

LOW SATURATION DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM2140 is a low supply voltage ($\pm 1.0\text{V}$ MIN) and low saturation output voltage ($\pm 2.0\text{Vp-p}$ at supply voltage $\pm 2.5\text{V}$) 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

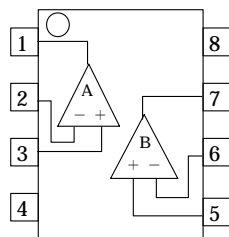


NJM2140RB1

■ FEATURES

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

■ PIN CONFIGURATION

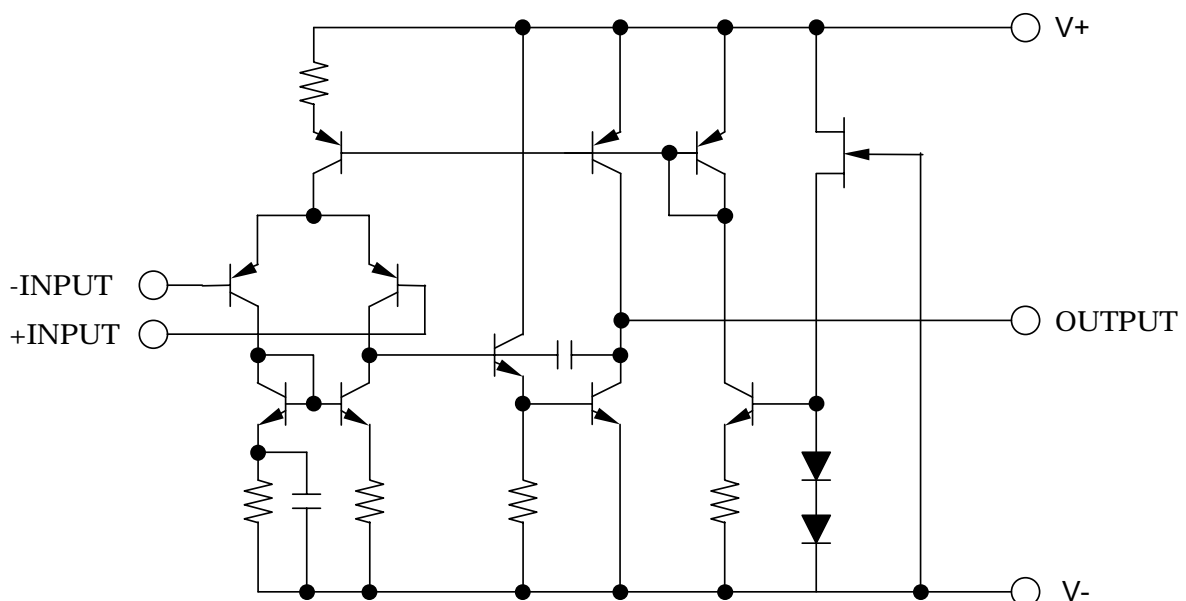


NJM2140R/RB1

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^- | ± 7.0 | V |
| Differential Input Voltage | V_{ID} | ± 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} | $R_L = 2.5k\Omega$ | ± 2.0 | ± 2.2 | - | V |
| Maximum Output Voltage Swings 2 | V_{OM2} | $R_L \geq 10k\Omega$ | ± 2.3 | ± 2.4 | - | V |
| Input Common Mode Voltage Range | V_{ICM} | | ± 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/ μ s |
| Unity Gain Frequency | f_T | | - | 12 | - | MHz |

[CAUTION]

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