

DESCRIPTION

The PT2004 is a CLASS-D power amplifier designed for audio equipments, maximum output power can reach up to 2.2W x 2 (VDD=5V, RL=4Ω, THD=10%). The PT2004 composed of exclusively designed CLASS-D circuitry (patented) by PTC, along with the most advanced semi-conductor fabricate technology. When compared to the traditional CLASS-AB amplifiers, the PT2004's shows much higher efficiency (> 80%), low heat dissipation, and also performs superior audio quality.

The PT2004's external circuitry is simple and easily accessible, and consists of flawless self-protection capabilities. The chip's packaging is small, thus it occupies an insignificant amount of space on the circuit board; therefore, making it the predominant choice when it comes to audio amplifiers.

FEATURES

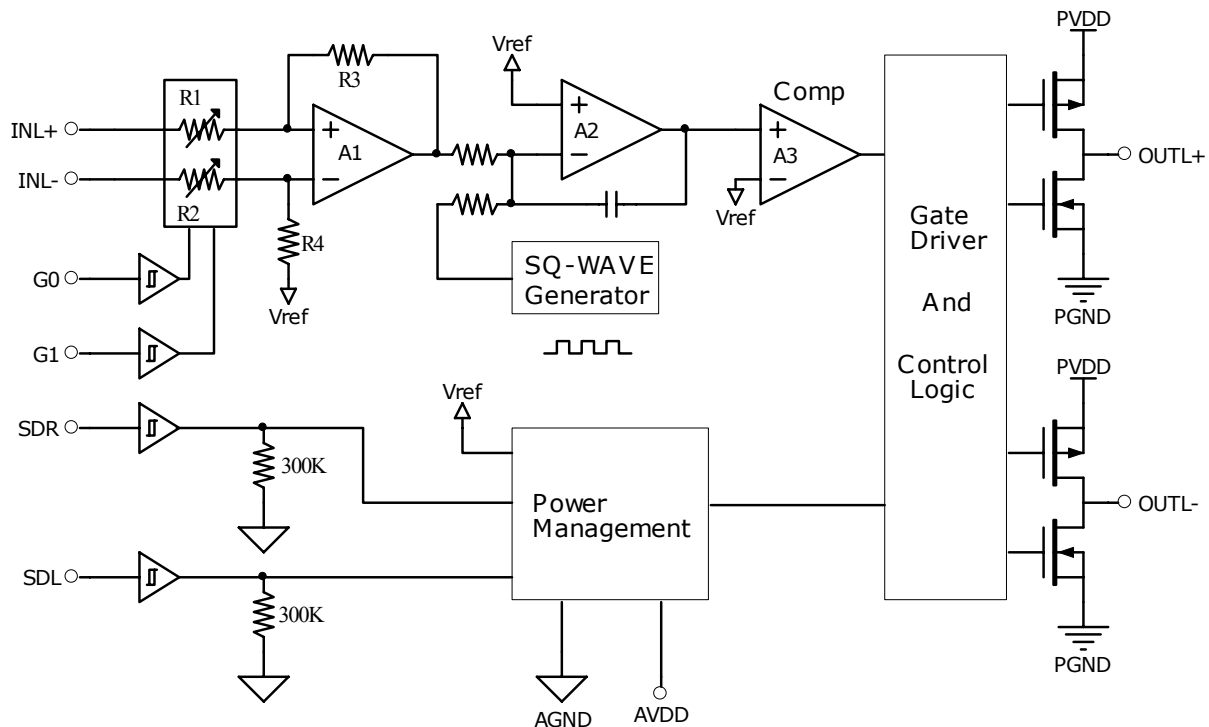
- CMOS Technology
- Stereo differential analogue input
- Maximum output power 2.2W(4Ω) × 2 @ THD=10%
- Output low-pass LC filter is not necessary
- Low EMI radiation, CISPR 22 regulation Compliant
- 4 level voltage gain selection
- Contains shutdown function for individual channel
- Fast start-up time (3.5ms) when shutdown awake up
- Built-in short circuit protection
- Built-in over-temperature protection
- High efficiency (85%, 8Ω load), low heat dissipation
- Wafer level WLCSP 16 balls package

APPLICATIONS

- Mobile phone
- Portable Media Player
- Personal Navigation Device
- Hands-free phone

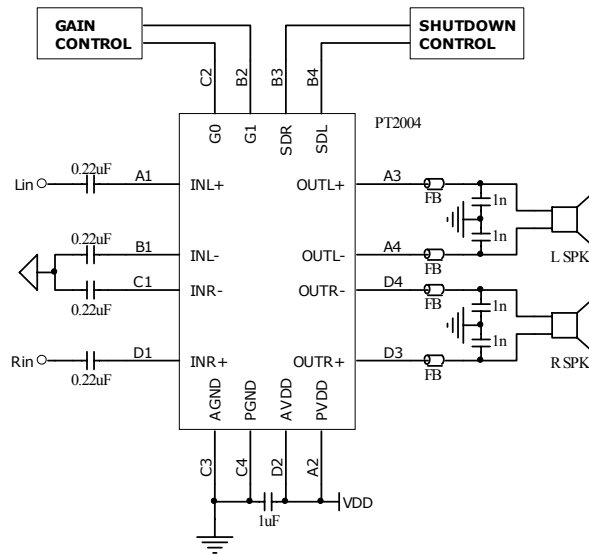
BLOCK DIAGRAM

PT2004 internal block diagram (diagram shows single channel only)

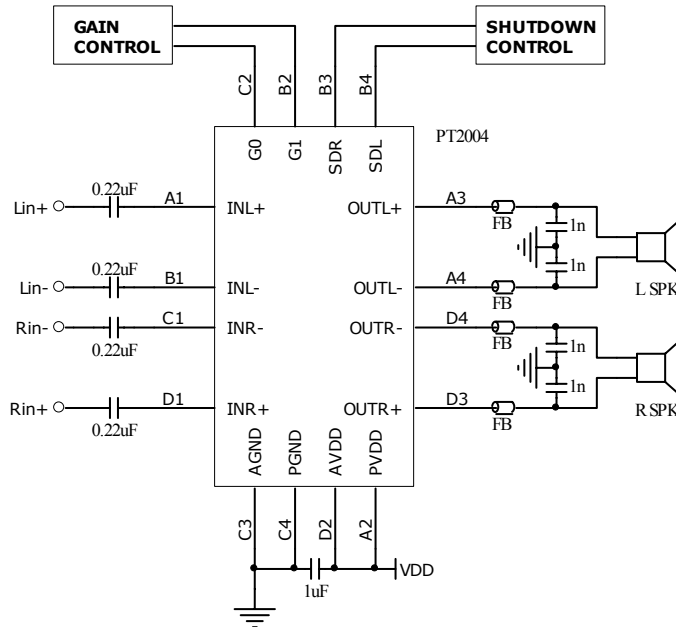


APPLICATION CIRCUIT DIAGRAM

(1) SINGLE-ENDED INPUT



(2) DIFFERENTIAL INPUT

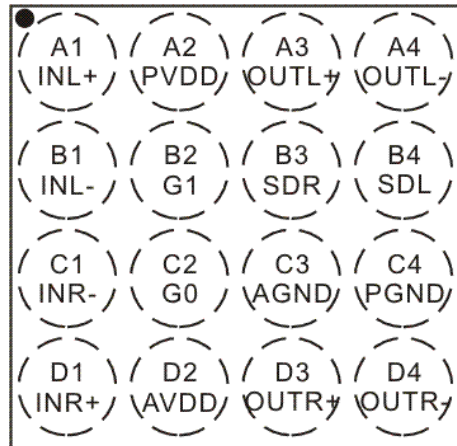


Ferrite Bead (FB) specification: $Z = 220\Omega @ 100\text{MHz}$, current capability $> 2\text{A}$.

ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT2004-CS	16 balls, WLCSP	PT2004

PIN CONFIGURATION



(Top View)

PIN DESCRIPTION

Pin	I/O	Symbol	Function
A1	I	INL+	Left channel input (+)
B1	I	INL-	Left channel input (-)
C1	I	INR-	Right channel input (-)
D1	I	INR+	Right channel input (+)
A2	Power	PVDD	Output supply
B2	I	G1	Gain setting 1
C2	I	G0	Gain setting 0
D2	Power	AVDD	Analog supply
A3	O	OUTL+	Left channel output (+)
B3	I	SDR	Right channel shutdown
C3	Power	AGND	Analog ground
D3	O	OUTR+	Right channel output (+)
A4	O	OUTR-	Left channel output (-)
B4	I	SDL	Left channel shutdown
C4	Power	PGND	Power ground
D4	O	OUTR-	Right channel output (-)