

High Voltage Output, Low Noise Mono Class D Amplifier with AGC

◆ General Description

OCA72390WPAD is a mono, filter-free Class D audio power amplifier with optimized automatic gain control (AGC) and 2X charge pump. AGC functions are not only configured to prevent audio signal distortion but also to enhance sound quality and volume automatically. It also can be configured to protect the speaker from damage at high power levels. The 2X charge pump architecture achieves high output voltage which can improve music signal dynamic range significantly. OCA72390WPAD is cable of driving 3.5W at 4.2V into a 6Ω load or 3.1W at 4.2V into a 8Ω load with speaker mode.

OCA72390WPAD also supports speaker and receiver 2-in-1 application. In receiver mode, the noise floor can be achieved 8.3μVrms and total harmonic distortion (THD) can be achieved 0.01% with 0.1W at 4.2V into a 8Ω load.

In addition to these features, I2C interface makes easier commutation between AP and OCA72390WPAD.

The device is a RoHs compliant WLCSP 2.43mm x 2.03mm -16B package.

◆ Features

- Power Voltage Range: 2.7V to 5.5V
- Adaptive 2X Charge Pump architecture
- Support Speaker&Receiver 2-in-1 mode
- Overall Efficiency up to 81%
- Output power 3.1W@8Ω, 3.5W@6Ω,
- Low Noise:
8.3μVrms (Class AB Receiver@0dB)
14μVrms (Class D Speaker@4.5dB)
- PSRR: 90dB @ 217Hz
- Optimized AGC control for sound quality
- Excellent TDD noise suppression and POP-Click noise suppression
- Shut Down Current: 2 μA
- Support 1.2V I2C interface
- WLCSP-16B, 2.43mm x 2.03mm x 0.55mm

◆ Applications

- Smartphones, Cellphone, PDAs
- Bluetooth wireless handsets

◆ Pin Configuration

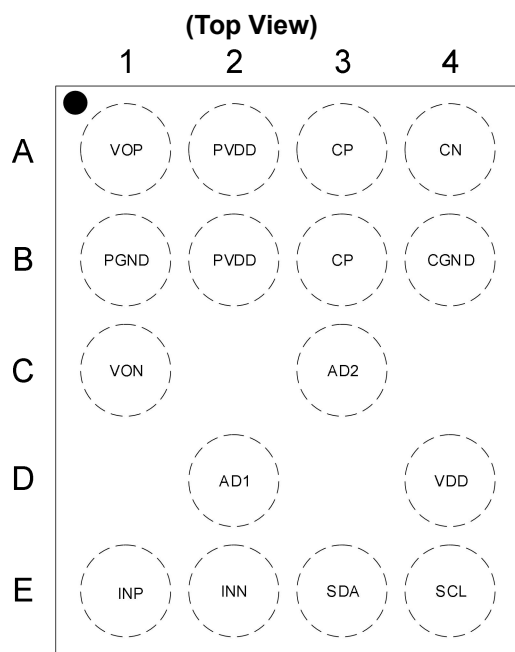


Figure 1, Pin Assignments of OCA72390WPAD

◆ Pin Description

Pin No.	Pin Name	Pin Function
A1	VOP	Positive audio output
A2	PVDD	Charge pump output
A3	CP	Charge pump flying capacitance pin
A4	CN	Charge pump flying capacitance pin
B1	PGND	Power ground
B2	PVDD	Charge pump output
B3	CP	Charge pump flying capacitance pin
B4	CGND	Charge Pump power ground
C1	VON	Negative audio output
C3	AD2	I2C slave address pin2
D2	AD1	I2C slave address pin1
D4	VDD	Power supply
E1	INP	Positive audio input
E2	INN	Negative audio input
E3	SDA	I2C data
E4	SCL	I2C clock

◆ Typical Application Circuit

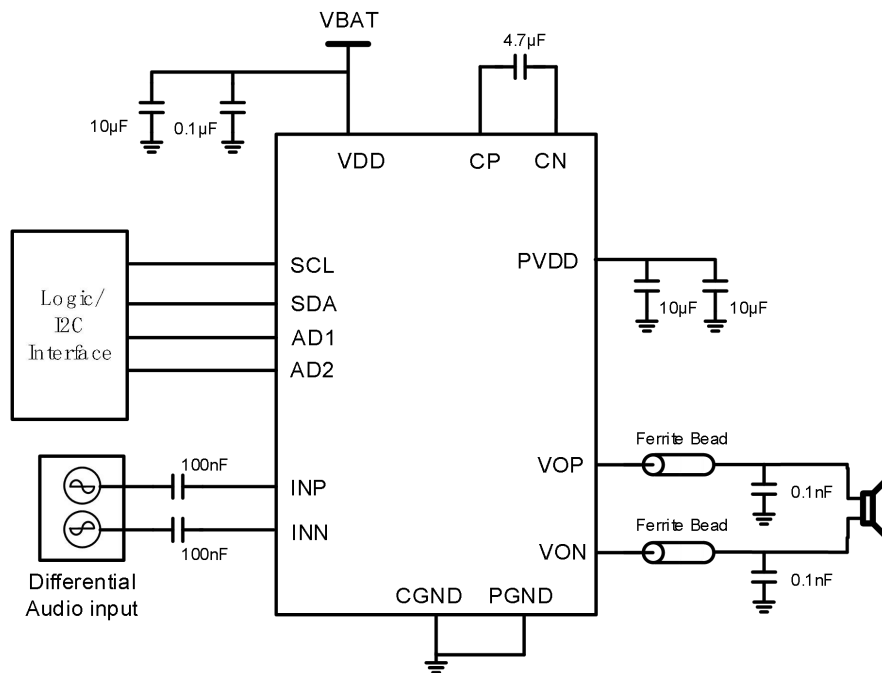


Figure 2, Typical Application Block diagram of OCA72390WPAD



◆ Block Diagram

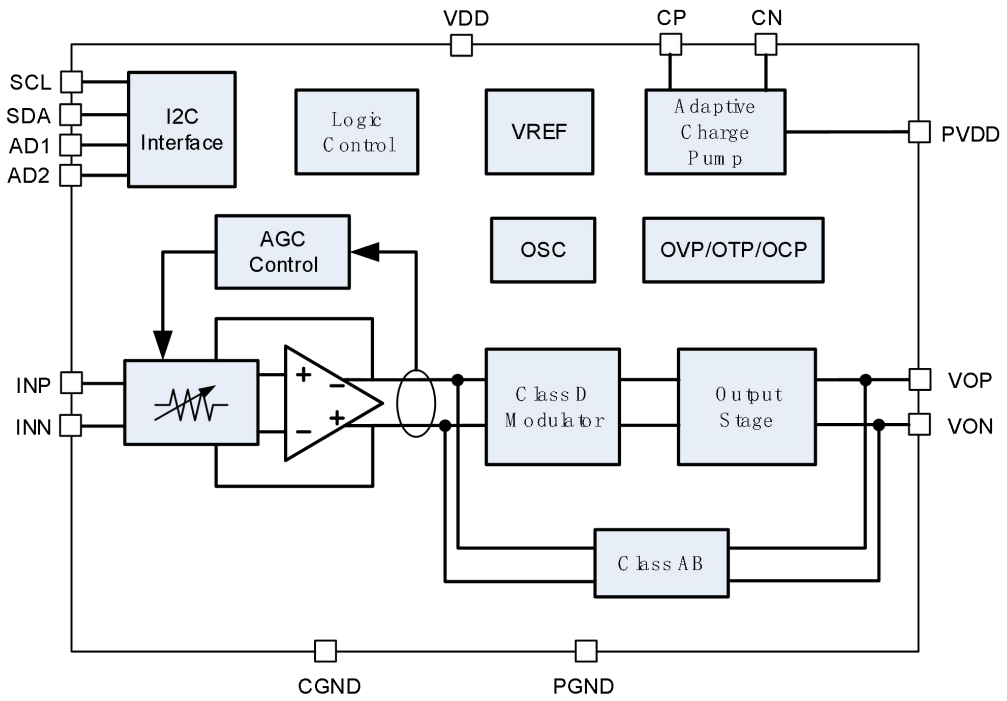


Figure 3, OCA72390WPAD Block Diagram