

FEATURES

- Supports Multiple Output Configurations
 - 2x50-W into a 4-Ω BTL Load at 21 V (TPA3116D2)
 - 2x30-W into a 8-Ω BTL Load at 24 V (TPA3118D2)
 - 2x15-W into a 8-Ω BTL Load at 15 V (TPA3130D2)
- Wide Voltage Range: 4.5 V – 26 V
- Efficient Class-D Operation
 - >90% Power Efficiency Combined with Low Idle Loss Greatly Reduces Heat Sink Size
 - Advanced Modulation Schemes
- Multiple Switching Frequencies
 - AM Avoidance
 - Master/Slave Synchronization
 - Up to 1.2 MHz Switching Frequency
- Feedback Power Stage Architecture with High PSRR Reduces PSU Requirements
- Programmable Power Limit
- Differential/Single-Ended Inputs
- Stereo and Mono Mode with Single Filter Mono Configuration
- Single Power Supply Reduces Component Count
- Integrated Self-Protection Circuits Including Over-Voltage, Under-Voltage, Over-Temperature, DC-Detect, and Short Circuit with Error Reporting
- Thermally Enhanced Packages
 - DAD (32-pin HTSSOP Pad-up)
 - DAP (32-pin HTSSOP Pad-down)
- -40°C to 85°C Ambient Temperature Range

APPLICATIONS

- Mini-Micro Component, Speaker Bar, Docks
- After-Market Automotive
- CRT TV
- Consumer Audio Applications

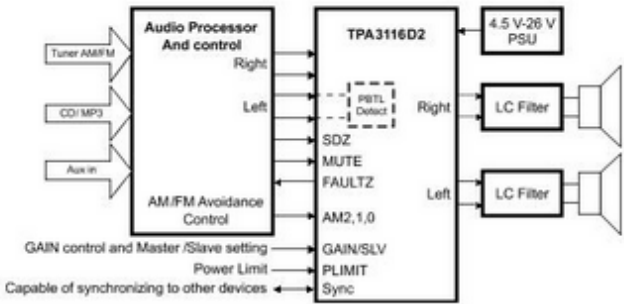
DESCRIPTION

The TPA31xxD2 series are stereo efficient, digital amplifier power stage for driving speakers up to 100W/2Ω in mono. The high efficiency of the TPA3130D2 allows it to do 2x15W without external heat sink on a single layer PCB. The TPA3118D2 can even run 2x30W/8Ω without heat sink on a dual layer PCB. If even higher power is needed the TPA3116D2 does 2x50W/4Ω with a small heat-sink attached to its top side PowerPad. All three devices share the same footprint enabling a single PCB to be used across different power levels.

The TPA31xxD2 advanced oscillator/PLL circuit employs a multiple switching frequency option to avoid AM interferences; this is achieved together with an option of Master/Slave option, making it possible to synchronize multiple devices.

The TPA31xxD2 devices are fully protected against faults with short-circuit protection and thermal protection as well as over-voltage, under-voltage and DC protection. Faults are reported back to the processor to prevent devices from being damaged during overload conditions.

Simplified Application Circuit



DEVICE	POWER	HTSSOP 32-PIN
TPA3130D2	2 x 15W/8Ω	Pad down (DAP)
TPA3118D2	2 x 30W/8Ω	Pad down (DAP)
TPA3116D2	2 x 50W/4Ω	Pad up (DAD)

1. The TPA3116D2 evaluation module demonstrates TI's 50W stereo analog input Class D audio amplifier and a small number of external components mounted on the circuit board, which can be used to directly drive the speakers with the help of an external analog audio source used as input; The evaluation module can also be configured as a 100W Class D mono audio amplifie in PBTL mode.

About TPA3116D2 Amp Chip Features

- 2x50W power for 40 loads at 24V (<1% THD+N) in stereo BTL mode
- 1x100W power for 3Q loads at 24V (10%THD +N) in mono PBTL mode
- Wide supply voltage range: 4.5V to 26V
- Wide conversion rate: 400kHz to 1.2MHz
- Four optional fixed gain Settings
- Integrated self-protection circuit, including overvoltage, undervoltage, overheating, DC detection and short circuit protection, and has error reporting function