

HEADPHONE AMPLIFIER for CD-ROM

GENERAL DESCRIPTION

The **NJM2768B** is a headphone amplifier designed for CD-ROM.

It includes 0dB closed loop gain and mute circuit, requires few external component.

The **NJM2768B** realizes very low turn-noise at mute mode. It is suitable for CD-ROM, and other general audio headphone amplifier application.

PACKAGE OUTLINE



NJM2768BM
(DMP8)



NJM2768BRB1
MSOP8(TVSP8)

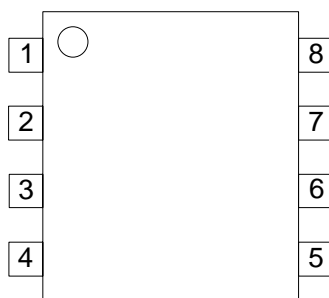
FEATURES

- Operating Voltage 2.8 to 5.5V
- Operating Current 2mA typ. at $V^+ = 5V$
- Fixed Gain 0dB typ.
- Stereo Headphone Output
- Internal Mute Circuit
- Bipolar Technology
- Package Outline

DMP8
MSOP8(TVSP8)*

*MEET JEDEC MO-187-DA / THIN TYPE

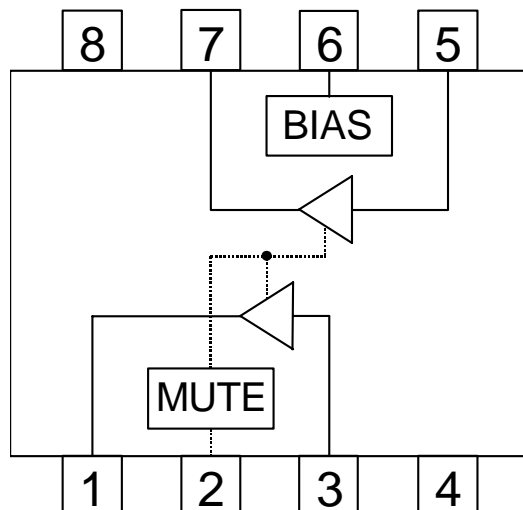
PIN CONFIGURATION



PIN FUNCTION

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

BLOCK DIAGRAM



NJM2768B

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	+7	V
Power Dissipation	P _D	(DMP8) 375 750 (note) (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⁺=5.0V, Vin=0dBV, f=1kHz, R_L=32Ω, Ta=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V ⁺		2.8	5.0	5.5	V
Operating Current	I _{CC}	No Signal	-	2.0	4.0	mA
Reference Voltage	V _{ref}	No Signal	-	2.1	-	V
Closed Loop Gain	G _v		-1	0	1	dB
Channel Balance	ΔG _v		-0.5	0	+0.5	dB
Output Power	P _{O1}	R _L =32Ω, THD=0.1%	30	50	-	mW
	P _{O2}	R _L =16Ω, THD=0.1%	40	100	-	mW
Total Harmonic Distortion	THD		-	0.02	0.1	%
Output Noise Voltage	V _{no}	R _g =0Ω, A-Weighted	-	-104 (6.3)	-94 (20)	dBV (μVrms)
Mute Attenuation	ATT	V _o /V _{in}	-	-80	-70	dB
Channel Separation	CS		90	110	-	dB
Ripple Rejection Ratio	RR	V _{ripple} =-20dBV, R _g =0Ω	-	70	-	dB
Input Voltage H-level	V _{IH}		2.0	-	V ⁺	V
Input Voltage L-level	V _{IL}		0.0	-	0.3	V

■ CONTROL PIN INFORMATION

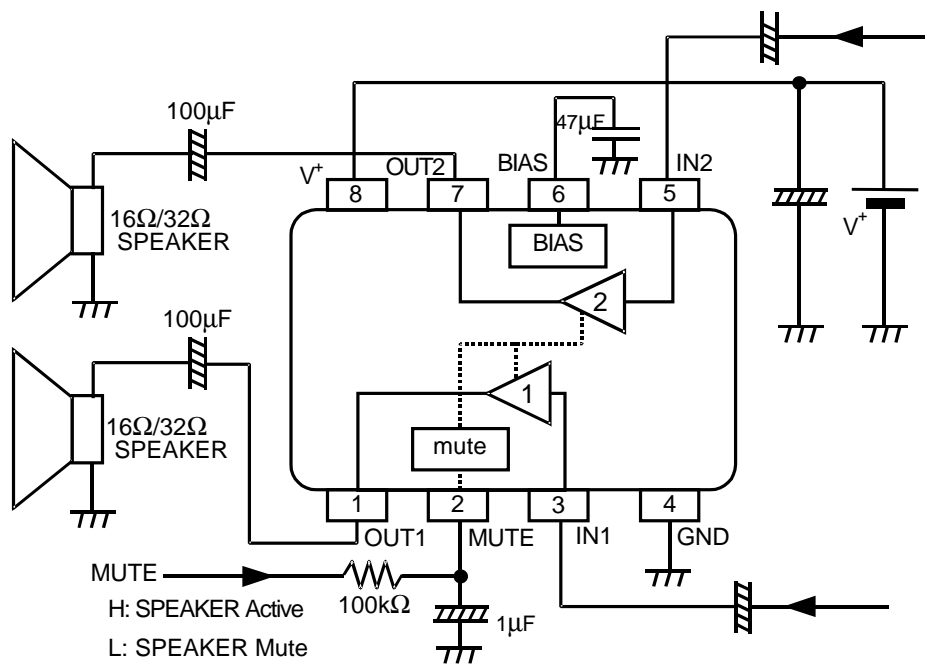
PARAMETER	CONTROL SIGNAL	OPERATING CONDITION
MUTE ON	L	NON-SIGNAL
MUTE OFF	H	OUTPUT SIGNAL

■ TERMINAL DESCRIPTION

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

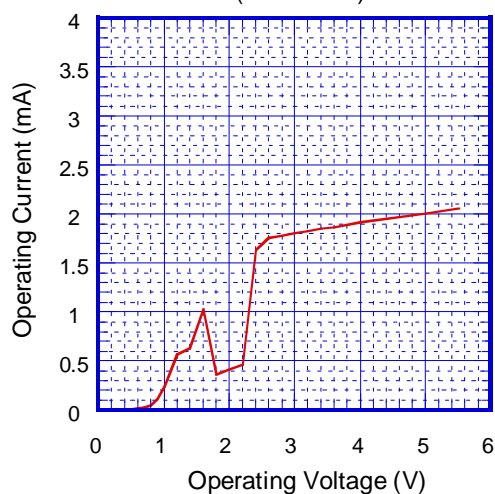
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■ TYPICAL APPLICATION

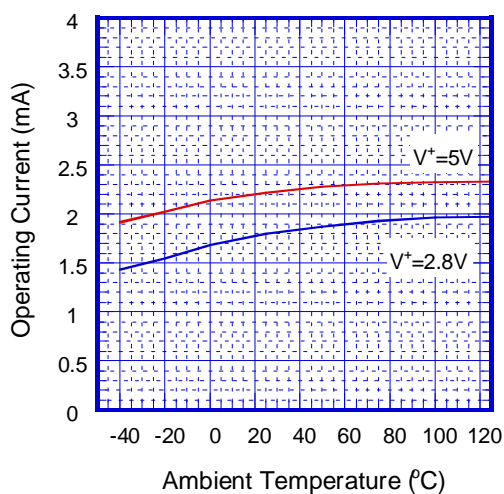


■ TYPICAL CHARACTERISTICS

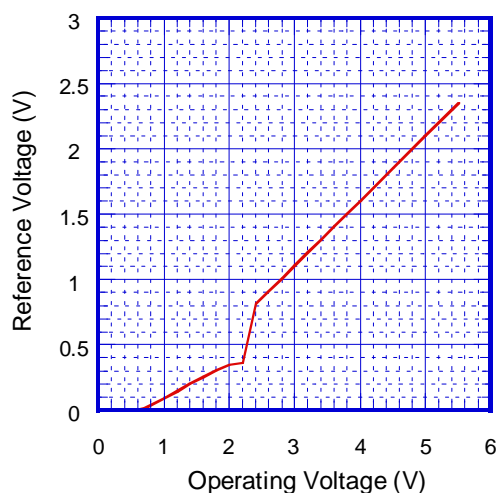
Operating Current vs. Operating Voltage
(MUTE=V+)



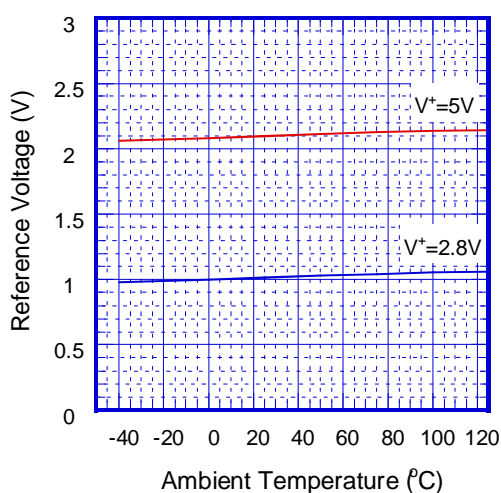
Operating Current vs. Ambient Temperature



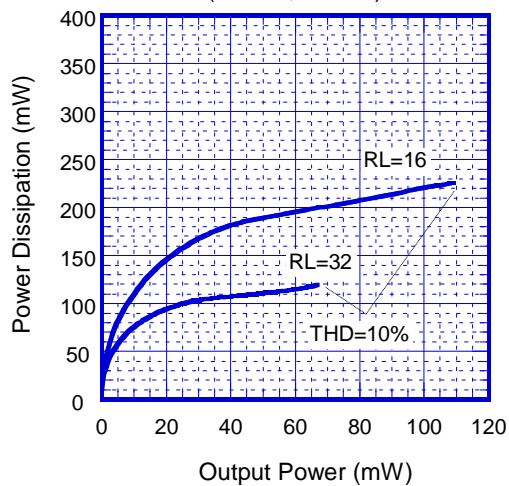
Reference Voltage vs. Operating Voltage



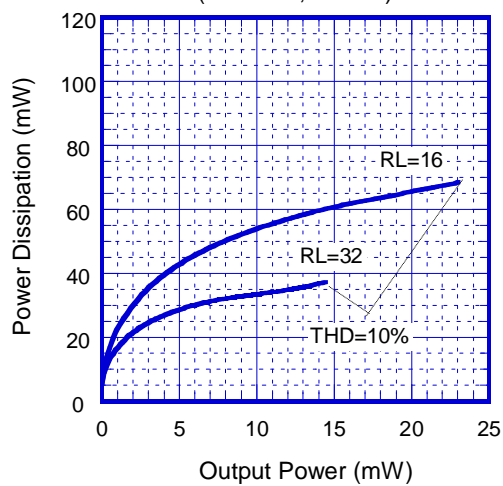
Reference Voltage vs. Ambient Temperature



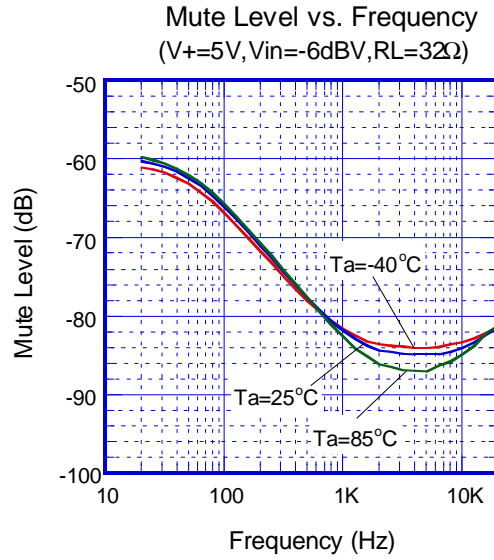
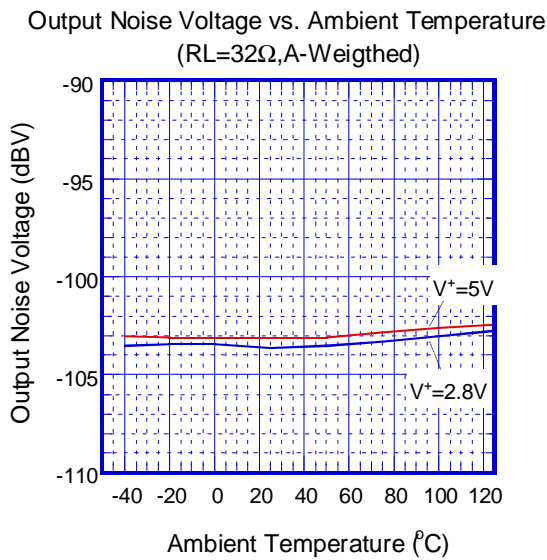
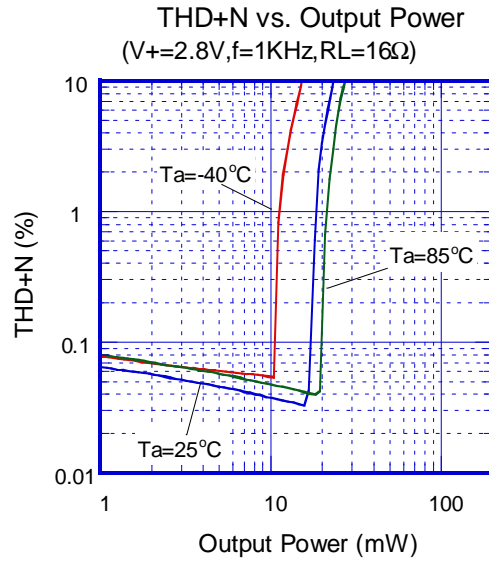
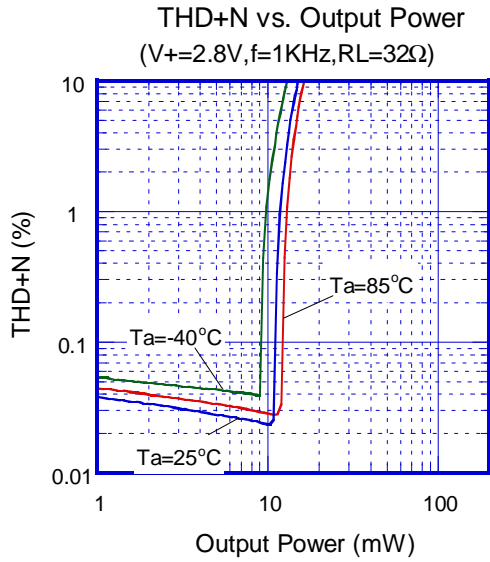
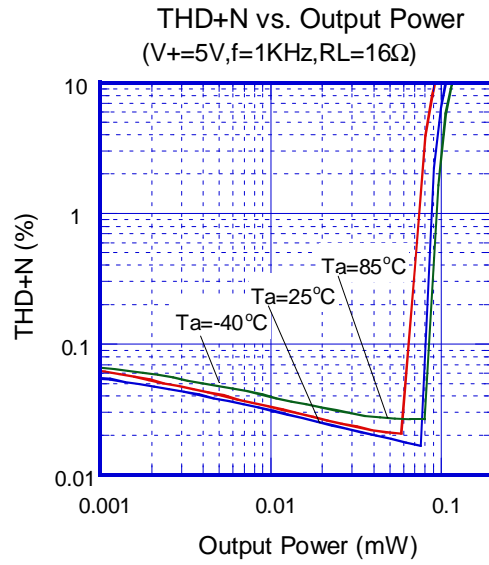
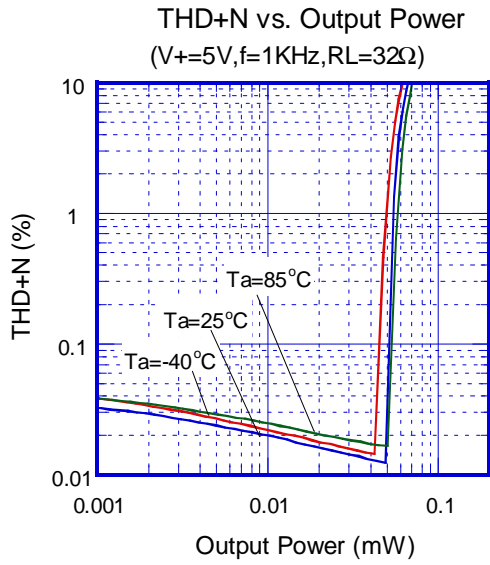
Power Dissipation vs. Output Power
(V+=5V, f=1KHz)



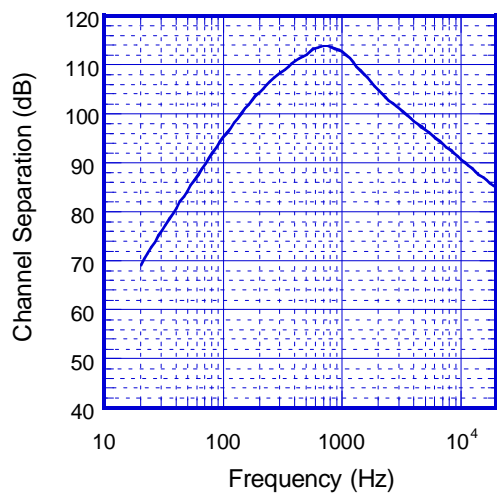
Power Dissipation vs. Output Power
(V+=2.8V, f=1KHz)



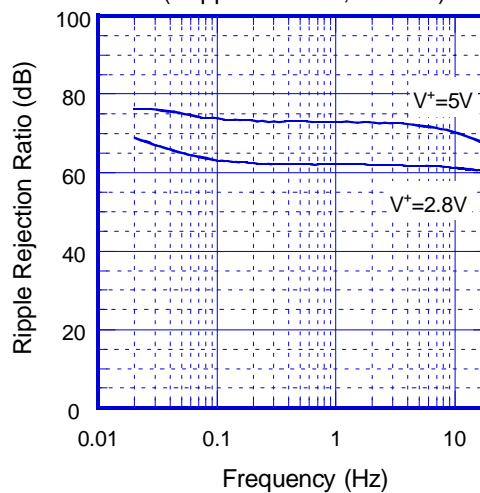
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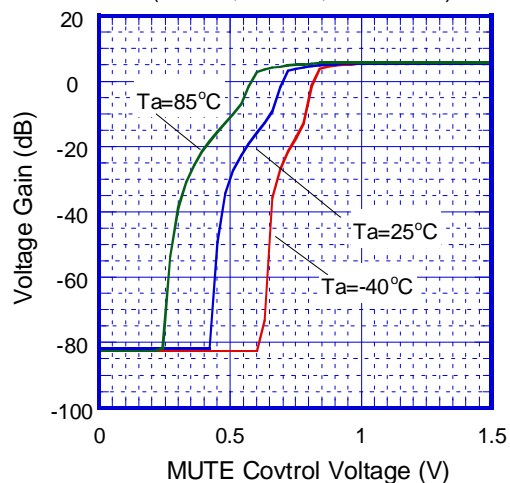
Channel Separation vs. Frequency
($V_+ = 5V, f = 1KHz, R_L = 32\Omega$)



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]
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