

LOW VOLTAGE MICROPHONE AMPLIFIER for PORTABLE AUDIO

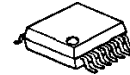
■ GENERAL DESCRIPTION

The **NJM2173** is a low voltage microphone amplifier designed for portable audio items.

It includes standby, two-type gain selector, and power ripple rejection adjustment circuit. It realizes very low turn-noise at standby mode.

It is suitable for portable Mini-Disc, portable Compact-Disc, and other microphone amplifier application.

■ PACKAGE OUTLINE

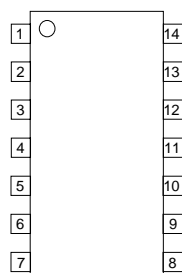


NJM2173V

■ FEATURES

- | | |
|--|--------------------------|
| ● Operating Voltage Range | 2.7 to 4.5V |
| ● Operating Current | 2.2mA typ. at $V^+=2.7V$ |
| ● Supply Current in Standby Mode | 1 μA max. |
| ● Maximum Output Voltage | -1.5dBV typ. at THD=0.1% |
| ● Internal Two-type Gain Select Function | 13dB typ./ 29dB typ. |
| ● Internal Standby Function | |
| ● Power Ripple Rejection Terminal | 95dB typ. at $G_v=13dB$ |
| ● Bipolar Technology | |
| ● Package Outline | SSOP14 |

■ PIN CONFIGURATION

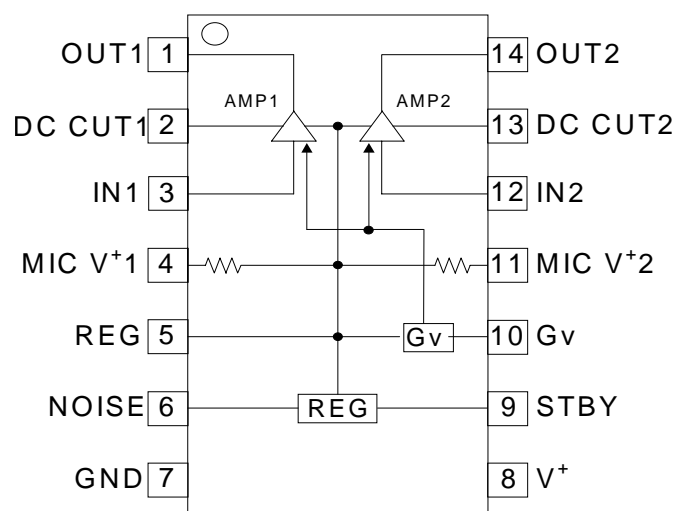


NJM2173V

PIN FUNCTION

- | | |
|---------------|----------------|
| 1. OUT 1 | 8. V^+ |
| 2. DC CUT 1 | 9. STBY |
| 3. IN 1 | 10. G_v |
| 4. MIC V^+1 | 11. MIC V^+2 |
| 5. REG | 12. IN 2 |
| 6. NOISE | 13. DC CUT 2 |
| 7. GND | 14. OUT 2 |

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	5	V
Maximum Input Voltage	V _{IN}	(3, 12pin) -0.3 to V _{REG} +0.3	V
Power Dissipation	P _D	300	mW
Operating Temperature Range	T _{opr}	-20 to +75	°C
Storage Temperature Range	T _{stg}	-40 to +125	°C

■ ELECTRICAL CHARACTERISTICS (V⁺=2.7V, G_v=13dB, V_{IN}=-40dBV, R_L=9kΩ, f=1kHz, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage Range	V ⁺		2.7	-	4.5	V
Operating Current 1	I _{CC1}	Standby On:STBY= V ⁺	-	-	1.0	μA
Operating Current 2	I _{CC2}	G _v =29dB, No Signal, Standby Off :STBY=GND	-	2.2	2.8	mA
Output Voltage	V _O	No Signal	1.28	1.35	1.42	V
Voltage Gain 1	G _{v1}	10pin=L	12	13	14	dB
Voltage Gain 2	G _{v2}	10pin=H	28	29	30	dB
Maximum Output Voltage	V _{OM}	THD=0.1%	-2.7	-1.5	-	dBV
Total Harmonic Distortion	THD1	V _O =-28.2dBV	-	0.013	0.026	%
	THD2	G _v =29dB, V _O =-28.2dBV	-	0.05	0.1	%
Output Noise Voltage	V _{NO1}	R _g =600Ω, A-Weighted	-	-105 (5.63)	-100 (10)	dBV (μVrms)
	V _{NO2}	R _g =600Ω, A-Weighted, G _v =29dB	-	-95 (17.8)	-90 (32)	dBV (μVrms)
Channel Separation	CS1	R _g =600Ω, V _{IN} =-18dBV	-	105	-	dB
	CS2	R _g =600Ω, V _{IN} =-34dBV, G _v =29dB	80	90	-	dB
Supply Voltage Rejection Ratio	SVR1	V ⁺ =3V, ΔV ⁺ =-20dBV, R _g =600Ω	-	95	-	dB
	SVR2	V ⁺ =3V, ΔV ⁺ =-20dBV, R _g =600Ω G _v =29dB	70	80	-	dB
Microphone Regulator Output Voltage	V _{REG}	R _L =3.55kΩ	2.3	2.42	2.54	V
High Level Input Voltage G	V _{IHG}	G _v Terminal	2.0	-	V ⁺	V
Low Level Input Voltage G	V _{ILG}	G _v Terminal	0	-	0.5	V
High Level Input Voltage S	V _{HIS}	STBY Terminal	V ⁺ -0.5	-	V ⁺	V
Low Level Input Voltage S	V _{ILS}	STBY Terminal	0	-	V ⁺ -2.0	V

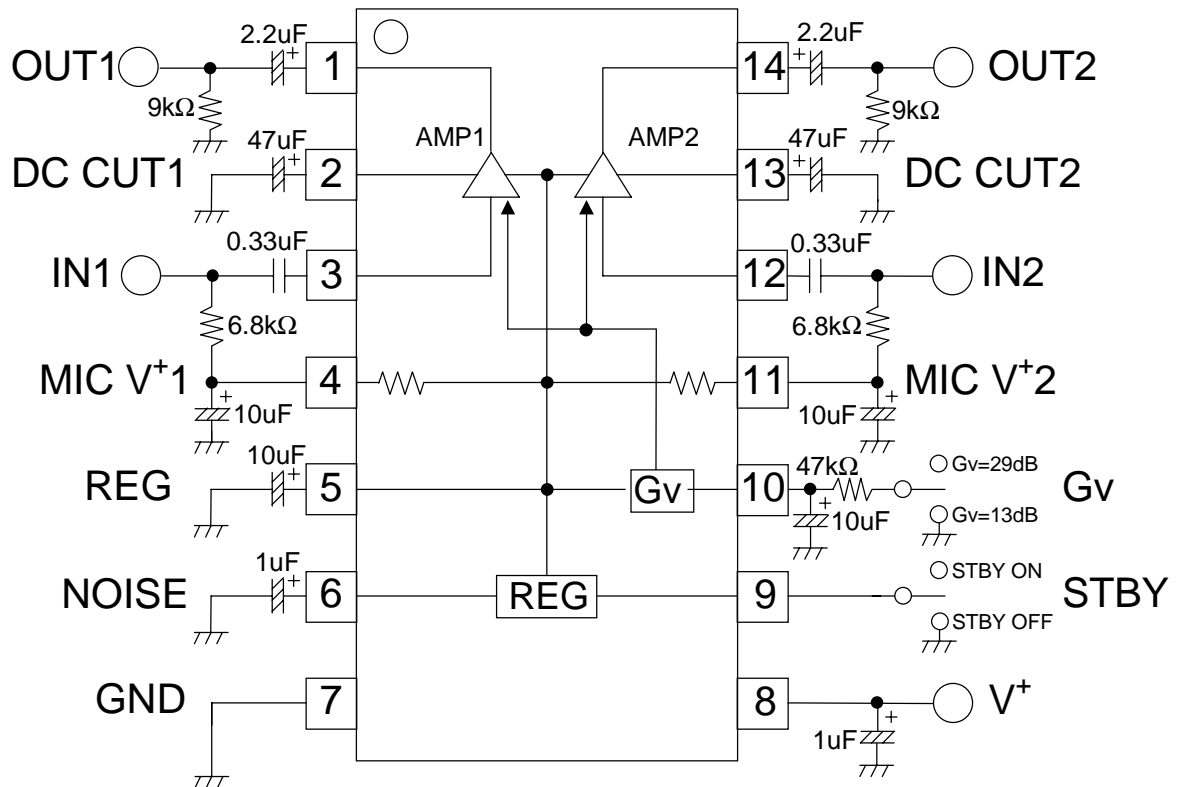
■ CONTROL TERMINAL EXPLANATION
● STBY (9Pin)

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

● G_v (10Pin)

PARAMETER	CONTROL SIGNAL	STATUS
G _{v1}	L	IC set up 13dB typ. voltage gain.
G _{v2}	H	IC set up 29dB typ. voltage gain.

APPLICATION CIRCUIT



MEMO

[CAUTION]

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