

N-Channel JFET

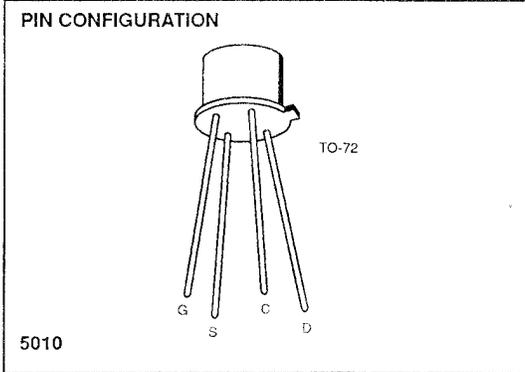
General Purpose Amplifier/Switch



2N4220 - 2N4222

FEATURES

- $C_{rss} < 2\text{pF}$
- Moderately High Forward Transconductance



ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ unless otherwise noted)

| | |
|-------------------------------------|---|
| Gate-Source or Gate-Drain Voltage | -30V |
| Gate Current | 10mA |
| Storage Temperature Range | -65°C to $+200^\circ\text{C}$ |
| Operating Temperature Range | -55°C to $+175^\circ\text{C}$ |
| Lead Temperature (Soldering, 10sec) | $+300^\circ\text{C}$ |
| Power Dissipation | 300mW |
| Derate above 25°C | $2.0\text{mW}/^\circ\text{C}$ |

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ORDERING INFORMATION

| Part | Package | Temperature Range |
|---------|--------------------------|---|
| 2N4220 | Hermetic TO-72 | -55°C to $+175^\circ\text{C}$ |
| X2N4220 | Sorted Chips in Carriers | -55°C to $+175^\circ\text{C}$ |
| 2N4221 | Hermetic TO-72 | -55°C to $+175^\circ\text{C}$ |
| X2N4221 | Sorted Chips in Carriers | -55°C to $+175^\circ\text{C}$ |
| 2N4222 | Hermetic TO-72 | -55°C to $+175^\circ\text{C}$ |
| X2N4222 | Sorted Chips in Carriers | -55°C to $+175^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

| SYMBOL | PARAMETER | 2N4220 | | 2N4221 | | 2N4222 | | UNITS | TEST CONDITIONS |
|---------------|---|--------|------|--------|------|--------|------|---------------|---|
| | | MIN | MAX | MIN | MAX | MIN | MAX | | |
| I_{GSS} | Gate Reverse Current | | -0.1 | | -0.1 | | -0.1 | nA | $V_{GS} = -15\text{V}, V_{DS} = 0$ $T_A = 150^\circ\text{C}$ |
| | | | -0.1 | | -0.1 | | -0.1 | μA | |
| BV_{GSS} | Gate-Source Breakdown Voltage | -30 | | -30 | | -30 | | V | $I_G = -10\mu\text{A}, V_{DS} = 0$ |
| $V_{GS(off)}$ | Gate-Source Cutoff Voltage | | -4 | | -6 | | -8 | V | $V_{DS} = 15\text{V}, I_D = 0.1\text{nA}$ |
| V_{GS} | Gate-Source Voltage | -0.5 | -2.5 | -1 | -5 | -2 | -6 | V | $V_{DS} = 15\text{V}$ $I_D = 50\mu\text{A}$ (2N4220) $I_D = 200\mu\text{A}$ (2N4221) $I_D = 500\mu\text{A}$ (2N4222) |
| I_{DSS} | Saturation Drain Current (Note 1) | 0.5 | 3 | 2 | 6 | 5 | 15 | mA | $V_{DS} = 15\text{V}, V_{GS} = 0$ |
| g_{fs} | Common-Source Forward Transconductance (Note 1) | 1000 | 4000 | 2000 | 5000 | 2500 | 6000 | | $f = 1\text{kHz}$ |
| $ y_{fs} $ | Common-Source Forward Transadmittance (Note 2) | 750 | | 750 | | 750 | | μs | $f = 100\text{MHz}$ |
| g_{os} | Common-Source Output Conductance (Note 1) | | 10 | | 20 | | 40 | | $V_{DS} = 15\text{V}, V_{GS} = 0$ $f = 1\text{kHz}$ |
| C_{iss} | Common-Source Input Capacitance (Note 2) | | 6 | | 6 | | 6 | pF | $f = 1\text{MHz}$ |
| C_{rss} | Common-Source Reverse Transfer Capacitance (Note 2) | | 2 | | 2 | | 2 | | |

- NOTES:** 1. Pulse test duration 2ms.
2. For design reference only, not 100% tested.