



## summary

CS83702E is a Class R mono audio power amplifier suitable for single-cell lithium battery powered applications, with fixed gain, three anti-breaking sound modes, AB/D switching, mute function, and built-in BOOST boost module. When powered by a single lithium battery, CS83702E can drive speakers as low as  $2\Omega$  and output a maximum constant power of 18W; the CS83702E Class AB and Class D switchable mode design minimizes the interference of the power amplifier to FM in the audio subsystem, providing the ultimate power output for the terminal product.

The fully differential architecture and extremely high PSRR of CS83702E 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 of CS83702E, greatly

reduce EMI interference within the full bandwidth of , and have a margin of more than 20dB for 60cm audio line under FCC standards. In addition, CS83702E has built-in over-current protection, short-circuit protection and over-heat protection, which effectively protects the chip from being damaged under abnormal working conditions.

CS83702E provides a small EQA16 package for customers to choose . The package size is consistent with ESOP8, and its rated operating temperature range is -40 °C to 85°C.

### **describe**

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

Output Power

**P** O at 10% THD+N, VIN = 3.7V

RL = 4 Ω 10.1W(D MODE NCN OFF)

PO at 10% THD+N, VIN = 3.7V

RL = 2Ω+22μH Ω 18W(D MODE NCN OFF)

Excellent pop-noise suppression capability

Operating voltage range: 2.7V to 5.5V

Spread spectrum function

Fixed 64x gain, integrated 10K input resistor, 640K feedback resistor

Built-in three anti-breaking sound modes

Class-D structure without filtering

Up to 84% efficiency (Vbat=4.2V)

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

Startup time (200ms)

Quiescent Current (22mA)

Low Shutdown Current (1μA)

Overcurrent protection, short circuit protection and overheat protection

### **application**

Portable Bluetooth Speaker

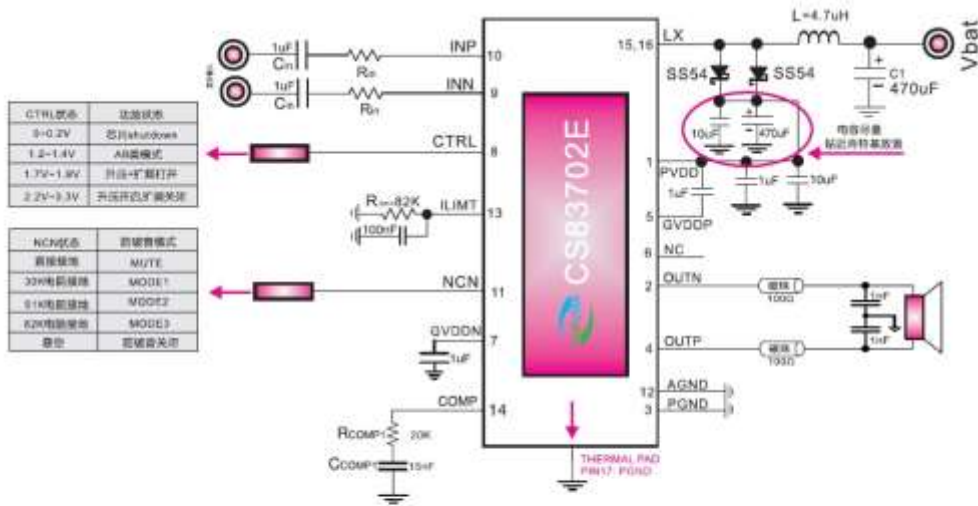
Trolley Speaker

### **Pin arrangement and definition**



管脚	说明	I/O	功能	管脚	说明	I/O	功能
1	PVDD	电源	功率电源端	9	INN	输入	音频信号输入负端
2	OUTN	输出	音频信号输出负端	10	INP	输入	音频信号输入正端
3	PGND	地	功率地	11	NCN	输入	防破音控制管脚
4	OUTP	输出	音频信号输出正端	12	AGND	地	模拟地
5	GVDDP	电源	上管栅驱动电压	13	ILIMIT	输入	电感峰值电流限制管脚
6	NC	—	空脚	14	COMP	输入	外部补偿管脚
7	GVDDN	电源	下管栅驱动电压	15	LX	输入	开关切换管脚,连接外部电感器
8	CTRL	输入	关断控制,升压和扩频模块控制	16	LX	输入	开关切换管脚,连接外部电感器
				17 (散热片)	PGND	地	功率地

### Typical application schematic diagram



**备注：**

- L1 要选择饱和电流8A以上的电感,另外所选电感DCR足够小。
- CS83702E底部散热片定义为PGND管脚
- 内部固定64倍增益,集成10K的输入电阻和640K的反馈电阻,增益计算方法: GAIN=640K/10K+Rin