

Muting IC for portable CD players

BA3124F

The BA3124F is an IC developed for line output muting in portable CD players, and uses control pin switching to achieve line muting and to eliminate the dull thump that occurs when the power is turned on or off.

●Applications

Portable CD players, CD-ROM drives and other devices with line output.

●Features

- 1) Mute attenuation. (63dB)
- 2) ON and OFF control terminals.

●Absolute maximum ratings (Ta = 25°C)

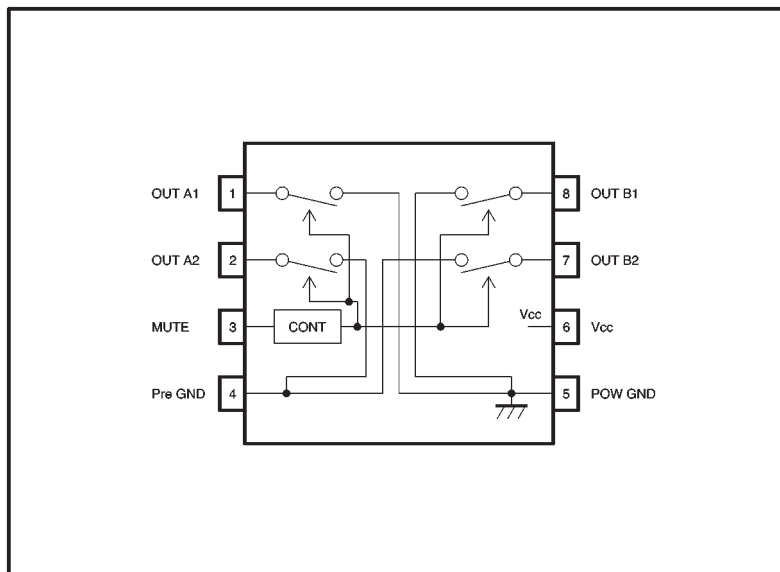
Parameter	Symbol	Limits	Unit
Power supply voltage	V _{cc}	9.0	V
Power dissipation	P _d	450*	mW
Operating temperature	T _{opr}	-15~+50	°C
Storage temperature	T _{stg}	-55~+125	°C

* Reduced by 4.5 mW for each increase in Ta of 1°C over 25°C.

●Recommended operating conditions

Parameter	Symbol	Limits	Unit
Power supply voltage	V _{cc}	1.8~7.0	V

●Block diagram



●Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$, $V_{CC} = 3.0\text{V}$, $f = 1\text{kHz}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Mute attenuation	ATT	53	63	—	dB	$V_{IN} = 1\text{V}_{\text{rms}}$, $120\Omega + 100\Omega$ 2 stage
Mute-on quiescent current	$I_{O}(\text{ON})$	2.20	3.15	4.10	mA	$V_M = 1.8\text{V}$
Mute-off quiescent current	$I_{O}(\text{OFF})$	—	0	6	μA	$V_M = 0.4\text{V}$
Mute-on control voltage	$V_M(\text{ON})$	1.8	—	—	V	—
Mute-off control voltage	$V_M(\text{OFF})$	—	—	0.4	V	—
Mute control terminal current	I_M	130	160	190	μA	$V_M = 3\text{V}$
Mute-off leakage current	I_L	—	0	6	μA	$V_O = \pm 1.5\text{V}$, $V_M = 0.4\text{V}$

○Not designed for radiation resistance.

●Measurement circuit

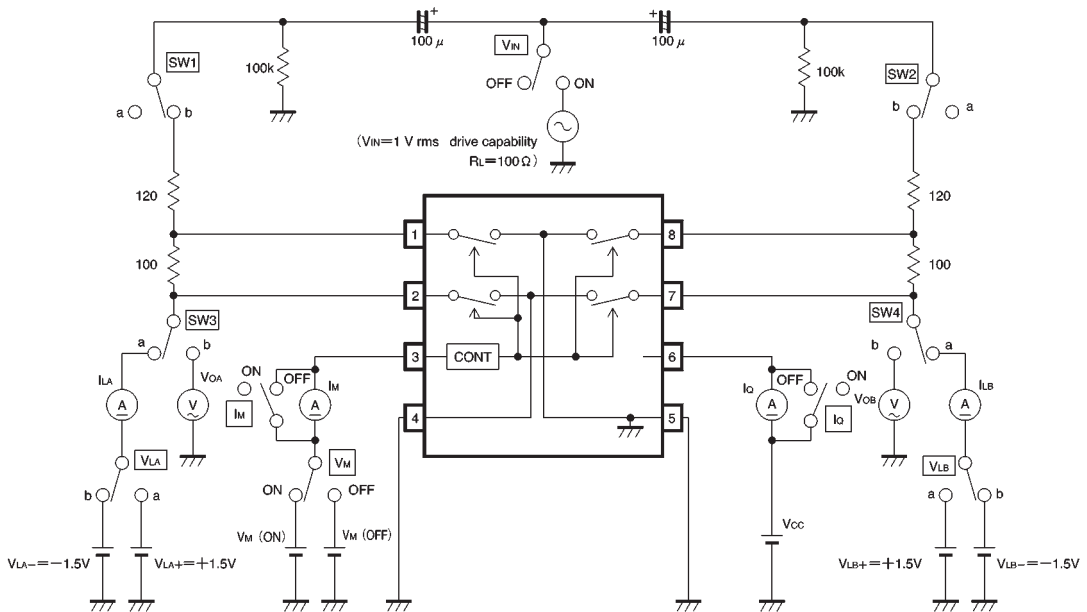


Fig. 1

●Measurement circuit switch table

Parameter	S W		V_{IN}	I_O	V_M	I_M	V_{LA} V_{LB}	Monitor pin and equation
	SW1 SW2	SW3 SW4						
ATT	b	b	ON	OFF	ON	OFF	—	V_{OA} , V_{OB} $ATT = -20 \log V_{OA} (V_{OB}) / V_{IN}$
$I_O(\text{ON})$	↓	↓	OFF	ON	↓	↓	—	I_O
$I_O(\text{OFF})$	↓	↓	↓	↓	OFF	↓	—	I_O
$V_M(\text{ON})$	↓	↓	ON	OFF	ON	↓	—	V_{OA} , V_{OB}
$V_M(\text{OFF})$	↓	↓	↓	↓	OFF	↓	—	V_{OA} , V_{OB}
I_M	↓	↓	OFF	↓	ON	ON	—	I_M measure when $V_M(\text{ON}) = 3\text{V}$
I_L	a	a	—	↓	OFF	OFF	a / b	I_{LA} , I_{LB}

●Application example

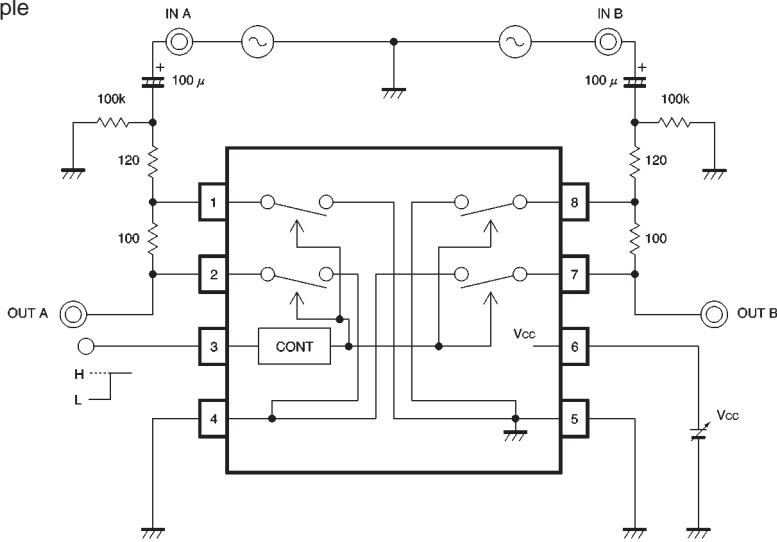


Fig.2

●Electrical characteristic curves (Ta = 25°C)

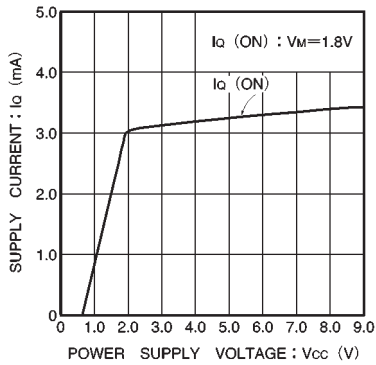


Fig. 3 Power supply voltage vs. supply current

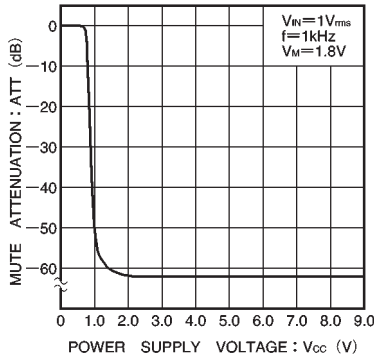


Fig. 4 Power supply voltage vs. mute attenuation

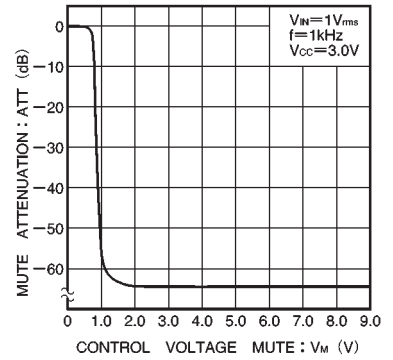


Fig. 5 Mute control voltage vs. mute attenuation

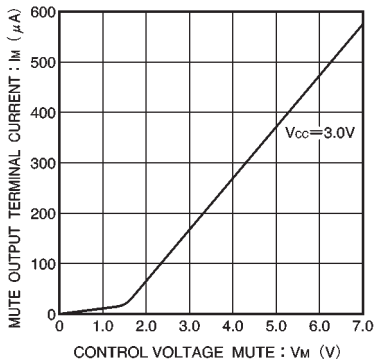


Fig. 6 Mute control voltage vs. mute control terminal current

●External dimensions (Units: mm)

