

AN6550

Dual Operational Amplifier

Overview

The AN6550 is a dual operational amplifier with a phase compensation circuit built-in, allowing low voltage operation.

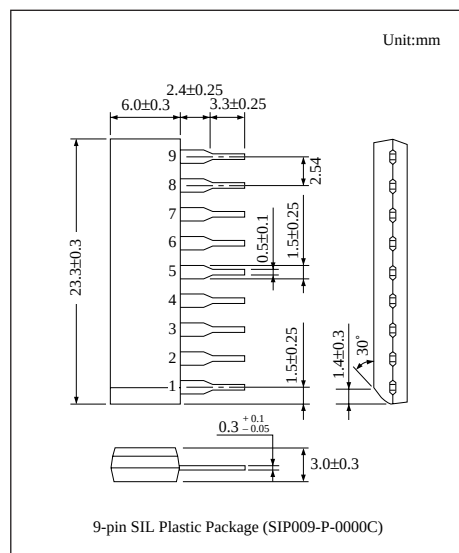
It is suitable for application to various electronic circuits such as active filters and audio preamplifiers.

Features

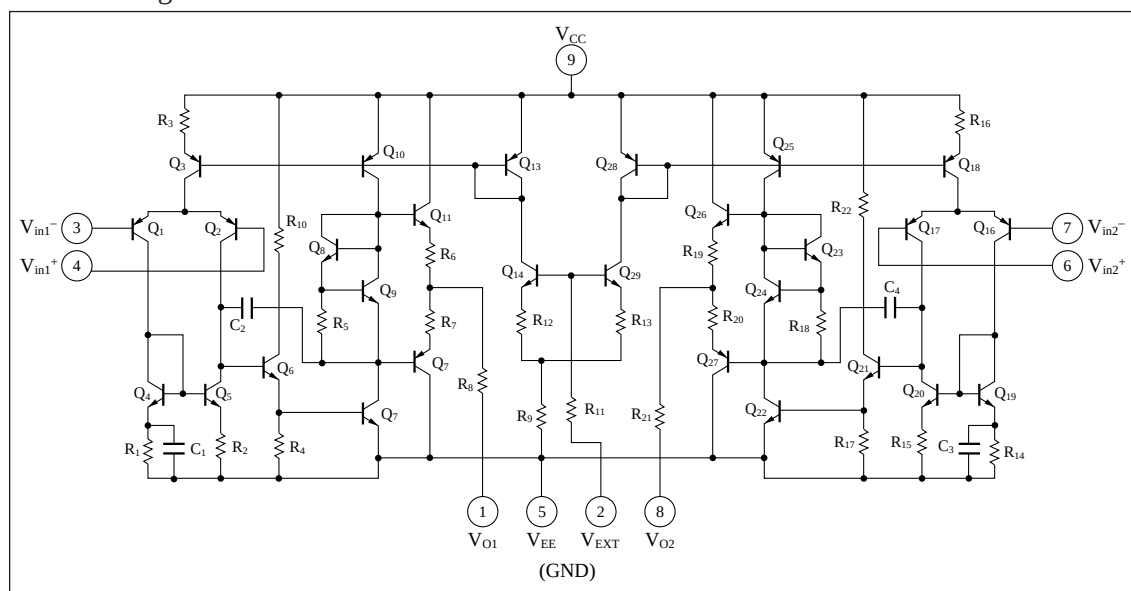
- Phase compensation circuit
- High voltage gain, low noise
- Output short protection circuit
- Low voltage operation($\pm 2.5\text{V}$ to $\pm 10\text{V}$)

Pin Descriptions

Pin No.	Pin name
1	Ch.1 output
2	External bias
3	Ch.1 inverting input
4	Ch.1 non inverting input
5	V_{EE} (GND)
6	Ch.2 non inverting input
7	Ch.2 inverting input
8	Ch.2 output
9	V_{CC}



Block Diagram



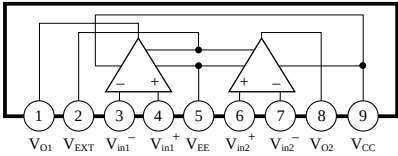
■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Voltage	Supply voltage	V_{CC}, V_{EE}	± 12	V
	External bias supply voltage	V_{EXT}	V_{EE} to V_{CC}	V
	Differential input voltage	V_{ID}	± 24	V
	Common-mode input voltage	V_{ICM}	± 12	V
Power dissipation		P_D	500	mW
Temperature	Operating ambient temperature	T_{opr}	-20 to +75	°C
	Storage temperature	T_{stg}	-55 to +150	°C

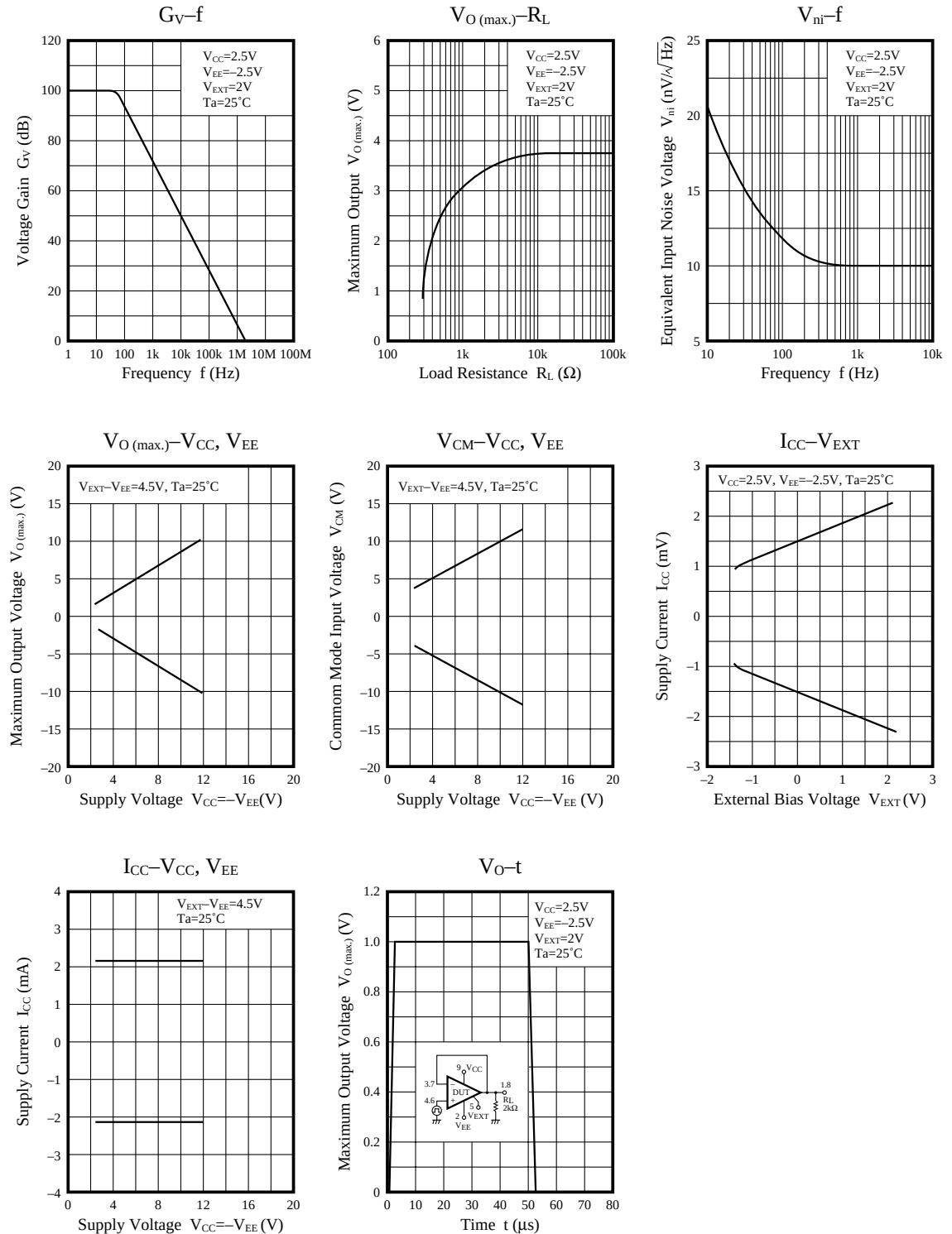
■ Electrical Characteristics ($V_{CC}=2.5V$, $V_{EE}=-2.5V$, $V_{EXT}=2.0V$, $T_a=25^\circ C$)

Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	$V_{I(offset)}$	$R_S \leq 10k\Omega$	—	1.5	6	mV
Input offset current	I_{IO}		—	5	200	nA
Input bias current	I_{Bias}		—	150	500	nA
Voltage gain	G_V	$R_L \geq 2k\Omega$	65	100	—	dB
Maximum output voltage	$V_{O(max)}$	$R_L \geq 10k\Omega$	± 1.2	± 1.7	—	V
		$R_L \geq 2k\Omega$	± 1	± 1.5	—	V
Common-mode input voltage width	V_{CM}		± 1	± 1.5	—	V
Common-mode rejection ratio	CMR		70	80	—	dB
Supply voltage rejection ratio	SVR		—	100	300	$\mu V/V$
Power consumption	P_C	$R_L = \infty$	—	8	15	mW
Slew rate	SR	$R_L \geq 2k\Omega$	—	0.8	—	V/ μs
Equivalent input noise voltage	V_{ni}	$R_S = 1k\Omega$, B=10Hz to 30kHz	—	2.5	—	μV_{rms}

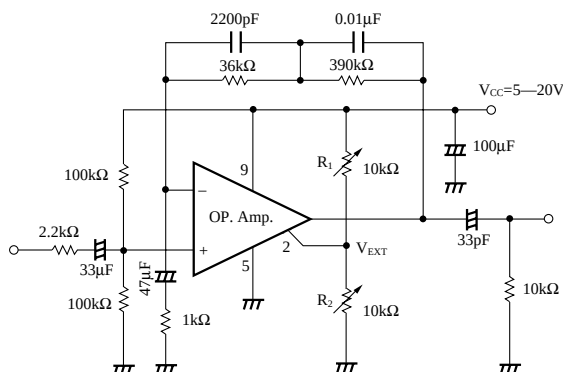
■ Pin Assignments



■ Characteristics Curve



■ Application Circuit



RIAA Preamplifier (single power supply operation)

Note) R_1 and R_2 are resistances for setting operational amplifier bias.

Set R_1 and R_2 so that $V_{EXT}=2.0V$ to $6.0V$.

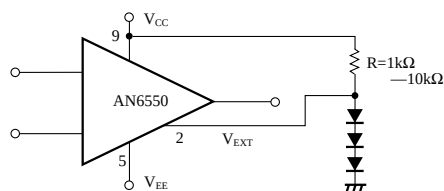
(Recommended Voltage $V_{EXT}=4.5V$)

■ How to Apply External to the AN6550

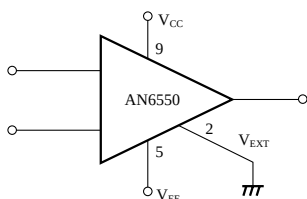
1. The AN6550 is an operational amplifier with a phase compensation circuit built-in, allowing low voltage operation, and its current consumption and bandwidth can be changed by applying external bias to it.
2. As shown below, applies bias voltage to 2 V_{EXT} pin of the AN6550 allows the AN6550 to be handled in the very same way as the AN6551, except for pin connection.

Set $V_{EXT} \geq V_{EE} + 1V$.

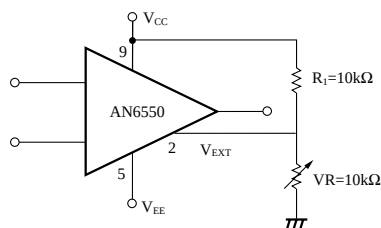
1) By diode



2) By connecting V_{EXT} pin to GND



3) By dividing with resistors



4) By Zener diode

($V_{CC} - V_{EE} \geq 6V$)

