

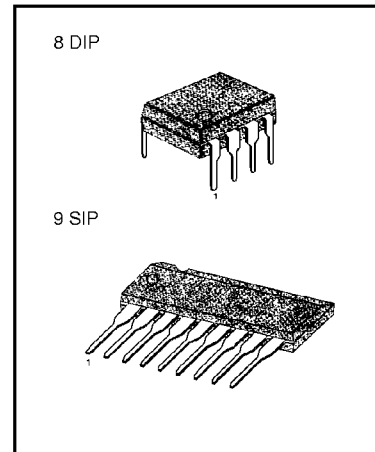
LM442/A

DUAL OPERATIONAL AMPLIFIER (JFET)

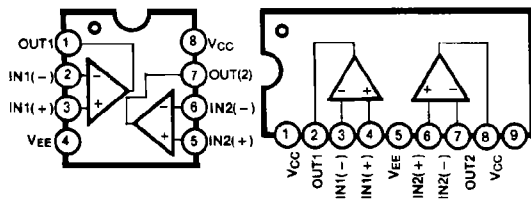
DUAL JFET INPUT OPERATIONAL

FEATURES

- Low supply current: 400pA MAX
- Low input bias Current: 50pA MAX
- Low input offset voltage: 1mV MAX
- High slew rate: 1V/μs
- High gain bandwidth: 1MHz



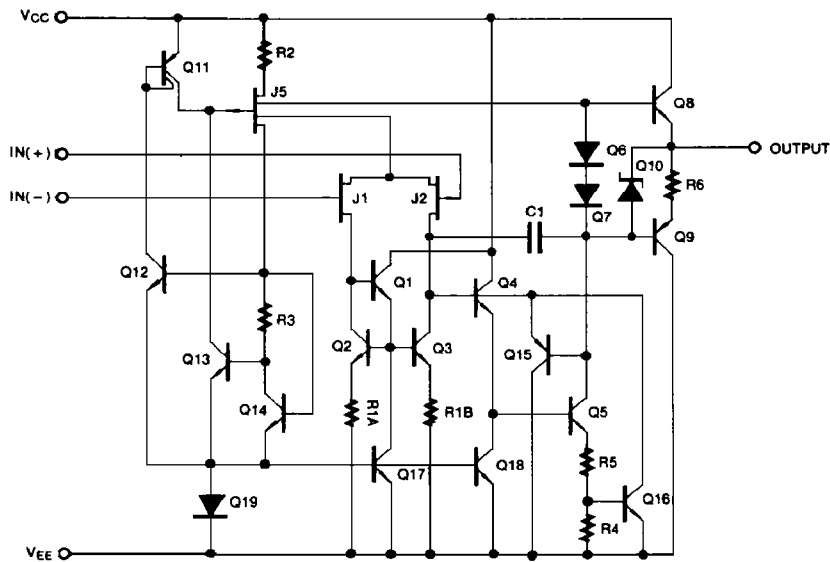
BLOCK DIAGRAM



ORDERING INFORMATION

| Device | Package | Operating Temperature |
|-------------------|---------|-----------------------|
| LM442N LM442AN | 8 DIP | 0 ~ +70°C |
| LM442S LM442AS | 9 SIP | |

SCHEMATIC DIAGRAM (One Section Only)



ABSOLUTE MAXIMUM RATINGS

| Characteristics | Symbol | Value | Unit |
|--------------------------------------|---------------|----------------------|------|
| Power Supply Voltage LM442 LM442A | V_{CC} | ± 18 ± 20 | 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 | 670 | mW |
| Operating Temperature Range LM442/A | T_{OPR} | 0 ~ +70 | °C |
| Storage Temperature Range | T_{STG} | -65 ~ +150 | °C |

ELECTRICAL CHARACTERISTICS

(T_A=25 °C, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | LM442A | | | LM442 | | | Unit |
|--------------------------------|--------------------------|--|----------|------------|-----|-----------|------------|-----|------------------|
| | | | Min | Typ | Max | Min | Typ | Max | |
| Input Offset Voltage | V_{IO} | $R_S = 10K\Omega$ Note 1 | | 0.5 | 1.0 | | 1.0 | 5.0 | mV |
| | | | | | | | | 7.5 | |
| Input Offset Voltage Drift | $\Delta V_{IO}/\Delta T$ | $R_S = 10K\Omega$ | | 7 | 10 | | 7 | | $\mu V/^\circ C$ |
| Input Offset Current | I_{IO} | Note 1 | | 5 | 25 | | 5 | 50 | pA |
| | | | | | 15 | | 15 | | |
| Large Signal Voltage Gain | I_{BIAS} | Note 1 | | 10 | 50 | | 10 | 100 | pA |
| | | | | | 30 | | 30 | | |
| Large Signal Voltage Gain | G_V | $R_L = 10K\Omega$ $V_{O(P,P)} = \pm 0V$ Note 1 | 50 | 200 | | 25 | 200 | | V/mV |
| | | | 25 | 200 | | 15 | 200 | | |
| Output Voltage Swing | $V_{O(P,P)}$ | $R_S = 10K\Omega$ | ± 17 | ± 18 | | ± 12 | ± 13 | | V |
| Input Voltage Range | $V_{I(R)}$ | | ± 16 | +18 -17 | | ± 11 | +15 -12 | | V |
| Common-Mode Rejection Ratio | CMRR | $R_S \leq 10K\Omega$ | 80 | 100 | | 70 | 95 | | dB |
| Power Supply Rejection Ratio | PSRR | $R_S \leq 10K\Omega$ | 80 | 100 | | 70 | 90 | | dB |
| Input Resistance | R_I | | | 10^{12} | | 10^{12} | | | Ω |
| Supply Current | I_{CC} | | | 300 | 400 | | 400 | 500 | μA |
| Slew Rate | SR | | 0.8 | 1 | | 0.6 | 1 | | V/ μS |
| Gain Bandwidth Product | | | 0.8 | 1 | | 0.6 | 1 | | MHz |
| Channel Separation | CS | f = 1Hz-20KHz (input referenced) | | 120 | | | 120 | | dB |
| Equivalent Input Noise Voltage | V_{NI} | $R_S = 100\Omega$ f = 1KHz | | 35 | | | 35 | | nV/\sqrt{Hz} |
| Equivalent Input Noise Current | I_{NI} | f = 1KHz | | 0.01 | | | 0.01 | | pA/\sqrt{Hz} |

NOTE 1. LM442/A : 0 ≤ T_A ≤ +70 °C

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