



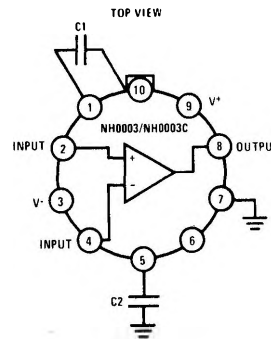
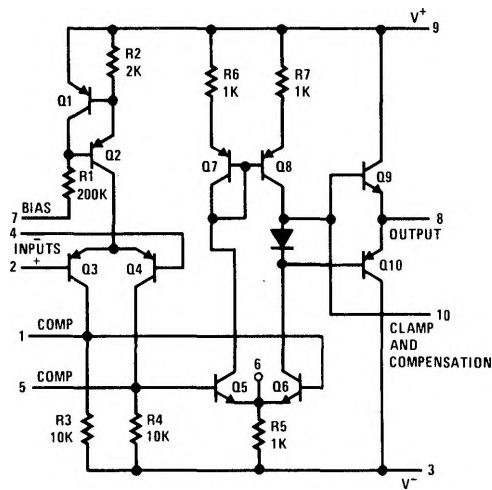
Operational Amplifiers

NH0003/NH0003C wide bandwidth operational amplifier general description

The NH0003/NH0003C is a general purpose operational amplifier which features: slewing rate up to 70 volts/ μ sec, a gain bandwidth of up to 300 MHz, and high output currents. Other features are:

- Very low offset voltage Typically 0.4 mV
- Large output swing $> \pm 10V$ into 100 Ω load
- High CMRR Typically > 90 dB
- Good large signal frequency response 50 kHz to 400 kHz depending on compensation

schematic and connection diagrams

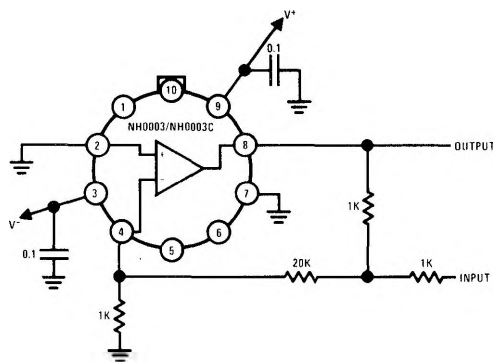


Circuit Gain	C ₁ pF	C ₂ pF	Slew Rate R _L > 200 Ω , V/ μ sec	Full Output Frequency R _L 200 Ω , V _{OUT} = 10V
≥ 40	0	0	70	400
≥ 10	5	30	30	350
≥ 5	15	30	15	250
≥ 2	50	50	5	100
≥ 1	90	90	2	50

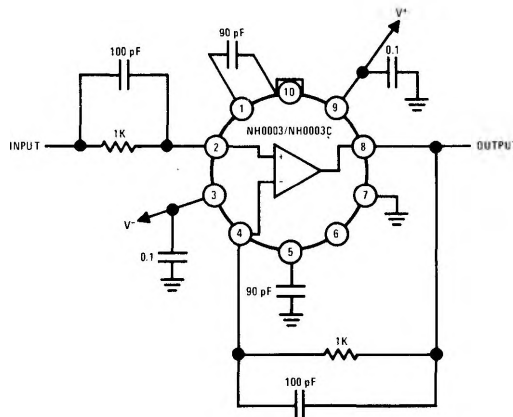
Typical Compensation

typical applications

High Slew Rate Unity Gain Inverting Amplifier



Unity Gain Follower



absolute maximum ratings

Supply Voltage	±20V
Power Dissipation	See curve
Differential Input Voltage	±7V
Input Voltage	Equal to supply
Load Current	120 mA
Operating Temperature Range	NH0003 -55°C to +125°C
	NH0003C 0°C to +70°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10 sec)	300°C

electrical characteristics (Notes 1 & 2)

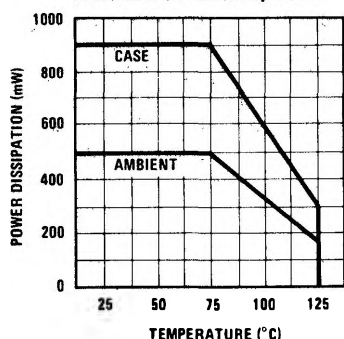
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Offset Voltage	$R_S < 1k$		0.4	3.0	mV
Input Offset Current			0.02	0.2	μA
Input Bias Current			0.4	2.0	μA
Supply Current	$V_S = \pm 20V$		1.2	3	mA
Voltage Gain	$R_L = 100k, V_S = \pm 15V, V_{OUT} = \pm 10V$	20	70		V/mV
Voltage Gain	$R_L = 2k, V_S = \pm 15V, V_{OUT} = \pm 10V$	15	40		V/mV
Voltage Gain	$R_L = 200\Omega, V_S = \pm 15V, V_{OUT} = \pm 10V$	5	15		V/mV
Output Voltage Swing	$V_S = \pm 15V, R_L = 100\Omega$	±10	±12		V
Input Resistance			100		k Ω
Average Temperature Coefficient of Offset Voltage	$R_S < 5k$		4		$\mu V/^\circ C$
Average Temperature Coefficient of Bias Current			8		nA/°C
CMRR	$R_S < 1k, V_S = \pm V, V_{IN} = \pm 10V$	70	90		dB
PSRR	$R_S < 1k, V_S = \pm 15V, \Delta V = 5V$ to 20V	70	90		dB
Equivalent Input Noise Voltage	$R_S = 1k, f = 10$ kHz to 100 kHz $V_S = \pm 15V$ dc		1.8		μV_{rms}

Note 1. These specifications apply for Pin 7 grounded, for $\pm 5V < V_S < \pm 20V$, with capacitor $C_1 = 90$ pF from Pin 1 to Pin 10 and $C_2 = 90$ pF from Pin 5 to ground, over the specified operating temperature range, unless otherwise specified.

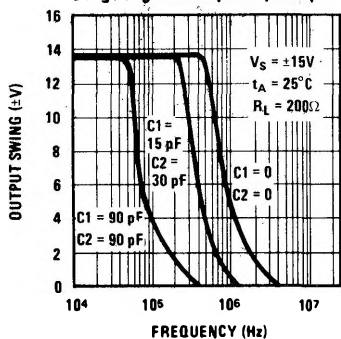
Note 2. Typical values are for $t_{AMBIENT} = 25^\circ C$ unless otherwise specified.

typical performance

Maximum Power Dissipation



Large Signal Frequency Response



Open Loop Frequency Response

