

## 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

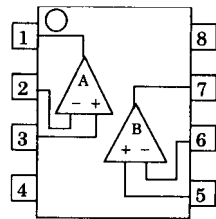


NJM2140RB1

### ■ FEATURES

- Operating Voltage ( $\pm 1V \sim \pm 7V$ )
- 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

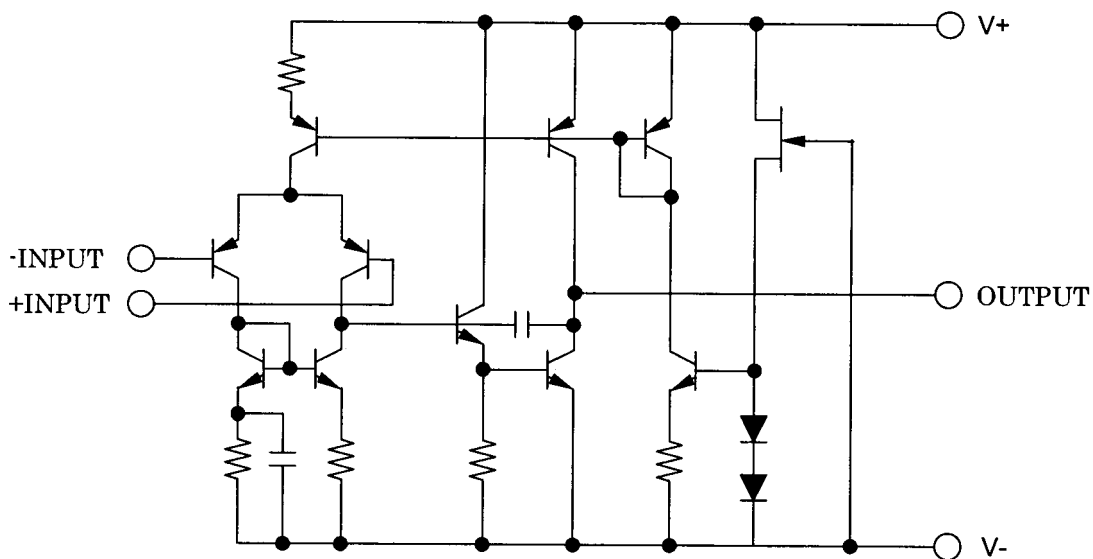


NJM2140R/RB1

#### PIN FUNCTION

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

### ■ EQUIVALENT CIRCUIT



# NJM2140

## ■ ABSOLUTE MAXIMUM RATINGS

( Ta=25°C )

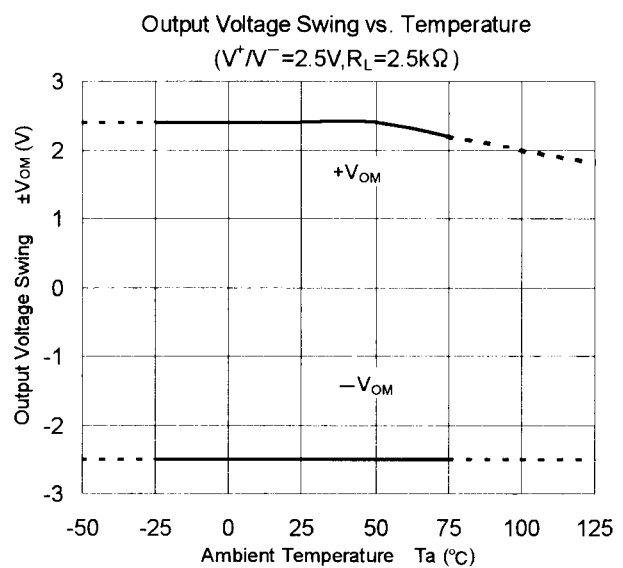
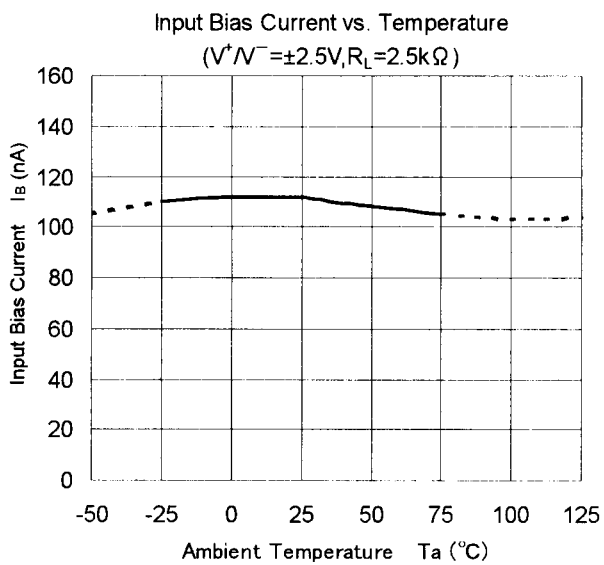
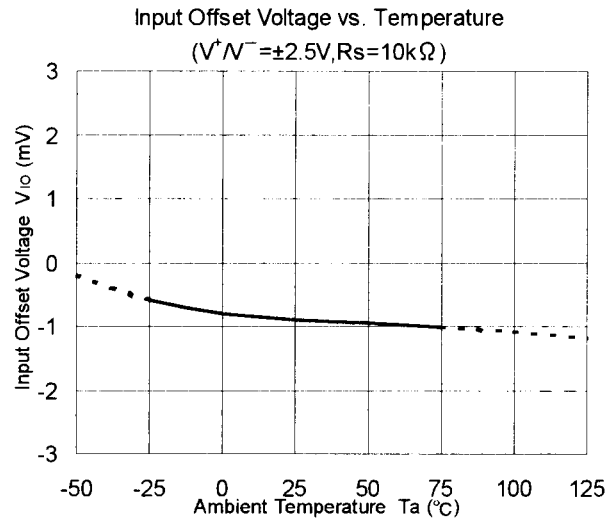
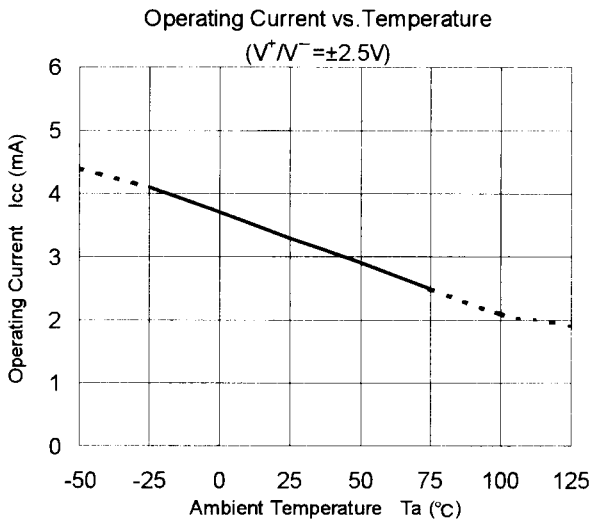
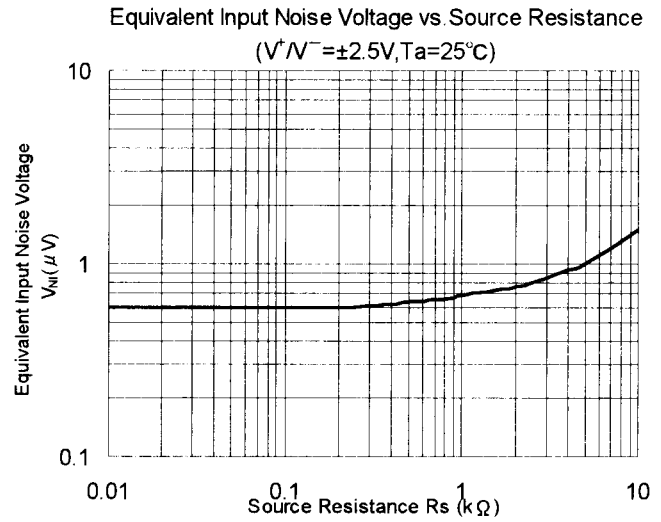
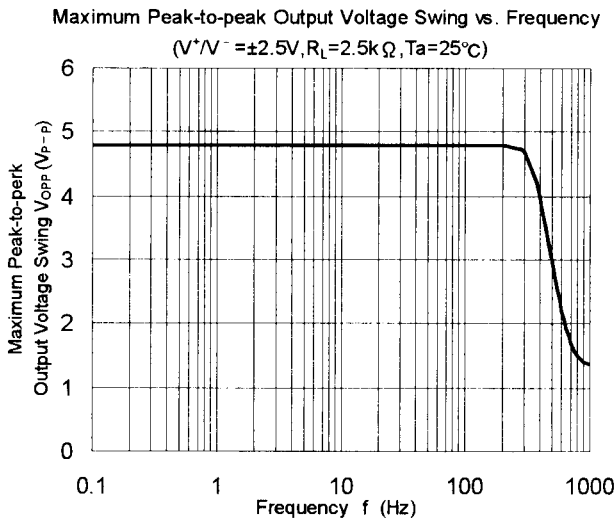
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup> /V	± 7.0	V
Differential Input Voltage	V <sub>ID</sub>	± 14	V
Power Dissipation	P <sub>D</sub>	( R/RB1 ) 320	mW
Operating Temperature Range	T <sub>opr</sub>	-20~+75	°C
Storage Temperature Range	T <sub>stg</sub>	-40~+125	°C

## ■ ELECTRICAL CHARACTERISTICS

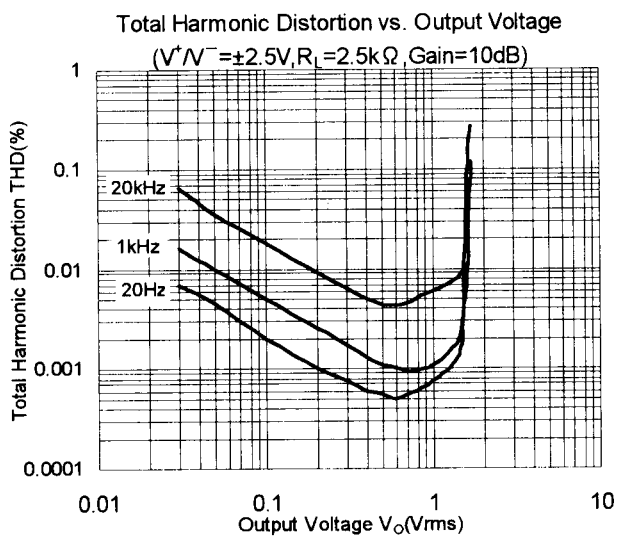
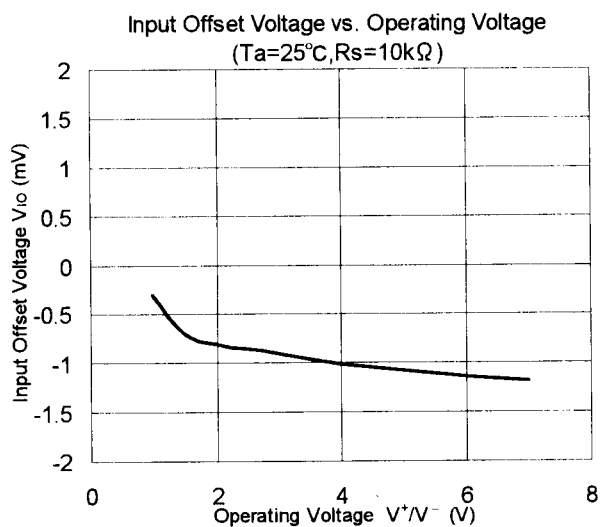
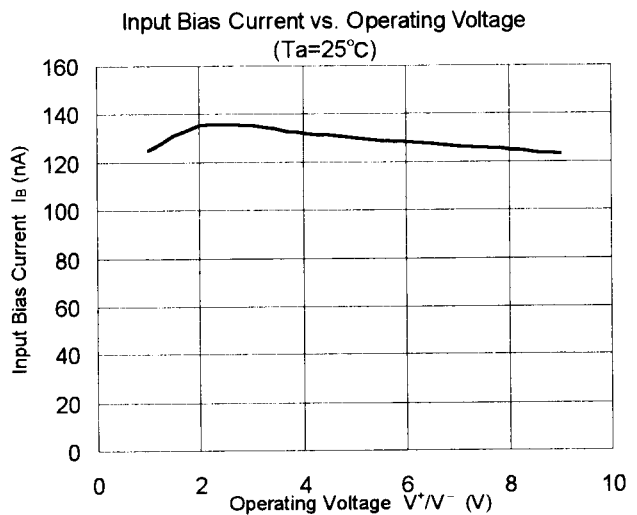
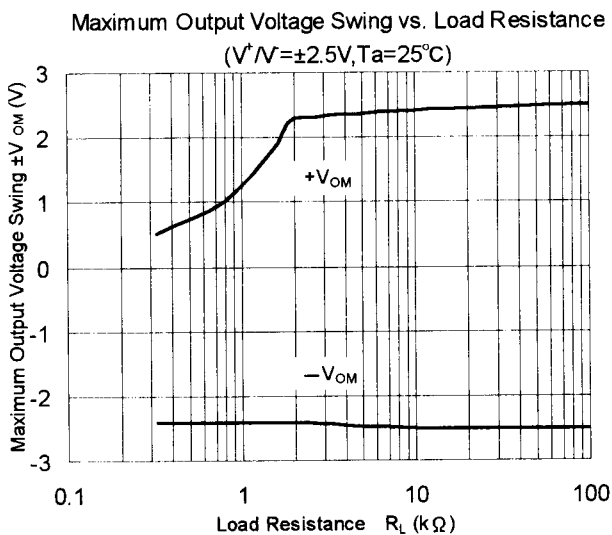
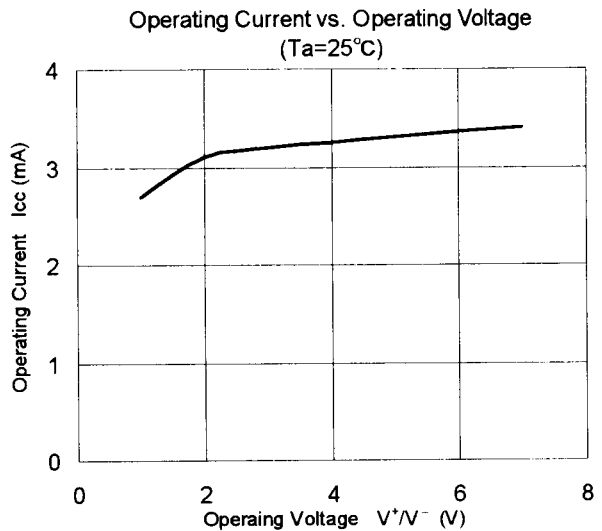
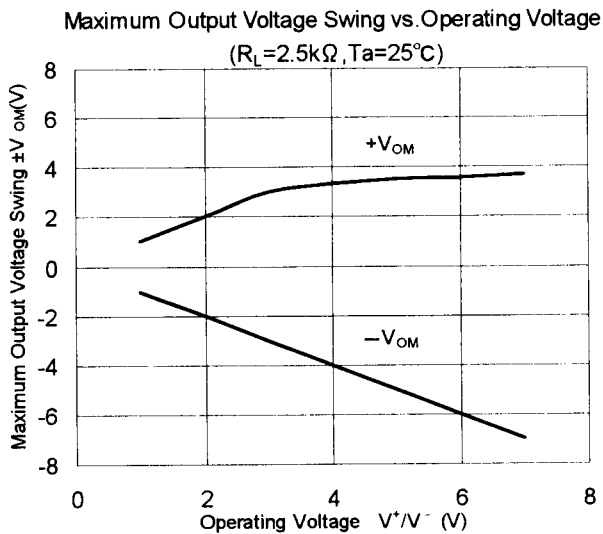
( V<sup>+</sup>/V=2.5V, Ta=25°C )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> ≤10kΩ	-	1	6	mV
Input Offset Current	I <sub>IO</sub>		-	10	20	nA
Input Bias Current	I <sub>B</sub>		-	100	300	nA
Large Signal Voltage Gain	A <sub>V</sub>	R <sub>L</sub> ≥10kΩ	60	80	-	dB
Maximum Output Voltage Swings 1	V <sub>OM1</sub>	R <sub>L</sub> =2.5kΩ	± 2.0	± 2.2	-	V
Maximum Output Voltage Swings 2	V <sub>OM2</sub>	R <sub>L</sub> ≥10kΩ	± 2.3	± 2.4	-	V
Input Common Mode Voltage Range	V <sub>ICM</sub>		± 1.5	-	-	V
Common Mode Rejection Ratio	CMRR		60	74	-	dB
Supply Voltage Rejection Ratio	PSRR		60	80	-	dB
Operating Current	I <sub>CC</sub>		-	3.5	5	mA
Slew Rate	SR		-	4	-	V/μs
Unity Gain Frequency	f <sub>T</sub>		-	12	-	MHz

## ■ TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS



**[CAUTION]**

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