

BD3814FV

Audio ICS

# 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.

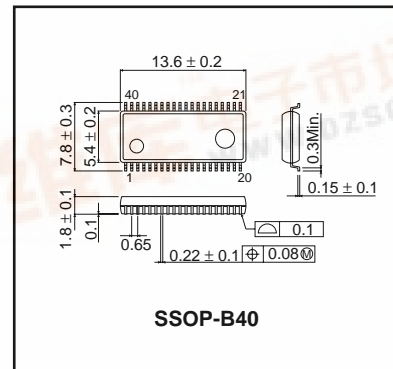
●Applications

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	$V_{CC}$	$\pm 5$ to $\pm 7.3$	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 Ta=25°C or more.  
A standard board, 70 x 70 x 1.6mm, shall be mounted.

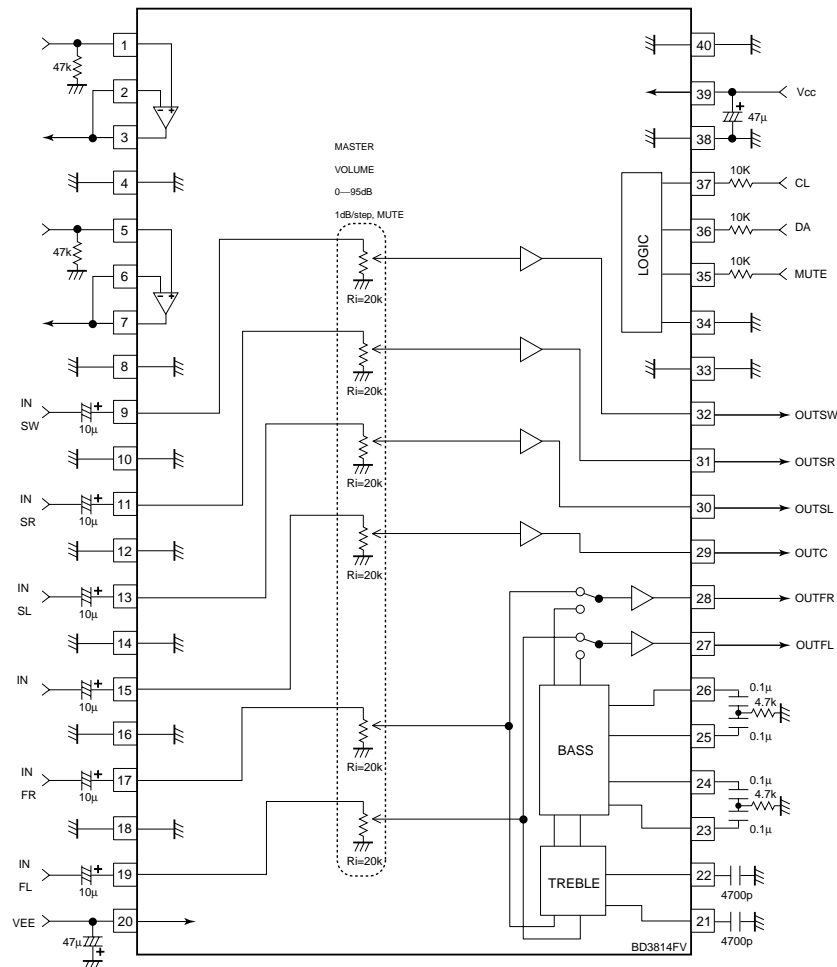
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●Electrical characteristic curves

(Unless otherwise noted : Ta=25°C, VCC=7V, VEE=1Vrms, f=1kHz, VIN=1Vrms, RL=10kΩ, Rg=600Ω, Master volume=0dB, Bass and Treble=0dB)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Circuit current	Pin39 Pin20	IQ	-	7	17	mA	No signal
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



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