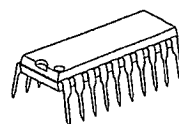


BBE®**SOUND ENHANCEMENT AUDIO PROCESSOR****■ GENERAL DESCRIPTION**

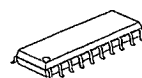
The NJM2152 is a sound enhancement audio processor which regenerates high definitive and nearly real clearness sound.

It includes BBE ON/OFF switch and three-grade boost switches in high band (High Band: 5.0/8.0/11.0dB).

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

■ PACKAGE OUTLINE

NJM2152D



NJM2152M



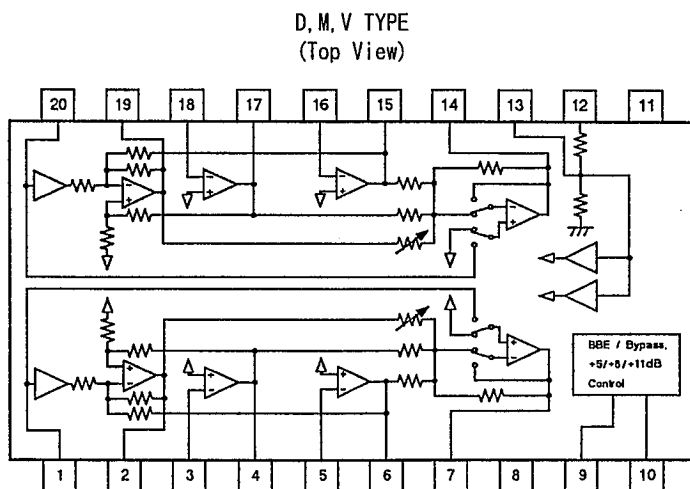
NJM2152V

■ 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 Boost three-grade Switch (High Band: 5.0/8.0/11.0dB typ.)
- Fixed Low Boost Level (4.0dB typ.)
- Bipolar Technology
- Package Outline DIP20, DMP20, SSOP20

■ PIN CONFIGURATION

1. INPUT
2. HPF
3. CR1
4. BPF
5. CR2
6. LPF
7. OUTPUT
8. NC
9. SW1
10. SW2
11. GND
12. V*
13. V_{REF}
14. OUTPUT
15. LPF
16. CR2
17. BPF
18. CR1
19. HPF
20. INPUT

■ 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	mW
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*				4.5	9.0	13.0	V
Supply Current	I _{CC}	No Signal			-	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		3.0	4.0	5.0	dB
	Boost2	f=1kHz	ON	Low	-1.3	-0.3	0.7	dB
	Boost3	f=20Hz	ON	Low	4.0	5.0	6.0	dB
	Boost4	f=20Hz	ON	Mid	7.0	8.0	9.0	dB
	Boost5	f=20Hz	ON	High	10.0	11.0	12.0	dB
Bypass Gain	G _{BYP}	f=1kHz	BYPASS		-1	0	1	dB
Channel Balance	BAL	f=1kHz	BYPASS		-1	0	1	dB
Channel Separation	CS	f=1kHz	ON	High	65.0	90	-	dB
Maximum Input Voltage	V _{inMAX1}	f=1kHz, R _L =10K Ω, THD=10%	BYPASS		2.8	3.3	-	V _{rms}
	V _{inMAX2}	f=1kHz, R _L =10k Ω, THD=1%	BYPASS		2.3	2.6	-	V _{rms}
Total Harmonic Distortion	THD	f=1kHz, V _{in} =0. V _{rms}	ON	Low	-	0.05	0.11	%
Output Noise	V _{no1}	V _{in} =GND, A-Weighting	BYPASS		-	-115 (1.8)	-90 (32)	dBv (μ V _{rms})
	V _{no2}	V _{in} =GND, A-Weighting	ON	High	-	-97 (14)	-87 (45)	dBv (μ V _{rms})

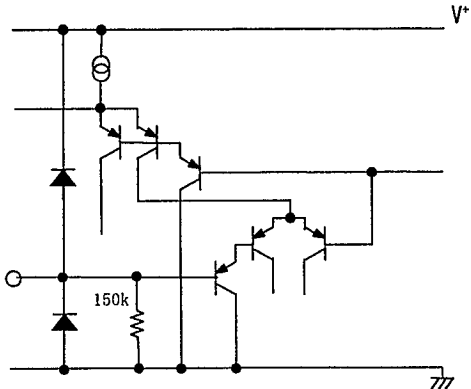
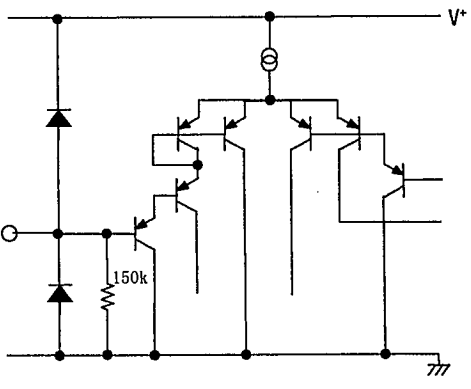
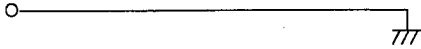
■ SWITCH FUNCTION

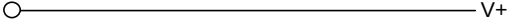
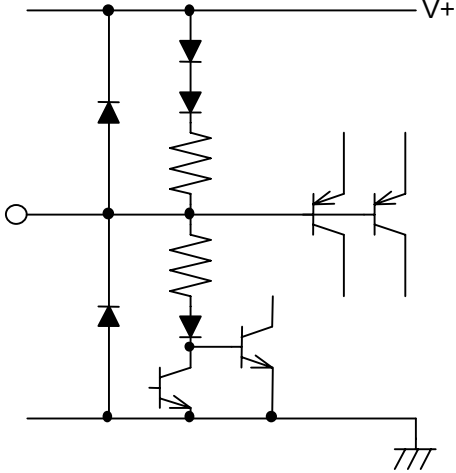
FUNCTION	SW1	SW2
Bypass	L	L
5dB	L	H
8dB	H	L
11dB	H	H

■ PIN FUNCTION

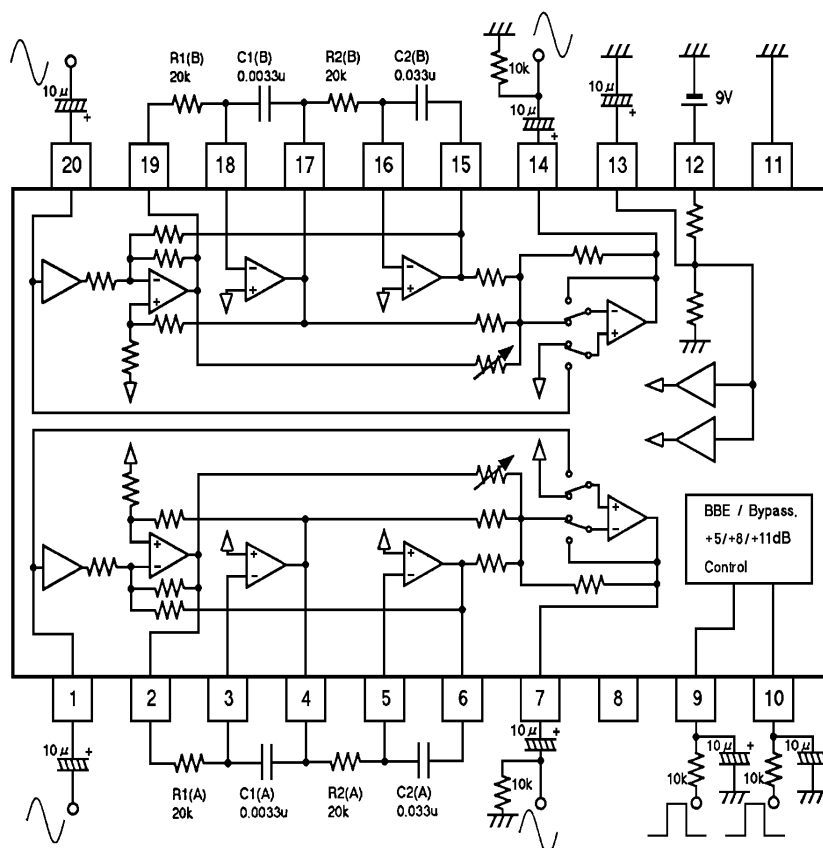
No.	SYMBOL	FUNCTION	EQUIVALENT CURCUIT
1 20	INPUT (A) INPUT (B)	Signal Input	
3 5 16 18	CR1 (A) CR2 (A) CR2 (B) CR3 (B)	Filter	
2 4 6 7 14 15 17 19	HPF (A) BPF (A) LPF (A) OUTPUT (A) OUTPUT (B) LPF (B) BPF (B) HPF (B)	Filter Output Signal Output	

4

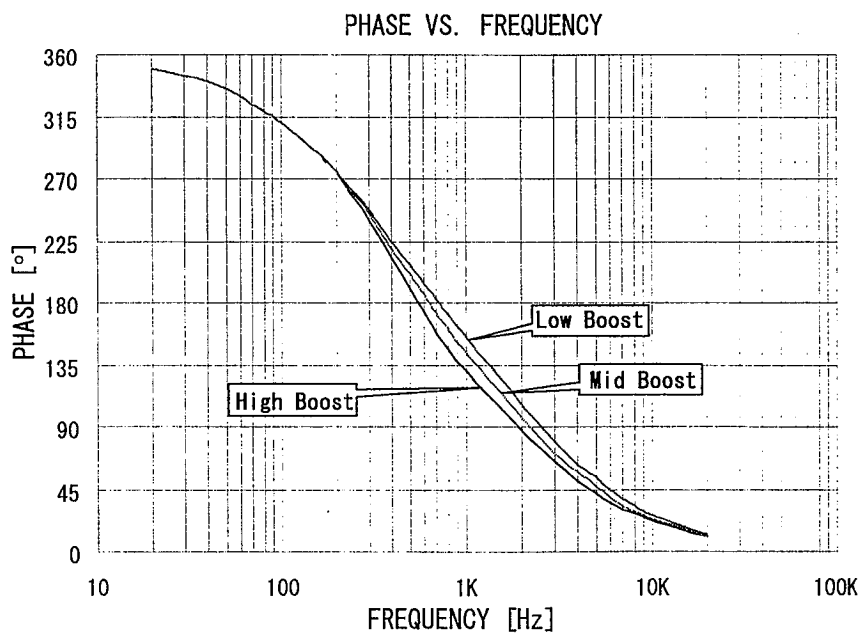
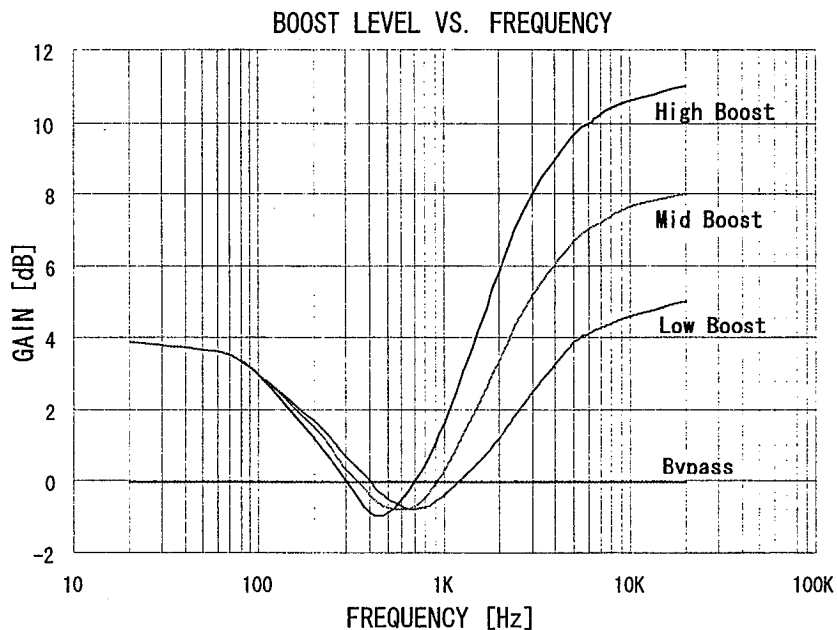
No.	SYMBOL	FUNCTION	EQUIVALENT CURCUIT
9	SW1	Boost Level Control Bypass Control	
10	SW2	Boost Level Control Bypass Control	
11	GND	GND	

No.	SYMBOL	FUNCTION	INSIDE EQUIVALENT CIRCUIT
12	V^+	V^+	
13	V_{REF}	Reference Voltage Output	

■ APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



■ NOTE

The NJM2152 is manufactured by New Japan Radio Co., Ltd under license from BBE Sound Inc.
BBE is a registered trade mark of BBE Sound Inc. is required before the NJM2152 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.