

# 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.

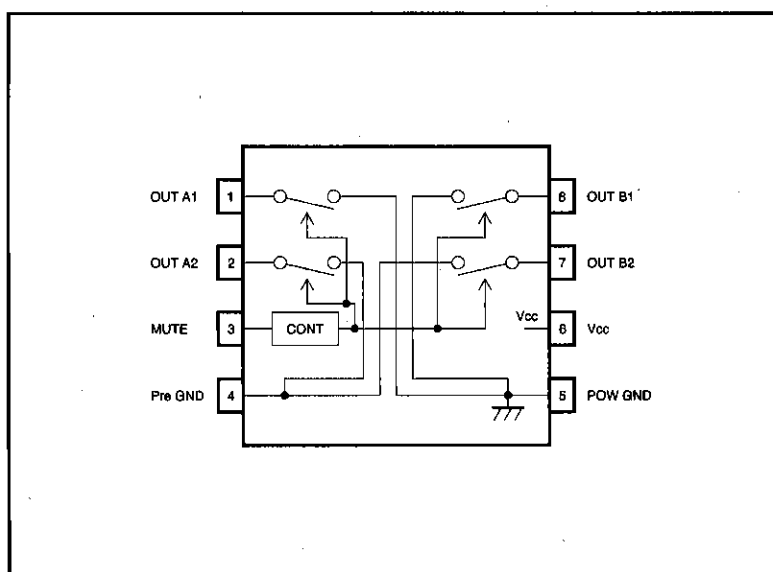
### ●Applications

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

### ●Features

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

### ●Block diagram



### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	Vcc	9.0	V
Power dissipation	Pd	450*	mW
Operating temperature	Topr	-15~50	°C
Storage temperature	Tstg	-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	Vcc	1.8~7.0	V

●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	$I_{O}$ (ON)	2.20	3.15	4.10	mA	$V_M=1.8\text{V}$
Mute-off Quiescent current	$I_{O}$ (OFF)	—	0	6	$\mu\text{A}$	$V_M=0.4\text{V}$
Mute-on control voltage	$V_M$ (ON)	1.8	—	—	V	—
Mute-off control voltage	$V_M$ (OFF)	—	—	0.4	V	—
Mute control terminal current	$I_M$	130	160	190	$\mu\text{A}$	$V_M=3\text{V}$
Mute-off leakage current	$I_L$	—	0	6	$\mu\text{A}$	$V_O=\pm 1.5\text{V}$ , $V_M=0.4\text{V}$

○Not designed for radiation resistance.

●Measurement circuit

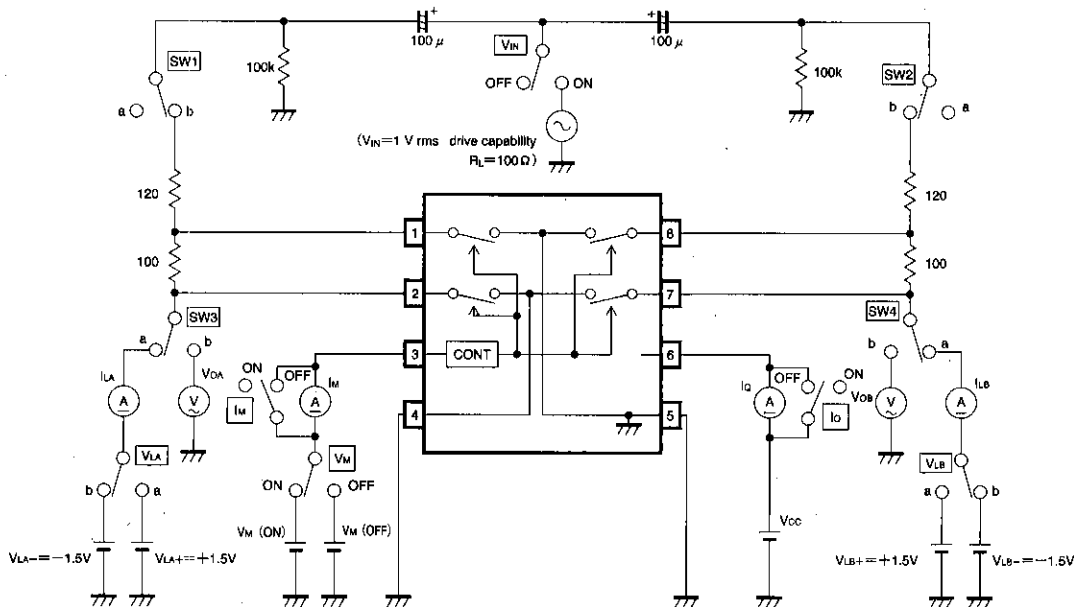


Fig. 1

●Measurement circuit switch table

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

● Application example

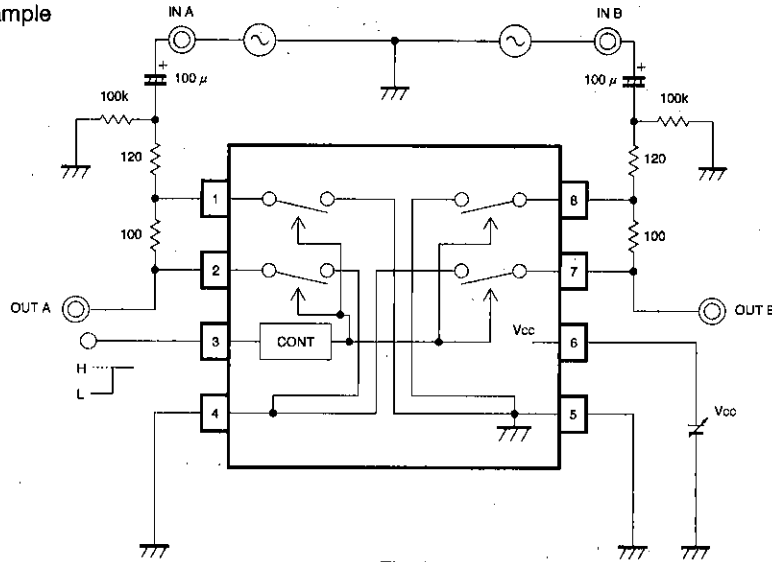


Fig. 2

● Electrical characteristic curves (Ta=25°C)

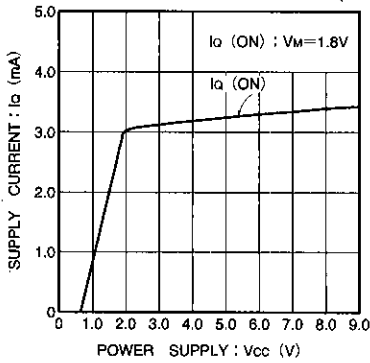


Fig. 3 Power supply voltage vs. supply current

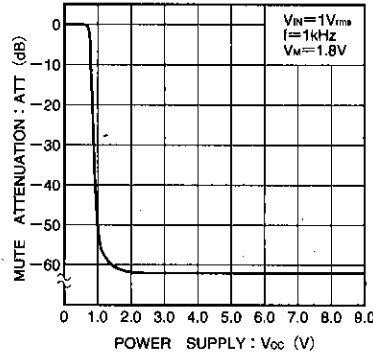


Fig. 4 Power supply voltage vs. mute attenuation

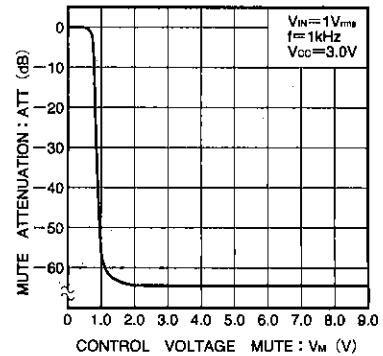


Fig. 5 Mute control voltage vs. mute attenuation

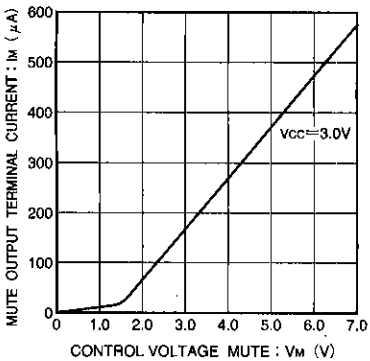
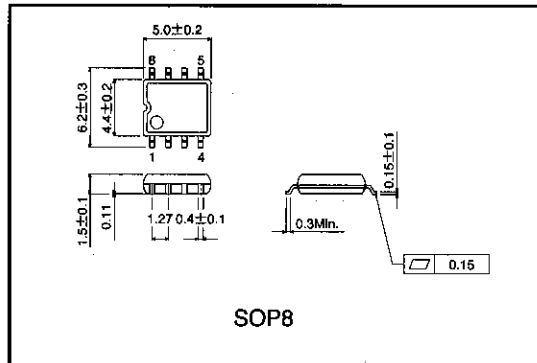


Fig. 6 Mute control voltage vs. mute control terminal current

● External dimensions (Units: mm)



Peripheral ICs for Portable CD player

For CDs/CD-ROMs

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