

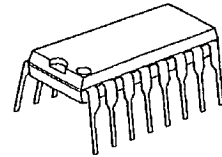
DUAL AUDIO POWER AMPLIFIER

■ GENERAL DESCRIPTION

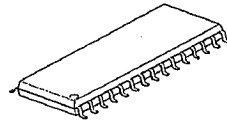
The NJW1105 is a dual audio amplifier which supplies 2.4W (1.2W/channel) to 8Ω loads at 5V. Its features are wide operating voltage range from 4V to 12V and low consumption output by Bi-MOS technology.

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

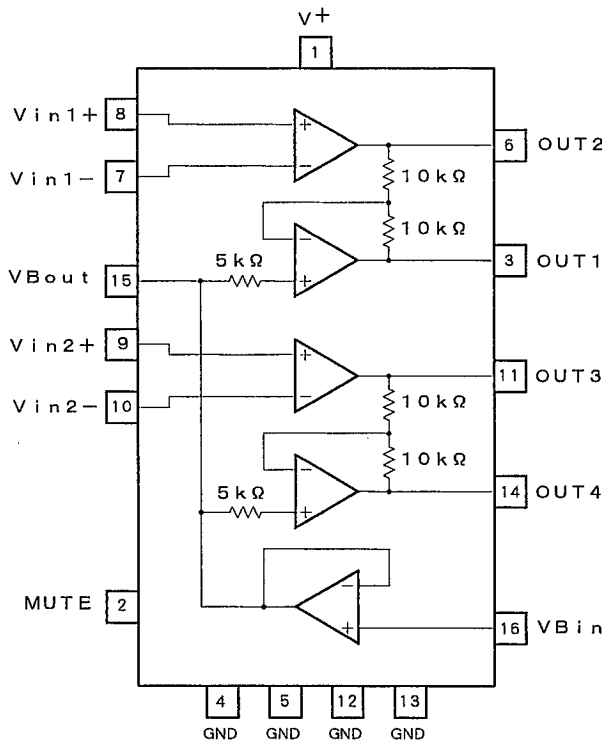


NJW1105M

■ FEATURES

- Operating Voltage (V⁺=4V~12V)
- Output Power (1.2W/ch at V⁺=5V, R_L=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°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	°C
Storage Temperature Range	T _{STG}	-40~+150	°C

(note 1) At on PC board.

■ ELECTRICAL CHARACTERISTICS (V⁺ = 5V, T_a = 25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
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[ALL]

Operating Supply Voltage Range	V ⁺		4	5	12	V
Mute OFF Current Dissipation	I _{CC1}	V _M =4.2V, V _{IN} =2.5V	-	20	35	mA
Mute ON Current Dissipation	I _{CC2}	V _M =0V, V _{IN} =2.5V	-	2	3.5	mA

[POWER AMPLIFIER]

Output Offset Voltage	ΔV _o	R _L =8Ω	-50	-	50	mV
Input Bias Current	I _B		-	-	300	nA
Output Power	P _{o1}	THD=10%, f=1kHz, R _L =8Ω	-	1.2	-	W
	P _{o2}	THD=10%, f=1kHz, R _L =8Ω	-	2.5	-	W
		V ⁺ =7V				
Total Harmonic Distortion	THD	R _L =8Ω, P _o =800mW, f=1kHz	-	0.35	-	%
Power Supply Rejection Ratio	PSRR	f=1kHz	-	45	-	dB
Voltage Gain	A _v	AMP2, AMP3, R _L =2kΩ, V _{IN} =2.5V	35	50	-	dB

[BUFFER AMPLIFIER]

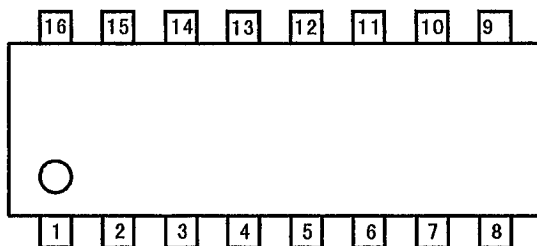
Input Output Potential Difference	V _{BO}		-30	0	30	mV
Input Voltage Range	V _{BI}		1.5	2.5	3.5	V
Output Voltage Range	ΔV _{BO}	I _L =-5mA I _L =+5mA	-	-	-50	mV

[MUTING]

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 =5V	70	100	130	μA

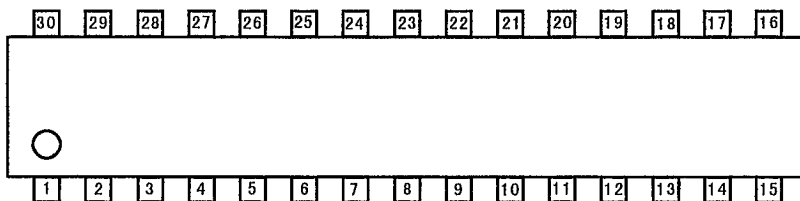
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■ PIN CONFIGURATION



DIP-16

1 : V ⁺	9 : V _{in} 2 (+)
2 : MUTE	10 : V _{in} 2 (-)
3 : OUT1	11 : OUT3
4 : GND	12 : GND
5 : GND	13 : GND
6 : OUT2	14 : OUT4
7 : V _{in} 1 (-)	15 : V _B out
8 : V _{in} 1 (+)	16 : V _B 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 _B out	21 : V _{in} 1 (-)
7 : V _B in	22 : V _{in} 1 (+)
8 : NC	23 : NC
9 : V ⁺	24 : V _{in} 2 (+)
10 : MUTE	25 : V _{in} 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	OUT4	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

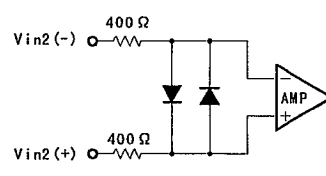
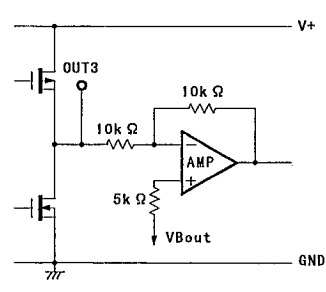
PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP - 1 6	SDMP - 3 0			
1 5	6	V B o u t	An buffer ampli- fier output.	
1 6	7	V B i n	An buffer ampli- fier input.	
1	9	V c c	Supply Voltage.	
2	1 0	M U T E	An mute input. Pulldown by 50kΩ (TYP) resistor.	

■ 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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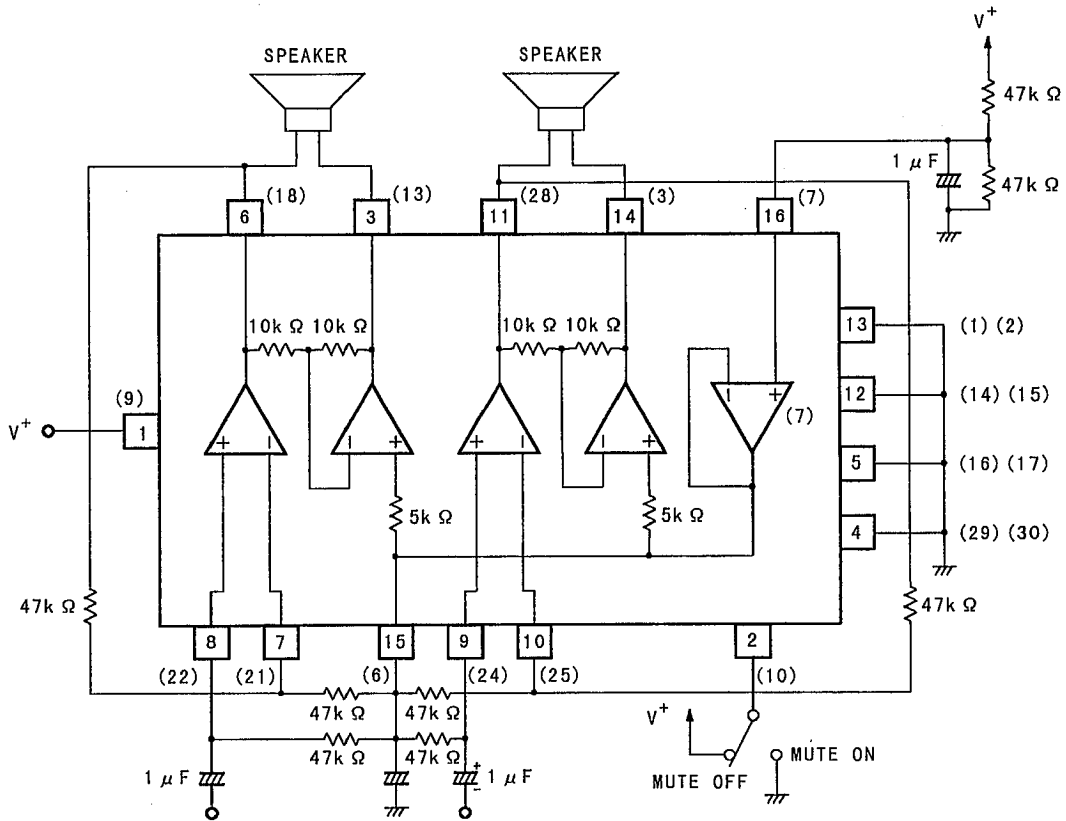
■ TERMINAL EXPLANATION

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

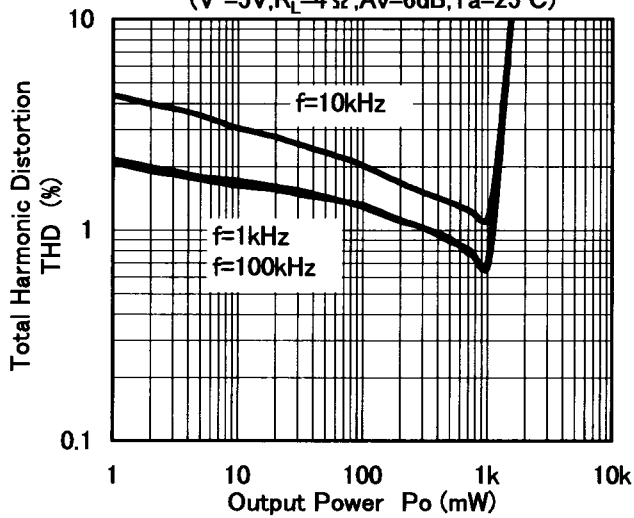


(The number in '()' indicates a pin number of SDMP.)

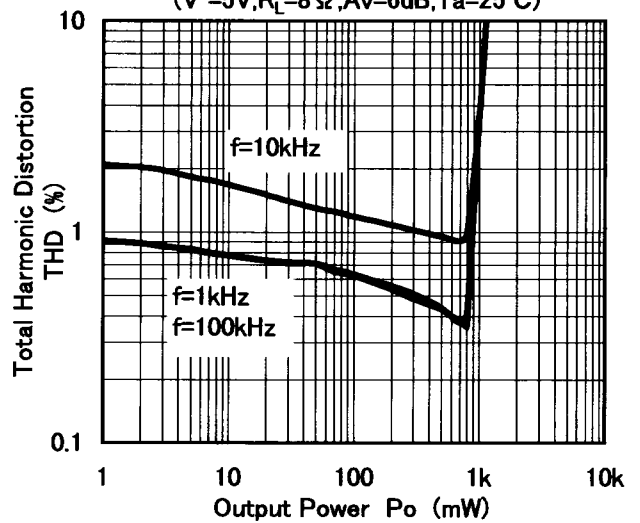
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TYPICAL CHARACTERISTICS

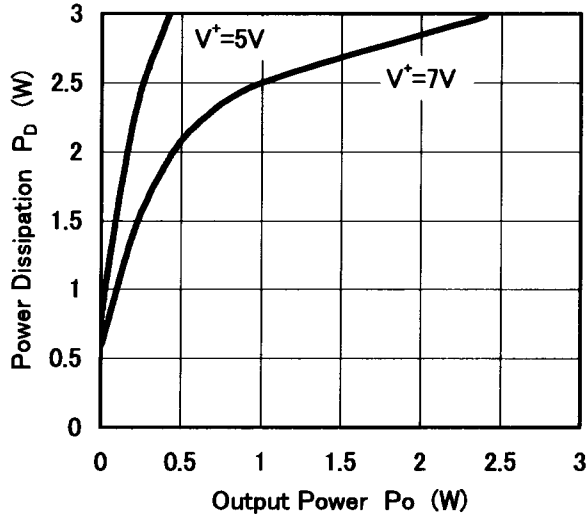
Total Harmonic Distortion VS. Output Power
($V^*=5V, R_L=4\Omega, A_v=6dB, T_a=25^\circ C$)



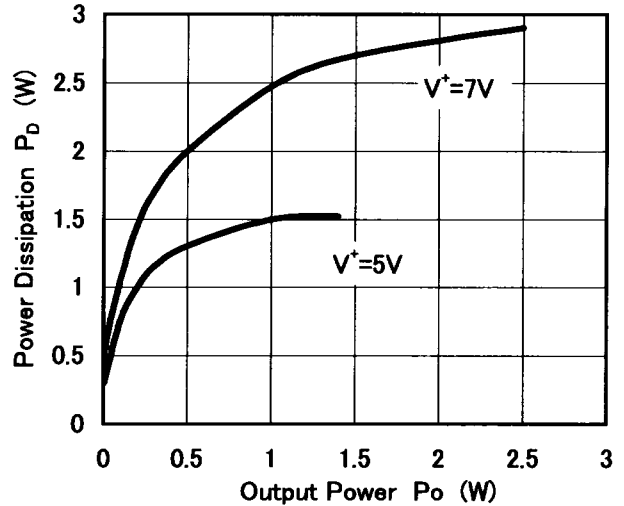
Total Harmonic Distortion VS. Output Power
($V^*=5V, R_L=8\Omega, A_v=6dB, T_a=25^\circ C$)



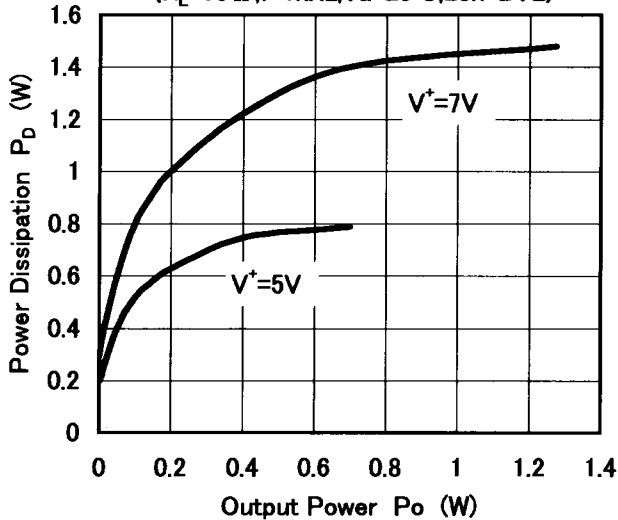
Power Dissipation VS. Output Power
($R_L=4\Omega, f=1kHz, T_a=25^\circ C, 2ch-BTL$)



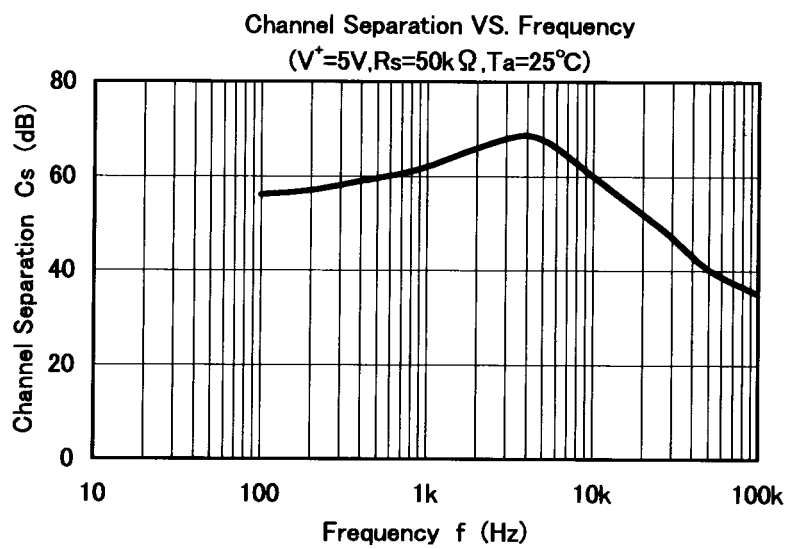
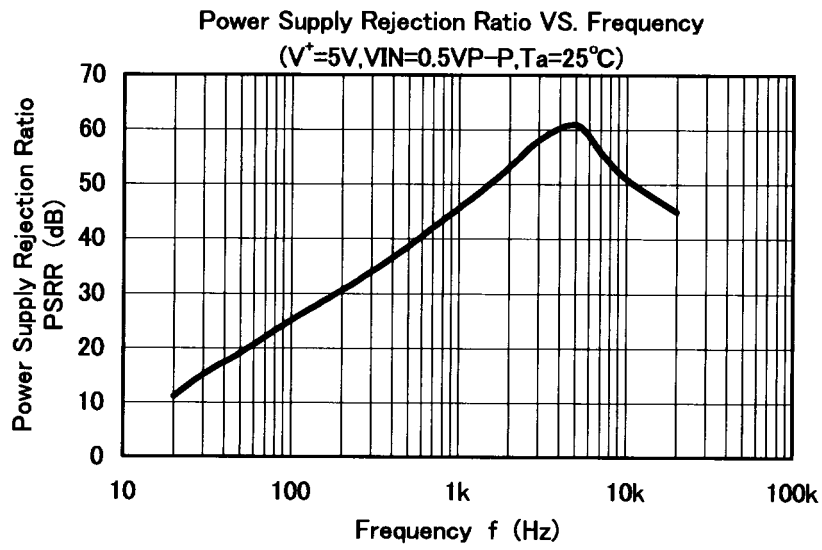
Power Dissipation VS. Output Power
($R_L=8\Omega, f=1kHz, T_a=25^\circ C, 2ch-BTL$)



Power Dissipation VS. Output Power
($R_L=16\Omega, f=1kHz, T_a=25^\circ C, 2ch-BTL$)



TYPICAL CHARACTERISTICS



MEMO

[CAUTION]

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