

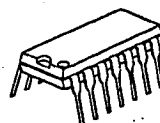
SINGLE SUPPLY QUAD OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM13403 is single-supply quad operational amplifier, which can operate from 2V supply. The features are low offset voltage, low bias current, high slew-rate, free cross-over distortion through the AB class output stage.

The package lineup is DIP, DMP and others compact, which is SON, so that the NJM13403 is suitable for audio for low voltage operation and any other kind of signal amplifier.

■ PACKAGE OUTLINE



NJM13403D1



NJM13403M



NJM13403E



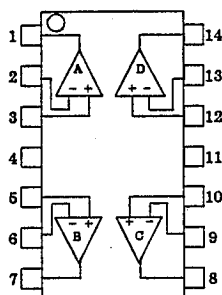
NJM13403V

■ FEATURES

- Operating Voltage (+2V~+14V)
- Slew Rate (1.2V/ μ s typ.)
- Operating Current (3.0mA typ.)
- Bipolar Technology
- Package Outline

DIP14, DMP14, EMP14, SSOP14, SON14 (PRELIMINARY)

■ PIN CONFIGURATION

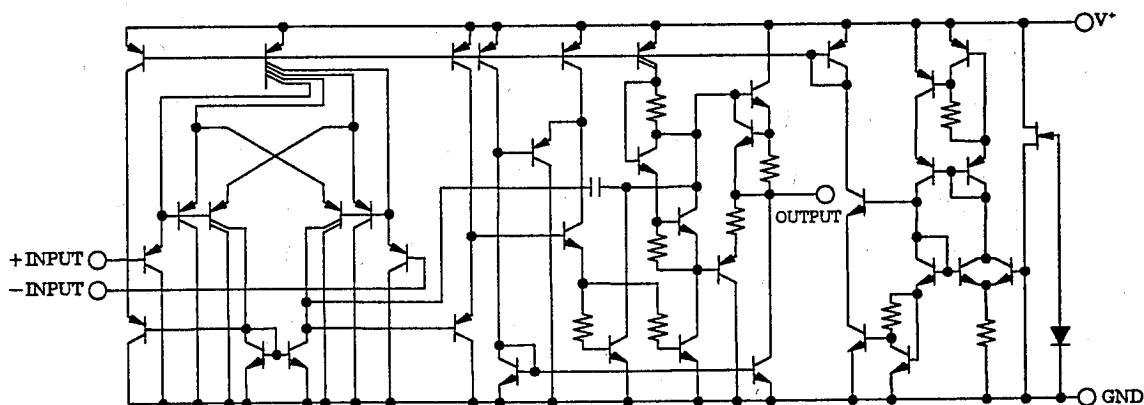


PIN FUNCTION

- | | |
|-------------|--------------|
| 1. A OUTPUT | 8. C OUTPUT |
| 2. A -INPUT | 9. C -INPUT |
| 3. A +INPUT | 10. C +INPUT |
| 4. V^+ | 11. GND |
| 5. B +INPUT | 12. D +INPUT |
| 6. B -INPUT | 13. D -INPUT |
| 7. B OUTPUT | 14. D OUTPUT |

NJM13403D1/13403M
 NJM13403E/13403V
 NJM13403x(PRELIMINARY)

■ EQUIVALENT CIRCUIT (1/4Shown)



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	15	V
Differential Input Voltage	V _{ID}	14	V
Input Voltage	V _{IC}	-0.3~+14	V
Power Dissipation	P _D	(DIP8) 700 (DMP8) 300 (EMP8) 300 (SSOP8) 300 (SON8) U.D	mW
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

■ ELECTRICAL CHARACTERISTICS (V⁺=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V _{opr}		2	—	14	V
Input Offset Voltage	V _{IO}	R _S =0Ω	—	0.5	4	mV
Input Offset Current	I _{IO}		—	5	50	nA
Input Bias Current	I _B		—	25	150	nA
Large Signal Voltage Gain	A _V	R _L ≥2kΩ	88	100	—	dB
Maximum Output Voltage Swing	V _{OM}	R _L =2kΩ	4.0	4.2	—	V
Input Common Mode Voltage Range	V _{ICM}		0~3.5	—	—	V
Common Mode Rejection Ratio	CMR		70	90	—	dB
Supply Voltage Rejection Ratio	SVR		80	94	—	dB
Output Source Current	I _{SOURCE}	V _{IN} ⁺ =1V, V _{IN} ⁻ =0V	20	35	—	mA
Output Sink Current	I _{SINK}	V _{IN} ⁺ =0V, V _{IN} ⁻ =1V	10	30	—	mA
Operating Current	I _{CC}	R _L =∞	—	3.0	5.0	mA
Slew Rate	SR	V ⁺ /V ⁻ =±2.5V, R _L =2kΩ, A _V =0dB, f=1kHz	—	1.2	—	V/μs
Unity Gain Bandwidth	f _T	R _L =2kΩ	—	2.0	—	MHz
Total Harmonic Distortion	THD	R _L =2kΩ, A _V =40dB, f=20kHz, V _O =1.5Vrms	—	0.2	—	%

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.