

LOW-VOLTAGE HEADPHONE AMPLIFIER for PORTABLE-AUDIO

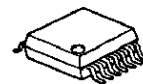
■ GENERAL DESCRIPTION

The **NJM2772** is a low voltage headphone amplifier for portable audio.

The **NJM2772** includes mute circuit, center amplifier and beep input, reduce the external parts, standby circuit and center amplifier with ON/OFF, applies to low current consumption. The mute function reduces the turn-noise at standby mode.

The NJM2772 is suitable for portable MD, CD, and others portable audio system with headphone amplifier.

■ PACKAGE OUTLINE

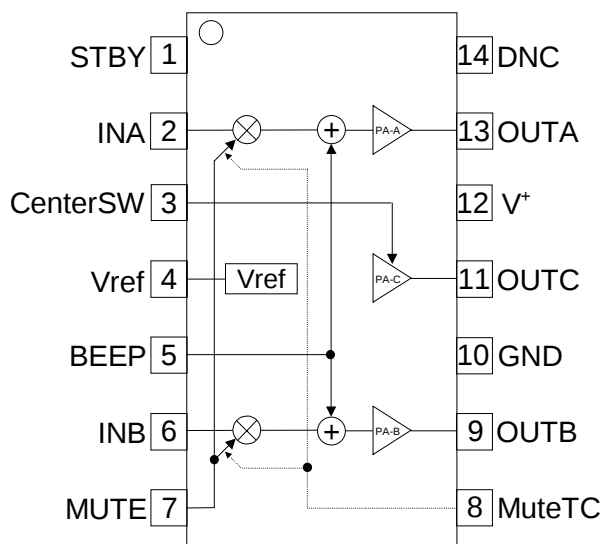


NJM2772V

■ FEATURES

- Operating Voltage $V^+ = 1.8\text{--}4.5\text{V}$
- Operating Current 1.2mA typ. @Center Amp. Off
2.0mA typ. @Center Amp. On
- Low Standby Current 18 μA typ.
- High Output Power 6mWmin. @ $R_L = 16\Omega$, THD=10%
- Fixed Gain 11.5dB typ.
- Package Outline SSOP14
- Bipolar Technology

■ PIN CONFIGURATION & BLOCK DIAGRAM



Pin Function

1. STBY
2. INA
3. CenterSW
4. V_{REF}
5. BEEP
6. INB
7. MUTE
8. MuteTC
9. OUTB
10. GND
11. OUTC
12. V^+
13. OUTA
14. DNC

Note) DNC(14pin): Do not connect

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	5	V
Power Dissipation	P _D	(SSOP14) 300	mW
Operating Temperature Range	Topr	-20 to +75	°C
Storage Temperature Range	Tstg	-40 to +125	°C

■ RECOMMENDED OPERATING CONDITIONS

(Ta=25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Voltage Range	V ⁺	1.8	2.3	4.5	V

■ ELECTRICAL CHARACTERISTICS

(V⁺=2.3V, R_g=600Ω, R_L=16Ω, f=1kHz, STBY-OFF, MUTE-OFF, CA-ON, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I _{CC1}	STANDBY-ON, MUTE-ON	-	18	26	μA
	I _{CC2}	No signal, CA-OFF	-	1.2	2.0	mA
	I _{CC3}	No signal	-	2.0	4.0	mA
	I _{CC4}	P _O =0.5mW+0.5mW, CA-OFF	-	5.8	-	mA
	I _{CC5}	P _O =0.5mW+0.5mW	-	11.7	-	mA
	I _{CC6}	P _O =0.1mW+0.1mW, CA-OFF	-	3.0	-	mA
	I _{CC7}	P _O =0.1mW+0.1mW	-	5.9	-	mA
Reference Voltage	V _{REF}	No signal	0.70	0.75	0.80	V
Voltage Gain	G _V	V _{IN} =-30dBV	10.5	11.5	12.5	dB
Output Power	P _{O1}	THD=10%	6.0	8.0	-	mW
	P _{O2}	V ⁺ 1=1.8V, THD=10%	3.0	4.0	-	
Total Harmonic Distortion	THD	V _{IN} =-30dBV	-	0.1	0.5	%
Output Noise Voltage	V _{NO}	A-Weighted	-	-98 (12.6)	-94 (20)	dBV (μVrms)
Cross-talk	CT	V _{IN} =-30dBV, V _O =-18.5dBV	-	-40	-24	dB
Mute Level	MUTE	MUTE-ON, V _{IN} =-30dBV, A-Weighted	-	-95	-80	dBV
Beep Output Voltage	V _{BEEP}	BEEP-IN=2Vpp	-55	-50	-45	dBV
Supply Voltage Rejection Ratio	SVR	V ⁺ =1.8V+0.1Vrms:1kHz	65	70	-	dB

■ CONTROL TERMINAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
H Level Input Voltage	V _{IH}	STBY(1Pin), CSW(3Pin), MUTE(7Pin)	0.8	-	V ⁺	V
L Level Input Voltage	V _{IL}	STBY(1Pin), CSW(3Pin), MUTE(7Pin)	0	-	0.3	V
H Level Input Voltage	V _{BH}	BEEP(5Pin)	0.8	-	V ⁺	V
L Level Input Voltage	V _{BL}	BEEP(5Pin)	0	-	0.3	V

■ CONTROL TERMINAL EXPLANATION

◆ STBY (1Pin)

PARAMETER	CONTROL SIGNAL	STATUS
STANDBY ON	L	IC is standby.
STANDBY OFF	H	IC is active.

◆ Center-SW (3Pin)

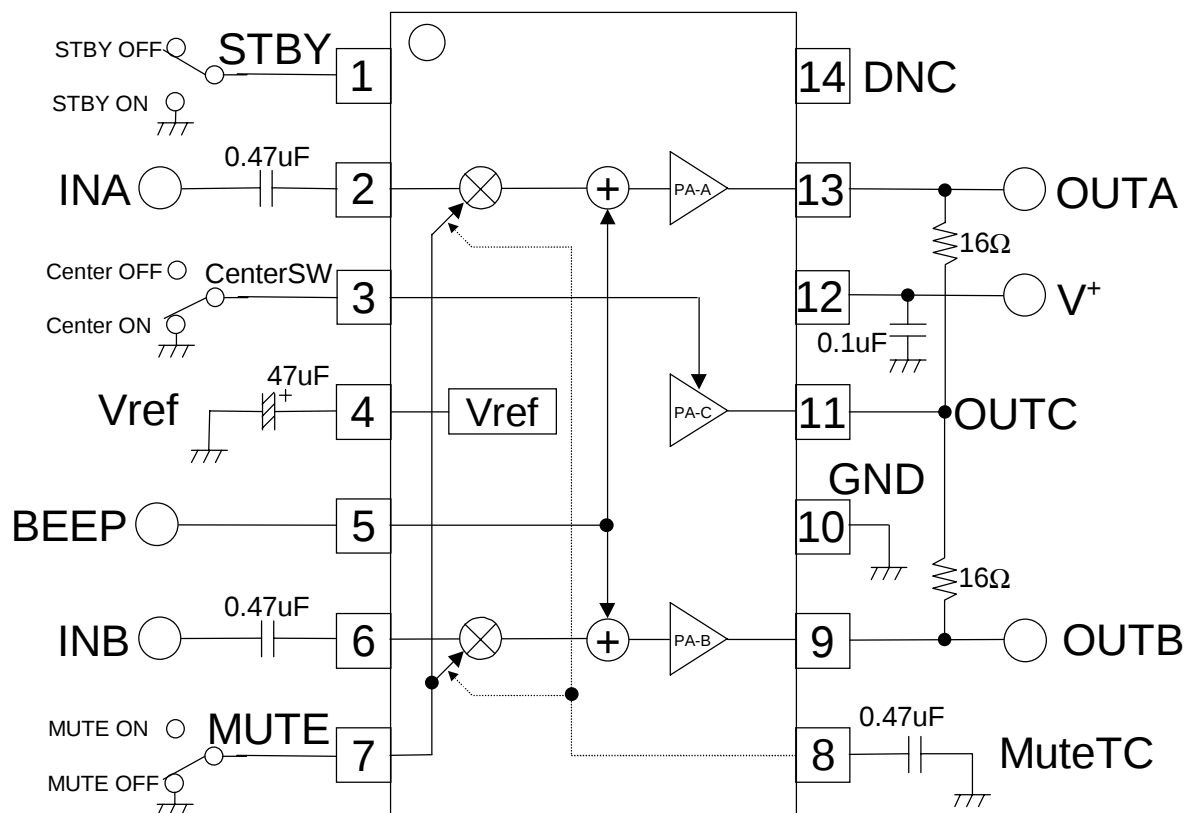
PARAMETER	CONTROL SIGNAL	STATUS
Center Amp. ON	L	Center Amp. is active. Can operate output coupling capacitor less.
Center Amp. OFF	H	When output coupling capacitor is used, realize low current consumption to be Center Amp. OFF.

◆ MUTE (7Pin)

PARAMETER	CONTROL SIGNAL	STATUS
MUTE ON	H	IC output no signal.
MUTE OFF	L	IC output the signal.

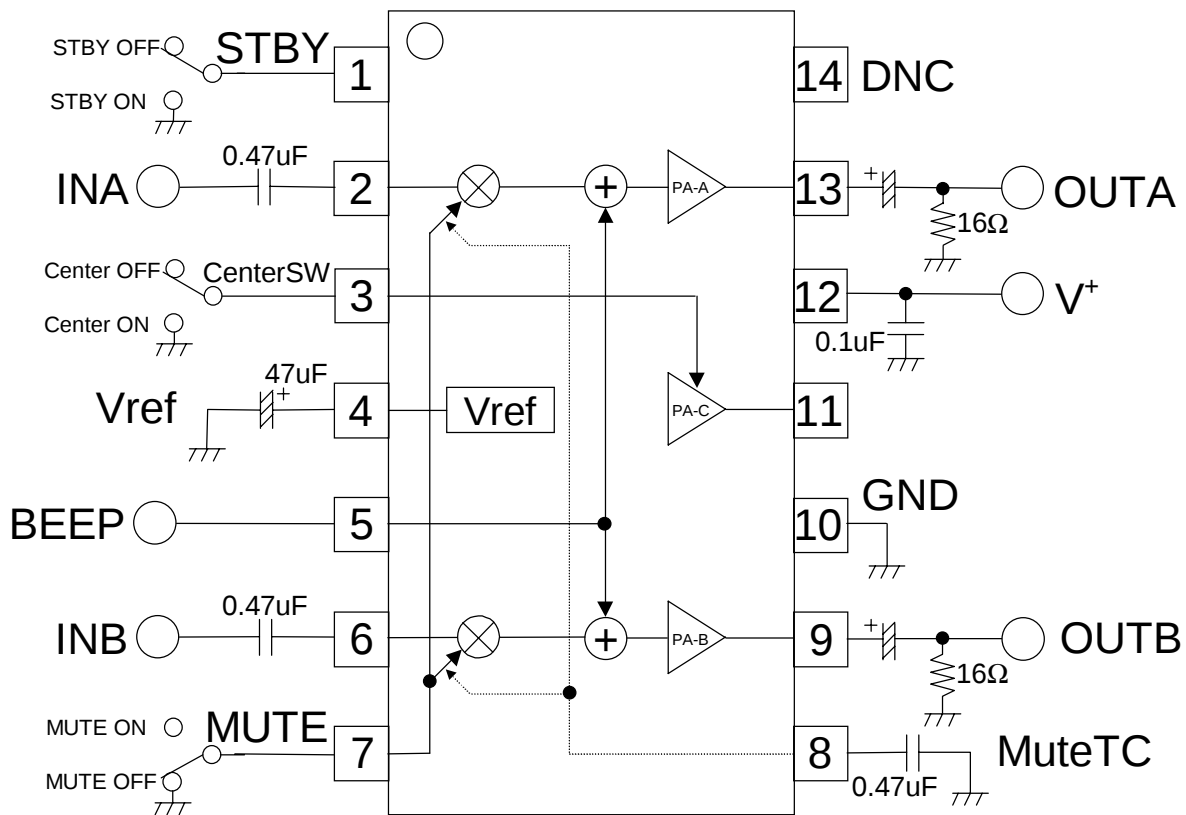
■ APPLICATION CIRCUIT

1) Center Amp. On Mode



APPLICATION CIRCUIT

2) Center Amp. Off Mode



Note) When the BEEP terminal (5pin) is useless, short to GND.

[CAUTION]

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