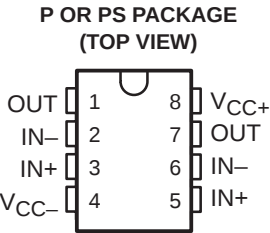


- Equivalent Input Noise Voltage
5 nV/ $\sqrt{\text{Hz}}$ Typ at 1 kHz
- Unity-Gain Bandwidth . . . 10 MHz Typ
- Common-Mode Rejection
Ratio . . . 100 dB Typ
- High dc Voltage Gain . . . 100 V/mV Typ
- Peak-to-Peak Output Voltage Swing
32 V Typ With $V_{CC\pm} = \pm 18\text{ V}$ and $R_L = 600\ \Omega$
- High Slew Rate . . . 9 V/ μs Typ
- Wide Supply Voltage Range . . . $\pm 3\text{ V}$ to
 $\pm 20\text{ V}$
- Designed to Be Interchangeable With
Signetics NE5532 and NE5532A
- Package Options Include Plastic
Small-Outline (PS) Package and Standard
Plastic (P) DIP



description

The NE5532 and NE5532A are high-performance operational amplifiers combining excellent dc and ac characteristics. They feature very low noise, high output-drive capability, high unity-gain and maximum-output-swing bandwidths, low distortion, high slew rate, input-protection diodes, and output short-circuit protection. These operational amplifiers are compensated internally for unity-gain operation. The NE5532A has specified maximum limits for equivalent input noise voltage.

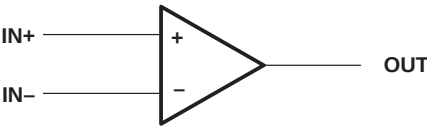
The NE5532 and NE5532A are characterized for operation from 0°C to 70°C.

AVAILABLE OPTIONS

T _A	PACKAGED DEVICES	
	PLASTIC DUAL-IN-LINE (P)	PLASTIC SMALL-OUTLINE (PS)
0°C to 70°C	NE5532P NE5532AP	NE5532PS NE5532APS

The PS package is available taped and reeled. Add the suffix R to the device type (e.g., NE5532PSR).

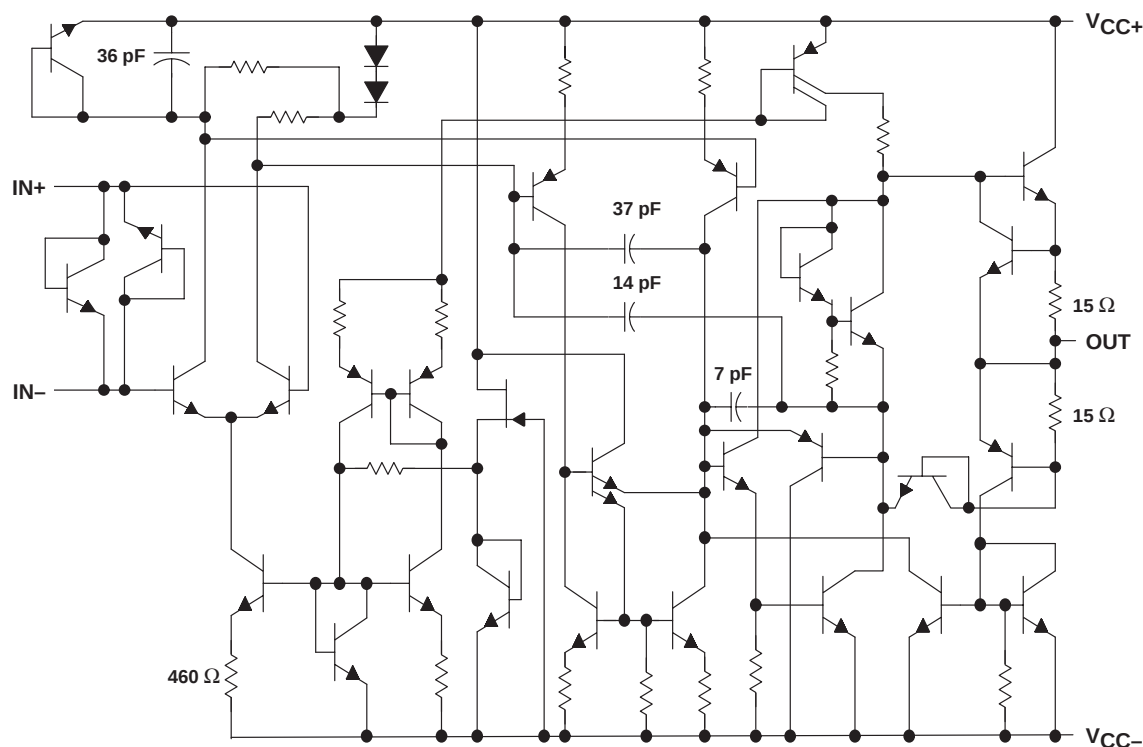
symbol (each amplifier)



NE5532, NE5532A DUAL LOW-NOISE OPERATIONAL AMPLIFIERS

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schematic (each amplifier)



Component values shown are nominal.

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC+} (see Note 1)	22 V
Supply voltage, V_{CC-} (see Note 1)	-22 V
Input voltage, either input (see Notes 1 and 2)	$V_{CC\pm}$
Input current (see Note 3)	± 10 mA
Duration of output short circuit (see Note 4)	Unlimited
Package thermal impedance, θ_{JA} (see Note 5): P package	85°C/W
PS package	95°C/W
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds	260°C
Storage temperature range, T_{stg}	-65°C to 150°C

- NOTES:
1. All voltage values, except differential voltages, are with respect to the midpoint between V_{CC+} and V_{CC-} .
 2. The magnitude of the input voltage must never exceed the magnitude of the supply voltage.
 3. Excessive input current will flow if a differential input voltage in excess of approximately 0.6 V is applied between the inputs unless some limiting resistance is used.
 4. The output may be shorted to ground or either power supply. Temperature and/or supply voltages must be limited to ensure the maximum dissipation rating is not exceeded.
 5. The package thermal impedance is calculated in accordance with JESD 51.

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recommended operating conditions

	MIN	NOM	MAX	UNIT
Supply voltage, V_{CC+}	5		15	V
Supply voltage, V_{CC-}	-5		-15	V
Operating free-air temperature	0		70	°C

electrical characteristics, $V_{CC\pm} = +15\text{ V}$, $T_A = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	MIN	TYP	MAX	UNIT
V_{IO} Input offset voltage	$V_O = 0$ $T_A = 25^\circ\text{C}$ $T_A = 0^\circ\text{C to } 70^\circ\text{C}$		0.5	4	mV
I_{IO} Input offset current	$T_A = 25^\circ\text{C}$ $T_A = 0^\circ\text{C to } 70^\circ\text{C}$		10	150	nA
I_{IB} Input bias current	$T_A = 25^\circ\text{C}$ $T_A = 0^\circ\text{C to } 70^\circ\text{C}$		200	800	nA
V_{ICR} Common-mode input-voltage range		± 12	± 13		V
V_{OPP} Maximum peak-to-peak output-voltage swing	$R_L \geq 600\ \Omega$ $V_{CC\pm} = \pm 15\text{ V}$ $V_{CC\pm} = \pm 18\text{ V}$	24	26		V
A_{VD} Large-signal differential-voltage amplification	$R_L \geq 600\ \Omega$, $V_O = \pm 10\text{ V}$ $T_A = 25^\circ\text{C}$ $T_A = 0^\circ\text{C to } 70^\circ\text{C}$ $R_L \geq 2\text{ k}\Omega$, $V_O = \pm 10\text{ V}$ $T_A = 25^\circ\text{C}$ $T_A = 0^\circ\text{C to } 70^\circ\text{C}$	15	50		V/mV
A_{vd} Small-signal differential-voltage amplification	$f = 10\text{ kHz}$		2.2		V/mV
B_{OM} Maximum-output-swing bandwidth	$R_L = 600\ \Omega$, $V_O = \pm 10\text{ V}$ $V_{CC\pm} = \pm 18\text{ V}$, $V_O = \pm 14\text{ V}$	140		100	kHz
B_1 Unity-gain bandwidth	$R_L = 600\ \Omega$, $C_L = 100\text{ pF}$		10		MHz
r_i Input resistance		30	300		k Ω
z_o Output impedance	$A_{VD} = 30\text{ dB}$, $R_L = 600\ \Omega$, $f = 10\text{ kHz}$		0.3		Ω
CMRR Common-mode rejection ratio	$V_{IC} = V_{ICR\text{ min}}$	70	100		dB
k_{SVR} Supply voltage rejection ratio ($\Delta V_{CC\pm}/\Delta V_{IO}$)	$V_{CC\pm} = \pm 9\text{ V to } \pm 15\text{ V}$, $V_O = 0$	80	100		dB
I_{OS} Output short-circuit current		10	38	60	mA
I_{CC} Total supply current	$V_O = 0$, No load		8	16	mA
Crosstalk attenuation (V_{O1}/V_{O2})	$V_{O1} = 10\text{ V peak}$, $f = 1\text{ kHz}$		110		dB

† All characteristics are measured under open-loop conditions with zero common-mode input voltage unless otherwise specified.



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operating characteristics, $V_{CC\pm} = \pm 15\text{ V}$, $T_A = 25^\circ\text{C}$

PARAMETER		TEST CONDITIONS	NE5532			NE5532A			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
SR	Slew rate at unity gain			9			9		V/ μ s
	Overshoot factor	$V_I = 100\text{ mV}$, $R_L = 600\ \Omega$, $A_{VD} = 1$, $C_L = 100\text{ pF}$		10%			10%		
V_n	Equivalent input noise voltage	f = 30 Hz		8			8	10	nV/ $\sqrt{\text{Hz}}$
		f = 1 kHz		5			5	6	
I_n	Equivalent input noise current	f = 30 Hz		2.7			2.7		pA/ $\sqrt{\text{Hz}}$
		f = 1 kHz		0.7			0.7		

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