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.

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

●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	℃
Storage temperature	Tstg	−55～＋125	℃

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

●Recommended operating conditions

Parameter	Symbol	Limits	Unit
Power supply voltage	Vcc	1.8～7.0	V

●Block diagram
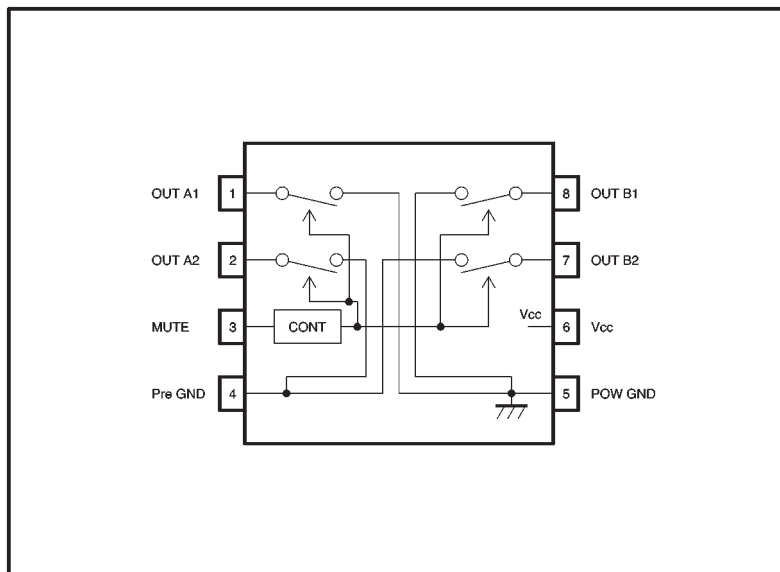
●Electrical characteristics (unless otherwise noted, Ta = 25°C, V_{CC} = 3.0V, f = 1kHz)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Mute attenuation	ATT	53	63	—	dB	V_{IN}＝1Vrms, 120Ω＋100Ω 2 stage
Mute-on quiescent current	I_Q (ON)	2.20	3.15	4.10	mA	V_M＝1.8V
Mute-off quiescent current	I_Q (OFF)	—	0	6	μA	V_M＝0.4V
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	μA	V_M＝3V
Mute-off leakage current	I_L	—	0	6	μA	V_O＝±1.5V, V_M＝0.4V

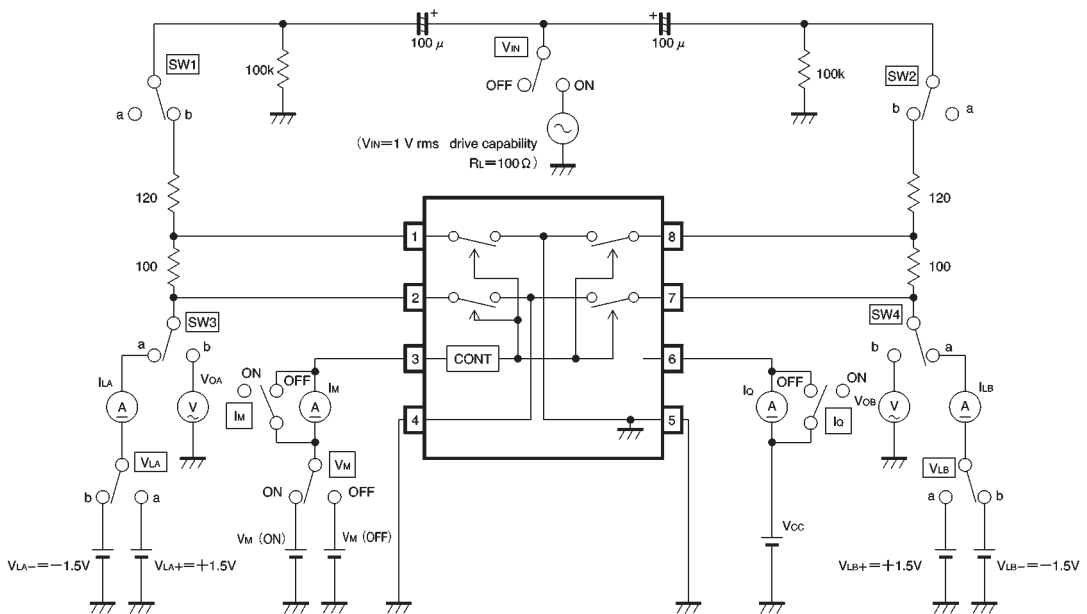◎Not designed for radiation resistance.

●Measurement circuit

Fig. 1

●Measurement circuit switch table

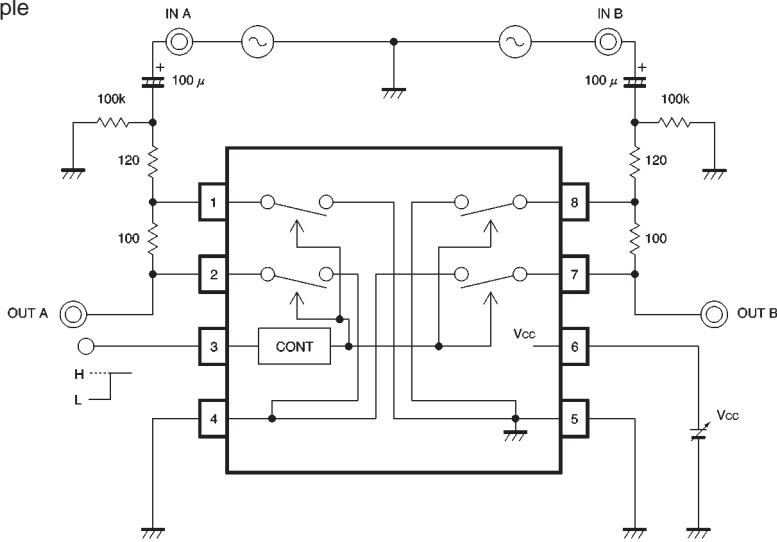| S W Parameter	SW1 SW2	SW3 SW4	V_{IN}	I_Q	V_M	I_M	V_{LA} V_{LB}	Monitor pin and equation
ATT	b	b	ON	OFF	ON	OFF	—	V_{OA}, V_{OB} ATT＝−20 log V_{OA} (V_{OB}) / V_{IN}
I_Q (ON)	↓	↓	OFF	ON	↓	↓	—	I_Q
I_Q (OFF)	↓	↓	↓	↓	OFF	↓	—	I_Q
V_M (ON)	↓	↓	ON	OFF	ON	↓	—	V_{OA}, V_{OB}
V_M (OFF)	↓	↓	↓	↓	OFF	↓	—	V_{OA}, 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

IN A

IN B

100μ

100μ

100k

100k

120

120

1   8

100

100

2   7

OUT A

OUT B

3   CONT   Vcc   6

H

L

4   5   Vcc

Fig.2

● Electrical characteristic curves (Ta = 25°C)

Iq (ON) : VM=1.8V

Iq (ON)

SUPPLY CURRENT : Iq (mA)

POWER SUPPLY VOLTAGE : Vcc (V)
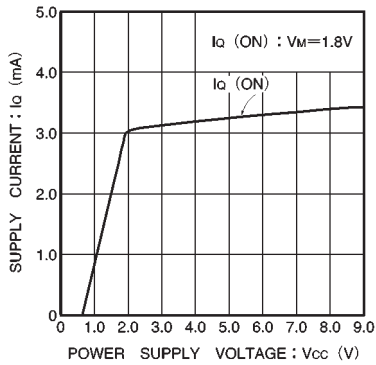
Fig. 3 Power supply voltage vs. supply current

VIN=1Vrms
f=1kHz
VM=1.8V

MUTE ATTENUATION : ATT (dB)

POWER SUPPLY VOLTAGE : Vcc (V)
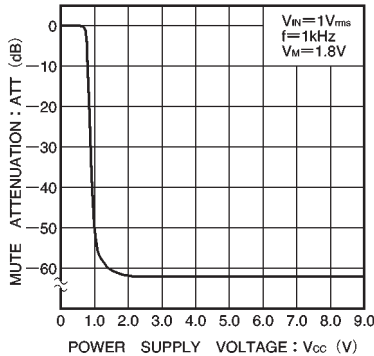
Fig. 4 Power supply voltage vs. mute attenuation

VIN=1Vrms
f=1kHz
Vcc=3.0V

MUTE ATTENUATION : ATT (dB)

CONTROL VOLTAGE MUTE : VM (V)

Fig. 5 Mute control voltage vs. mute attenuation
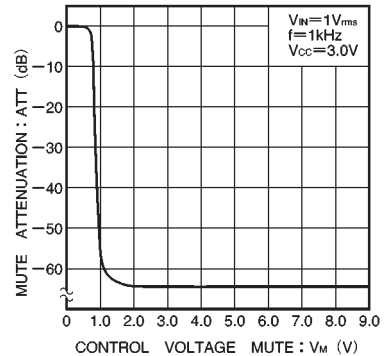
MUTE OUTPUT TERMINAL CURRENT : IM (μA)
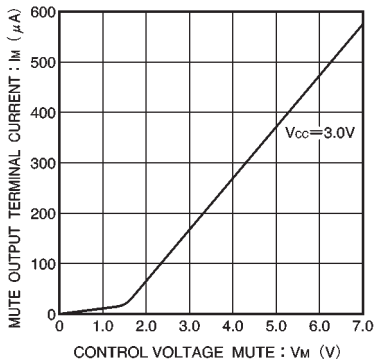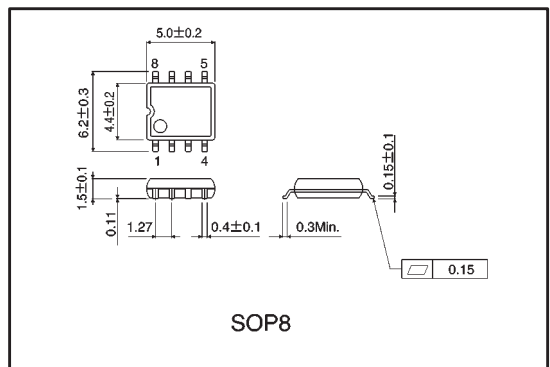
Vcc=3.0V

CONTROL VOLTAGE MUTE : VM (V)

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

● External dimensions (Units: mm)

5.0±0.2

8   5

6.2±0.3

4.4±0.2

1   4

1.5±0.1

0.15±0.1

0.11

1.27

0.4±0.1

0.3Min.

0.15

SOP8