

Audio sound control IC

BH3863F/BH3863S

The BH3863F/BH3863S is a sound control IC for mini-component stereo. Resistive ladder system is used to make DC offset smaller when switching. This IC is a 2-wire serial controller. Small package of SOP24 and SDIP24 is adopted.

●Applications

Mini-component stereo, Micro-component stereo, TV and CD radio cassette tape player

●Features

- 1) Volume, tone and bass boost can be controlled through serial control from a microcomputer.
- 2) Volume at both left and right sides can be controlled individually.
- 3) Resistive ladder type volume controller is used and BiCMOS process enables the low distortion rate and low noise.
- 4) It has a dynamic bus for the low frequency reinforcement.

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Applied voltage	V _{CC}	-0.3 to +10.0	V
Power dissipation	P _d	550 *	mW
Operating temperature range	T _{opr}	-40 to +85	°C
Storage temperature range	T _{stg}	-55 to +125	°C

* For Ta=25°C or more, it is reduced at 5.5mW/°C. 50mm×50mm×1.6mm.

●Recommendable operating voltage range (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V _{CC}	7.0	9.0	9.5	V

Audio ICS

●Electrical characteristic

Unless specified particularly, $T_a=25^{\circ}\text{C}$, $V_{CC}=9\text{V}$, $f=1\text{kHz}$, $R_g=600\Omega$, $R_L=10\text{k}\Omega$, $BW=20$ to 20kHz , $V_{in}=1.0\text{Vrms}$, $\text{Volume}=0\text{dB}$, $\text{Tone}=0\text{dB}$, $\text{Dynamic Bass}=0\text{dB}$, and $\text{gain select}=0\text{dB}$.)

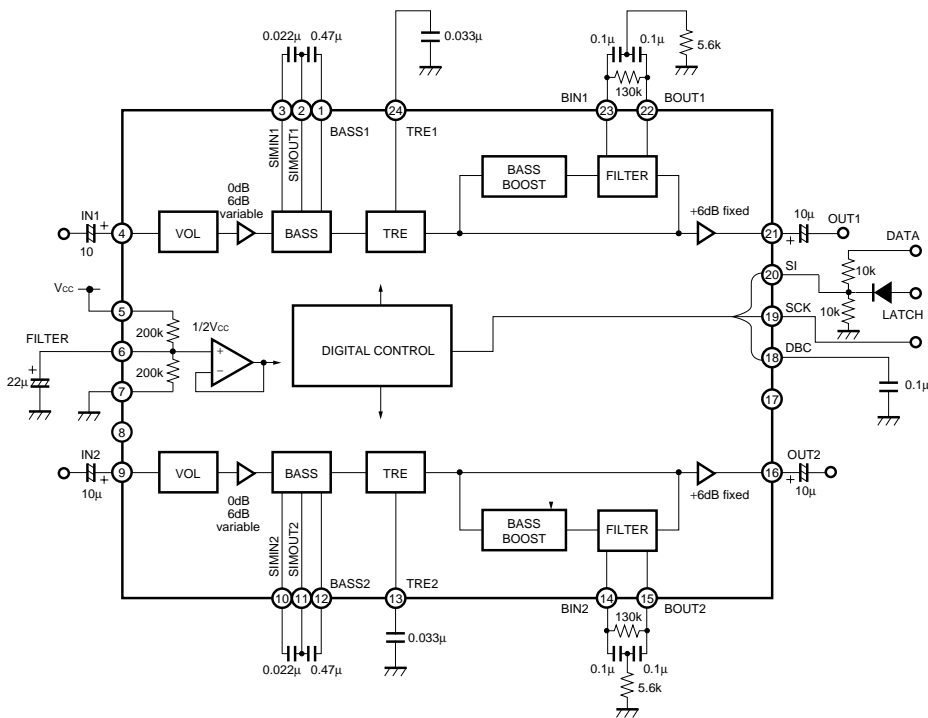
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Current consumption upon no signal	I_Q	-	9	22	mA	$V_{IN}=0\text{Vrms}$
Maximum input voltage	V_{IM}	2.2	2.5	-	Vrms	ATT=0dB Output THD=1%
Maximum output voltage	V_{OM}	2.2	2.5	-	Vrms	Output THD=1% BW=400~30KHz
Voltage gain	G_V	-2	0	+2	dB	
Full harmonic distortion rate	THD	-	0.05	0.1	%	$V_o=1\text{Vrms}$
Output noise voltage	V_{NO}	-	6	12	μVrms	$R_g=0\Omega$ *
Residual noise voltage	V_{MNO}	-	6	12	μVrms	Volume= $-\infty$ *
Cross-talk	CT	-	94	60	dB	
Channel balance	CB	-1.5	0	1.5	dB	Measure based on CH1.
Input impedance	R_{IN1}	15.0	18.8	22.6	$\text{K}\Omega$	
Volume step resolution	AT_{STEP}	-	1	-	dB	
Volume maximum attenuation	AT_{MIN}	-80	-94	-	dB	
Bass control range	VB	± 8.5	± 10.5	± 12.5	dB	
Treble control range	VT	± 8	± 10	± 12	dB	
Dynamic bass control range	VDB	18	20	22	dB	$f=60\text{Hz}$ $V_{IN}=10\text{mVrms}$

VP-9690A (detection of mean value, indication of root-mean-value) IHF-A filter of MATSUSHITA is used for measurement of "*".

Operation specification : The phase between I/O signal terminals is the same.

⊙ Radiation resistance is not included in the design.

●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.