2x30W Stereo / 1x60W Mono Class-D Audio Amplifier With Power Limit

Features

- Single supply voltage
  4.5V ~ 26V for loudspeaker driver
  Built-in LDO output 5V for others
- Supports Multiple Output Configurations
  BTL Mode: 30W/CH into 8Ω at 24 V
  BTL Mode: 30W/CH into 4Ω at 18 V
  PBTL Mode: 60W/CH into 4Ω at 24 V
  PBTL Mode: 45W/CH into 4Ω at 18 V
  PBTL Mode: 60W/CH into 2Ω at 18 V
- Loudspeaker performance
  BTL Mode: 30W/CH into 8Ω <1% THD+N@24V
  BTL Mode: 30W/CH into 4Ω <1% THD+N@18V
- >90% efficient Class-D operation eliminates need for heat sink
- Differential inputs
- Four selectable, fixed gain settings
- Internal oscillator
- Short-Circuit protection with auto recovery option
- Under-Voltage detection
- Over-Voltage protection
- Pop noise and click noise reduction
- Adjustable power limit function for speaker protection
- Output DC detection for speaker protection
- Filter-Free operation
- Over temperature protection with auto recovery
- Superior EMC performance

Applications

- TV audio
- Boom-Box
- Powered speaker
- Monitors
- Consumer Audio Equipment

Description

The AD52090 is a high efficiency stereo class-D audio amplifier with adjustable power limit function. The loudspeaker driver operates from 4.5V~26V supply voltage and analog circuit operates at 5V supply voltage. It can deliver 30W/CH output power into 4Ω or 8Ω loudspeaker within 1% THD+N at 24V supply voltage.

AD52090 provides parallel BTL (Mono) application, and it can deliver 60W into 4Ω loudspeaker at 24V supply voltage. The adjustable power limit function allows user to set a voltage rail lower than half of 5V to limit the amount of current through the speaker.

Output DC detection prevents speaker damage from long-time current stress. AD52090 provides superior EMC performance for filter-free application. The output short circuit and over temperature protection include auto-recovery feature.

Simplified Application Circuit