

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.

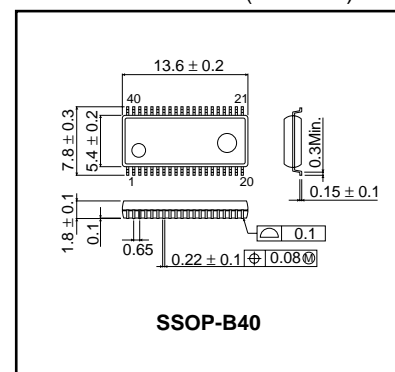
●Applications

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.

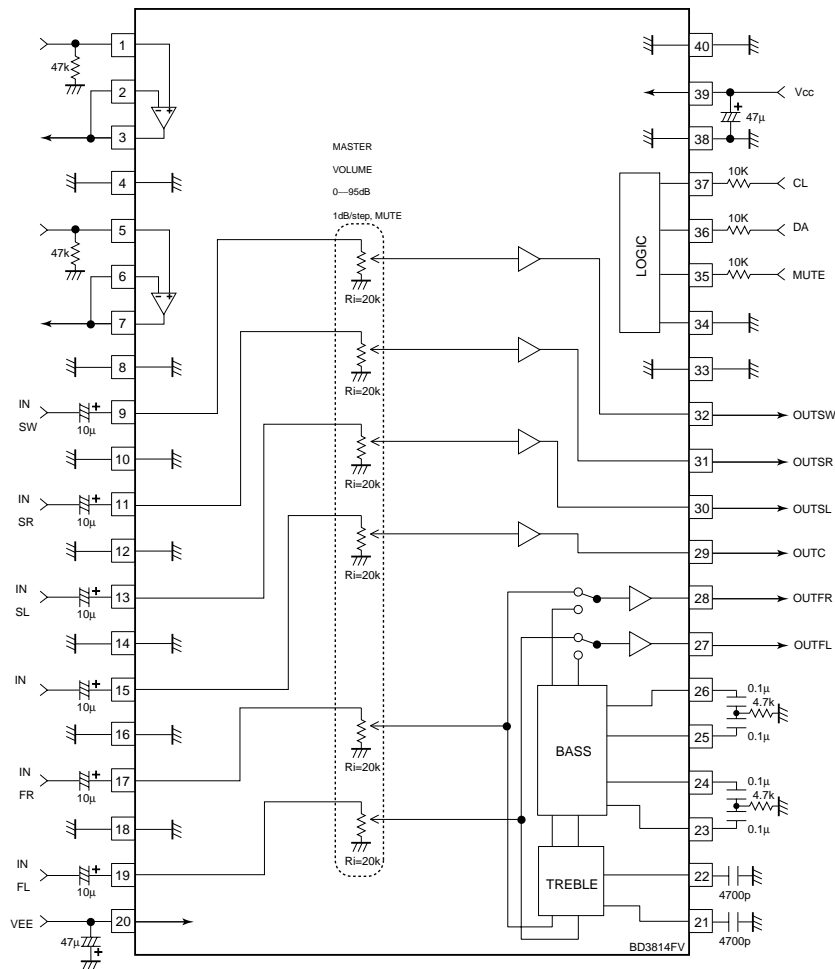
Audio ICS

●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 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, $R_g=0\Omega$, BW=IHF-A	
		-	1.7	10			
Cross-talk between channels	CTCRC	-	-95	-80	dB	Measure : Pin27,28 (OUTFL) $R_g=0\Omega$, BW=IHF-A, Reference : Pin28 (OUTFR)=1Vrms	
Input impedance V	RinV	14	20	26	$\text{k}\Omega$	Measure : Pin27,28,29,30,31,32	
Maximum attenuation	Vmin	-	-115	-105	dB	Measure : Pin27,28,29,30,31,32, $V_{IN}=3\text{Vrms}$, BW=IHF-A	
Residual noise voltage	Vnom	-	1.0	6.0	μVrms	Measure : Pin27,28, Tone:By-pass, $R_g=0\Omega$, BW=IHF-A	
Treble maximum boost gain	GTB	12	14	16	dB	Measure : Pin27,28, $f=15\text{kHz}$, $V_{IN}=0.4\text{Vrms}$	
Bass maximum boost gain	GBB	12	14	16	dB	Measure : Pin27,28, $f=100\text{Hz}$, $V_{IN}=0.4\text{Vrms}$	

●Application Circuit



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