

## 15W Stereo Class-D Audio Amplifier With Power Limit and Dynamic Range Control

### Features

- Single supply voltage  
8 ~ 16.5V for loudspeaker driver  
Built-in LDO output 3.3V for others
- Loudspeaker power from 15V supply  
Stereo mode: 15W/CH into 8Ω @10% THD+N  
Mono mode: 30W/CH into 4Ω @10% THD+N
- Loudspeaker power from 12V supply  
Stereo mode: 10W/CH into 8Ω @10% THD+N  
Mono mode: 19W/CH into 4Ω @10% THD+N
- 91% efficient Class-D operation eliminates need for heat sink
- Differential inputs
- Four selectable, fixed gain settings
- Internal oscillator
- Clock external synchronization function
- Master/Slave synchronization function using clock outputs
- Under-Voltage detection
- Pop noise and click noise reduction
- Adjustable power limit function for speaker protection
- Non-clip and DRC function
- Filter-Free operation
- Output DC detection for speaker protection
- Short-Circuit protection with auto recovery option
- Over temperature protection with auto recovery

### Applications

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

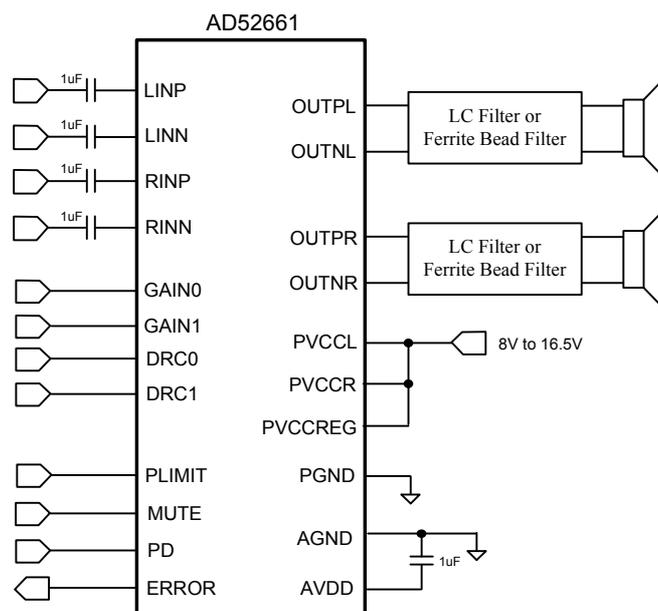
### Description

The AD52661 is a high efficiency stereo class-D audio amplifier with adjustable power limit function and dynamic range control function. The loudspeaker driver operates from 8~16.5V supply voltage and analog circuit operates at 3.3V supply voltage. It can deliver 15W/CH output power into 8Ω loudspeaker within 10% THD+N and without external heat sink when playing music.

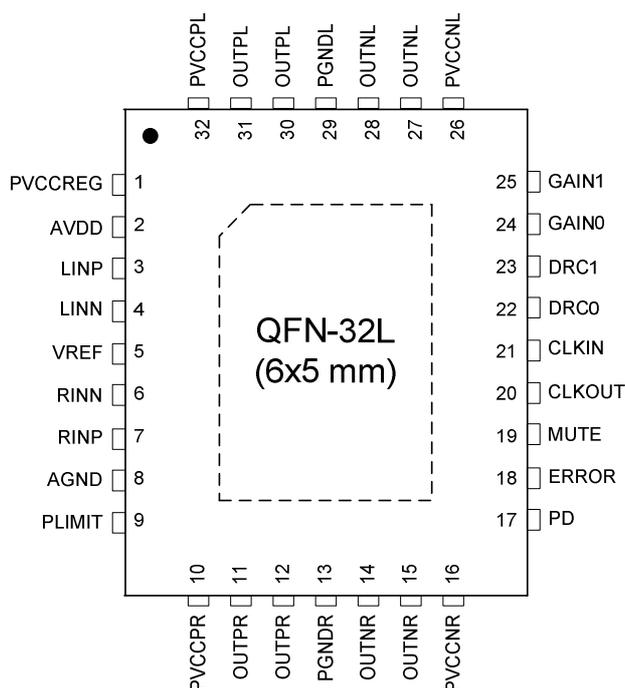
AD52661 provides adjustable power limit function allows user to set a voltage rail by two resistor divider to limit the amount of current through the speaker. AD52661 also features non-clip function and DRC (Dynamic Range Control) function that were developed for low distortion with audio quality.

AD52661 has output DC detection prevents speaker damage from long-time current stress, short circuit protection function and over temperature protection.

### Simplified Application Circuit



## Pin Assignments (TOP VIEW)



## Pin Description

NAME	Pin	TYP	DESCRIPTION
PVCCREG	1	P	Power supply terminal for regulators.
AVDD	2	P	3.3V regulated output.
LINP	3	I	Positive audio input for left channel. Biased at 1.65V.
LINN	4	I	Negative audio input for left channel. Biased at 1.65V.
VREF	5	O	Reference voltage output.
RINN	6	I	Negative audio input for right channel. Biased at 1.65V.
RINP	7	I	Positive audio input for right channel. Biased at 1.65V.
AGND	8	P	Analog signal ground. Connect to the thermal pad.
PLIMIT	9	I	Power limit level adjustment. Connect a resistor divider from AVDD to AGND to set power limit.
PVCCPR	10	P	High-voltage power supply for right-channel.
OUTPR	11, 12	O	Class-D H-bridge positive output for right channel (Rch+).
PGNDR	13	P	Power ground for the H-bridges of right channel.
OUTNR	14, 15	O	Class-D H-bridge negative output for right channel (Rch-).
PVCCNR	16	P	High-voltage power supply for right-channel.
PD	17	I	Power down, low active. Note. Do not use AVDD pin to apply "H" level to PD pin, the device will not start when using AVDD pin as "H" level signal because AVDD goes up at the time PD pin becomes "H".

ERROR	18	O	Error flag output, open drain output terminal. Low active.
MUTE	19	I	Mute control terminal, low active.
CLKOUT	20	O	Clock output terminal for synchronization.
CLKIN	21	I	External clock input terminal.
DRC0	22	I	Non-clip/DRC1/DRC2 mode selection 0.
DRC1	23	I	Non-clip/DRC1/DRC2 mode selection 1.
GAIN0	24	I	Gain select least significant bit 0.
GAIN1	25	I	Gain select most significant bit 1.
PVCCNL	26	P	High-voltage power supply for left-channel.
OUTNL	27, 28	O	Class-D H-bridge negative output for left channel (Lch-).
PGNDL	29	P	Power ground for the H-bridges of left channel.
OUTPL	30, 31	O	Class-D H-bridge positive output for left channel (Lch+).
PVCCPL	32	P	High-voltage power supply for left-channel.
Thermal pad		P	Must be soldered to PCB's ground plane.

## Ordering Information

Product ID	Package	Packing	Comments
AD52661-EH32NAR	QFN 32L (6x5 mm)	5K Units / Reel 1 Reel / Box	Green

## Marking Information

### AD52661

- Marking Information

Line 1 : LOGO

Line 2 : Product No

Line 3 : Tracking Code

