

# NE5532

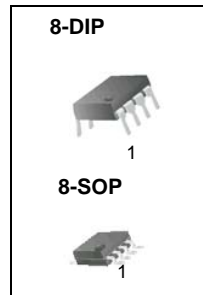
## Dual Operational Amplifier

### Features

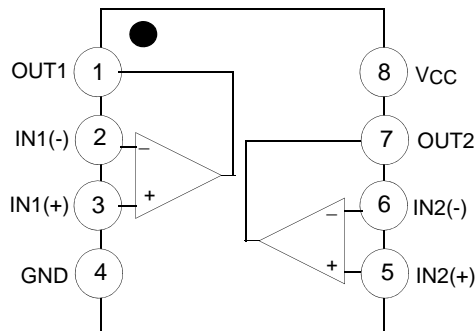
- Internal Frequency Compensation
- Slew Rate:  $8\text{V}/\mu\text{s}$
- Input Noise Voltage:  $8\text{nV}/\sqrt{\text{Hz}}$  ( $f_0 = 30\text{Hz}$ )
- Full Power Bandwidth:  $140\text{kHz}$

### Description

The NE5532 is an internally compensated dual low noise OP-AMP. The high small signal and power bandwidth provides superior performance in high quality AMP, all control circuits, and telephone applications.



### Internal Block Diagram



## Absolute Maximum Ratings

Parameter	Symbol	NE5532	Unit
Power Supply Voltage	V <sub>CC</sub>	±22	V
Differential Input Voltage	V(DIFF)	±13	V
Input Voltage	V <sub>I</sub>	Supply Voltage	V
Power Dissipation, T <sub>A</sub> = 25°C 8-DIP 8-SOP	P <sub>D</sub>	1100 500	mW
Operating Temperature Range	T <sub>OPR</sub>	0 ~ +70	°C

## Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Ambient Max. 8-DIP 8-SOP	R <sub>θja</sub>	110 250	°C/W

## Electrical Characteristics

(V<sub>CC</sub> = 15V, V<sub>EE</sub> = -15V, T<sub>A</sub> = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Offset Voltage	V <sub>IO</sub>	-	-	0.5	4.0	mV
Input Offset Current	I <sub>IO</sub>	-	-	10	150	nA
Input Bias Current	I <sub>BIAS</sub>	-	-	200	800	nA
Supply Current	I <sub>CC</sub>	-	-	6.0	16	mA
Input Voltage Range	V <sub>I(R)</sub>	-	±12	±13	-	V
Common Mode Rejection Range	CMRR	T <sub>A</sub> = 25 °C	70	100	-	dB
Power Supply Rejection Ratio	PSRR	T <sub>A</sub> = 25 °C	80	100	-	dB
Output Voltage Swing	V <sub>O(P-P)</sub>	R <sub>L</sub> ≥ 600Ω	±12	±13	-	V
Input Resistance	R <sub>I</sub>	T <sub>A</sub> = 25°C	30	300	-	kΩ
Short Circuit Current	I <sub>SC</sub>	-	-	38	-	mA
Overshoot	OS	R <sub>L</sub> = 600Ω, C <sub>L</sub> = 100pF	-	10	20	%
Large-signal Voltage Gain	G <sub>V</sub>	R <sub>L</sub> ≥ 2kΩ, V <sub>O</sub> = ±10V	25	100	-	V/mV
		R <sub>L</sub> ≥ 600Ω, V <sub>O</sub> = ±10V	15	50	-	
Small-signal Voltage Gain	G <sub>v</sub>	f = 10kHz	2	2.2	-	V/mV
Gain Bandwidth Product	GBW	C <sub>L</sub> = 100pF, R <sub>L</sub> = 600Ω	8	10	-	MHz
Slew Rate	SR	R <sub>L</sub> = 1K, C <sub>L</sub> = 100pF, R <sub>L</sub> = 600Ω	6	8.0	-	V/μs
Input Noise Voltage	e <sub>N</sub>	f <sub>0</sub> = 30Hz	-	8.0	-	nV/√Hz
		f <sub>0</sub> = 1kHz	-	5.0	-	

## Typical Performance Characteristics

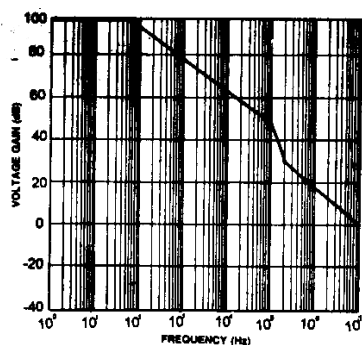


Figure 1. Open Loop Frequency Response

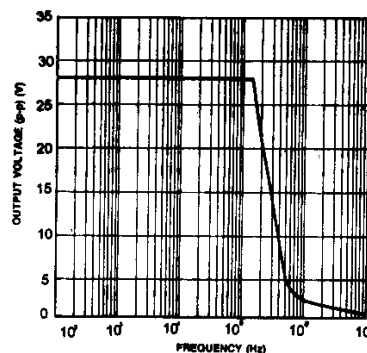


Figure 2. Large Signal Frequency Response

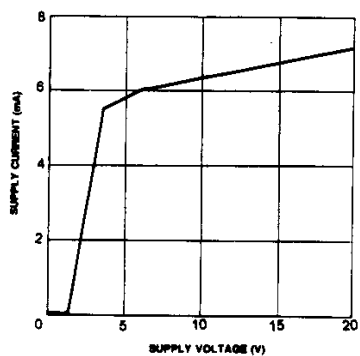


Figure 3. Supply Current vs Supply Voltage

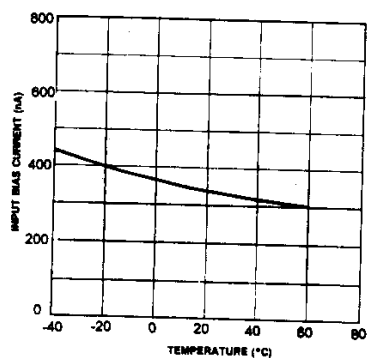


Figure 4. Input Bias Current vs Temperature

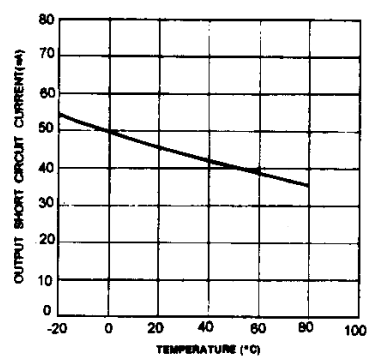


Figure 5. Output Circuit Current vs Temperature

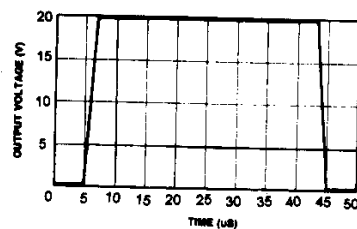


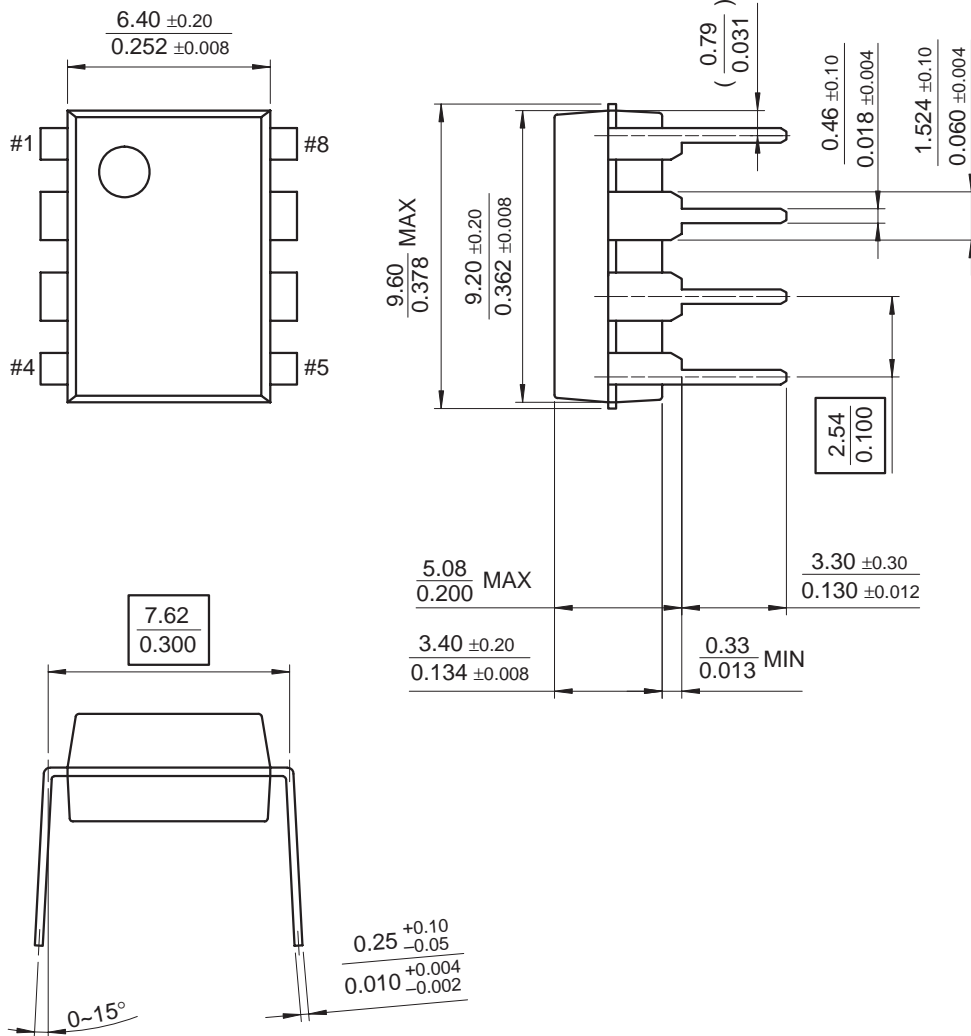
Figure 6. Slew Rate

# Mechanical Dimensions

## Package

Dimensions in millimeters

### 8-DIP

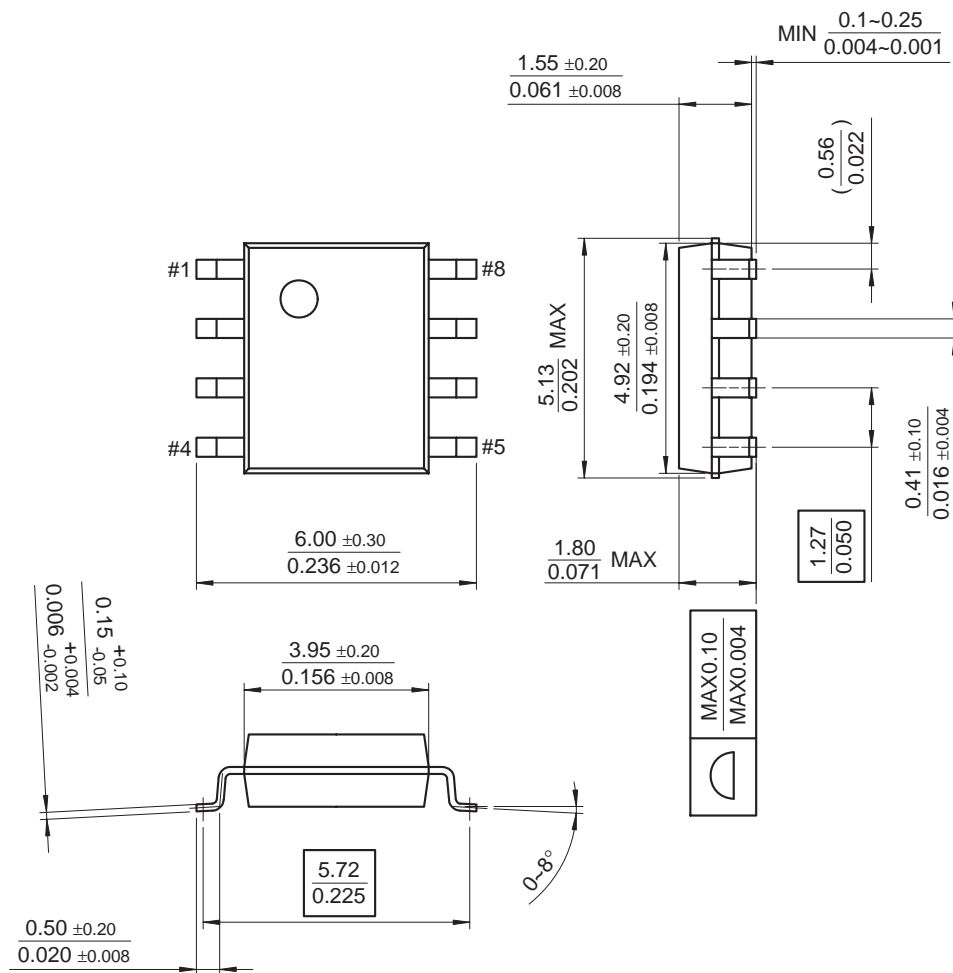


# Mechanical Dimensions (Continued)

Package

Dimensions in millimeters

## 8-SOP



## Ordering Information

Product Number	Package	Operating Temperature
NE5532N	8-DIP	0 ~ +70°C
NE5532D	8-SOP	

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