Class-D Audio Power Amplifier with USB Interface

Features

- True plug-and-play application, no driver is required for basic USB speaker application
- Supports Windows Me/2000/XP/Vista/7 and Mac OS
- Integration circuit quality meet **Windows 7 and Vista Hardware Logo** requirement
- Compliant with USB Specification v1.1, and USB 2.0 full speed
- Can work directly with a USB3.0 port
- Embedded high efficiency, high performance Class-D stereo amplifier
- Support both bus-powered and self-powered operation
- +6dB Gain enhancement (Theater function)
- Support volume/mute control with external button
- LED indicator function
- Built-in 5V to 3.3V regulator for internal device operation
- Loudspeaker PSNR & DR (A-weighting) 91dB (PSNR), 92dB (DR) with Bead filter
- Anti-pop design
- Over-temperature protection
- Under-voltage shutdown
- Short-circuit detection
- Embedded Power-On-Reset circuit
- 12 MHz crystal input
- 3.3V operation with 5V tolerate I/O
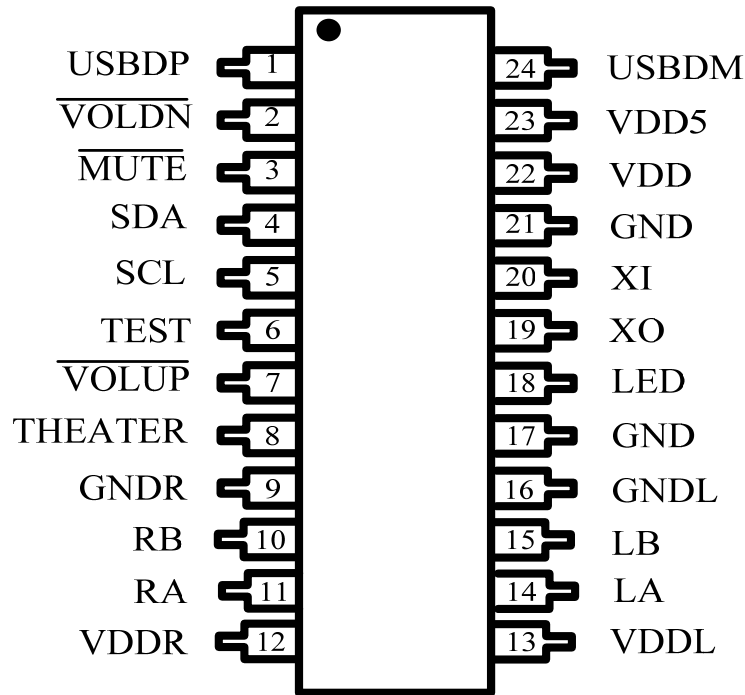- 24-pin E-TSSOP Pb-free package

Description

AD62555 is a monolithic Class-D audio amplifier with USB interface. When powered by the USB port, AD62555 can drive a pair of up to 1W speakers due to the built-in, high efficiency and high performance Class-D amplifiers.

Functional Block Diagram
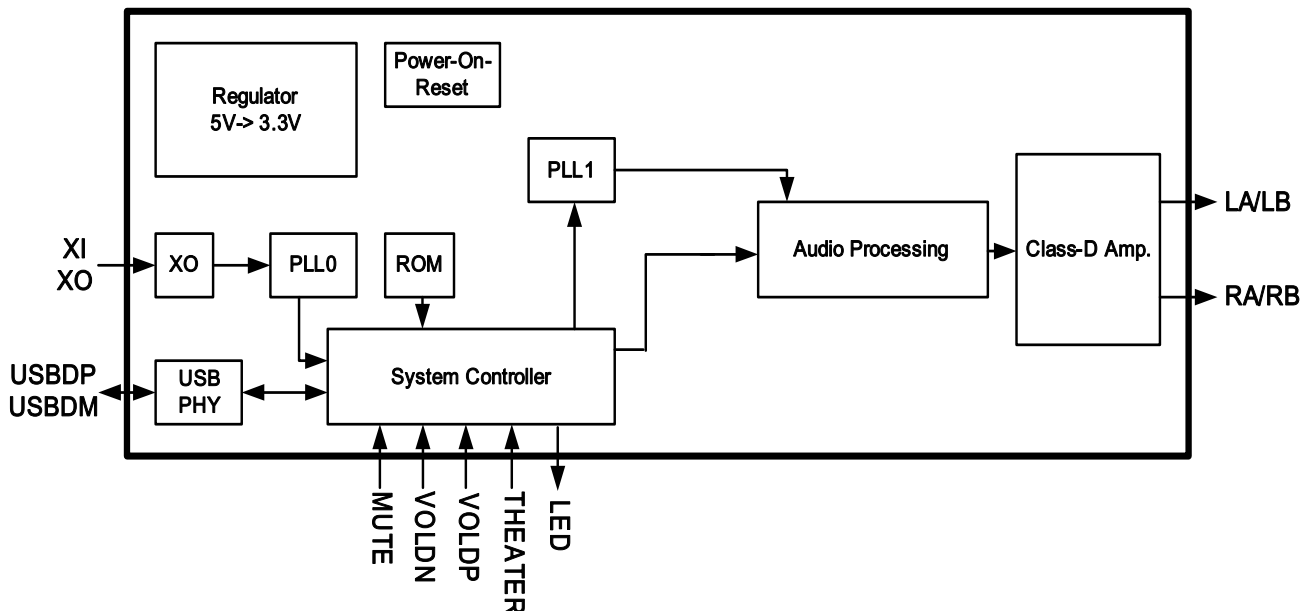
Pin Assignment

Pin Description

Pin	Name	Type	Description	Characteristics
1	USBDP	I/O	USB data D+	With internal pull-up resistor
2	$\overline{\text{VOLDN}}$	I	Volume down, low active	With internal pull-up resistor
3	$\overline{\text{MUTE}}$	I	Power-down and mute of Class-D, Low active	With internal pull-up resistor
4	SDA	I/O	I²C's SDA of master mode	5V tolerant Schmitt trigger TTL input buffer
5	SCL	O	I²C's SCL of master mode	
6	TEST	O	Reserved for testing purpose, no need to connect it during normal application	
7	$\overline{\text{VOLUP}}$	I	Volume up, low active	With internal pull-up resistor
8	THEATER	I	Theater mode, high active	5V tolerant Schmitt trigger TTL input buffer
9	GNDR	P	Ground for right channel	
10	RB	O	Right channel output-	
11	RA	O	Right channel output+	
12	VDDR	P	Supply for right channel	
13	VDDL	P	Supply for left channel	
14	LA	O	Left channel output+	
15	LB	O	Left channel output-	

16	GNDL	P	Ground for left channel	
17	GND	P	Ground	
18	LED	O	LED indicator	
19	XO	O	Crystal output	
20	XI	I	Crystal input	
21	GND	P	Ground	
22	VDD	P	3.3V Regulator output	
23	VDD5	P	5V supply voltage	
24	USBDM	I/O	USB data D-	

Ordering Information

Product ID	Package	Packing	Comments
AD62555-QE24NAT	E-TSSOP 24L	Tube	Green

Available Package

Package Type	Device No.	θ_{ja}(℃/W)	θ_{jc}(℃/W)
E-TSSOP 24L	AD62555	32.3	17

Note 1: θ_{ja} *is measured on a room temperature (T_A=25℃), natural convection environment test board, which is constructed with a thermally efficient, 2-layers PCB. The measurement is tested using the JEDEC51-3 thermal measurement standard.*

Note 2: θ_{jc} *represents the heat resistance for the heat flow between the chip and the package's top surface.*

Marking Information

AD62555

Line 1 : LOGO

Line 2 : Product no.

Line 3 : Tracking Code

ESMT
AD62555
Tracking Code

PIN1 DOT