

High- performance 5.1ch electronic volume

BD3814FV

BD3814FV is a sound processor IC. This IC incorporates volume, bass and treble functions into a single chip that are necessary for AV receivers and mini-component stereos.

Low distortion, low noise and wide dynamic range can be achieved by using the Bi-CMOS process.

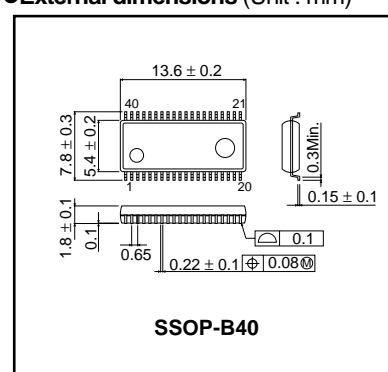
●Applications

AV receiver, mini stereo set and TV.

●Features

- 1) Dynamic range : 132dB (Tone by-pass, VOL=MUTE, IHF-A)
- 2) Master volume is 6ch-Independent volume (0~95dB, Mute, 1dB/Step).
Low residual noise with Resistor ladder volume and the shock sound in changing is reducing.
- 3) It is becoming a low consumption electric current design by using the Bi-CMOS process.
- 4) Maximum output voltage : 4.3Vrms ($V_{CC}=7V$, $V_{EE}=-7V$, $R_L=10k\Omega$).
- 5) Built-in two OP amplifiers.
- 6) Serial data control of 2-wire type (correspond to 3.3V and 5V).

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	± 5 to ± 7.3	V
Power dissipation	P_d	900 *	mW
Operating temperature range	T_{opr}	-20 to +75	°C
Storage temperature range	T_{stg}	-55 to +125	°C

* This value decreases 9mW/°C for $T_a=25^\circ\text{C}$ or more.
A standard board, 70 x 70 x 1.6mm, shall be mounted.

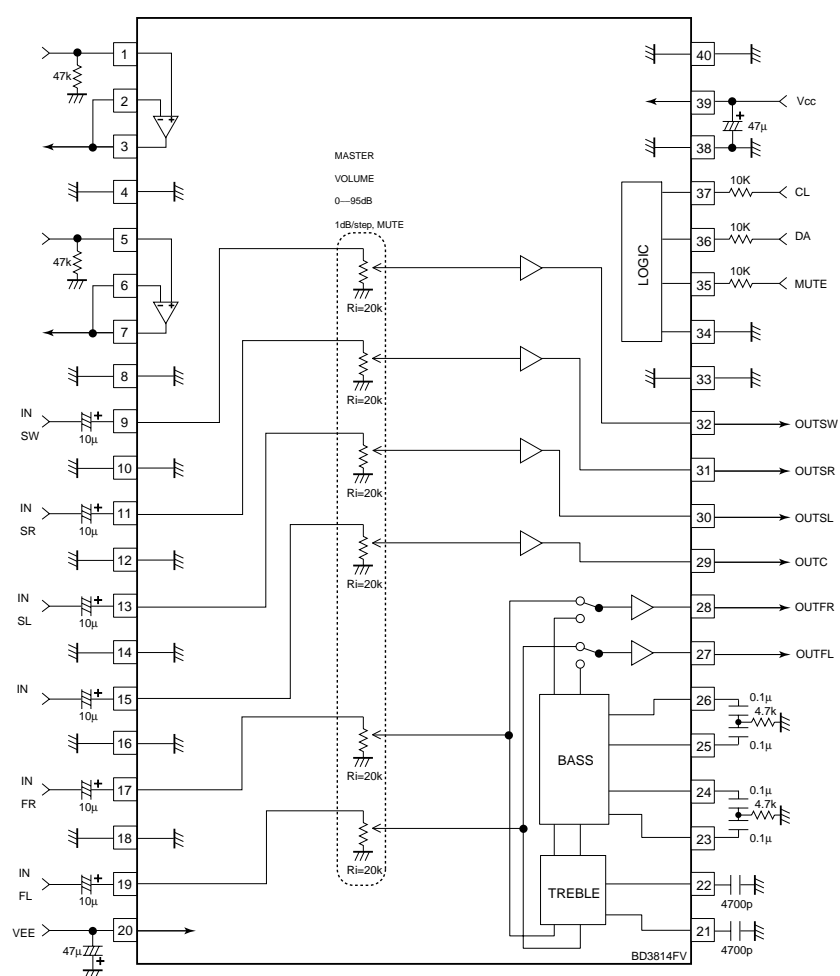
Audio ICS

●Electrical characteristic curves

(Unless otherwise noted : $T_a=25^{\circ}\text{C}$, $V_{CC}=7\text{V}$, $V_{EE}=1\text{Vrms}$, $f=1\text{kHz}$, $V_{IN}=1\text{Vrms}$, $R_L=10\text{k}\Omega$, $R_g=600\Omega$, Master volume=0dB, Bass and Treble=0dB)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	Pin39	IQ	—	7	17	mA	No signal
	Pin20						
Output voltage gain		Gv	−2	0	2	dB	Measure : Pin27,28,29,30,31,32
Total harmonic distortion ratio		THD	—	0.001	0.03	%	Measure : Pin27,28,29,30,31,32,BW=400~30kHz
Maximum output voltage		Vomax	3.6	4.3	—	Vrms	Measure : Pin27,28,29,30,31,32,THD=1%
Output noise voltage		Vno	—	1.0	6.0	μVrms	Measure : Pin27,28,Tone:By-pass, Rg=0Ω, BW=IHF-A
			—	1.7	10		Measure : Pin27,28, Tone:ON, Rg=0Ω, BW=IHF-A
Cross-talk between channels		CTCRC	—	−95	−80	dB	Measure : Pin27,28 (OUTFL) Rg=0Ω, BW=IHF-A, Reference : Pin28 (OUTFR)=1Vrms
Input impedance V		RinV	14	20	26	kΩ	Measure : Pin27,28,29,30,31,32
Maximum attenuation		Vmin	—	−115	−105	dB	Measure : Pin27,28,29,30,31,32, VIN=3Vrms, BW=IHF-A
Residual noise voltage		Vnom	—	1.0	6.0	μVrms	Measure : Pin27,28, Tone:By-pass, Rg=0Ω, BW=IHF-A
Treble maximum boost gain		GTB	12	14	16	dB	Measure : Pin27,28, f=15kHz, VIN=0.4Vrms
Bass maximum boost gain		GBB	12	14	16	dB	Measure : Pin27,28, f=100Hz, VIN=0.4Vrms

●Application Circuit



Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or otherwise dispose of the same, no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document use silicon as a basic material.
Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).

Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.

In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.