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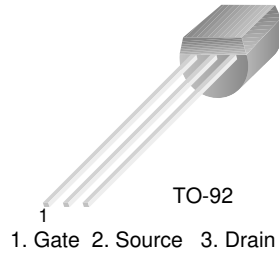
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# 2N5950

## N-Channel RF Amplifier

- This device is designed primarily for electronic switching applications such as low on resistance analog switching.
- Sourced from process 50.



### Absolute Maximum Ratings\* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter  | Value     | Units            |
|----------------|--|-----------|------------------|
| $V_{DG}$       | Drain-Gate Voltage                               | 30        | V                |
| $V_{GS}$       | Gate-Source Voltage                              | -30       | V                |
| $I_{GF}$       | Forward Gate Current                             | 10        | mA               |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | -55 ~ 150 | $^\circ\text{C}$ |

\* This ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES:**

- 1) These rating are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol          | Parameter                               | Max. | Units                      |
|-----------------|---|------|----------------------------|
| $P_D$           | Total Device Dissipation                | 350  | mW                         |
|                 | Derate above $25^\circ\text{C}$         | 2.8  | $\text{mW}/^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case    | 125  | $^\circ\text{C}/\text{W}$  |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357  | $^\circ\text{C}/\text{W}$  |

**Electrical Characteristics\***  $T_a=25^\circ\text{C}$  unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|--------|-----------|----------------|------|------|-------|
|--------|-----------|----------------|------|------|-------|

**Off Characteristics**

|               |                               |  |      |              |          |
|---------------|-------------------------------|--|------|--------------|----------|
| $V_{(BR)GSS}$ | Gate-Source Breakdown Voltage | $I_G = 1.0\mu\text{A}, V_{DS} = 0$   | -30  |              | V        |
| $I_{GSS}$     | Gate Reverse Current          | $V_{GS} = 25\text{V}, V_{DS} = 0, T = 25^\circ\text{C}$<br>$T = 100^\circ\text{C}$ |      | -1.0<br>-200 | nA<br>nA |
| $V_{GS(off)}$ | Gate-Source Cut-off Voltage   | $V_{DS} = 15\text{V}, I_D = 100\text{nA}$  | -2.5 | -6.0         | V        |
| $V_{GS(f)}$   | Gate-Source Forward Voltage   | $I_G = 1.0\text{mA}$   |      | 1.0          | V        |
| $V_{GS}$      | Gate-Source Forward Voltage   | $V_{DS} = 15\text{V}, I_D = 1\text{mA}$  | -1.8 | -5.0         | V        |

**On Characteristics**

|              |                                   |   |    |     |          |
|--------------|-----------------------------------|---|----|-----|----------|
| $*I_{DSS}$   | Zero-Gate Voltage Drain Current * | $V_{DS} = 15\text{V}, V_{GS} = 0$         | 10 | 15  | mA       |
| $R_{DS(on)}$ | Drain-Source On Resistance        | $I_D = 476\mu\text{A}, f = 1.0\text{kHz}$ |    | 210 | $\Omega$ |

**Small Signal Characteristics**


|           |                              |  |              |      |             |
|-----------|------------------------------|--|--------------|------|-------------|
| $g_{fs}$  | Forward Transferconductance  | $V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 100\text{MHz}$<br>$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1\text{kHz}$ | 3000<br>3500 | 7500 | $\mu\Omega$ |
| $C_{iss}$ | Input Capacitance            | $V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$   |              | 6    | pF          |
| $C_{rss}$ | Reverse Transfer Capacitance | $V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$   |              | 2    | pF          |

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle = 2%



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