

High-output dual power amplifier

BA5417

The BA5417 is a 6 to 15V-compatible dual power amplifier developed for use radio cassette players. It is equipped with standby switching functions for excellent total harmonic distortion and other basic characteristics.

●Applications

Radio cassette / Mini compo players

●Features

- 1) High output.
 $P_{OUT} = 2.8W$ ($V_{CC} = 9V$, $R_L = 3\Omega$, THD = 10%)
 $P_{OUT} = 5.0W$ ($V_{CC} = 12V$, $R_L = 3\Omega$, THD = 10%)
- 2) Excellent audio quality
 THD = 0.1% ($f = 1kHz$, $P_o = 0.5W$)
 $V_{NO} = 0.3mV_{rms}$ ($R_g = 10k\Omega$)
 $RR = 55dB$ ($f_{RR} = 100Hz$)
- 3) Wide supply voltage operating range
 $(V_{CC} = 6.0V$ to $15.0V)$.
- 4) Switching noise ("pop" noise) generated when the power is switched on and off is small.
- 5) Ripple mixing when motor starts has been prevented.
- 6) Built-in thermal shutdown circuit.
- 7) Built-in standby switch. Output is not influenced by the standby pin voltage.
- 8) Soft clipping.

●Absolute maximum ratings ($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	20^{*1}	V
Power dissipation	P_d	15^{*2}	W
Operating temperature	T_{opr}	$-20 \sim +75$	$^\circ C$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ C$

*1 Must be within standby values.

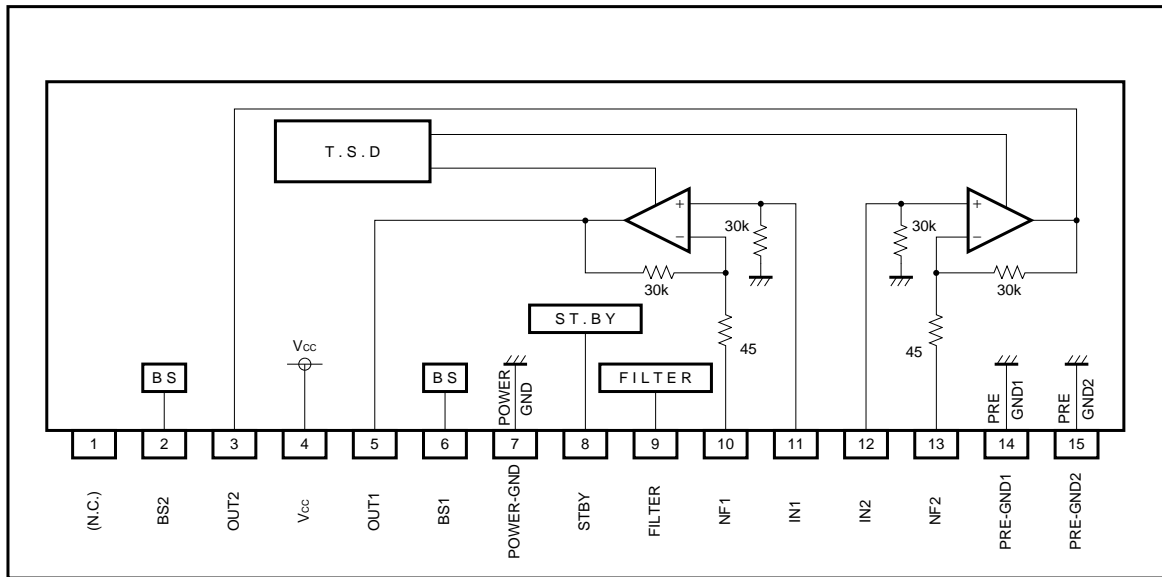
*2 $T_a = 75^\circ C$ (when using infinite heatsink)

●Recommended operating conditions ($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	$6.0 \sim 15.0$	V

Audio ICs

●Block diagram



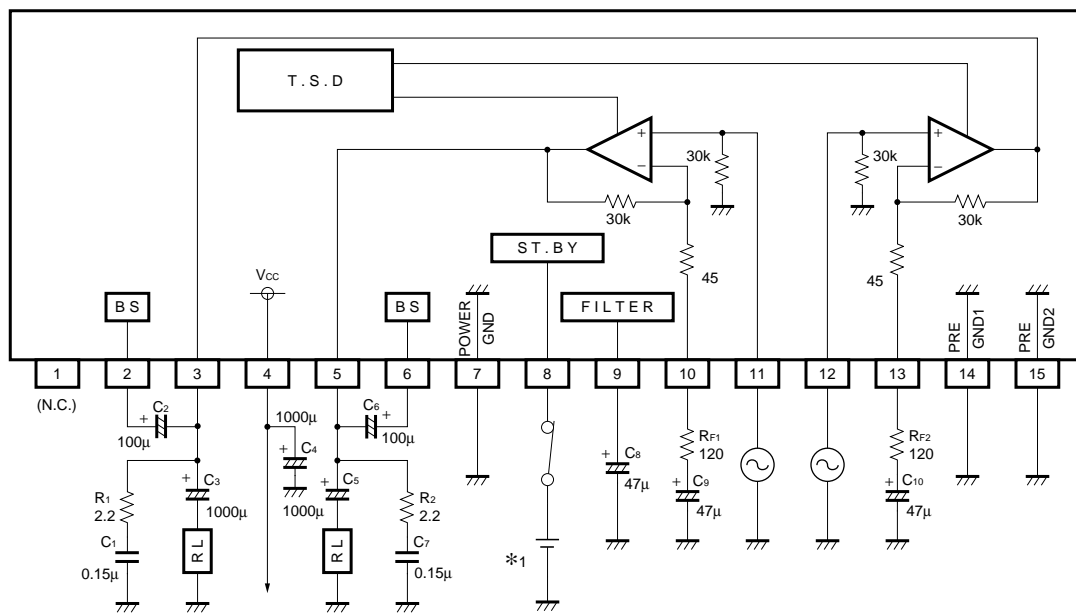
Audio ICs

●Electrical characteristics

(unless otherwise noted, Ta=25°C, Vcc=9.0V, RL=3Ω, RF=120Ω, Rg=600Ω, f=1kHz, OTL mode)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Coniditions
Quiescent current	I _o	–	22	45	mA	V _{IN} =0Vrms
Rated output voltage 1	P _{OUT1}	2.2	2.8	–	W	TDH=10%
Rated output voltage 2	P _{OUT2}	4.0	5.0	–	W	TDH=10%, V _{CC} =12V
Closed-loop voltage gain	G _{VC}	43	45	47	dB	–
Output noise voltage	V _{NO}	–	0.3	1.0	mVrms	R _g =10kΩ, DIN AUDIO
Total harmonic distortion	THD	–	0.1	1.0	%	P _{OUT} =0.5W
Ripple rejection	RR	42	55	–	dB	f _{RR} =100Hz, V _{RR} =-10dBm
Crosstalk	CT	48	65	–	dB	V _o =0dBm
Circuit current (with standby switch off)	I _{OFF}	–	0	20	μA	–
Standby pin current when on	I _{SIN}	–	0.15	0.4	mA	V _{STBY} =V _{CC}
Standby pin control voltage	Activated	V _{STH}	3.5	–	–	–
	Not activated	V _{STL}	–	–	1.2	–

●Measurement circuit



*1 V_{STBY}=3.5V ~ V_{CC}

Fig.1

Audio ICs

●Application example

OTL mode circuit

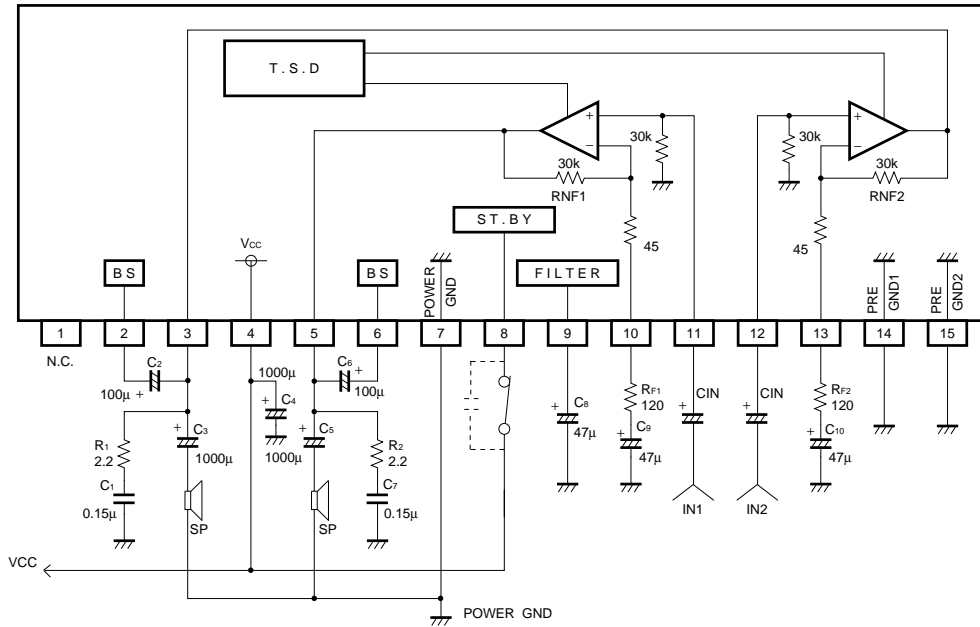
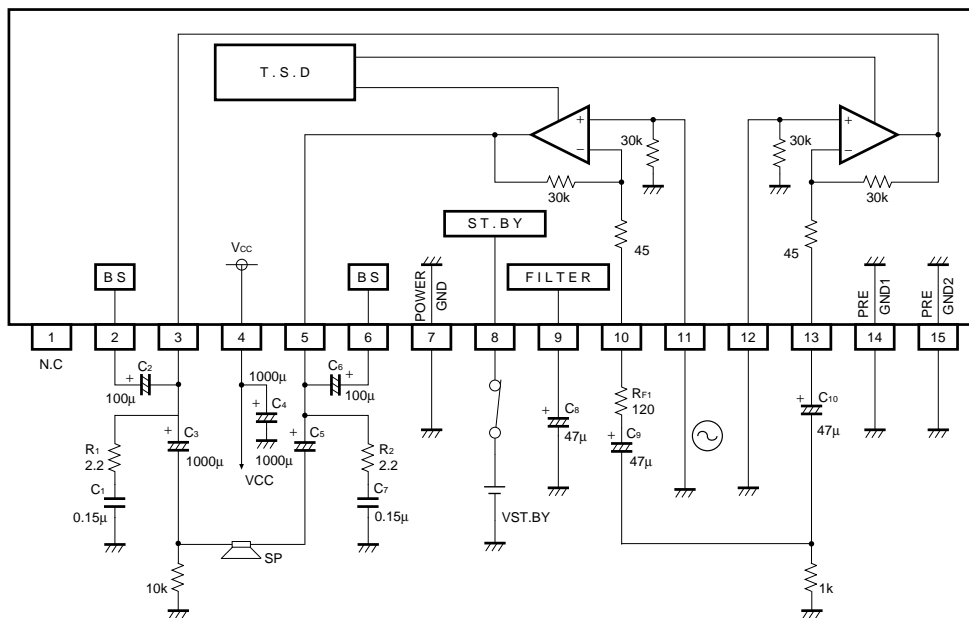


Fig.2

BTL mode circuit



Note : 3pin,5pin need coupling capacitors (C3,C5 100µF) for DC offset voltage.

Fig.3