

## DUAL OPERATIONAL AMPLIFIER

### GENERAL DESCRIPTION

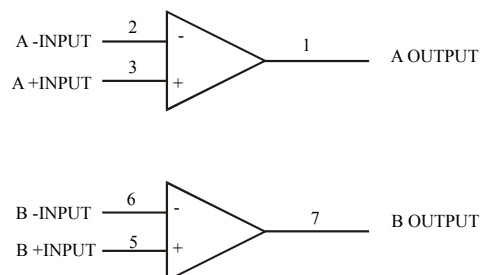
The JRC4580 is the dual operational amplifier, specially designer for improving the tone control, which is most suitable for the audio application.

Featuring noiseless, higher gain bandwidth, high output current and low distortion ratio, and it is most suitable not only for acoustic electronic parts of audio pre-amp and active filter, but also for the industrial measurement tools. It is also suitable for the head phone amp at higher output current, and further more, it can be applied for the handy type set operational amplifier of general purpose in application of low voltage single supply type which is properly biased of the input low voltage source.

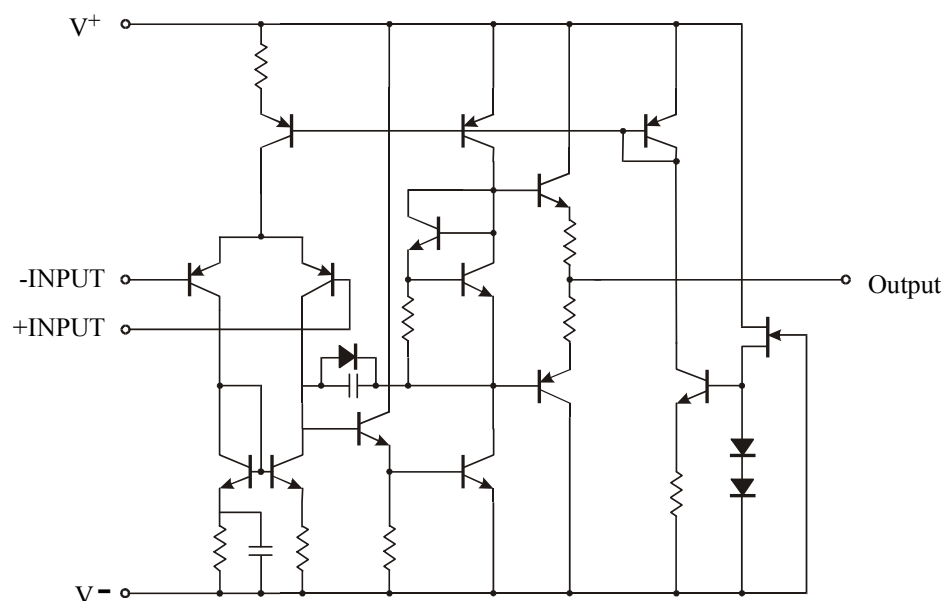
### FEATURES

- Operating Voltage ( $\pm 2\text{ V} \sim \pm 18\text{ V}$ )
- Wide Gain Bandwidth Product (15 MHz typ.)
- Slew Rate ( $5\text{ V}/\mu\text{s}$  typ.)
- Bipolar Technology

### BLOCK DIAGRAM



### EQUIVALENT CIRCUIT (1/2 Show)



**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C)

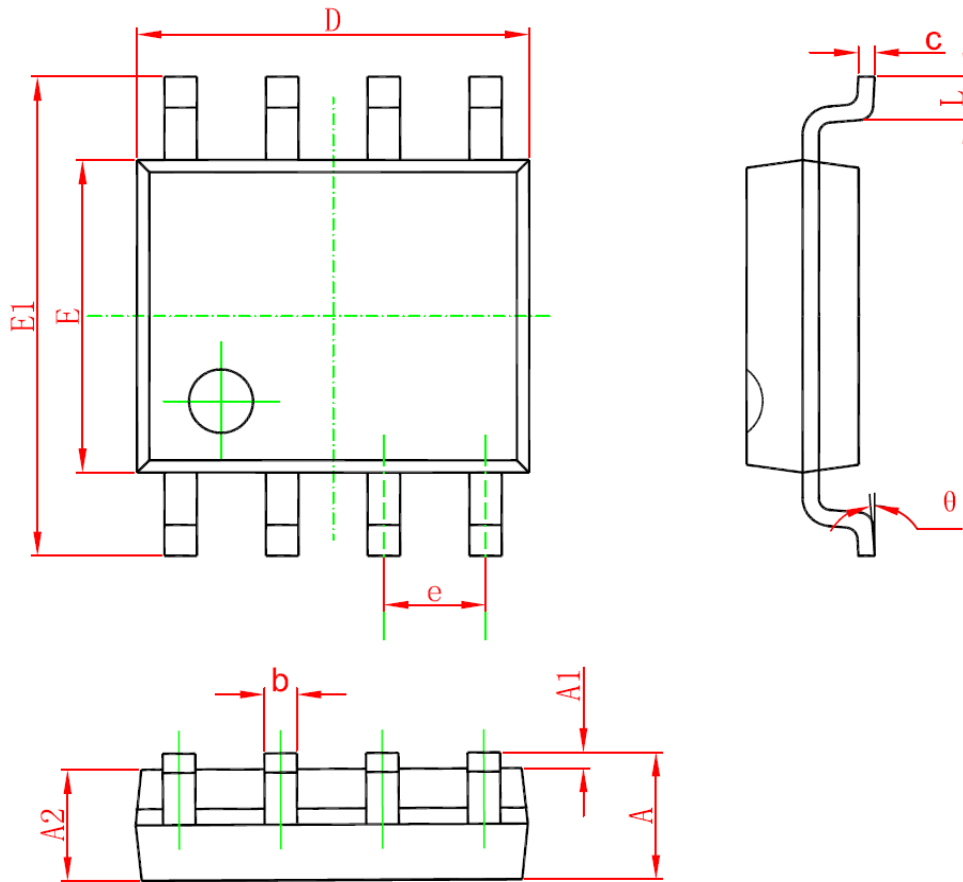
| Symbol                         | Parameter                   | Ratings    | Unit |
|--------------------------------|-----------------------------|------------|------|
| V <sup>+</sup> /V <sup>-</sup> | Supply Voltage              | ±18        | V    |
| V <sub>ID</sub>                | Differential Input Voltage  | 30         | V    |
| V <sub>IC</sub>                | Input Voltage               | ±15*       | V    |
| I <sub>O</sub>                 | Output Current              | ±50        | mA   |
| T <sub>opr</sub>               | Operation Temperature Range | -40 ~ +85  | °C   |
| T <sub>stg</sub>               | Storage Temperature Range   | -60 ~ +125 | °C   |

\* For supply voltage less than ±15 V, the absolute maximum input voltage is equal to the supply voltage.

**ELECTRICAL CHARACTERISTICS**

| Symbol           | Parameter                       | Test Condition                                | Min | Max | Unit |
|------------------|---------------------------------|-----------------------------------------------|-----|-----|------|
| V <sub>IO</sub>  | Input Offset Voltage            | R <sub>s</sub> ≤ 10 kΩ                        | -   | 3   | mV   |
| I <sub>IO</sub>  | Input Offset Current            |                                               | -   | 200 | nA   |
| I <sub>B</sub>   | Input Bias Current              |                                               | -   | 500 | nA   |
| R <sub>IN</sub>  | Input Resistance                |                                               | 0.3 | -   | MΩ   |
| A <sub>v</sub>   | Large Signal Voltage Gain       | R <sub>L</sub> ≥ 2 kΩ, V <sub>o</sub> = ±10 V | 90  | -   | dB   |
| V <sub>OM</sub>  | Output Voltage Swing            | R <sub>L</sub> ≥ 2 kΩ                         | ±12 | -   | V    |
| V <sub>ICM</sub> | Input Common Mode Voltage Range |                                               | ±12 | -   | V    |
| CMR              | Common Mode Rejection Ratio     | R <sub>s</sub> ≤ 10 kΩ                        | 80  | -   | dB   |
| SVR              | Supply Voltage Rejection Ratio  | R <sub>s</sub> ≤ 10 kΩ                        | 80  | -   | dB   |
| I <sub>CC</sub>  | Operating Current               |                                               | -   | 9   | mA   |
| SR               | Slew Rate                       | R <sub>L</sub> ≥ 2 kΩ                         | 4   | 6   | V/μs |

**SOP8 PACKAGE OUTLINE DIMENSIONS**



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.350                     | 1.750 | 0.053                | 0.069 |
| A1     | 0.100                     | 0.250 | 0.004                | 0.010 |
| A2     | 1.350                     | 1.550 | 0.053                | 0.061 |
| b      | 0.330                     | 0.510 | 0.013                | 0.020 |
| c      | 0.170                     | 0.250 | 0.006                | 0.010 |
| D      | 4.700                     | 5.100 | 0.185                | 0.200 |
| E      | 3.800                     | 4.000 | 0.150                | 0.157 |
| E1     | 5.800                     | 6.200 | 0.228                | 0.244 |
| e      | 1.270 (BSC)               |       | 0.050 (BSC)          |       |
| L      | 0.400                     | 1.270 | 0.016                | 0.050 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |