

Dual operational amplifier

Description

- The NE5532 includes two independent, low-noise dual operational amplifiers with internal frequency compensation. It features high slew rate, low output noise, and is suitable for high-quality audio equipment, instrumentation, and control systems.
- The NE5532 is available in DIP8 or SOP8 package configurations.

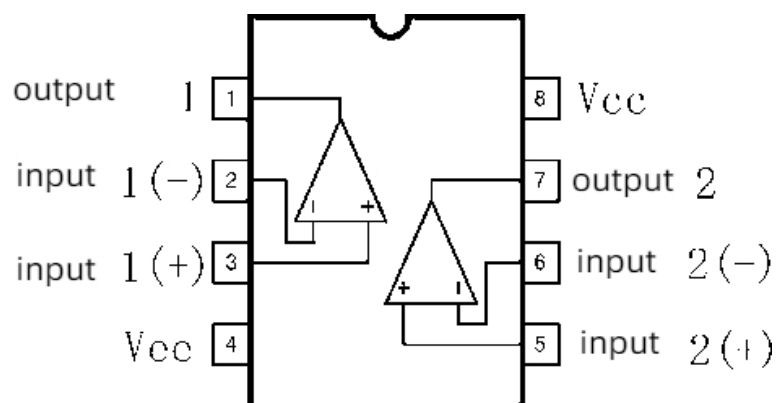
Features

- Internal frequency compensation
- High DC voltage gain (approximately 100dB)
- High slew rate (10V/us typ.)
- Input voltage noise (8nV/ $\sqrt{\text{Hz}}$ $f_0=1\text{kHz}$)

Ordering information

Part Number	Package	Packing	Packing Quantity
NE5532N	DIP8	tubing	2000 units per box
NE5532S	SOP8	taping	2500 units per box

Pinout diagram



DIP8/SOP8

Pin function symbol

Pin Number	Pin Name	Function	Pin Number	Pin Name	Function
1	OUT 1	output 1	5	IN 2(+)	input 2 (+)
2	IN 1(-)	input 1 (-)	6	IN 2(-)	input 2 (-)
3	IN 1(+)	input 1 (+)	7	OUT 2	output 2
4	Vee	Vee	8	Vcc	supply voltage

Maximum ratings (Absolute maximum ratings, unless otherwise specified, $T_{amb}=25^{\circ}\text{C}$)

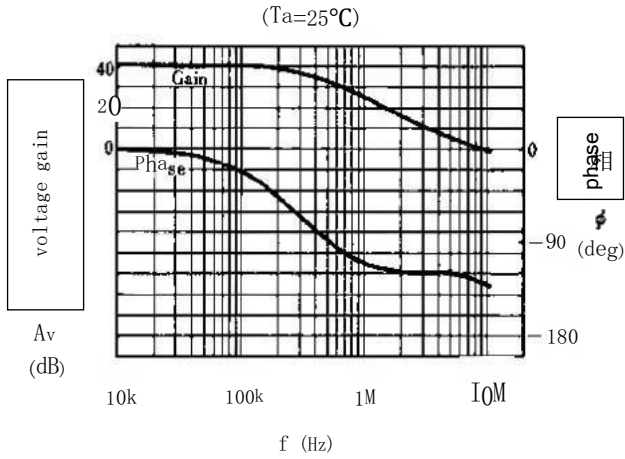
Symbol	Parameter	Value	Unit
V_{cc}	supply voltage	22	V
V_I	input voltage	15	V
T_{amb}	operating ambient temperature	0~+70	$^{\circ}\text{C}$
T_{stg}	storage temperature	-65~+150	$^{\circ}\text{C}$

Electrical characteristics (Unless otherwise specified, $T_{amb}=25^{\circ}\text{C}, V_{cc}=15, V_{ee}=-15\text{V}$)

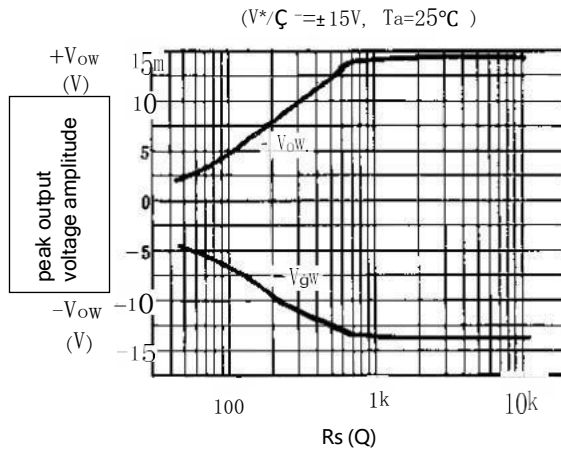
Symbol	Parameter	Text Conditions	Value			Unit
			Min	Typ	Max	
I_{cc}	supply current			5.5	9.0	mA
V_{IO}	input offset voltage	$R_S < 10\text{k}\Omega$	-	0.5	5.0	mV
I_{IO}	input offset current			5	200	nA
I_{BIAS}	input bias current		-	30	500	nA
$V_I(R)$	input common-mode voltage range		± 12	± 13	-	V
G_v	large-signal voltage gain	$V_o(p-p) = \pm 10\text{V}, R_L < 2\text{k}\Omega$	20	200	-	V/mV
$V_o(p-p)$	output voltage swing	$R_L > 10\text{k}\Omega$	± 13	± 14	-	V
		$R_L > 2\text{k}\Omega$	± 12	± 13	-	
CMRR	common-mode rejection ratio	$R_S < 10\text{k}\Omega$	70	100	-	dB
PSRR	power supply rejection ratio	$R_S < 10\text{k}\Omega$	76	100	-	dB
SR	slew rate		-	11	-	V/ μS
GB	gain bandwidth product		-	10	-	MHz
E_n	gain bandwidth product bandwidth product	$f_0 = 1\text{KHz}$	-	8	-	nV/ $\sqrt{\text{Hz}}$
C_s	channel separation	$f_0 = 1\text{KHz}, R_s = 5\text{k}\Omega$	-	110	-	dB

Typical operating characteristics curve

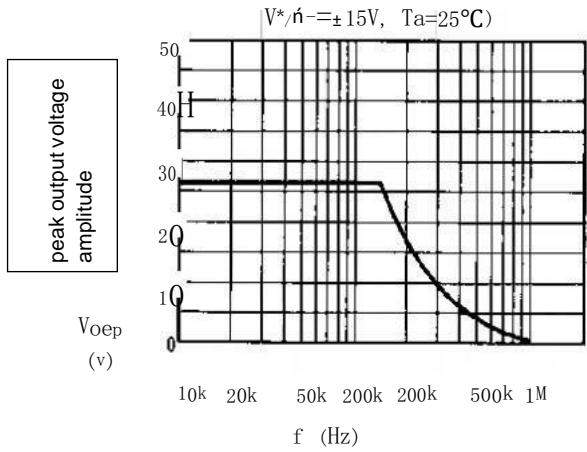
Voltage Gain, Phase, And Frequency



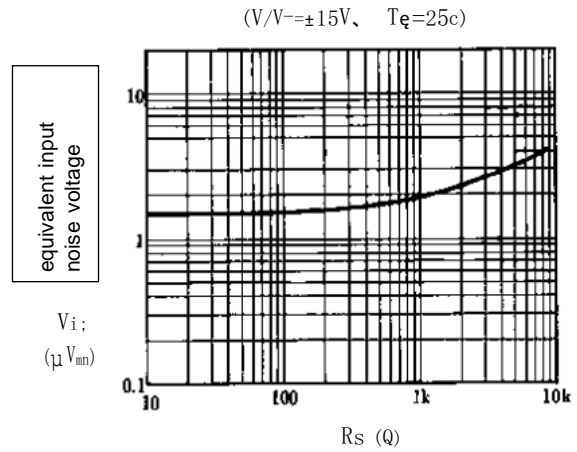
The Maximum Output Voltage Amplitude And Load



The maximum output voltage amplitude and frequency



The equivalent input noise voltage and resistance



Package outline

SOP8

Technical drawing of the SOP8 package. The top view shows a rectangular package with dimensions B (width) and C (height). The distance between the centerlines of the pins on the top is labeled 'a', and on the bottom is labeled 'b'. The distance from the top edge to the centerline of the top pins is labeled 'C1'. The side view shows the package height with dimensions A (total height), A1 (height to the top of the package body), and D (height to the top of the leads). The lead thickness is indicated as 0.25 mm. The lead angle is labeled 'Q'.

Dimensions In Millimeters					
Symbol:	Min:	Max:	Symbol:	Min:	Max:
A	1.225	1.570	D	0.400	0.950
A1	0.100	0.250	Q	0°	8°
B	4.800	5.100	a	0.420	TYP
C	5.800	6.250	b	1.270	TYP
C1	3.800	4.000			

DIP8

Technical drawing of the DIP8 package. The top view shows a rectangular package with dimensions B (width) and A (height). The distance between the centerlines of the pins on the top is labeled 'c', and on the bottom is labeled 'd'. The distance from the top edge to the centerline of the top pins is labeled 'E'. The side view shows the package height with dimensions D1 (total height) and D (height to the top of the package body). The lead length is labeled 'L1'. The bottom view shows the package with dimensions a and b.

Dimensions In Millimeters					
Symbol:	Min:	Max:	Symbol:	Min:	Max:
A	6.100	6.680	L1	3.000	3.600
B	9.000	9.500	a	1.524 TYP	
D	8.400	9.000	b	0.889 TYP	
D1	7.420	7.820	c	0.457 TYP	
E	3.100	3.550	d	2.540 TYP	
L	0.500	0.700			