

## LOW SATURATION DUAL OPERATIONAL AMPLIFIER

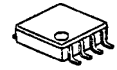
### ■ GENERAL DESCRIPTION

The NJM2140 is a low supply voltage ( $\pm 1.0V$  MIN) and low saturation output voltage ( $\pm 2.0V_{p-p}$  at supply voltage  $\pm 2.5V$ ) operational amplifier. It is applicable to portable CD, radio cassette CD, and portable DAT, that are audio apparatus which require the 5V single supply operation and high output voltage.

### ■ PACKAGE OUTLINE



NJM2140R

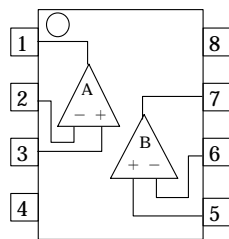


NJM2140RB1

### ■ FEATURES

- Operating Voltage ( $\pm 1V$  to  $\pm 7V$ )
- High Slew Rate ( $4V/\mu s$  typ.)
- Wide Band ( $12MHz$  typ.)
- Low Saturation Output Voltage ( $\pm 2.4V$  typ. at  $V^+/V^- = \pm 2.5V, R_L = 10k\Omega$ )
- Package Outline VSP8, TVSP8
- Bipolar Technology

### ■ PIN CONFIGURATION

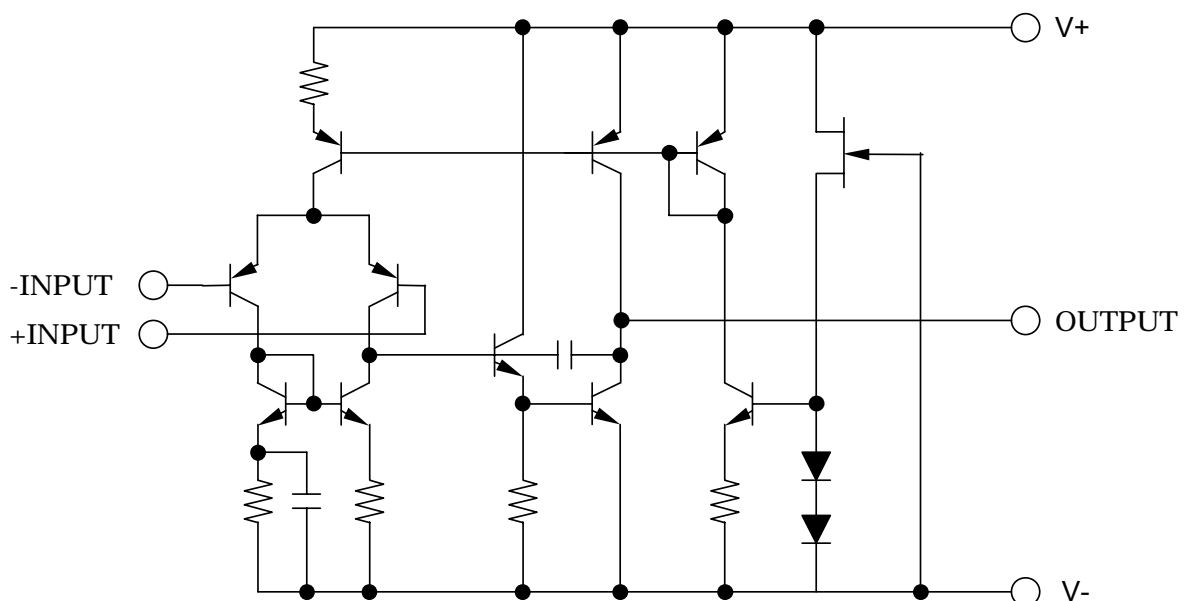


NJM2140R/RB1

### PIN FUNCTION

- 1. A OUTPUT
- 2. A - INPUT
- 3. A + INPUT
- 4.  $V^-$
- 5. B + INPUT
- 6. B - INPUT
- 7. B OUTPUT
- 8.  $V^+$

### ■ EQUIVALENT CIRCUIT



**■ ABSOLUTE MAXIMUM RATINGS**

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+ / V^-$	$\pm 7.0$	V
Differential Input Voltage	$V_{ID}$	$\pm 14$	V
Power Dissipation	$P_D$	R/RB1 320	mW
Operating Temperature Range	Topr	- 20 to + 75	°C
Storage Temperature Range	Tstg	- 40 to + 125	°C

**■ ELECTRICAL CHARACTERISTICS**

 ( $V^+ / V^- = 2.5V$ , Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	$V_{IO}$	$R_s \leq 10k\Omega$	-	1	6	mV
Input Offset Current	$I_{IO}$		-	10	20	nA
Input Bias Current	$I_B$		-	100	300	nA
Large Signal Voltage Gain	$A_V$	$R_L \geq 10k\Omega$	60	80	-	dB
Maximum Output Voltage Swings 1	$V_{OM1}$	$R_L = 2.5k\Omega$	$\pm 2.0$	$\pm 2.2$	-	V
Maximum Output Voltage Swings 2	$V_{OM2}$	$R_L \geq 10k\Omega$	$\pm 2.3$	$\pm 2.4$	-	V
Input Common Mode Voltage Range	$V_{ICM}$		$\pm 1.5$	-	-	V
Common Mode Rejection Ratio	CMRR		60	74	-	dB
Supply Voltage Rejection Ratio	PSRR		60	80	-	dB
Operating Current	$I_{CC}$		-	3.5	5	mA
Slew Rate	SR		-	4	-	V/ $\mu$ s
Unity Gain Frequency	$f_T$		-	12	-	MHz

**[CAUTION]**

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