

USB powered stereo audio amplifier module

Feature Set

- **USB 2.0 compliant:**
 - Power, audio data and control via USB
 - Standard USB Audio & HID device
 - No custom host OS drivers required
 - No external power supply required
 - Respects USB 500mA current limit
- **Stereo audio power amplifier:**
 - Based on Audium AS2002
 - 2x 13W peak power output (8ohms)
- **Graceful volume limiting at full power**
 - Preserves amplifier's dynamic power
 - No harsh clipping or compression effects
- **'CD quality' sound:**
 - 16bits per channel
 - 44.1kHz & 48kHz sample rates
 - 20Hz - 20kHz frequency response
- **8Ω - 16Ω load impedance (8Ω optimal)**
- **Audio processing:**
 - 35step volume control
 - 1.5dB per step
 - Mute, with adjustable ramping
 - 16 user configurable biquad filters
 - Tuneable bass extension*
 - Stereo-wide*
- **Automatic power save modes when no audio content is present**
- **Click and pop suppression**
- **User interface:**
 - Push button volume control inputs
 - LED indicator output
 - IR receiver input*
- **Self configuring on power-up; autonomous operation**
- **Small form factor module:**
 - 74 x 46 x 19mm
 - Amplifier's power efficient operation eliminates heat sinks
- **20way header for all connections:**
 - Left & right speakers
 - USB
 - LED
 - Volume push buttons
 - IR receiver*
 - Test interfaces

General Description

DyadUSB is a USB powered stereo audio amplifier module; designed to be embedded in to USB speaker systems. DyadUSB is completely self-contained; requiring only USB and speaker connections to operate. Power, audio data and control are all provided through the USB connection.

DyadUSB is based on the AS2002, highly power efficient, switching, stereo audio power amplifier from Audium Semiconductor, and the UAC3556B USB audio codec from Trident Microsystems.

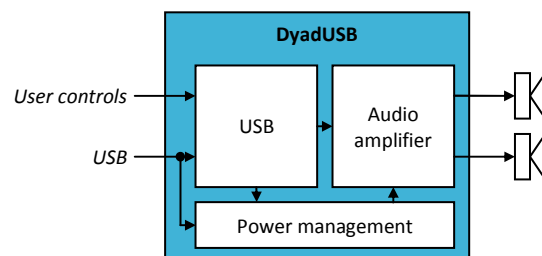
The Audium Advantage

The high peak-to-average-power-ratio characteristics of an audio signal, together with the dynamic range of a volume control, mean that an audio amplifier is very rarely operating at full output power. Existing switching audio power amplifiers only achieve optimum claimed efficiency at or near full output power. In comparison, Audium's power amplifier technology efficiently amplifies an audio signal over its entire operating output power range.

USB Powered Speaker System Application

Audium's power amplifier technology brings two advantages to a USB powered application:

- At normal listening levels, compared to other amplifier technologies Audium's efficiency advantage reduces power consumption from the USB host.
- For battery powered systems (for example: a laptop or netbook) then a DyadUSB module can provide extended listening times.
- At higher listening levels traditional USB powered amplifier solutions compress, or clip, the audio signal with clear audible consequences. In contrast Audium's technology cleanly amplifies the signal at all levels, only gracefully limiting the output power once the USB power limit has been reached; without degradation in audio quality.



* Feature requires firmware support