summary

CS8316C is a class R mono audio power amplifier with fixed 24x gain, anti-crack, AB/D switching, power limit, built-in BOOST boost module and adaptive boost function. CS8316C can drive loads as low as 3Ω and output a maximum constant power of 25W. The design of class AB and class D switchable modes minimizes the interference of the power amplifier to FM in the audio subsystem. CS8361C is an audio amplifier specially designed for two lithium batteries in series. CS8316C breaks through the limitations of lithium battery power supply and provides terminal products with more extreme power output, making the power output of terminal products comparable to the output power of 12V lead-acid battery-powered audio systems. The fully differential architecture and extremely high PSRR of CS8316C effectively improve the ability to suppress RF noise. The filter-free PWM modulation structure and built-in BOOST boost module, as well as the proprietary AERC (Adaptive Edge Rate Control) technology used by CS8316C, greatly reduce EMI interference within the full bandwidth of the audio. For a 60cm audio line, it has a margin of more than 20dB under the FCC standard. In addition, CS8316C has built-in overcurrent protection, short circuit protection and overheating protection, which effectively protects the chip from damage under abnormal working conditions. CS8316C provides a small TSSOP24-PP package for customers to choose from, and its rated operating temperature range is -40℃ to 85℃.

describe

Built-in BOOST module R-type structure, integrated AB and D modes

Output Power

PO at 10% THD+N, VIN = 7.4V

RL = 4Ω+22uH 21W(D MODE NCN OFF）

PO at 10% THD+N, VIN = 7.4V

RL = 3Ω+22uH 25W(D MODE NCN OFF）

Excellent pop-noise suppression capability

Operating voltage range: 5V to 9V

Adaptive boost function

Built-in 4 anti-breaking sound modes

Built-in POWER-LIMIT (power limit function)

Class-D structure without filtering

Up to 82% efficiency

High Power Supply Rejection Ratio (PSRR): 70dB at 217Hz

Startup time (200ms)

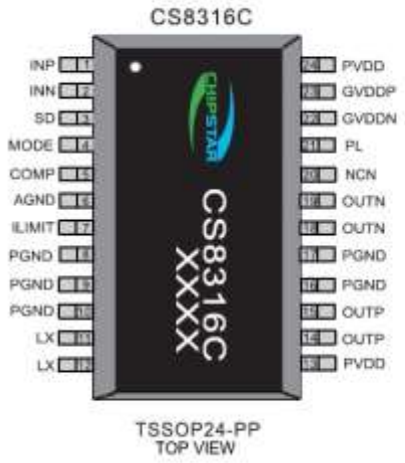
Quiescent Current (10mA)

Low Shutdown Current (50μA)

Overcurrent protection, short circuit protection and overheat protection

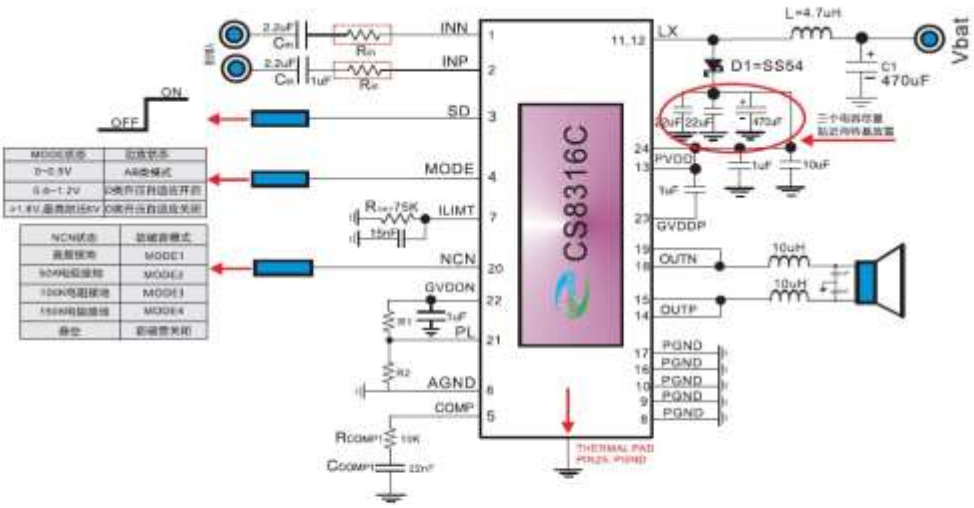
Lead-free packaging compliant with RoHS standards

Pin arrangement and definition



管脚	说明	I/O	功能	管脚	说明	I/O	功能
1	INP	输入	音频信号输入正端	13	PVDD	电源	功率电源端
2	INN	输入	音频信号输入负端	14	OUTP	输出	音频信号输出正端
3	SD	输入	芯片关断脚,低电平芯片关断,可接高压	15	OUTP	输出	音频信号输出正端
4	MODE	输入	ABD切换以及自适应升压开关控制管脚 管脚最高耐压6V	16	PGND	地	功率地
5	COMP	输入	外部补偿管脚	17	PGND	地	功率地
6	AGND	地	模拟地	18	OUTN	输出	音频信号输出负端
7	ILIMIT	输入	电感峰值电流限制管脚	19	OUTN	输出	音频信号输出负端
8	PGND	地	功率地	20	NCN	输入	防破音控制管脚
9	PGND	地	功率地	21	PL	输入	功率限制管脚
10	PGND	地	功率地	22	GVDDN	电源	5V稳压源
11	LX	输入	开关切换管脚,连接外部电感器	23	GVDDP	电源	上管栅驱动电压
12	LX	输入	开关切换管脚,连接外部电感器	24	PVDD	电源	功率电源
				25 (散热片)	PGND	地	功率地

Typical application diagram



备注：

- L1为4.7uH,饱和电流为5A以上的电感，DCR足够小。
- 肖特基型号为SS54
- SD管脚高电平最高可接20V电压
- 图中红框内RIN为预留输入电阻位置,CS8316C内置24倍增益,内部集成的输入电阻为8.5K,反馈电阻为204K,增益小于24倍的计算为：Gain=204K/(8.5K+RIN)
- CS8316C底部散热片定义为PGND管脚
- 特别注意GVDDN与地之间接1uF电容，GVDDP到PVDD之间接1uF电容