

## SINGLE SUPPLY HI-SLEW RATE SINGLE OPERATIONAL AMPLIFIER

## ■ GENERAL DESCRIPTION

The NJM2716 is single supply single high slew rate operational amplifier.

It is applicable to A/D converters, FAX, scanner which require the single supply operation and high slew rate.

## ■ PACKAGE OUTLINE

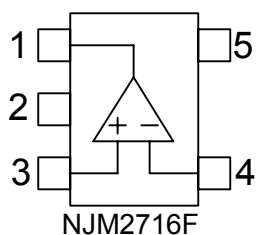


NJM2716F

## ■ FEATURES

- Single Supply
- Operating Voltage +2.7V to 12V
- Operating Current 5.5mA max.
- High Slew Rate 40V/μs typ.
- Bipolar Technology
- Package Outline MTP5

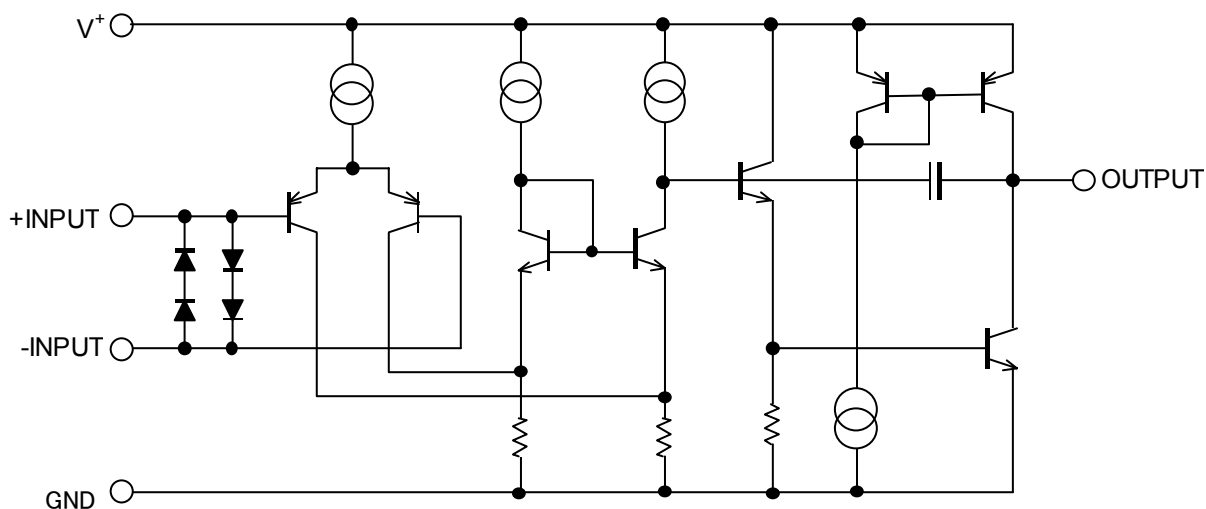
## ■ PIN CONFIGURATION



## PIN FUNCTION

- 1. OUTPUT
- 2. GND
- 3. +INPUT
- 4. -INPUT
- 5.  $V^+$

## ■ EQUIVALENT CIRCUIT



## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

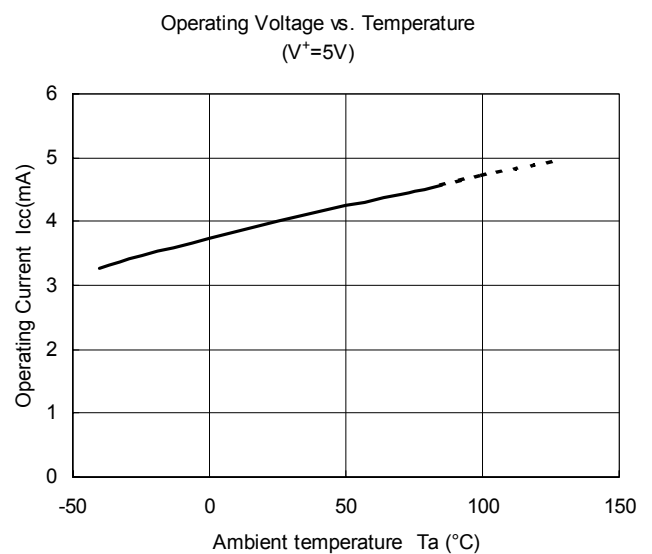
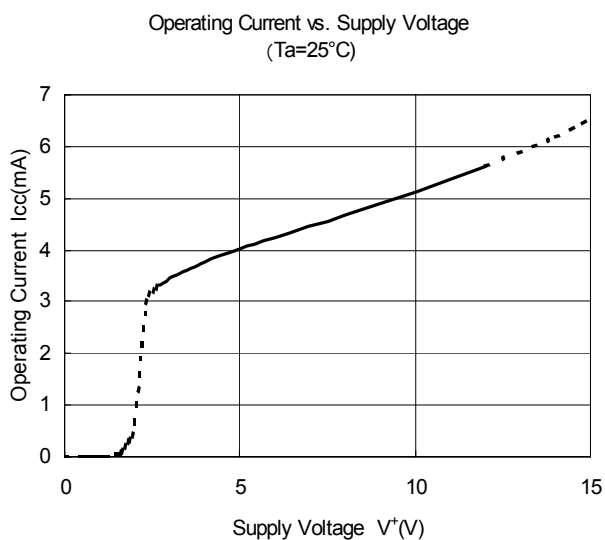
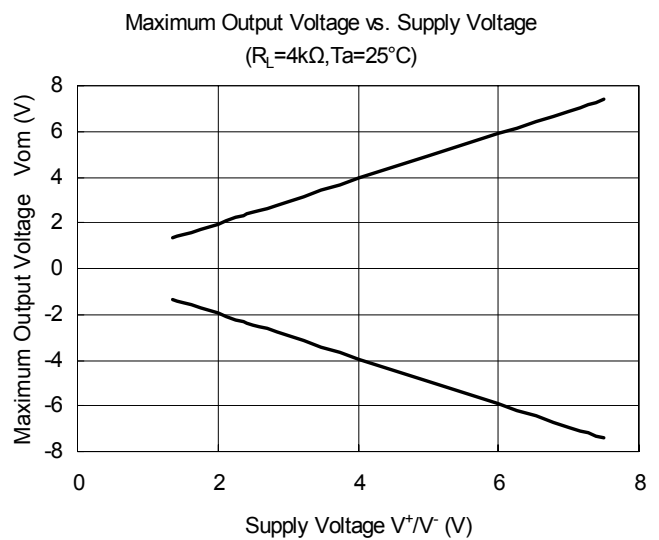
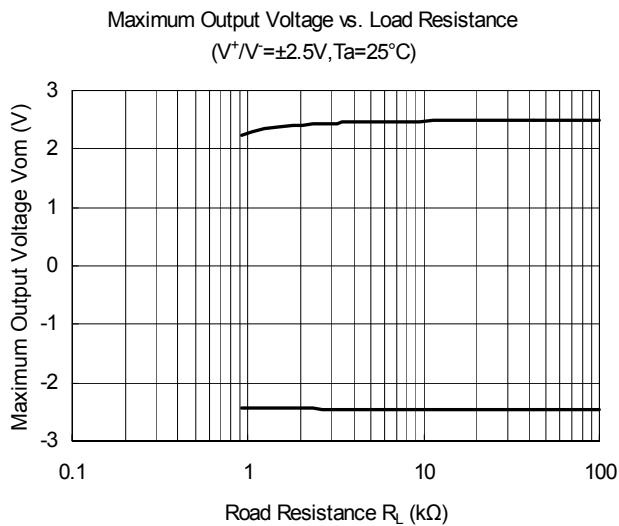
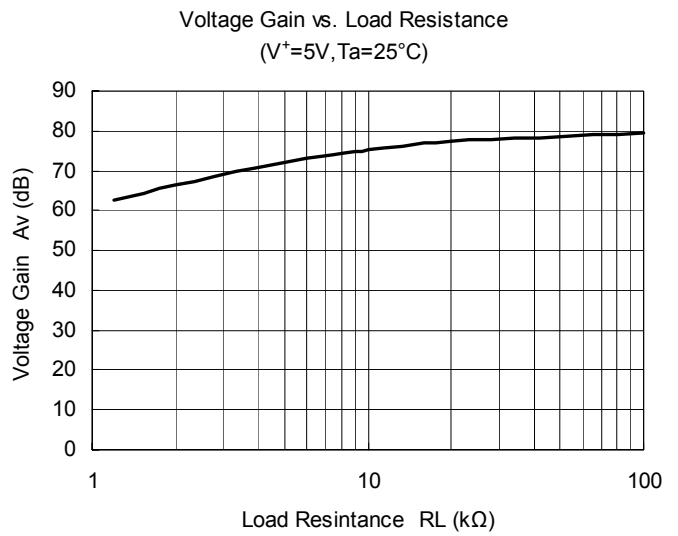
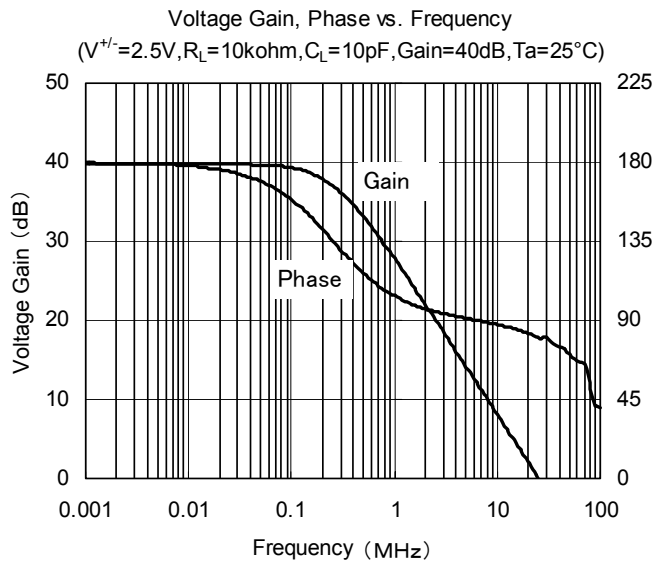
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	15.0	V
Power Dissipation	$P_D$	200	mW
Differential Input Voltage	$V_{ID}$	$\pm 3$	V
Input Voltage	$V_{IC}$	-0.3 to +15 (note)	V
Output Sink Current	$I_{SINK}$	10	mA
Operating Temperature Range	$T_{opr}$	-40 to +85	°C
Storage Temperature Range	$T_{stg}$	-40 to +125	°C

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

## ■ ELECTRICAL CHARACTERISTICS ( $V^+=5V, T_a=25^\circ C$ )

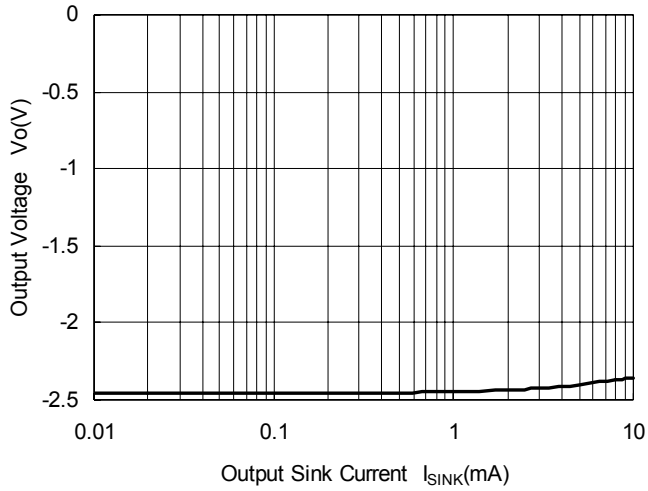
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	$V_{IO}$	$R_s=0\Omega$	-	1	10	mV
Input Offset Current	$I_{IO}$		-	0.2	0.5	$\mu A$
Input Bias Current	$I_B$		-	1	2.5	$\mu A$
Voltage Gain	$A_V$	$R_L \geq 10k\Omega$	60	75	-	dB
Input Common Mode Voltage Range	$V_{ICM}$		0 to 3.8	-	-	V
Common Mode Rejection Ratio	CMR		45	80	-	dB
Supply Voltage Rejection Ratio	SVR		50	75	-	dB
Maximum Output Voltage1	$V_{OM}^{+1}$	$R_L=4k\Omega$ to GND	4.3	4.5	-	V
	$V_{OM}^{-1}$		-	0.05	0.1	
Maximum Output Voltage 2	$V_{OM}^{+2}$	$R_L=4k\Omega$ to 2.5V	4.5	4.7	-	V
	$V_{OM}^{-2}$		-	0.1	0.5	
Output Source Current	$I_{SOURCE}$		1	2.5	-	mA
Output Sink Current	$I_{SINK}$		2.5	5	-	mA
Operating Current	$I_{CC}$	$R_L=\infty$	-	4.2	5.5	mA
Slew Rate	SR		-	40	-	V/ $\mu s$
Unity Gain Bandwidth	$f_T$		-	30	-	MHz

## TYPICAL CHARACTERISTICS

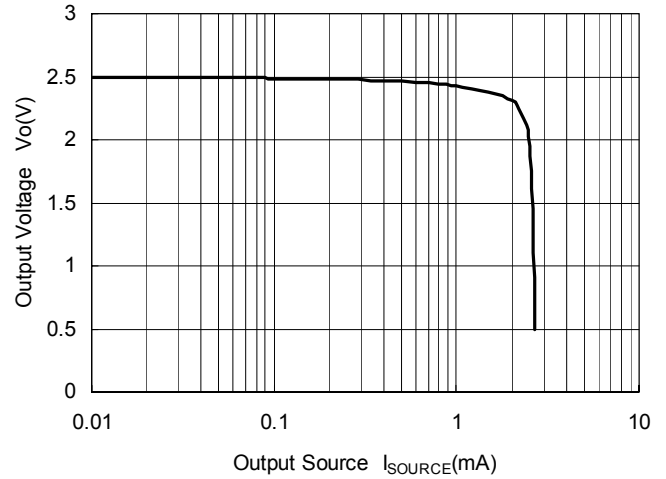


## TYPICAL CHARACTERISTICS

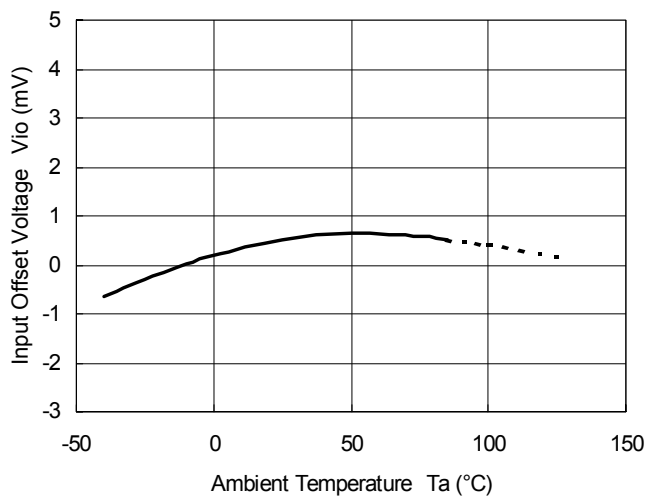
Output Voltage vs. Output Sink Current  
( $V^+/V^- = \pm 2.5V$ ,  $T_a = 25^\circ C$ )



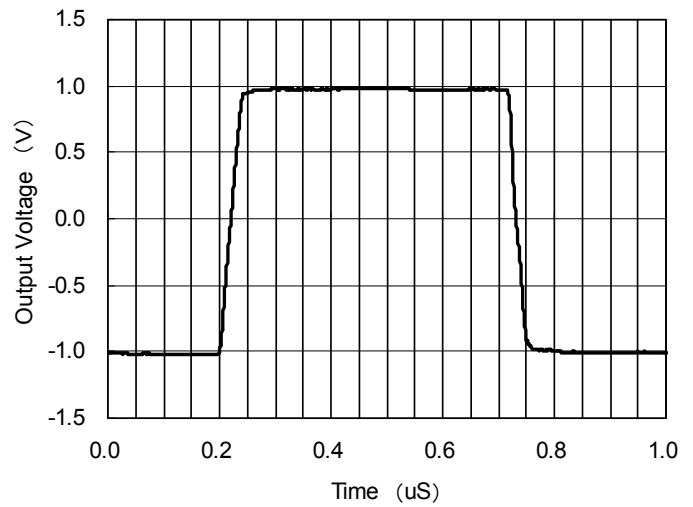
Output Voltage vs. Output Source Current  
( $V^+/V^- = \pm 2.5V$ ,  $T_a = 25^\circ C$ )



Input Offset Voltage vs. Temperature  
( $V^+ = 5V$ )



Output Voltage vs. Time  
( $V^+/V^- = \pm 2.5V$ ,  $V_{in} = 2V_{pp}$ ,  $f = 1MHz$ ,  $R_L = 10k\Omega$ ,  $C_L = 10pF$ ,  $A_v = 0dB$ )



# MEMO

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