

# AN6553

## Dual Operational Amplifiers

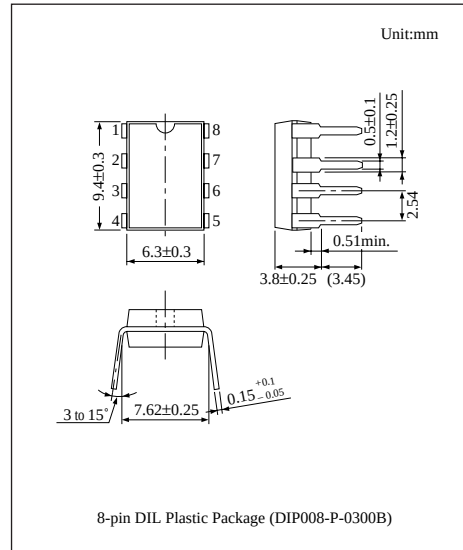
### ■ Overview

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

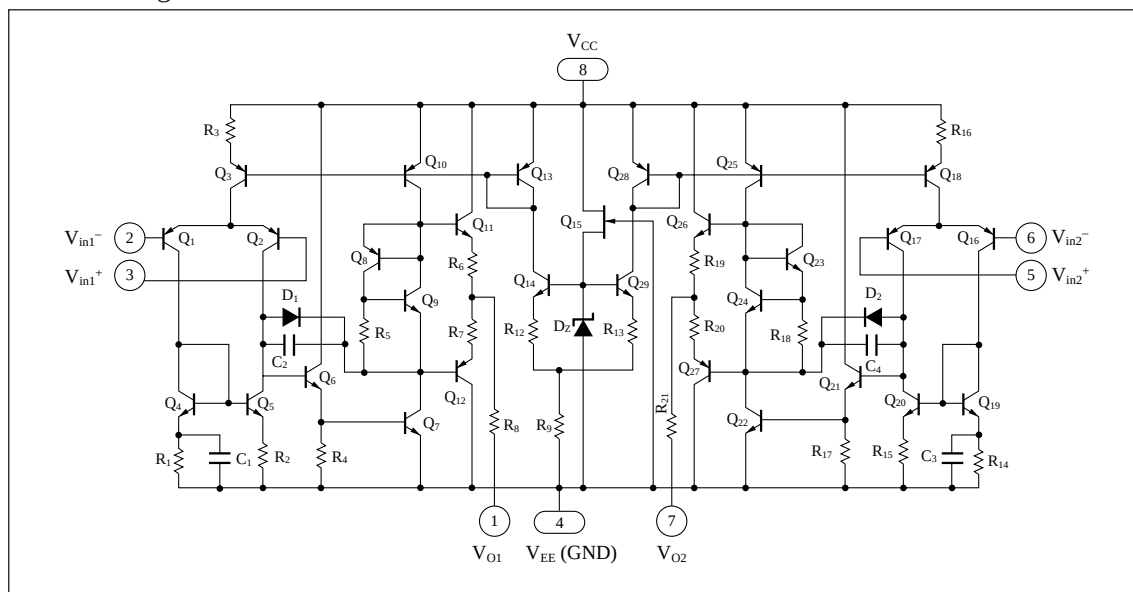
It is suitable for application to various electronic circuits such as active filters audio pre-amplifiers.

### ■ Features

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



### ■ Block Diagram



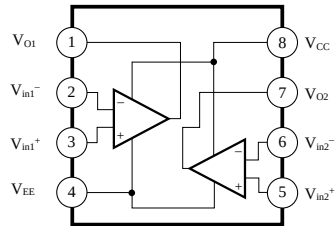
## ■ Absolute Maximum Ratings (Ta=25°C)

| 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  | °C   |
|                   | Storage temperature           | $T_{stg}$ | -55 to +150 | °C   |

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

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

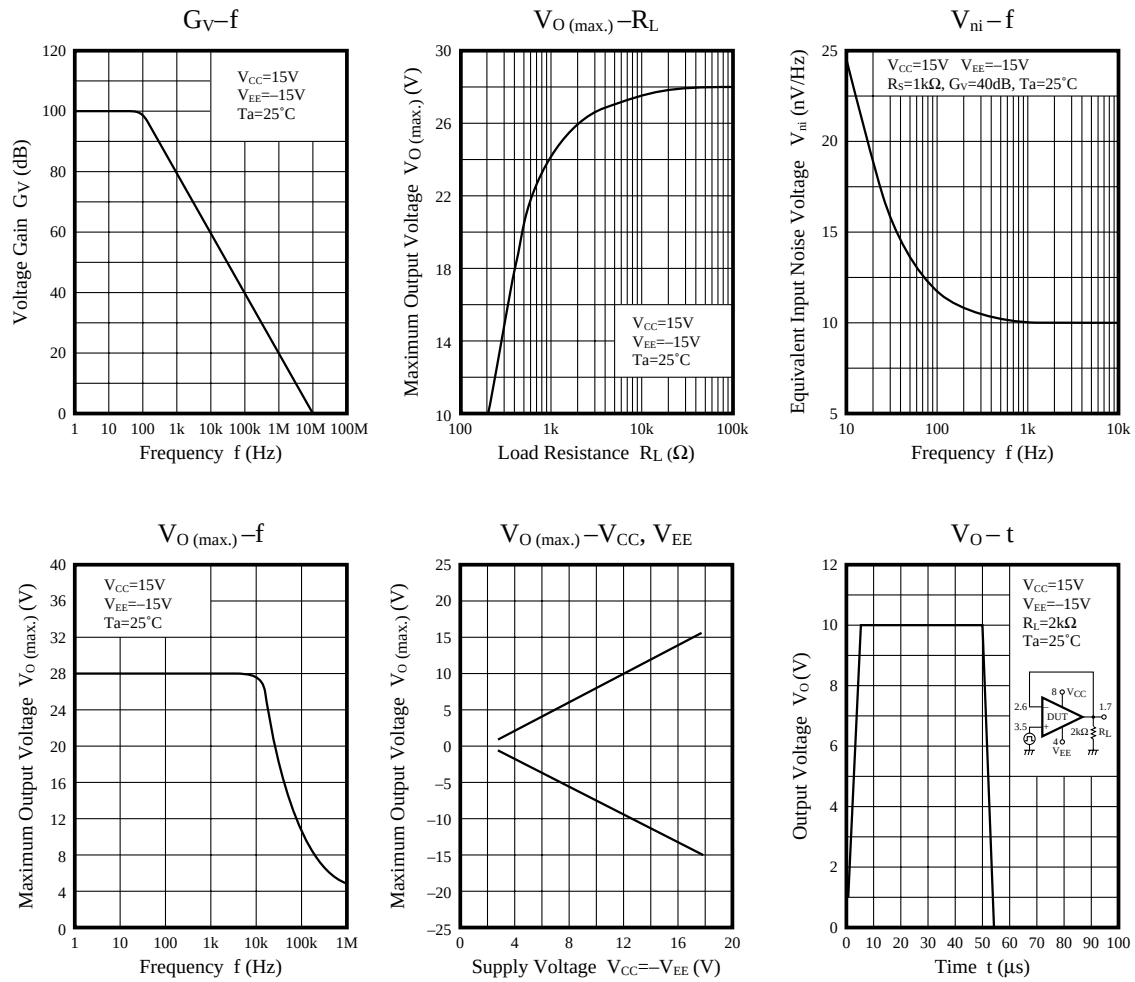
## ■ Block Diagram



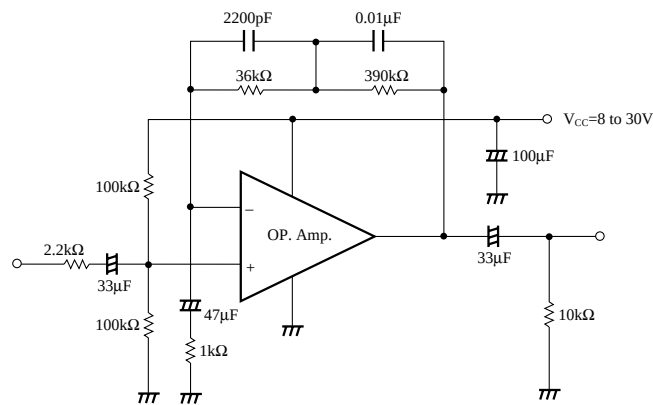
## ■ Pin Descriptions

| 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       | $V_{CC}$                 |

## ■ Characteristics Curve



## ■ Application Circuit



RIAA Pre-amp. (Single voltage operation)