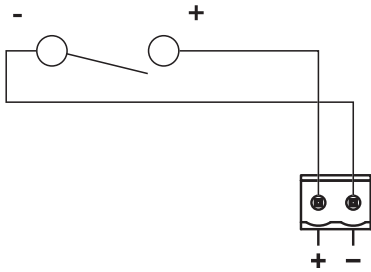
Volume Control with A/B Select



PRODUCT DESCRIPTION

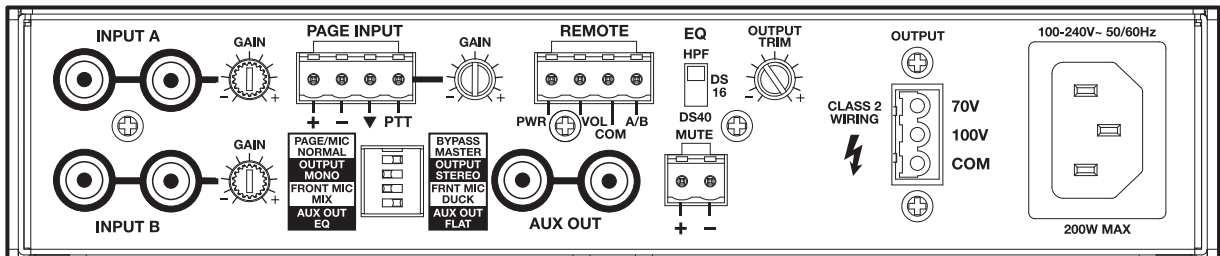
Mute with Standard Contact Closure

The amplifier is designed to mute all outputs (including AUX OUT) when a trigger is detected via the MUTE connector. This is triggered from a standard contact closure. Use the included 2-pin Euroblock.

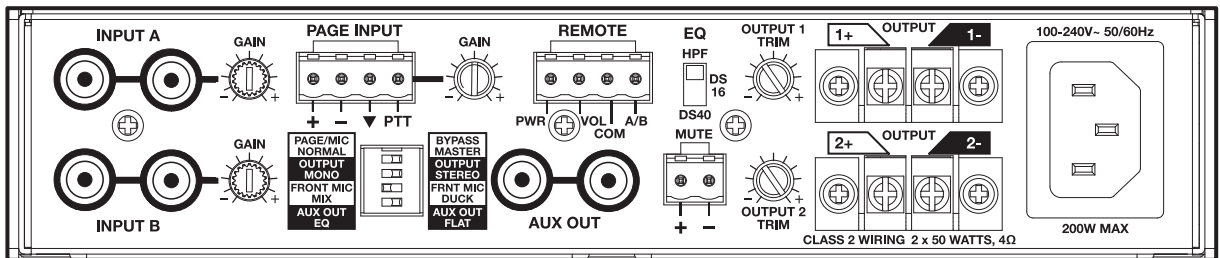


Setup – Rear Panel Controls

FreeSpace IZA 190-HZ



FreeSpace IZA 250-LZ



Amplifier mode DIP switches

Page/Mic Normal – Bypass Master

Determines if page input source will follow the master level output or can be set at an independent output level to ensure announcements are heard.

Output Mono - Output Stereo

Determines if stereo input sources will be output in mono or stereo via loudspeaker connectors and Aux Out RCA connectors.

Note: On the IZA 250-LZ amplifier, Output 1 is the left channel and Output 2 is the right channel when set to Output STEREO. On the IZA 190-HZ, the left channel is routed to the loudspeaker output when set to OUTPUT STEREO.

Front Mic Mix - Front Mic Duck

Determines if front-panel microphone input will be mixed in with music source or if the music output level will be automatically lowered (“ducked”) when someone speaks into microphone.

PRODUCT DESCRIPTION

Aux Out EQ – Aux Out Flat

Determines if Aux Out will have selected loudspeaker EQ preset applied to it or not. Allows for optimization of FreeSpace® DS 16 and DS 40 loudspeakers when used with additional zone amplifiers.

Loudspeaker EQ Preset Switch

Provides loudspeaker equalization presets designed to optimize the performance of Bose® FreeSpace DS 16 or DS 40 loudspeakers. A high-pass filter (HPF) setting is also available for use with any passive loudspeakers. the high-pass filter is set at 60 Hz for the IZA 190-HZ and at 40 Hz for the IZA 250-LZ.

The selected EQ preset (HPF, DS 16, DS 40) can be sent to an additional zone amplifier via Aux Out if “Aux Out EQ” is selected with the corresponding mode Dip switch.

Page Input Gain Control

Allows for fine-tuning page input levels. If the front-panel Input CLIP indicator is red, reduce the input gain. the adjustment range is 0 dB to +50 dB.

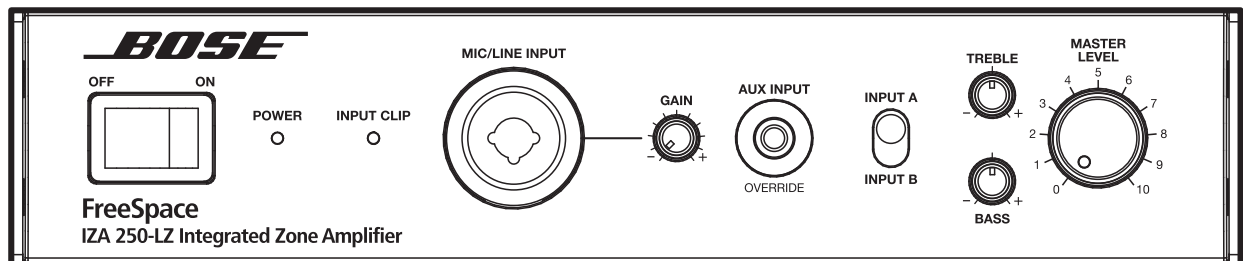
Line Input Gain Control

Allows for fine-tuning of Input A/B levels. If the front-panel Input CLIP indicator is red, reduce the input gain. The adjustment range is –20 dB to +20 dB.

Output Trim Control

Allows for attenuating individual loudspeaker outputs relative to the Master Level. the adjustment range is –20 dB to 0 dB. This feature is helpful when one output is powering loudspeakers that need to be set at a lower volume level than loudspeakers on other outputs – including the outputs of an additional zone amplifier.

Operation – Front Panel Controls and Indicators



Note: Front panel controls and indicators are identical on the FreeSpace® IZA 190-HZ amplifier.

Off/On Switch - Turns amplifier on or off.

Power Indicator - Illuminates blue when amplifier is on.

Input Clip Indicator - Illuminates red whenever input source approaches the threshold value of -3dBFS. If the indicator illuminates frequently, reduce input signal level.

Mic/Line Input Gain Control - Allows for fine-tuning of the MIC/LINE input level. If the INPUT CLIP indicator is red, reduce the input gain. The adjustment range is 0 dB to +50 dB.

PRODUCT DESCRIPTION

Input A/B Selector Switch - Allows you to choose between rear line inputs A and B from the front panel of the amplifier. Rear line inputs A and B can also be selected remotely with the use of optional Bose® Volume Control with A/B Select User Interface accessory.

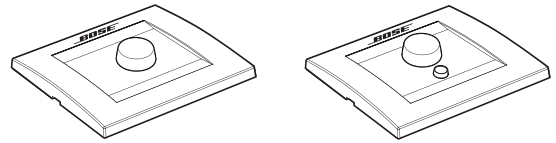
Note: When the Bose Volume Control with A/B Select User Interface is connected, the source select on the front panel of the amplifier will not function. The position of the A/B switch on the user interface will determine what source is selected.

Treble Control - Allows adjustment of the output tone. Provides +/-6 dB of adjustment at 7 kHz.

Bass Control - Allows adjustment of the output tone. Provides +/-6 dB of adjustment at 100 Hz.

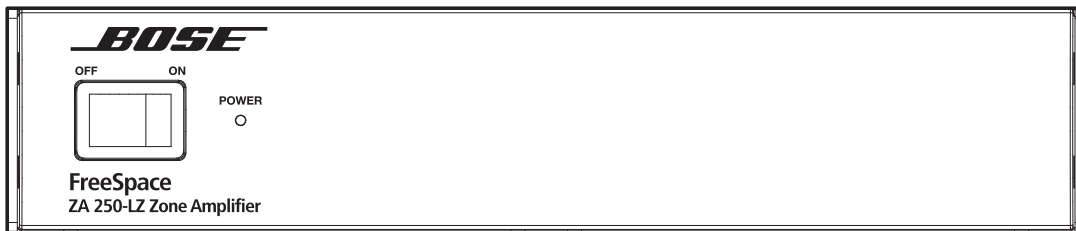
Master Level Control - Controls the overall system volume for both the loudspeakers and the variable AUX OUT. The Master Level can also be controlled remotely with the use of optional Bose Volume Control User Interface or Volume Control with A/B Select User Interface accessories.

Note: When the Volume Control User Interface is connected, the front-panel MASTER LEVEL control will not function. The position of the volume control on the User Interface determines overall system volume.



FreeSpace® ZA 190-HZ/250-LZ Zone Amplifier

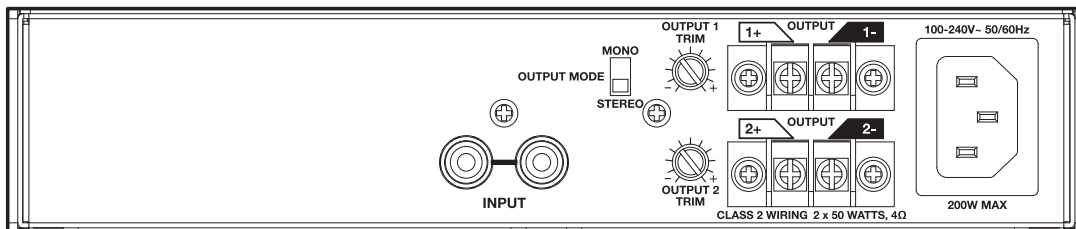
Front Panel Controls and Indicators



Note: Front Panel controls and indicators are identical on the FreeSpace® ZA 190-HZ amplifier.

Off/On Switch - Turns amplifier on or off.

Power Indicator - Illuminates blue when amplifier is on.



Output Mode Switch (ZA 250-LZ only) - Allows stereo input sources to be output in mono or stereo. **Note:** The ZA 190-HZ is designed to sum both inputs channels to mono.

Output Trim Control - Allows for attenuating individual loudspeaker outputs relative to the Master Level of the connected IZA 190-HZ/250-LZ amplifier. The adjustment range is -20 dB to 0 dB. This feature is helpful when one output is powering loudspeakers that need to be set at a lower volume level than loudspeakers on other outputs.

PRODUCT DESCRIPTION

Setup and Operation

Expanding an IZA System with a ZA Amplifier

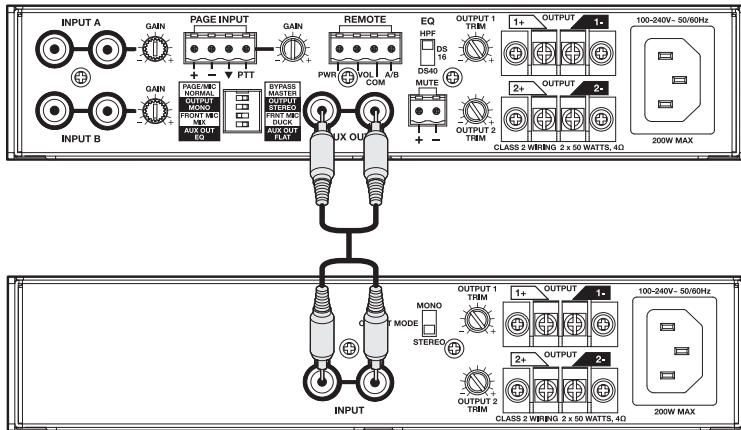
The Bose® FreeSpace® ZA 190-HZ/250-LZ Zone Amplifier makes system expansion easy. When a system design requires more loudspeakers than the FreeSpace IZA 190-HZ/250-LZ Integrated Zone Amplifier can support, the FreeSpace ZA 190-HZ/250-LZ Zone Amplifier is available to provide additional power.

System operation - The IZA 190-HZ/250-LZ and ZA 190-HZ/250-LZ amplifiers will function together as one system – sharing the same music and paging sources. The IZA 190-HZ/250-LZ amplifier functions as the “master” of the ZA 190-HZ/250-LZ amplifier – determining which audio sources will be heard and controlling the overall Master Level volume.

Input connections

Connecting the IZA 190-HZ/250-LZ amplifier to the ZA 190-HZ/250-LZ amplifier

Connect the AUX OUT of the IZA 190-HZ/250-LZ amplifier to the INPUT of the ZA 190-HZ/250-LZ amplifier with the included RCA cable.



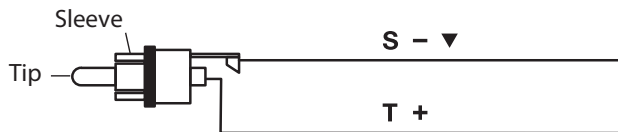
Note: It is recommended that when amplifiers are connected together, that both amplifier AC power cords are plugged into the same AC outlet.

Connecting the Zone Amplifier with other Products

The zone amplifier can also be used as a standalone power amplifier with a front-end signal processor – including the Bose FreeSpace® DXA 2120 Digital Mixer/Amplifier, FreeSpace 4400 Business Music System, and ControlSpace® Engineered Sound Processor.

Line input connections

When using a front-end signal processor, the included RCA cable may need to be modified. The wiring diagram for the zone amplifier line input RCA connectors is provided below.




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.

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 PCBs are listed in the Electrical 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.
4. This part is referenced for informational purposes only. It is not stocked as a repair part. Refer to the next higher assembly for a replacement part.

PACKAGING PART LIST

FreeSpace® IZA / ZA System (refer to Figure 1)

Item Number	Description	Bose® P/N	Vendor P/N	Qty.	Note
1	CONNECTOR KIT (INCLUDES ITEMS A - H BELOW)	348624-001S	SVC- LOMIC04+CONK		
A	ZIP BAG	-	1497-5152+0	1	4
B	FEMALE PLUG, 4P, GREEN	-	2113-3147+0	1	4
C	FEMALE PLUG, 4P, BLACK	-	2113-3365+0	1	4
D	FEMALE PLUG, 2P, BLACK	-	2113-3366+0	1	4
E	FEMALE PLUG, 3P, GREEN	-	2113-3367+0	1	4
F	RUBBER FOOT	348623-0010	4157-1981+0	4	
G	SPADE LUGS, BLUE	-	2113-3391+0	4	4
H	SPADE LUGS, RED	-	2113-3390+0	4	4
2	PE FOAM, FRONT	350489-0010	1493-2391+0	1	
3	POLY BAG	-	1497-7132+0	1	4
4	MANUAL POLYBAG	-	1497-1062+0	1	4
5	GUIDE, INSTALL / USER, FS ZONE AMP	350900-0010	-	1	
6	INNER PAD	348620-0010	1451-0650+1	1	
7	PE FOAM, REAR	350490-0010	1493-2511+0	1	
8	WIRE BOX	348621-0010	1439-4101+1-1	1	
9	RCA CABLE	-	7013-2380+0	1	
10	TAPE, CLEAR, CIRCLE	-	3100-6801+1	1	4
11	CARTON BOX, FS IZA 190-HZ CARTON BOX, FS ZA 190-HZ CARTON BOX, FS IZA 250-LZ CARTON BOX, FS ZA 250-LZ	348622-0010 350486-0010 350487-0010 350488-0010	1439-4201+0-2 1439-6501+0-2 1439-6601+0-2 1439-6701+0-2	1	
12	SKU LABEL	-	-	1	4
-	AUS/NZ WARR SLIP SHEET 8.5 X 5.5	355731-0010	-	1	
-	AC POWER CORD, US/CAN	350745-0010	-	1	3
-	AC POWER CORD, EURO	350747-0010	-	1	
-	AC POWER CORD, JAPAN	350749-0010	-	1	
-	AC POWER CORD, UK	350748-0010	-	1	
-	AC POWER CORD, AUS	350746-0010	-	1	⚠

Note: Not all versions of the amplifiers use all of the connectors or spade lugs.

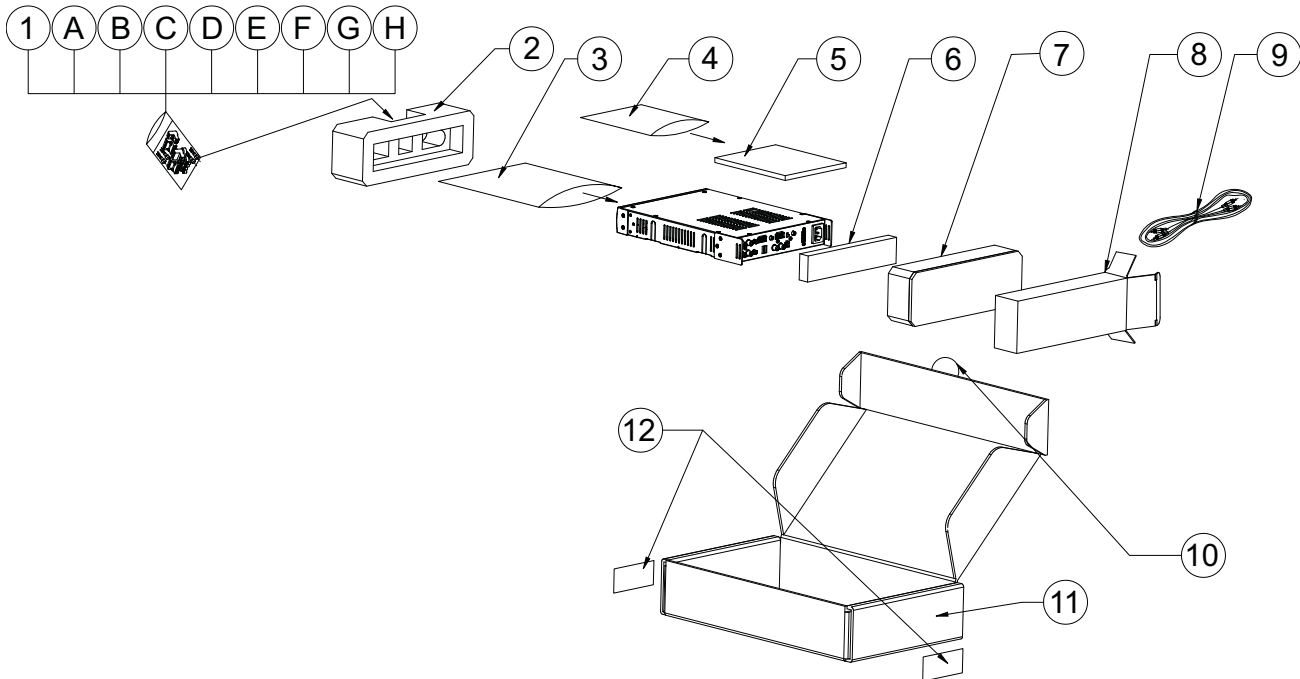


Figure 1. FreeSpace IZA / ZA System Packing View

MAIN PART LIST

FreeSpace® FS IZA 190-HZ Amplifier (refer to Figure 2)

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty.	Note
1	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	8	4
2	CHASSIS	-	1407-5006+0	1	4
3	TUBE SCREW M3X6	-	2904-3006+3000	5	4
4	AC INLET	-	2113-3135+0	1	4
5	BRACKET, REAR	348589-0310	SVC-HIMIC04+BKT	2	
6	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	6	4
7	CRINKLE WASHER	-	2605-4008-0850	1	4
8	PLAIN WASHER	-	2600-4008+1000	1	4
9	SPRING WASHER	-	2607-4008+0650	1	4
10	NUT, M4	-	2640-4030+0704	1	4
11	BRASS TUBE, M3X18	-	4134-8421+0	2	4
12	SPRING WASHER	-	2607-3007+0550	2	4
13	PCB SCREW, M3X6	-	2900-3006+4000	2	4
14	CIRCLE FOR RCA JACK	-	4155-2151+0	3	4
15	BRASS TUBE, M3X10	-	4135-9721+0	3	4
16	SMPS/AMP PCB ASSY (with items 17,18,19)	348591-001S	SVC-HIMIC04+MAIN	1	2
17	HEAT SINK, SMALL				
18	SILICONE PAD				
19	HEAT SINK, LARGE				
20	XFMR RUBBER SHEET				
21	XFMR (with items 19,22,23,24,25)	348596-0010	SVC-HIMIC04+TRAN	1	3
22	XFMR PLAIN WASHER				
23	XFMR SPRING WASHER				
24	XFMR NUT				
25	XFMR SCREW				
26	TOP COVER (with item 27)	348597-031S	SVC-HIMIC04+COV 3011-9731+0	1	
27	INSULATION SHEET			1	4
28	SCREW, M3X6	-	2904-3006+3000	2	4
29	SPACER	348608-0010	SVC-HIMIC04+SPCR	4	
30	PCB SCREW, M3X6	-	2900-3006+4000	3	4
31	SPRING WASHER	-	2607-3007+0550	3	4
32	3.5MM JACK PCB ASSY	348603-001S	SVC-LOMIC04+JACK	1	2
33	POWER SWITCH	348612-0010	SVC-HIMIC04+SW	1	3 
34	FRONT PANEL, MASTER VERSION	348609-0310	SVC-HIMIC04+FPNM	1	
35	KNOB FOR VR	348611-0310	SVC-HIMIC04+KNOB	1	
36	NUT FOR VR (with item 37)	-	4751-2280+0	1	4
37	PLAIN WASHER FOR VR	-		1	4
38	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	4	4
39	FRONT PCB SCREW, M2.3X8	-	2950-2308+3000	5	4
40	COMBO SCREW, M3X8	-	2950-3008+3000	2	4
41	OUTPUT PCB ASSY	348598-001S	SVC-HIMIC04+OUTP	1	2
42	REAR PANEL I/O PCB ASSY	348599-001S	SVC-HIMIC04+REAR	1	2
43	PCB SCREW, M3X6	-	2900-3006+4000	3	4
44	PCB SCREW, M3X6	-	2900-3006+4000	7	4
45	CLIP	-	4135-3291+0	2	4
46	DSP PCB ASSY	348601-001S	SVC-HIMIC04+DSP	1	2
47	MIC PCB ASSY	348607-001S	SVC-LOMIC04+MIC	1	2
48	LABEL, MODEL	-	3001-3000+0	1	4
49	LED PCB ASSY (with item 50)	348604-001S	SVC-HIMIC04+LED	1	2
50	LIGHT PIPE				4
-	HARDWARE KIT, SCREWS, SVC	348613-001S	SVC-LOMIC04+HRDK	1	

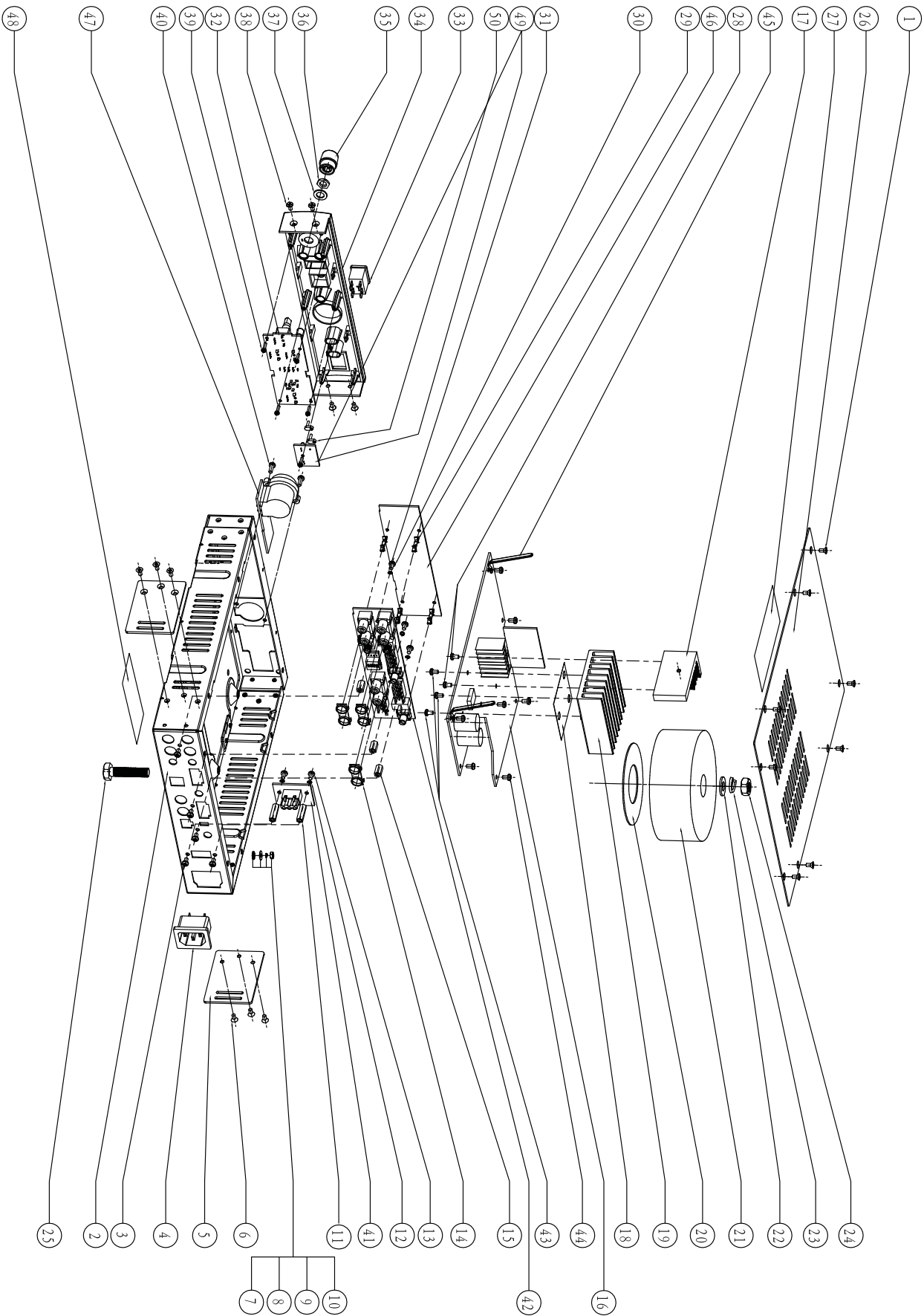




Figure 2. FreeSpace® IZA 190-HZ Amplifier Exploded View

MAIN PART LIST

FreeSpace® ZA 190-HZ Amplifier (refer to Figure 3)

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty.	Note
1	CHASSIS	-	1407-5017+0	1	4
2	TUBE SCREW M3X6	-	2904-3006+3000	4	4
3	AC INLET	-	2113-3135+0	1	4
4	BRACKET, REAR	348589-0310	SVC-HIMIC04+BKT	2	
5	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	6	4
6	BRASS TUBE, M3X18	-	4134-8421+0	2	4
7	CRINKLE WASHER	-	2605-3010+0600	1	4
8	PLAIN WASHER	-	2600-4008+0850	1	4
9	SPRING WASHER	-	2600-4008+1000	1	4
10	NUT, M4	-	2607-4008+0650	1	4
11	SPRING WASHER	-	2640-4030+0704	2	4
12	PCB SCREW, M3X6	-	2900-3006+4000	2	4
13	BRASS TUBE, M3X10	-	4135-9721+0	2	4
14	CIRCLE FOR RCA JACK	-	4155-2151+0	1	4
15	SMPS / AMP PCB ASSY (with items 16, 17, 18)	353202-001S	SVC-HIMIC14+MAIN	1	2
16	SILICONE PAD				
17	HEAT SINK, LARGE				
18	HEAT SINK, SMALL				
19	TOP COVER (with item 20)	348597-031S	SVC-HIMIC04+COV	1	
20	INSULATION SHEET	-	3100-9731+0	1	4
21	CLIP	-	4135-3291+0	1	4
22	SCREW, M3X6	-	2904-3006+3000	2	4
23	PCB SCREW, M3X6	-	2900-3006+4000	3	4
24	PCB SCREW, M3X6	-	2900-3006+4000	2	4
25	SPRING WASHER	-	2607-3007+0550	2	4
26	POWER SWITCH	348612-0010	SVC-HIMIC04+SW	1	3 
27	FRONT PANEL, SLAVE VERSION	348610-0310	SVC-HIMIC04+FPNS	1	
28	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	4	4
29	LIGHT PIPE	-	4155-1861+0	1	4
30	LED PCB ASSY (with item 29)	348606-001S	SVC-HIMIC04+LEDS	1	2
31	OUTPUT PCB ASSY	348598-001S	SVC-HIMIC04+OUTP	1	2
32	I/O PCB ASSY, SLAVE VERSION	350515-001S	SVC-HIMIC04+INP	1	2
33	XFMR RUBBER SHEET				
34	XFMR PLAIN WASHER				
35	XFMR SPRING WASHER				
36	XFMR NUT				
37	TRANSFORMER SCREW				
38	XFMR (with items 33,34,35,36,37)	348596-0010	SVC-HIMIC04+TRAN	1	3 
39	PCB SCREW, M3X6	-	2900-3006+4000	7	4
40	FRONT PCB SCREW, M2.3X8	-	2950-2308+3000	1	4
41	LABEL, MODEL	-	3001-3073+0	1	4
42	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	8	4
-	HARDWARE KIT, SCREWS, SVC	348613-001S	SVC-LOMIC04+HRDK	1	

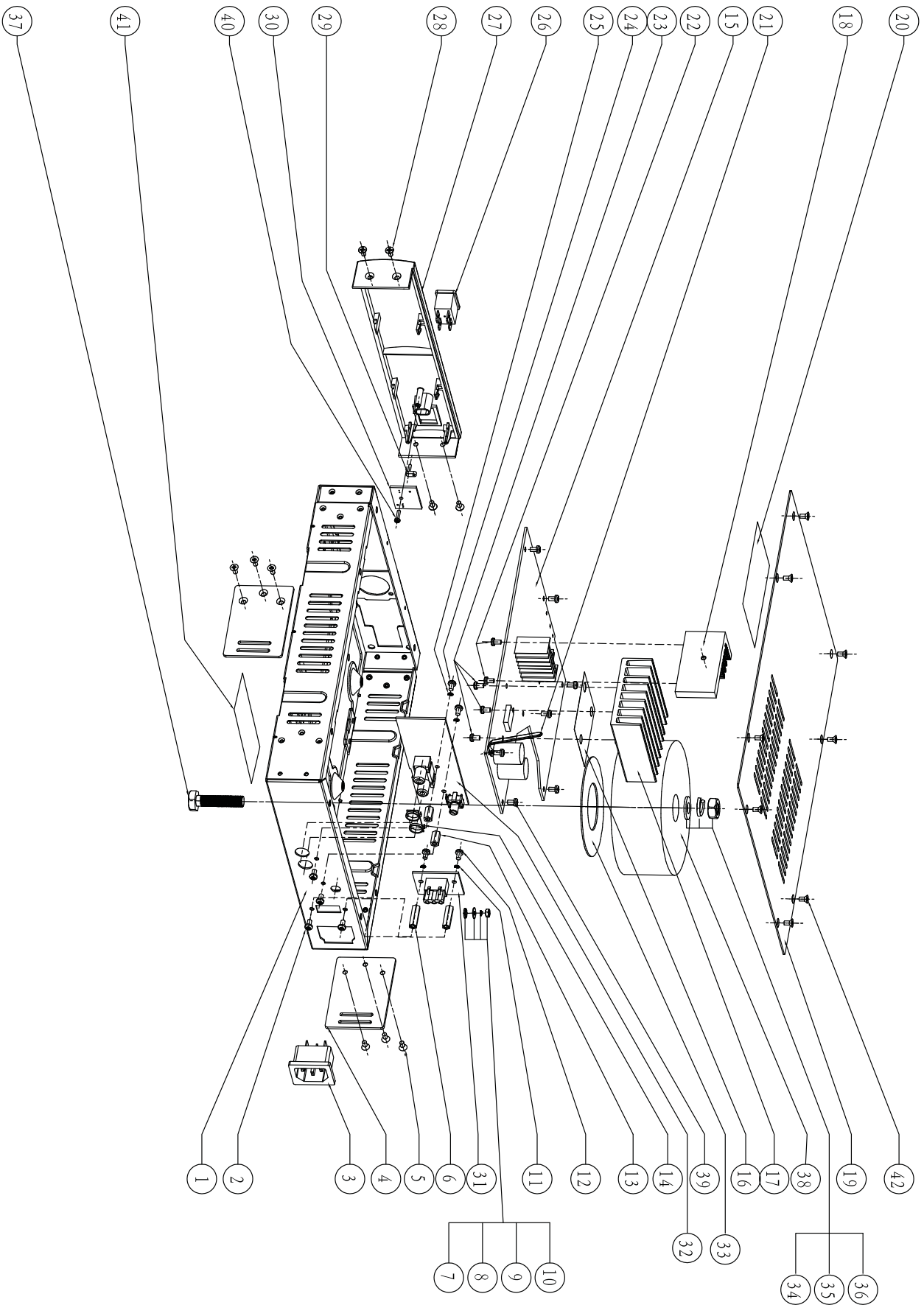


Figure 3. FreeSpace® ZA 190-HZ Amplifier Exploded View

MAIN PART LIST

FreeSpace® IZA 250-LZ Amplifier (refer to Figure 4)

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty.	Note
1	CHASSIS	-	1407-5028+0	1	4
2	TUBE SCREW M3X6	-	2904-3006+3000	3	4
3	TERMINAL SCREW, M3X8	-	2904-3008+3000	4	4
4	AC INLET	-	2113-3135+0	1	4
5	BRACKET, REAR	348589-0010	SVC-HIMIC04+BKT	2	
6	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	6	4
7	CRINKLE WASHER	-	2605-4008+0850	1	4
8	PLAIN WASHER	-	2600-4008+1000	1	4
9	SPRING WASHER	-	2607-4008+0650	1	4
10	NUT, M3	-	2640-4030+0704	1	4
11	CIRCLE FOR RCA JACK	-	4155-2151+0	3	4
12	BRASS TUBE, M3X10	-	4135-9721+0	3	4
13	SPRING WASHER	-	2607-3007+0550	3	4
14	PCB SCREW, M3X6	-	2900-3006+4000	3	4
15	SPACER	348608-0010	SVC-HIMIC04+SPCR	4	
16	SMPS / AMP PCB ASSY (with items 17,18,19)	348594-001S	SVC-LOMIC04+MAIN	1	2
17	SILICONE PAD				
18	HEAT SINK, LARGE				
19	HEAT SINK, SMALL				
20	TOP COVER (with item 21)	348597-031S	SVC-HIMIC04+COV	1	
21	INSULATION SHEET		3100-9731+0	1	4
22	PCB SCREW, M3X6	-	2900-3006+4000	7	4
23	SCREW, M3X6	-	2904-3006+3000	2	4
24	LED PCB ASSY (with item 25)	348604-001S	SVC-HIMIC04+LED	1	2
25	LIGHT PIPE				4
26	POWER SWITCH	348612-0010	SVC-HIMIC04+SW	1	3 
27	FRONT PANEL	348609-0310	SVC-LOMIC04+FPNM	1	
28	KNOB FOR VR	348611-0310	SVC-HIMIC04+KNOB	1	
29	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	4	4
30	FRONT PCB SCREW, M2.3X8	-	2950-2308+3000	5	4
31	TERMINAL BLOCK, 2-PIN	348615-0010	SVC-HIMIC04+TERM	2	
32	REAR PANEL I/O PCB ASSY	348600-001S	SVC-LOMIC04+REAR	1	2
33	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	8	4
34	PCB SCREW, M3X6	-	2900-3006+4000	3	4
35	CLIP	-	4135-3291+0	2	4
36	DSP PCB ASSY	348602-001S	SVC-LOMIC04+DSP	1	2
37	MIC PCB ASSY	348607-001S	SVC-LOMIC04+MIC	1	2
38	COMBO SCREW, M3X8	-	2950-3008+3000	2	4
39	NUT FOR VR (with item 40)	-	4751-2280+0	1	4
40	PLAIN WASHER FOR VR				
41	3.5MM JACK PCB ASSY	348603-001S	SVC-LOMIC04+JACK	1	2
42	LABEL, MODEL	-	3001-3074+0	1	4
-	HARDWARE KIT, SCREWS, SVC	348613-001S	SVC-LOMIC04+HRDK	1	

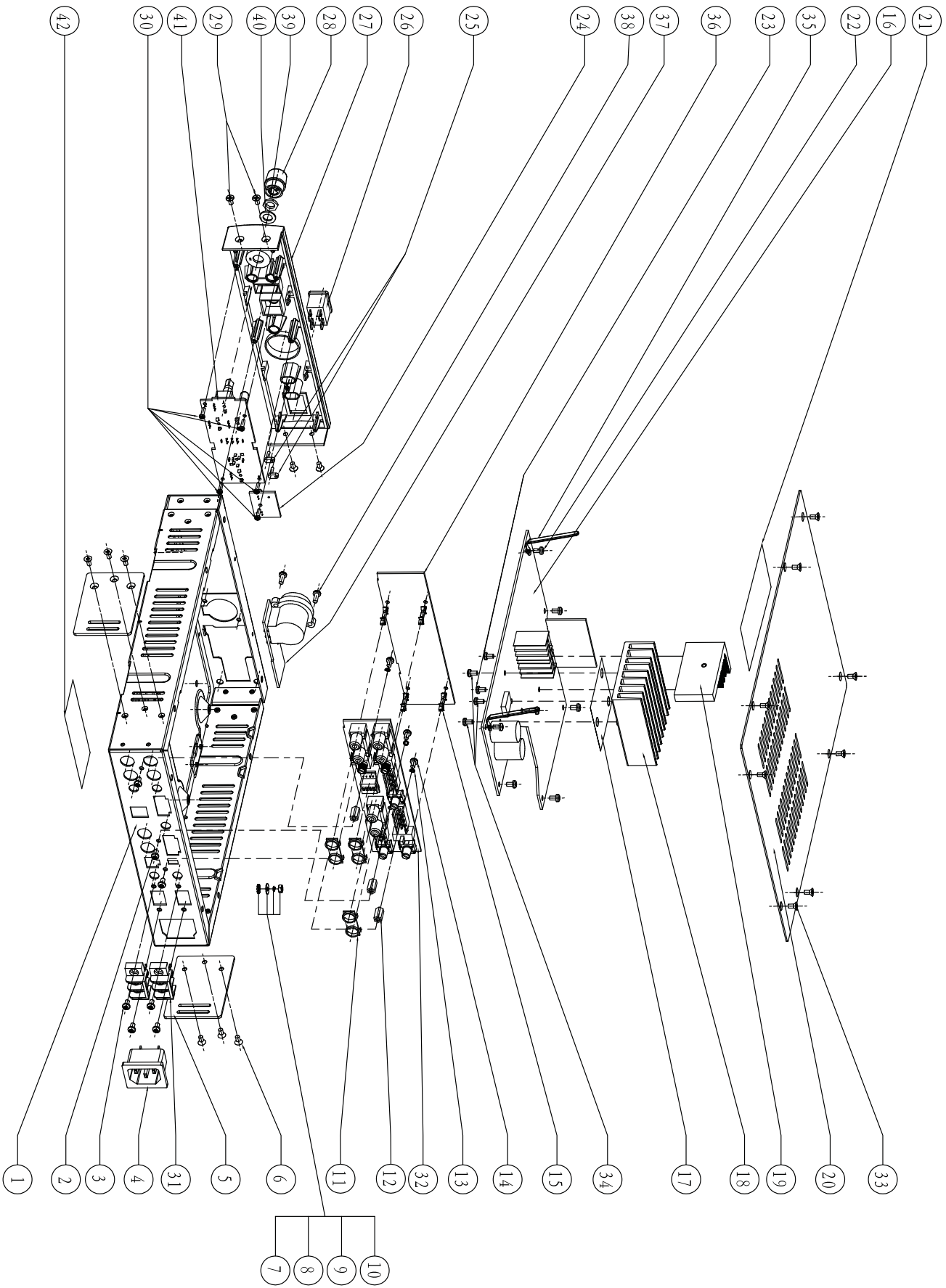



Figure 4. FreeSpace® IZA 250-LZ Amplifier Exploded View

MAIN PART LIST

FreeSpace® ZA 250-LZ Amplifier (refer to Figure 5)

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty.	Note
1	CHASSIS	-	1407-5039+0	1	4
2	TUBE SCREW M3X6	-	2904-3006+3000	2	4
3	TERMINAL SCREW, M3X8	-	2904-3008+3000	4	4
4	AC INLET	-	2113-3135+0	1	4
5	TERMINAL BLOCK, 2-PIN	348615-0010	SVC-HIMIC04+TERM	2	
6	CRINKLE WASHER	-	2605-4008+0850	1	4
7	PLAIN WASHER	-	2600-4008+1000	1	4
8	SPRING WASHER	-	2607-4008+0650	1	4
9	NUT, M4	-	2640-4030+0704	1	4
10	CIRCLE FOR RCA JACK	-	4155-2151+0	3	4
11	BRASS TUBE, M3X10	-	4135-9721+0	2	4
12	PCB SCREW, M3X6	-	2900-3006+4000	3	4
13	SMPS / AMP PCB ASSY (with items 14,15,16)	353203-001S	SVC-LOMIC04+MAIN	1	2
14	SILICONE PAD				
15	HEAT SINK, LARGE				
16	HEAT SINK, SMALL				
17	TOP COVER (with item 18)	348597-031S	SVC-HIMIC04+COV	1	
18	INSULATION SHEET		3100-9731+0	1	4
19	SCREW, M3X6	-	2904-3006+3000	2	4
20	PCB SCREW, M3X6	-	2900-3006+4000	2	4
21	SPRING WASHER	-	2607-3007+0550	2	4
22	POWER SWITCH	348612-0010	SVC-HIMIC04+SW	1	3 
23	FRONT PANEL	348610-0310	1468-7403+0	1	
24	LED PCB ASSY (with item 25)	348606-001S	SVC-HIMIC04+LEDS	1	2
25	LIGHT PIPE		4155-1860+0	1	4
26	FRONT PCB SCREW, M2.3X8	-	2950-2308+3000	1	4
27	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	6	4
28	BRACKET, REAR	348589-0310	SVC-HIMIC04+BKT	2	
29	SLAVE UNIT I/O PCB ASSY	350516-001S	SVC-LOMIC04+INP	1	2
30	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	8	4
31	CLIP	-	4135-3291+0	2	4
32	PCB SCREW, M3X6	-	2900-3006+4000	7	4
33	SCREW, MACHINE, FLAT-CS	-	2901-3005+3000	4	4
34	LABEL, MODEL	-	3001-3075+0	1	4
-	HARDWARE KIT, SCREWS, SVC	348613-001S	SVC-LOMIC04+HRDK	1	

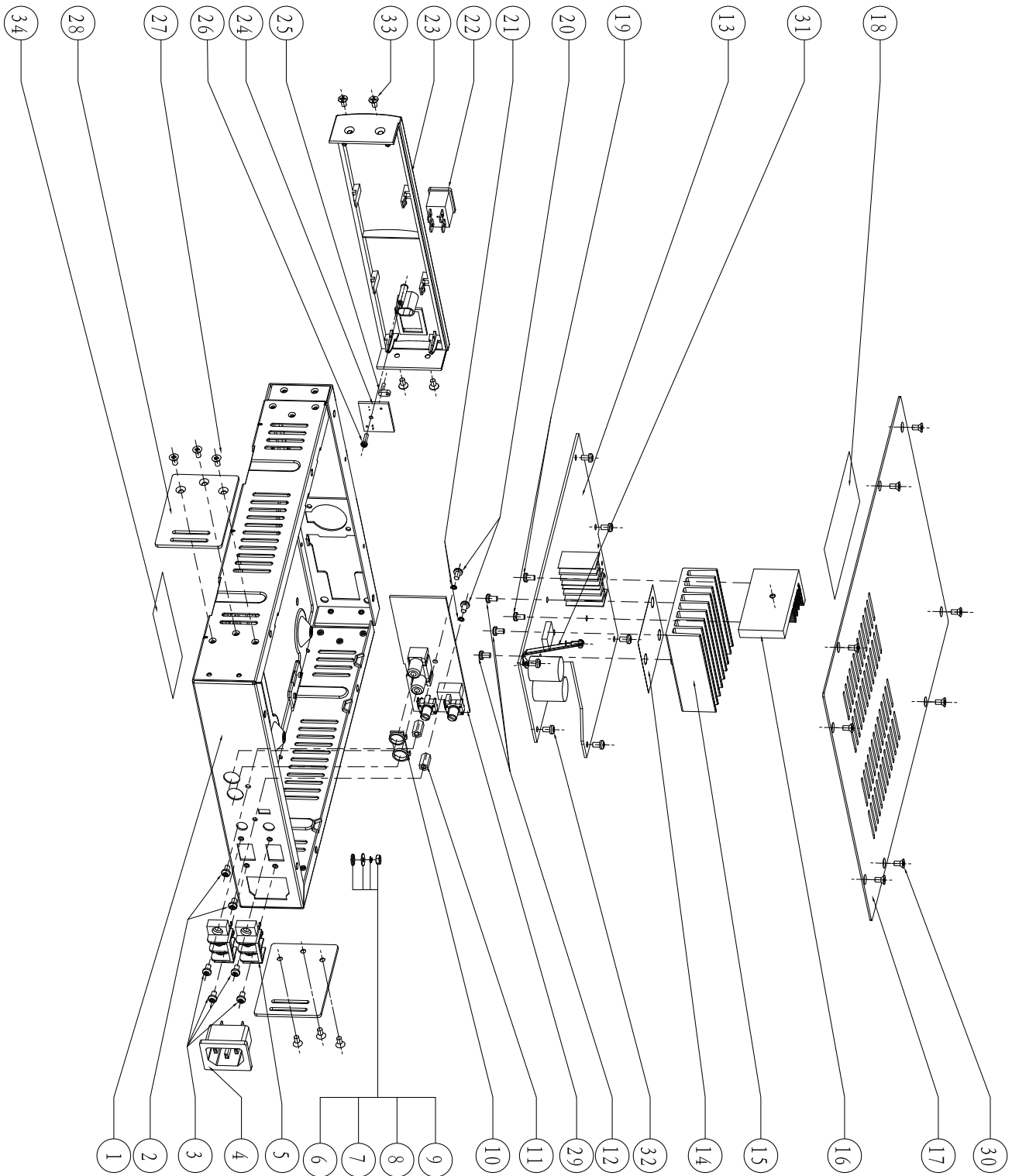


Figure 5. FreeSpace® ZA 250-LZ Amplifier

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Main PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R300	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R301	1K, RMG, 1W, 5%, 2512	4728-102J+3	4
R302	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R303	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R304	39.2K, RMG, 1W, 1%, 2512	4728-3922+3	4
R305	0R, RMG, 1/4W, 5%(<50 mOHM), 1206	4725-000J+6	4
R306	0R, RMG, 1/4W, 5%(<50 mOHM), 1206	4725-000J+6	4
R307	200K, RMG, 1/16W, 1%, 0603/1608	4723-204A+P	4
R308	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R309	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R312	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R313	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R314	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R315	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R316	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R317	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R318	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R319	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R320	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R321	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R322	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R324	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R325	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R326	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R327	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R328	2M, RMG, 1/4W, 1%, 1206	4725-205A+6	4
R329	10K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-103A+P-R	4
R330	1.8M, RMG, 1/8W, 1%, 1206	4721-185A+6	4
R331	6R8, RMG, 1/16W, 1%, 0603	4723-6R8A+P	4
R332	10K, RMG, 1W, 5%, 2512	4728-103J+3	4
R333	10R, RMG, 1/8W, 1% 1206	4721-100A+6	4
R334	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R335	10K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-103A+P-R	4
R336	100K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-104A+P-R	4
R337	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R338	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R339	10K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-103A+P-R	4
R340	180R, RMG, 1/16W, 1%, 0603/1608	4723-181A+P	4
R341	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R342	3.3K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-332A+P-R	4
R343	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R344	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R345	402K, RMG, 1/16W, 1%, 0603	4723-4023+P	4
R346	10K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-103A+P-R	4
R347	210K, RMG, 1/16W, 1%, 0603	4723-214A+P	4
R348	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R349	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R350	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4
R351	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R352	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R353	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R354	22R, RMOF, 5W, 5%, AT, MINI, SIZE	471B-220J+2-X	4
R355	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R356	0R, RMG, 1/4W, 5%(<50 mOHM), 1206	4725-000J+6	4
R357	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R358	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R360	100K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-104A+P-R	4
R361	39K, RMG, 1/16W, 5%, 0603, HK, SAMSUNG	4723-393J+P-R	4
R362	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R363	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R364	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R365	100K, RMG, 1/16W, 1%, 0603, HK, SAMSUNG	4723-104A+P-R	4
R366	2.4K, RMG, 1/16W, 1%, 0603	4723-242A+P	4
R367	30K, RMG, 1/16W, 1%, 0603/1608	4723-303A+P	4
R368	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R369	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R370	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R371	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R374	47R, RMG, 1/16W, 5%, 0603, HK, SAMSUNG	4723-470J+P-R	4
R378	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R379	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R390	3.9K, RMG, 1/16W, 5%, 0603, HK, SAMSUNG	4723-392J+P-R	4
R391	39K, RMG, 1/16W, 5%, 0603, HK, SAMSUNG	4723-393J+P-R	4
R392	39K, RMG, 1/16W, 5%, 0603, HK, SAMSUNG	4723-393J+P-R	4
R393	22R, RMOF, 5W, 5%, AT, MINI, SIZE	471B-220J+2-X	4
R394	3.9K, RMG, 1/16W, 5%, 0603, HK, SAMSUNG	4723-392J+P-R	4
R395	3.9K, RMG, 1/16W, 5%, 0603, HK, SAMSUNG	4723-392J+P-R	4
R396	0R, RMG, 1/4W, 5%(<50 mOHM), 1206	4725-000J+6	4
R397	0R, RMG, 1/10W, 5%, 0805	4720-0R0J+J	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C300	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C301	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C302	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C303	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C304	330PF, CC, 1000V, 10%, RLT, Y5P, 5.5X3.5	150N-331K+K-JF	4
C305	47UF, CE, 10V, 20%, RLT, 5X11, 105C	157C-476M+K-IUT	4
C306	4.7UF, CE, 63V, 20%, RLT, 5X11, LOW, ESR, 105C	157I-475M+K-IURT	4
C308	0.015UF, CC, 630V, 10%, 1206, X7R	150M-153K+6-CF	4
C309	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157E-107M+K-LURT	4

ELECTRICAL PART LIST

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Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C311	100UF, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157Q-107M+K-LUTR	4
C312	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C313	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C314	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C315	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C316	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C317	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C318	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C319	10UF, CE, 50V, 20%, RLT, 5X11, , 105C, RX, NOVER	157F-106M+K-IUTU	4
C320	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C321	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C322	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C323	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C324	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4
C325	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C326	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C327	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C328	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C329	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW, ESR	157Q-477M+K-S9RT	4
C330	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C331	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C332	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C333	47UF, CE, 100V, 20%, RLT10X16, LOW, ESR, 105C, WB, SAMWHA	157H-476M+K-S5RT	4
C334	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C335	100UF, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157Q-107M+K-LUTR	4
C336	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C337	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C338	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C339	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW, ESR	157Q-477M+K-S9RT	4
C340	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C341	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C342	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C343	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C344	47UF, CE, 10V, 20%, RLT, 5X11, 105C	157C-476M+K-IUT	4
C345	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C346	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C347	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4

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Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C348	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C349	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C350	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C351	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C352	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C353	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C354	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C355	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C356	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157E-107M+K-LURT	4
C357	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C358	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C359	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C360	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C361	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C362	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C364	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C365	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C366	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C367	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C368	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C369	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C370	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C371	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C372	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C373	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C374	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C375	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C376	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C377	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C378	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C379	0.47UF, CC, 25V, 5%, 0805, 1.25X2	150E-474J+J-BD	4
C380	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C381	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C382	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C383	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C384	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C385	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C386	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C387	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C388	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4

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Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C389	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C390	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C391	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C392	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C393	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C394	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C395	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C396	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C397	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C398	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C399	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C400	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C401	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C402	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C404	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C406	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C407	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C408	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C409	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C411	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C412	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C413	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C414	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C415	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C416	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C423	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C424	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C425	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C426	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C428	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C436	2200uF, CE, 10V, 20%, RL, 10x20	157C-228M+5-S9	4
C437	100uF, CE, 10V, 20%, R5, 5X11	157C-107M+K-IU	4
C449	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C450	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C485	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C486	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C487	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C488	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
CX300	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4
CX301	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4
XYC301	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
XYC303	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
XYC304	1000PF, CC, 400V, 20%, RL, Y5, U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4
YC300	1000PF, CC, 400V, 20%, RL, Y5, U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4

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Inductors

Reference Designator	Description	Vendor Part Number	Note
D303A	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
D304C	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
L300	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L301	10MH, CHOKE-COMMON, MODE, 10MH, MIN, AC, 240V, 2A, AL	1806-4037+0000	4
L302	10MH, CHOKE-COMMON, MODE, 10MH, MIN, AC, 240V, 2A, AL	1806-4037+0000	4
L303	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L304	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L305	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L306	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L310	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L311	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L313	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L314	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L318	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L319	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L320	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L321	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L322	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L323	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L324	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L328	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
B300	DIODE, BRIDGE, 800V, 8A, GBU8K, RL	4840-9218+5	4
D300	DIODE, FAST, 800V, 2A, HER207, AT	480R-2070+2	4
D303	DIODE, ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D304	DIODE, ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D305	DIODE, 200V, 0.2A, BAV21W, SOD-123, SMD, PANJIT	480V-21W0+3	4
D306	DIODE, LL4148, SM	4804-1480+3	4
D307	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D308	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D309	RECTIFIER, UF4006-T, GI, AT	4840-8530+2	4
D311	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D312	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D314	DIODE, RECT, 200V, 2A, ER2D, SMB/DO-214AA, SM	480E-R2D0+3	4
DZ300	DZ, 5W, 150V, 5%, AT	483B-1519+2	4
Z300	DZ, 5W, 10V, 5%, 1N5347B, AT, ON	483B-1005+2	4
Z301	DZ, 5W, 13V, 5%, AT	483B-1309+2	4
Z302	DZ, 5W, 13V, 5%, AT	483B-1309+2	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Main PCB Assembly

Diodes (continued)

Reference Designator	Description	Vendor Part Number	Note
Z303	DZ, 1/2W, 15V, 5%, SOD-123C, MMSZ5245BT1G	4837-15V9+3	4
Z304	DZ, 1/2W, 30V, 5%, SM	4837-3009+3	4
Z306	DZ, 1/2W, 5.6V, SMD	4837-5V69+3	4
Z307	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4
Z308	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q300	2N2222, SMD, MMBT2222ALT1G	4860-5410+3	4
Q301	MOSFET, N-CH, 60V, 115MA, 2N7002, SOT-23, SM	4907-0020+3	4
Q302	MMBT3906LT1G, SMD	4860-1980+3	4
U302A	TR, TIP31CTU	4860-2620+5	4
U304A	TR, PNP, TIP32C, HFE:, 10-50, TO-220, RL	485I-P32C+5	4






Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U300	IC, PWM, CONTROLER, TOP258YN, TO-220-7C, PI	3132-7241+0-35	4
U301	PHOTOCOUPLER, EL817, EVERLIGHT	481E-L817+3	4
U302B	HEAT, SINK, FOR, 7805, 2438-17	5400-9130+0	4
U302C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U302D	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4
U302E	INSULATION, MICA, T-400, 8302, 18X12.7M, , T0220	3100-8040+0	4
U302F	PLASTIC BUSHING, TO-220A	4152-6830+0	4
U303	IC, AMP, TDA8920BTH, SOT566-3, ONLY, FOR, BOSE	3132-2641+1	4
U304B	HEAT, SINK, FOR, 7805, 2438-17	5400-9130+0	4
U304C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U304D	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4
U304E	INSULATION, MICA, T-400, 8302, 18X12.7M, , T0220	3100-8040+0	4
U304F	PLASTIC BUSHING, TO-220A	4152-6830+0	4
U305	IC, REGULATOR, TL432BIDBZR, SOT-23-3, TI	3132-7691+0-16	4
U306	IC, REGULATOR, NJM7805DLA, TO-252	3132-7310+0	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Main PCB Assembly

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CN1	CONNECTOR, 2P, P3.96, STRAIGHT, M	2101-2780+0	4
FUS1	FUSE, T5A, 250V, 8X8.5, VDE/, PSE/CCC, RLT, LITTELFUSE	5120-1144+0-L	3,4 
HS1	HEATSINK, INNER, 56X28X30, AL-EXT	5401-0271+0	4
HS1A	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS1B	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS2	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS2A	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4
HS2B	SCREW, 3X8, TAPPING	2950-3008+3000	4
HS3	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS3A	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4
HS3B	SCREW, 3X8, TAPPING	2950-3008+3000	4
J1	CONNECTOR, WAFER, 2P, P7.92, STRAIGHT	2101-3092+0	4
J109A	CONNECTOR, 2P, WAFER, P2.0, ST, 25055440, CT, AMP	2101-1424+0	4
J4B	CONNECTOR, 11P, ST, WAFER, P=2.0	2102-110S+003	4
RV1	SURGE PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
RV2	SURGE PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
T1	TRANSFORMER, SW, IN80-288V, OUT+/-28V, 50X2, 35X42, ER	1806-4131+0000	3,4 
TH300	NTC, THERMISTER, 50HM, 4A, NIOSP005L, UL/CSA/VDE	5202-0010+0	3,4 

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ DSP PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R1	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R2	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R3	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R4	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R5	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R6	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R7	0R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R8	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R9	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R10	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R11	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R12	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R13	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-104A+P-R	4
R14	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R15	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R16	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R17	2.2K, RMG, 1/16W, 1%, 0603/1608	4723-222A+P	4
R18	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R19	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R20	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R21	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R22	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R23	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R24	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R25	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R26	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R27	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R28	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R29	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R30	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R31	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R32	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R33	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R35	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R36	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R37	0R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R38	0R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R39	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R40	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R41	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R42	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R43	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R44	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R45	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R46	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R47	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R48	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ DSP PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R49	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R50	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R51	22K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-223A+P-R	4
R52	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R53	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R54	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R55	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R57	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R58	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R59	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R60	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R61	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R62	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R63	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R64	0R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R65	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R66	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R67	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R68	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R69	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R70	2.2K, RMG, 1/16W, 1%, 0603/1608	4723-222A+P	4
R71	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R72	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R73	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R74	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R75	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R76	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R77	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R78	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R79	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R80	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R81	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R82	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R83	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R84	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R85	6.8K, RMG, 1/16W, 1%, 0603/1608	4723-682A+P	4
R86	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R87	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R88	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R89	300R, RMG, 1/16W, 5%, 0603	4723-301J+P	4
R90	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-104A+P-R	4
R91	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R92	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R93	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R94	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R95	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-392J+P-R	4
R96	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ DSP PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R97	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/, S	4723-473A+P-R	4
R98	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821A+P-R	4
R99	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R110	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821A+P-R	4
R116	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123A+P-R	4
R117	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123A+P-R	4
R118	1R, RMG, 1/16W, , 5%, 0603	4723-1R0J+P	4
R123	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
CAP1	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP2	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP3	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP4	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP5	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
CAP6	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
CAP7	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
CAP8	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C1	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C2	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C3	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C4	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C5	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C6	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C7	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C8	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C9	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C10	100uF, CE, 10V, , 20%, SM, 6.3X5.4	157C-107M+3-LJ	4
C11	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C12	220UF, CE, 6.3V, , 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C13	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C14	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C15	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C16	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C17	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C18	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C19	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C20	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C21	22UF, CE, 6.3V, , 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C22	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C23	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C24	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C25	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C26	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C27	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ DSP PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C28	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C29	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C30	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C31	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C32	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C33	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C34	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C35	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C36	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C37	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C38	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C39	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C40	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C41	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C42	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C43	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C44	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C45	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C46	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C47	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C48	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C49	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C50	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C51	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C52	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C53	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C54	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C55	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C56	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C57	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C58	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C59	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C60	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C61	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C62	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C63	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C64	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C65	270PF, CC, 50V, , 10%, 0603, 1x2	150F-271K+P-AC	4
C66	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C67	270PF, CC, 50V, , 10%, 0603, 1x2	150F-271K+P-AC	4
C68	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C69	560PF, CC, 50V, 10%, 0603/1608, 1X2	150F-561K+P-AC	4
C70	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C71	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C72	270PF, CC, 50V, , 10%, 0603, 1x2	150F-271K+P-AC	4
C73	0.47UF, CC, 10V, 10%, 0603, 332134745R1, RS	150C-474K+P-AC	4
C74	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ DSP PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C75	270PF, CC, 50V, , 10%, 0603, 1x2	150F-271K+P-AC	4
C76	560PF, CC, 50V, 10%, 0603/1608, 1X2	150F-561K+P-AC	4
C77	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C78	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C79	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C80	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C81	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C82	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C83	33PF, CC, 50V, 5%, 0603/1608, 1X2	150F-330J+P-AC	4
C84	33PF, CC, 50V, 5%, 0603/1608, 1X2	150F-330J+P-AC	4
C85	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C86	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C87	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C88	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C89	100PF, CC, 50V, , 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C90	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C91	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C92	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C93	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C94	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C95	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C96	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C97	22pF, CTC, 0/60, 5%, 0603, 0.8X1.6	15CH-220J+P-AC	4
C98	4.7UF, CC, 10V, 10%, 0805, X7R	150C-475K+J-BD	4
C99	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C118	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C124	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C126	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L1	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L2	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L3	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L4	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L5	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L6	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L7	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L8	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L9	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L10	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L11	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L12	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L13	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L14	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4
L15	FERRITE, BEAD, SMD, ACB453215, 125	1808-0878+0	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ DSP PCB Assembly

Diodes

Reference Designator	Description	Vendor Part Number	Note
D1	LED, SMD, 2X1.25X1.1, GN, 0805	3700-7852+G	4
D2	DIODE, BAV99, SOT23, PHILIPS	4840-8970+3	4
D3	DIODE, FAST, 75V, 0.5A, BAS316, SOD323	480S-3160+3	4
D4	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTK	480T-54S0+3	4
D6	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTK	480T-54S0+3	4
D8	DIODE, FAST, 75V, 0.5A, BAS316, SOD323	480S-3160+3	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q1	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q2	MMBT4403LT1G, SMD	4854-4030+3	4
Q3	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q4	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q5	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q6	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q7	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q8	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U1	IC, DSP, AUDIO, TAS3204, PQFP-64	3132-8131+0	4
U2	MCU, UPD78F0572, SSOP-30	3132-8121+0	4
U3	IC, 16-CH, DEMULTIPLEXER, 74HC4067M96, SO	3132-3021+0	4
U4	IC, FLASH, MX25L4005AMC/ES25P40/W25X40	3132-7541+0	4
U5	IC, REGULATOR, 3.3V, DPAK, NCP1117DT33T5G	3132-8071+0-11	4
U6	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U7	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U8	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U9	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U10	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U11	IC, OP, AMP, SMD, 105C, BA4560RF, SOP8	3132-7011+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CRYS1-GND	JUMPER, WJ, ROLLER, FORM, D=0.6MM	635N-0002+0	4
CRYS1	CRYSTAL, 24.576MHZ, +/-20PPM, SM, HC	2300-3290+0	4
J1B	CONNECTOR, WAFER, 10, PIN, P2	2102-100S+003	4
J2B	CONNECTOR, 8P, ST., WAFER, P=2.0, COULOMB	2102-080S+003	4
J4A	CONNECTOR, 11P, ST, WAFER, P=2.0	2102-110S+003	4
J10	CONNECTOR, 8P, ST., WAFER, P=2.0, COULOMB	2102-080S+003	4
J200	CONNECTOR, HEADER, 1X8P, P2.54, ST, MALE	2101-3134+0	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Rear Panel I/O PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R1	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R100	0R, RMG, 1/8W, 1%, 1206	4721-000A+6	4
R101	0R, RMG, 1/8W, 1%, 1206	4721-000A+6	4
R171	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R173	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R174	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R175	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R200	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R201	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R202	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R203	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R204	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R205	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R206	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R207	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R208	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R209	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R210	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R211	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R212	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R213	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R214	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R215	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R216	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R217	3K, RMG, 1/16W, 1%, 0603	4723-302A+P	4
R218	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R219	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R220	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R223	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R225	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R226	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R227	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R228	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R229	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R230	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R231	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R232	2.2K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-222J+P-R	4
R233	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R234	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R235	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R236	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R237	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R238	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R239	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R240	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R241	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R242	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Rear Panel I/O PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R243	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R244	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R245	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R246	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R247	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R248	3K, RMG, 1/16W, 1%, 0603	4723-302A+P	4
R249	27K, RMG, 1/16W, 1%, 0603/1608	4723-273A+P	4
R250	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R251	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R252	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R253	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R254	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R255	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R256	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR	4723-473A+P-R	4
R257	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR	4723-473A+P-R	4
R258	27K, RMG, 1/16W, 1%, 0603/1608	4723-273A+P	4
R259	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R260	2.2K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-222J+P-R	4
R262	15R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-150J+P-R	4
R263	10R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/S	4723-100J+P-R	4
R264	10R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/S	4723-100J+P-R	4
R265	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R266	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R267	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R268	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R269	1K, RMG, 1/16W, 1K, 1%, 0603/1608	4723-102A+P	4
R270	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C172	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C200	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C201	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C202	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C203	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C204	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C205	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C206	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C208	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C209	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C210	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C211	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C212	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C213	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C214	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C215	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Rear Panel I/O PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C216	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C217	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C218	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C219	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C220	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C221	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C223	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C224	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C225	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C226	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C227	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C228	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C229	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C231	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C233	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C234	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C235	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C236	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C237	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C238	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C239	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C240	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C241	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C243	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C244	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C245	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C246	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C247	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C248	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C249	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C250	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C252	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C253	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C254	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C255	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C256	CC, 6.3V, 4.7U, 10%, 0603	150B-475K+P-AC	4
C257	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C258	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C259	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C260	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C261	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C262	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C263	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C264	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C265	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C266	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C267	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Rear Panel I/O PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C268	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C271	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C272	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C273	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C274	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C275	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C276	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C277	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C278	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C279	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C281	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C282	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C283	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C284	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C285	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L5	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L200	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D201	DIODE, BAV99, SOT23, PHILIPS	4840-8970+3	4
D202	DIODE, BAV99, SOT23, PHILIPS	4840-8970+3	4
D203	DIODE, BAV99, SOT23, PHILIPS	4840-8970+3	4
D204	DIODE, BAV99, SOT23, PHILIPS	4840-8970+3	4
D205	DIODE, BAV99, SOT23, PHILIPS	4840-8970+3	4
D206	DIODE, BAV99, SOT23, PHILIPS	4840-8970+3	4
D207	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTKY	480T-54S0+3	4
D208	DIODE, SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111, S	480M-1110+3	4
D209	DIODE, SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111, S	480M-1110+3	4
D210	DIODE, SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111, S	480M-1110+3	4
D211	DIODE, SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111, S	480M-1110+3	4
D212	DIODE, SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111, S	480M-1110+3	4
D213	DZ, 1/2W, 6.2VB, SMD, LL-34, ROHM	4837-6V21+3	4
D214	DZ, 1/2W, 6.2VB, SMD, LL-34, ROHM	4837-6V21+3	4
D215	DZ, 1/2W, 6.2VB, SMD, LL-34, ROHM	4837-6V21+3	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ Rear Panel I/O PCB Assembly

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q200	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q201	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q202	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q203	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q204	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q205	TR, NPN, MMBT4401, SOT-23, HFE:, 20-300, SM	4854-4010+3	4
Q206	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q207	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q208	TR, MMBT4403LT1G, SMD	4854-4030+3	4
Q209	TR, NPN, MMBT4401, SOT-23, HFE:, 20-300, SM	4854-4010+3	4
Q210	TR, NPN, MMBT4401, SOT-23, HFE:, 20-300, SM	4854-4010+3	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U214	IC, OP, AMP, SWITCH, NJM2120M, SOIC8	3132-3711+0	4
U216	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U217	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U218	IC, TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U219	IC, OP, AMP, SWITCH, NJM2120M, SOIC8	3132-3711+0	4
U220	IC, NJM2068M-#ZZZB, DUAL, OP, AMP	3130-6890+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CH1	JACK, 2RCA, P15, H=10+9.5	2113-3153+0	4
CH2	JACK, 2RCA, P15, H=10+9.5	2113-3153+0	4
CH3	CONNECTOR, SOCKET, EURO, BLOCK, 4P, P5, STRAIGHT, GREEN	2113-3148+0	4
J3	SOCKET, SPEAKER, 4P, P5, 250V, 12A, BLACK	2113-3148+1	4
LINE_OUT	JACK, 2RCA, P15, H=10+9.5	2113-3153+0	4
MUTE	SOCKET, M, 2P, P5, 300V, 15A, BLACK	2113-3361+1	4
S200	CONNECTOR, HEADER, 4P, P2.54, ST, M	2101-3296+0	4
S201	CONNECTOR, HEADER, 4P, P2.54, ST, M	2101-3296+0	4
S214	SWITCH, DIP, SPST, 24V, 25MA, P2.54, 4PIN	5200-5019+0	4
SW204	SWITCH, SLIDE, 3P2T, 125V, 0.3A, VERT=6	5200-5015+0	3
VR201	VR, ROTARY, 20BKX1, 20%, V, L=15, 18TEETH, C	4751-226E+0	4
VR205	VR, ROTARY, 10K/10CX1, 20%, V, L=15, 18TEETH	4751-224E+0	4
VR206	VR, ROTARY, 100KAX2, 20%, V, L=15, 18TEETH	4751-225E+0	4
VR207	VR, ROTARY, 100KAX2, 20%, V, L=15, 18TEETH	4751-225E+0	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ 3.5mm Jack PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R1	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R2	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111	480M-1110	4
R28	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A	4
R103	1M, RMG, 1/16W, 1%, 0603	4723-105A	4
R104	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R119	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R120	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R121	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R122	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R129	1M, RMG, 1/16W, 1%, 0603	4723-105A	4
R130	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R131	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R133	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821AR	4
R134	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R136	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821AR	4
R137	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123AR	4
R139	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123AR	4
R140	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R141	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R142	1R, RMG, 1/16W, 5%, 0603	4723-1R0J	4
R143	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R146	1R, RMG, 1/16W, 5%, 0603	4723-1R0J	4
R149	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R150	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R151	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R154	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A	4
R156	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R159	24.3K, RMG, 1/10W, 1%, 0603	4720-2432	4
R160	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R161	24.3K, RMG, 1/10W, 1%, 0603	4720-2432	4
R162	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R163	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R164	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R165	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R166	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C100	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C101	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C102	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C103	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C104	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C105	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C106	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C107	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ 3.5mm Jack PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C108	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C109	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C111	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C113	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C114	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C117	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C119	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C129	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C133	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C135	1000PF, CC, 50V, 5%, 0603, X7R	150F-102JAC	4
C137	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C139	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C140	1000PF, CC, 50V, 5%, 0603, X7R	150F-102JAC	4
C141	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C147	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C148	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C149	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C152	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C153	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C154	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C155	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C156	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C157	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C158	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C159	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C165	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C166	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C167	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C168	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L100	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D10	BAV99, SOT23, PHILIPS	4840-8970	4
D102	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTKY	480T-54S0	4
D105	BAV99, SOT23, PHILIPS	4840-8970	4
D106	BAV99, SOT23, PHILIPS	4840-8970	4
D107	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTKY	480T-54S0	4
D109	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTKY	480T-54S0	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ 3.5mm Jack PCB Assembly

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U12	OP-AMP, SMD, 105C, BA4560RF, SOP8	3132-7011	4
U100	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020	4
U103	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020	4
U105	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CON GND	WIRE, GROUND, 1P, L=58, GREEN/YRL, RING	7012-9970	4
J1A	WIRE-CONN, 10P, P2.0, #26, UL1061, L=300, B	7013-1990	4
J2A	WIRE-SHI, 8P, P2.0, #26, UL1, 061/2547, L=400	7013-2161	4
J9A1	WIRE-SHI, 12P, P2.0, #26, UL, 1061/2547, L130	7013-2150	4
J101	INLET, EARPHONE, 50V, 1A, 3.5MM	2113-3332	4
SW100	SWITCH, SLIDE, DPDT, 50V, 0.5A, L=14, META	5200-5013	4
VR100	VR, ROTARY, 10K/10CX1, 20%, V, L=30, 40TEETH	4751-223E	4
VR101	VR, ROTARY, B20KX1, 20%, C.C, V, L=30, 40TEETH	4751-227E	4
VR102	VR, ROTARY, B20KX1, 20%, C.C, V, L=30, 40TEETH	4751-227E	4
VR103	VR, ROTARY, B20KX1, 20%, V, L=15	4751-2280	4

FreeSpace IZA 190-HZ LED PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R116	300R, RMG, 1/16W, 5%, 0603	4723-301J+P	4
R118	300R, RMG, 1/16W, 5%, 0603	4723-301J+P	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D315	LED, 3MM, RED	3700-2522+R	4
D313	LED, 3MM, BLUE, SP, SLR343BB, T 225419 ROHM	3700-2824+B	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
J108B	CONN, 3P, ST., WAFER, P=2.0, COULOMB	2102-030S+003	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ MIC PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R145	0R, RMG, 1/16W, 1%, 0603	4723-000A	4
R155	0R, RMG, 1/16W, 1%, 0603	4723-000JR	4
R125	10R, RMG, 1/16W, 5%, 0603/1608	4723-100J	4
R127	10R, RMG, 1/16W, 5%, 0603/1608	4723-100J	4
R144	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R152	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R108	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A	4
R113	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A	4
R115	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A	4
R112	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R138	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R147	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R148	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R102	15R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-150JR	4
R106	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151AR	4
R107	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151AR	4
R109	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151AR	4
R111	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151AR	4
R135	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A	4
R158	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A	4
R114	2.2K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-222JR	4
R153	2.2K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-222JR	4
R124	4.99K, RMG, 1/16W, 1%, 0603	4723-4991	4
R126	4.99K, RMG, 1/16W, 1%, 0603	4723-4991	4
R128	4.99K, RMG, 1/16W, 1%, 0603	4723-4991	4
R132	4.99K, RMG, 1/16W, 1%, 0603	4723-4991	4
R105	9.76K, RMG, 1/16W, 1%, 0603	4723-9761	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C130	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C134	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C150	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C151	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C138	1000PF, CC, 50V, 5%, 0603, X7R	150F-102JAC	4
C120	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C121	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C128	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C136	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C145	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C146	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C160	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C161	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C131	470PF, CC, 50V, 5%, 0603	150F-471JAC	4
C132	470PF, CC, 50V, 5%, 0603	150F-471JAC	4
C122	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227MLJU	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ MIC PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C123	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227MLJU	4
C125	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227MLJU	4
C127	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227MLJU	4
C115	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C116	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C162	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C163	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4

Ferrite Beads

Reference Designator	Description	Vendor Part Number	Note
FB101	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4
FB102	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4
FB103	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4
FB104	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4
FB105	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4
FB106	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4
FB107	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4
FB108	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D101	BAV99, SOT23, PHILIPS	4840-8970	4
D104	DBAV99, SOT23, PHILIPS	4840-8970	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q100	NPN, MMBT4401, SOT-23, HFE:, 20-300, SM	4854-4010	4
Q101	NPN, MMBT4401, SOT-23, HFE:, 20-300, SM	4854-4010	4
Q102	MMBT4403LT1G, SMD	4854-4030	4
Q103	MMBT4403LT1G, SMD	4854-4030	4
Q104	MMBT4403LT1G, SMD	4854-4030	4
Q105	MMBT4403LT1G, SMD	4854-4030	4
Q106	MMBT4403LT1G, SMD	4854-4030	4
Q107	MMBT4403LT1G, SMD	4854-4030	4
Q108	MMBT4403LT1G, SMD	4854-4030	4
Q109	MMBT4403LT1G, SMD	4854-4030	4

ELECTRICAL PART LIST

FreeSpace® IZA 190-HZ MIC PCB Assembly

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U102	NJM2068M-#ZZZB, DUAL, OP, AMP	3130-6890	4
U101	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
Z142	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111	480M-1110	4
Z143	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111	480M-1110	4
J1	CONNECTOR, 9P, 2MM	2102-090S	4
J100	JACK, MIC, PHONE, COMBO, 11P, NCJ10FI-H-0, NE	2113-3213	4
CON GND	WIRE, GROUND, 1P, L=58, GREEN/YRL, RING	7012-9970	4

FreeSpace IZA 190-HZ Output PCB Assembly

Inductors

Reference Designator	Description	Vendor Part Number	Note
L1	FERRITE, COIL, 1.4M, 28%, BL15.2, RL, P5	1807-142T5	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
P1	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231	4
P2	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231	4
P3	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231	4
SP1	SOCKET, M, 3P, P5, 300V, 15A, GREEN	2113-3368	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R300	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R301	1K, RMG, 1W, 5%, 2512	4728-102J+3	4
R302	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R303	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R304	39.2K, RMG, 1W, 1%, 2512	4728-3922+3	4
R305	0R, RMG, 1/4W, 5%, (<50mOHM), 1206	4725-000J+6	4
R306	0R, RMG, 1/4W, 5%, (<50mOHM), 1206	4725-000J+6	4
R307	200K, RMG, 1/16W, 1%, 0603/1608	4723-204A+P	4
R308	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R309	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R312	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R313	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R314	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R315	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R316	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R317	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R318	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R319	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R320	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R321	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R322	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R324	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R325	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R326	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R327	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R328	2M, RMG, 1/4W, 1%, 1206	4725-205A+6	4
R329	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R330	1.8M, RMG, 1/8W, 1%, 1206	4721-185A+6	4
R331	6R8, RMG, 1/16W, 1%, 0603	4723-6R8A+P	4
R332	10K, RMG, 1W, 5%, 2512	4728-103J+3	4
R333	10R, RMG, 1/8W, 1%1206	4721-100A+6	4
R334	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R335	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R336	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R337	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R338	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R339	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R340	180R, RMG, 1/16W, 1%, 0603/1608	4723-181A+P	4
R341	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R342	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-332A+P-R	4
R343	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R344	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R345	402K, RMG, 1/16W, 1%, 0603	4723-4023+P	4
R346	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R347	210K, RMG, 1/16W, 1%, 0603	4723-214A+P	4
R348	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R349	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4
R350	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4
R351	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R352	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R353	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R354	22R, RMOF, 5W, 5%, AT, MINI SIZE	471B-220J+2-X	4
R355	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R356	0R, RMG, 1/4W, 5%, (<50mOHM), 1206	4725-000J+6	4
R357	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R358	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R360	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R361	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R362	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R363	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R364	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R365	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R366	2.4K, RMG, 1/16W, 1%, 0603	4723-242A+P	4
R367	30K, RMG, 1/16W, 1%, 0603/1608	4723-303A+P	4
R368	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R369	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R370	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R371	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R374	47R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-470J+P-R	4
R378	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R379	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R390	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R391	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R392	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R393	22R, RMOF, 5W, 5%, AT, MINI SIZE	471B-220J+2-X	4
R394	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R395	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R396	0R, RMG, 1/4W, 5%, (<50mOHM), 1206	4725-000J+6	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C300	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C301	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C302	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C303	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C304	330PF, CC, 1000V, 10%, RLT, Y5P, 5.5X3.5	150N-331K+K-JF	4
C305	47UF, CE, 10V, 20%, RLT, 5X11, 105C	157C-476M+K-IUT	4
C306	4.7UF, CE, 63V, 20%, RLT, 5X11, LOW ESR, 105C	157I-475M+K-IURT	4
C308	0.015UF, CC, 630V, 10%, 1206, , X7R	150M-153K+6-CF	4
C309	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW ESR	157E-107M+K-LURT	4
C311	100UF, D, CAP-E, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW ESR	157Q-107M+K-LUTR	4
C312	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C313	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C314	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW ESR	157E-476M+K-IUR	4
C315	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW ESR	157E-476M+K-IUR	4
C316	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C317	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C318	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C319	10UF, CE, 50V, 20%, RLT, 5X11, 105C, RX, NOVER	157F-106M+K-IUTU	4
C320	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C321	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C322	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C323	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C324	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4
C325	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C326	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C327	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C328	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C329	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW ESR	157Q-477M+K-S9RT	4
C330	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C331	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C332	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C333	47UF, CE, 100V, 20%, RLT10X16, LOW ESR 105C, WB, SAMWHA	157H-476M+K-S5RT	4
C334	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C335	100UF, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW ESR	157Q-107M+K-LUTR	4
C336	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C337	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C338	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C339	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW ESR	157Q-477M+K-S9RT	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C340	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C341	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C342	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C343	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C344	47UF, CE, 10V, 20%, RLT, 5X11, , 105C	157C-476M+K-IUT	4
C345	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C346	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C347	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4
C348	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C349	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C350	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C351	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C352	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C353	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C354	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C355	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C356	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW ESR	157E-107M+K-LURT	4
C357	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C358	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C359	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C360	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C361	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C362	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C364	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C365	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C366	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C367	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C368	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C369	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C370	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C371	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C372	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C373	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C374	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C375	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C376	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C377	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C378	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C379	0.47UF, CC, 25V, 5%, 0805, 1.25X2	150E-474J+J-BD	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C380	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C381	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C382	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW ESR	157Q-108M+K-X&TR	4
C383	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C384	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C385	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C386	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C387	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C388	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C389	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C390	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C391	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C392	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C393	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C394	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C395	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C396	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C397	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C398	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C399	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C400	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C401	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C402	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C404	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C406	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C407	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C408	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C409	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C411	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C412	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C413	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C414	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C415	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C416	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C423	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C424	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C425	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C426	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C428	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C436	2200uF, CE, 10V, 20%, RL, 10x20	157C-228M+5-S9	4
C437	100uF, CE, 10V, 20%, R5, 5X11	157C-107M+K-IU	4
C449	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C450	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C485	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C486	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C487	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C488	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
CX300	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4
CX301	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4
XYC301	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
XYC303	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
XYC304	1000PF, CC, 400V, 20%, RL, Y5, , U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4
YC300	1000PF, CC, 400V, 20%, RL, Y5, , U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L300	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L301	CHOKE-COMMON, MODE, 10MH, 10MH, MIN, AC, 240V, 2A, AL	1806-4037+0000	4
L302	CHOKE-COMMON, MODE, 10MH, 10MH, MIN, AC, 240V, 2A, AL	1806-4037+0000	4
L303	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L304	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L305	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L306	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L310	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L311	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L313	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L314	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L318	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L319	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L320	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L321	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L322	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L323	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L324	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L328	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
B300	BRIDGE, 800V, 8A, GBU8K, RL	4840-9218+5	4
D300	FAST, 800V, 2A, HER207, AT	480R-2070+2	4
D303	ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D303A	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
D304	ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D304C	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
D305	200V, 0.2A, BAV21W, , , SOD-123, SMD, PANJIT	480V-21W0+3	4
D306	LL4148, SM	4804-1480+3	4
D307	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Diodes (continued)

Reference Designator	Description	Vendor Part Number	Note
D308	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D309	RECTIFIER, UF4006-T, GI, AT	4840-8530+2	4
D311	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D312	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D314	RECT, 200V, 2A, ER2D, SMB/DO-214AA, SM	480E-R2D0+3	4
DZ300	DZ, 5W, 150V, 5%, AT	483B-1519+2	4
Z300	DZ, 5W, 10V, 5%, 1N5347B, AT, ON	483B-1005+2	4
Z301	DZ, 5W, 13V, 5%, AT	483B-1309+2	4
Z302	DZ, 5W, 13V, 5%, AT	483B-1309+2	4
Z303	DZ, 1/2W, 15V, 5%, SOD-123C, MMSZ5245BT1G	4837-15V9+3	4
Z304	DZ, 1/2W, 30V, 5%, SM	4837-3009+3	4
Z305	DZ, 1/2W, 22VD, RLZTE-1122D, LL-34, ROHM	4837-22D1+3	4
Z306	DZ, 1/2W, 5.6V, SMD	4837-5V69+3	4
Z307	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4
Z308	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q300	2N2222, SMD, MMBT2222ALT1G	4860-5410+3	4
Q301	MOSFET, N-CH, 60V, 115MA, 2N7002, SOT-23, SM	4907-0020+3	4
Q302	MMBT3906LT1G, SMD	4860-1980+3	4






Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U300	PWM, CONTROLER, TOP258YN, TO-220-7C, PI	3132-7241+0-35	4
U301	PHOTOCOUPLER, EL817, EVERLIGHT	481E-L817+3	4
U302A	TR, TIP31CTU	4860-2620+5	4
U302B	HEATSINK, FOR, 7805, 2438-17	5400-9130+0	4
U302C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U302D	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
U302E	INSULATN, MICA, T-400, 8302, 18X12.7M, T0220	3100-8040+0	4
U302F	PLASTIC, BUSHING, TO-220A	4152-6830+0	4
U303	AMP, TDA8920BTH, SOT566-3	3132-2641+1	4
U304A	PNP, TIP32C, HFE:10-50, TO-220, RL	485I-P32C+5	4
U304B	HEATSINK, FOR, 7805, 2438-17	5400-9130+0	4
U304C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U304D	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
U304E	INSULATN, MICA, T-400, 8302, 18X12.7M, T0220	3100-8040+0	4
U304F	PLASTIC, BUSHING, TO-220A	4152-6830+0	4
U305	REGULATOR, TL432BIDBZR, SOT-23-3, TI	3132-7691+0-16	4
U306	REGULATOR, NJM7805DLA, TO-252	3132-7310+0	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Main PCB Assembly

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
FUS1	FUSE, T5A, 250V, 8X8.5, VDE/, PSE/CCC, RLT, LITTELFUSE	5120-1144+0-L	3,4 
HS1	HEATSINK, INNER, 56X28X30, AL-EXT	5401-0271+0	4
HS1A	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS1B	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS2	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS2A	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
HS2B	SCREW, 3X8, TAPPING	2950-3008+3000	4
HS3	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS3A	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
HS3B	SCREW, 3X8, TAPPING	2950-3008+3000	4
J1	WAFER, 2P, P7.92, STRAIGHT	2101-3092+0	4
J109A	CONNECTOR, 2P, WAFER, P2.0, ST, 25055440, CT, AMP	2101-1424+0	4
J4B	11P, ST, WAFER, P=2.0	2102-110S+003	4
CN1	CONNECTOR, 2P, P3.96, STRAIGHT, M	2101-2780+0	4
RV1	SURGE, PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
RV2	SURGE, PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
T1	TRANSFORMER, SW, IN80-288V, OUT+/-28V, 50X2, 35X42, ER	1806-4131+0000	3,4 
TH300	NTC, THERMISTER, 50HM, 4A, NIOSP005L, UL/CSA/DE	5202-0010+0	3,4 

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Rear I/O Panel PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R501	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R502	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R503	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-332A+P-R	4
R504	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R505	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R506	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R507	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R508	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R509	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/, SAMSUNG	4723-473A+P-R	4
R510	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R511	82K, RMG, 1/16W, 5%, 0603/1608	4723-823J+P	4
R512	36K, RMG, 1/16W, 1%, 0603	4723-363A+P	4
R513	3.9K, RMG, 1/16W, 1%, 0603/1608	4723-392A+P	4
R514	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R515	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R516	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R517	11K, RMG, 1/16W, 1%, 0603/1608	4723-113A+P	4
R518	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R519	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R520	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R521	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/, SAMSUNG	4723-473A+P-R	4
R522	470R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-471A+P-R	4
R523	4.7M, RMG, 1/10W, 1%, 0603	4720-475A+P	4
R524	270K, RMG, 1/16W, 1%, 0603	4723-274A+P	4
R525	200K, RMG, 1/16W, 1%, 0603/1608	4723-204A+P	4
R526	82K, RMG, 1/16W, 5%, 0603/1608	4723-823J+P	4
R527	270R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-271A+P-R	4
R528	270R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-271A+P-R	4
R529	560K, RMG, 1/16W, 1%, 0603/1608	4723-564A+P	4
R530	470R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-471A+P-R	4
R531	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Rear I/O Panel PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R532	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R558	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R559	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R560	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R561	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R562	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R563	0R, RMG, 1/10W, 1%, 0805	4720-000A+J	4
R564	0R, RMG, 1/10W, 1%, 0805	4720-000A+J	4
R565	2.2K, RMG, 1/16W, 1%, 0603/1608	4723-222A+P	4
R566	2.2K, RMG, 1/16W, 1%, 0603/1608	4723-222A+P	4
R567	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R568	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R569	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R570	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R571	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C501	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C502	10UF, CE, 50V, 20%, RLT, 4X7	157F-106M+K-GM	4
C503	10UF, CE, 50V, 20%, RLT, 4X7	157F-106M+K-GM	4
C504	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C505	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C506	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C507	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C508	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C509	0.01UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C511	0.01UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C514	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C515	10UF, CE, 50V, 20%, RLT, 4X7	157F-106M+K-GM	4
C519	0.01UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C521	0.01UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C526	22UF, CE, 16V, 20%, RLT, 4X7	157D-226M+K-GM	4
C527	22UF, CE, 16V, 20%, RLT, 4X7	157D-226M+K-GM	4
C528	0.01UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C529	0.01UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C531	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C532	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C542	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C543	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C544	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ Rear I/O Panel PCB Assembly

Inductors

Reference Designator	Description	Vendor Part Number	Note
L501	EMI, FILTER, 120R, 100MHZ, BLM21AG121SN1D, 0805, MUR	1803-0087+0	4
L502	EMI, FILTER, 120R, 100MHZ, BLM21AG121SN1D, 0805, MUR	1803-0087+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D501	BAV99, SOT23, PHILIPS	4840-8970+3	4
D503	1SS355TE-17, ROHM	4840-1660+0	4
D504	1SS355TE-17, ROHM	4840-1660+0	4
D505	1SS355TE-17, ROHM	4840-1660+0	4
D506	1SS355TE-17, ROHM	4840-1660+0	4
D507	1SS355TE-17, ROHM	4840-1660+0	4
Z501	DZ, 1/2W, 5V1, MMSZ5231B, SOD-123, SMD, PANJIT	4837-5V18+3	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U501	LM13700M/NOPB, TRANSCONDUCTANCE, AMP	3132-1981+0	4
U502	TL072CDR, DUAL, J-FET, INPUT, OP-AMP, (SMD)	3130-8020+0	4
U503	TL072CDR, DUAL, J-FET, INPUT, OP-AMP, (SMD)	3130-8020+0	4
U504	TL072CDR, DUAL, J-FET, INPUT, OP-AMP, (SMD)	3130-8020+0	4
U508	TL072CDR, DUAL, J-FET, INPUT, OP-AMP, (SMD)	3130-8020+0	4
U509	TL072CDR, DUAL, J-FET, INPUT, OP-AMP, (SMD)	3130-8020+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CH501	JACK, 2RCA, P15, H=10+9.5	2113-3153+0	4
CN501	CONNECTOR, 11P, ST, WAFER, P=2.0	2102-110S+003	4
VR501	VR, ROTARY, 20BKX1, 20%, V, L=15, 18TEETH, CTR	4751-226E+0	4

ELECTRICAL PART LIST

FreeSpace® ZA 190-HZ LED PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R114	0R RMG 1/16W 1% 0603	4723-000A	4
R116	4.7K RMG 1/16W 5% 0603 HK RESISTOR/SAMS	4723-472JR	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D313	LED, 3MM, BLUE, SP, SLR343BB, T, 225419, ROHM	3700-2824	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
J109B	WIRE-CONN, 2P, P2.0, #24, UL, 1007, L=300, WH/BU	7013-2370	4

FreeSpace ZA 190-HZ Output PCB Assembly

Inductors

Reference Designator	Description	Vendor Part Number	Note
L1	FERRITE, COIL, 1.4M, 28%, BL15.2, RL, P5	1807-142T5	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
P1	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231	4
P2	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231	4
P3	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231	4
SP1	SOCKET, M 3P, P5, 300V, 15A, GREEN	2113-3368	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R300	RMF, 2W, 33K, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R301	1K, RMG, 1W, 5%, 2512	4728-102J+3	4
R302	RMF, 2W, 33K, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R303	RMF, 2W, 33K, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R304	39.2K, RMG, 1W, 1%, 2512	4728-3922+3	4
R305	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4
R306	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4
R307	200K, RMG, 1/16W, 1%, 0603/1608	4723-204A+P	4
R308	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R309	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R311	WIRE, JUMPER, ROLLER, FORM, D=0.6MM	635N-0002+0	4
R312	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R313	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R314	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R315	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R316	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R317	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R318	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R319	13.7K, RMG, 1/10W, 1%, 0805	4720-1372+J	4
R320	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R321	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R322	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R324	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R325	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R326	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R327	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R328	2M, RMG, 1/4W, 1%, 1206	4725-205A+6	4
R329	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R330	1.8M, RMG, 1/8W, 1%, 1206	4721-185A+6	4
R331	6R8, RMG, 1/16W, 1%, 0603	4723-6R8A+P	4
R332	10K, RMG, 1W, 5%, 2512	4728-103J+3	4
R333	10R, RMG, 1/8W, 1%1206	4721-100A+6	4
R334	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R335	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R336	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R337	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R338	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R339	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R340	180R, RMG, 1/16W, 1%, 0603/1608	4723-181A+P	4
R341	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R342	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-332A+P-R	4
R343	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R344	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R345	402K, RMG, 1/16W, 1%, 0603	4723-4023+P	4
R346	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R347	210K, RMG, 1/16W, 1%, 0603	4723-214A+P	4
R348	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R349	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4
R350	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4
R351	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R352	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R353	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R354	RMOF, 5W, 22R, 5%, AT, MINI, SIZE	471B-220J+2-X	4
R355	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R356	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4
R357	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R358	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R360	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R361	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R362	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R363	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R364	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R365	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R366	2.4K, RMG, 1/16W, 1%, 0603	4723-242A+P	4
R367	30K, RMG, 1/16W, 1%, 0603/1608	4723-303A+P	4
R368	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R369	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R370	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R371	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R374	47R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-470J+P-R	4
R378	100R, RMG, 1/16W, 1%, 0603	4723-102A+P	4
R379	100R, RMG, 1/16W, 1%, 0603	4723-102A+P	4
R390	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R391	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R392	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R393	RMOF, 5W, 22R, 5%, AT, MINI, SIZE	471B-220J+2-X	4
R394	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R395	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R396	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4
R397	0R, RMG, 1/10W, 5%, 0805	4720-0R0J+J	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C142	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C143	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C300	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C301	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C302	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C303	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C304	330PF, CC, 1000V, 10%, RLT, , , , Y5P, 5.5X3.5	150N-331K+K-JF	4
C305	47UF, CE, 10V, 20%, RLT, 5X11, , 105C	157C-476M+K-IUT	4
C306	4.7UF, CE, 63V, 20%, RLT, 5X11, LOW, ESR, 105C	157I-475M+K-IURT	4
C308	0.015UF, CC, 630V, 10%, 1206, , X7R	150M-153K+6-CF	4
C309	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157E-107M+K-LURT	4
C311	100UF, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157Q-107M+K-LUTR	4
C312	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C313	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C314	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C315	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C316	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C317	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C318	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C319	10UF, CE, 50V, 20%, RLT, 5X11, , 105C, RX, NOVER	157F-106M+K-IUTU	4
C320	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C321	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C322	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C323	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C324	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4
C325	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C326	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C327	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C328	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C329	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW, ESR	157Q-477M+K-S9RT	4
C330	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C331	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C332	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C333	47UF, CE, 100V, 20%, RLT10X16, LOW, ESR, 105C, WB, SAMWHA	157H-476M+K-S5RT	4
C334	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C335	100UF, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157Q-107M+K-LUTR	4
C336	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C337	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C338	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C339	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW, ESR	157Q-477M+K-S9RT	4
C340	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C341	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C342	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C343	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C344	47UF, CE, 10V, 20%, RLT, 5X11, , 105C	157C-476M+K-IUT	4
C345	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C346	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C347	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4
C348	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C349	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C350	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C351	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C352	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C353	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C354	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C355	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C356	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157E-107M+K-LURT	4
C357	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C358	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C359	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C361	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C362	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C364	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C365	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C366	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C367	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C368	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C369	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C370	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C371	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C372	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C373	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C374	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C375	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C376	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C377	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C378	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C379	0.47UF, CC, 25V, 5%, 0805, 1.25X2	150E-474J+J-BD	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C380	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C381	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C383	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C384	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C385	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C386	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C387	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C388	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C389	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C390	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C391	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C392	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C393	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C394	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C395	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C396	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C397	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C398	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C399	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C400	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C401	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C402	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C404	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C406	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C407	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C408	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C409	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C411	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C412	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C413	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C414	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C415	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C416	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C423	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C424	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C425	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C426	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C428	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C436	2200uF, CE, 10V, 20%, RL, 10x20	157C-228M+5-S9	4
C437	100uF, CE, 10V, 20%, R5, 5X11	157C-107M+K-IU	4
C449	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C450	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C485	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C486	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C487	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C488	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
XYC301	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
XYC303	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
XYC304	1000PF, CC, 400V, 20%, RL, Y5, , U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4
YC300	1000PF, CC, 400V, 20%, RL, Y5, , U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L300	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L301	CHOKE-COMMON, MODE, 10MH, 240V, 2A, AL	1806-4037+0000	4
L302	CHOKE-COMMON, MODE, 10MH, 240V, 2A, AL	1806-4037+0000	4
L303	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L304	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L305	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L306	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L307	CHOKE-COMMON, MODE, 2X16UH, 8A, FT50-43	1806-3913+0	4
L310	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L311	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L313	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L314	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L316	CHOKE-COMMON, MODE, 2X16UH, 8A, FT50-43	1806-3913+0	4
L318	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L319	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L320	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L321	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L322	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L323	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L324	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L328	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
B300	DIODE, BRIDGE, 800V, 8A, GBU8K, RL	4840-9218+5	4
D300	DIODE, FAST, 800V, 2A, HER207, AT	480R-2070+2	4
D303	ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D303A	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
D304	ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D304C	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
D305	200V, 0.2A, BAV21W, SOD-123, SMD, PANJIT	480V-21W0+3	4
D306	LL4148, SM	4804-1480+3	4
D307	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D308	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D309	RECTIFIER, UF4006-T, GI, AT	4840-8530+2	4
D311	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D312	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Diodes (continued)

Reference Designator	Description	Vendor Part Number	Note
D314	RECT, 200V, 2A, ER2D, SMB/DO-214AA, SM	480E-R2D0+3	4
DZ300	DZ, 5W, 150V, 5%, AT	483B-1519+2	4
Z300	DZ, 5W, 10V, 5%, 1N5347B, AT, ON	483B-1005+2	4
Z301	DZ, 5W, 13V, 5%, AT	483B-1309+2	4
Z302	DZ, 5W, 13V, 5%, AT	483B-1309+2	4
Z303	DZ, 1/2W, 15V, 5%, SOD-123C, MMSZ5245BT1G	4837-15V9+3	4
Z304	DZ, 1/2W, 30V, 5%, SM	4837-3009+3	4
Z306	DZ, 1/2W, 5.6V, SMD	4837-5V69+3	4
Z307	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4
Z308	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4


Transistors

Reference Designator	Description	Vendor Part Number	Note
Q300	2N2222, SMD, MMBT2222ALT1G	4860-5410+3	4
Q301	MOSFET, N-CH, 60V, 115MA, 2N7002, SOT-23, SM	4907-0020+3	4
Q302	MMBT3906LT1G, SMD	4860-1980+3	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U300	PWM, CONTROLER, TOP258YN, TO-220-7C, PI	3132-7241+0-35	4
U301	PHOTOCOUPLER, EL817, EVERLIGHT	481E-L817+3	4
U302A	TIP31CTU	4860-2620+5	4
U303	AMP, TDA8920BTH, SOT566-3	3132-2641+1	4
U304A	PNP, TIP32C, HFE:10-50, TO-220, RL	485I-P32C+5	4
U305	REGULATOR, TL432BIDBZR, SOT-23-3, TI	3132-7691+0-16	4
U306	REGULATOR, NJM7805DLA, TO-252	3132-7310+0	4





Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CN1	CONNECTOR, 2P, P3.96, STRAIGHT, M	2101-2780+0	4
CN2	CONNECTOR, 2P, P3.96, STRAIGHT, M	2101-2780+0	4
CX300	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4
CX301	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4
FUS1	FUSE, T5A, 250V, 8X8.5, VDE/, PSE/CCC, RLT, LITTELFUSE	5120-1144+0-L	3,4 
HS1	HEATSINK, INNER, 56X28X30, AL-EXT	5401-0271+0	4
HS1A	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS1B	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS2	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS2A	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4
HS2B	SCREW, 3X8, TAPPING	2950-3008+3000	4
HS3	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS3A	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Main PCB Assembly

Miscellaneous (continued)

Reference Designator	Description	Vendor Part Number	Note
HS3B	SCREW, 3X8, TAPPING	2950-3008+3000	4
J1	WAFER, 2P, P7.92, STRAIGHT	2101-3092+0	4
J109A	2P, WAFER, P2.0, ST, 25055440, CT, AMP	2101-1424+0	4
J4B	11P, ST, WAFER, P=2.0	2102-110S+003	4
RV1	SURGE, PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
RV2	SURGE, PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
T1	TRANSFORMER, SW, IN80-288V, OUT+/-28V, 50X2, 35X42, ER	1806-4131+0000	3,4 
TH300	NTC, THERMISTER, 50HM, 4A, NIOSP005L, UL/CSA/VDE	5202-0010+0	3,4 
U302B	HEATSINK, FOR, 7805, 2438-17	5400-9130+0	4
U302C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U302D	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4
U302E	INSULATN, MICA, T-400, 8302, 18X12.7M, T0220	3100-8040+0	4
U302F	PLASTIC, BUSHING, TO-220A	4152-6830+0	4
U304B	HEATSINK, FOR, 7805, 2438-17	5400-9130+0	4
U304C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U304D	SCREW, B-TITE, PH, M2.6X, 6, , MM, BZ, CROSS	2950-2606+3000	4
U304E	INSULATN, MICA, T-400, 8302, 18X12.7M, T0220	3100-8040+0	4
U304F	PLASTIC, BUSHING, TO-220A	4152-6830+0	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ DSP PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R1	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R2	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R3	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R4	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R5	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R6	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R7	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R8	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R9	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R10	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R11	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R12	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R13	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-104A+P-R	4
R14	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R15	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R16	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R17	2.2K, RMG, 1/16W, 1%, 0603/1608	4723-222A+P	4
R18	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R19	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R20	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R21	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R22	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R23	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R24	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R25	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R26	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R27	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R28	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R29	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R30	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R31	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R32	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R33	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R35	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R36	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R37	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R38	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R39	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R40	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R41	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R42	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R43	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R44	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R45	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R46	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R47	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R49	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ DSP PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R50	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R51	22K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-223A+P-R	4
R52	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R53	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R54	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R55	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R56	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R57	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R58	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R59	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R60	33R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-330J+P-R	4
R61	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R62	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R63	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R64	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R65	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R66	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R67	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R68	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R69	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R70	2.2K, RMG, 1/16W, 1%, 0603/1608	4723-222A+P	4
R71	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R72	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R73	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R74	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R75	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R76	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R77	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R78	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R79	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R80	13.7K, RMG, 1/10W, 1%, 0603	4720-1372+P	4
R81	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R82	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R83	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-332A+P-R	4
R84	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R85	6.8K, RMG, 1/16W, 1%, 0603/1608	4723-682A+P	4
R86	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R87	4.7K, RMG, 1/16W, 1%, 0603/1608.	4723-472A+P	4
R88	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R89	300R, RMG, 1/16W, 5%, 0603	4723-301J+P	4
R90	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-104A+P-R	4
R91	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R92	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R93	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R94	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R95	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-392J+P-R	4
R96	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ DSP PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R97	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/S	4723-473A+P-R	4
R98	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821A+P-R	4
R99	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R110	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821A+P-R	4
R116	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123A+P-R	4
R117	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123A+P-R	4
R118	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4
R123	1R, RMG, 1/16W, 5%, 0603	4723-1R0J+P	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C1	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C2	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C3	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C4	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C5	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C6	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C7	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C8	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C9	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C10	100uF, CE, 10V, 20%, SM, 6.3X5.4	157C-107M+3-LJ	4
C11	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C12	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C13	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C14	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C15	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C16	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C17	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C18	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C19	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C20	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C21	22UF, CE, 6.3V, 20%, 4.3X5.4, SM, 356722209R2	157B-226M+3-HJI	4
C22	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C23	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C24	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C25	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C26	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C27	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C28	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C29	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C30	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C31	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C32	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C33	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C34	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C35	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ DSP PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C36	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C37	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C38	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C39	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C40	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C41	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C42	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C43	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C44	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C45	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C46	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C47	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C48	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C49	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C50	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C51	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C52	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C53	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C54	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C55	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C56	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C57	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C58	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C59	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C60	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C61	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C62	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C63	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C64	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C65	270PF, CC, 50V, 10%, 0603, 1x2	150F-271K+P-AC	4
C66	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C67	270PF, CC, 50V, 10%, 0603, 1x2	150F-271K+P-AC	4
C68	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C69	CC, 50V, 560PF, 10%, 0603/1608, 1X2	150F-561K+P-AC	4
C70	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C71	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C72	270PF, CC, 50V, 10%, 0603, 1x2	150F-271K+P-AC	4
C73	0.47UF, CC, 10V, 10%, 0603, 332134745R1, RS	150C-474K+P-AC	4
C74	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C75	270PF, CC, 50V, 10%, 0603, 1x2	150F-271K+P-AC	4
C76	CC, 50V, 560PF, 10%, 0603/1608, 1X2	150F-561K+P-AC	4
C77	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C78	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C79	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C80	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C81	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C82	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ DSP PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C83	33PF, CC, 50V, 5%, 0603/1608, , 1X2	150F-330J+P-AC	4
C84	33PF, CC, 50V, 5%, 0603/1608, , 1X2	150F-330J+P-AC	4
C85	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C86	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C87	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C88	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C89	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C90	0.1UF, CC, 100V, 10%, 0603	150H-104K+P-AC	4
C91	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C92	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C93	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C94	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C95	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C96	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C97	22pF, CTC, 0/60, 5%, 0603, 0.8X1.6	15CH-220J+P-AC	4
C98	4.7UF, CC, 10V, 10%, 0805, X7R	150C-475K+J-BD	4
C99	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C118	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C124	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C126	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
CAP1	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP2	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP3	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP4	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
CAP5	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
CAP6	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
CAP7	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
CAP8	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L1	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L2	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L3	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L4	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L5	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L6	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L7	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L8	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L9	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L10	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L11	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L12	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L13	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L14	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4
L15	FERRITE, CHIP, 0603, BLM18AG102SN1D	1808-0878+0	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ DSP PCB Assembly

Diodes

Reference Designator	Description	Vendor Part Number	Note
D1	LED, SMD, 2X1.25X1.1, GN, 0805	3700-7852+G	4
D2	BAV99, SOT23, PHILIPS	4840-8970+3	4
D3	DIODE, FAST, 75V, 0.5A, BAS316, SOD323	480S-3160+3	4
D4	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTKY	480T-54S0+3	4
D6	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTKY	480T-54S0+3	4
D8	DIODE, FAST, 75V, 0.5A, BAS316, SOD323	480S-3160+3	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q1	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q2	MMBT4403LT1G, SMD	4854-4030+3	4
Q3	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q4	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q5	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q6	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q7	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q8	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U1	DSP, AUDIO, TAS3204, PQFP-64	3132-8131+0	4
U2	MCU, UPD78F0572, SSOP-30	3132-8121+0	4
U3	16-CH, DEMULTIPLEXER, 74HC4067M96, SO	3132-3021+0	4
U5	REGULATOR, 3.3V, DPAK, NCP1117DT33T5G	3132-8071+0-11	4
U6	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U7	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U8	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U9	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U4	FLASH, MX25L4005AMC/ES25P40/W25X40	3132-7541+0	4
U10	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U11	OP, AMP, SMD, 105C, BA4560RF, SOP8	3132-7011+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CRYS1	CRYSTAL, 24.576MHZ, +/-20PPM, SM, HC	2300-3290+0	4
CRYS1-GND	WIRE, JUMPER, ROLLER, FORM, D=0.6MM	635N-0002+0	4
J10	CONNECTOR, 8P, ST., WAFER, P=2.0, COULOMB	2102-080S+003	4
J1B	CONNECTOR, WAFER, 10, PIN, P2	2102-100S+003	4
J200	CONNECTOR, HEADER, 1X8P, P2.54, ST, MALE	2101-3134+0	4
J2B	CONNECTOR, 8P, ST., WAFER, P=2.0, COULOMB	2102-080S+003	4
J4A	CONNECTOR, 11P, ST, WAFER, P=2.0	2102-110S+003	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Rear Panel I/O PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R1	0R, RMG, 1/16W, 1%, 0603	4723-000A+P	4
R100	0R, RMG, 1/8W, 1%, 1206	4721-000A+6	4
R101	0R, RMG, 1/8W, 1%, 1206	4721-000A+6	4
R171	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R173	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R174	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R175	5.1K, RMG, 1/16W, 5%, 0603/1608	4723-512J+P	4
R200	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R201	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R202	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R203	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R204	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R205	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R206	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R207	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R208	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R209	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R210	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R211	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R212	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R213	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R214	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R215	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R216	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R217	3K, RMG, 1/16W, 1%, 0603	4723-302A+P	4
R218	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R219	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R220	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R223	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R225	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R226	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R227	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R228	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R229	9.76K, RMG, 1/16W, 1%, 0603	4723-9761+P	4
R230	4.99K, RMG, 1/16W, 1%, 0603	4723-4991+P	4
R231	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R232	2.2K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-222J+P-R	4
R233	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R234	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R235	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R236	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R237	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R238	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R239	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R240	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R241	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R242	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Rear Panel I/O PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R243	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R244	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R245	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R246	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R247	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R248	3K, RMG, 1/16W, 1%, 0603	4723-302A+P	4
R249	27K, RMG, 1/16W, 1%, 0603/1608	4723-273A+P	4
R250	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R251	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R252	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R253	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R254	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R255	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R256	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/S	4723-473A+P-R	4
R257	47K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/S	4723-473A+P-R	4
R258	27K, RMG, 1/16W, 1%, 0603/1608	4723-273A+P	4
R259	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4
R260	2.2K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-222J+P-R	4
R262	15R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-150J+P-R	4
R263	10R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-100J+P-R	4
R264	10R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SA	4723-100J+P-R	4
R265	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R266	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R267	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R268	150R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-151A+P-R	4
R269	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R270	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103A+P-R	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C172	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C200	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C201	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C202	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C203	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C204	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C205	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C206	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C208	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C209	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C210	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C211	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C212	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C213	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C214	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C215	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Rear Panel I/O PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C216	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C217	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C218	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C219	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C220	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C221	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C223	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C224	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C225	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C226	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C227	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C228	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C229	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C231	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C233	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C234	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C235	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C236	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C237	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C238	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C239	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C240	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C241	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C243	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C244	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C245	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C246	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C247	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C248	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C249	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C250	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C252	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C253	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C254	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C255	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106M+3-EJ	4
C256	4.7UF, CC, 6.3V, 10%, 0603	150B-475K+P-AC	4
C257	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C258	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C259	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C260	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C261	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C262	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C263	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C264	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C265	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C266	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4
C267	220UF, CE, 6.3V, 20%, SM, 6.3X5.3, NOVER	157B-227M+3-LJU	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Rear Panel I/O PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C268	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C271	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C272	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C273	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C274	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C275	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103K+P-AC	4
C276	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C277	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C278	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C279	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C281	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C282	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C283	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C284	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C285	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L5	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4
L200	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D201	BAV99, SOT23, PHILIPS	4840-8970+3	4
D202	BAV99, SOT23, PHILIPS	4840-8970+3	4
D203	BAV99, SOT23, PHILIPS	4840-8970+3	4
D204	BAV99, SOT23, PHILIPS	4840-8970+3	4
D205	BAV99, SOT23, PHILIPS	4840-8970+3	4
D206	BAV99, SOT23, PHILIPS	4840-8970+3	4
D207	DOUBLE, DIODE, BAT54S, SOT-23, SCHOTTKY	480T-54S0+3	4
D208	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111S	480M-1110+3	4
D209	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111S	480M-1110+3	4
D210	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111S	480M-1110+3	4
D211	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111S	480M-1110+3	4
D212	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111S	480M-1110+3	4
D213	DZ, 1/2W, 6.2VB, SMD, LL-34, ROHM(RLZTE-116	4837-6V21+3	4
D214	DZ, 1/2W, 6.2VB, SMD, LL-34, ROHM(RLZTE-116	4837-6V21+3	4
D215	DZ, 1/2W, 6.2VB, SMD, LL-34, ROHM(RLZTE-116	4837-6V21+3	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ Rear Panel I/O PCB Assembly

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q200	MMBT4403LT1G, SMD	4854-4030+3	4
Q201	MMBT4403LT1G, SMD	4854-4030+3	4
Q202	MMBT4403LT1G, SMD	4854-4030+3	4
Q203	MMBT4403LT1G, SMD	4854-4030+3	4
Q204	MMBT4403LT1G, SMD	4854-4030+3	4
Q205	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q206	MMBT4403LT1G, SMD	4854-4030+3	4
Q207	MMBT4403LT1G, SMD	4854-4030+3	4
Q208	MMBT4403LT1G, SMD	4854-4030+3	4
Q209	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4
Q210	NPN, MMBT4401, SOT-23, HFE:20-300, SM	4854-4010+3	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U214	OP-AMP, SWITCH, NJM2120M, SOIC8	3132-3711+0	4
U216	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U217	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U218	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020+0	4
U219	OP-AMP, SWITCH, NJM2120M, SOIC8	3132-3711+0	4
U220	NJM2068M-#ZZZB, DUAL, OP, AMP	3130-6890+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CH1	JACK, 2RCA, P15, H=10+9.5	2113-3153+0	4
CH2	JACK, 2RCA, P15, H=10+9.5	2113-3153+0	4
CH3	SOCKET, EURO, BLOCK, 4P, P5, STRAIGHT, GREEN	2113-3148+0	4
J3	SOCKET, SPEAKER, 4P, P5, 250V, 12A, BLACK	2113-3148+1	4
LINE_OUT	JACK, 2RCA, P15, H=10+9.5	2113-3153+0	4
MUTE	SOCKET, M, 2P, P5, 300V, 15A, BLACK	2113-3361+1	4
S200	CONNECTOR, HEADER, 4P, P2.54, ST, M	2101-3296+0	4
S201	CONNECTOR, HEADER, 4P, P2.54, ST, M	2101-3296+0	4
S214	SWITCH, DIP, SPST, 24V, 25MA, P2.54, 4PIN	5200-5019+0	4
SW204	SWITCH, SLIDE, 3P2T, 125V, 0.3A, VERT=6	5200-5015+0	4
VR201	VR, ROTARY, 20BKX1, 20%, V, L=15, 18TEETH, C	4751-226E+0	4
VR202	VR, ROTARY, 20BKX1, 20%, V, L=15, 18TEETH, C	4751-226E+0	4
VR205	VR, ROTARY, 10K/10CX1, 20%, V, L=15, 18TEETH	4751-224E+0	4
VR206	VR, ROTARY, 100KAX2, 20%, V, L=15, 18TEETH	4751-225E+0	4
VR207	VR, ROTARY, 100KAX2, 20%, V, L=15, 18TEETH	4751-225E+0	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ 3.5mm Jack PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R1	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R2	SUPPRESSOR, 26V, 30A, ESD, TVM1G260M111	480M-1110	4
R28	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A	4
R159	24.3K, RMG, 1/10W, 1%, 0603	4720-2432	4
R161	24.3K, RMG, 1/10W, 1%, 0603	4720-2432	4
R120	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R122	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R131	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R134	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R140	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R141	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R150	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R151	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R156	100R, RMG, 1/16W, 1%, 0603	4723-101A	4
R154	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A	4
R121	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R130	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R149	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R160	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R162	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R163	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R164	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R165	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R166	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-103AR	4
R103	1M, RMG, 1/16W, 1%, 0603	4723-105A	4
R129	1M, RMG, 1/16W, 1%, 0603	4723-105A	4
R137	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123AR	4
R139	12K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-123AR	4
R142	1R, RMG, 1/16W, 5%, 0603	4723-1R0J	4
R146	1R, RMG, 1/16W, 5%, 0603	4723-1R0J	4
R104	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R119	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R143	5.1K, RMG, 1/16W, 1%, 0603/1608	4723-512A	4
R133	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821AR	4
R136	820R, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SA	4723-821AR	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ 3.5mm Jack PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C111	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C113	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C129	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C147	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C158	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C159	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C167	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C168	100PF, CC, 50V, 5%, 0603/1608, 1X2	150F-101JAC	4
C135	1000PF, CC, 50V, 5%, 0603, X7R	150F-102JAC	4
C140	1000PF, CC, 50V, 5%, 0603, X7R	150F-102JAC	4
C114	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C133	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C141	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C149	0.01uF, CC, 50V, 10%, 0603, 1x2	150F-103KAC	4
C137	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C139	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C148	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C154	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C155	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C166	0.1UF, CC, 50V, 5%, 0603	150F-104JAC	4
C102	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104KAC	4
C103	0.1UF, CC, 50V, 5%, 0603	150F-104KAC	4
C104	0.1UF, CC, 50V, 5%, 0603	150F-104KAC	4
C105	0.1UF, CC, 50V, 5%, 0603	150F-104KAC	4
C156	0.1UF, CC, 50V, 5%, 0603	150F-104KAC	4
C157	0.1UF, CC, 50V, 5%, 0603	150F-104KAC	4
C165	0.1UF, CC, 50V, 5%, 0603	150F-104KAC	4
C100	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C101	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C106	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C107	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C108	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C109	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C117	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C119	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C152	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4
C153	10UF, CE, 16V, 20%, SM, 3X5.4, 85C-2000H	157D-106MEJ	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L100	FERRITE, BEAD, SMD, ACB453215, 125	1802-0630	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ 3.5mm Jack PCB Assembly

Diodes

Reference Designator	Description	Vendor Part Number	Note
D10	BAV99, SOT23, PHILIPS	4840-8970	4
D102	BAT54S, SOT-23, SCHOTTKY	480T-54S0	4
D107	BAT54S, SOT-23, SCHOTTKY	480T-54S0	4
D109	BAT54S, SOT-23, SCHOTTKY	480T-54S0	4
D105	BAV99, SOT23, PHILIPS	4840-8970	4
D106	BAV99, SOT23, PHILIPS	4840-8970	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U12	OP-AMP, SMD, 105C, BA4560RF, SOP8	3132-7011	4
U100	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020	4
U103	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020	4
U105	TL072CDR, DUAL, J-FET, INPUT, OP-AMP	3130-8020	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
J1A	WIRE-CONN, 10P, P2.0, #26, UL1061, L=300, B	7013-1990	4
J2A	WIRE-SHI, 8P, P2.0, #26, UL1, 061/2547, L=400	7013-2161	4
J101	JACK, INLET, EARPHONE, 50V, 1A, 3.5MM	2113-3332	4
J9A1	WIRE-SHI, 12P, P2.0, #26, UL, 1061/2547, L130	7013-2150	4
VR100	VR, ROTARY, 10K/10CX1, 20%, V, L=30, 40TEETH	4751-223E	4
VR101	VR, ROTARY, B20KX1, 20%, C.C, V, L=30, 40TEETH	4751-227E	4
VR102	VR, ROTARY, B20KX1, 20%, C.C, V, L=30, 40TEETH	4751-227E	4
VR103	VR, ROTARY, B20KX1, 20, V, L=15	4751-2280	4
SW100	SWITCH, SLIDE, DPDT, 50V, 0.5A, L=14, METAL	5200-5013	4
CON GND	WIRE, GROUND, 1P, L=58, GREEN/YRL, RING	7012-9970	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ LED PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R116	300R, RMG, 1/16W, 5%, 0603	4723-301J+P	4
R118	300R, RMG, 1/16W, 5%, 0603	4723-301J+P	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D313	SENSOR, LED, 3MM, BLUE, SP, SLR343BB, T, 225419, ROHM	3700-2824+B	4
D315	LED, 3MM, RED	3700-2522+R	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
J108B	CONNECTOR, 3P, ST. WAFER, P=2.0, COULOMB	2102-030S+003	4

FreeSpace® IZA 250-LZ MIC PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R102	15R RMG 1/16W 5% 0603 HK RESISTOR/SA	4723-150JR	4
R105	9.76K RMG 1/16W 1% 0603	4723-9761	4
R106	150R RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-151AR	4
R107	150R RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-151AR	4
R108	1K RMG 1/16W 1% 0603/1608	4723-102A	4
R109	150R RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-151AR	4
R111	150R RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-151AR	4
R112	10K RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-103AR	4
R113	1K RMG 1/16W 1% 0603/1608	4723-102A	4
R114	2.2K RMG 1/16W 5% 0603 HK RESISTOR/SA	4723-222JR	4
R115	1K RMG 1/16W 1% 0603/1608	4723-102A	4
R124	4.99K RMG 1/16W 1% 0603	4723-4991	4
R125	10R RMG 1/16W 5% 0603/1608	4723-100J	4
R126	4.99K RMG 1/16W 1% 0603	4723-4991	4
R127	10R RMG 1/16W 5% 0603/1608	4723-100J	4
R128	4.99K RMG 1/16W 1% 0603	4723-4991	4
R132	4.99K RMG 1/16W 1% 0603	4723-4991	4
R135	2K RMG 1/16W 1% 0603/1608	4723-202A	4
R138	10K RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-103AR	4
R144	100R RMG 1/16W 1% 0603	4723-101A	4
R145	0R RMG 1/16W 1% 0603	4723-000A	4
R147	10K RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-103AR	4
R148	10K RMG 1/16W 1% 0603 HK RESISTOR/SA	4723-103AR	4
R152	100R RMG 1/16W 1% 0603	4723-101A	4
R153	2.2K RMG 1/16W 5% 0603 HK RESISTOR/SA	4723-222JR	4
R155	0R RMG 1/16W 5% 0603 HK RESISTOR/SA	4723-000JR	4
R158	2K RMG 1/16W 1% 0603/1608	4723-202A	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ MIC PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C115	10UF CE 16V 20% SM 3X5.4 85C-2000H	157D-106MEJ	4
C116	10UF CE 16V 20% SM 3X5.4 85C-2000H	157D-106MEJ	4
C120	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C121	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C122	220UF CE 6.3V 20% SM 6.3X5.3 NOVER	157B-227MLJU	4
C123	220UF CE 6.3V 20% SM 6.3X5.3 NOVER	157B-227MLJU	4
C125	220UF CE 6.3V 20% SM 6.3X5.3 NOVER	157B-227MLJU	4
C127	220UF CE 6.3V 20% SM 6.3X5.3 NOVER	157B-227MLJU	4
C128	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C130	100PF CC 50V 5% 0603/1608 1X2	150F-101JAC	4
C131	470PF CC 50V 5% 0603	150F-471JAC	4
C132	470PF CC 50V 5% 0603	150F-471JAC	4
C134	100PF CC 50V 5% 0603/1608 1X2	150F-101JAC	4
C136	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C138	1000PF CC 50V 5% 0603 X7R	150F-102JAC	4
C145	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C146	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C150	100PF CC 50V 5% 0603/1608 1X2	150F-101JAC	4
C151	100PF CC 50V 5% 0603/1608 1X2	150F-101JAC	4
C160	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C161	0.1uF CC 50V 10% 0603/1608 1x2	150F-104KAC	4
C162	10UF CE 16V 20% SM 3X5.4 85C-2000H	157D-106MEJ	4
C163	10UF CE 16V 20% SM 3X5.4 85C-2000H	157D-106MEJ	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
FB101	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4
FB102	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4
FB103	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4
FB104	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4
FB105	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4
FB106	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4
FB107	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4
FB108	FERRITE CHIP 0603 BLM18AG102SN1D	1808-0878	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D101	BAV99 SOT23 PHILIPS	4840-8970	4
D104	BAV99 SOT23 PHILIPS	4840-8970	4
Z142	DIODE SUPPRESSOR 26V 30A ESD TVM1G260M111 S	480M-1110	4
Z143	DIODE SUPPRESSOR 26V 30A ESD TVM1G260M111 S	480M-1110	4

ELECTRICAL PART LIST

FreeSpace® IZA 250-LZ MIC PCB Assembly


Transistors

Reference Designator	Description	Vendor Part Number	Note
Q100	NPN MMBT4401 SOT-23 HFE: 20-300 SM	4854-4010	4
Q101	NPN MMBT4401 SOT-23 HFE: 20-300 SM	4854-4010	4
Q102	MMBT4403LT1G SMD	4854-4030	4
Q103	MMBT4403LT1G SMD	4854-4030	4
Q104	MMBT4403LT1G SMD	4854-4030	4
Q105	MMBT4403LT1G SMD	4854-4030	4
Q106	MMBT4403LT1G SMD	4854-4030	4
Q107	MMBT4403LT1G SMD	4854-4030	4
Q108	MMBT4403LT1G SMD	4854-4030	4
Q109	MMBT4403LT1G SMD	4854-4030	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U101	TL072CDR DUAL J-FET INPUT OP-AMP	3130-8020	4
U102	NJM2068M-#ZZZB DUAL OP AMP	3130-6890	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
J1	CONNECTOR 9P 2MM	2102-090S	4
J100	JACK MIC PHONE COMBO 11P NCJ10FI-H-0 NE	2113-3213	4
CON GND	WIRE GROUND 1P L=58 GREEN/YRL RING	7012-9970	3,4 

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R300	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R301	1K, RMG, 1W, 5%, 2512	4728-102J+3	4
R302	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R303	33K, RMF, 2W, 5%, AT, METAL, OXIDE	4719-333J+2-X	4
R304	39.2K, RMG, 1W, 1%, 2512	4728-3922+3	4
R305	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4
R306	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4
R307	200K, RMG, 1/16W, 1%, 0603/1608	4723-204A+P	4
R308	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R309	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R311	WIRE, JUMPER, ROLLER FORM, D=0.6MM	635N-0002+0	4
R312	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R313	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R314	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R315	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R316	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R317	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R318	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R319	7.5K, RMG, 1/10W, 1%, 0805	4720-752A+J	4
R320	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R321	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R322	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R324	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R325	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R326	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R327	820K, RMG, 1/8W, 5%, 1206	4721-824J+6	4
R328	2M, RMG, 1/4W, 1%, 1206	4725-205A+6	4
R329	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R330	1.8M, RMG, 1/8W, 1%, 1206	4721-185A+6	4
R331	6R8, RMG, 1/16W, 1%, 0603	4723-6R8A+P	4
R332	10K, RMG, 1W, 5%, 2512	4728-103J+3	4
R333	10R, RMG, 1/8W, 1%1206	4721-100A+6	4
R334	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R335	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R336	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R337	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R338	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R339	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R340	180R, RMG, 1/16W, 1%, 0603/1608	4723-181A+P	4
R341	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R342	3.3K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-332A+P-R	4
R343	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R344	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R345	402K, RMG, 1/16W, 1%, 0603	4723-4023+P	4
R346	10K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-103A+P-R	4
R347	210K, RMG, 1/16W, 1%, 0603	4723-214A+P	4
R348	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R349	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4
R350	24R, RMG, 1/4W, 1%, 1206	4725-240A+6	4
R351	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R352	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R353	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R354	22R, RMOF, 5W, 5%, AT, MINI, SIZE	471B-220J+2-X	4
R355	49.9R, RMG, 1/4W, 1%, 1206	4725-49R9+6	4
R356	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4
R357	16R, RMG, 1/4W, 1%, 1206	4725-160A+6	4
R358	10R, RMG, 1/4W, 5%, 1206	4725-100J+6	4
R360	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R361	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R362	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R363	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R364	4.7K, RMG, 1/16W, 1%, 0603/1608	4723-472A+P	4
R365	100K, RMG, 1/16W, 1%, 0603, HK, RESISTOR/SAMSUNG	4723-104A+P-R	4
R366	2.4K, RMG, 1/16W, 1%, 0603	4723-242A+P	4
R367	30K, RMG, 1/16W, 1%, 0603/1608	4723-303A+P	4
R368	100R, RMG, 1/16W, 1%, 0603	4723-101A+P	4
R369	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R370	39K, RMG, 1/10W, 1%, 0603	4720-393A+P	4
R371	22R, RMG, 1W, 5%, 2512	4728-220J+3	4
R374	47R, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-470J+P-R	4
R378	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R379	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R390	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R391	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R392	39K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-393J+P-R	4
R393	22R, RMOF, 5W, 5%, AT, MINI, SIZE	471B-220J+2-X	4
R394	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R395	3.9K, RMG, 1/16W, 5%, 0603, HK, RESISTOR/SAMSUNG	4723-392J+P-R	4
R396	0R, RMG, 1/4W, 5%(<50mOHM), 1206	4725-000J+6	4

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C142	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C143	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C300	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C301	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C302	470UF, CE, 250V, 20%, RL, 30X30, 105C	157R-477M+5-\$\$T	4
C303	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C304	330PF, CC, 1000V, 10%, RLT, Y5P, 5.5X3.5	150N-331K+K-JF	4
C305	47UF, CE, 10V, 20%, RLT, 5X11, 105C	157C-476M+K-IUT	4
C306	4.7UF, CE, 63V, 20%, RLT, 5X11, LOW, ESR, 105C	157I-475M+K-IURT	4
C308	0.015UF, CC, 630V, 10%, 1206, X7R	150M-153K+6-CF	4
C309	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157E-107M+K-LURT	4
C311	100UF, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157Q-107M+K-LUTR	4
C312	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C313	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C314	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C315	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C316	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C317	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C318	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C319	10UF, CE, 50V, 20%, RLT, 5X11, 105C, RX, NOVER	157F-106M+K-IUTU	4
C320	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C321	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C322	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C323	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C324	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4
C325	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C326	1000PF, CC, 1000V, 10%, RLT, 6X3, 125C, X7R	1511-102K+K-0N	4
C327	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C328	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C329	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW, ESR	157Q-477M+K-S9RT	4
C330	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C331	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C332	0.015UF, CC, 50V, 10%, 0603	150F-153K+P-AC	4
C333	47UF, CE, 100V, 20%, RLT10X16, LOW, ESR, 105C, WB, SAMWHA	157H-476M+K-S5RT	4
C334	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C335	100UF, CE, 35V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157Q-107M+K-LUTR	4
C336	1000UF, CE, 16V, RLT, 10X16, R, E3, ELNA	157D-108M+K-S5E	4
C337	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C338	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C339	470UF, CE, 35V, 20%, RLT, 10X20, 105C, LOW, ESR	157Q-477M+K-S9RT	4
C340	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C341	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C342	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C343	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C344	47UF, CE, 10V, 20%, RLT, 5X11, 105C	157C-476M+K-IUT	4
C345	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C346	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C347	0.68UF, CM, 100V, 5%, RBT, 7.2X11X6, METALLIZED	153H-684J+V-NUM	4
C348	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C349	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C350	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C351	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C352	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C353	1000UF, CE, 35V, 20%, RLT, 12.5X25, 105C, LOW, ESR	157Q-108M+K-X&TR	4
C354	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C355	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C356	100UF, CE, 25V, 20%, RLT, 6.3X11, 105C, LOW, ESR	157E-107M+K-LURT	4
C357	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C358	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C359	47UF, CE, 25V, 20%, RLT, P5.0, 5X11, LOW, ESR	157E-476M+K-IUR	4
C361	1UF, CC, 50V, 10%, 0805	150F-105K+J-BD	4
C362	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C364	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C365	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C366	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C367	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C368	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C369	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C370	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C371	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C372	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C373	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C374	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C375	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C376	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C377	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C378	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C379	0.47UF, CC, 25V, 5%, 0805, 1.25X2	150E-474J+J-BD	4

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C380	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C381	1000PF, CC, 250V, 5%, 0805	150R-102J+J-BD	4
C383	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C384	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C385	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C386	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C387	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C388	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C389	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C390	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C391	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C392	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C393	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C394	220PF, CC, 50V, 5%, 0603	150F-221J+P-AC	4
C395	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C396	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C397	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C398	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C399	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C400	0.1UF, CC, 100V, 10%, 1206, AVX	150H-104K+6-CFD	4
C401	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C402	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C404	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C406	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C407	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C408	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C409	1000PF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C411	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C412	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C413	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C414	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C415	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C416	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C423	0.1UF, CC, 50V, 5%, 0603	150F-104J+P-AC	4
C424	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C425	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C426	0.1uF, CC, 50V, 10%, 0805, 1.2X2.0	150F-104K+J-BD	4
C428	0.01UF, CC, 50V, 5%, 0603	150F-103J+P-AC	4
C436	2200uF, CE, 10V, 20%, RL, 10x20	157C-228M+5-S9	4
C437	100uF, CE, 10V, 20%, R5, 5X11	157C-107M+K-IU	4
C449	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C450	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
C485	470PF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C486	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C487	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
C488	3300PF, CC, 1000V, 10%, RLT, 10X4, X7R, 125C	150N-332K+K-SG	4
CX300	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
CX301	0.33UF, CM, 300V, 10%, RB, P15, 18X15.5X10	1511-334K+9-03Z	4
XYC301	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
XYC303	330PF, CC, 250V, 10%, YKP, RL, 8.5X8.5	150R-331K+5-PP	4
XYC304	1000PF, CC, 400V, 20%, RL, Y5, U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4
YC300	1000PF, CC, 400V, 20%, RL, Y5, U, 9.5X8, AH09E102MLO	150T-102M+5-RO	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L300	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L301	CHOKE-COMMON, MODE, 10MH, 10MH, MIN, AC, 240V, 2A, AL	1806-4037+0000	4
L302	CHOKE-COMMON, MODE, 10MH, 10MH, MIN, AC, 240V, 2A, AL	1806-4037+0000	4
L303	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L304	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L305	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L306	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L307	CHOKE-COMMON, MODE, 2X16UH, 8A, FT50-43	1806-3913+0	4
L310	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L311	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L313	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L314	FERRITE, BEAD, INDUCTOR, BL01RN1A1F1J	1808-0680+0	4
L316	CHOKE-COMMON, MODE, 2X16UH, 8A, FT50-43	1806-3913+0	4
L318	FERRITE, COIL, 22UH, 20%, BL19.2	1807-220M+9	4
L319	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L320	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L321	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L322	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L323	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L324	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4
L328	FERRITE, BEAD, SMD, ACB453215, 125, OHM	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
B300	DIODE, BRIDGE, 800V, 8A, GBU8K, RL	4840-9218+5	4
D300	DIODE, FAST, 800V, 2A, HER207, AT	480R-2070+2	4
D303	DIODE, ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D303A	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
D304	DIODE, ULTRA, 400V, 16A, MUR1640, TO-220AB, RB	4801-6400+9	4
D304C	FERRITE, BEAD, 26430000101, (FAIR-RITE)	1808-0670+0	4
D305	200V, 0.2A, BAV21W, SOD-123, SMD, PANJIT	480V-21W0+3	4

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Diodes (continued)

Reference Designator	Description	Vendor Part Number	Note
D306	LL4148, SM	4804-1480+3	4
D307	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D308	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D309	RECTIFIER, UF4006-T, GI, AT	4840-8530+2	4
D311	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D312	RECTIFIER, ES1D, 200V, 1.1A, SMD	4840-9190+3	4
D314	RECT, 200V, 2A, ER2D, SMB/DO-214AA, SM	480E-R2D0+3	4
DZ300	DZ, 5W, 150V, 5%, AT	483B-1519+2	4
Z300	DZ, 5W, 10V, 5%, 1N5347B, AT, ON	483B-1005+2	4
Z301	DZ, 5W, 13V, 5%, AT	483B-1309+2	4
Z302	DZ, 5W, 13V, 5%, AT	483B-1309+2	4
Z303	DZ, 1/2W, 15V, 5%, SOD-123C, MMSZ5245BT1G	4837-15V9+3	4
Z304	DZ, 1/2W, 30V, 5%, SM	4837-3009+3	4
Z305	DZ, 1/2W, 22VD, RLZTE-1122D, LL-34, ROHM	4837-22D1+3	4
Z306	DZ, 1/2W, 5.6V, SMD	4837-5V69+3	4
Z307	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4
Z308	DZ, 1/2W, 12V, 5%, SM	4837-1209+3	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q300	2N2222, SMD, MMBT2222ALT1G	4860-5410+3	4
Q301	MOSFET, N-CH, 60V, 115MA, 2N7002, SOT-23, SM	4907-0020+3	4
Q302	MMBT3906LT1G, SMD	4860-1980+3	4






Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U300	PWM, CONTROLER, TOP258YN, TO-220-7C, PI	3132-7241+0-35	4
U301	SENSOR, PHOTOCOUPLER, EL817, EVERLIGHT	481E-L817+3	4
U302A	TR, TIP31CTU	4860-2620+5	4
U303	AMP, TDA8920BTH, SOT566-3	3132-2641+1	4
U304A	PNP, TIP32C, HFE:10-50, TO-220RL	485I-P32C+5	4
U305	REGULATOR, TL432BIDBZR, SOT-23-3, TI	3132-7691+0-16	4
U306	REGULATOR, NJM7805DLA, TO-252	3132-7310+0	4

ELECTRICAL PART LIST

FreeSpace® ZA 250-LZ Main PCB Assembly

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CN1	CONNECTOR, 2P, P3.96, STRAIGHT, M	2101-2780+0	4
CN2	CONNECTOR, 2P, P3.96, STRAIGHT, M	2101-2780+0	4
FUS1	FUSE, T5A, 250V, 8X8.5, VDE/, PSE/CCC, RLT, LITTELFUSE	5120-1144+0-L	3,4 
HS1	HEATSINK, INNER, 56X28X30, AL-EXT	5401-0271+0	4
HS1A	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS1B	SCREW, M3X6, BINDING, (BLK)	2904-3006+3000	4
HS2	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS2A	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
HS2B	SCREW, 3X8, TAPPING	2950-3008+3000	4
HS3	HEATSINK, (214), 20MM-HIGH, HOLE	5400-0831+0	4
HS3A	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
HS3B	SCREW, 3X8, TAPPING	2950-3008+3000	4
J1	CONNECTOR, WAFER, 2P, P7.92, STRAIGHT	2101-3092+0	4
J4B	CONNECTOR, 11P, ST, WAFER, P=2.0	2102-110S+003	4
J109A	CONN, 2P, WAFER, P2.0, ST, 25055440, CT, AMP	2101-1424+0	4
RV1	SURGE, PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
RV2	SURGE, PROTECTOR, 270V, 4500A, D15, THINKING	2706-0003+0	3,4 
T1	TRANSFORMER, SW, IN80-288V, OUT+/-28V, 50X2, 35X42, ER	1806-4131+0000	3,4 
TH300	NTC, THERMISTER, 50HM, 4A, NIOSP005L, UL/CSA/VDE	5202-0010+0	3,4 
U302B	HEATSINK, FOR, 7805, 2438-17	5400-9130+0	4
U302C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U302D	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
U302E	INSULATN, MICA, T-400, 8302, 18X12.7M, , T0220	3100-8040+0	4
U302F	BUSHING, TO-220A	4152-6830+0	4
U304B	HEATSINK, FOR, 7805, 2438-17	5400-9130+0	4
U304C	SCREW, 3X8, TAPPING	2950-3008+3000	4
U304D	SCREW, B-TITE, PH, M2.6X, 6, MM, BZ, CROSS	2950-2606+3000	4
U304E	INSULATN, MICA, T-400, 8302, 18X12.7M, , T0220	3100-8040+0	4
U304F	BUSHING, TO-220A	4152-6830+0	4

DISASSEMBLY PROCEDURES

Note: Refer to Figures 2 through 5 for the following procedures

1. Top Cover Removal

1.1 Remove the eight screws that secure the top cover to the chassis. Lift off the top cover.

2. SMPS / Amp PCB Removal

2.1 Perform procedure 1.

2.2 Unplug the wiring harnesses at the various connectors on the board.

2.3 Remove the seven screws that secure the SMPS / Amp PCB assembly to the chassis. Lift out the PCB.

3. Audio Transformer Removal (Hi-Z units only)

3.1 Perform procedure 1.

3.2 Unplug the transformer wiring harnesses from the SMPS / Amp PCB assembly.

3.3 Remove the nut, spring washer and flat washer from the top of the transformer. Lift out the transformer.

4. Rear Panel I/O PCB and DSP PCB Removal (Master units only)

4.1 Perform procedure 1.

4.2 Make a note of the wiring configuration, and unplug the wiring harnesses from the DSP PCB assembly.

4.3 Remove the six screws that secure the rear panel and DSP PCB assemblies to the rear of the chassis. Lift out the rear panel I/O and DSP PCB assemblies.

4.4 If needed, unplug the DSP PCB from the rear panel PCB by sliding them apart. They are connected to each other by slide-in connectors. Take care to not damage the plastic spacers between boards.

5. Output PCB Assembly Removal (Hi-Z units only)

5.1 Perform procedure 1.

5.2 Disconnect the output PCB wiring harness.

5.3 Remove the two screws that secure the output PCB assembly to the rear of the chassis. Lift out the PCB assembly.

6. 3.5mm Jack PCB Assembly Removal (Master units only)

6.1 On the front panel, pull off the VR knob, and remove the nut and the plain washer.

6.2 Perform procedure 1.

6.3 Unplug the wiring harness.

6.4 Remove the four screws that secure the PCB assembly to the front panel. Lift out the PCB assembly.

7. LED PCB Assembly Removal

7.1 Perform procedure 1.

7.2 Disconnect the wiring harness from the LED PCB assembly.

7.3 Remove the one screw that secures the PCB assembly to the front panel. Lift out the PCB. Take care to not lose the two light pipes that are located on the front of the board.

DISASSEMBLY PROCEDURES

8. Mic PCB Assembly Removal (Master units only)

8.1 Perform procedure 1.

8.2 On the front panel, pull off the VR knob, and remove the nut and the plain washer.

8.3 Inside the chassis, make a note of the wiring configuration, and unplug the two wires that go to the front panel power switch.

8.4 Remove the four screws that secure the sides of the front panel to the chassis. Remove the front panel assembly.

8.5 Inside the chassis, disconnect the wiring harness to the Mic PCB assembly.

8.6 On the front of the chassis, remove the two screws that secure the Mic PCB assembly to the the chassis. Lift out the PCB.

TEST PROCEDURES

IZA 250-LZ Amplifier (Low-Z Master Unit)

Items required:

Audio Precision ATS-1 or similar
Audio Precision AUX-0025 filter
4 Ohm, 100 Watt load resistor

Control settings:

- Set the Bass and Treble control to the 12:00 o'clock position, unless otherwise specified.
- Set the EQ to FLAT, unless otherwise specified.
- Set the Output gain trim to max and the master volume control to max, unless otherwise specified.
- Set the Input gain trim to max, unless otherwise specified.
- DIP switch settings:
- PAGE/MIC NORMAL - BYPASS MASTER: set to PAGE/MIC NORMAL
- OUTPUT MONO - OUTPUT STEREO: set to OUTPUT STEREO
- FRONT MIC MIX - FRNT MIC DUCK: set to FRONT MIC MIX
- AUX OUT EQ - AUX OUT FLAT: set to AUX OUT EQ
- Connect the 4 ohm load to the output.

Note: All power amplifier measurements require the Audio Precision AUX-0025 filter to ensure correct readings.

1. Input Sensitivity Test

1.1 On the rear panel, apply a 1kHz, -10dBV +/- 2dBV sine wave to the Input A and Input B RCA input jacks. Verify a 50W output level on outputs 1 and 2.

1.2 On the rear panel, apply a 1kHz, -58dBV +/- 3dBV sine wave to the + and - inputs of the Page Input jack. Verify a 50W output level on outputs 1 and 2.

1.3 On the front panel, apply a 1kHz, -58dBV +/- 3dBV sine wave to the + and - inputs of the Mic/Line Input jack. Verify a 50W output level on outputs 1 and 2.

1.4 On the front panel, apply a 1kHz, -5dBV +/- 2dBV sine wave to the + and - inputs of the Aux Input jack. Verify a 50W output level on outputs 1 and 2.

2. THD+N Test

2.1 On the rear panel, apply a 1kHz, -10dBV +/- 2dBV sine wave to the Input A and Input B RCA input jacks. Verify a 50W output level on outputs 1 and 2. Measure the THD+N level at outputs 1 and 2. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

2.2 On the rear panel, set the Page input gain to 12 o'clock. Apply a 1kHz, -62dBV +/- 3dBV sine wave to the + and - inputs of the Page Input jack. Adjust the input level until you have a 50W output level on outputs 1 and 2. Measure the THD+N level at outputs 1 and 2. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

2.3 On the front panel, set the Mic/Line input gain control to 12 o'clock. Apply a 1kHz, -62dBV +/- 3dBV sine wave to the + and - inputs of the Mic/Line Input jack. Adjust the input level until you have a 50W output level on outputs 1 and 2. Measure the THD+N level at outputs 1 and 2. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

2.4 On the front panel, apply a 1kHz, -5dBV +/- 2dBV sine wave to the + and - inputs of the Aux Input jack. Verify a 50W output level on outputs 1 and 2. Measure the THD+N level at outputs 1 and 2. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

TEST PROCEDURES

3. Frequency Response Test

3.1 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the Input A and Input B RCA input jacks. Adjust the input signal level to obtain a 1W output level on outputs 1 and 2. Reference a dB meter to this output level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -3dB +/- 1dB.

- Change the input signal frequency to 18kHz. Verify that the output level is now -1dB +/- 1dB.

3.2 On the rear panel, set the Page Input gain control to 12 o'clock. Apply a 1kHz, -50dBv +/- 3dBv sine wave to the + and - inputs of the Page Input jack. Adjust the input signal level to obtain a 1W output level on outputs 1 and 2. Reference a dB meter to this output level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -5dB +/- 1dB.

- Change the input signal frequency to 18kHz. Verify that the output level is now -3dB +/- 1dB.

3.3 On the front panel, set the Mic/Line input gain control to 12 o'clock. Apply a 1kHz, -50dBv +/- 3dBv sine wave to the + and - inputs of the Mic/Line Input jack. Adjust the input signal level to obtain a 1W output level on outputs 1 and 2. Reference a dB meter to this output level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -5dB +/- 1dB.

- Change the input signal frequency to 18kHz. Verify that the output level is now -3dB +/- 1dB.

3.4 On the front panel, apply a 1kHz, -5dBv +/- 2dBv sine wave to the + and - inputs of the Aux Input jack. Adjust the input signal level to obtain a 1W output level on outputs 1 and 2. Reference a dB meter to this output level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -3dB +/- 1dB.

- Change the input signal frequency to 18kHz. Verify that the output level is now -1dB +/- 1dB.

4. Output Noise Test

Note: A 20kHz filter and A-weighting must be used for this test.

4.1 On the rear panel, apply a 1kHz, -10dBv +/- 2dBv sine wave to the Input A and Input B RCA input jacks. Verify a 50W output level on outputs 1 and 2. Measure the noise output levels on outputs 1 and 2. Verify that they are \leq -65dB. Ideal is -68dB.

4.2 With the unit powered off, connect the signal input cable to the Page Input jack on the rear panel. Turn the unit on. Apply a 1kHz, -58dBv +/- 3dBv sine wave to the + and - inputs of the Page Input jack. Verify a 50W output level on outputs 1 and 2. Measure the noise output levels on outputs 1 and 2. Verify that they are \leq -60dB. Ideal is -65dB.

4.3 With the unit powered off, connect the signal input cable to the Mic/Line Input jack on the front panel. Turn the unit on. Apply a 1kHz, -58dBv +/- 3dBv sine wave to the + and - inputs of the Mic/Line Input jack. Verify a 50W output level on outputs 1 and 2. Measure the noise output levels on outputs 1 and 2. Verify that they are \leq -65dB. Ideal is -68dB.

TEST PROCEDURES

4.4 On the front panel, apply a 1kHz, -5dBv +/- 2dBv sine wave to the + and - inputs of the Aux Input jack. Verify a 50W output level on outputs 1 and 2. Measure the noise output levels on outputs 1 and 2. Verify that they are \leq -65dBv. Ideal is -68dBv.

5. Tone Control Frequency Response Test

5.1 Set the treble and bass tone controls to center.

5.2 Apply a 7kHz, -50dBv sine wave to the Input A jack. Increase the input signal level until you have a 1W output level at the output 1 connector. Reference a dB meter to this output level.

5.3 Rotate the treble control to minimum (fully CCW). Measure the output level. It should be -5dBr +/-1.5dBr.

5.4 Rotate the treble control to maximum (fully CW). Measure the output level. It should be +5dBr +/- 1.5dBr. Place the treble control back to the center position.

5.5 Apply a 100Hz, -50dBv sine wave to the Input A jack. Increase the input signal level until you have a 1W output level at the output 1 connector. Reference a dB meter to this output level.

5.6 Rotate the bass control to minimum (fully CCW). Measure the output level. It should be -5dBr +/-1.5dBr.

5.7 Rotate the bass control to maximum (fully CW). Measure the output level. It should be +5dBr +/- 1.5dBr. Place the bass control back to the center position.

6. Input Signal Clip Level Test

6.1 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the Input A RCA input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the Output 1 connector. It should be -10dBv +/- 2dBv. Repeat this step for Input B and Output 2.

6.2 On the rear panel, apply a 1kHz, -45dBv +/- 3dBv sine wave to the + and - inputs of the Page Input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the Output 1 connector. It should be -37dBv +/- 3dBv. Repeat this step for Input B and Output 2.

6.3 On the front panel, apply a 1kHz, -45dBv +/- 3dBv sine wave to the + and - inputs of the Mic/Line Input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the Output 1 connector. It should be -37dBv +/- 3dBv. Repeat this step for Input B and Output 2.

6.4 On the front panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the + and - inputs of the Aux Input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the Output 1 connector. It should be -5dBv +/- 2dBv. Repeat this step for Input B and Output 2.

TEST PROCEDURES

7. Channel Separation Test

Note: A 20kHz filter and A-weighting must be used for this test.

7.1 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the Input A RCA input jack. Increase the input signal level until you see a 10W output level at the Output 1 connector. Measure the output level at the Output 2 connector. It should be -60dB, +10dB max.

7.2 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the Input B RCA input jack. Increase the input signal level until you see a 10W output level at the Output 2 connector. Measure the output level at the Output 1 connector. It should be -60dB, +10dB max.

7.3 On the front panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the + side (tip) of the Aux Input jack. Increase the input signal level until you see a 10W output level at the Output 1 connector. Measure the output level at the Output 2 connector. It should be -60dB, +10dB max.

7.4 On the front panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the - side (ring) of the Aux Input jack. Increase the input signal level until you see a 10W output level at the Output 2 connector. Measure the output level at the Output 1 connector. It should be -60dB, +10dB max.

8. Aux Output Level and THD Test

8.1 On the front panel, set the master level control to maximum (fully CW). On the rear panel, set the Input A gain to maximum (fully CW).

8.2 Apply a 1kHz, -12dBV sine wave to the Input A RCA jacks. Measure the output level at the Aux Out RCA jacks on the rear panel. It should be -3dBv +/- 1dBv.

8.3 With the output level specified in step 8.2 above, measure the THD level at the Aux Out RCA jacks. It should be $\leq 0.1\%$. 0.02% is ideal.

Note: You will need a 20kHz filter for this test.

9. Aux Output Frequency Response and Noise Test

9.1 On the front panel, set the master level control to maximum (fully CW). On the rear panel, set the Input A gain to maximum (fully CW).

9.2 Apply a 1kHz, -12dBV sine wave to the Input A RCA jacks. Measure the output level at the Aux Out RCA jacks on the rear panel. It should be -3dBv +/- 1dBv. Reference a dB meter to this output level.

9.3 Change the input signal frequency to 60Hz. Verify that the output level is -3dBv +/- 1dBv.

9.4 Change the input signal frequency to 18kHz. Verify that the output level is -1dBv +/- 1dBv.

9.5 Set the input signal frequency to 1kHz. Measure the output noise level at the Aux Out jacks. It should be ≤ -88 dBv. Ideal is -90dBv.

Note: You will need a 20kHz filter with A-weighting for this test.

10. Input Priority Test

10.1 Apply a 1kHz, -10dBv +/- 2dBv audio signal to inputs A and B on the rear panel. Verify that the Source Select switch on the front panel switches between Inputs A and B.

10.2 Apply an audio signal to the 1/8" input jack on the front panel. Verify that the input connected to the 1/8" input jack overrides the inputs to A and B on the rear panel.

TEST PROCEDURES

10.3 Apply an audio input to the Page input on the rear panel. Verify that when audio is applied to the Page input that it takes priority over all inputs and ducks the sources. Verify that when the audio signal is removed from the Page input that the audio from the other input(s) ramps back up and is audible.

10.4 On the front panel, set the Mic/Line input gain control to 12 o'clock. On the rear panel, set the Front Line Mix / Front Mic Duck DIP switch to the Front Mic Duck position.

- Apply a 1kHz, -50dBv +/- 3dBv to the Mic/Line input. When the audio signal is activated, the front mic/line input can either be mixed without ducking or override the sources and duck the sources, depending on the setting of the rear panel DIP switch.

- Verify that when the audio signal is applied to the Mic/Line input that the other audio inputs are ducked (muted).

- Verify that when the audio input is removed from the Mic/Line input that the audio input from the other sources ramps back up and becomes audible again.

11. Remote Control Test

11.1 On the rear panel, connect a CC-16 controller. Verify that it overrides the source select switch and the master volume control on the front of the unit. The remote includes a two position source select and volume control.

12. Mute Control Test

12.1 Connect a CC-16 controller to the remote connector on the rear panel. Verify that when the remote control is connected, it mutes main signals and aux output signals.

13. DIP Switch Function Test

13.1 PAGE/MIC NORMAL or BYPASS MASTER

- Set the Page/Mic Normal - Bypass Master switch to the Bypass Master position. Verify that inputs 3 (PAGE) and 4 (MIC) are not subject to master volume attenuation. Otherwise inputs 3 and 4 are subject to master volume attenuation.

13.2 OUTPUT MONO or OUTPUT STEREO

- Place the Output Mono or Output Stereo DIP switch on the rear panel to the Output Stereo position. Apply a line level audio signal to Inputs A and B on the rear panel. Verify a stereo output from the Output 1 and 2 connectors located on the rear panel.

- Remove the input signal. Change the Output Mono / Output Stereo switch to the Output Mono position. Re-apply the line level signal to inputs A and B. Verify that the inputs are now summed internally by the amplifier.

13.3 FRONT MIC MIX or FRNT MIC DUCK

- Place the Front Mic Mix / Frnt Mic Duck switch to the Front Mic Mix position. Apply a line level audio signal to the Input A connector on the rear panel. Apply a 1kHz, -50dBv +/- 3dBv to the Mic/Line input. Verify that the Mic/Line audio input is mixed with the audio applied to Input A.

- Place the Front Mic Mix / Frnt Mic Duck switch to the Frnt Mic Duck position. Apply a line level audio signal to the Input A connector on the rear panel. Apply a 1kHz, -50dBv +/- 3dBv to the Mic/Line input. Verify that the Mic/Line audio input causes the Input A audio to be muted, and that it ramps back up and returns when the Mic/Line audio input is removed.

13.4 AUX OUT EQ or AUX OUT FLAT

- Place the Aux Out EQ / Aux Out Flat switch to the Aux Out EQ position. Apply an audio signal to the Input A or B input. Verify that the output signal from the Aux Out connector mirrors the EQ selected for the main output.

Switch for aux out EQ mirror main output EQ or flat EQ

TEST PROCEDURES

IZA 190-HZ Amplifier (Hi-Z Master Unit)

Items required:

Audio Precision ATS-1 or similar
Audio Precision AUX-0025 filter
50 Ohm, 100 Watt load resistor
100 Ohm, 100 Watt load resistor

Note: All power amplifier measurements require the Audio Precision AUX-0025 filter to ensure correct readings.

Control settings:

- Set the Bass and Treble control to the 12:00 o'clock position, unless otherwise specified.
- Set the EQ to FLAT, unless otherwise specified.
- Set the Output gain trim to max and the master volume control to max, unless otherwise specified.
- Set the Input gain trim to max, unless otherwise specified.
- DIP switch settings:
- PAGE/MIC NORMAL - BYPASS MASTER: set to PAGE/MIC NORMAL
- OUTPUT MONO - OUTPUT STEREO: set to OUTPUT STEREO
- FRONT MIC MIX - FRNT MIC DUCK: set to FRONT MIC MIX
- AUX OUT EQ - AUX OUT FLAT: set to AUX OUT EQ
- Connect the 4 ohm load to the output.

1. Input Sensitivity Test

1.1 On the rear panel, apply a 1kHz, -10dBV +/- 2dBV sine wave to the Input A and Input B RCA input jacks. Verify a 90W output level on the output connector.

1.2 On the rear panel, apply a 1kHz, -58dBV +/- 3dBV sine wave to the + and - inputs of the Page Input jack. Verify a 90W output level on the output connector.

1.3 On the front panel, apply a 1kHz, -58dBV +/- 3dBV sine wave to the + and - inputs of the Mic/Line Input jack. Verify a 90W output level on the output connector.

1.4 On the front panel, apply a 1kHz, -5dBV +/- 2dBV sine wave to the + and - inputs of the Aux Input jack. Verify a 90W output level on the output connector.

2. THD+N Test

2.1 On the rear panel, apply a 1kHz, -10dBV +/- 2dBV sine wave to the Input A and Input B RCA input jacks. Verify a 90W output level on the output connector. Measure the THD+N level at the output connector. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

2.2 On the rear panel, set the Page input gain to 12 o'clock. Apply a 1kHz, -62dBV +/- 3dBV sine wave to the + and - inputs of the Page Input jack. Adjust the input level until you have a 90W output level on the output connector. Measure the THD+N level at the output connector. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

2.3 On the front panel, set the Mic/Line input gain control to 12 o'clock. Apply a 1kHz, -62dBV +/- 3dBV sine wave to the + and - inputs of the Mic/Line Input jack. Adjust the input level until you have a 90W output level on the output connector. Measure the THD+N level at the output connector. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

2.4 On the front panel, apply a 1kHz, -5dBV +/- 2dBV sine wave to the + and - inputs of the Aux Input jack. Verify a 90W output level on the output connector. Measure the THD+N level at the output connector. Verify that the THD+N level is $\leq 0.8\%$. Optimum level is 0.3%.

TEST PROCEDURES

3. Frequency Response Test

3.1 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the Input A and Input B RCA input jacks. Adjust the input signal level to obtain a 1W output level on at the output connector. Reference a dB meter to this level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -3dBv +/- 1dBv.

- Change the input signal frequency to 18kHz. Verify that the output level is now -1dBv +/- 1dBv.

3.2 On the rear panel, set the Page Input gain control to 12 o'clock. Apply a 1kHz, -50dBv +/- 3dBv sine wave to the + and - inputs of the Page Input jack. Adjust the input signal level to obtain a 1W output level at the output connector. Reference a dB meter to this level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -5dBv +/- 1dBv.

- Change the input signal frequency to 18kHz. Verify that the output level is now -3dBv +/- 1dBv.

3.3 On the front panel, set the Mic/Line input gain control to 12 o'clock. Apply a 1kHz, -50dBv +/- 3dBv sine wave to the + and - inputs of the Mic/Line Input jack. Adjust the input signal level to obtain a 1W output level on outputs 1 and 2. Reference a dB meter to this output level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -5dBv +/- 1dBv.

- Change the input signal frequency to 18kHz. Verify that the output level is now -3dBv +/- 1dBv.

3.4 On the front panel, apply a 1kHz, -5dBv +/- 2dBv sine wave to the + and - inputs of the Aux Input jack. Adjust the input signal level to obtain a 1W output level on outputs 1 and 2. Reference a dB meter to this output level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -3dBv +/- 1dBv.

- Change the input signal frequency to 18kHz. Verify that the output level is now -1dBv +/- 1dBv.

4. Output Noise Test

Note: A 20kHz filter and A-weighting must be used for this test.

4.1 On the rear panel, apply a 1kHz, -10dBv +/- 2dBv sine wave to the Input A and Input B RCA input jacks. Verify a 90W output level on the output connector. Measure the noise output level. Verify that it is \leq -51dBv. Ideal is -55dBv.

4.2 With the unit powered off, connect the signal input cable to the Page Input jack on the rear panel. Turn the unit on. Apply a 1kHz, -58dBv +/- 3dBv sine wave to the + and - inputs of the Page Input jack. Verify a 90W output level on the output connector. Measure the noise output level. Verify that it is \leq -51dBv. Ideal is -55dBv.

4.3 With the unit powered off, connect the signal input cable to the Mic/Line Input jack on the front panel. Turn the unit on. Apply a 1kHz, -58dBv +/- 3dBv sine wave to the + and - inputs of the Mic/Line Input jack. Verify a 90W output level on the output connector. Measure the noise output level. Verify that it is \leq -51dBv. Ideal is -55dBv.

4.4 On the front panel, apply a 1kHz, -5dBv +/- 2dBv sine wave to the + and - inputs of the Aux Input jack. Verify a 90W output level on the output connector. Measure the noise output level. Verify that it is \leq -51dBv. Ideal is -55dBv.

TEST PROCEDURES

5. Tone Control Frequency Response Test

5.1 Set the treble and bass tone controls to center.

5.2 Apply a 7kHz, -50dBv sine wave to the Input A jack. Increase the input signal level until you have a 1W output level at the output connector. Reference a dB meter to this output level.

5.3 Rotate the treble control to minimum (fully CCW). Measure the output level. It should be -5dBr +/- 1.5dBr.

5.4 Rotate the treble control to maximum (fully CW). Measure the output level. It should be +5dBr +/- 1.5dBr. Place the treble control back to the center position.

5.5 Apply a 100Hz, -50dBv sine wave to the Input A jack. Increase the input signal level until you have a 1W output level at the output 1 connector. Reference a dB meter to this output level.

5.6 Rotate the bass control to minimum (fully CCW). Measure the output level. It should be -5dBr +/- 1.5dBr.

5.7 Rotate the bass control to maximum (fully CW). Measure the output level. It should be +5dBr +/- 1.5dBr. Place the bass control back to the center position.

6. Input Signal Clip Level Test

6.1 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the Input A RCA input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the output connector. It should be -10dBv +/- 2dBv. Repeat this step for Input B.

6.2 On the rear panel, apply a 1kHz, -45dBv +/- 3dBv sine wave to the + and - inputs of the Page Input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the output connector. It should be -37dBv +/- 3dBv. Repeat this step for Input B.

6.3 On the front panel, apply a 1kHz, -45dBv +/- 3dBv sine wave to the + and - inputs of the Mic/Line Input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the output connector. It should be -37dBv +/- 3dBv. Repeat this step for Input B.

6.4 On the front panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the + and - inputs of the Aux Input jack. Observe the Input Clip LED located on the front panel. Increase the input signal level until the LED just lights red. Measure the output level at the output connector. It should be -5dBv +/- 2dBv. Repeat this step for Input B.

7. Aux Output Level and THD Test

7.1 On the front panel, set the master level control to maximum (fully CW). On the rear panel, set the Input A gain to maximum (fully CW).

7.2 Apply a 1kHz, -12dBV sine wave to the Input A RCA jacks. Measure the output level at the Aux Out RCA jacks on the rear panel. It should be -3dBv +/- 1dBv.

7.3 With the output level specified in step 8.2 above, measure the THD level at the Aux Out RCA jacks. It should be $\leq 0.1\%$. 0.02% is ideal.

Note: You will need a 20kHz filter for this test.

TEST PROCEDURES

8. Aux Output Frequency Response and Noise Test

8.1 On the front panel, set the master level control to maximum (fully CW). On the rear panel, set the Input A gain to maximum (fully CW).

8.2 Apply a 1kHz, -12dBV sine wave to the Input A RCA jacks. Measure the output level at the Aux Out RCA jacks on the rear panel. It should be -3dBV +/- 1dBV. Reference a dB meter to this output level.

8.3 Change the input signal frequency to 60Hz. Verify that the output level is -3dB +/- 1dB.

8.4 Change the input signal frequency to 18kHz. Verify that the output level is -1dB +/- 1dB.

8.5 Set the input signal frequency to 1kHz. Measure the output noise level at the Aux Out jacks. It should be \leq -88dBV. Ideal is -90dBV.

Note: You will need a 20kHz filter with A-weighting for this test.

9. Input Priority Test

9.1 Apply a 1kHz, -10dBV +/- 2dBV audio signal to inputs A and B on the rear panel. Verify that the Source Select switch on the front panel switches between Inputs A and B.

9.2 Apply an audio signal to the 1/8" input jack on the front panel. Verify that the input connected to the 1/8" input jack overrides the inputs to A and B on the rear panel.

9.3 Apply an audio input to the Page input on the rear panel. Verify that when audio is applied to the Page input that it takes priority over all inputs and ducks the sources. Verify that when the audio signal is removed from the Page input that the audio from the other input(s) ramps back up and is audible.

9.4 On the front panel, set the Mic/Line input gain control to 12 o'clock. On the rear panel, set the Front Line Mix / Front Mic Duck DIP switch to the Front Mic Duck position.

- Apply a 1kHz, -50dBV +/- 3dBV to the Mic/Line input. When the audio signal is activated, the front mic/line input can either be mixed without ducking or override the sources and duck the sources, depending on the setting of the rear panel DIP switch.

- Verify that when the audio signal is applied to the Mic/Line input that the other audio inputs are ducked (muted).

- Verify that when the audio input is removed from the Mic/Line input that the audio input from the other sources ramps back up and becomes audible again.

10. Remote Control Test

10.1 On the rear panel, connect a CC-16 controller. Verify that it overrides the source select switch and the master volume control on the front of the unit. The remote includes a two position source select and volume control.

11. Mute Control Test

11.1 Connect a CC-16 controller to the remote connector on the rear panel. Verify that when the remote control is connected, it mutes main signals and aux output signals.

12. DIP Switch Function Test

12.1 PAGE/MIC NORMAL or BYPASS MASTER

- Set the Page/Mic Normal - Bypass Master switch to the Bypass Master position. Verify that inputs 3 (PAGE) and 4 (MIC) are not subject to master volume attenuation. Otherwise inputs 3 and 4 are subject to master volume attenuation.

TEST PROCEDURES

12.2 OUTPUT MONO or OUTPUT STEREO

- Place the Output Mono or Output Stereo DIP switch on the rear panel to the Output Stereo position. Apply a line level audio signal to Inputs A and B on the rear panel. Verify a stereo output from the Output 1 and 2 connectors located on the rear panel.

- Remove the input signal. Change the Output Mono / Output Stereo switch to the Output Mono position. Re-apply the line level signal to inputs A and B. Verify that the inputs are now summed internally by the amplifier.

12.3 FRONT MIC MIX or FRNT MIC DUCK

- Place the Front Mic Mix / Frnt Mic Duck switch to the Front Mic Mix position. Apply a line level audio signal to the Input A connector on the rear panel. Apply a 1kHz, -50dBv +/- 3dBv to the Mic/Line input. Verify that the Mic/Line audio input is mixed with the audio applied to Input A.

- Place the Front Mic Mix / Frnt Mic Duck switch to the Frnt Mic Duck position. Apply a line level audio signal to the Input A connector on the rear panel. Apply a 1kHz, -50dBv +/- 3dBv to the Mic/Line input. Verify that the Mic/Line audio input causes the Input A audio to be muted, and that it ramps back up and returns when the Mic/Line audio input is removed.

12.4 AUX OUT EQ or AUX OUT FLAT

- Place the Aux Out EQ / Aux Out Flat switch to the Aux Out EQ position. Apply an audio signal to the Input A or B input. Verify that the output signal from the Aux Out connector mirrors the EQ selected for the main output.

Switch for aux out EQ mirror main output EQ or flat EQ

ZA 250-LZ Amplifier (Low-Z Slave Unit)

Items required:

Audio Precision ATS-1 or similar
Audio Precision AUX-0025 filter
4 Ohm, 100 Watt load resistor

Control settings:

- Set the Output gain trim to max unless otherwise specified.
- OUTPUT MODE: set to STEREO
- Connect the 4 ohm load to the output.

Note: All power amplifier measurements require the Audio Precision AUX-0025 filter to ensure correct readings.

1. Input Sensitivity Test

1.1 On the rear panel, apply a 1kHz, 0dBv +/- 1dBv sine wave to the Input A and Input B RCA input jacks. Verify a 50W output level on outputs 1 and 2.

1.2 Remove the input signal. On the rear panel, change the OUTPUT MODE switch from STEREO to MONO. Apply a 1kHz, -6dBv +/- 1dBv sine wave to the Input 1 jack. Verify a 50W output level on output 1. Repeat this step for Input 2 and Output 2.

2. THD+N Test

2.1 On the rear panel, set the OUTPUT MODE switch to STEREO. Apply a 1kHz, 0dBv +/- 1dBv sine wave to the input RCA input jacks. Verify a 50W output level on outputs 1 and 2. Measure the THD+N level at outputs 1 and 2. Verify that it is $\leq 0.8\%$. Optimum level is 0.5%.

3. Frequency Response Test

3.1 On the rear panel, apply a 1kHz, -20dBv +/- 1dBv sine wave to the RCA input jacks. Adjust the input signal level to obtain a 1W output level on outputs 1 and 2. Reference a dB meter to this output level.

TEST PROCEDURES

- Change the input signal frequency to 60Hz. Verify that the output level is now -1dBr +/- 1dBr.

- Change the input signal frequency to 18kHz. Verify that the output level is now -1dBr +/- 1dBr.

4. Signal to Noise Ratio Test

Note: A 20kHz filter and A-weighting must be used for this test.

4.1 On the rear panel, apply a 1kHz, 0dBv +/- 1dBv sine wave to the RCA input jacks. Verify a 50W output level on outputs 1 and 2. Measure the signal-to-noise levels on outputs 1 and 2. Verify that they are ≥ 88 dB. Ideal is 92dB.

5. Channel Separation Test

Note: A 20kHz filter and A-weighting must be used for this test.

5.1 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the Input A RCA input jack. Increase the input signal level until you see a 10W output level at the Output 1 connector. Measure the output level at the Output 2 connector. It should be -55dB, +5dB max.

- Change the input frequency to 100Hz. Measure the output level at the Output 2 connector. It should be -65dB, +5dB max.

- Change the input frequency to 10kHz. Measure the output level at the Output 2 connector. It should be -50dB, +5dB max.

ZA 190-HZ Amplifier (Hi-Z Slave Unit)

Items required:

Audio Precision ATS-1 or similar
Audio Precision AUX-0025 filter
50 Ohm, 100 Watt load resistor
100 Ohm, 100 Watt load resistor

Note: All power amplifier measurements require the Audio Precision AUX-0025 filter to ensure correct readings.

Control settings:

- Set the Output gain trim to max.
- Connect the 50 ohm load to the output for 70V output units. Connect the 100 ohm load for 100V output units.

1. Input Sensitivity Test

1.1 On the rear panel, apply a 1kHz, 0dBv +/- 1dBv sine wave to either the left or right RCA input jack. Verify a 90W output level on the output connector.

2. THD+N Test

2.1 On the rear panel, apply a 1kHz, 0dBv +/- 1dBv sine wave to either the left or right RCA input jack. Verify a 90W output level on the output connector. Measure the THD+N level at the output connector. Verify that the level is $\leq 0.8\%$. Optimum level is 0.5%.

3. Frequency Response Test

3.1 On the rear panel, apply a 1kHz, -20dBv +/- 2dBv sine wave to the RCA input jacks. Adjust the input signal level to obtain a 1W output level on at the output connector. Reference a dB meter to this level.

- Change the input signal frequency to 60Hz. Verify that the output level is now -4dBr +/- 1dBr.

- Change the input signal frequency to 18kHz. Verify that the output level is now -1dBr +/- 1dBr.

TEST PROCEDURES

4. Signal to Noise Ratio Test

Note: A 20kHz filter and A-weighting must be used for this test.

4.1 On the rear panel, apply a 1kHz, 0dBv +/- 1dBv sine wave to the RCA input jacks. Verify a 90W output level on the output. Measure the signal-to-noise level at the output connector. Verify that it is ≥ 88 dB. Ideal is 92dB.

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## 1. Hi-Pot Test

### THIS IS A MANDATORY TEST

**CAUTION** - All units that are disassembled as part of a repair **MUST** be Hi-Pot tested before being returned to the customer.

This test applies a high voltage to the AC line cord and measures the current leakage to the chassis and/or other metal parts on the outside of the unit to check for potential shock hazards.

If the unit fails Hi-Pot test, it must be returned to the technician for troubleshooting and repair of the problem, after which it must be Hi-Pot tested again to ensure that it now passes the test.

This test requires a Hi-Pot tester with a ground bond attachment to perform this test.

### Amplifier Connections:

The Hi-Pot tester connects to the amplifier by means of a wiring harness. The AC line cord of the amplifier plugs into the Hi-Pot tester AC adapter box and another lead connects by means of an alligator clip to an exposed metal area on the chassis for ground connectivity.

## Hi-Pot Tester Settings:

HiPot: 1500VAC, rise time = 1 sec., dwell = 3 seconds, current limit = 5mA

**1.1** Connect the AC mains cord to the back of the amplifier under test. Plug the other end of the AC cord into the Hi-Pot tester. Turn on the power switch for the amplifier.

**1.2** With the tester set to the above parameters, perform the test. If the unit fails, remove the top cover and repair the problem. Once the unit is repaired, repeat the Hi-Pot and the ground bond test to ensure the unit is safe to return to the customer.

## 2. Ground Bond Test

**Note:** This test only needs to be performed if the chassis ground wire from the AC IEC connector or AC inlet PCB to the inside of the chassis of the amplifier has been removed or disturbed as part of a repair. If it has not, this test does not need to be performed.

This test is between the ground blade on the AC inlet or mains plug and the earth bond point on the rear of the chassis.

### Test Parameters:

10A, test voltage of <12VAC open circuit. Dwell time = 4 seconds. Resistance must be < 0.1 Ohms from AC earth terminal on IEC connector in chassis, to earth bond point on rear the chassis.

**2.1** Connect the AC mains cord to the back of the amplifier under test. Plug the other end of the AC cord into the ground bond test box.

**2.2** With the tester set to the above parameters, perform the test. If the unit fails, remove the top cover and repair the problem. Once the unit is repaired, repeat the Hi-Pot and the ground bond test to ensure the unit is safe to return to the customer.



# SERVICE MANUAL REVISION HISTORY

| <b>Date</b> | <b>Revision Level</b> | <b>Description of Change</b>      | <b>Change Driven By</b> | <b>Pages Affected</b> |
|-------------|-----------------------|-----------------------------------|-------------------------|-----------------------|
| 1/12        | 00                    | Document released at revision 00. | Service manual release  | All                   |
| 2/12        | 01                    | Added new test procedures.        | New test specification  | 99-110                |
| 2/13        | 02                    | Packaging part number changes     | New part numbers        | 18                    |

11/2022    03            Changed HIPOT from .5ma to 5ma                            Safety Engineering    110

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

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