



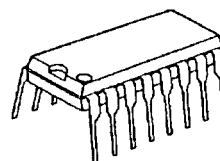
DUAL AUDIO POWER AMPLIFIER

■ GENERAL DESCRIPTION

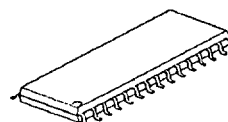
The NJW1105 is a dual audio amplifier which supplies 2.4W (1.2W/channel) to 8Ω loads at 5V. Its features are wide operating voltage range from 4V to 12V and low consumption output by Bi-MOS technology.

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

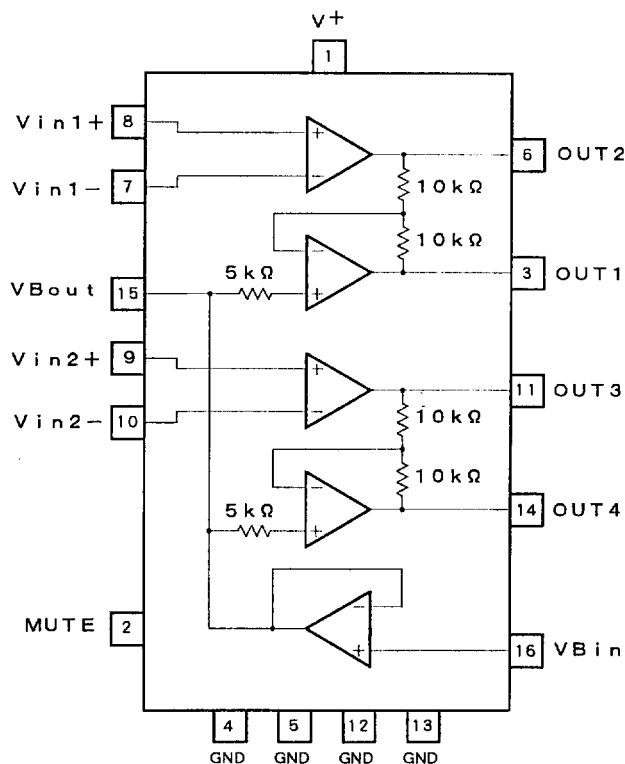


NJW1105M

■ FEATURES

- Operating Voltage ($V^+ = 4V \sim 12V$)
- Output Power (1.2W/ch at $V^+ = 5V, R_L = 8\Omega$)
- Supply Current (35mA MAX.)
- Supply Current on Mute (3.5mA MAX.)
- Bi-MOS Technology
- Package Outline DIP16, SDMP30

■ BLOCK DIAGRAM



(Package DIP-16)

■ 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_D	(DIP16) 1.9 (SDMP30) 1.8 (note 1)	W
Operating Temperature Range	T_{OPR}	$-40 \sim +85$	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	$-40 \sim +150$	$^\circ\text{C}$

(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
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【ALL】

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

【POWER AMPLIFIER】

Output Offset Voltage	ΔV_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

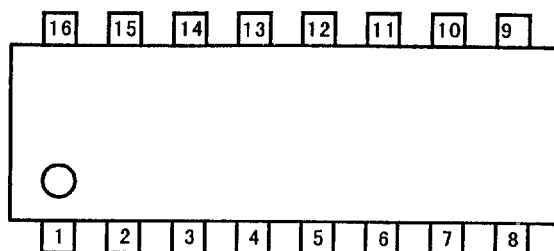
【BUFFER AMPLIFIER】

Input Output Potential Difference	V_{BO}		-30	0	30	mA
Input Voltage Range	V_{BI}		1.5	2.5	3.5	V
Output Voltage Range	ΔV_{BO}	$I_L = -5\text{mA}$ $I_L = +5\text{mA}$	-	-	-50	mA

【MUTING】

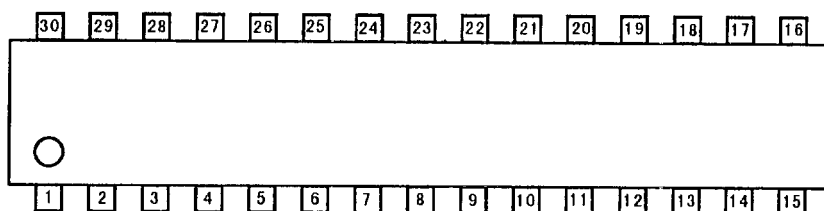
Mute OFF Voltage	V_{MH}		3.5	4.2	-	V
Mute ON Voltage	V_{ML}		-	0.8	1.0	V
Mute Sink Current	I_M	$V_M=5\text{V}$	70	100	130	μA

■ PIN CONFIGURATION



DIP-16

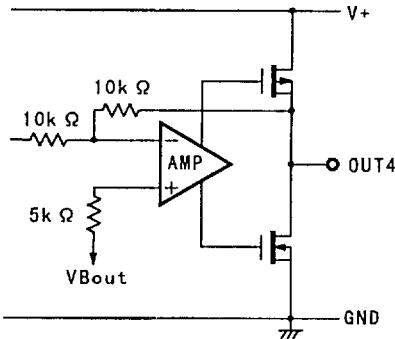
1 : V ⁺	9 : V _{in2} (+)
2 : MUTE	10 : V _{in2} (-)
3 : OUT1	11 : OUT3
4 : GND	12 : GND
5 : GND	13 : GND
6 : OUT2	14 : OUT4
7 : V _{in1} (-)	15 : V _{Bout}
8 : V _{in1} (+)	16 : V _{Bin}



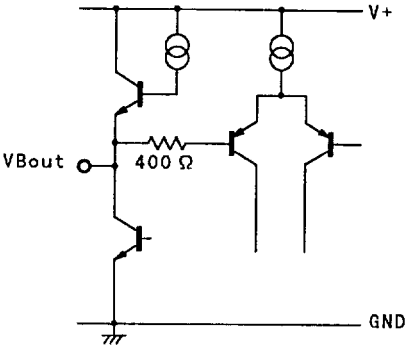
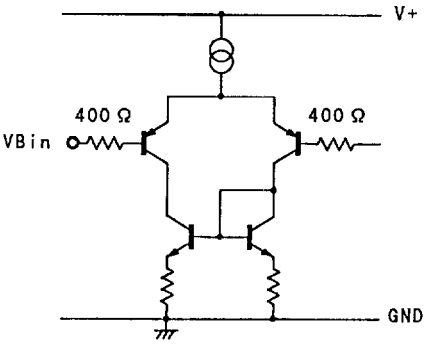
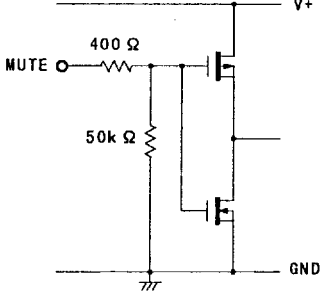
SDMP-30

1 : GND	16 : GND
2 : GND	17 : GND
3 : OUT4	18 : OUT2
4 : NC	19 : NC
5 : NC	20 : NC
6 : V _{Bout}	21 : V _{in1} (-)
7 : V _{Bin}	22 : V _{in1} (+)
8 : NC	23 : NC
9 : V ⁺	24 : V _{in2} (+)
10 : MUTE	25 : V _{in2} (-)
11 : NC	26 : NC
12 : NC	27 : NC
13 : OUT1	28 : OUT3
14 : GND	29 : GND
15 : GND	30 : GND

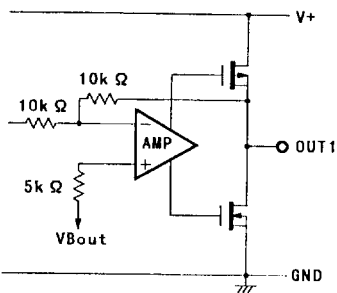
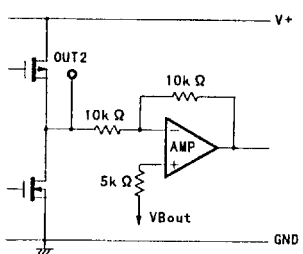
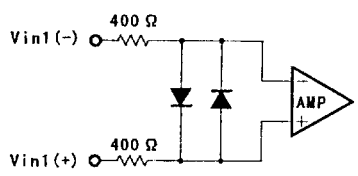
■ TERMINAL EXPLANATION

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.	

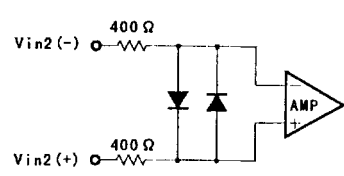
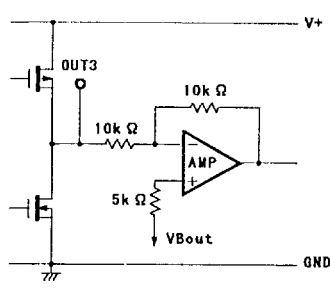
■ TERMINAL EXPLANATION

PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP - 1 6	SDMP - 3 0			
1 5	6	V B o u t	An buffer amplifi- er output.	
1 6	7	V B i n	An buffer amplifi- er 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

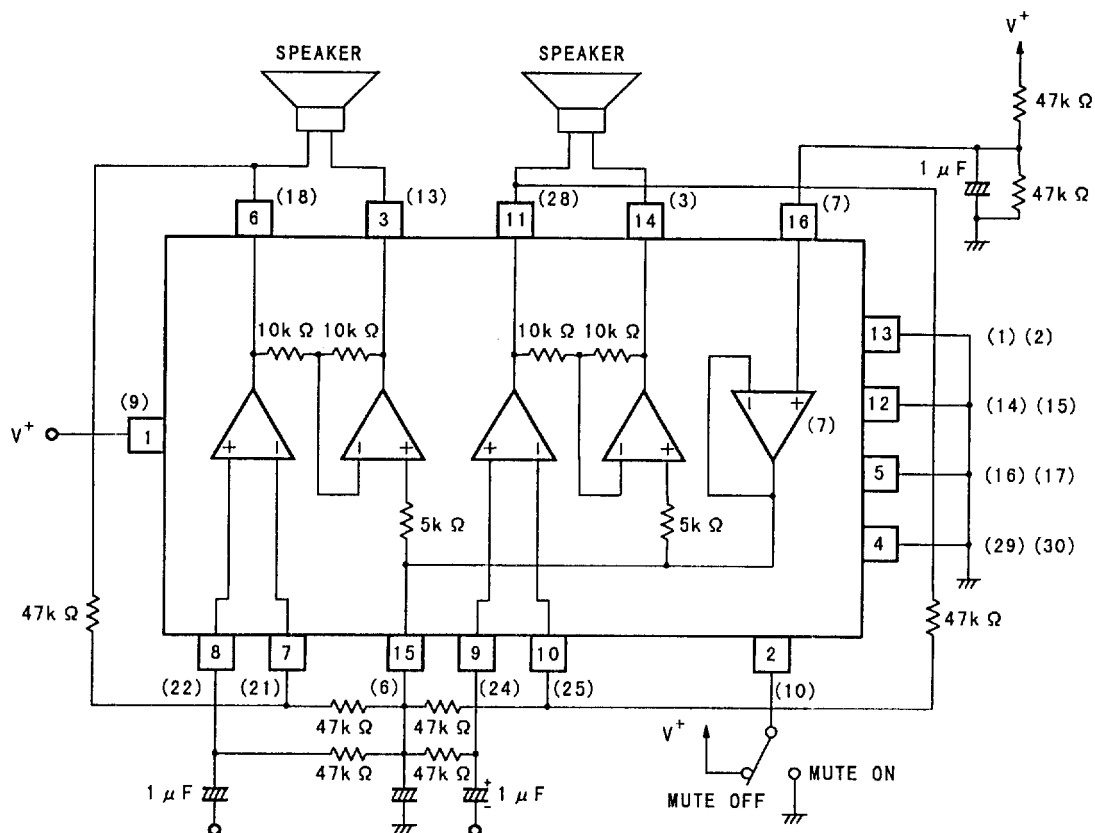
PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP - 1 6	SDMP - 3 0			
3	13	OUT 1	Output terminal of AMP. 1. OUT1 signal is opposite phase against OUT2.	
6	18	OUT 2	Output terminal of AMP. 2.	
7	21	Vin1(-)	Inverting input terminal of AMP. 2.	
8	22	Vin1(+)	Non-inverting input terminal of AMP. 2.	

■ 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.	

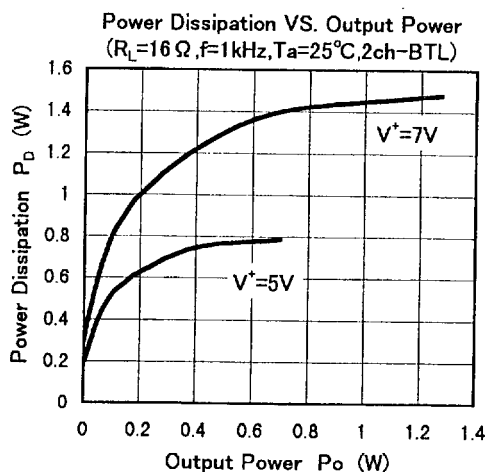
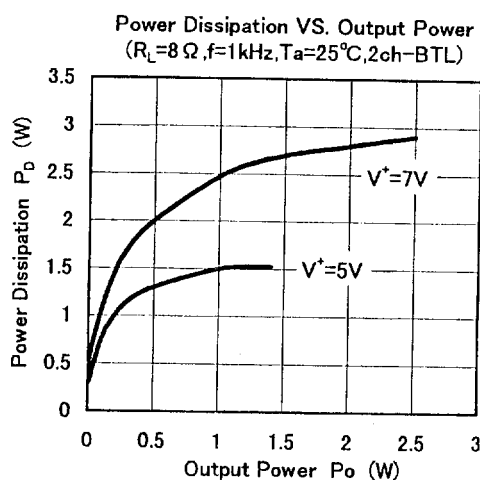
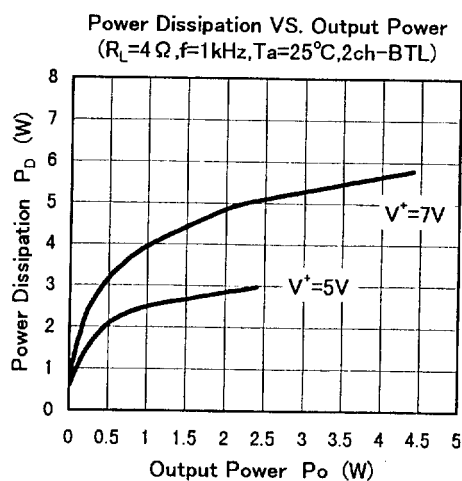
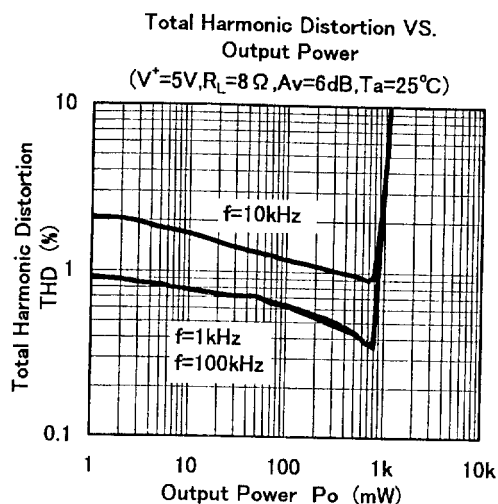
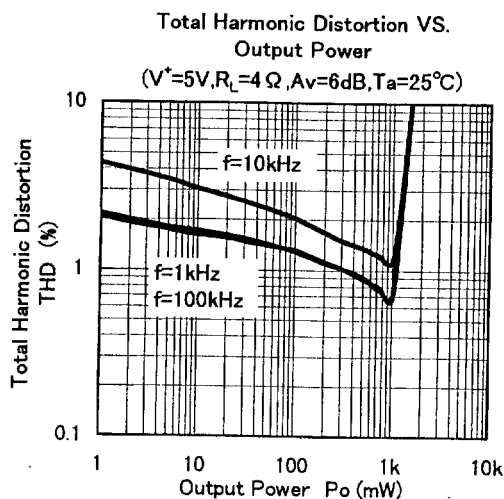
APPLICATION CIRCUIT

(1) BTL



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

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS

