

DUAL LOW VOLTAGE C-MOS POWER AMPLIFIER

■ GENERAL DESCRIPTION

The NJU7082B is a dual C-MOS Power Amplifier which is available to operate with single power supply and low voltage.

The NJU7082B realizes nearly full-swing output with low voltage operation (2.4V). An output voltage is kept more than  $V_{DD}-0.3V$  or less than  $V_{SS}+0.3V$  when output current is 40mA, therefore it is suitable for a head-phone and speaker driver of the battery operated audio items.

■ PACKAGE OUTLINE



NJU7082BM

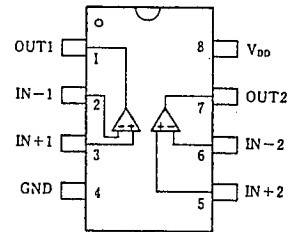


NJU7082BV

■ FEATURES

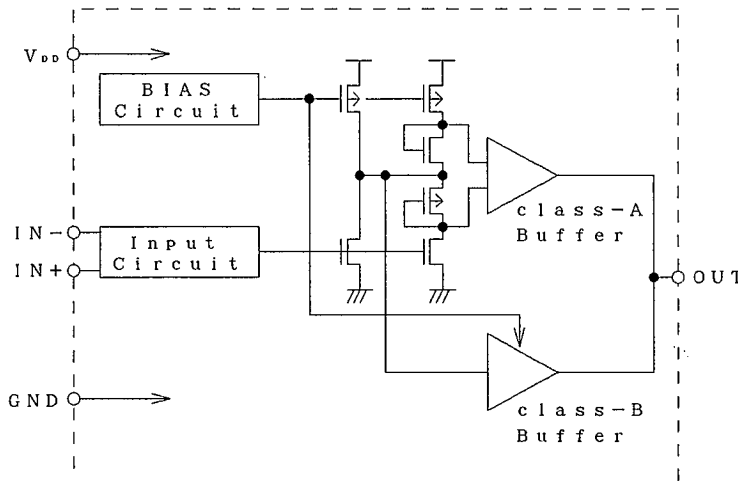
- Single Power Supply
- Wide Operating Voltage Range ( $V_{DD}$  2.4V ~ 5.5V)
- Nearly Full-Swing Output ( $V_{SS}+0.3V \sim V_{DD}-0.3V$  at  $I_{out}=\pm 40mA$ )
- Low Distortion (0.05% at  $R_L=38\Omega$ , 1.0V<sub>p-p</sub>)
- Low Operating Current (2mA at  $V_{DD}=3V$ )
- Package Outline --- DMP8 / SSOP8
- C-MOS Technology

■ PIN CONFIGURATION



5

■ EQUIVALENT CIRCUIT (as single circuit)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>DD</sub>	7	V
Input Voltage	V <sub>ID</sub>	V <sub>SS</sub> - 0.3 ~ V <sub>DD</sub> +0.3	V
Power Dissipation	P <sub>D</sub>	250(SSOP8) 300(DMP8)	mW
Operating Temperature	T <sub>opr</sub>	- 25 ~ + 75	°C
Storage Temperature	T <sub>stg</sub>	- 40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS 1

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage Range	V <sub>DD</sub>		2.4		5.5	V

■ ELECTRICAL CHARACTERISTICS 2 (V<sub>DD</sub>=3V)

(Ta=25°C, V<sub>DD</sub>=3V, V<sub>SS</sub>=0V, f=1kHz)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Current	I <sub>DD</sub>	No Load Condition : Voltage Follower V <sub>O</sub> =1.5V		2	3	mA
Input Offset Voltage	V <sub>IO</sub>		-10		10	mV
Input Offset Current	I <sub>IO</sub>			10		pA
Input Bias Current	I <sub>IB</sub>			10		pA
Input Impedance	R <sub>IN</sub>			10 <sup>12</sup>		Ω
Input Common Mode Voltage Range	V <sub>ICM</sub>		0.2~2			V
Maximum Output Voltage Range	V <sub>OM</sub>	I <sub>out</sub> = 40mA	2.6	2.7		V
		I <sub>out</sub> =-40mA		0.3	0.4	
Maximum Output Current	I <sub>OM</sub>	(D+N)/S<0.1% Source		30		mA
		(D+N)/S<0.1% Sink		-30		
Large-Signal Voltage gain	A <sub>v</sub>		55			dB
Common Mode Rejection ration	CMRR	V <sub>ICM</sub> =0.2~2.0V	53			dB
Supply Voltage Rejection ration	PSRR	V <sub>DD</sub> =2.7~3.3V	55			dB
Total Harmonic Distortion	(D+N)/S	V <sub>O</sub> =1.0V <sub>p-p</sub> 0~10dB, 38Ω		0.05		%
Equivalent Input Noise Voltage	E <sub>nt</sub>	IEC-A		3		μVrms
Signal to Noise Ratio	S/N			110		dB
Unity Gain Bandwidth	F <sub>t</sub>	C <sub>L</sub> =10pF, OPEN LOOP		1.5		MHz
Slew Rate	SR	Unity Gain Turn Over, C <sub>L</sub> =32pF R <sub>L</sub> =2kΩ		1		V/μs
Channel Separation	α	V <sub>O</sub> =0.6Vrms		100		dB

NOTE1) The NJU7082B should be operated gaining of triple or more for stable operation.

NOTE2) When the NJU7082B using no-current-load and low gain application (voltage follower, etc.), oscillation will be worst. In this case, the stray capacitance of the output terminal should be less than 100pF.

5

# NJU7082B

## ELECTRICAL CHARACTERISTICS 3 ( $V_{DD}=5V$ )

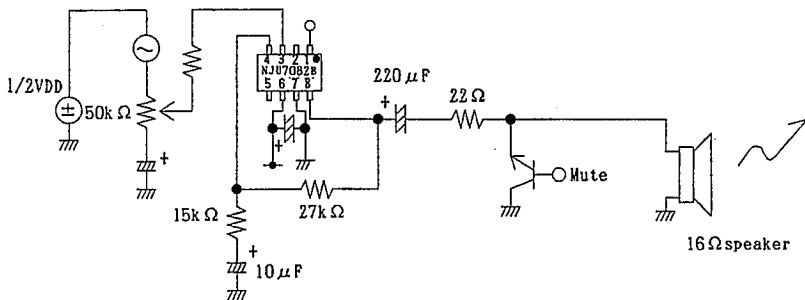
( $T_a=25^\circ C$ ,  $V_{DD}=5V$ ,  $V_{SS}=0V$ ,  $f=1kHz$ )

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Current	$I_{DD}$	No Load Condition : Voltage Follower $V_o=2.5V$		3	4	mA
Input Offset Voltage	$V_{IO}$		-10		10	mV
Input Offset Current	$I_{IO}$			10		pA
Input Bias Current	$I_{IB}$			10		pA
Input Resistor	$R_{IN}$			$10^{12}$		$\Omega$
Input Common Mode Voltage Range	$V_{ICM}$		0.4~4			V
Maximum Output Voltage Range	$V_{OM}$	$I_{out}=40mA$	4.6	4.7		V
		$I_{out}=-40mA$		0.3	0.4	
Maximum Output Current	$I_{OM}$	(D+N)/S<0.1% Source		30		mA
		(D+N)/S<0.1% Sink		-30		
Large-Signal Voltage gain	$A_v$		55			dB
Common Mode Rejection ration	CMRR	$V_{ICM}=0.4\sim 4.0V$	53			dB
Supply Voltage Rejection ration	PSRR	$V_{DD}=4.5\sim 5.5V$	55			dB
Total Harmonic Distortion	(D+N)/S	$V_o=1.0V_{p-p}$ 0~10dB, 38 $\Omega$		0.05		%
Equivalent Input Noise Voltage	$E_{nt}$	IEC-A		3		$\mu V_{rms}$
Signal to Noise Ratio	S/N			115		dB
Unity Gain Bandwidth	$F_t$	CL=10pF, OPEN LOOP		1.5		MHz
Slew Rate	SR	Unity Gain Turn Over, CL=32pF RL=2k $\Omega$		1		V/ $\mu s$
Channel Separation	$\alpha$	$V_o=1.0V_{rms}$		105		dB

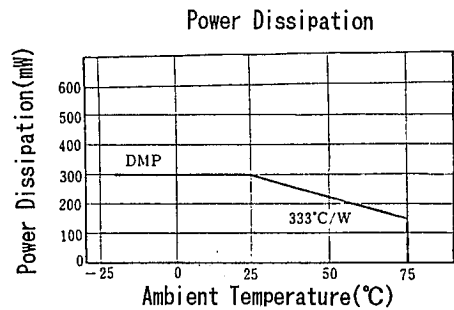
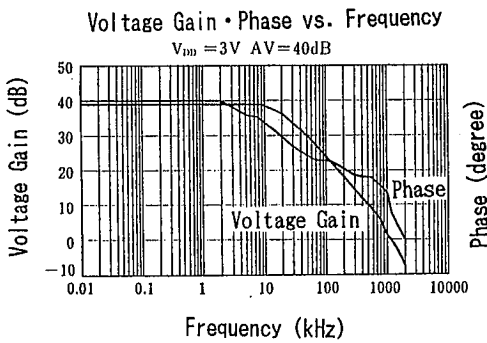
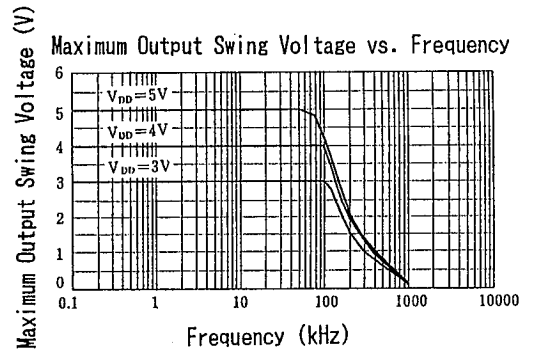
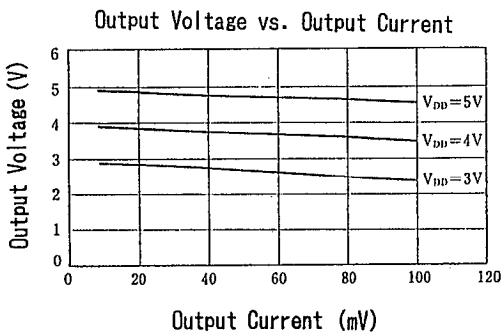
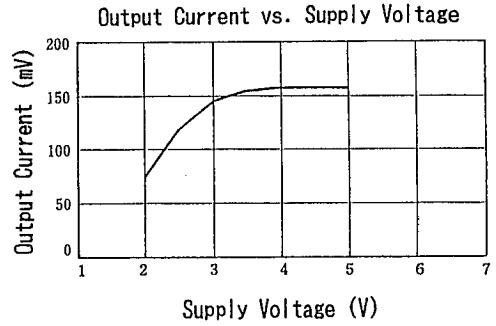
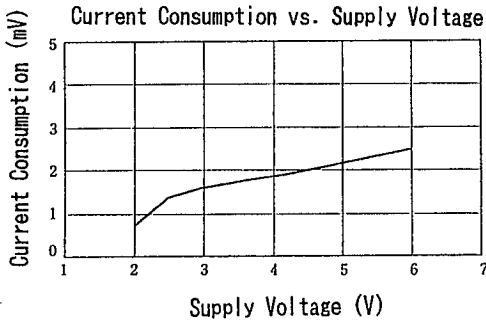
NOTE3) The NJU7082B should be operated gaining of triple or more for stable operation.

NOTE4) When the NJU7082B using no-current-load and low gain application (voltage follower, etc.), oscillation will be worst. In this case, the stray capacitance of the output terminal should be less than 100pF.

## APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



5

## MEMO

[CAUTION]

The specifications on this databook are only given for information , without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Audio Amplifiers](#) category:*

*Click to view products by [Nisshinbo](#) manufacturer:*

Other Similar products are found below :

[LV47002P-E](#) [NCP2811AFCT1G](#) [NCP2890AFCT2G](#) [SSM2377ACBZ-R7](#) [IS31AP4915A-QFLS2-TR](#) [NCP2820FCT2G](#) [TDA1591T](#)  
[TDA7563AH](#) [SSM2529ACBZ-R7](#) [MAX9890AETA+T](#) [TS2012EIJT](#) [NCP2809BMUTXG](#) [NJW1157BFC2](#) [SSM2375CBZ-REEL7](#)  
[IS31AP4996-GRLS2-TR](#) [STPA002OD-4WX](#) [NCP2823BFCT1G](#) [MAX9717DETA+T](#) [MAX9717CETA+T](#) [MAX9724AEBC+TG45](#)  
[LA4450L-E](#) [IS31AP2036A-CLS2-TR](#) [MAX9723DEBE+T](#) [TDA7563ASMTR](#) [AS3561-DWLT](#) [SSM2517CBZ-R7](#) [MP1720DH-12-LF-P](#)  
[SABRE9601K](#) [THAT1646W16-U](#) [MAX98396EWB+](#) [PAM8965ZLA40-13](#) [BD37532FV-E2](#) [BD5638NUX-TR](#) [BD37512FS-E2](#) [BD37543FS-](#)  
[E2](#) [BD3814FV-E2](#) [TPA3140D2PWPR](#) [TS2007EIJT](#) [IS31AP2005-DLS2-TR](#) [SSM2518CPZ-R7](#) [AS3410-EQFP-500](#) [FDA4100LV](#)  
[MAX98306ETD+T](#) [TS4994EIJT](#) [NCP2820FCT1G](#) [NCP2823AFCT2G](#) [NCS2211MNTXG](#) [CPA2233CQ16-A1](#) [OPA1604AIPWR](#)  
[OPA1612AQDRQ1](#)