

## 2.5W Mono Filter-less Class-D Audio Amplifier

### Features

- Supply voltage range: 2.5 V to 5.5 V
- Support single-ended or differential analog input
- Low static operation current
- Low shut-down current
- Short power-on transient time(1ms)
- Internal pull-low resistor on shut-down pins
- Short-circuit protection
- Over-temperature protection
- Loudspeaker power within 10% THD+N
  - 1.5W/ch into 8Ω loudspeaker
  - 2.5W/ch into 4Ω loudspeaker
- Loudspeaker efficiency
  - 90% @ 8Ω, THD+N=10%
  - 85% @ 4Ω, THD+N=10%

### Description

The AD5165A is a mono, filter-less class-D audio amplifier. Operating with 5.0V loudspeaker driver supply, it can deliver 2.5W output power into 4 Ω loudspeaker within 10% THD+N.

The AD5165A is a mono audio amplifier with high efficiency and suitable for the notebook computer, and portable multimedia devices.

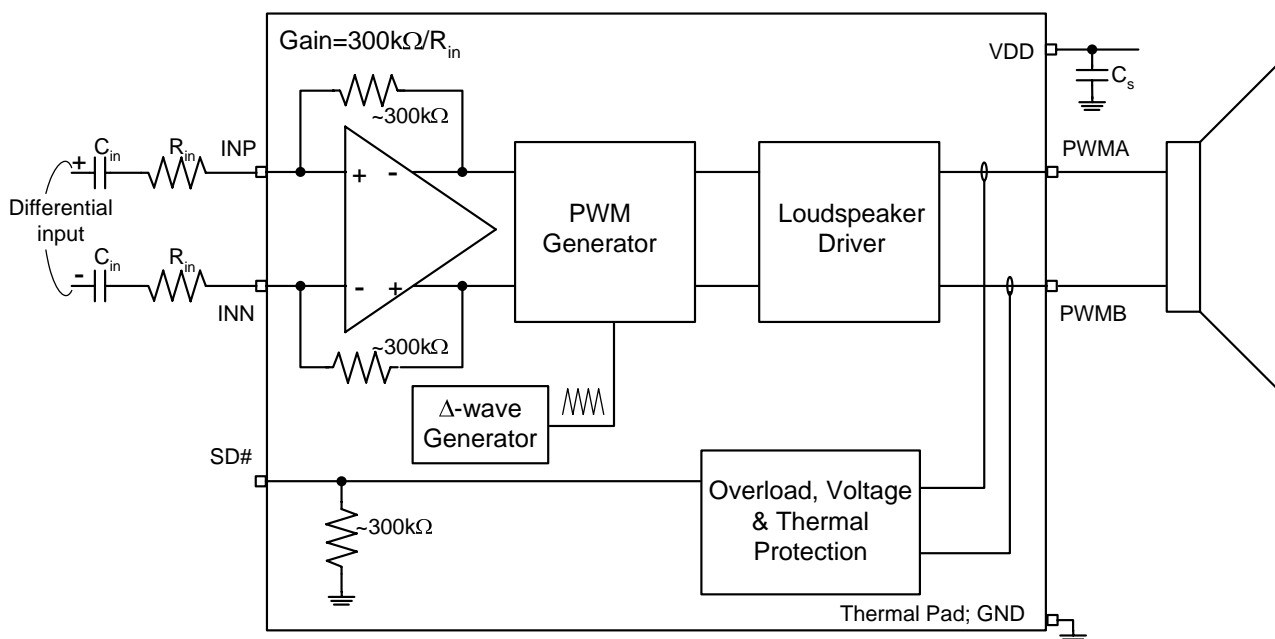
### Ordering Information

Part Number	Package	Comments
AD5165A-HG	DFN 8L	Pb-free
AD5165A-WG	WCSP 9L	Pb-free

### Applications

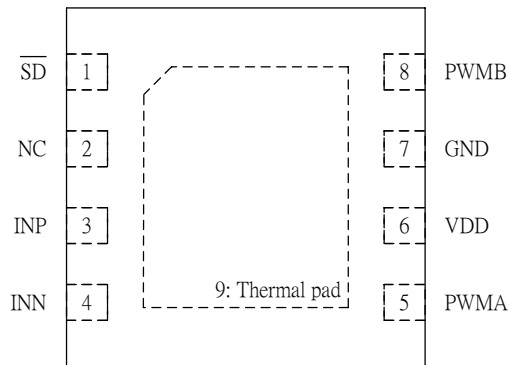
- Monitor audio
- PDA
- Portable multimedia devices
- Notebook computer
- Mobile phone

### Functional Block Diagram

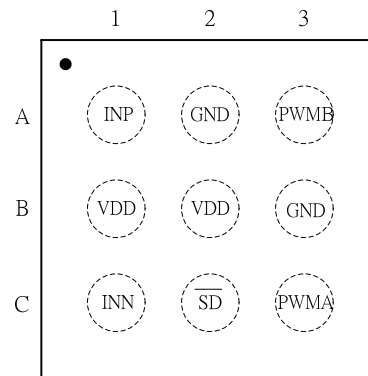


## Pin Assignments

**DFN 8L, 3x3mm**  
(Top view of PCB)



**WCSP 9L, 1.45x1.45mm**  
(Top view of PCB)



## Pin Description

NAME	PIN		TYP	DESCRIPTION
	DFN	WCSP		
$\overline{SD}$	1	C2	I	Shutdown AD5165A (Low active logic)
INP	3	A1	I	Positive differential input
INN	4	C1	I	Negative differential input
PWMA	5	C3	O	Positive output
VDD	6	B1, B2	P	Power supply
GND	7	A2, B3	G	Power ground
PWMB	8	A3	O	Negative output
NC	2	N/A		No internal connection
Thermal pad	9 (Note 1)	N/A	G	Must be connected the thermal pad of DFN package to GND.

**Note1: The thermal pad is at the bottom of package. To solder the thermal pad to PCB's ground plane is must be connected.**

## Available Package

Package Type	Device no.	$\theta_{JA}$ ( $^{\circ}\text{C}/\text{W}$ )	Exposed Thermal Pad
DFN 8L	AD5165A-H	45.8	Yes
WCSP 9L	AD5165A-W	128	N/A