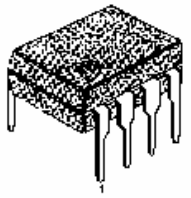
# LF353 (LM353, KA353) DUAL OPERATIONAL AMPLIFIER (JFET)

## DUAL OPERATIONAL AMPLIFER

The LF353 is a JFET input operational amplifier with an internally compensated input offset voltage. The JFET input device provides with bandwidth, low input bias currents and offset currents.

8 DIP

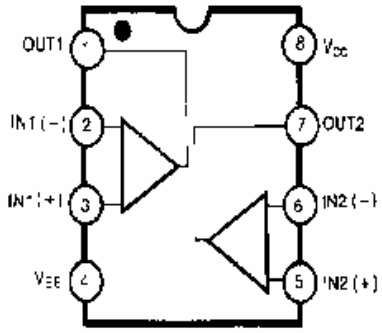


8 SOP

## FEATURES

- Internally trimmed offset voltage: 10mV
- Low input bias current: 50pA
- Wide gain bandwidth: 4MHz
- High slew rate: 13V/μs
- High Input impedance: $10^{12}\Omega$

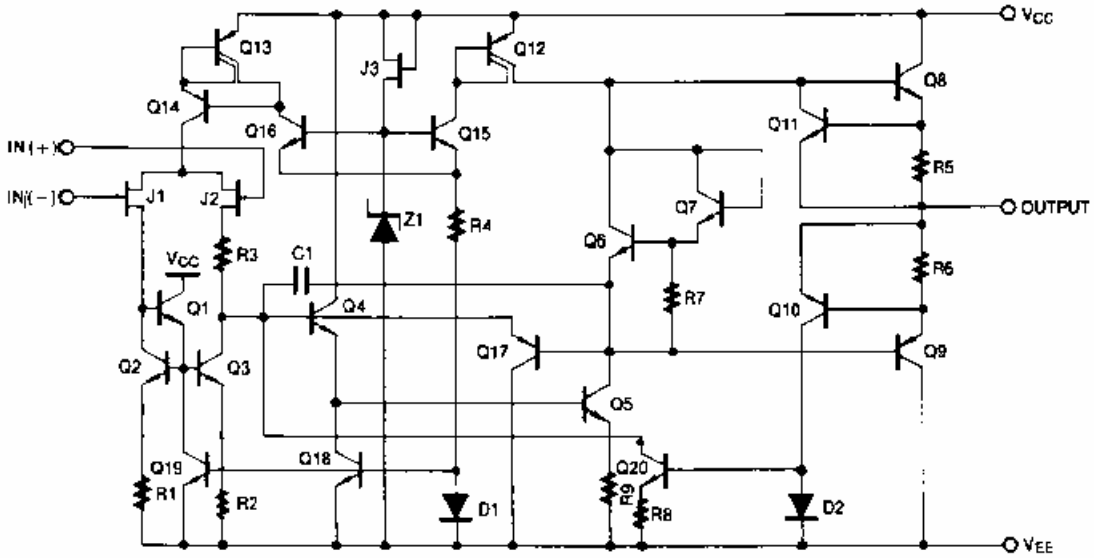
## BLOCK DIAGRAM




## ORDERING IN FORMATION

| Device | Package | Operating Temperature |
|---|---|---|
| LF353N | 8 DIP | 0 ~ + 70°C |
| LF353M | 8 SOP | |
| LF353S | 9 SIP | |

## SCHEMATIC DIAGRAM (One Section Only)




FAIRCHILD SEMICONDUCTOR TM

Rev. B



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## ABSOLUTE MAXIMUM RATINGS

| Characteristics | Symbol | Value | Unit |
|---|---|---|---|
| Power Supply Voltage | $V_{CC}$ | ±18 | V |
| Differential Input Voltage | $V_{I(DIFF)}$ | 30 | V |
| Input Voltage Range | $V_I$ | ±15 | V |
| Output Short Circuit Duration | | Continuous | |
| Power Dissipation | $P_D$ | 500 | mW |
| Operating Temperature Range | $T_{OPR}$ | 0 ~ +70 | °C |
| Storage Temperature Range | $T_{STG}$ | -65 ~ +150 | °C |

## ELECTRICAL CHARACTERISTICS

($V_{CC}$ =+15V, $V_{EE}$= -15V, $T_A$=25 °C, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Input Offset Voltage | $V_{IO}$ | $R_S$=10KΩ | | 5.0 | 10 | mV |
| | | 0 °C ≤$T_A$≤+70 °C | | | | |
| Input Offset Voltage Drift | $\Delta V_{IO}/\Delta T$ | $R_S$=10KΩ 0 °C ≤$T_A$≤+70 °C | | 10 | | μV/ °C |
| Input Offset Current | $I_{IO}$ | | | 25 | 100 | pA |
| | | 0 °C ≤$T_A$≤+70 °C | | | 4 | nA |
| Input Bias Current | $I_{BIAS}$ | | | 50 | 200 | pA |
| | | 0 °C ≤$T_A$≤+70 °C | | | 8 | nA |
| Input Resistance | $R_I$ | | | $10^{12}$ | | Ω |
| Large Signal Voltage Gain | $G_V$ | $V_{O(P-P)}$ = ±0V | 25 | 100 | | V/mV |
| | | $R_L$ = 2KΩ 0 °C ≤$T_A$≤+70 °C | 15 | | | |
| Output Voltage Swing | $V_{O(P-P)}$ | $R_L$ = 10KΩ | ±12 | ±13.5 | | V |
| Input Voltage Range | $V_{I(R)}$ | | ±11 | ±15/-12 | | V |
| Common Mode Rejection Ratio | CMRR | $R_S$≥10KΩ | 70 | 100 | | dB |
| Power Supply Rejection Ratio | PSRR | $R_S$≥10KΩ | 70 | 100 | | dB |
| Power Supply Current | $I_{CC}$ | | | 3.6 | 6.5 | mA |
| Slew Rate | SR | $G_V$ = 1 | | 13 | | V/μs |
| Gain-Bandwidth Product | GBM | | | 4 | | MHz |
| Channel Seperation | CS | f = 1Hz ~ 20Khz (Input referenced) | 120 | 120 | | dB |
| Equivalent Input Noise Voltage | $V_{NI}$ | $R_S$ = 100Ω f = 1KHz | 16 | 16 | | nV/√Hz |
| Equivalent Input Noise Current | $I_{NI}$ | f = 1KHz | 0.01 | 0.01 | | pA/√Hz |