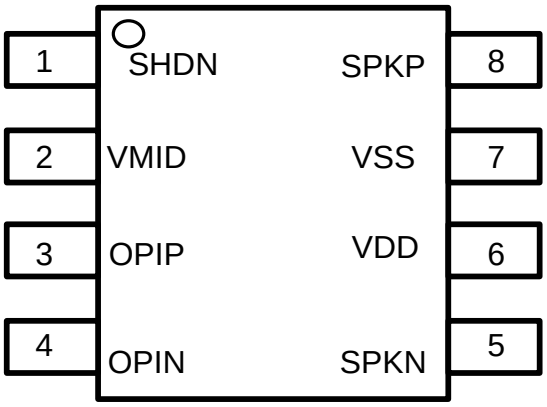
TRA8002A

1. General Descriptions

TRA8002A is an audio amplifier. TRA8002A contains advanced de-pop circuitry which eliminates pops during chip enable and disable.

2. Features

- Mute function
- Gain adjustable by external resistor
- Wide operation voltage : 2V~6V
- Low standby current: 0.5uA
- Over temperature shut down
- High output power Pout = 1.2W (VDD=5V, THD+N=1%,8ohm)
  Pout = 2W (VDD=5V, THD+N=1%,4ohm)



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4.2 Packaging and Pads Information

Signal Name	Pin Type	Signal Description
VDD	I	Speaker driver power input
VSS	I	Speaker driver ground input
VMID	I	Internal reference voltage
OPIP	I	PWMP signal input
OPIN	I	PWMN signal input
SHDN	I	Shutdown signal, SHDN=VDD, IC shutdown
SPKP	O	Positive speaker output
SPKN	O	Negative speaker output

5. ELECTRICAL CHARACTERISTICS

5.1 Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
DC Supply Voltage	VDD	-0.4 to 6	V
Input Voltage	Vi	-0.4 to Vdd+0.4	V
Operating Temperature Range	Ta	-20 to 60	℃
Storage Temperature Range	Tstg	-40 to 150	℃

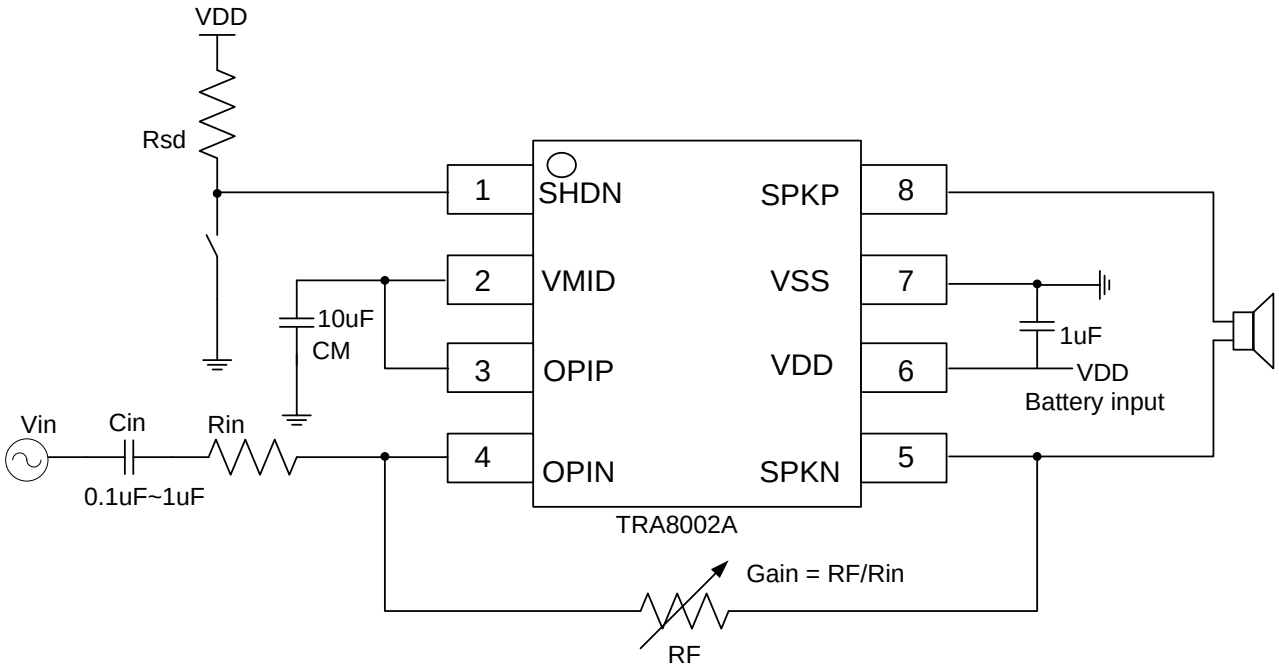
5.2 DC/AC Characteristics

Ta=25℃ unless otherwise noted

Parameters	Symbol	Minimum	Typical	Maximum	Remark
Power supply range	VDD	1.8 V	5V	6V	
Operating current	Iop		7mA		VDD=5V
Standby current	Imute		0.5uA		SHDN = VDD
Output power (THD+N=1%)	Po		2W		4ohm speaker
			1.2W		8onm speaker
Over temp. shut down	OTSD		170℃		
Hysteresis recovery	HYR		30℃		
GBW	BW		500Khz		

Application circuit

SHDN=0, Chip enable



- Rin forms a high pass filter with Cin, fc= 1 / (2 π × Rin × Cin)
  Ex: Fc = 10hz, Cin = 0.1u, Rin = 1 / (2 π × 10 × 0.1u) = 159K ohm
  Fc = 10hz, Cin = 1u, Rin = 1 / (2 π × 10 × 1u) = 15.9K ohm
  **User can adjust Cin or Rin to get the right Fc.

- RF is a feedback resistor that can sets the close loop gain. Gain = RF / Rin

- CM bypass pin capacitor that provides half supply filtering and mute time adjusting.

  Tmute ~ Rcon * CM, Rcon ~ 150Kohm, if CM=4.7uF, Tmute ~ 0.2S

REVISION HISTORY

REVISION	DESCRIPTION	PAGE	DATE
V1.0	Preliminary		2019.08.21