

## LOW POWER SINGLE OPERATIONAL AMPLIFIER

### ■ GENERAL DESCRIPTION

The NJM2130 is a general-purpose low power single operational amplifier.

The features of low power, low operating voltage, and ultra mini package are most suitable for portable items.

The NJM2130 incorporates frequency compensation and short-circuit protection as same as NJM022 and the characteristics are also same as NJM022.

### ■ PACKAGE OUTLINE



NJM2130F

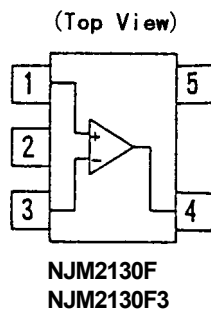


NJM2130F3

### ■ FEATURES

- Operating Voltage (  $\pm 2V \sim \pm 18V$  )
- Low Supply Current (  $80\mu A$  typ. )
- Short-Circuit Protection (  $\pm 6mA$  typ. )
- Mounted in Ultra Miniature Package  $2.0 \times 1.25mm$   
( 1/8 of DMP8 package )
- Bipolar Technology
- Package Outline SOT-23-5, SC88A

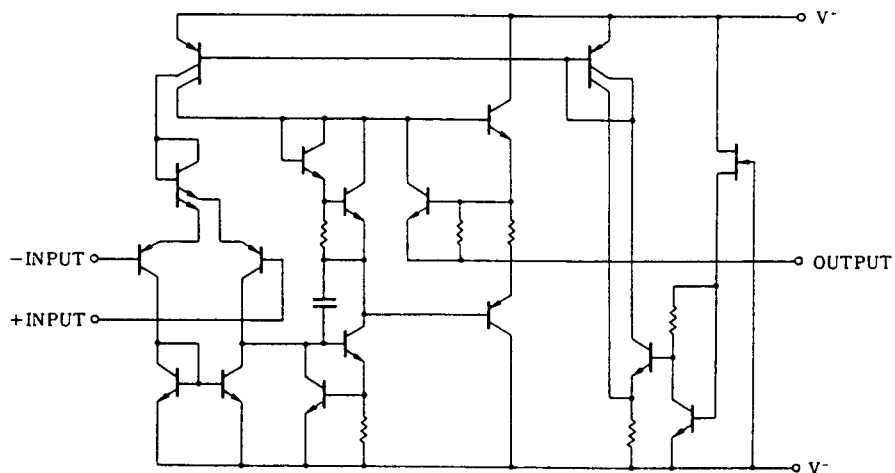
### ■ PIN CONFIGURATION



#### PIN FUNCTION

- 1. +INPUT
- 2. V<sup>-</sup>
- 3. -INPUT
- 4. OUTPUT
- 5. V<sup>+</sup>

### ■ EQUIVALENT CIRCUIT



# NJM2130

## ■ ABSOLUTE MAXIMUM RATINGS

( Ta=25°C )

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup> /V	± 18	V
Input Voltage	V <sub>IC</sub>	± 15 ( note1 )	V
Differential Input Voltage	V <sub>ID</sub>	± 30	V
Power Dissipation	P <sub>D</sub>	(SOT-23-5) 200 (SC88A) 250 ( note2 )	mW
Operating Temperature Range	T <sub>opr</sub>	-40~+85	°C
Storage Temperature Range	T <sub>stg</sub>	-40~+125	°C

( note1 ) When the supply voltage is less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

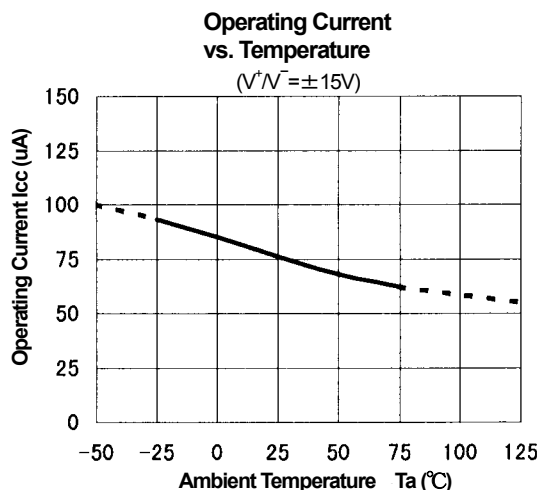
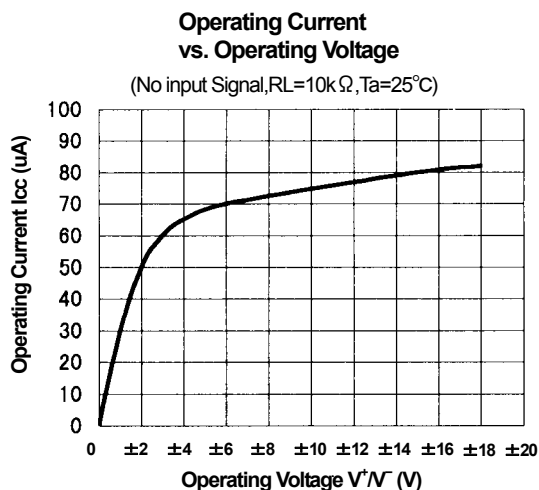
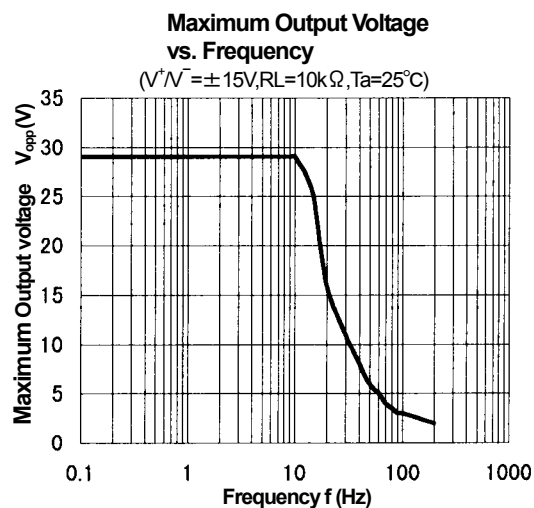
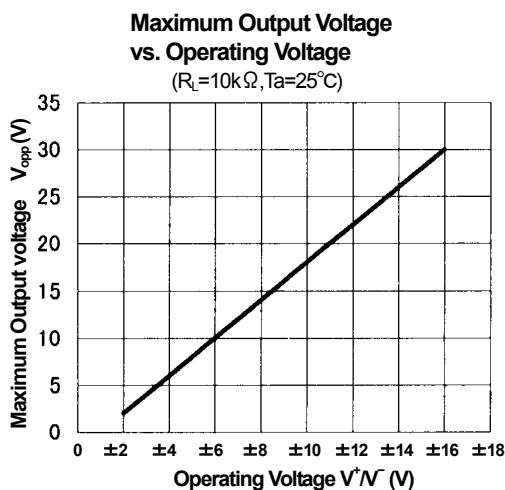
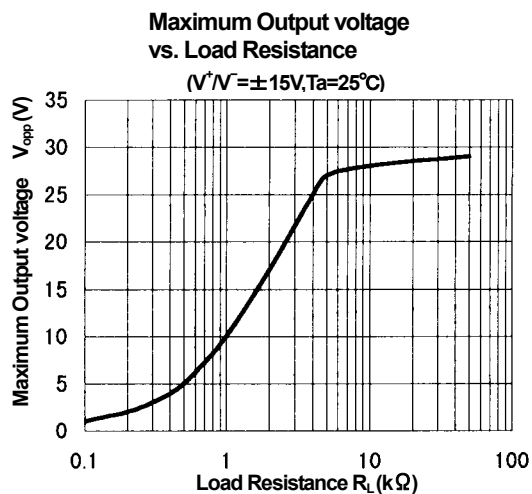
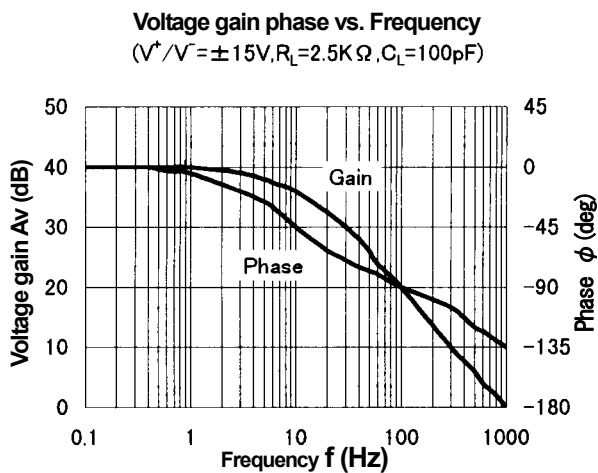
( note2 ) On EIA/JEDEC board. ( 76.2x114.3x1.6mm, 2layer, FR-4 )

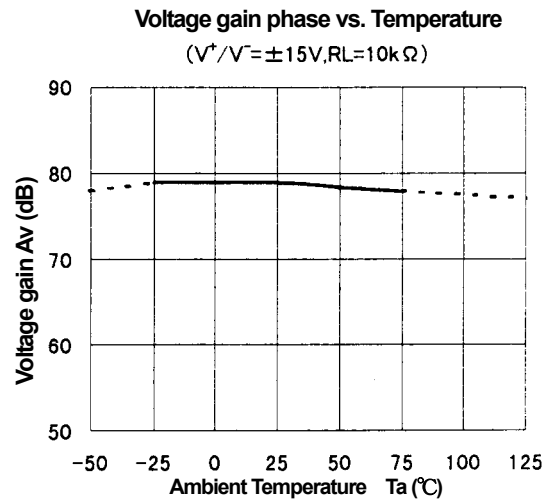
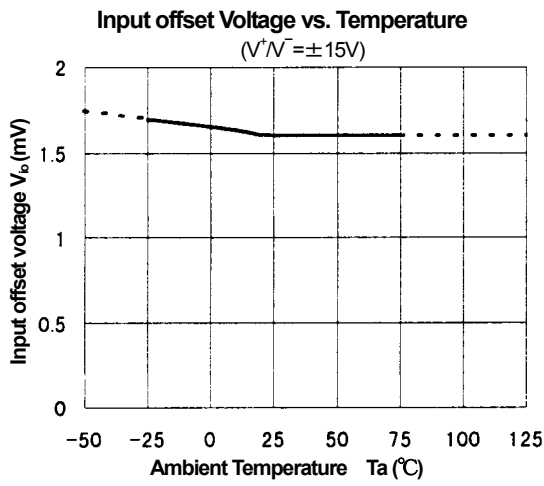
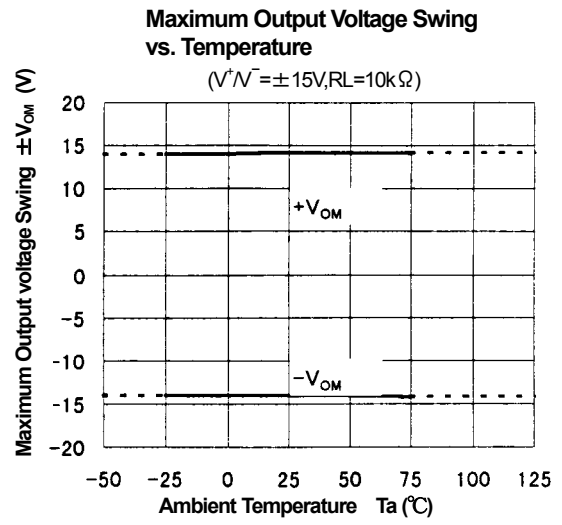
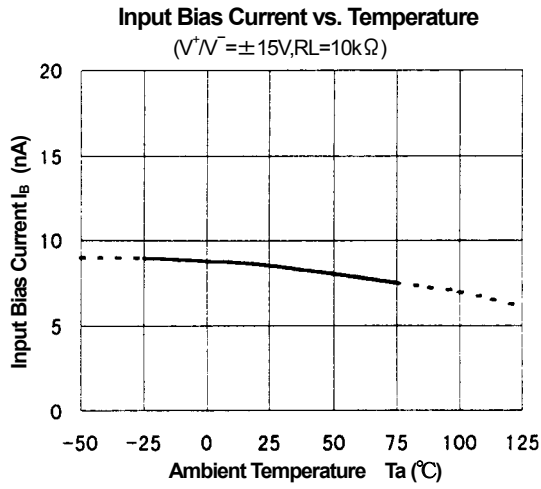
## ■ ELECTRICAL CHARACTERISTICS

( V<sup>+</sup>/V=±15V, Ta=25°C )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> ≤10kΩ	-	1	5	mV
Input Offset Current	I <sub>IO</sub>		-	1	80	nA
Input Bias Current	I <sub>B</sub>		-	15	250	nA
Large Signal Voltage Gain	A <sub>V</sub>	R <sub>L</sub> ≥10kΩ, V <sub>O</sub> =±10V	60	88	-	dB
Common Mode Rejection Ratio	CMR	R <sub>S</sub> ≤10kΩ	60	90	-	dB
Response Time ( Rise Time )	t <sub>r</sub>	V <sub>IN</sub> =20mV, R <sub>L</sub> =10kΩ, C <sub>L</sub> =100pF	-	0.3	-	μs
Slew Rate	SR	V <sub>IN</sub> =10V, R <sub>L</sub> =10kΩ, C <sub>L</sub> =100pF	-	0.5	-	V/μs
Input Common Mode Voltage Range	V <sub>ICM</sub>		± 12	± 13	-	V
Supply Voltage Rejection Ratio	SVR	R <sub>S</sub> ≤10kΩ	74	110	-	dB
Equivalent Input Noise Voltage	e <sub>n</sub>	A <sub>V</sub> =20dB, f=1kHz	-	50	-	nV/√Hz
Short-circuit Output Current	I <sub>OS</sub>		-	± 6	-	mA
Operating Current	I <sub>CC</sub>		-	80	170	μA
Maximum Output Voltage Swing	V <sub>OM</sub>	R <sub>L</sub> =10kΩ	± 10	± 14	-	V

## ■ TYPICAL CHARACTERISTICS





[CAUTION]  
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