



TIO-TA1101B

STEREO 20W (4Ω) CLASS-T DIGITAL AUDIO AMPLIFIER CARD USING DIGITAL POWER PROCESSING™ TECHNOLOGY

Technical Information

Revision 1.0 – February 2000

GENERAL DESCRIPTION

Tio is a complete two-channel Class-T™ Digital Audio Power Amplifier Card that is ready to install in any PC and drives passive home-stereo speakers. This card has the TA1101B amplifier on-board that uses Tripath's proprietary Digital Power Processing™ technology. Tio brings audiophile sound to the PC and packs 30Wrms of power into 4Ω at 10%THD+N. Tio is a 3" X 3 ¼" PC card that comes with all necessary cables and mounting hardware.

APPLICATIONS

- OEM and Aftermarket PCs

BENEFITS

- Fully integrated board level solution
- Easy to install and use
- Uses internal PC power supply
 - No need for external power brick
- Dramatically improves fidelity over Class-AB powered speakers – no crossover distortion
- No turn on/off pops
- Allows any sound card to drive standard passive stereo speakers

FEATURES

- Class-T architecture
- Proprietary Digital Power Processing
- On-Board OEM-customizable EQ
- "Audiophile" Quality Sound
 - 10Wrms/ch @ 4Ω, 0.1% THD+N
 - 15Wrms/ch @ 4Ω, 10% THD+N
- High Efficiency
 - 88% @ 10Wrms/ch, 8Ω
 - 81% @ 15Wrms/ch, 4Ω
- Dynamic Range = 102 dB
- Requires no software drivers
- Does not plug into PCI or ISA bus
- Low-voltage power supply protection



Easy Installation and Operation

Installing the Board

- Step 1. Check to see that your sound card is working properly.
- Step 2. **Turn off your PC.**
- Step 3. Open your PC and find an open slot on the rear of the chassis. Pick a location near the sound card if possible.
- Step 4. Mount the Tio to the chassis back plane.
- Step 5. Insert power extender/splitter (Y-cable) to PC switching power supply.

Making the Connections

Connecting the Speakers

Tio is designed to drive conventional home-stereo speakers. Tio will drive both small bookshelf and large tower-type speakers easily. Connect your speakers via the 3.5mm cables with tinned leads. Make sure you connect the red wire to the red terminal on each speaker, and the black wire to the black terminal. If you get one pair reversed, your speakers will be out-of-phase and lack bass.

Do not drive powered PC speakers with the Tio outputs.

Connecting the Soundcard

Tio works with any standard sound card. Tio will improve the power capability and audio quality of your multi-media system whether your sound card is a low cost version or a high-end multi-feature card. Connect the speaker out from your sound card to the input on the Tio using the 3.5mm connector provided (this connector is spaced apart from the speaker connectors).

Operating Tio

Boot up your PC and play a CD; adjust your volume in Windows. If the CD doesn't play automatically, go the start menu and click on RUN. Type "cdplayer" and hit enter. Adjust the master volume to a pleasing listening level.

Congratulations! You are now ready to enjoy your new Tio card. Listen to MP3, Internet radio, CDs, or DVDs and experience the difference.

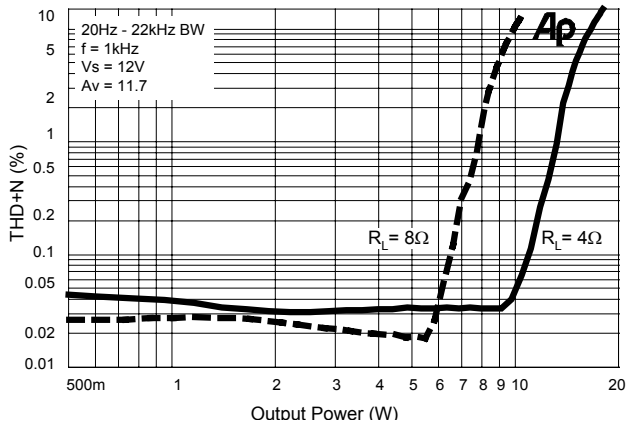
Output Power Capability

Output power levels of Tio depend on the impedance of the speakers you're using. Tio is rated to deliver 2 channels of 10Wrms power into 4 Ω speakers at 0.1% THD+N. Tio will also drive 2 x 6Wrms into 8 Ω at 0.1% THD+N. We do not recommend driving speakers with less than 2 Ω input impedance. Tio will work with any normal pair of passive speakers.

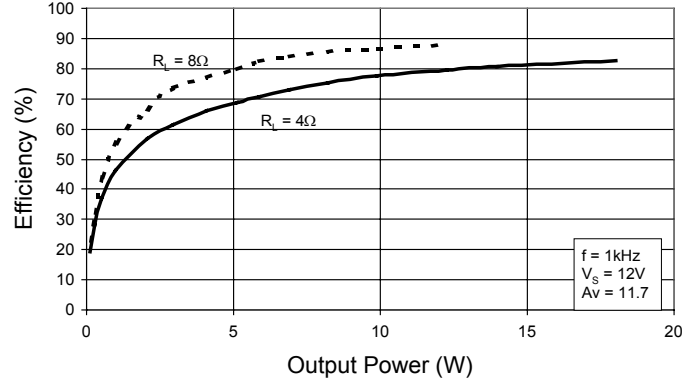
The TA1101B device performance can be found on our web site at www.tripath.com.

Typical Performance Characteristics

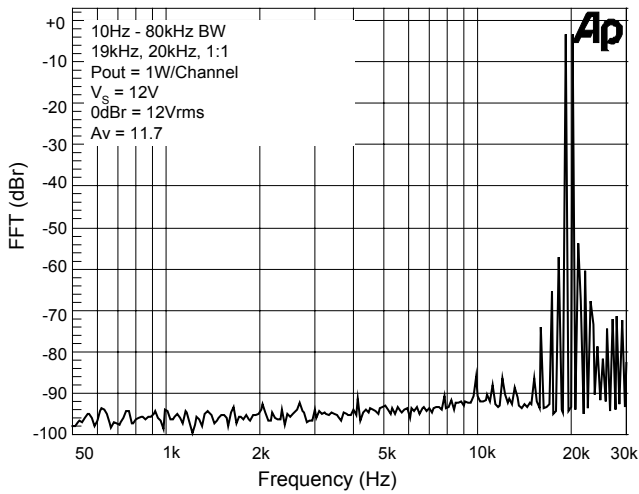
THD+N versus Output Power



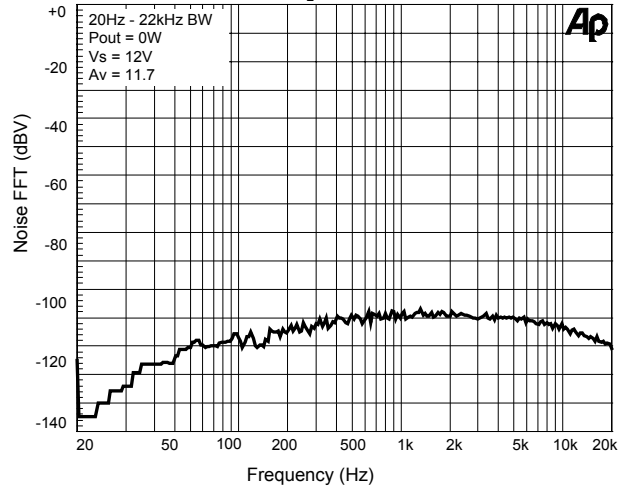
Efficiency versus Output Power



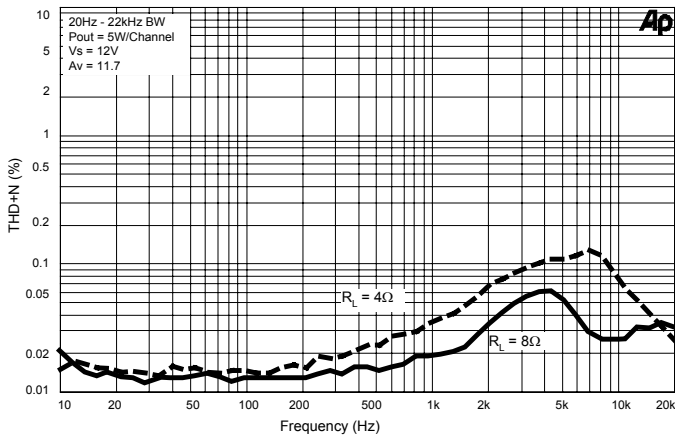
Intermodulation Performance
 $R_L = 4\Omega$



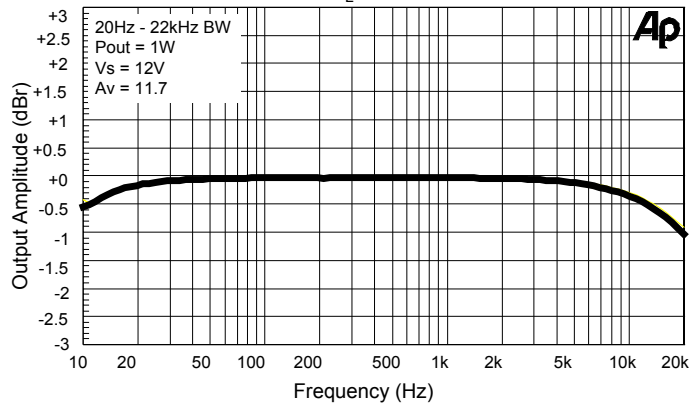
A-Weighted Noise FFT
 $R_L = 4\Omega$



THD+N versus Frequency



Frequency Response
 $R_L = 4\Omega$



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