

2 CHANNEL BRIDGE DRIVER IC

■ GENERAL DESCRIPTION

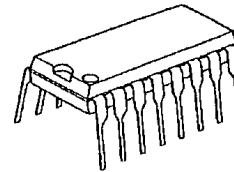
The NJW4301 is a 2 channel bridge driver for CD, CD-ROM, MO and others. It operates at more than 4V, and then features high output voltage swing.

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.

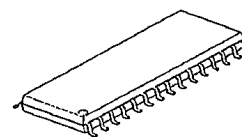
■ FEATURES

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

■ PACKAGE OUTLINE

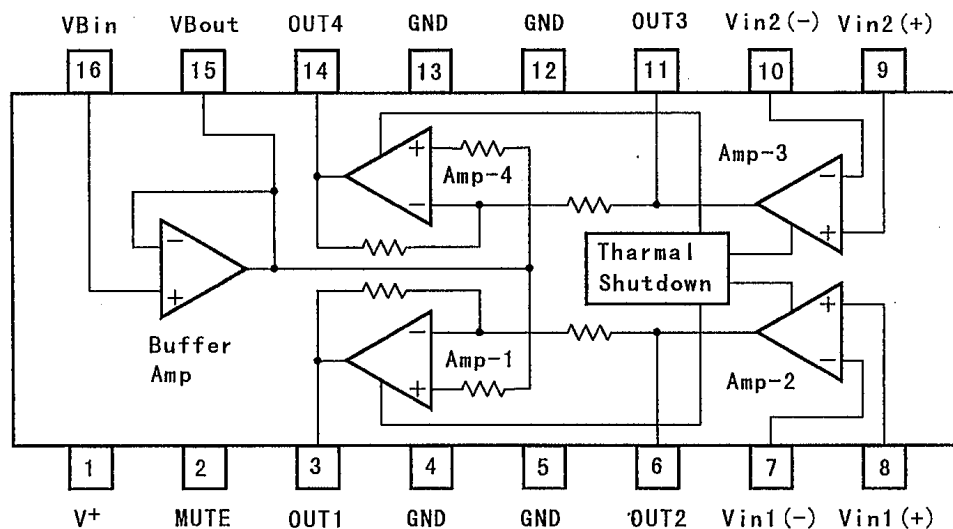


NJW4301D



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 _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-40~+150	°C

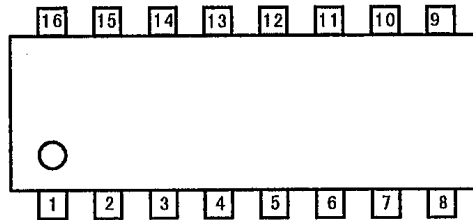
(note 1) At on PC board.

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
[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 _{OFF}	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

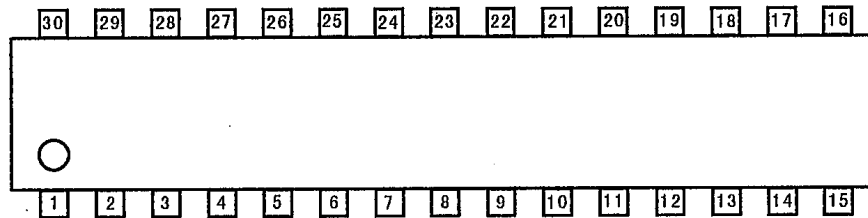
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■ PIN CONFIGURATION



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

6

■ 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.	

6

■ 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.	

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■ 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	Vin1(-)	Inverting input terminal of AMP. 2.	
8	2 2	Vin1(+)	Non-inverting input terminal of AMP. 2.	

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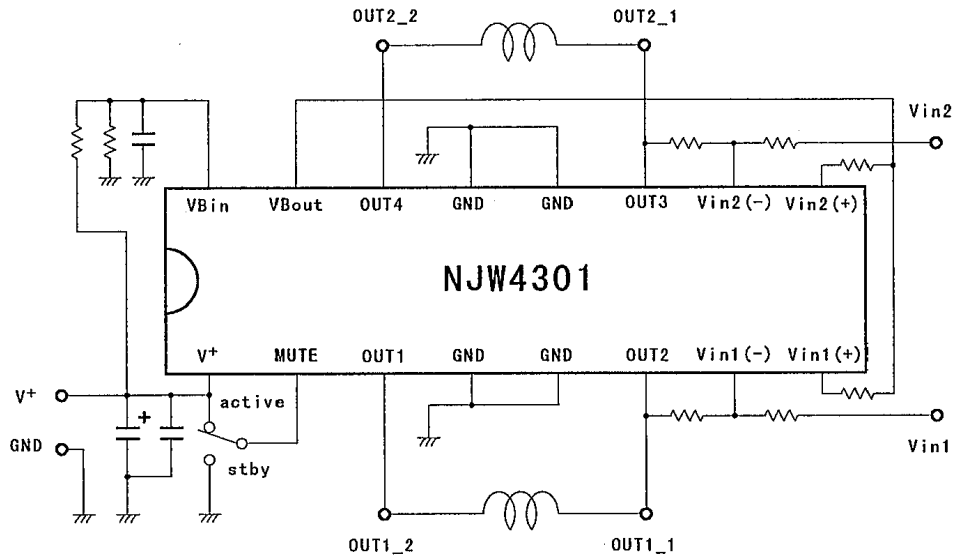
■ TERMINAL EXPLANATION

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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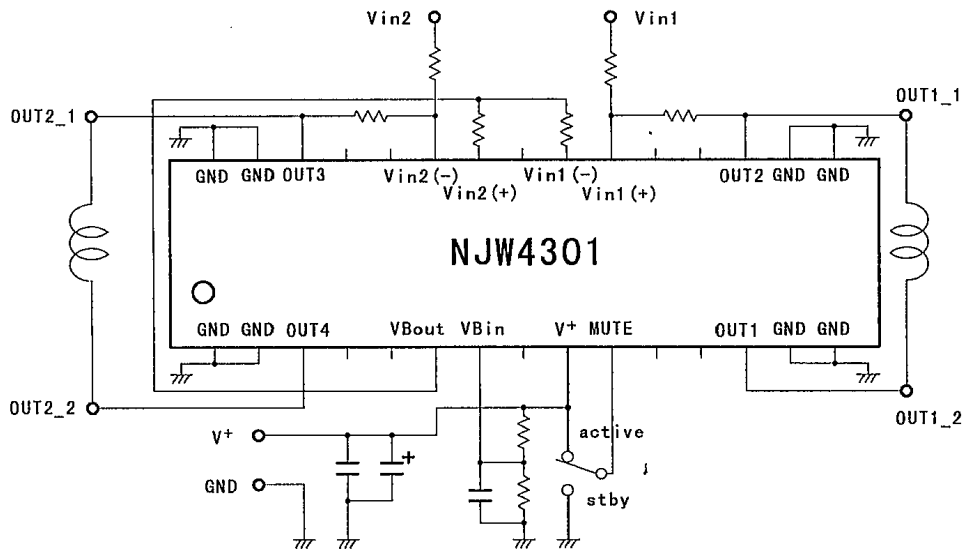
NJW4301

APPLICATION CIRCUITS



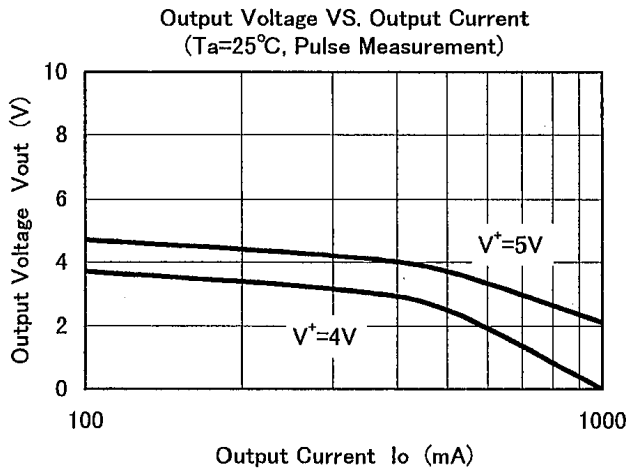
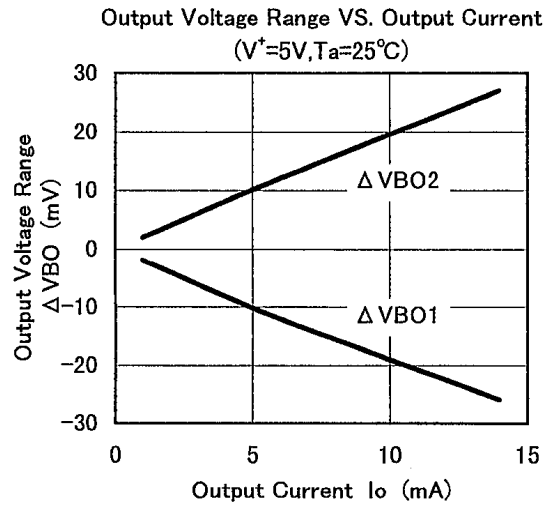
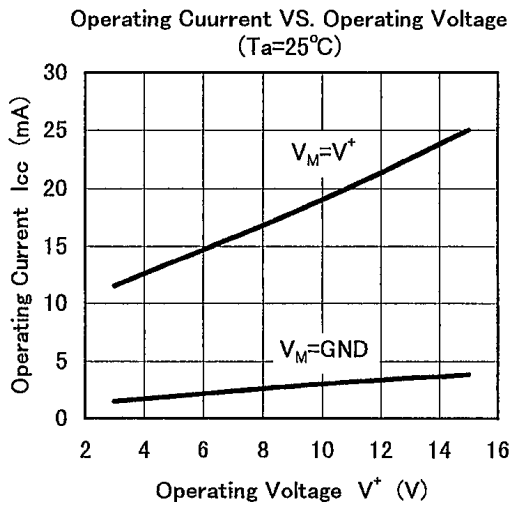
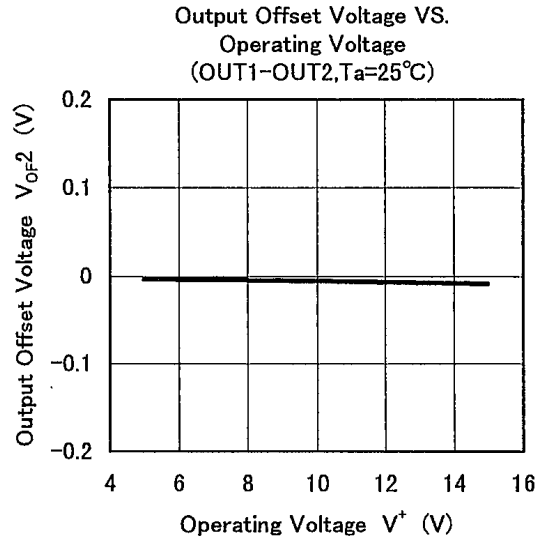
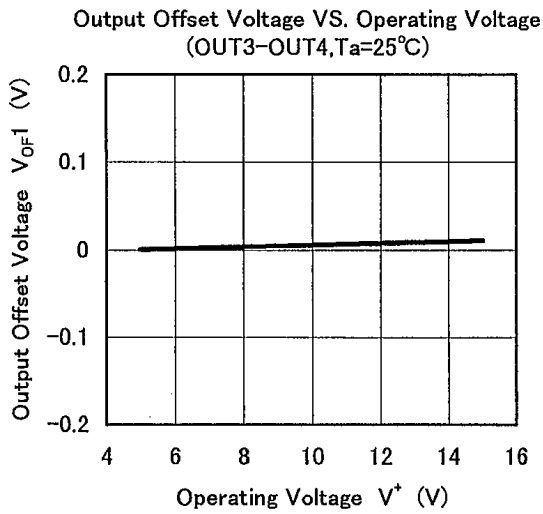
NJW4301 (DIP-16) Application Circuit

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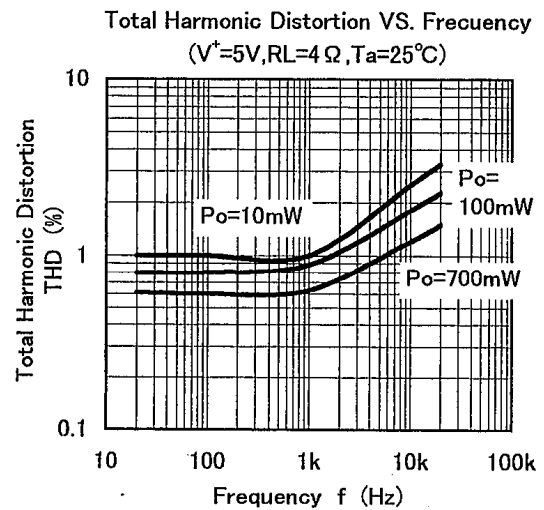
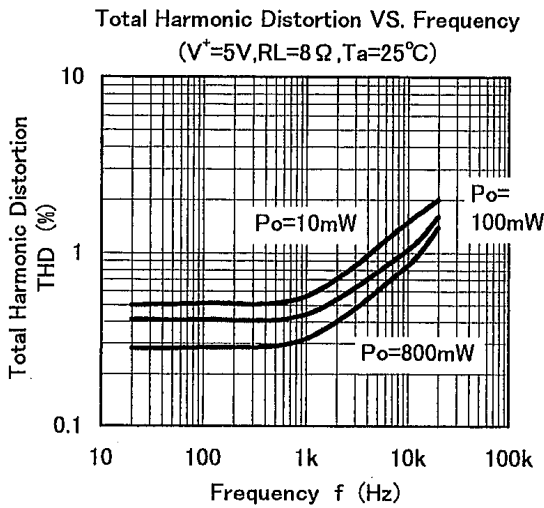
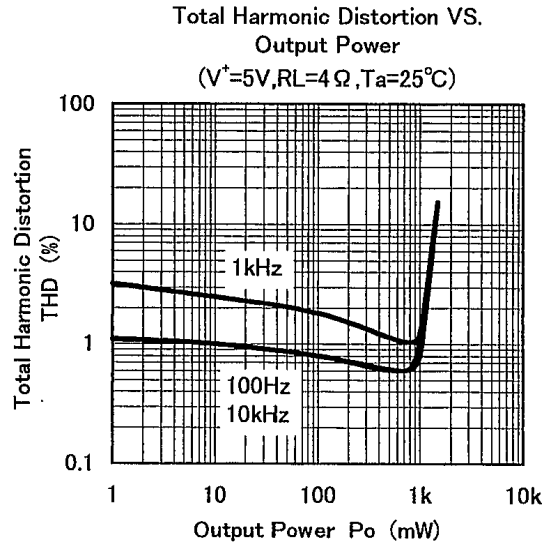
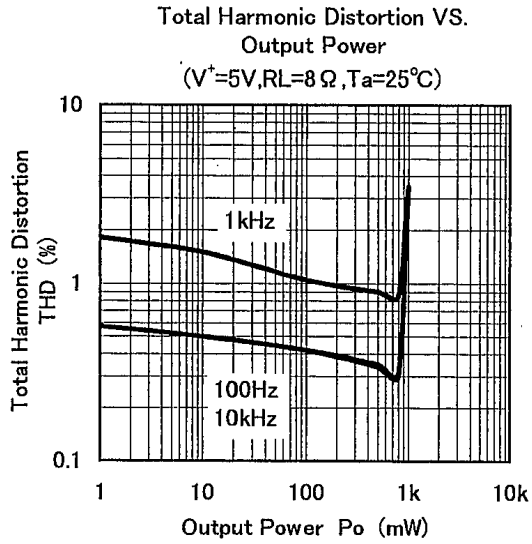
NJW4301 (SDMP-30) Application Circuit

■ TYPICAL CHARACTERISTICS



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TYPICAL CHARACTERISTICS



MEMO

<注意事項>

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