

2 CHANNEL BRIDGE DRIVER IC

■ GENERAL DESCRIPTION

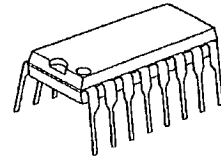
The NJW4301 is a 2 channel bridge driver for CD, CD-ROM, MO and others. It operates at more than 4V, and then features high output voltage swing.

Its output circuit consists of MOS-FET. The MOS-FET type output realizes lower consumption than bipolar type output, so that radiation design becomes simple and total costs are reduced.

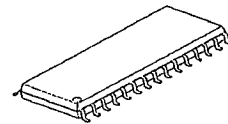
■ FEATURES

- Operating Voltage (V⁺=4V~12V)
- Low Saturation Output (V_{sat}=±0.5V_{MAX.} at I_o=300mA)
- Supply Current (35mA MAX.)
- 2 channel BTL Output
- Mute Function
- Bi-MOS Technology
- Package Outline DIP16, SDMP30

■ PACKAGE OUTLINE

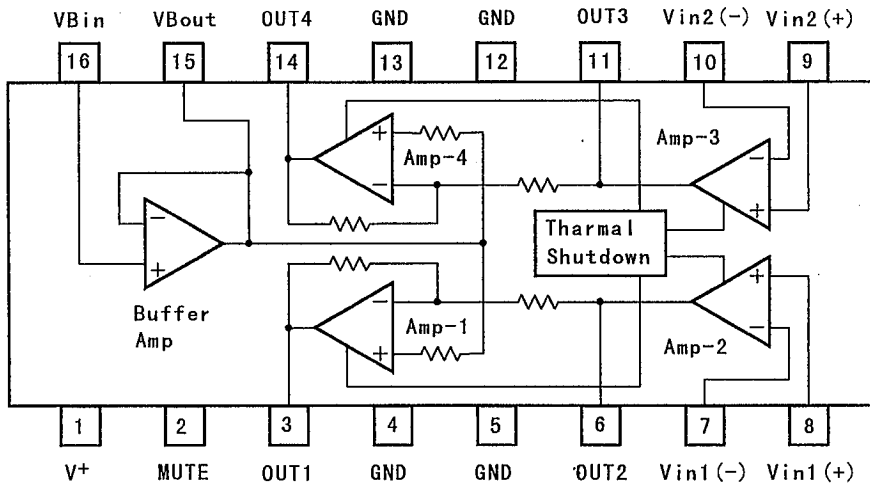


NJW4301D



NJW4301M

■ BLOCK DIAGRAM



(Package DIP-16)

■ ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

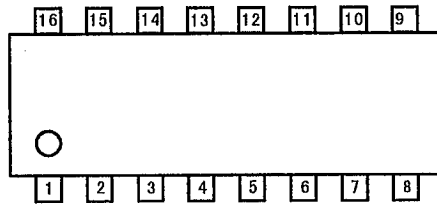
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	15	V
Operating Current	I _o	1	A
Mute Terminal Current	I _M	1.0	mA
Power Dissipation	P _o	(DIP16) 1.9 (SDMP30) 1.8 (note 1)	W
Operating Temperature Range	T _{op.}	-40~+85	°C
Storage Temperature Range	T _{stg.}	-40~+150	°C

(note 1) At on PC board.

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

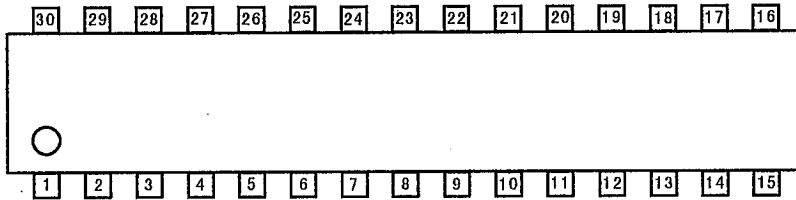
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
[ALL]						
Operating Supply Voltage Range	V ⁺		4	5	12	V
Mute OFF Current Dissipation	I _{cc1}	V _M =4.2V, V _{IN} =2.5V	-	20	35	mA
Mute ON Current Dissipation	I _{cc2}	V _M =0V, V _{IN} =2.5V	-	2	3.5	mA
[POWER AMPLIFIER]						
Output Offset Voltage	V _{OF}	OUT1-OUT2, GAIN=1 OUT4-OUT3, GAIN=1	-50	-	50	mV
Input Common Mode Voltage Range	V _{ICM}	AMP2 AMP3	0	-	V ⁺	V
Input Bias Current	I _B	AMP2 AMP3	-	-	300	nA
Maximum Output Voltage 1	V _{o1}	OUT1-OUT2, I _L =300mA OUT4-OUT3, I _L =300mA	4.0	4.2	-	V
Maximum Output Voltage 2	V _{o2}	OUT1-OUT2, I _L =500mA OUT4-OUT3, I _L =500mA	3.0	3.5	-	V
Open Loop Voltage Gain	A _V	AMP2, R _L =2kΩ, V _{IN} =2.5V AMP3, R _L =2kΩ, V _{IN} =2.5V	35	50	-	dB
[BUFFER AMPLIFIER]						
Input Output Potential Difference	V _{BIO}		-30	0	30	mV
Input Voltage Range	V _{BICM}		1.5	2.5	3.5	V
Output Voltage Range	ΔV _{BO}	V _{IN} =2.5V, I _L =-5mA V _{IN} =2.5V, 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

■ 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 _{Bout} |
| 8 : V _{in} 1 (+) | 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 _{in} 1 (-) |
| 7 : V _{Bin} | 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 |

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TERMINAL EXPLANATION

PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP -16	SDMP -30			
4	1	GND	Recommend expanding the island in order to heat radiation properties.	
5	2			
12	14			
13	15			
	16			
	17			
	29			
	30			
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 -16	SDMP -30			
15	6	VBout	An buffer amplifier output.	
16	7	VBin	An buffer amplifier input.	
1	9	Vcc	Supply Voltage.	
2	10	MUTE	An mute input. Pulldown by 50kΩ (TYP) resistor.	

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■ TERMINAL EXPLANATION

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

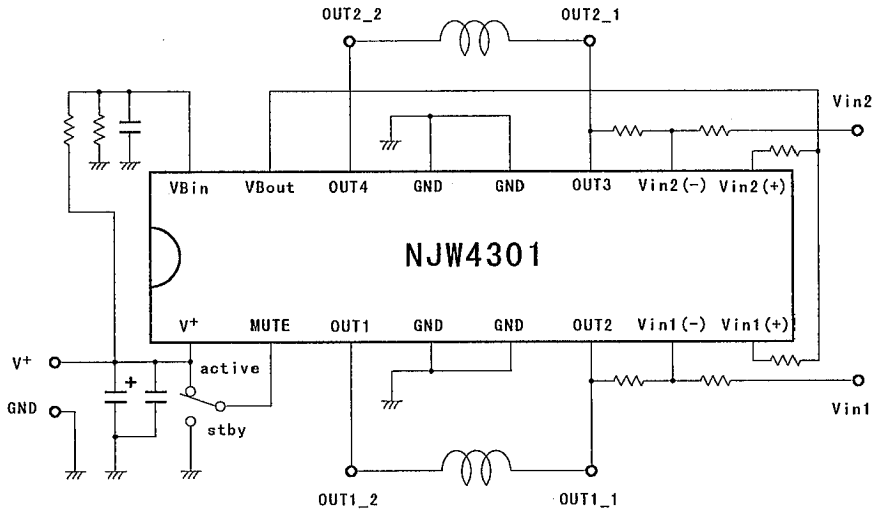
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■ TERMINAL EXPLANATION

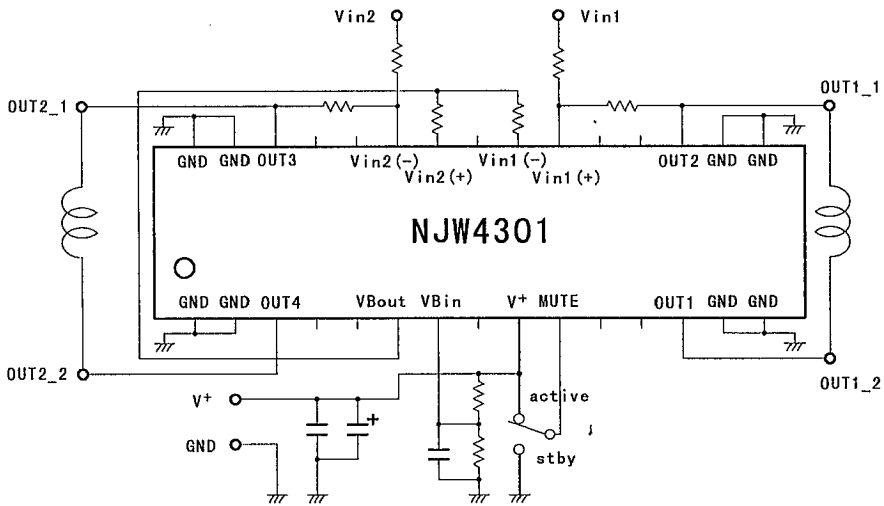
PIN NO.		PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
DIP -16	SDMP -30			
9	24	Vin2(+)	Inverting input terminal of AMP. 3.	
10	25	Vin2(-)	Non-inverting input terminal of AMP. 3.	
11	28	OUT3	Output terminal of AMP. 3.	

NJW4301

APPLICATION CIRCUITS



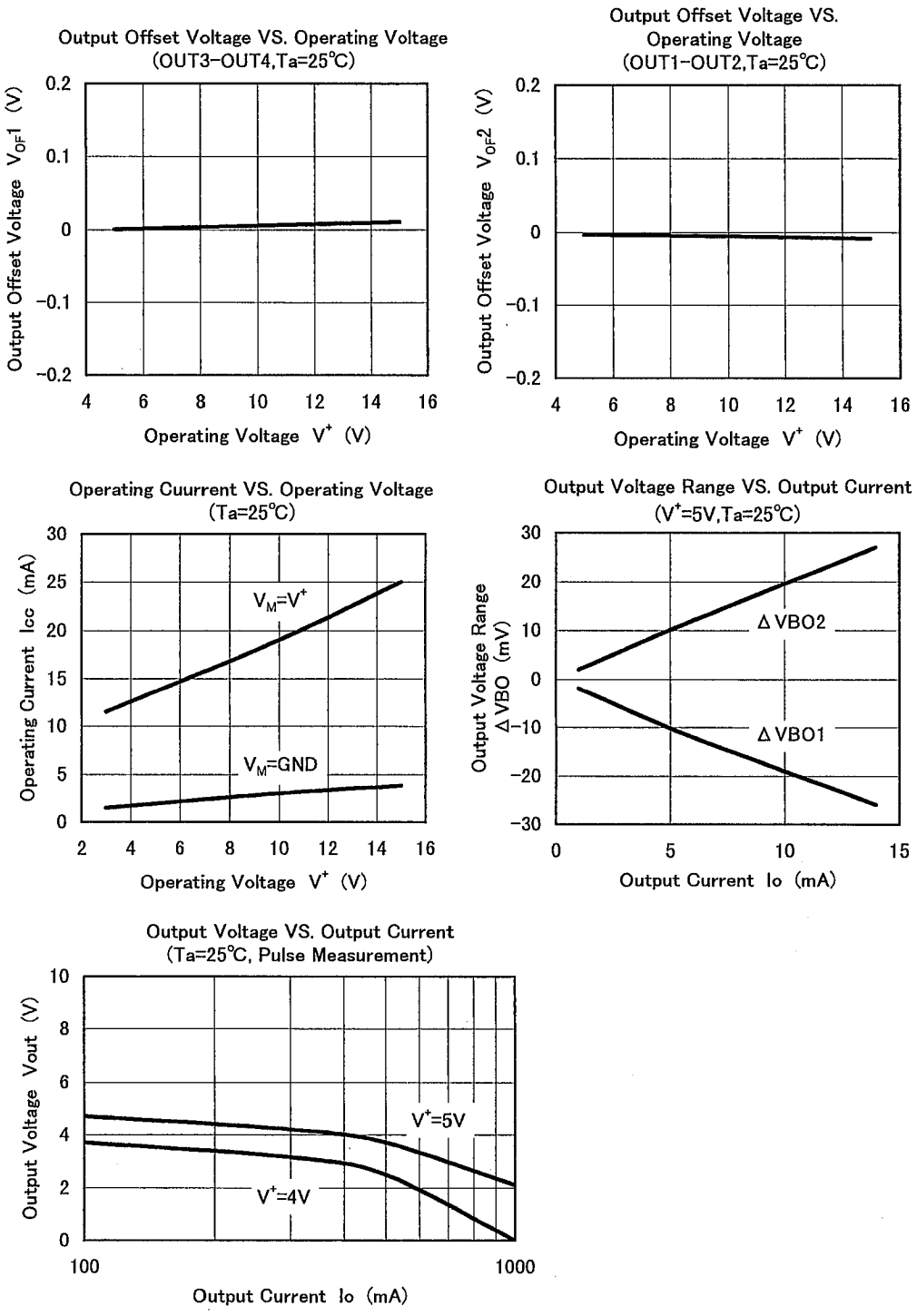
NJW4301(DIP-16) Application Circuit



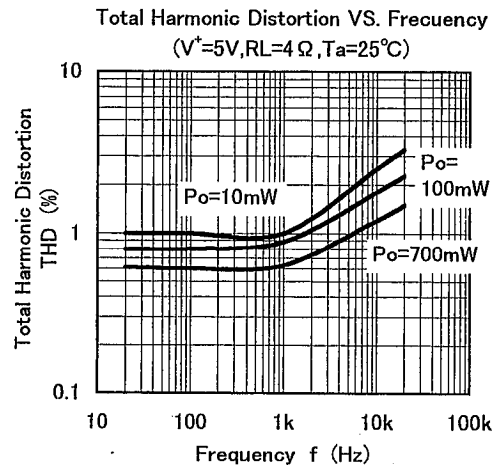
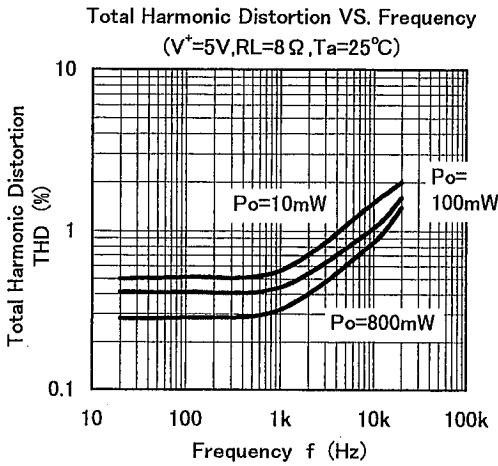
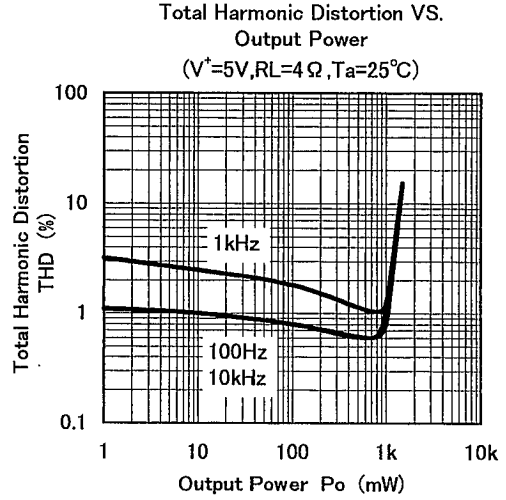
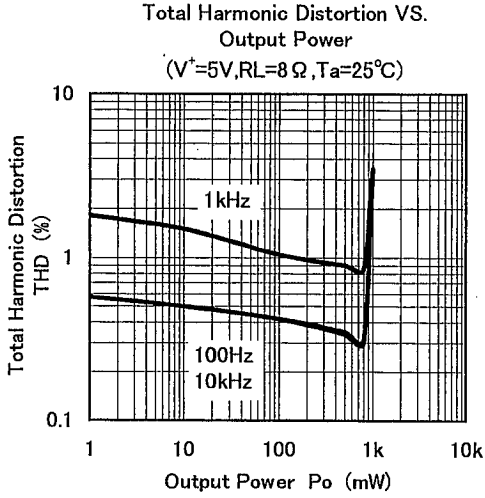
NJW4301(SDMP-30) Application Circuit

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■ TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



MEMO

<注意事項>

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