

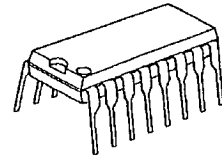
DUAL AUDIO POWER AMPLIFIER

■ GENERAL DESCRIPTION

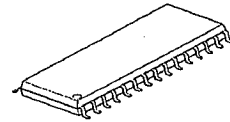
The NJW1105 is a dual audio amplifier which supplies 2.4W (1.2W/channel) to 8Ω loads at 5V. Its features are wide operating voltage range from 4V to 12V and low consumption output by Bi-MOS technology.

The NJW1105 is suitable for speaker amplifier required high output power, such as personal computers, camcorders, and others. It includes thermally protected and mute on/off circuit.

■ PACKAGE OUTLINE



NJW1105D

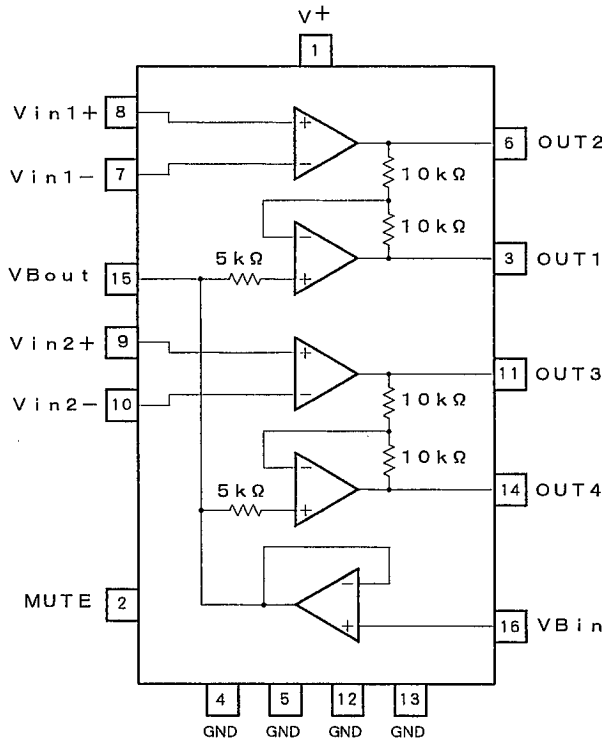


NJW1105M

■ FEATURES

- Operating Voltage (V<sup>+</sup>=4V~12V)
- Output Power (1.2W/ch at V<sup>+</sup>=5V, R<sub>L</sub>=8Ω)
- Supply Current (35mA MAX.)
- Supply Current on Mute (3.5mA MAX.)
- Bi-MOS Technology
- Package Outline DIP16, SDMP30

■ BLOCK DIAGRAM



(Package DIP-16)

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**■ ABSOLUTE MAXIMUM RATINGS** ( $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	15	V
Operating Current	$I_o$	1	A
Mute Terminal Current	$I_M$	1.0	mA
Power Dissipation	$P_o$	(DIP16) 1.9 (SDMP30) 1.8 (note 1)	W
Operating Temperature Range	$T_{opr}$	-40~+85	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40~+150	$^\circ\text{C}$

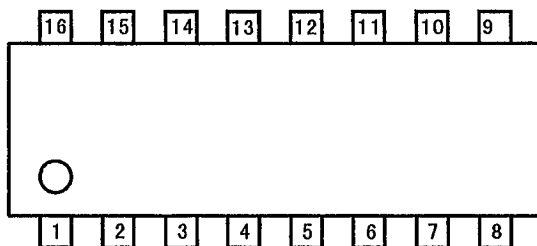
(note 1) At on PC board.

**■ ELECTRICAL CHARACTERISTICS** ( $V^+ = 5\text{V}$ ,  $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>[ALL]</b>						
Operating Supply Voltage Range	$V^+$		4	5	12	V
Mute OFF Current Dissipation	$I_{cc1}$	$V_M=4.2\text{V}, V_{IN}=2.5\text{V}$	-	20	35	mA
Mute ON Current Dissipation	$I_{cc2}$	$V_M=0\text{V}, V_{IN}=2.5\text{V}$	-	2	3.5	mA
<b>[POWER AMPLIFIER]</b>						
Output Offset Voltage	$\Delta V_o$	$R_L=8\Omega$	-50	-	50	mV
Input Bias Current	$I_B$		-	-	300	nA
Output Power	$P_{o1}$	THD=10%, $f=1\text{kHz}$ , $R_L=8\Omega$	-	1.2	-	W
	$P_{o2}$	THD=10%, $f=1\text{kHz}$ , $R_L=8\Omega$ $V^+=7\text{V}$	-	2.5	-	W
Total Harmonic Distortion	THD	$R_L=8\Omega$ , $P_o=800\text{mW}$ , $f=1\text{kHz}$	-	0.35	-	%
Power Supply Rejection Ratio	PSRR	$f=1\text{kHz}$	-	45	-	dB
Voltage Gain	$A_V$	AMP2, AMP3, $R_L=2\text{k}\Omega$ , $V_{IN}=2.5\text{V}$	35	50	-	dB
<b>[BUFFER AMPLIFIER]</b>						
Input Output Potential Difference	$V_{Bo}$		-30	0	30	mV
Input Voltage Range	$V_{BI}$		1.5	2.5	3.5	V
Output Voltage Range	$\Delta V_{Bo}$	$I_L=-5\text{mA}$ $I_L=+5\text{mA}$	-	-	-50	mV
<b>[MUTING]</b>						
Mute OFF Voltage	$V_{MH}$		3.5	4.2	-	V
Mute ON Voltage	$V_{ML}$		-	0.8	1.0	V
Mute Sink Current	$I_M$	$V_M=5\text{V}$	70	100	130	$\mu\text{A}$

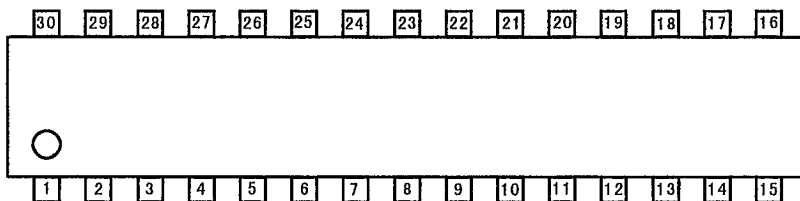
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## ■ PIN CONFIGURATION



DIP-16

- |                           |                            |
|---------------------------|----------------------------|
| 1 : V <sup>+</sup>        | 9 : V <sub>in</sub> 2 (+)  |
| 2 : MUTE                  | 10 : V <sub>in</sub> 2 (-) |
| 3 : OUT1                  | 11 : OUT3                  |
| 4 : GND                   | 12 : GND                   |
| 5 : GND                   | 13 : GND                   |
| 6 : OUT2                  | 14 : OUT4                  |
| 7 : V <sub>in</sub> 1 (-) | 15 : V <sub>B</sub> out    |
| 8 : V <sub>in</sub> 1 (+) | 16 : V <sub>B</sub> in     |



SDMP-30

- |                        |                            |
|------------------------|----------------------------|
| 1 : GND                | 16 : GND                   |
| 2 : GND                | 17 : GND                   |
| 3 : OUT4               | 18 : OUT2                  |
| 4 : NC                 | 19 : NC                    |
| 5 : NC                 | 20 : NC                    |
| 6 : V <sub>B</sub> out | 21 : V <sub>in</sub> 1 (-) |
| 7 : V <sub>B</sub> in  | 22 : V <sub>in</sub> 1 (+) |
| 8 : NC                 | 23 : NC                    |
| 9 : V <sup>+</sup>     | 24 : V <sub>in</sub> 2 (+) |
| 10 : MUTE              | 25 : V <sub>in</sub> 2 (-) |
| 11 : NC                | 26 : NC                    |
| 12 : NC                | 27 : NC                    |
| 13 : OUT1              | 28 : OUT3                  |
| 14 : GND               | 29 : GND                   |
| 15 : GND               | 30 : GND                   |

■ TERMINAL EXPLANATION

PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP - 1 6	SDMP - 3 0			
4 5 12 13	1 2 14 15 16 17 29 30	GND	Recommend expanding the island in order to heat radiation properties.	
14	3	OUT 4	Output terminal of AMP. 4. OUT4 signal is opposite phase against OUT3.	
-	4 5 8 11 12 19 20 23 26 27	NC	Non-connection terminal. Recommend connecting to GND.	

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## TERMINAL EXPLANATION

PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP - 1 6	SDMP - 3 0			
1 5	6	V B o u t	An buffer ampli- fier output.	
1 6	7	V B i n	An buffer ampli- fier input.	
1	9	V c c	Supply Voltage.	
2	1 0	M U T E	An mute input. Pulldown by 50kΩ (TYP) resistor.	

■ TERMINAL EXPLANATION

PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP - 1 6	SDMP - 3 0			
3	1 3	OUT 1	Output terminal of AMP. 1. OUT1 signal is opposite phase against OUT2.	
6	1 8	OUT 2	Output terminal of AMP. 2.	
7	2 1	V in1(-)	Inverting input terminal of AMP. 2.	
8	2 2	V in1(+)	Non-inverting input terminal of AMP. 2.	

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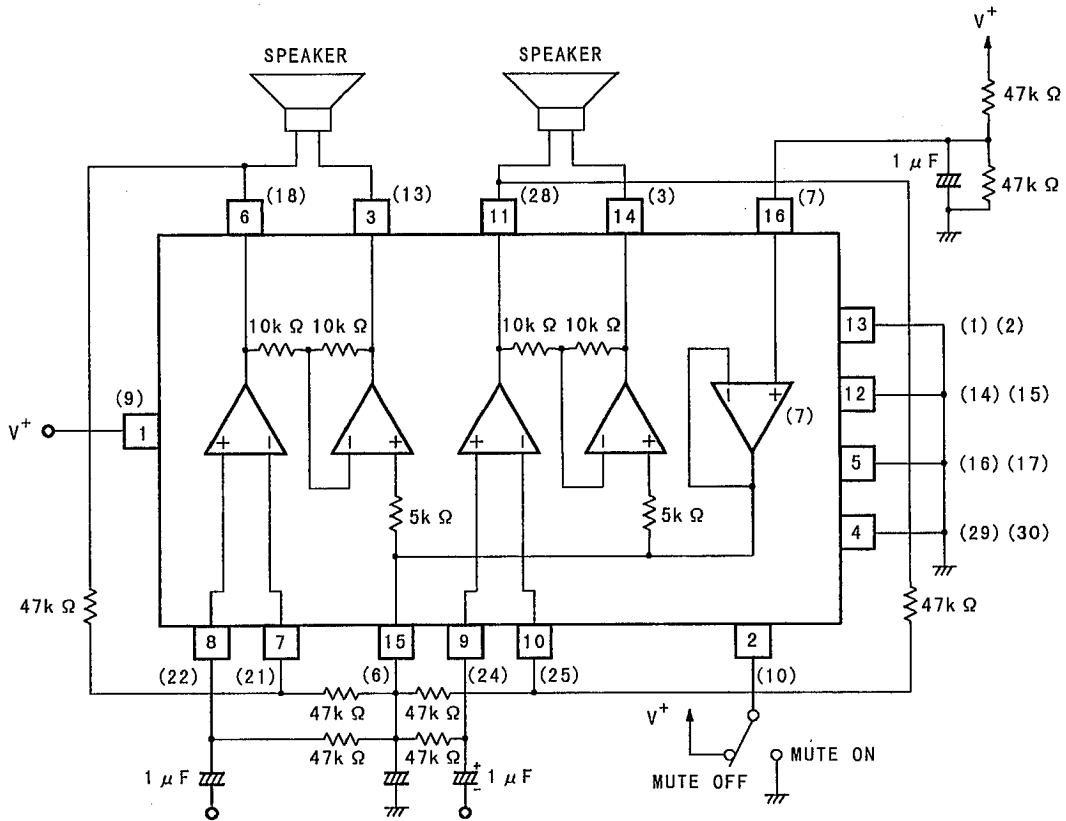
## ■ TERMINAL EXPLANATION

PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP - 1 6	SDMP - 3 0			
9	2 4	V i n 2(+)	Inverting input terminal of AMP. 3.	
1 0	2 5	V i n 2(-)	Non-inverting input terminal of AMP. 3.	
1 1	2 8	O U T 3	Output terminal of AMP. 3.	

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■ APPLICATION CIRCUIT

(1) BTL

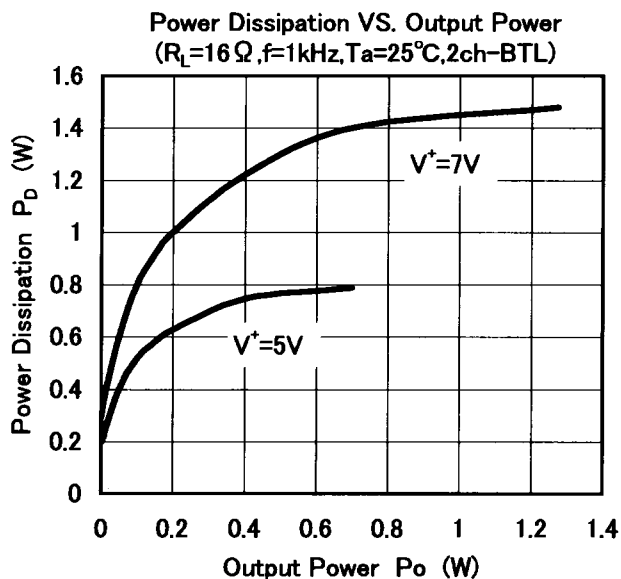
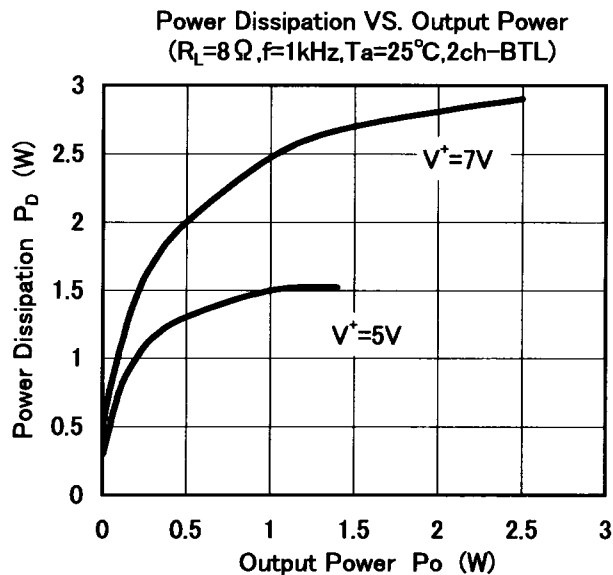
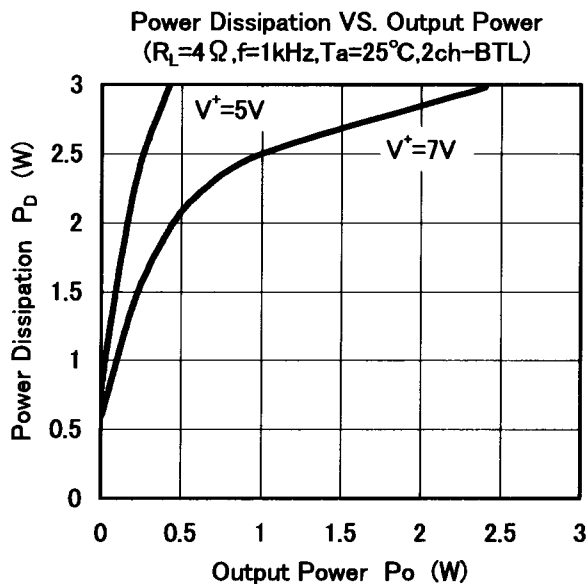
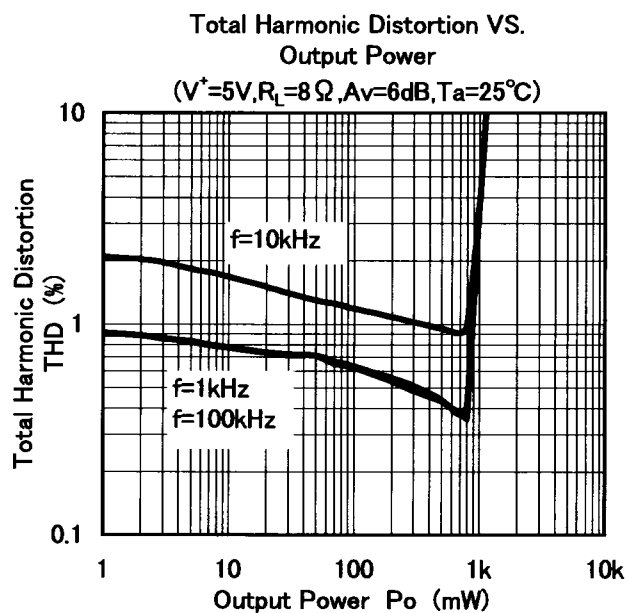
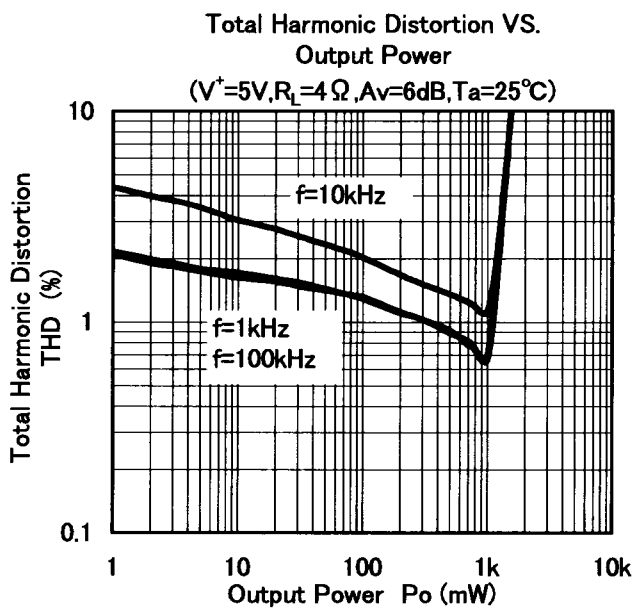


(The number in '( )' indicates a pin number of SDMP.)

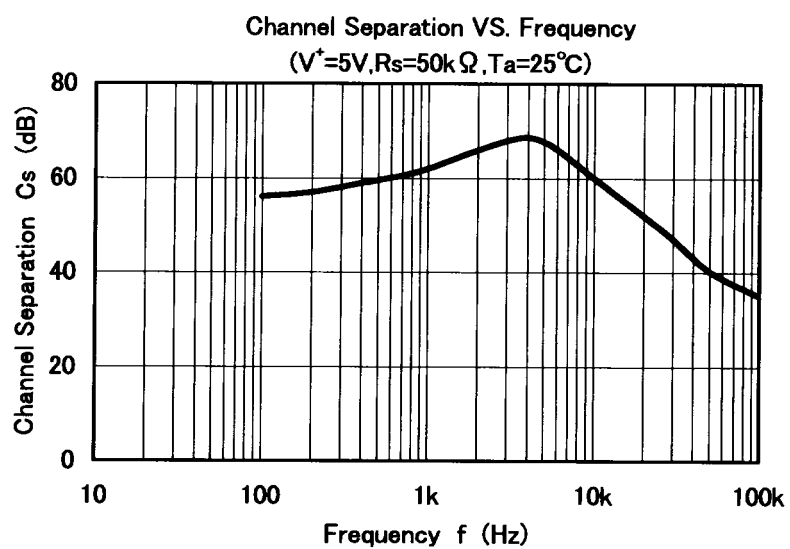
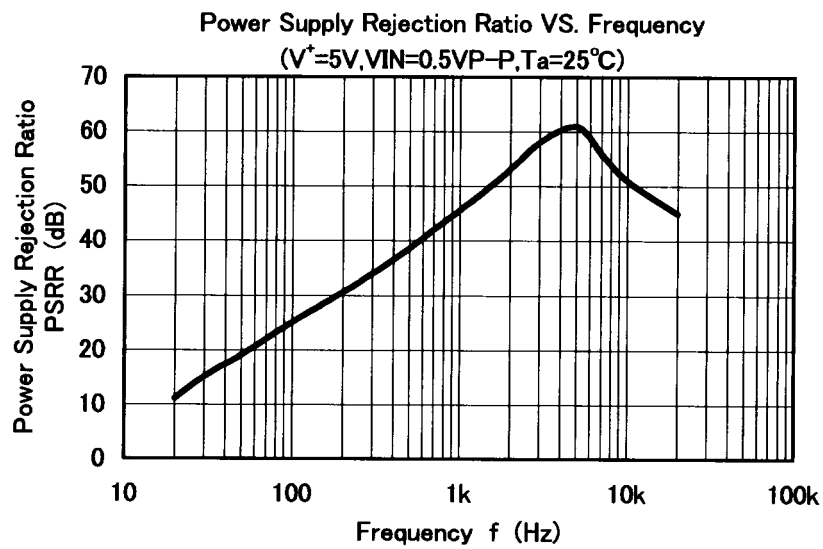


# NJW1105

## TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS



# NJW1105

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## MEMO

**[CAUTION]**

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