

## 2-Vrms Cap-Less Line Driver with Adjustable Gain

### Features

- Operation Voltage: 3.0V to 3.6V
- Cap-less Output
  - Eliminates Output Capacitors
  - Improves Low Frequency Response
  - Reduces POP/Clicks
  - Reduce Board Area and Component Cost
- Low Noise and THD
  - Typical SNR 107dB
  - Typical  $V_n$  7 $\mu$ Vrms
  - Typical THD+N < 0.02%
- Maximum Output Voltage Swing into 10k $\Omega$  Load
  - 2Vrms at 3.3V Supply Voltage
- 600 $\Omega$  Output Load Compliant
- Differential Input, single-Ended Output
- External Gain Setting from 1V/V to 10V/V
- Fast Start-up Time : 0.5ms
- Integrated De-Pop Control
- External Under Voltage Protection
- Thermal Protection
- Active Mute Control for Pop-less Audio ON/OFF Control
- +/-8kV IEC ESD Protection at line outputs

### Applications

- LCD / PDP TVs
- CD / DVD players
- Set-Top Boxes
- Home Theater in Box

### Description

The AD22653B is a 2-Vrms cap-less stereo line driver. The device is ideal for single supply electronics. Cap-less design can eliminate output dc-blocking capacitors for better low frequency response and save cost.

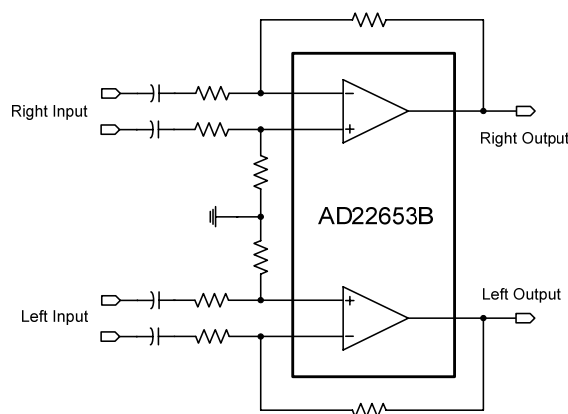
The AD22653B is capable of delivering 2-Vrms output into a 10k $\Omega$  load with 3.3V supply. The gain settings can be set by users from  $\pm 1V/V$  to  $\pm 10V/V$  externally, and gain can be configured individually for R/L channel. The AD22653B has built-in active-mute control for pop-less audio on/off control. The AD22653B has internal and external under voltage protection to prevent POP noise. Built-in de-pop control sequence also help AD22653B to be a pop-less device.

The AD22653B is available in a 14-pin TSSOP package.

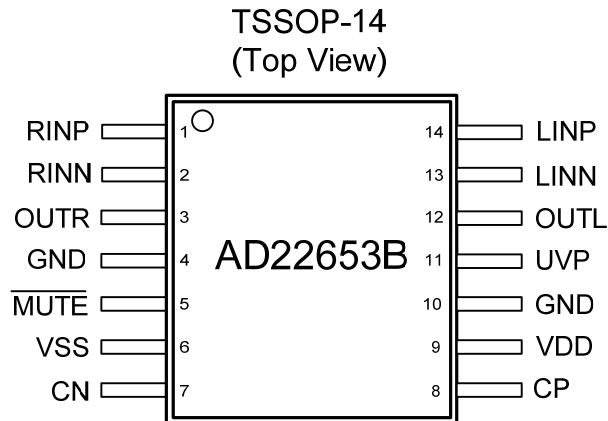
### Ordering Information

Product ID	Package	Packing	Comments
AD22653B-QH14NAT	TSSOP-14	96 Units / Tube	Green (HF)
AD22653B-QH14NAR		100 Tubes / Small Box	
		2.5k Units Tape & Reel	

### Simplified Application Circuit



Pin Assignments

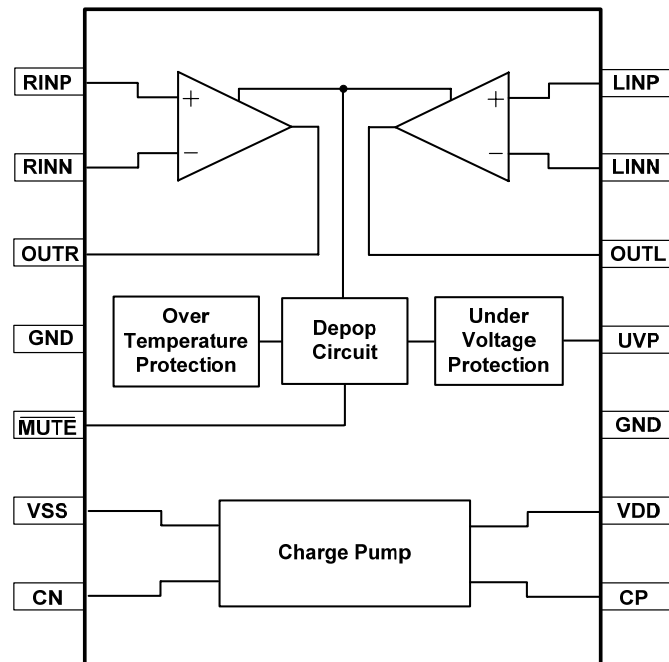


Pin Description

No.	Name	Type <sup>(1)</sup>	Pin Description
1	RINP	I	Right channel OP positive input
2	RINN	I	Right channel OP negative input
3	OUTR	O	Right channel OP output
4	SGND	P	Signal ground
5	$\overline{\text{MUTE}}$	I	Mute, active low
6	PVSS	P	Supply voltage
7	CN	I/O	Charge-pump flying capacitor negative terminal
8	CP	I/O	Charge-pump flying capacitor positive terminal
9	PVDD	P	Positive supply
10	PGND	P	Power ground
11	UVP	I	Under-voltage protection input, internally pulled high
12	OUTL	O	Left channel OP output
13	LINN	I	Left channel OP negative input
14	LIMP	I	Left channel OP positive input

(1) I=input, O=output, P=power

**Functional Block Diagram**



**Available Package**

Package Type	Device No.	$\theta_{ja}$ (°C/W) <sup>(1)</sup>	$\theta_{jc}$ (°C/W) <sup>(2)</sup>
TSSOP-14	AD22653B	100	32

(1)  $\theta_{ja}$  is measured at room temperature (TA=25°C), natural convection environment test board, which is constructed with a thermal efficient, 2-layers PCB. The measurement is tested using the JEDEC51-3 thermal measurement standard.

(2)  $\theta_{jc}$  represents the heat resistance for the heat flow between the chip and package’s top surface.

**Marking Information**

AD22653B

Line 1 : LOGO

Line 2 : Product No.

Line 3 : Tracking Code

