

ULTRA WIDE BAND & HIGH SIGH SLEWRATE HEX OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

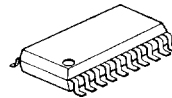
The NJM 2116 is an ultra wide band, high slew rate, low operating current, and low operating voltage, hex operational amplifiers.

It is applicable to active filter, small consumption portable electrical equipment, and high speed analog signal processing.

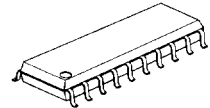
■ FEATURES

- Hex Circuit
- Low Operating Voltage ($\pm 1.35V \sim \pm 6V$)
- Ultra Wide Band (200MHz typ.)
- High Slew Rate ($45V/\mu s$ typ.)
- Low Operating Current (3.4mA typ.)
- Package Outline SSOP20, DMP20
- Bipolar Technology

■ PACKAGE OUTLINE

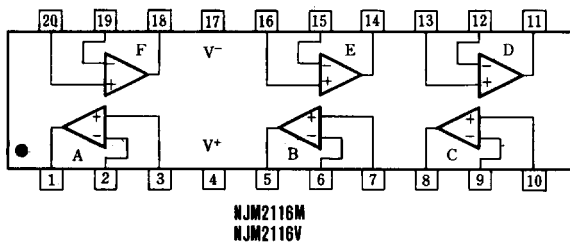


NJM2116V



NJM2116M

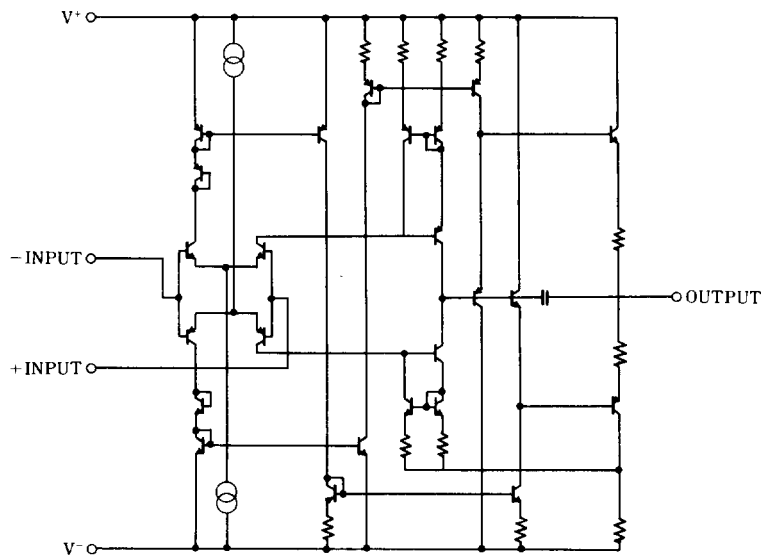
■ PIN CONFIGURATION



PIN FUNCTION

- | | |
|-------------------|--------------------|
| 1. A OUTPUT | 11. D OUTPUT |
| 2. A -INPUT | 12. D -INPUT |
| 3. A +INPUT | 13. D +INPUT |
| 4. V ⁺ | 14. E OUTPUT |
| 5. B OUTPUT | 15. E -INPUT |
| 6. B -INPUT | 16. E +INPUT |
| 7. B +INPUT | 17. V ⁻ |
| 8. C OUTPUT | 18. F OUTPUT |
| 9. C -INPUT | 19. F -INPUT |
| 10. C +INPUT | 20. F +INPUT |

■ EQUIVALENT CIRCUIT (1/6 shown)





■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺ /V ⁻	±6.75	V
Differential Input Voltage	V _{ID}	±3	V
Power Dissipation	P _D	(DMP-20) 300 (SSOP-20) 300	mW
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-50~+125	°C

■ ELECTRICAL CHARACTERISTICS

(V⁺/V⁻ = ±2.5V, Ta=25°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V ⁺ /V ⁻		±1.35	±2.50	±6.00	V
Input Offset Voltage	V _{IO}	R _S = 0Ω	—	1.0	5.0	mV
Input Bias Current	I _B		—	0.5	2.0	μA
Input Offset Current	I _{IO}		—	20	200	nA
Large Signal Voltage Gain	A _V		65	75	—	dB
Input Common Mode Voltage Range	V _{ICM}		1.2 -1.2	1.5 -1.5	—	V
Common Mode Rejection Ratio	CMR	-1V ≤ V _{cm} ≤ +1V	45	60	—	dB
Supply Voltage Rejection Ratio	+SVR		50	60	—	dB
	-SVR		70	80	—	
Maximum Output Voltage	V _{OM}	R _L = 1kΩ	1.1 -0.9	1.4 -1.2	—	V
Operating Current	I _{CC}	R _L = ∞ (all Amp.)	—	3.4	4.5	mA
Slew Rate	SR	A _V = 0dB	—	45	—	V/μs
Gain Bandwidth Product	GB	60dB · 500kHz	120	200	—	MHz
Phase Margin	φ _M	40dB	—	25	—	deg.
Unity Gain Frequency	f _T	40dB	—	40	—	MHz

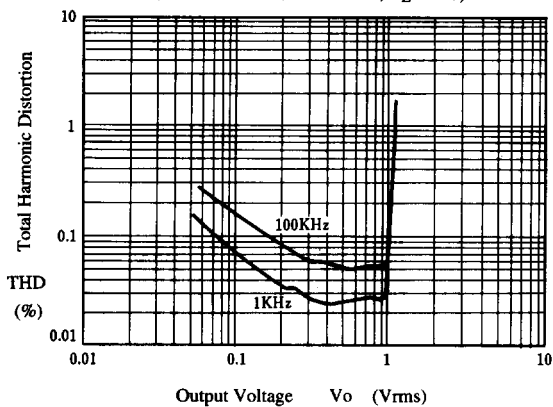
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■ TYPICAL CHARACTERISTICS

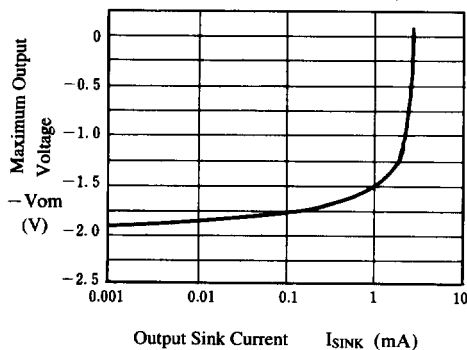
Total Harmonic Distortion vs. Output Voltage

($V^+/V^- = \pm 2.5V$, Gain=20dB, $R_L = 2k\Omega$)



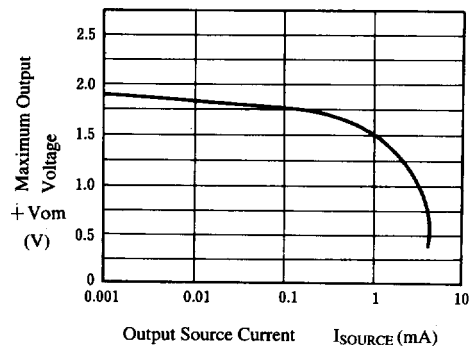
Maximum Output Voltage vs. Output Sink Current

($V^+/V^- = \pm 2.5V$, $T_a = 25^\circ C$)



Maximum Output Voltage vs. Output Source Current

($V^+/V^- = \pm 2.5V$, $T_a = 25^\circ C$)

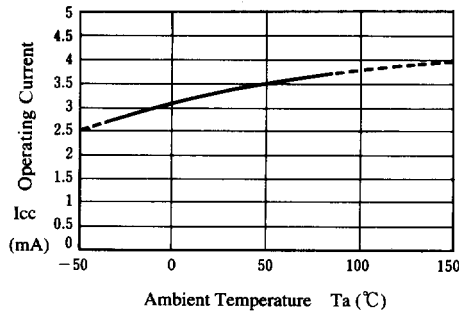




■ TYPICAL CHARACTERISTICS

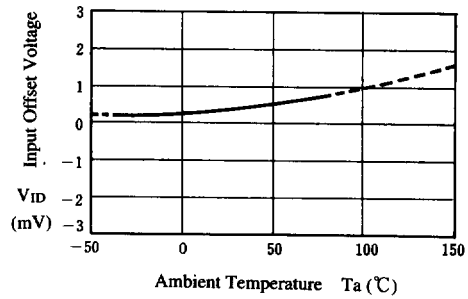
Operating Current vs. Temperature

($V^+/V^- = \pm 2.5V$)



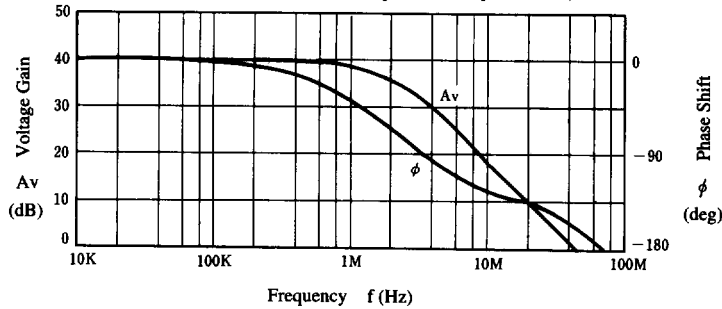
Input Offset Voltage vs. Temperature

($V^+/V^- = \pm 2.5V$)



Voltage Gain Phase Shift vs. Frequency

($V^+/V^- = \pm 2.5V$, $R_L = 2k\Omega$, $C_L = 10pF$, 40dBamp, $T_a = 25^\circ C$)



Pulse Response

($V^+/V^- = \pm 2.5V$, $R_L = 2k\Omega$, $C_L = 10pF$, $A_v = 0dB$, 40dBamp, $T_a = 25^\circ C$)

