



AiP5534

Single Low-Noise Operational Amplifier

Product Specification

Specification Revision History:

Version	Date	Description
2024-01-A0	2024-01	New
2024-09-A1	2024-09	Modify parameters
2025-04-A2	2025-04	Modify application circuit of voltage follower
2025-08-A3	2025-08	Modify the supply voltage range in the general description



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**1、General Description**

The AiP5534 is a single-channel high-performance low-noise operational amplifier. It features low noise, high open-loop gain, high slew rate and strong output drive capability. The device supports both single-supply and dual-supply operation, and is widely adopted in instrumentation, industrial control and audio amplification systems.

Features:

- Wide supply voltage range:
Single power supply: 5V to 36V
Dual power supply: $\pm 2.5\text{V}$ to $\pm 18\text{V}$
- High unit gain bandwidth: 24MHz (Typ. Without external compensation)
- High slew rate: 13V/us (Typ.)
- Low input offset voltage
- Low input offset current
- Package information: DIP8/SOP8

Ordering Information:**Tube packing specifications:**

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
AiP5534DA8.TB	DIP8	AiP5534	50 PCS/tube	40 tube/box	2000 PCS/box	Dimensions of plastic enclosure: 9.2mm×6.4mm Pin spacing: 2.54mm

Reel packing specifications:

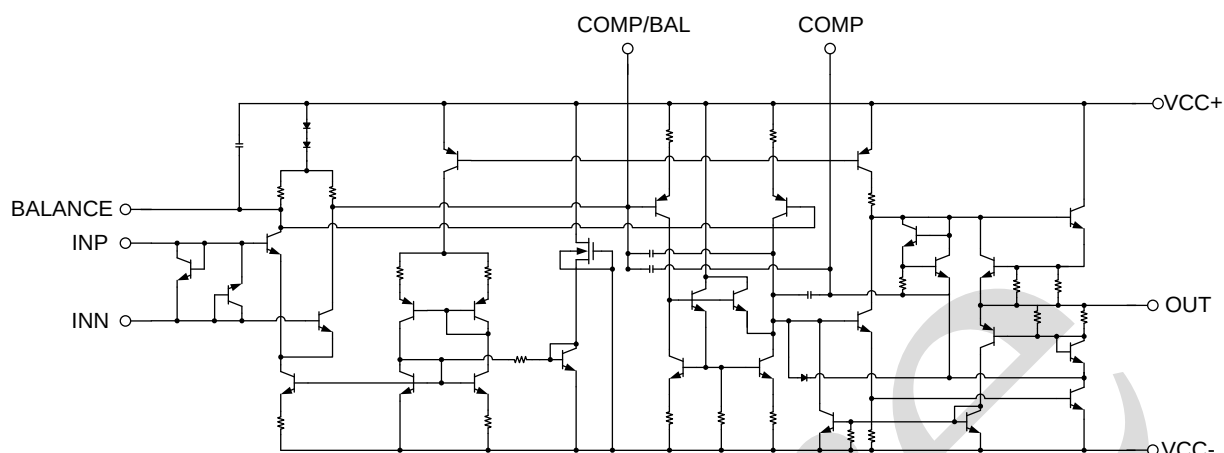
Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
AiP5534SA8.TR	SOP8	AiP5534	4000PCS/reel	8000PCS/box	Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 1.27mm

Note: If the physical information is inconsistent with the ordering information, please refer to the actual product.

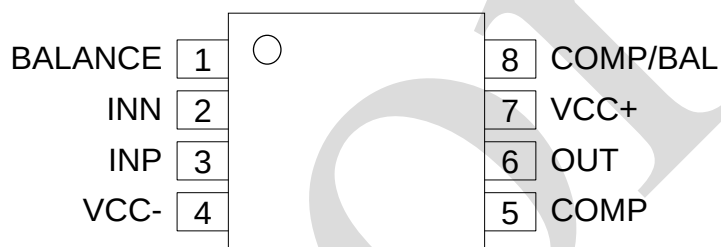


2、Block Diagram And Pin Description

2.1、Block Diagram



2.2、Pin Configurations



2.3、Pin Description

Pin No.	Pin Name	IO	Description
1	BALANCE	I	offset zeroing
2	INN	I	inverting input
3	INP	I	non-inverting input
4	VCC-	-	ground
5	COMP	O	external frequency compensation
6	OUT	O	output
7	VCC+	-	power supply
8	COMP/BAL	I	offset zeroing/ external frequency compensation



3、Electrical Parameter

3.1、Absolute Maximum Ratings

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

Characteristic	Symbol	Conditions		Value	Unit
supply voltage	VCC+	-		+20	V
	VCC-	-		-20	
input voltage	V_{IN}	-		± 20	V
thermal resistance	θ_{JA}	DIP8		110	$^{\circ}\text{C}/\text{W}$
		SOP8		160	
junction temperature	T_J	-		150	$^{\circ}\text{C}$
storage temperature	T_{stg}	-		-65 to 150	$^{\circ}\text{C}$
soldering temperature	T_L	10s	DIP	250	$^{\circ}\text{C}$
			SOP	260	$^{\circ}\text{C}$

3.2、Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
supply voltage	VCC+	5	-	18	V
	VCC-	-5	-	-18	V
ambient temperature	T_{amb}	-40	-	85	$^{\circ}\text{C}$

3.3、Electrical Characteristics

3.3.1、DC Characteristics

($T_{amb}=25^{\circ}\text{C}$, $V_{CC}=\pm 15\text{V}$, unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
input offset voltage	V_{IO}	$V_o=0\text{V}$	$T_{amb}=25^{\circ}\text{C}$	-	0.5	4	mV
			full range	-	-	5	
input offset current	I_{IO}	$T_{amb}=25^{\circ}\text{C}$		-	20	300	nA
		full range		-	-	400	
input bias current	I_{IB}	$T_{amb}=25^{\circ}\text{C}$		-	800	1500	nA
		full range		-	-	2000	
common-mode input voltage	V_{CM}	-		± 12	± 13	-	V
maximum output swing	V_{OM}	$R_L \geq 600\Omega$, $V_{CC}=\pm 15\text{V}$		24	26	-	V
output short-circuit current	I_{OS}	-		-	38	-	mA
quiescent current	I_{CC}	$V_o=0\text{V}$, no load		-	4	8	mA

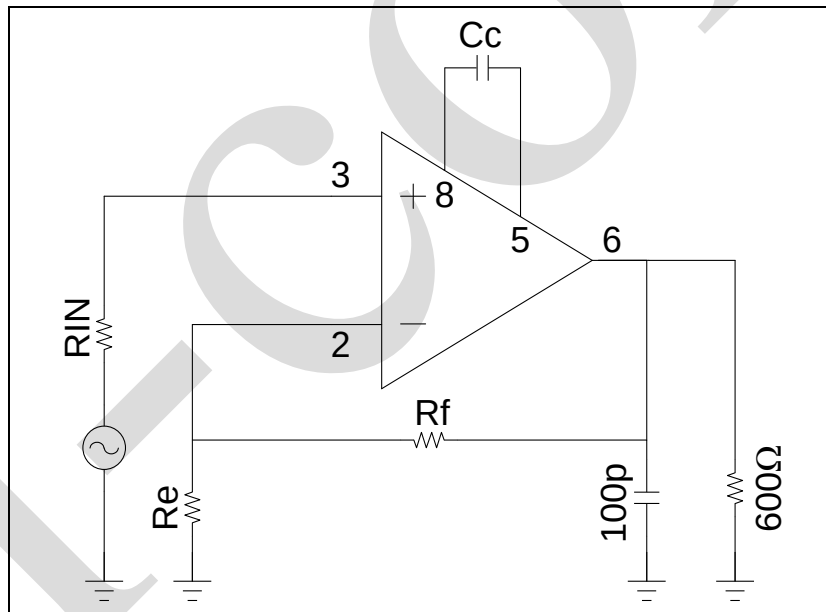


3.3.2、AC Characteristics

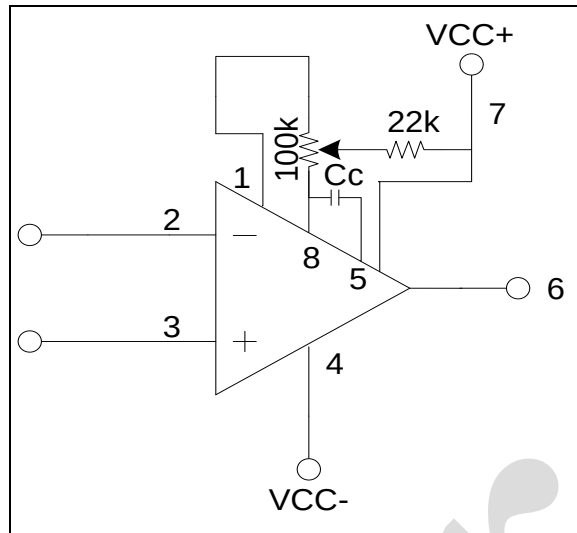
($T_{amb}=25^{\circ}\text{C}$, $V_{CC}=\pm 15\text{V}$, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
large-signal voltage gain	A_{VOL}	$R_L \geq 600\Omega$, $V_O = \pm 10\text{V}$	84	94	-	dB
		$R_L \geq 2\text{k}\Omega$, $V_O = \pm 10\text{V}$	88	100	-	
small-signal voltage gain	A_{vd}	$f=10\text{kHz}$	-	67	-	dB
unit gain bandwidth	GBW	$R_L=600\Omega$, $C_L=100\text{pF}$, $C_c=0\text{pF}$	-	24	-	MHz
		$R_L=600\Omega$, $C_L=100\text{pF}$, $C_c=22\text{pF}$	-	10	-	MHz
common-mode rejection ratio	CMRR	$V_{IC}=V_{ICR\ min}$	70	100	-	dB
power supply rejection ratio	PSRR	$V_{CC}=\pm 9\text{V}$ to $\pm 15\text{V}$, $V_O=0$	80	100	-	dB
slew rate	SR	$C_c=0\text{pF}$	-	13	-	V/ μs
		$C_c=22\text{pF}$	-	6	-	V/ μs
equivalent input noise voltage	e_n	$f=30\text{Hz}$	-	8	-	nV/ $\sqrt{\text{Hz}}$
		$F=1\text{kHz}$	-	5	-	nV/ $\sqrt{\text{Hz}}$

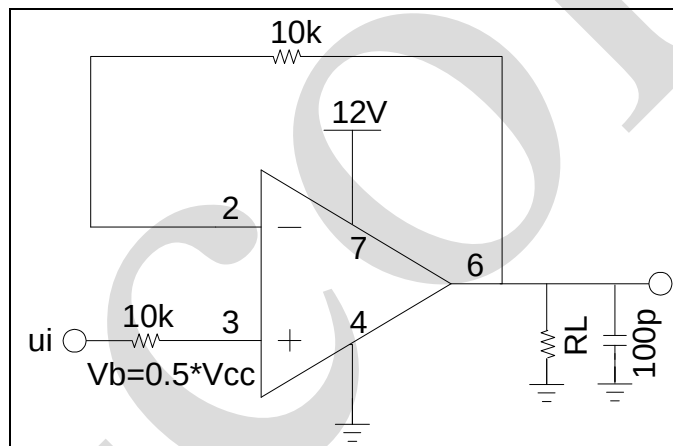
4、Testing Circuit



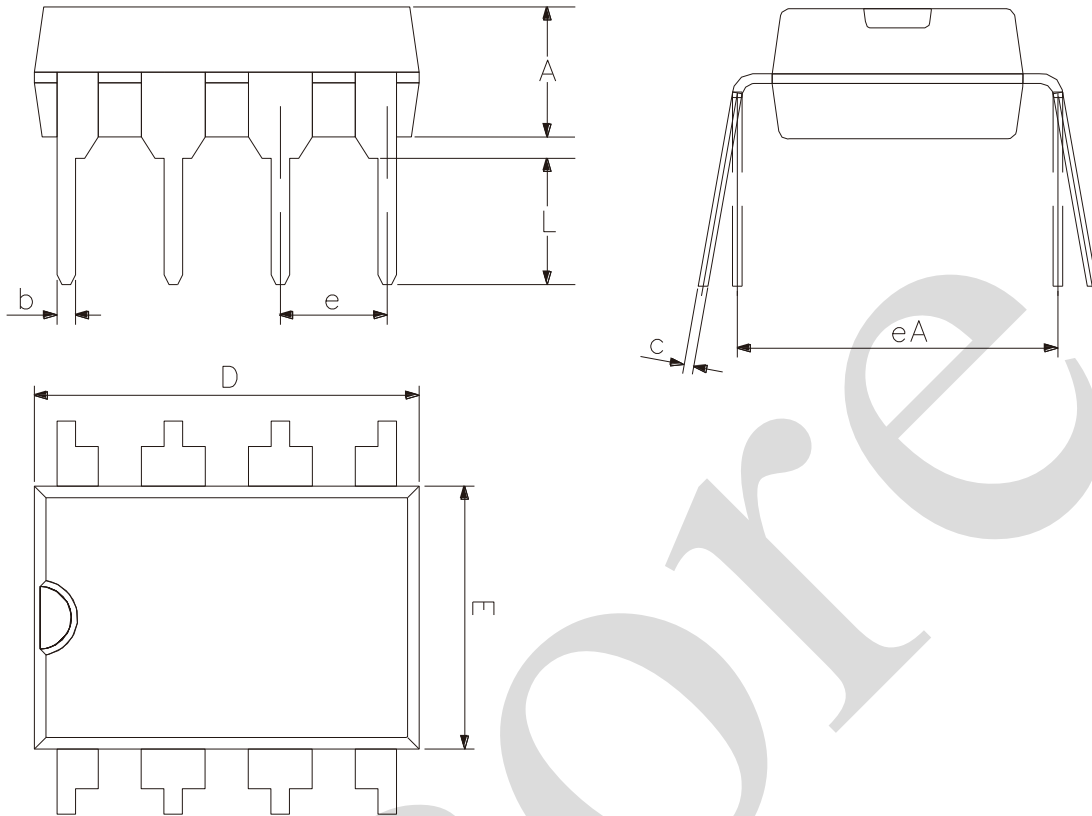
Closed-loop response test

**5、Typical Application Circuit**

Input zeroing application



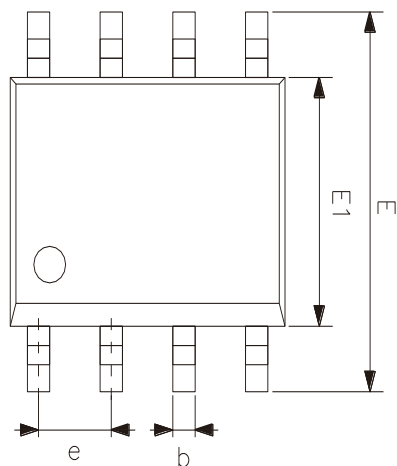
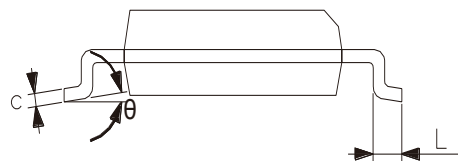
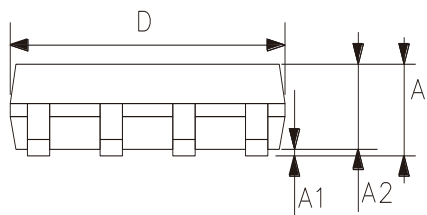
Voltage follower

**6、Package Information****6.1、DIP8**

2023/12/A	Dimensions In Millimeters	
Symbol	Min	Max
A	3.00	3.60
b	0.36	0.56
c	0.20	0.36
D	9.00	9.45
E	6.15	6.60
e	2.54	
eA	7.62	9.30
L	3.00	—



6.2、SOP8



2023/12/A	Dimensions In Millimeters	
Symbol	Min.	Max.
A	1.35	1.80
A1	0.05	0.25
A2	1.25	1.55
D	4.70	5.10
E	5.80	6.30
E1	3.70	4.10
b	0.306	0.51
c	0.19	0.25
e	1.27	
L	0.40	0.89
θ	0°	8°



7、Statements And Notes

7.1、The name and content of Hazardous substances or Elements in the product

Part name	Hazardous substances or Elements									
	Lead and lead compounds	Mercury and mercury compounds	Cadmium and cadmium compounds	Hexavalent chromium compounds	Polybrominated biphenyls	Polybrominated biphenyl ethers	Dibutyl phthalate	Butylbenzyl phthalate	Di-2-ethylhexyl phthalate	Diisobutyl phthalate
Lead frame	○	○	○	○	○	○	○	○	○	○
Plastic resin	○	○	○	○	○	○	○	○	○	○
Chip	○	○	○	○	○	○	○	○	○	○
The lead	○	○	○	○	○	○	○	○	○	○
Plastic sheet installed	○	○	○	○	○	○	○	○	○	○
explanation	○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									

7.2、Notes

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