

2 channel Volume IC

BD3812F

BD3812F is a sound processor IC that has features of volume, and gain amplifier required for AV receiver and mini-component stereo. Up to 4 chips can be used with common bus line by chip select pin.

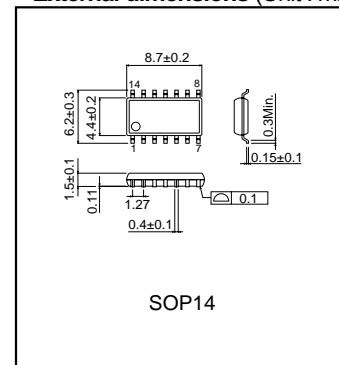
●Applications

AV receiver and mini stereo set.

●Features

- 1) Volume residual noise : 1.2μ Vrms {Dynamic range : 131dB (IHF-A)}
- 2) Volume is 2ch-independence. (0 to -103dB, MUTE 1dB / step)
- 3) BUS is common and be possible to maximum 8channel-ization of 6ch-Volume IC.
- 4) It can be controlled until 4 chips with common bus line at the same time.
- 5) Maximum output voltage : 4.2Vrms ($V_{CC}=7\text{V}$, $V_{EE}=-7\text{V}$, $R_L=10\text{k}\Omega$)
- 6) The serial data control of 2-wire type. (correspond to 3.3V and 5V)
- 7) Built-in the convenient output gain amp.(0, 6 to 18dB, 2dB / step) for the adjustment of the output signal.
- 8) Output mute be able to serial data and external mute terminal both.

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Impressed voltage	$V_{CC}-V_{EE}$	15	V
Input voltage	V_{IN}	$V_{CC}+0.3$ to $V_{EE}-0.3$	V
Power dissipation	P_d	450 *	mW
Operating temperature	T_{opr}	-20 to +75	°C
Storage temperature	T_{astg}	-55 to +125	°C

* This value decreases $4.5\text{mW}/^\circ\text{C}$ for $T_a=25^\circ\text{C}$ or more.
A standard board, $70\times 70\times 1.6\text{mm}$, shall be mounted.

●Operating voltage range (Ta=25°C)

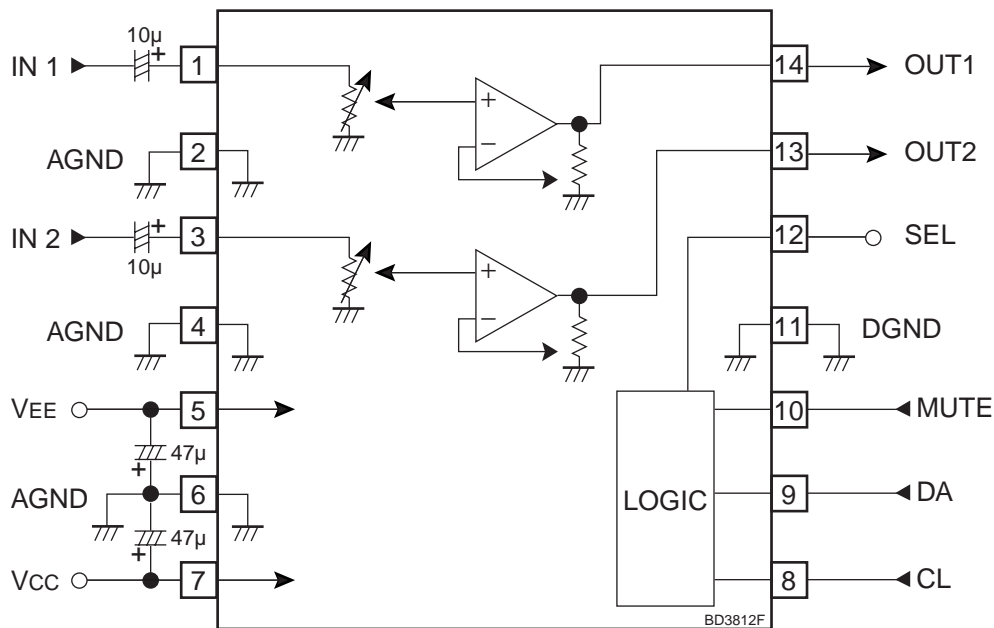
Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply (Positive)	$V_{CC}-GND$	5	-	7.3	V
Power supply (Negative)	$V_{EE}-GND$	-5	-	-7.3	V

Audio ICs

●**Electrical Characteristics** (Unless otherwise noted, $T_a=25^{\circ}\text{C}$, $V_{CC}=7\text{V}$, $V_{EE}=-7\text{V}$, $f=1\text{kHz}$, $V_{IN}=1\text{Vrms}$, $R_L=10\text{k}\Omega$, $R_g=600\Omega$, Master volume=0dB, Output gain=0dB)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	I_Q	-	2	6	mA	No signal
Output voltage gain	G_V	-2	0	+2	dB	Measure : Pin13, 14
Total harmonic distortion ratio	THD	-	0.005	0.09	%	Measure : Pin13, 14, BW=400~30kHz
Maximum output voltage	V_{omax}	3.4	4.2	-	Vrms	Measure : Pin13, 14, THD=1%
Output noise voltage	V_{no}	-	1.2	5	μVrms	Measure : Pin13, 14, $R_g=0\Omega$, BW=IHF-A
Input impedance	R_{in}	20	30	40	$\text{k}\Omega$	Measure : Pin1, 3
Cross-talk between channels	CTC	-	-100	-70	dB	Measure : Pin13(OUT2), $R_g=0\Omega$, BW=IHF-A, Reference : Pin14(OUT1)=1Vrms
Volume control range	GVR	-106	-103	-100	dB	Measure : Pin13, 14, $V_{IN}=3\text{Vrms}$
Maximum attenuation	V_{min}	-	-118	-105	dB	BW=IHF-A, Measure : Pin13, 14, $V_{IN}=3\text{Vrms}$
Output gain control range	GOG	16	18	20	dB	Measure : Pin13, 14, $V_{IN}=0.4\text{Vrms}$

●**Application circuit diagram**



UNIT
CAPACITOR : F

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