

TAS5612LA 125-W Stereo and 250-W Mono PurePath™ HD Digital-Input Class-D Power Stage

1 Features

- PurePath™ HD Integrated Feedback Provides:
 - 0.05% THD at 1 W Into 4 Ω
 - > 65-dB PSRR (No Input Signal)
 - > 105-dB (A Weighted) SNR
- Preclipping Output for Control of a Class-G Power Supply
- Reduced Heat Sink Size Due to Use of 60-mΩ Output MOSFET With > 90% Efficiency at Full Output Power
- Output Power at 10% THD+N
 - 125-W and 4-Ω BTL Stereo Configuration
 - 250-W and 2-Ω in PBTL Mono Configuration
- Output Power at 1% THD+N
 - 105-W and 4-Ω BTL Stereo Configuration
 - 55-W and 8-Ω BTL Stereo Configuration
- Click- and Pop-Free Start-up
- Error Reporting Self-Protected Design With UVP, Overtemperature, and Short-Circuit Protection
- EMI Compliant When Used With Recommended System Design
- 44-Pin HTSSOP (DDV) Package for Reduced Board Size

2 Applications

- Blu-ray™ and DVD Receivers
- High-Power Sound Bars
- Powered Subwoofer and Active Speakers
- Mini Combo Systems

3 Description

The TAS5612LA is a feature optimized class-D power amplifier based on the TAS5612A.

The TAS5612LA uses large MOSFETs for improved power efficiency and a novel gate drive scheme for reduced losses in idle and at low output signals leading to reduced heat sink size.

The unique preclipping output signal can be used to control a class-G power supply. This combined with the low idle loss and high power efficiency of the TAS5612LA leads to industry-leading levels of efficiency ensuring a super “green” system.

The TAS5612LA uses constant voltage gain. The internally matched gain resistors ensure a high Power Supply Rejection Ratio giving an output voltage only dependent on the audio input voltage and free from any power supply artifacts.

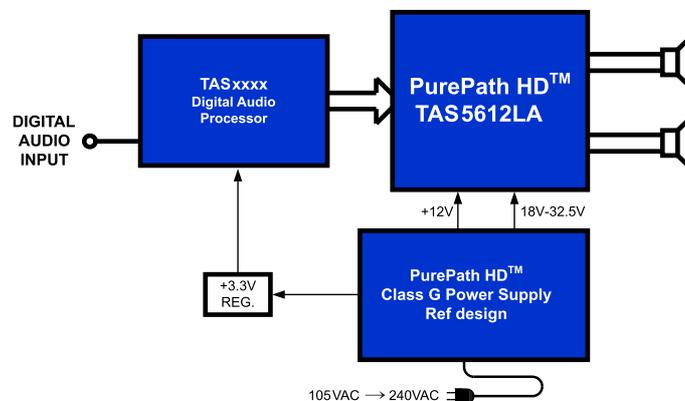
The high integration of the TAS5612LA makes the amplifier easy to use; and, using TI’s reference schematics and PCB layouts leads to fast design in time. The TAS5612LA is available in the space-saving, surface-mount, 44-pin HTSSOP package.

Device Information⁽¹⁾

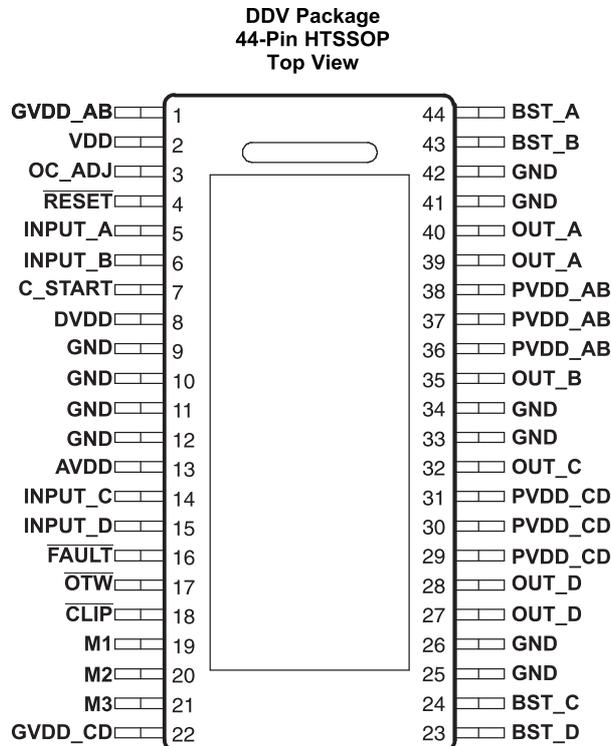
PART NUMBER	PACKAGE	BODY SIZE (NOM)
TAS5612LA	HTSSOP (44)	14.00 mm × 6.10 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.

Typical TAS5612LA Application Block Diagram



5 Pin Configuration and Functions



Pin Functions

PIN		I/O/P ⁽¹⁾	DESCRIPTION
NAME	NO.		
AVDD	13	P	Internal voltage regulator, analog section
BST_A	44	P	Bootstrap pin, A-side
BST_B	43	P	Bootstrap pin, B-side
BST_C	24	P	Bootstrap pin, C-side
BST_D	23	P	Bootstrap pin, D-side
CLIP	18	O	Clipping warning, open drain, active low
C_START	7	O	Start-up ramp
DVDD	8	P	Internal voltage regulator, digital section
FAULT	16	O	Shutdown signal, open drain, active low
GND	9, 10, 11, 12, 25, 26, 33, 34, 41, 42	P	Ground
GVDD_AB	1	P	Gate-drive voltage supply; AB-side
GVDD_CD	22	P	Gate-drive voltage supply; CD-side
INPUT_A	5	I	PWM input signal for half-bridge A
INPUT_B	6	I	PWM input signal for half-bridge B
INPUT_C	14	I	PWM input signal for half-bridge C
INPUT_D	15	I	PWM input signal for half-bridge D
M1	19	I	Mode selection 1 (LSB)
M2	20	I	Mode selection 2
M3	21	I	Mode selection 3 (MSB)
OC_ADJ	3	O	Overcurrent threshold programming pin

(1) I = Input, O = Output, P = Power