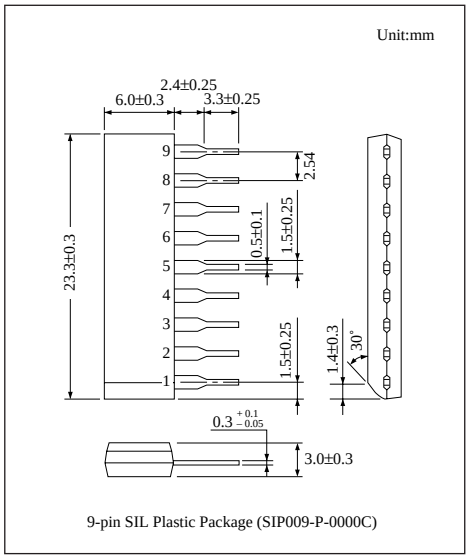
AN6550

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.



9-pin SIL Plastic Package (SIP009-P-0000C)

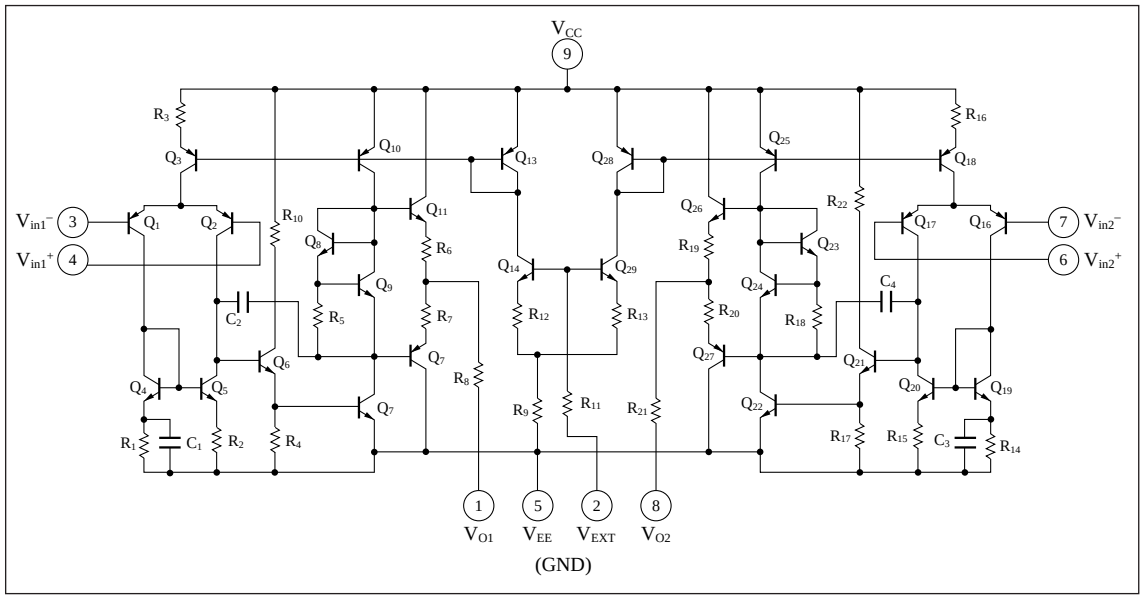
■ Features

- Phase compensation circuit
- High voltage gain, low noise
- Output short protection circuit
- Low voltage operation(±2.5V to±10V)

■ 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 inveting input
8	Ch.2 output
9	V_{CC}

■ Block Diagram



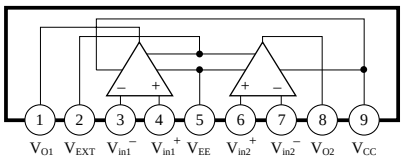
■ Absolute Maximum Ratings (Ta=25˚C)

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, Ta=25˚C)

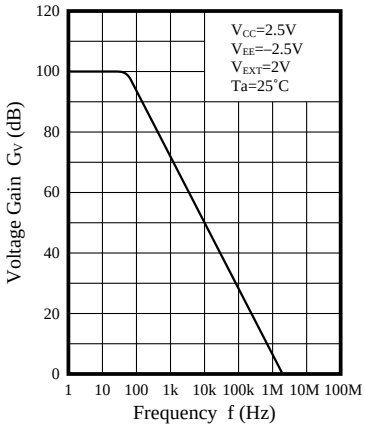
Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	$V_{I\,(offset)}$	$R_S \leqq 10k\Omega$	—	1.5	6	mV
Input offset current	I_{IO}		—	5	200	nA
Input bias current	I_{Bias}		—	150	500	nA
Voltage gain	G_V	$R_L \geqq 2k\Omega$	65	100	—	dB
Maximum output voltage	$V_{O\,(max.)}$	$R_L \geqq 10k\Omega$	±1.2	±1.7	—	V
		$R_L \geqq 2k\Omega$	±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	μV/V
Power consumption	P_C	R_L=∞	—	8	15	mW
Slew rate	SR	$R_L \geqq 2k\Omega$	—	0.8	—	V/μs
Equivalent input noise voltage	V_{ni}	R_S=1kΩ, B=10Hz to 30kHz	—	2.5	—	μVrms

■ Pin Assignments

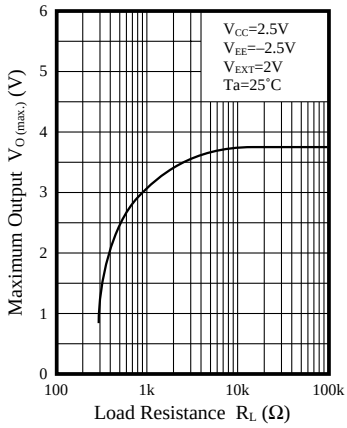


■ Characteristics Curve

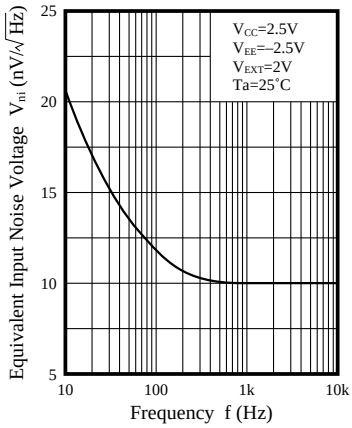
G_V–f



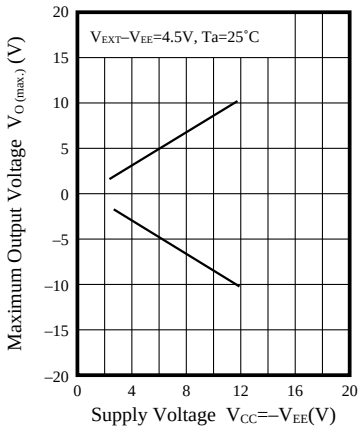
$V_{O\ (max.)}$–R_L



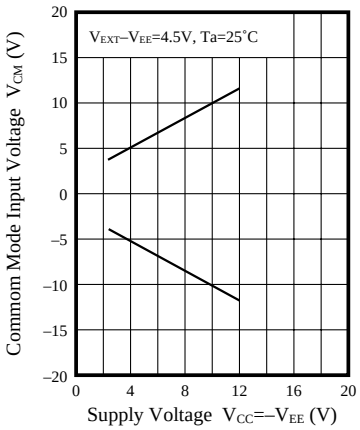
V_{ni}–f



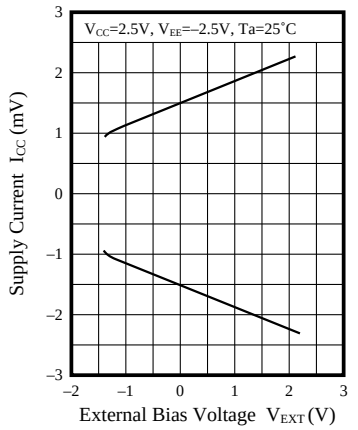
$V_{O\ (max.)}$–V_{CC}, V_{EE}



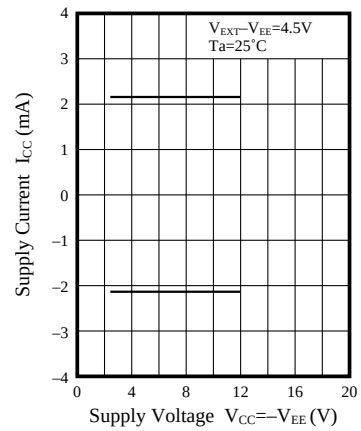
V_{CM}–V_{CC}, V_{EE}



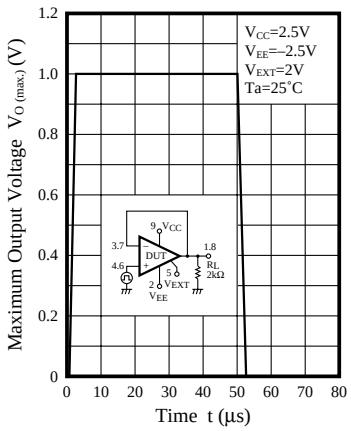
I_{CC}–V_{EXT}



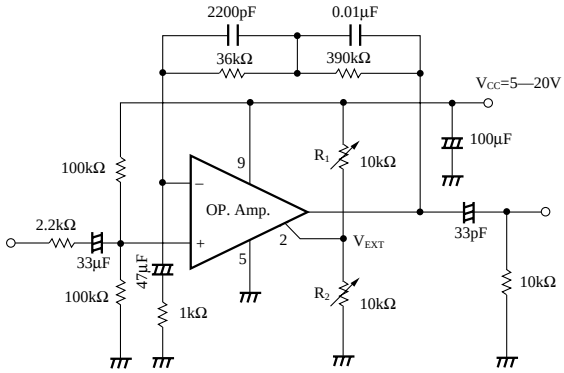
I_{CC}–V_{CC}, V_{EE}



V_O–t



■ Application Circuit



RIAA Preamplifier (single power supply operation)

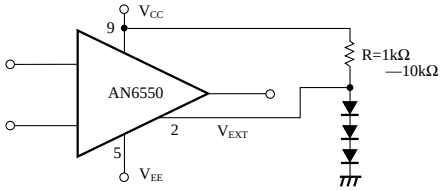
Note) R_1 and R_2 are resistances for setting operational amplifier bias.
Set R_1 and R_2 so that V_{EXT}=2.0V to 6.0V.
(Recommended Voltage V_{EXT}=4.5V)

■ How to Apply External to the AN6550

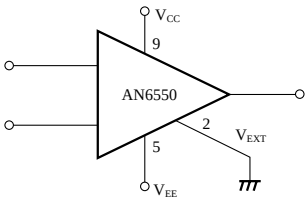
1. The AN6550 is an operational amplifier with a phase compensation circuit built-in, allowing low voltage operation, and its current consumption and bandwidth can be changed by applying external bias to it.
2. As shown below, applys bias voltage to 2 V_{EXT} pin of the AN6550 allows the AN6550 to be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

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

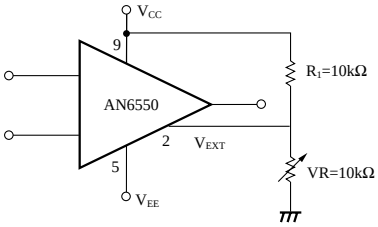
1) By diode



2) By connecting V_{EXT} pin to GND



3) By dividing with resistors



4) By Zener diode
(V_{CC}–$V_{EE} \geqq$6V)