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LHX150 2.2.1 Amplifier Specifications and Guide

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1. Introduction

Audera Acoustics Inc. has developed a novel, high-efficiency, linear amplifier and a tracking power supply combination that offers:

- Improved signal-to-noise ratio (SNR) with respect to Class D and Class AB
- Reduced electromagnetic interference (EMI) as compared to Class D
- Minimized distortion levels and idle power consumption
- Optimized power supply requirements
- Decreased circuit complexity as compared to other hybrid topologies

All this in turn provide a robust, high-power, cost-competitive audio amplifier perfect for the home audio environment.

2. Features and Benefits

ClassLH™ is a linear-hybrid Class H amplifier, combining a switching power supply with a linear amplifier. Once an audio input signal is applied, the first stage of the system detects the envelope of the audio signal. It then passes a signal to the power supply which generates the positive and the negative rails based on the tracked audio signal. High-performance linear push-pull amplifier stage is placed between the speaker load and the split tracking power supply unit (PSU).

ClassLH™ enables high- power, low-cost amplifier design with:

- FTC 50W output power in Subwoofer and 25W in each Satellite channel
- Low idle power consumption
- Wide dynamic range
- Low distortion and EMI
- Simple, versatile and compact size
- Considerably less heat dissipation resulting in small heat sinks
- High overall system efficiency
- Low system cost in comparison to Class AB or Class D

The LHX150 2.2.1 has onboard DSP for implementing necessary audio processing. The ADI ADAU1701 DSP chip supports great variety of audio algorithms. The parameters of the DSP audio processor can be easily changes and tuned in the software domain without any hardware changes.

3. Applications

Audera's ClassLH™ amplifier – a hybrid-linear push-pull drive amplifier, powered by high efficient tracking power supply rails is a perfect fit for applications where cost is the main consideration, but the system performance cannot be compromised

The LHX150 2.2.1 amplifier system consists of four 25W satellite amplifier channels and a 50W subwoofer amplifier channel. It can be used in mid-power computer multimedia systems, stereo receivers, combined hi-fi systems, music centers, soundbars.

4. Electrical specifications

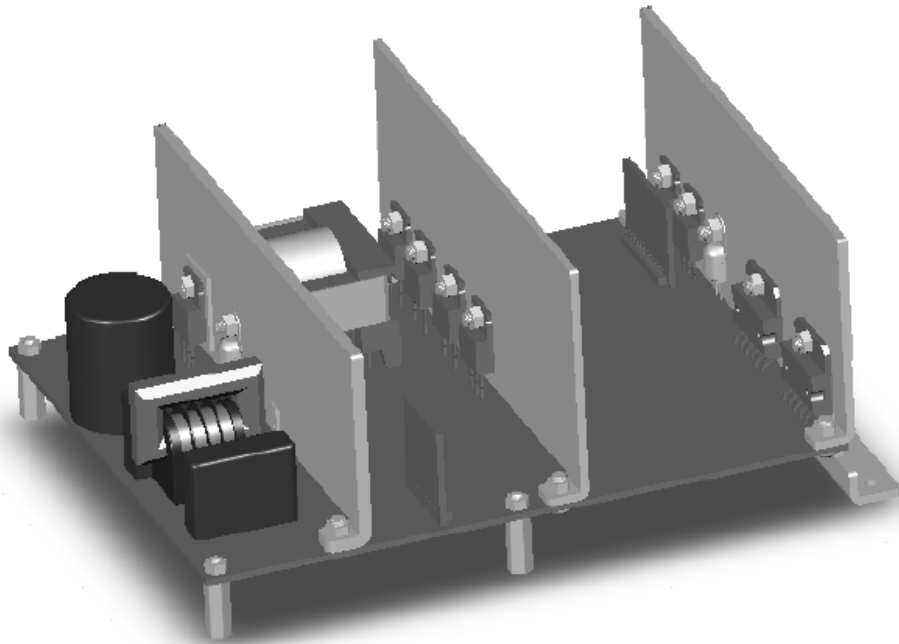
	Value	Comments/Notes
General		
Technology	ClassLH	
Application	2.2.1 audio systems	
Configuration	2 x 25W + 2 x 25W +1 x 50W	
System FTC power rating	150W	
Low Frequency Channel		
Output Stage	Discrete MOSFET	
FTC Power @ 10% THD	50W	
Maximum voltage swing	+/-22V	
Recommended Load	4 ohm	
Minimum Load DCR	3.2 ohm	
Usable frequency range	20Hz – 1kHz	
THD+N @ 1 W, 100 Hz	<0.05%	
SNR dBr max output	<-100 dBrA	
High Frequency Channel		
Output Stage	2 x TDA7265	
FTC Power @ 10% THD	25W x 2 + 25W x 2	2 channels at a time
Power into 4 ohms 2% THD	N/A	
Maximum voltage swing	+/- 22V	
Recommended Load	8ohm	
Minimum Load DCR	6 ohm	
Usable frequency range	20Hz-20kHz	
THD+N @ 1 W, 1kHz	0.09%	
SNR dBr max output	<-100dBrA	

Pre-amp		
Bi-quads	None	
DSP	Yes	ADAU1701
Compressor		Can be implemented in DSP
Input impedance	22k	AC coupled
Drive Level for rated power	TBD	
Maximum input drive level	2Vrms	Maximum input for DSP should be less than 2Vrms
Output supply rails		
Auxiliary Power supply	5V/2A	
Standby power supply	5Vstby/5mA	
Feature Power supplies	±5V/50mA	
Protection		
Over Temperature protection	Yes	
Over Current protection	Yes	
Short Circuit protection	Yes	
AC Input		
Input fuse rating	1A	
Standby power consumption	<0.5W	
Idle power consumption	<10W	
AC Input voltage (rated power)	Universal	100V to 240V
AC Input voltage (operating)	Universal	90V to 264V
Agency performance		
Meets EMC requirement	EN-61000-4-2 EN-61000-4-3 EN-61000-4-4 EN61000-4-5 EN-61000-4-6 EN-61000-4-11 EN-55013 FCC part 15-B	
Class II insulation (no ground)	Yes	
Meets Safety requirements	IEC-60065	
Meets Energy Star	Yes	

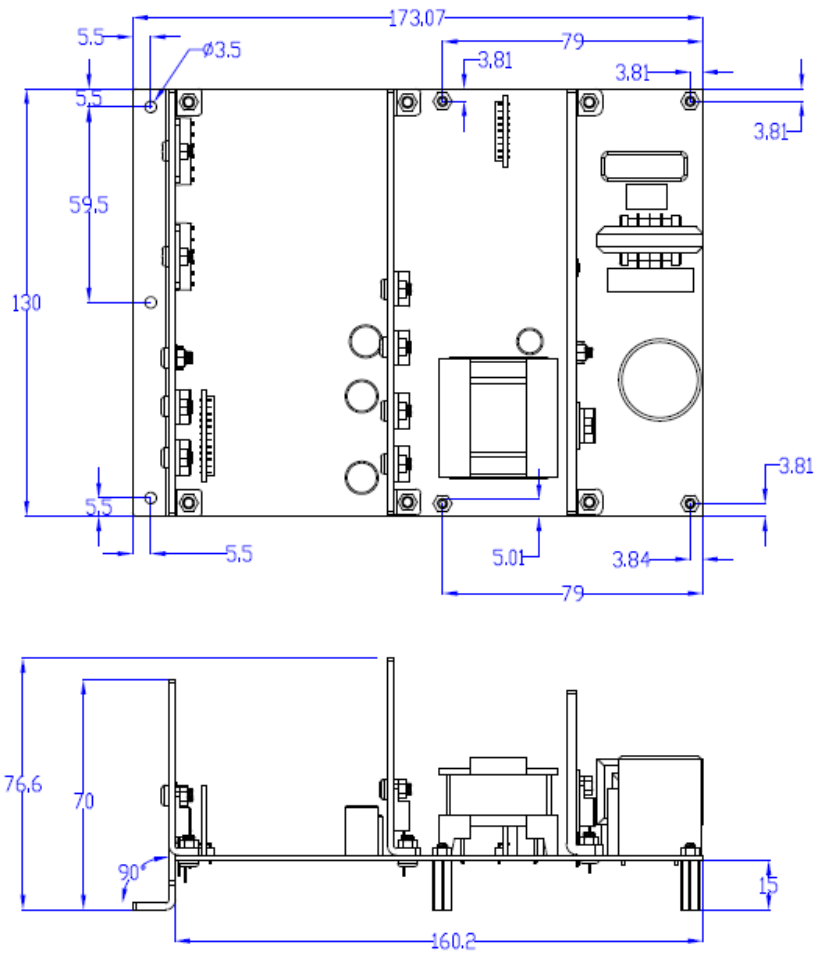
5. Mechanical specifications

Mechanical		
Physical dimensions* L x W x H mm	173 x 130 x 76.6 mm	
Weight	TBD	
Vibration	TBD	

6. Mechanical drawings



Board isometric view



Assembly drawing