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P2X20 2.0 / 1.0 Amplifier Specifications and Guide

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1. Introduction

The consumer audio market has yet to find a battery powered amplifier that can reproduce powerful sound and sustain a long battery life. With Audera's patented P2X and ClassHD amplifier technologies, a compromise is no longer necessary. It IS possible to enable long play time and high output power from the same amplifier.

2. Features and Benefits

Taking advantage of music's inherently large peak-to-average power ratio, P2X stores enough energy to reproduce these peaks without exceeding the power ratings of the power-limited sources such as a DC wall adapter, small battery pack, or USB port.

As a result, P2X amplifiers can produce five to eight times more power than a conventional Class D amplifier operating from the same power-limited source.

P2X works best when coupled with our other patented amplifier technology, ClassHD, which uses a Class D switching amplifier coupled with a *tracking* switch-mode power supply to greatly reduce switching losses. This can cut an amplifier's idle power by a factor of 5 to 10 and greatly improve its efficiency with moderate levels of music, which extends battery life tremendously.

The combination of P2X and ClassHD enable large dynamic power and long battery life in low cost, low power systems

The main features of P2X20 2.0/1.0 amplifier:

- Patented energy storage and smoothing circuitry extends battery life without compromising high power capability.
    - 2 x 10W rms capability (25ms into 2R resistive load)
    - Low idle power: 130mW
- Can be reconfigured as 1 x 20W or 2 x 10W. Ideal for a portable 1.0, 2.0, or 2.1 systems.
- Ultra-low standby power: TBD mW (extended battery life).
- Onboard compressor automatically adjusts gain to control output clipping during overdrive events.
- Has I2S input to work with external wireless or DSP board.

3. Applications

The combination of P2X and ClassHD delivers a no-compromise, low-cost solution for any battery powered portable or semi-portable audio system and truly wireless speakers. Long play time, small size, and high output power can now co-exist in your portable application!

4. Electrical Specifications

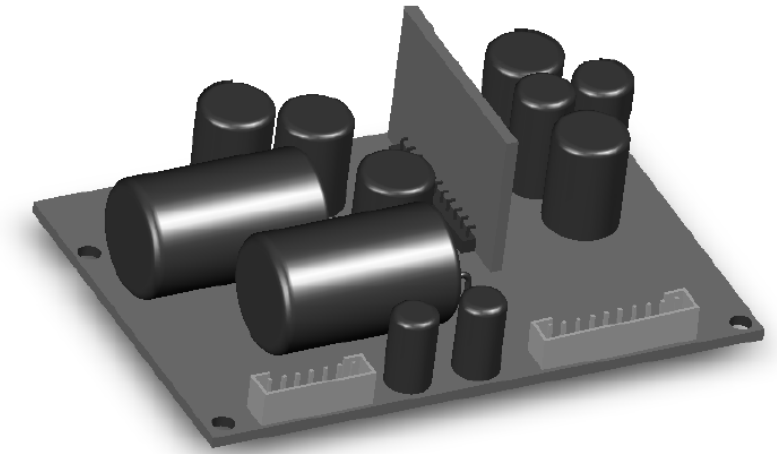
	Value	Comments/Notes
General		
Technology	P2X with Class**HD**	Switching Amplifier with P2X Energy Storage and ClassHD tracking power supply.
Application	Portable Audio	
Configuration	2x10W or 1 x 20W	2 x 10Wrms or 1 x20W for >25ms
System FTC power rating	3.6W	
Channel 1		
Output Stage	Discrete MOS	
FTC Power @ 10% THD	2 x 1.8W rms or 1 x 3.6W	2 x 2 ohms or 1 x 4 ohms resistor load, @ <1% THD.
Burst Power	2 x 10Wrms or 1 x 20W	2 x 2ohm resistor load or 1 x 4 Ohm, 25 ms duration.
Maximum voltage swing	18V pk-pk	
Recommended Load	2 x 2 ohms or 1 x 4 ohms nominal ; 2 x1.6 ohms or 1 x 3.2 ohms DCR	(Higher impedance will result in lower burst power due to voltage clipping)
Minimum Load Impedance	2 x 1.6 ohms; 1 x 3.2 ohms	Minimum 1.6 ohms at all frequencies from DC to 20kHz.
Usable frequency range	43Hz-20kHz (4ohm)	-3dB
THD+N @ 0.5 W, 100 Hz	<0.2%	2 x 2 ohm or 1 x 4 ohms resistor
THD+N @ 1 W, 1kHz	<0.3%	2 x 2 ohm or 1 x 4 ohms resistor
SNR	70dBV	5V Power supply
Pre-amp		
Filters	Discrete	42Hz HPF, recommended to add additional filtering externally to power amp
Compressor	Discrete Jfet	
Input impedance	TBD	3.5k ohm in the sample, will be designed at 20kohm
Drive Level for rated power	400 mV rms	For 2 x 10W rms, 25ms burst, at 1kHz into 2 x 2 ohm load or 1 x 20W rms into 1 x 4

		ohms load
Maximum input drive level	1.0 V rms	
Protection		
Over Temperature protection	n/a	Not needed: thermally safe by design.
Over Current protection	NO	Do not test. Fail safe. Damage to unit is likely.
Short Circuit protection	NO	Do not test. Fail safe. Damage to unit is likely.
Power Source		
Input Voltage Range	4-6.4V	4xAA in series, or 5V/1A adapter
Input Current	1A	Adjustable
Standby power consumption	TBD	Depends on external circuit
Idle power consumption	130mW	5V power supply, amp running, input signal = 0V
Battery life	Up to 100 hours playing at moderate volume	Depends on music level
Agency performance		
EMC standards	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	By Design
Meets Safety requirements	IEC-60065 IEC-60950	Designed to work with pre-approved AC-DC adapter to expedite safety approvals process.
Meets Energy Star and EU 0.5W standby power requirements.	Yes	

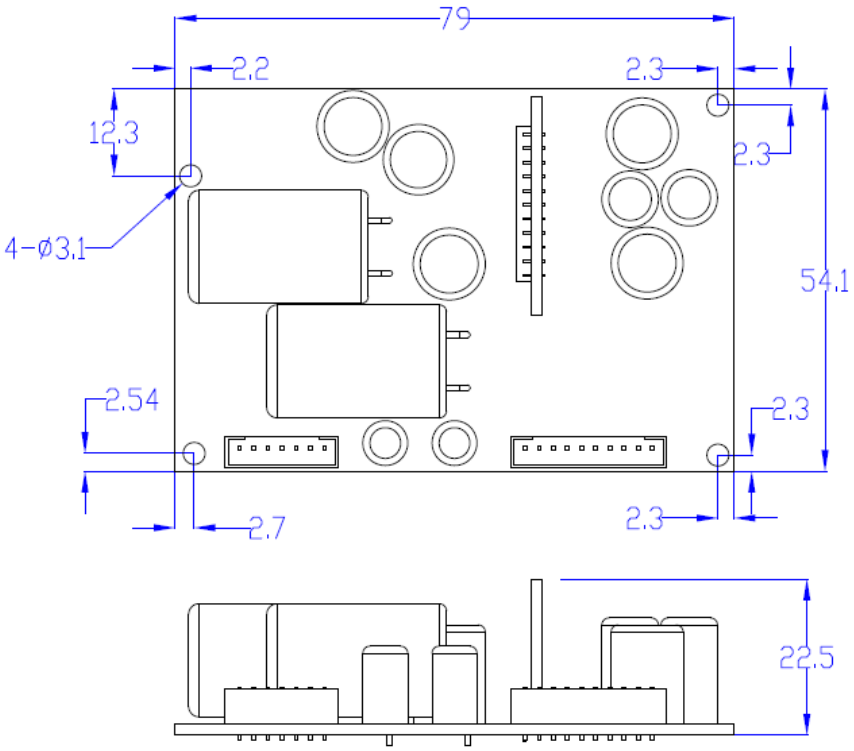
5. Mechanical Specifications

Mechanical		
Physical dimensions L x W x H mm	79x54x22.5mm	
Weight	TBD	
Vibration	TBD	

6. Mechanical Drawings



Amplifier board



Amplifier board assembly drawing