

DUAL AUDIO POWER AMPLIFIER

■ GENERAL DESCRIPTION

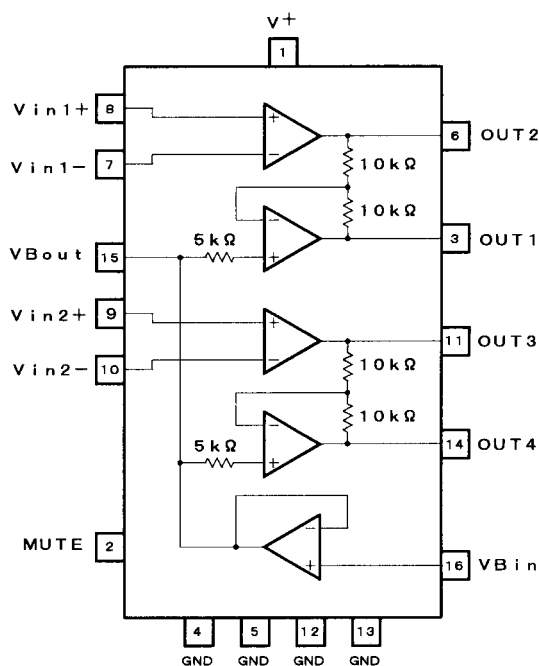
The NJW1105 is a dual audio amplifier which supplies 2.4W (1.2W/channel) to 8Ω loads at 5V. Its features are wide operating voltage range from 4V to 12V and low consumption output by Bi-MOS technology.

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.

■ FEATURES

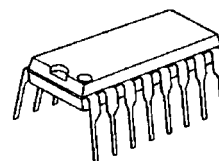
- Operating Voltage ($V^+ = 4V \sim 12V$)
- Output Power (1.2W/ch at $V^+ = 5V, R_L = 8\Omega$)
- Supply Current (35mA MAX.)
- Supply Current on Mute (3.5mA MAX.)
- Bi-MOS Technology
- Package Outline DIP16, SDMP30, SSOP20-F1

■ BLOCK DIAGRAM

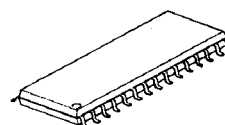


(Package DIP16)

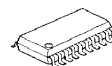
■ PACKAGE OUTLINE



NJW1105D



NJW1105M



NJW1105VF1

■ ABSOLUTE MAXIMUM RATINGS

(Ta=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_D	(SSOP20) 0.75 (DIP16) 1.9 (SDMP30) 1.8 (note1)	W
Operating Temperature Range	T_{opr}	-40~+85	°C
Storage Temperature Range	T_{stg}	-40~+150	°C

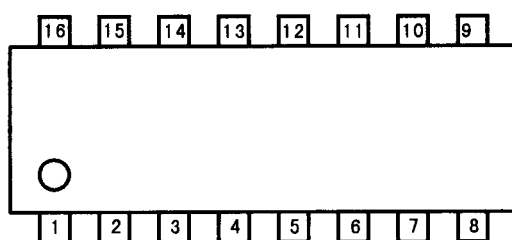
(note 1) At on PC board.

■ ELECTRICAL CHARACTERISTICS

($V^+=5.0V, Ta=25^\circ C$)

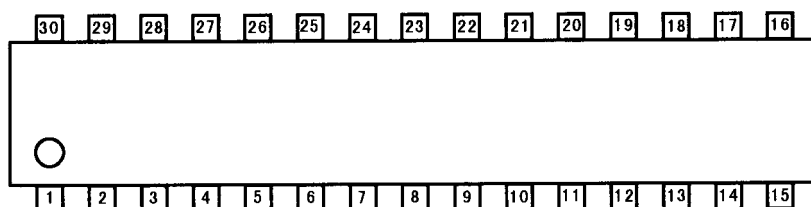
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
[ALL]						
Operating Supply Voltage Range	V^+		4	5	12	V
Mute OFF Current Dissipation	I_{CC1}	$V_M=4.2V, V_{IN}=2.5V$	-	20	35	mA
Mute ON Current Dissipation	I_{CC2}	$V_M=0V, V_{IN}=2.5V$	-	2	3.5	mA
[POWER AMPLIFIER]						
Output Offset Voltage	ΔV_O	$R_L=8\Omega$	-50	-	50	mV
Input Bias Current	I_B		-	-	300	nA
Output Power	P_{O1}	THD=10%, f=1kHz, $R_L=8\Omega$	-	1.2	-	W
	P_{O2}	THD=10%, f=1kHz, $R_L=8\Omega, V^+=7V$	-	2.5	-	W
Total Harmonic Distortion	THD	$R_L=8\Omega, P_O=800mW, f=1kHz$	-	0.35	-	%
Power Supply Rejection Ratio	PSRR	f=1kHz	-	45	-	dB
Voltage Gain	A_V	AMP2, AMP3, $R_L=2k\Omega, V_{IN}=2.5V$	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}	$I_L=-5mA, I_L=+5mA$	-	-	-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	$V_M=5V$	70	100	130	μA

■ PIN CONFIGURATION



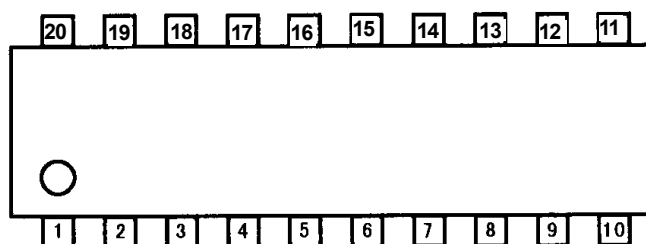
DIP16

- | | |
|-------------|--------------|
| 1. V^+ | 9. Vin2 (+) |
| 2. MUTE | 10. Vin2 (-) |
| 3. OUT1 | 11. OUT3 |
| 4. GND | 12. GND |
| 5. GND | 13. GND |
| 6. OUT2 | 14. OUT4 |
| 7. Vin1 (-) | 15. VBout |
| 8. Vin1 (+) | 16. VBin |



SDMP30

- | | |
|----------|--------------|
| 1. GND | 16. GND |
| 2. GND | 17. GND |
| 3. OUT4 | 18. OUT2 |
| 4. NC | 19. NC |
| 5. NC | 20. NC |
| 6. VBout | 21. Vin1 (-) |
| 7. VBin | 22. Vin1 (+) |
| 8. NC | 23. NC |
| 9. V^+ | 24. Vin2 (+) |
| 10. MUTE | 25. Vin2 (-) |
| 11. NC | 26. NC |
| 12. NC | 27. NC |
| 13. OUT1 | 28. OUT3 |
| 14. GND | 29. GND |
| 15. GND | 30. GND |



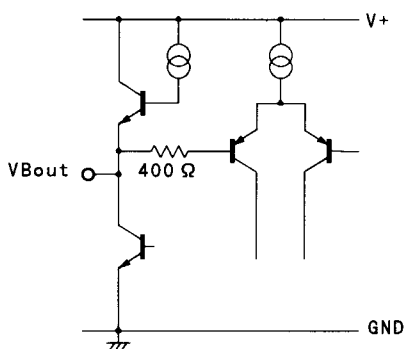
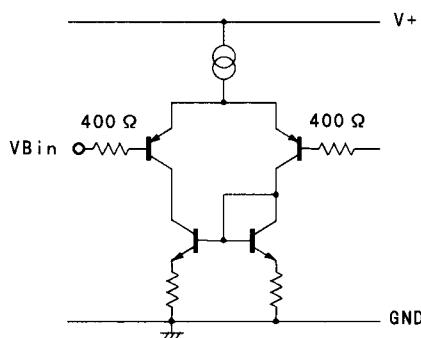
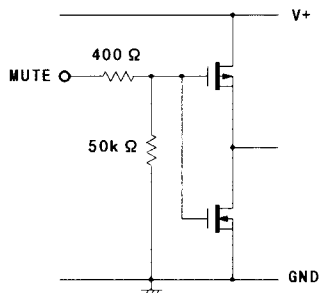
SSOP-20

1. V^+	11. Vin2(+)
2. V^+	12. Vin2(-)
3. MUTE	13. OUT3
4. OUT1	14. GND
5. GND	15. GND
6. GND	16. OUT4
7. OUT2	17. NC
8. Vin1(-)	18. NC
9. Vin1(+)	19. VBout
10. NC	20. VBin

■ TERMINAL EXPLANATION

PIN NO.			PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
SSOP-20	DIP-16	SDMP-30			
5 6 14 15	4 5 12 13	1 2 14 15 16 17 29 30	GND	Recommend expanding the island in order to heat radiation properties.	
16	14	3	OUT4	Output terminal of AMP4. OUT4 signal is opposite phase against OUT3.	
10 17 18	-	4 5 8 11 12 19 20 23 26 27	NC	Non-connection terminal. Recommend connecting to GND.	

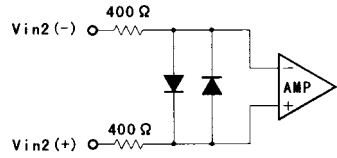
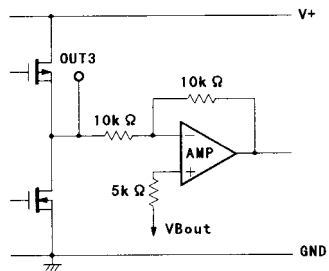
■ TERMINAL EXPLANATION

PIN NO.			PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
SSOP-20	DIP-16	SDMP-30			
19	15	6	VBout	An buffer amplifier output.	
20	16	7	VBin	An buffer amplifier input.	
1 2	1	9	V _{CC}	Supply Voltage.	
3	2	10	MUTE	A mute input. Pull down by 50kΩ (TYP) resistor.	

■ TERMINAL EXPLANATION

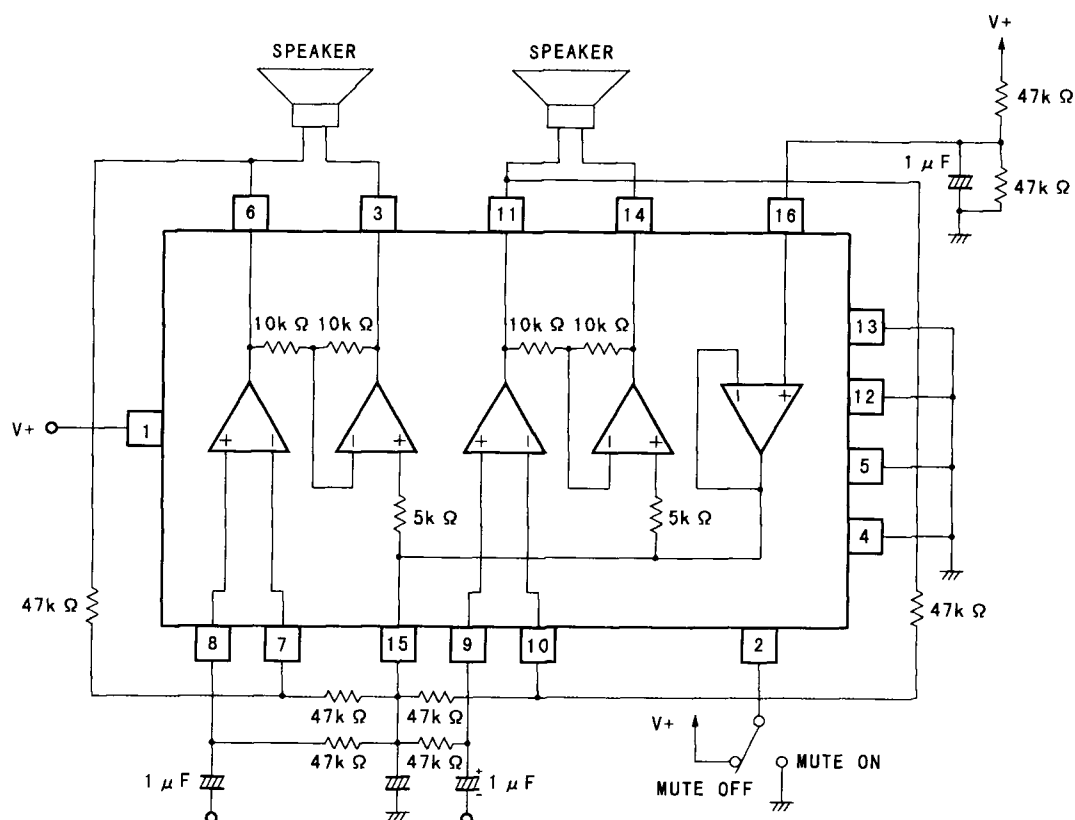
PIN NO.			PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
SSOP-20	DIP-16	SDMP-30			
4	3	13	OUT1	Output terminal of AMP.1. OUT1 signal is opposite phase against OUT2.	
7	6	18	OUT2	Output terminal of AMP.2.	
8	7	21	Vin1(-)	Inverting input terminal of AMP.2.	
9	8	22	Vin1(+)	Non-inverting input terminal of AMP.2.	

■ TERMINAL EXPLANATION

PIN NO.			PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
SSOP-20	DIP-16	SDMP-30			
11	9	24	Vin2(+)	Inverting input terminal of AMP3.	
12	10	25	Vin2(-)	Non-inverting input terminal of AMP3.	
13	11	28	OUT3	Output terminal of AMP3.	

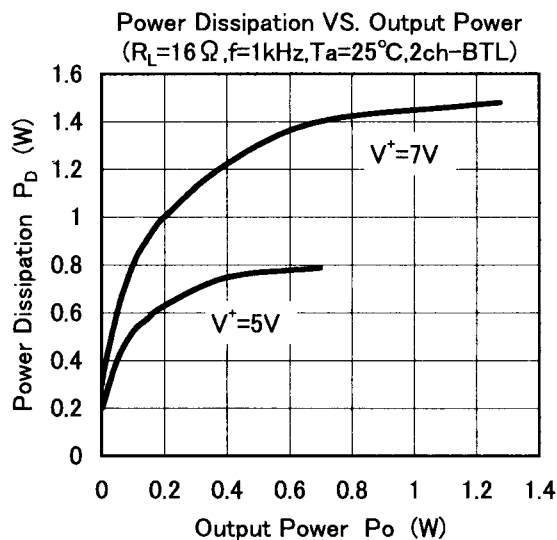
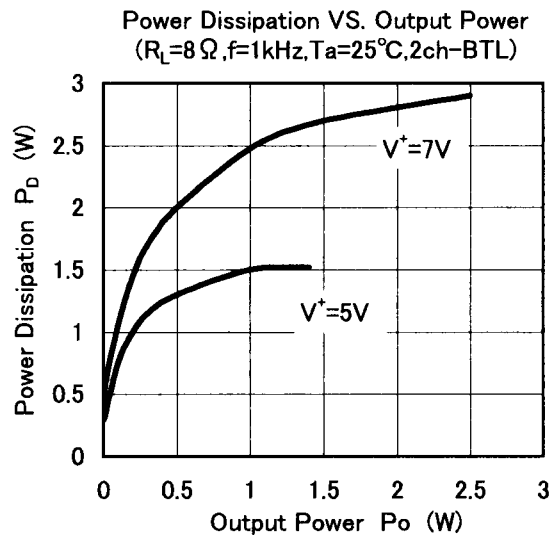
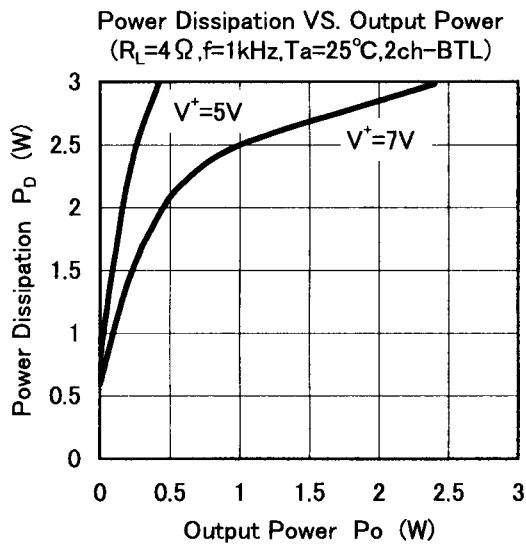
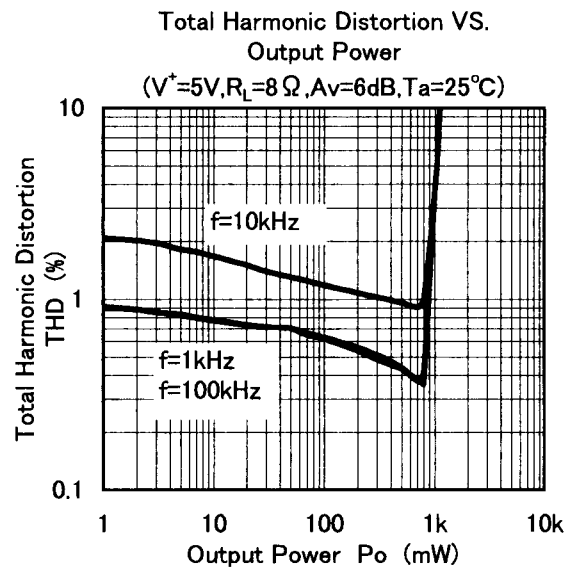
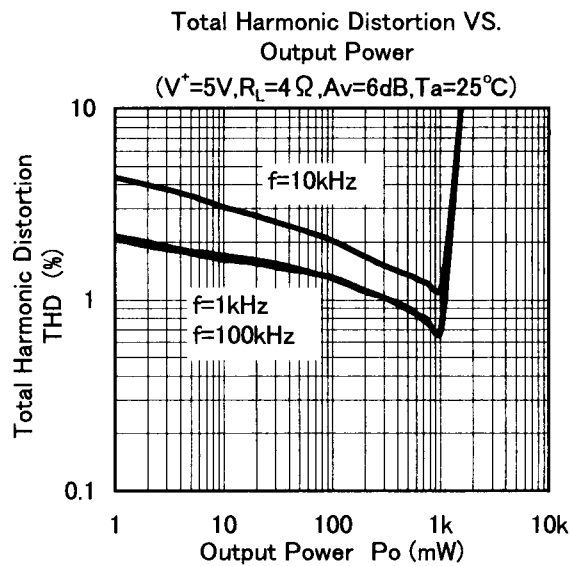
■ APPLICATION CIRCUIT

(1) BTL

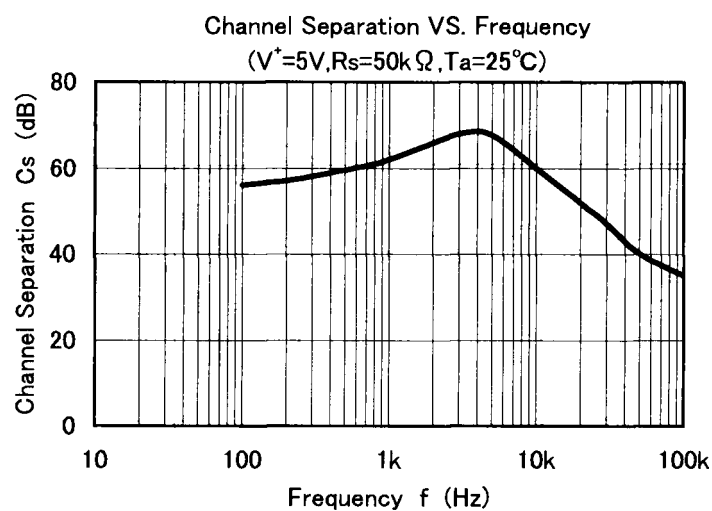
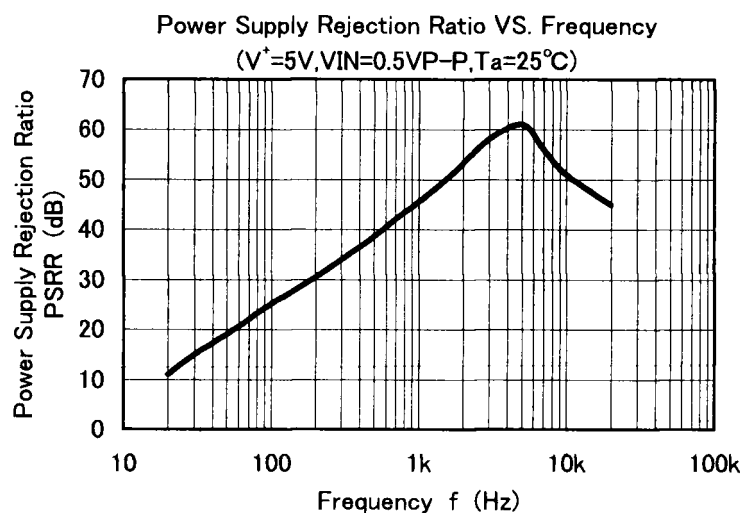


(The number in “()” indicates a pin number of SDMP.)

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



[CAUTION]

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