

## HEADPHONE AMPLIFIER for CD-ROM

### GENERAL DESCRIPTION

The **NJM2769B** is a headphone amplifier designed for CD-ROM.

It includes 6dB closed loop gain and mute circuit, requires few external component.

The **NJM2769B** realizes very low turn-noise at mute mode. It is suitable for CD-ROM, and other general audio headphone amplifier application.

### PACKAGE OUTLINE



**NJM2769BM**  
(DMP8)



**NJM2769BRB1**  
MSOP8(TVSP8)

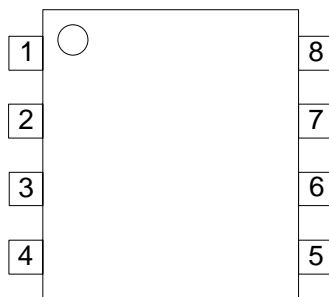
### FEATURES

- Operating Voltage                    2.8 to 5.5V
- Operating Current                    2mA typ. at  $V^+ = 5V$
- Fixed Gain                            6dB typ.
- Stereo Headphone Output
- Internal Mute Circuit
- Bipolar Technology
- Package Outline

DMP8  
MSOP8(TVSP8)\*

\*MEET JEDEC MO-187-DA / THIN TYPE

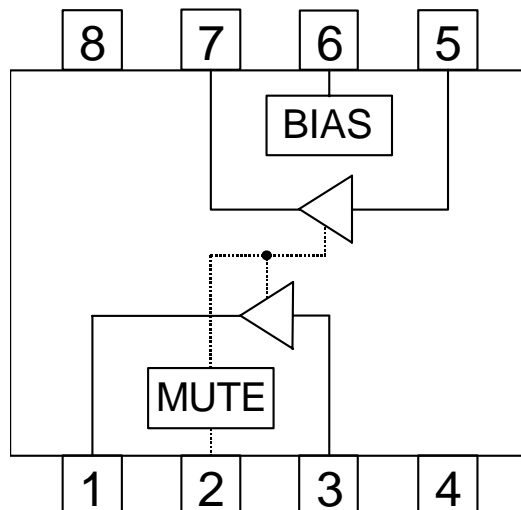
### PIN CONFIGURATION



#### PIN FUNCTION

- 1. OUT1
- 2. MUTE
- 3. IN1
- 4. GND
- 5. IN2
- 6. BIAS
- 7. OUT2
- 8.  $V^+$

### BLOCK DIAGRAM



# NJM2769B

## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER                   | SYMBOL         | RATINGS                                       | UNIT |
|-----------------------------|----------------|---|------|
| Supply Voltage              | V <sup>+</sup> | +7  | V    |
| Power Dissipation           | P <sub>D</sub> | (DMP8) 375<br>750 (note)<br>(MSOP8(TVSP8))320 | mW   |
| Operating Temperature Range | Topr           | -40 to +85                                    | °C   |
| Storage Temperature Range   | Tstg           | -50 to +150                                   | °C   |

(note) At on PC board

## ■ ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=5.0V, Vin=-6dBV, f=1kHz, R<sub>L</sub>=32Ω, Ta=25°C unless otherwise specified)

| PARAMETER                 | SYMBOL           | TEST CONDITIONS                                 | MIN. | TYP.          | MAX.           | UNIT                        |
|---------------------------|------------------|---|------|---------------|----------------|-----------------------------|
| Operating Voltage         | V <sup>+</sup>   |   | 2.8  | 5.0           | 5.5            | V                           |
| Operating Current         | I <sub>CC</sub>  | No Signal                                       | -    | 2.0           | 4.0            | mA                          |
| Reference Voltage         | V <sub>ref</sub> | No Signal                                       | -    | 2.1           | -              | V                           |
| Closed Loop Gain          | G <sub>v</sub>   |   | 5    | 6             | 7              | dB                          |
| Channel Balance           | ΔG <sub>v</sub>  |   | -0.5 | 0             | +0.5           | dB                          |
| Output Power              | P <sub>O1</sub>  | R <sub>L</sub> =32Ω, THD=0.1%                   | 30   | 50            | -              | mW                          |
|                           | P <sub>O2</sub>  | R <sub>L</sub> =16Ω, THD=0.1%                   | 40   | 100           | -              | mW                          |
| Total Harmonic Distortion | THD              |   | -    | 0.02          | 0.1            | %                           |
| Output Noise Voltage      | V <sub>no</sub>  | R <sub>g</sub> =0Ω, A-Weighted                  | -    | -98<br>(12.6) | -88<br>(39.8)  | dBV<br>(μV <sub>rms</sub> ) |
| Mute Attenuation          | ATT              | V <sub>o</sub> /V <sub>in</sub>                 | -    | -80           | -70            | dB                          |
| Channel Separation        | CS               |   | 65   | 80            | -              | dB                          |
| Ripple Rejection Ratio    | RR               | V <sub>ripple</sub> =-20dBV, R <sub>g</sub> =0Ω | -    | 65            | -              | dB                          |
| Input Voltage H-level     | V <sub>IH</sub>  |   | 2.0  | -             | V <sup>+</sup> | V                           |
| Input Voltage L-level     | V <sub>IL</sub>  |   | 0.0  | -             | 0.3            | V                           |

## ■ CONTROL PIN INFORMATION

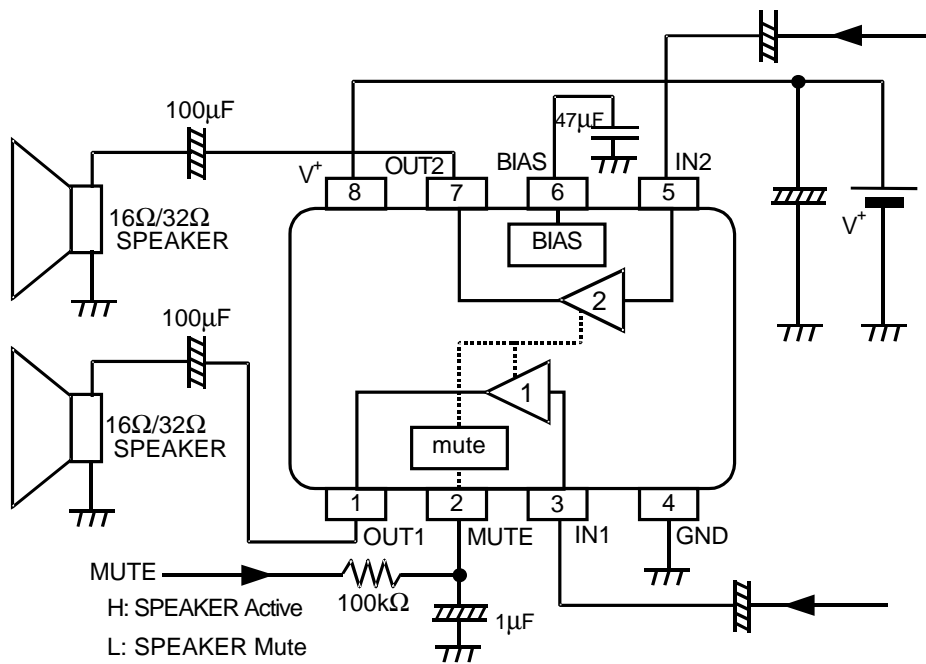
| PARAMETER | CONTROL SIGNAL | OPERATING CONDITION |
|-----------|----------------|---------------------|
| MUTE ON   | L              | NON-SIGNAL          |
| MUTE OFF  | H              | OUTPUT SIGNAL       |

## ■ TERMINAL DESCRIPTION

| PIN NO. | SYMBOL       | FUNCTION  | EQUIVALENT CIRCUIT | TERMINAL VOLTAGE    |
|---------|--------------|---|--------------------|---------------------|
| 1<br>7  | OUT1<br>OUT2 | OUTPUT1<br>OUTPUT2  |                    | $(V^+ - 1V_{BE})/2$ |
| 2       | MUTE         | MUTE CONTROL  |                    | -                   |
| 3<br>5  | IN1<br>IN2   | INPUT1<br>INPUT2  |                    | $(V^+ - 1V_{BE})/2$ |
| 6       | BIAS         | REFERENCE VOLTAGE<br>STABILIZED CAPACITOR<br>CONNECT TERMINAL |                    | $(V^+ - 1V_{BE})/2$ |

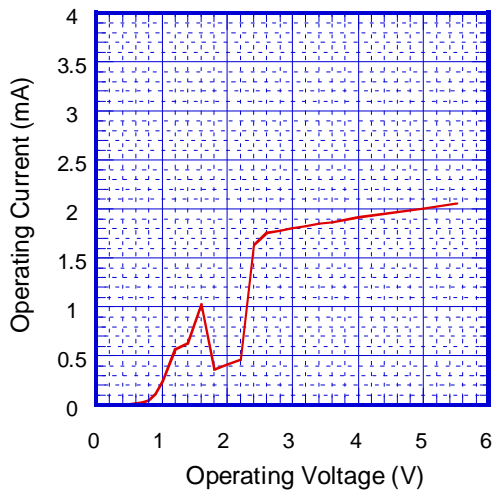
# NJM2769B

## ■ TYPICAL APPLICATION

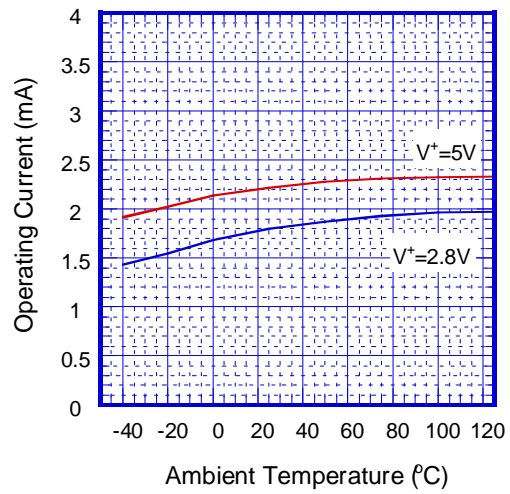


## ■ TYPICAL CHARACTERISTICS

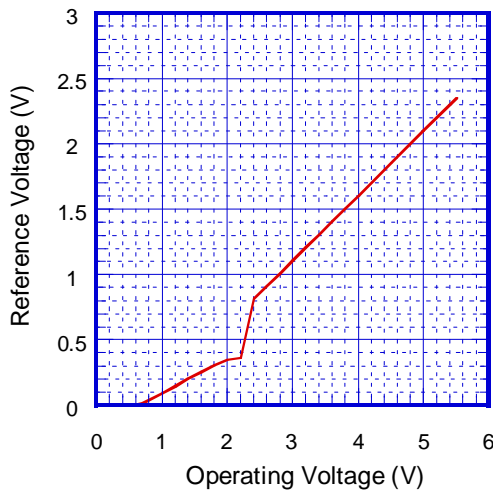
Operating Current vs. Operating Voltage  
(MUTE=V+)



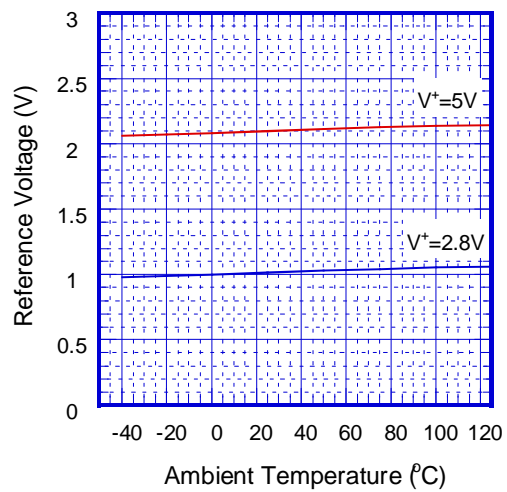
Operating Current vs. Ambient Temperature



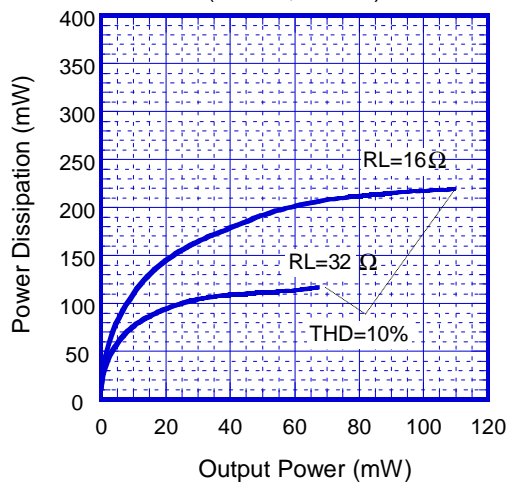
Reference Voltage vs. Operating Voltage



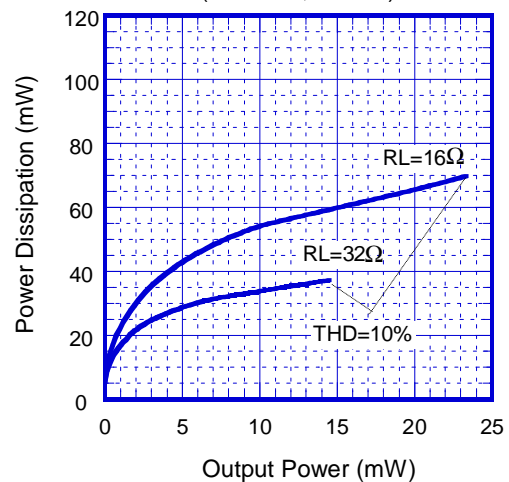
Reference Voltage vs. Ambient Temperature



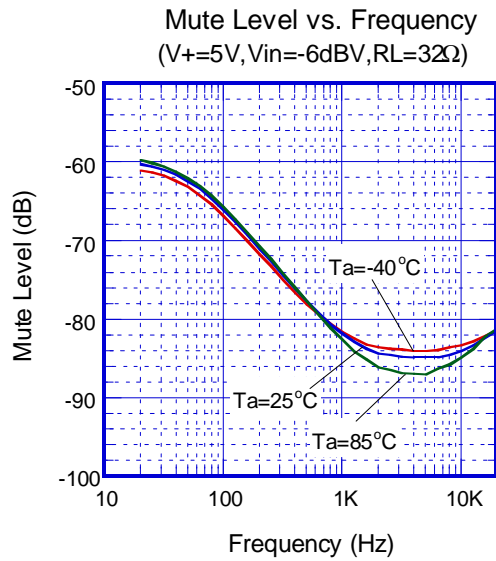
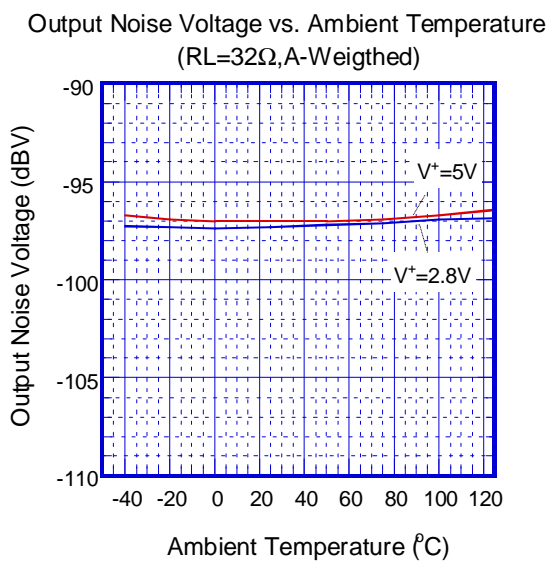
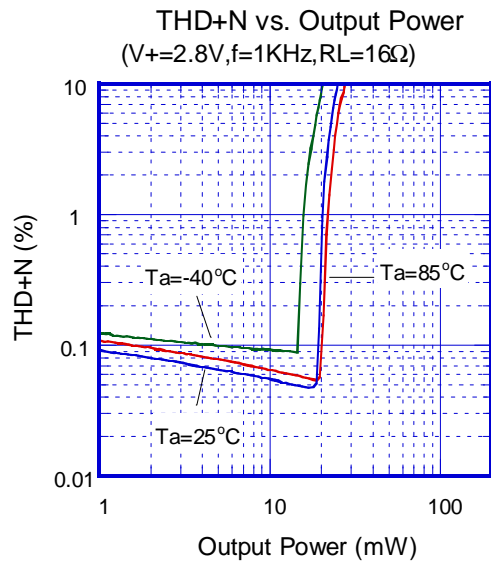
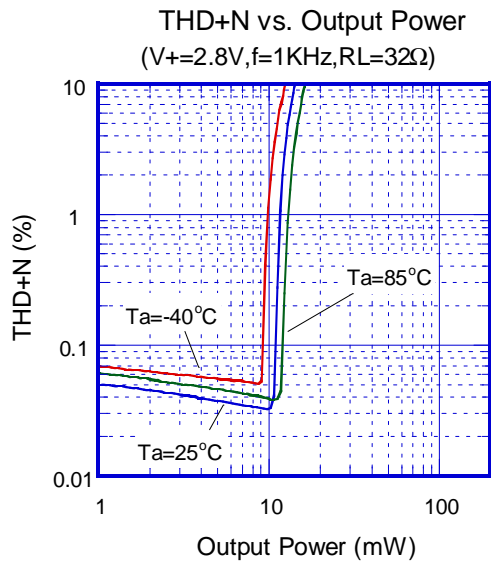
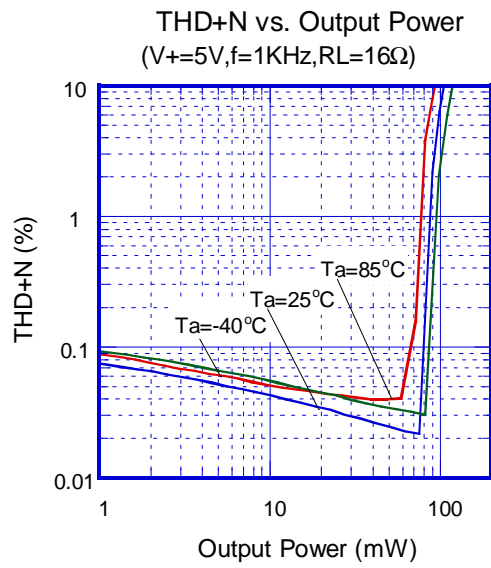
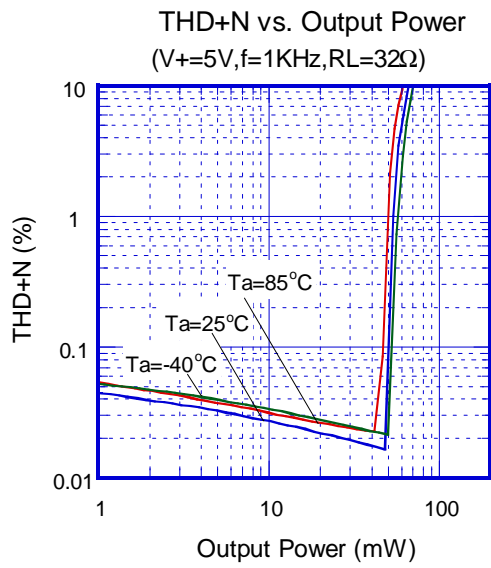
Power Dissipation vs. Output Power  
(V+=5V, f=1KHz)



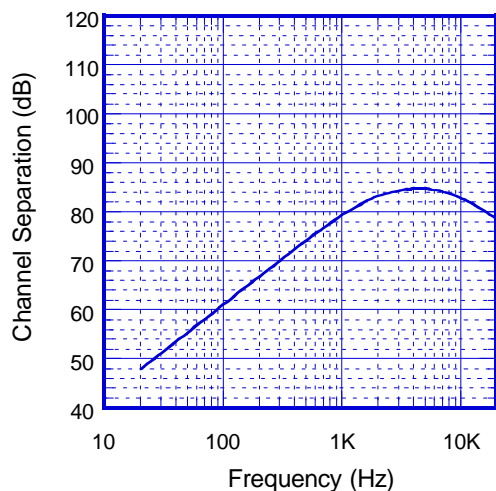
Power Dissipation vs. Output Power  
(V+=2.8V, f=1KHz)



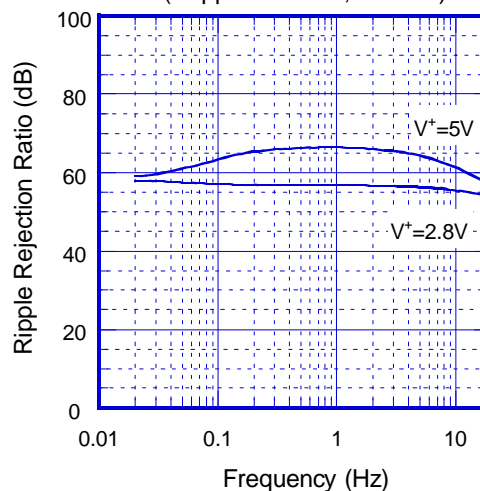
# NJM2769B



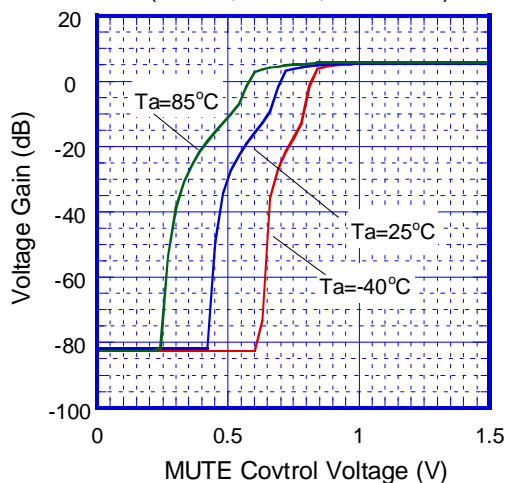
Channel Separation vs. Frequency  
( $V^+=5V, f=1KHz, R_L=32\Omega$ )



Ripple Rejection Ratio vs. Frequency  
( $V_{ripple}=-20dBV, R_L=32\Omega$ )



Voltage Gain vs Mute Control Voltage  
( $V^+=5V, f=1KHz, V_{in}=-6dBV$ )



**[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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[NJR:](#)

[NJM2769BRB1-TE1](#)