



PA4890

Preliminary

CMOS IC

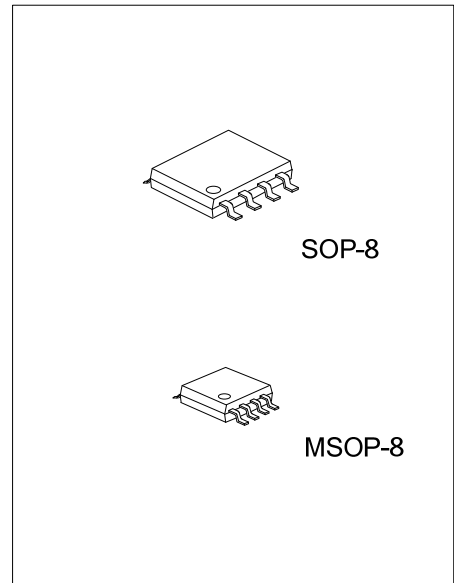
1.1W AUDIO POWER AMPLIFIER WITH ACTIVE-LOW SHUTDOWN MODE

DESCRIPTION

As a power amplifier which is operating on a single 5V supply, the UTC **PA4890** is capable of delivering 1.1W of output power into 8Ω loads with less than 1% distortion.

The UTC **PA4890** is optimally suited for applications: Mobile phones (cellular/cordless), notebook computers PDAs and Portable audio devices.

The shutdown mode can reduce the supply current. It also includes thermal shutdown protection internally. By external gain setting resistors the gain can be configured.



FEATURES

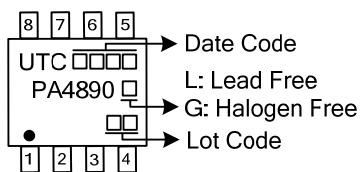
- * Operating: $V_{CC}=2.5V \sim 5.5V$
- * 1.1W output power, $V_{CC}=5V$, THD=1%, f=1kHz, 8Ω Load
- * Ultra-low distortion :0.1% (typ.)

ORDERING INFORMATION

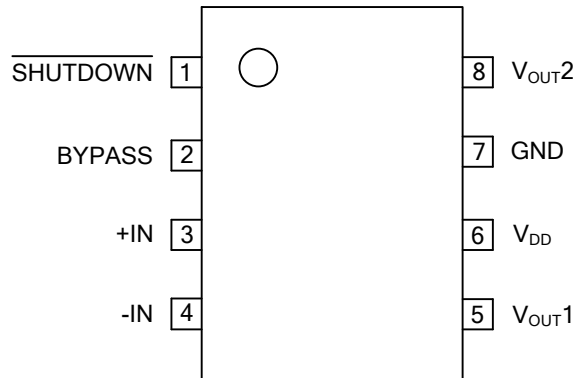
Ordering Number		Package	Packing
Lead Free	Halogen Free		
PA4890L-S08-R	PA4890G-S08-R	SOP-8	Tape Reel
PA4890L-SM1-R	PA4890G-SM1-R	MSOP-8	Tape Reel

<p>PA4890G-S08-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) S08: SOP-8, SM1: MSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
--	--

MARKING



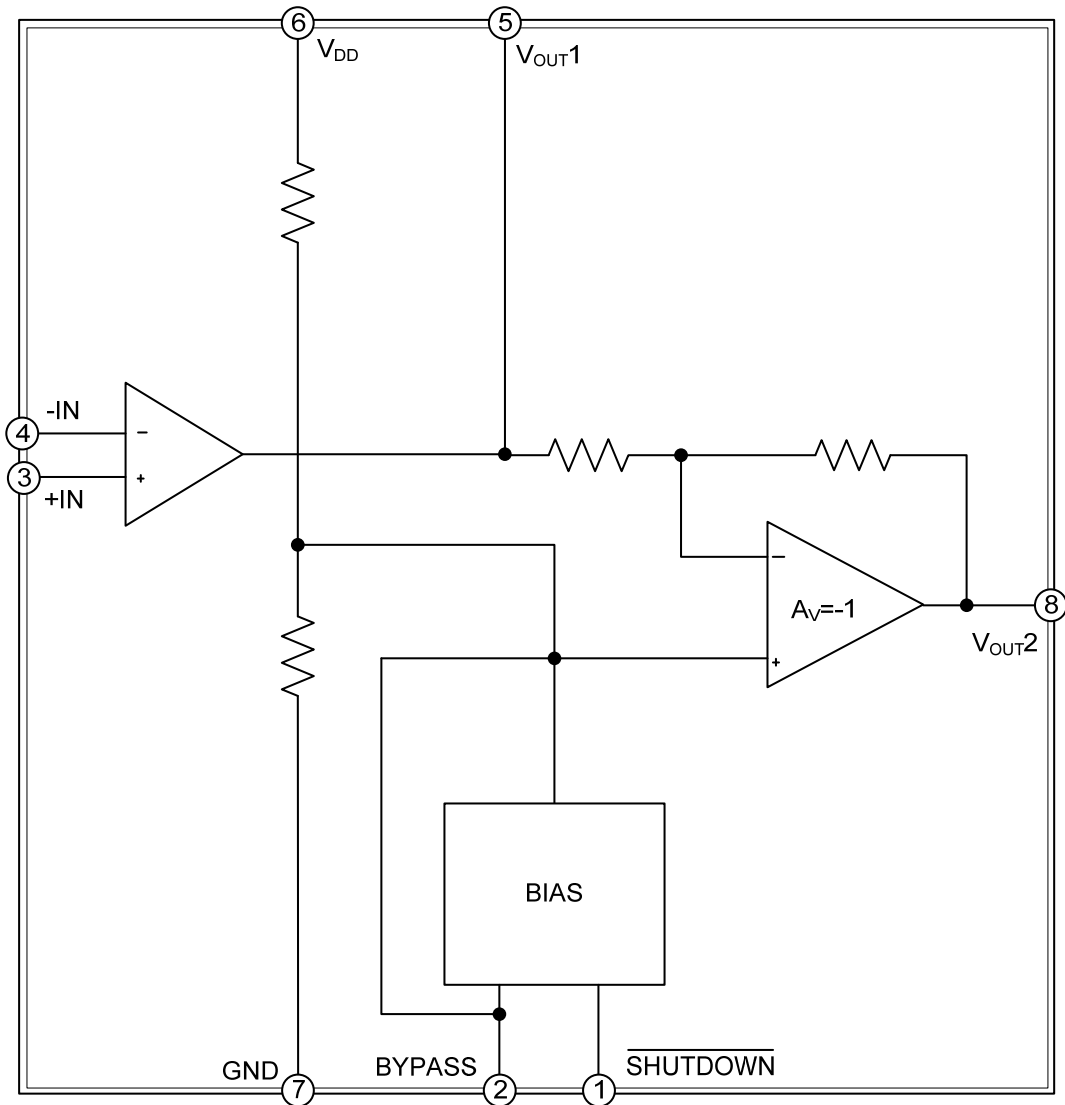
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO	PIN NAME	DESCRIPTION
1	SHUTDOWN	Shutdown control input pin.
2	BYPASS	Connected to a bypass capacitor.
3	+IN	+ pin of input signal.
4	-IN	- pin of input signal.
5	V _{OUT1}	Output pin1
6	V _{DD}	Supply voltage
7	GND	GND
8	V _{OUT2}	Output pin2

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	6	V
Input Voltage	V_{IN}	GND ~ V_{DD}	V
Power Dissipation	P_D	Internally Limited	W
Junction Temperature	T_J	+150	°C
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	SOP-8	150	°C/W
	MSOP-8	190	°C/W
Junction to Case	SOP-8	35	°C/W
	MSOP-8	56	°C/W

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, GND=0V, $R_L=8\Omega$, unless otherwise specified)

$V_{DD}=2.6V$

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Offset Voltage	V_{OS}	No input signal			50	mV
Shutdown Voltage	V_{ST}	High			1.2	V
		Low			0.4	
Supply Current	I_{DD}	No input signal, no load		1.5	6	mA
Shutdown Current ¹	$I_{SHUTDOWN}$	No input signal, $V_{STDBY}=GND$			4	μA
Output Power	P_{OUT}	THD=1% Max, $f_{IN}=1\text{kHz}$		300		mW
Total Harmonic Distortion+Noise	THD+N	$P_{OUT}=200\text{mW}_{RMS}$, $A_v=2$, $20\text{Hz} \leq f \leq 20\text{kHz}$		0.1		%
Power Supply Rejection Ratio	PSRR	$A_v=2$, $V_{RIPPLE}=200\text{mVpp}$, Input Grounded	$f=217\text{Hz}$	60		dB
			$f=1\text{kHz}$	62		
Wake-Up Time	T_{WU}	$C_b=1\mu\text{F}$, no load		110	150	ms
Shutdown Time	T_{STDB}	$C_b=1\mu\text{F}$, no load		15		μs

$V_{DD}=3.3V$

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Offset Voltage	V_{OS}	No input signal			50	mV
Shutdown Voltage	V_{ST}	High			1.2	V
		Low			0.4	
Supply Current	I_{DD}	No input signal, no load		2	7	mA
Shutdown Current	$I_{SHUTDOWN}$	No input signal, $V_{STDBY}=GND$			4	μA
Output Power	P_{OUT}	THD=1% Max, $f_{IN}=1\text{kHz}$		450		mW
Total Harmonic Distortion+Noise	THD+N	$P_{OUT}=400\text{mW}_{RMS}$, $A_v=2$, $20\text{Hz} \leq f \leq 20\text{kHz}$,		0.1		%
Power Supply Rejection Ratio	PSRR	$A_v=2$, $V_{RIPPLE} = 200\text{mVpp}$, Input Grounded	$f=217\text{Hz}$	61		dB
			$f=1\text{kHz}$	63		
Wake-Up Time	T_{WU}	$C_b=1\mu\text{F}$, no load		70	140	ms
Shutdown Time	T_{STDB}	$C_b=1\mu\text{F}$, no load		15		μs

■ ELECTRICAL CHARACTERISTICS (Cont.)

$V_{DD}=5V$

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Offset Voltage	V_{OS}	No input signal			50	mV
Shutdown Voltage	High				1.3	V
	Low				0.4	
Supply Current	I_{DD}	No input signal, no load		3	8	mA
Shutdown Current	$I_{SHUTDOWN}$	No input signal, $V_{STDBY}=GND$			4	μA
Output Power	P_{OUT}	THD=1% Max, $f_{IN}=1kHz$		1.1		W
Total Harmonic Distortion+Noise	THD+N	$P_{OUT}=1W_{RMS}$, $A_V=2$, $20Hz \leq f \leq 20kHz$,		0.2		%
Power Supply Rejection Ratio	PSRR	$A_V=2$, $V_{RIPPLE}=200mV_{PP}$, Input Grounded	$f=217Hz$	62		dB
			$f=1kHz$	64		
Wake-Up Time	T_{WU}	$C_b=1\mu F$, no load		50	130	ms
Shutdown Time	T_{STDB}	$C_b=1\mu F$, no load		15		μs

■ TYPICAL APPLICATION CIRCUIT

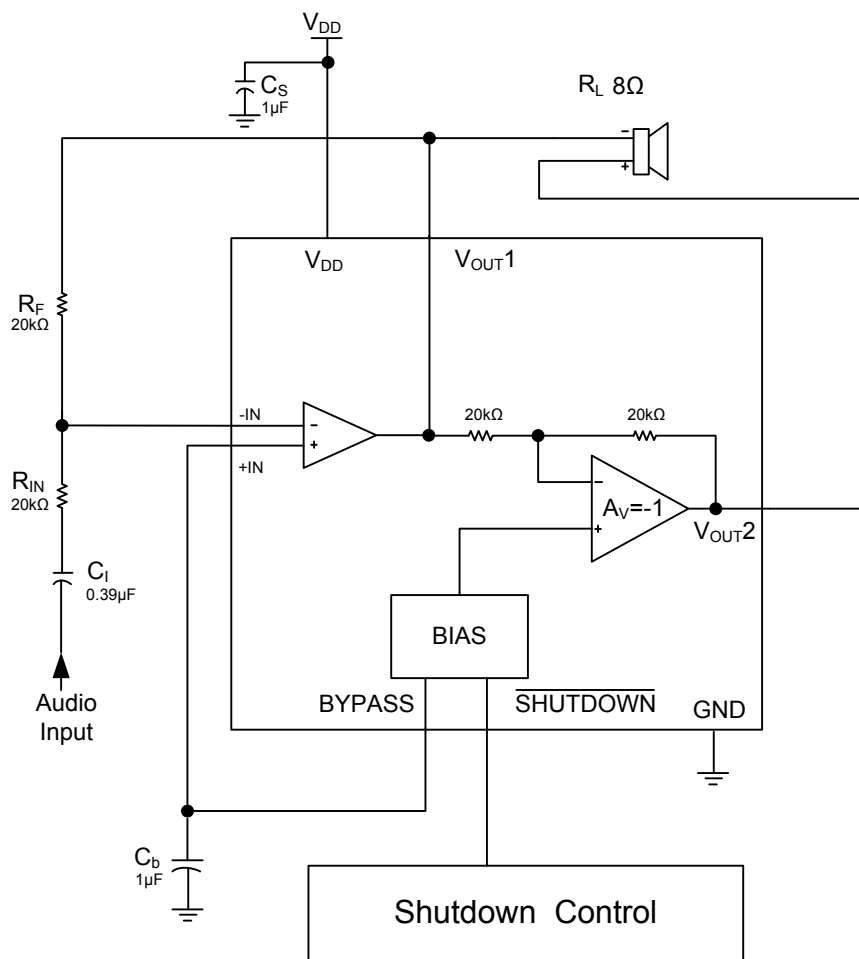


Fig 1. Typical Application Schematic

■ TYPICAL APPLICATION CIRCUIT (Cont.)

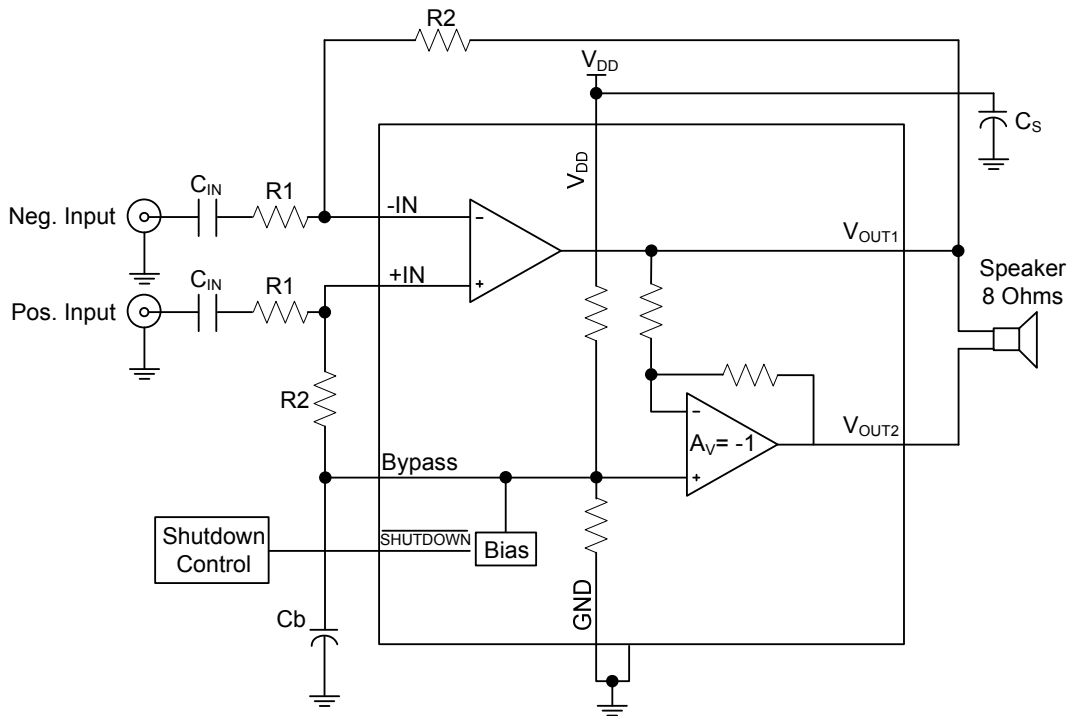


Fig 2. Differential Input Amplifier Configuration

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.