

**SINGLE-SUPPLY DUAL OPERATIONAL AMPLIFIER**

■ GENERAL DESCRIPTION

The NJM2143 is a single-supply operational amplifier in VSP8. Its input stage of darlington PNP detects GND level.

There is no crossover distortion in single supply operation when the load is direct-coupled to ground.

■ PACKAGE OUTLINE

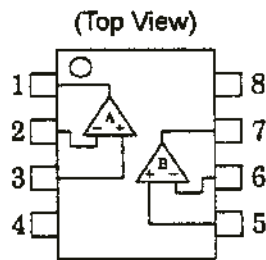


NJM2143R NJM2143RB1

■ FEATURES

- Single-Supply Operation
- Operating Voltage (+3~+20V)
- Low Operating Current (0.7mA typ.)
- Bipolar Technology
- Package Outline VSP8, TVSP8

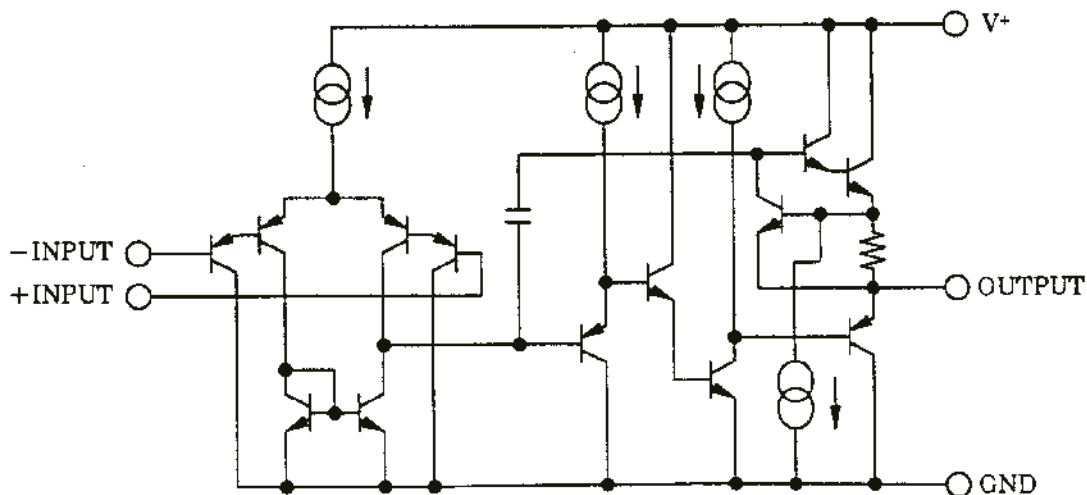
■ PIN CONFIGURATION



PIN FUNCTION

1. A OUTPUT
2. A -INPUT
3. A +INPUT
4. GND
5. B +INPUT
6. B -INPUT
7. B OUTPUT
8. V<sup>+</sup>

■ EQUIVALENT CIRCUIT (1/2 Shown)



# NJM2143

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup> (V <sup>-</sup> /V)	20 (±10)	V
Differential Input Voltage	V <sub>ID</sub>	20	V
Input Voltage	V <sub>I</sub>	-0.3~+20 (note 1)	V
Power Dissipation	P <sub>D</sub>	R/RB1type 3 2 0	mW
Operating Temperature Range	T <sub>opr</sub>	-40~+85	°C
Storage Temperature Range	T <sub>stg</sub>	-50~+125	°C

(note 1): When input voltage is less than +20V, the absolute maximum control voltage is equal to the input voltage.

## ■ ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=5.0V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> =0Ω	-	2	7	mV
Input Offset Current	I <sub>IO</sub>		-	5	50	nA
Input Bias Current	I <sub>B</sub>		-	25	250	nA
Large Signal Voltage Gain	A <sub>V</sub>	R <sub>L</sub> ≥2kΩ	-	100	-	dB
Maximum Output Voltage Swings	V <sub>OM1</sub>	R <sub>L</sub> =2kΩ	3.5	-	-	V <sub>P-P</sub>
Input Common Mode Voltage Range	V <sub>ICM</sub>		0~3.5	-	-	V
Common Mode Rejection Ratio	CMRR		-	85	-	dB
Supply Voltage Rejection Ratio	PSRR		-	100	-	dB
Output Source Current	I <sub>SOURCE</sub>	V <sub>IN</sub> <sup>+</sup> =1V, V <sub>IN</sub> <sup>-</sup> =0V	20	30	-	mA
Output Sink Current	I <sub>SINK</sub>	V <sub>IN</sub> <sup>+</sup> =0V, V <sub>IN</sub> <sup>-</sup> =1V	8	20	-	mA
Channel Separation	CS		-	120	-	dB
Operating Current	I <sub>CC</sub>		-	0.7	1.2	mA
Slew Rate	SR		-	0.5	-	V/μS
Gain Bandwidth Product	GB		-	0.6	-	MHz

## MEMO

[CAUTION]

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