



SOUND ENHANCEMENT AUDIO PROCESSOR

■ GENERAL DESCRIPTION

The NJM2150A is a sound enhancement audio processor which regenerates high definitive and nearly real clearness sound.

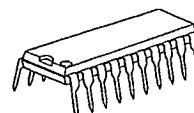
It includes BBE ON/OFF switch and two-grade boost switches in low and high band (Low Band: 6.0 or 9.0dB, High Band: 6.0dB or 9.0dB).

It is suitable for audio items such as TV, AV receiver, CD radio-cassette, speaker system, car audio, and others.

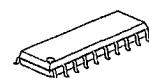
■ FEATURES

- Operating Voltage (4.5 to 13V)
- Low Operating Current (8mA typ.)
- Low Output Noise (14 μ Vrms typ. at BBE ON)
- Bypass Gain (0dB typ.)
- BBE ON/OFF Switch
- Independent High/Low Boost two-grade Switch (Low Band: 6.0 or 9.0dB, High Band: 6.0 or 9.0dB)
- Bipolar Technology
- Package Outline DIP20, DMP20, SSOP20

■ PACKAGE OUTLINE



NJM2150AD



NJM2150AM



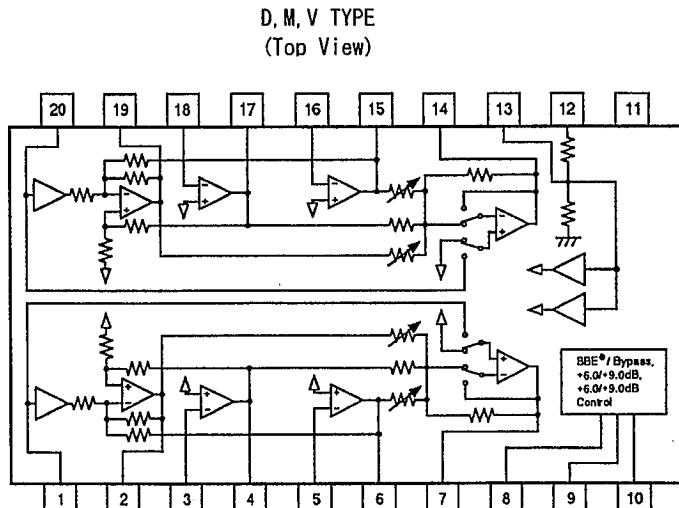
NJM2150AV

4

■ PIN CONFIGURATION

1. INPUT (A)
2. HPF (A)
3. CR1 (A)
4. BPF (A)
5. CR2 (A)
6. LPF (A)
7. OUTPUT (A)
8. PROCESS
9. LO CONTOUR
10. BBE
11. GND
12. V⁺
13. VREF
14. OUTPUT (B)
15. LPF (B)
16. CR2 (B)
17. BPF (B)
18. CR1 (B)
19. HPF (B)
20. INPUT (B)

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V ⁺	15	V
Power Dissipation	P _D	(DIP20) 700 (DMP20) 350 (SSOP20) 300	mA
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

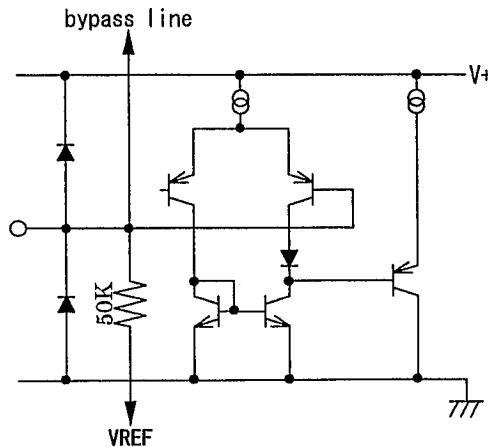
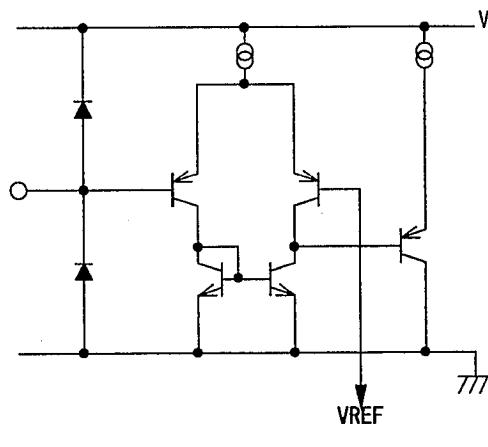
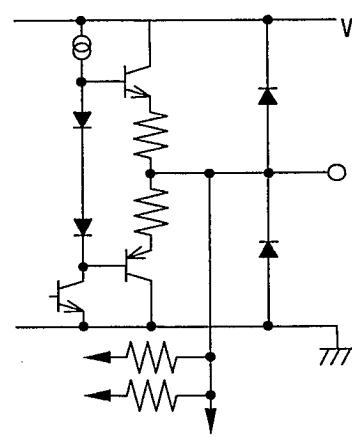
■ ELECTRICAL CHARACTERISTICS (V⁺=9V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	FUNCTION		MIN.	TYP.	MAX.	UNIT
			BBE	Boost Level				
Operating Voltage	V ⁺	No Signal			4.5	9.0	13.0	V
Supply Current	I _{cc}				—	8.0	12.0	mA
Reference Voltage	V _{REF}				4.0	4.5	5.0	V
SW Control Voltage Threshold	V _{thH}				2.0	—	V ⁺	V
	V _{thL}				0	—	0.5	V
Boost Level	Boost1	f=20Hz	ON	Low	5.0	6.0	7.0	dB
	Boost2	f=20Hz	ON	High	8.0	9.0	10.0	dB
	Boost3	f=1kHz	ON		-1.2	-0.2	0.8	dB
	Boost4	f=20kHz	ON	Low	5.0	6.0	7.0	dB
	Boost5	f=20kHz	ON	High	8.0	9.0	10.0	dB
Bypass Gain	G _{BYP}	f=1kHz	BYPASS		-1	0	1	dB
Maximum Input Voltage	V _{inmax}	f=1kHz, R _L =10kΩ THD=10%	BYPASS		2.8	—	—	V _{rms}
Total Harmonic Distortion	THD	f=1kHz, V _{in} =0.1V _{rms}	ON	Low	—	0.05	0.11	%
Output Noise	V _{no}	V _{in} =GND A-Weighting	ON	Low	—	-97 (14)	-87 (45)	dBV (μV _{rms})

■ SWITCH FUNCTION

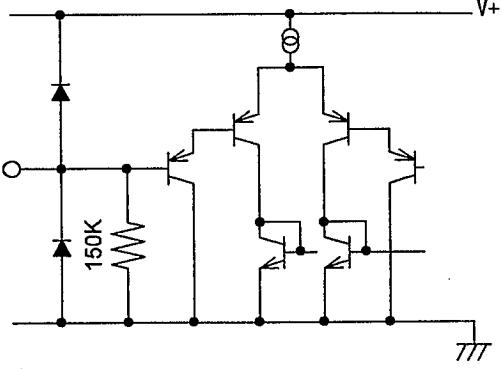
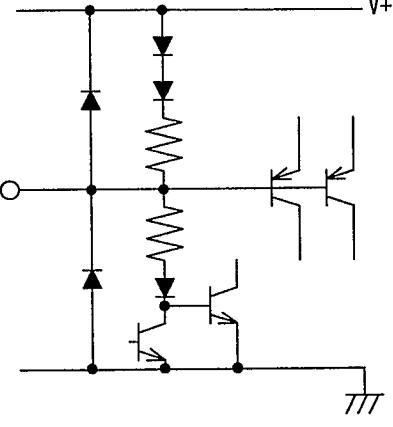
Switch Terminal	Control Voltage Level	FUNCTION
BBE	High	BBE ON
	Low	BYPASS
PROCESS	High	+9.0dB
	Low	+6.0dB
LO CONTOUR	High	+9.0dB
	Low	+6.0dB

■ TERMINAL DESCRIPTION

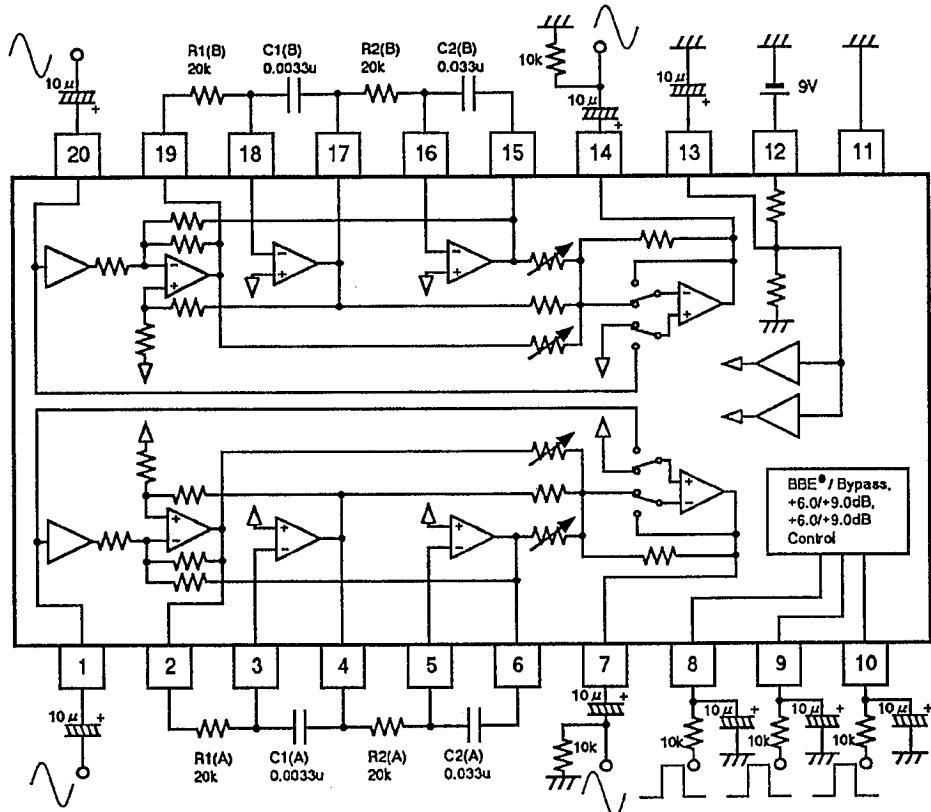
No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT
1 20	INPUT (A) INPUT (B)	Signal Input	
3 5 16 18	CR1 (A) CR2 (A) CR2 (B) CR1 (B)	Filter	
2 4 6 7 14 15 17 19	HPF (A) BPF (A) LPF (A) OUTPUT (A) OUTPUT (B) LPF (B) BPF (B) HPF (B)	Filter Output Signal Output	

4

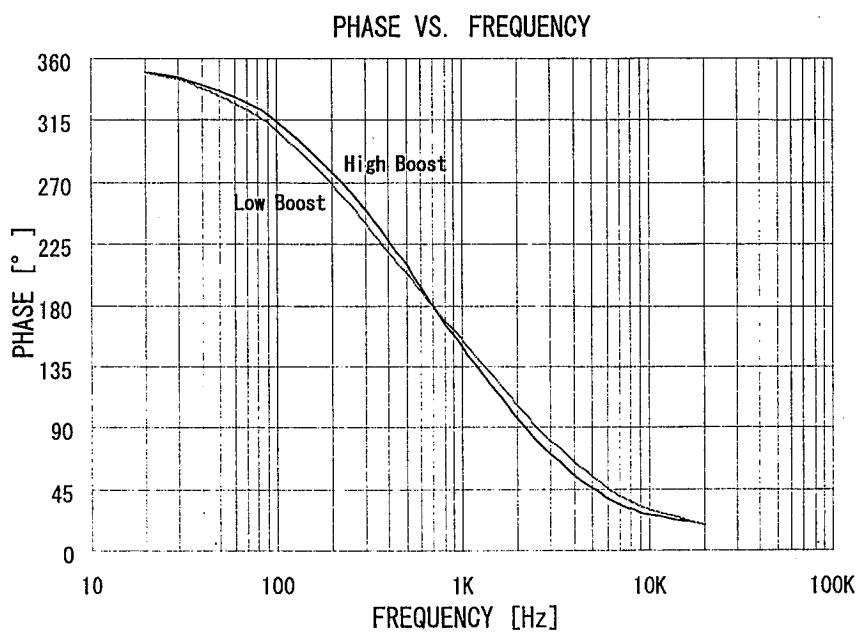
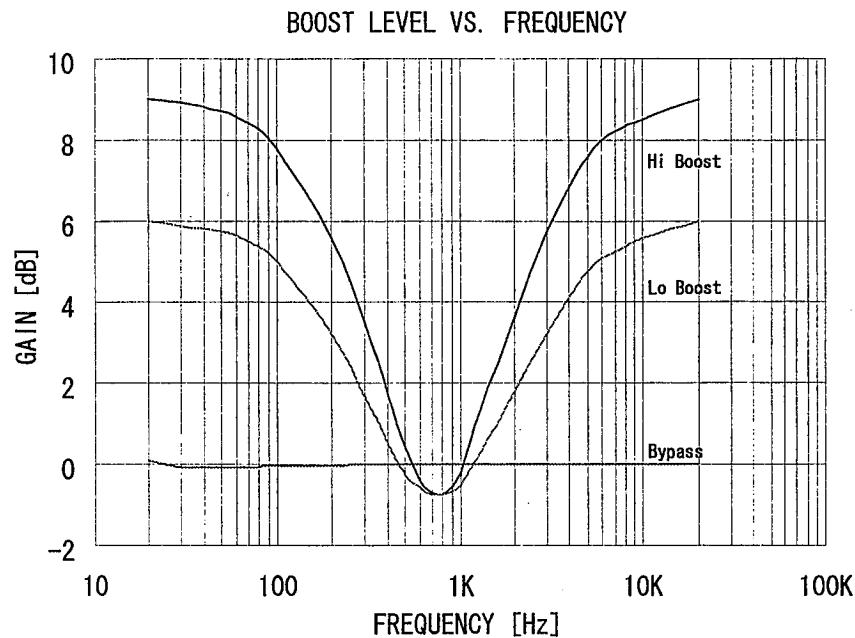
■ TERMINAL DESCRIPTION

No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT
8 9 10	PROCESS LO CONTOUR BBE	Boost Level Control Bypass Control	
4 11	GND	GND	
12	V ⁺	Power Supply	
13	VREF	Reference Voltage Output	

■ APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



■ NOTE

The **NJM2150A** is manufactured by New Japan Radio Co.,Ltd under license from BBE Sound Inc.
BBE is a registered trademark of BBE Sound Inc.
A license from BBE Sound Inc. is required before the **NJM2150A** can be purchased from New Japan Radio Co.,Ltd.

BBE Sound, Inc.
5381 Production Drive
Huntington Beach, CA 92649
Tel : (714) 897-6766
Fax : (714) 896-0736

MEMO

[CAUTION]
The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.