

# AN6553

## Dual Operational Amplifiers

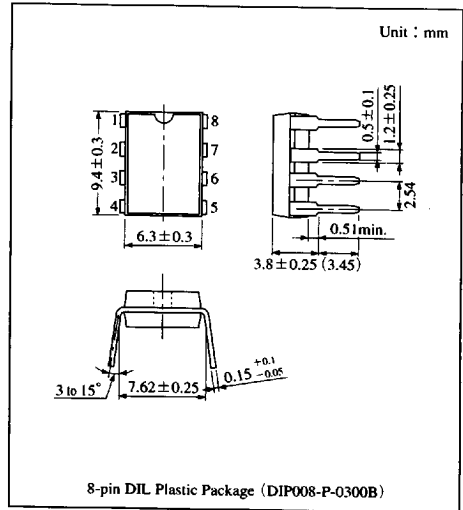
### Overview

The AN6553 is a dual operational amplifier with phase compensation circuits built-in.

It is suitable for application to various electronic circuits such as active filters audio pre-amplifiers.

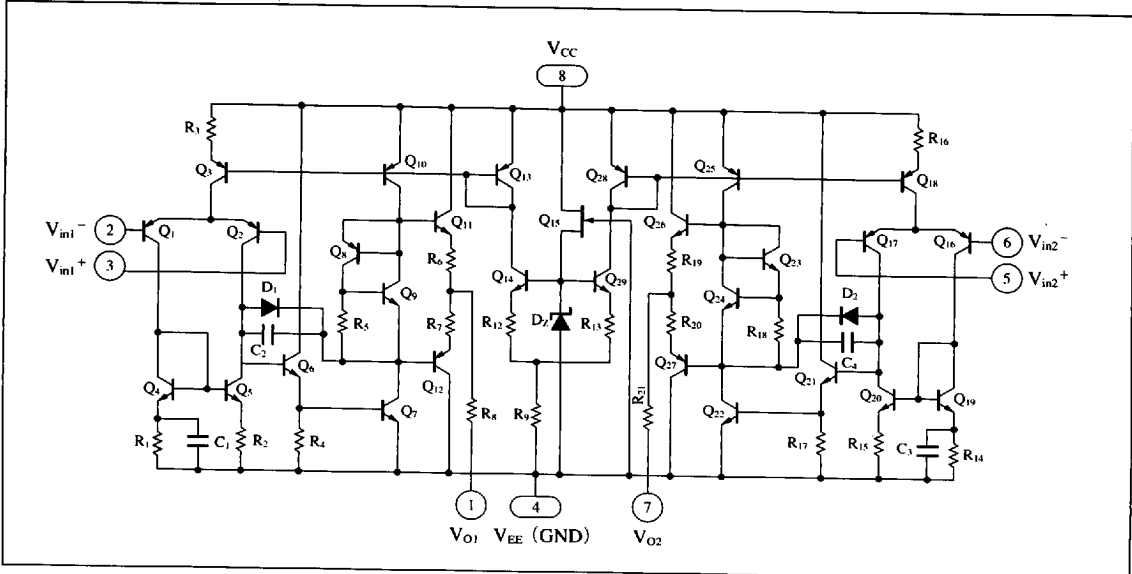
### Features

- Phase compensation circuit built-in
- High gain, low noise
- Output short-circuit protection
- Slew rate :  $2.0V/\mu s$  typ.



Operational Amplifiers

### Schematic Diagram



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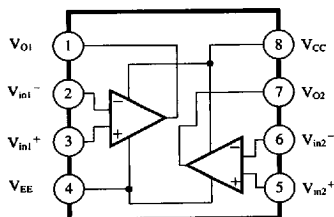
### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Parameter		Symbol	Rating	Unit
Voltage	Supply voltage	$V_{CC}$	$\pm 18$	V
	Differential input voltage	$V_{ID}$	$\pm 30$	V
	Common-mode input voltage	$V_{ICM}$	$\pm 15$	V
Power dissipation		$P_D$	500	mW
Temperature	Operating ambient temperature	$T_{opr}$	$-20$ to $+75$	$^\circ\text{C}$
	Storage temperature	$T_{stg}$	$-55$ to $+150$	$^\circ\text{C}$

### ■ Electrical Characteristics ( $V_{CC}=15\text{V}$ , $V_{EE}=-15\text{V}$ , $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	$V_{I(\text{offset})}$	$R_S \leq 10\text{k}\Omega$	—	0.5	6	mV
Input offset current	$I_{IO}$		—	5	200	nA
Input bias current	$I_{Bias}$		—	—	500	nA
Voltage gain	$G_V$	$R_L \geq 2\text{k}\Omega$ , $V_O = \pm 10\text{V}$	86	100	—	dB
Maximum output voltage	$V_{O(\text{max.})}$	$R_L \geq 10\text{k}\Omega$	$\pm 12$	$\pm 14$	—	V
		$R_L \geq 2\text{k}\Omega$	$\pm 10$	$\pm 13$	—	V
Common-mode input voltage width	$V_{CM}$		$\pm 12$	$\pm 14$	—	V
Common-mode rejection ratio	CMR		70	90	—	dB
Supply voltage rejection ratio	SVR		—	30	150	$\mu\text{V/V}$
Power consumption	$P_C$	$R_L = \infty$	—	90	170	mW
Slew rate	SR	$R_L \geq 2\text{k}\Omega$	—	2.0	—	$\text{V}/\mu\text{s}$
Equivalent input noise voltage	$V_{ni}$	$R_S = 1\text{k}\Omega$ , $B = 10\text{Hz}$ to $30\text{kHz}$	—	2.5	—	$\mu\text{Vrms}$

### ■ Block Diagram



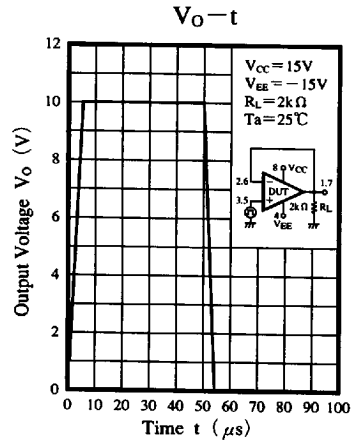
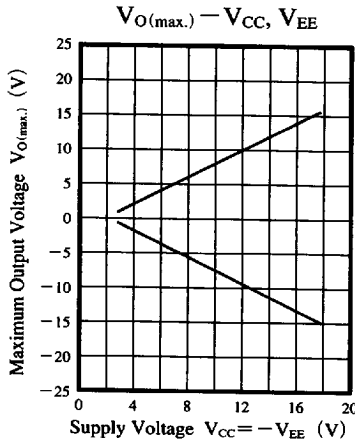
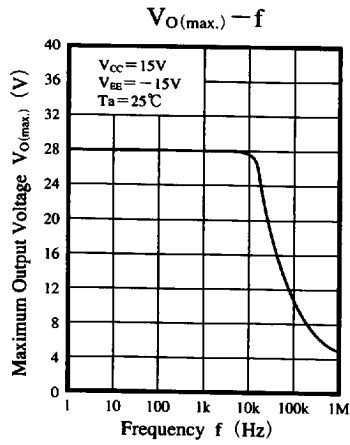
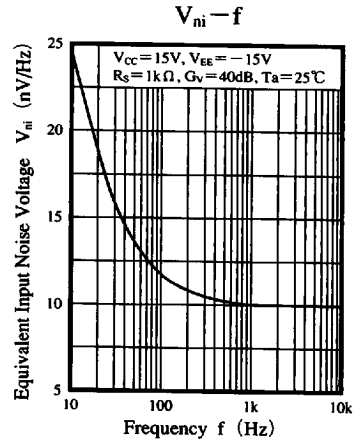
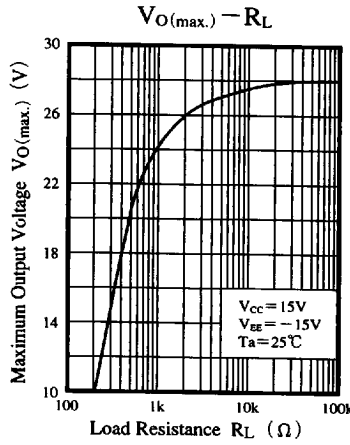
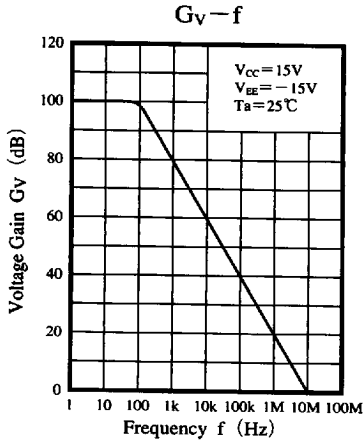
### ■ Pin Descriptions

Pin No.	Pin name
1	Ch.1 output
2	Ch.1 inverting input
3	Ch.1 non inverting input
4	$V_{EE}$
5	Ch.2 non inverting input
6	Ch.2 inverting input
7	Ch.2 output
8	$V_{CC}$

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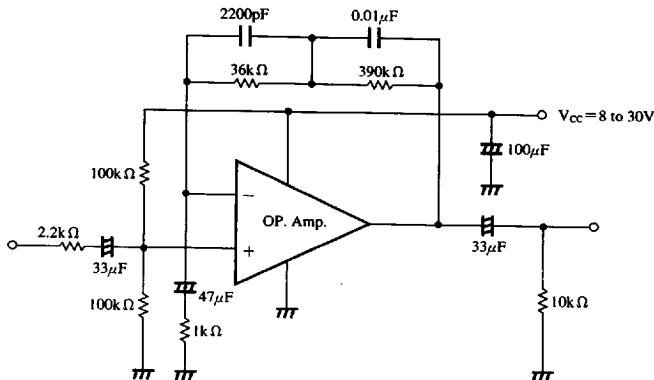
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■ Characteristics Curve



Operational Amplifiers

■ Application Circuit



RIAA Pre-amp. (Single voltage operation)

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