

# 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.

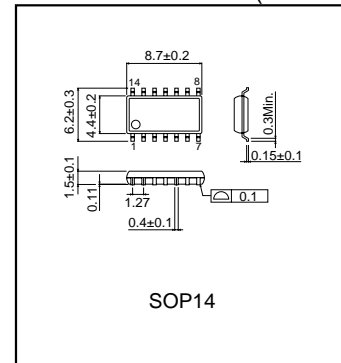
### ●Applications

AV receiver and mini stereo set.

### ●Features

- 1) Volume residual noise :  $1.2\mu$  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 :  $4.2\text{Vrms}$  ( $V_{CC}=7\text{V}$ ,  $V_{EE}=-7\text{V}$ ,  $R_L=10\text{k}\Omega$ )
- 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)

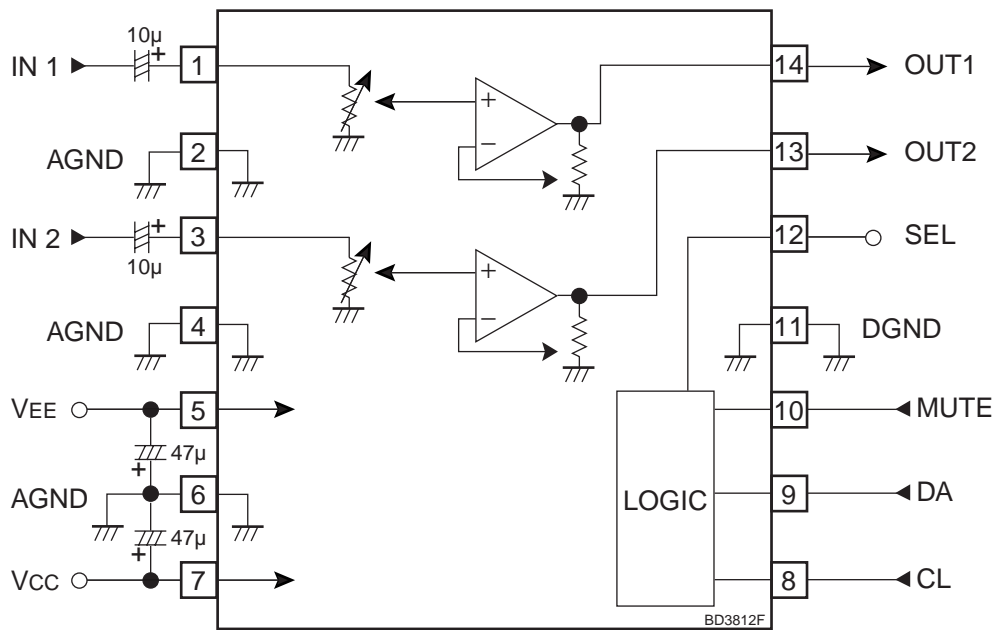
Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply (Positive)	$V_{CC}-GND$	5	-	7.3	V
Power supply (Negative)	$V_{EE}-GND$	-5	-	-7.3	V

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	$\mu\text{Vrms}$	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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