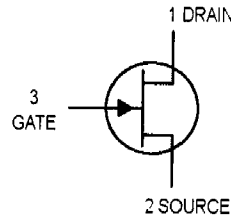
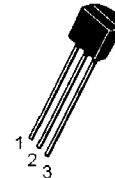


## JFET VHF/UHF Amplifiers

### N-Channel — Depletion



**2N5484**  
**2N5486**



TO-92

#### MAXIMUM RATINGS

| Rating   | Symbol         | Value       | Unit                       |
|--|----------------|-------------|----------------------------|
| Drain-Gate Voltage   | $V_{DG}$       | 25          | Vdc                        |
| Reverse Gate-Source Voltage  | $V_{GSR}$      | 25          | Vdc                        |
| Drain Current  | $I_D$          | 30          | mAdc                       |
| Forward Gate Current   | $I_{G(f)}$     | 10          | mAdc                       |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$          | 350<br>2.8  | mW<br>mW/ $^\circ\text{C}$ |
| Operating and Storage Junction<br>Temperature Range                                    | $T_J, T_{stg}$ | -65 to +150 | $^\circ\text{C}$           |

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

#### OFF CHARACTERISTICS

|  |               |              |   |              |                         |
|--|---------------|--------------|---|--------------|-------------------------|
| Gate-Source Breakdown Voltage<br>( $I_G = -1.0 \mu\text{Adc}$ , $V_{DS} = 0$ )   | $V_{(BR)GSS}$ | -25          | — | —            | Vdc                     |
| Gate Reverse Current<br>( $V_{GS} = -20 \text{Vdc}$ , $V_{DS} = 0$ )<br>( $V_{GS} = -20 \text{Vdc}$ , $V_{DS} = 0$ , $T_A = 100^\circ\text{C}$ ) | $I_{GSS}$     | —            | — | -1.0<br>-0.2 | nAdc<br>$\mu\text{Adc}$ |
| Gate Source Cutoff Voltage<br>( $V_{DS} = 15 \text{Vdc}$ , $I_D = 10 \text{nAdc}$ )  | $V_{GS(off)}$ | -0.3<br>-2.0 | — | -3.0<br>-6.0 | Vdc                     |

#### ON CHARACTERISTICS

|  |           |            |   |           |      |
|--|-----------|------------|---|-----------|------|
| Zero-Gate-Voltage Drain Current<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ ) | $I_{DSS}$ | 1.0<br>8.0 | — | 5.0<br>20 | mAdc |
|--|-----------|------------|---|-----------|------|

#### SMALL-SIGNAL CHARACTERISTICS

|  |                     |              |   |              |                 |
|--|---------------------|--------------|---|--------------|-----------------|
| Forward Transfer Admittance<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{kHz}$ )  | $ y_{fs} $          | 3000<br>4000 | — | 6000<br>8000 | $\mu\text{hos}$ |
| Input Admittance<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 100 \text{MHz}$ )<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 400 \text{MHz}$ )         | $\text{Re}(y_{is})$ | —            | — | 100<br>1000  | $\mu\text{hos}$ |
| Output Admittance<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{kHz}$ )  | $ y_{os} $          | —            | — | 50<br>75     | $\mu\text{hos}$ |
| Output Conductance<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 100 \text{MHz}$ )<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 400 \text{MHz}$ )       | $\text{Re}(y_{os})$ | —            | — | 75<br>100    | $\mu\text{hos}$ |
| Forward Transconductance<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 100 \text{MHz}$ )<br>( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 400 \text{MHz}$ ) | $\text{Re}(y_{fs})$ | 2500<br>3500 | — | —            | $\mu\text{hos}$ |

**2N5484 2N5486**

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

| Characteristic   | Symbol    | Min | Typ | Max | Unit |
|--|-----------|-----|-----|-----|------|
| <b>SMALL-SIGNAL CHARACTERISTICS (continued)</b>  |           |     |     |     |      |
| Input Capacitance<br>( $V_{DS} = 15\text{ Vdc}, V_{GS} = 0, f = 1.0\text{ MHz}$ )            | $C_{iss}$ | —   | —   | 5.0 | pF   |
| Reverse Transfer Capacitance<br>( $V_{DS} = 15\text{ Vdc}, V_{GS} = 0, f = 1.0\text{ MHz}$ ) | $C_{rss}$ | —   | —   | 1.0 | pF   |
| Output Capacitance<br>( $V_{DS} = 15\text{ Vdc}, V_{GS} = 0, f = 1.0\text{ MHz}$ )           | $C_{oss}$ | —   | —   | 2.0 | pF   |

**FUNCTIONAL CHARACTERISTICS**

|   |  |          |    |     |     |    |
|---|--|----------|----|-----|-----|----|
| Noise Figure<br>( $V_{DS} = 15\text{ Vdc}, V_{GS} = 0, R_G = 1.0\text{ Megohm}, f = 1.0\text{ kHz}$ )<br>( $V_{DS} = 15\text{ Vdc}, I_D = 1.0\text{ mAdc}, R_G = 1.0\text{ k}\Omega, f = 100\text{ MHz}$ )<br>( $V_{DS} = 15\text{ Vdc}, I_D = 1.0\text{ mAdc}, R_G = 1.0\text{ k}\Omega, f = 200\text{ MHz}$ )<br>( $V_{DS} = 15\text{ Vdc}, I_D = 4.0\text{ mAdc}, R_G = 1.0\text{ k}\Omega, f = 100\text{ MHz}$ )<br>( $V_{DS} = 15\text{ Vdc}, I_D = 4.0\text{ mAdc}, R_G = 1.0\text{ k}\Omega, f = 400\text{ MHz}$ ) | <br><br>2N5484<br>2N5484<br>2N5486<br>2N5486 | NF       | —  | —   | 2.5 | dB |
|   |  |          | —  | —   | 3.0 |    |
|   |  |          | —  | 4.0 | —   |    |
|   |  |          | —  | —   | 2.0 |    |
|   |  |          | —  | —   | 4.0 |    |
| Common Source Power Gain<br>( $V_{DS} = 15\text{ Vdc}, I_D = 1.0\text{ mAdc}, f = 100\text{ MHz}$ )<br>( $V_{DS} = 15\text{ Vdc}, I_D = 1.0\text{ mAdc}, f = 200\text{ MHz}$ )<br>( $V_{DS} = 15\text{ Vdc}, I_D = 4.0\text{ mAdc}, f = 100\text{ MHz}$ )<br>( $V_{DS} = 15\text{ Vdc}, I_D = 4.0\text{ mAdc}, f = 400\text{ MHz}$ )  | <br>2N5484<br>2N5484<br>2N5486<br>2N5486     | $G_{ps}$ | 16 | —   | 25  | dB |
|   |  |          | —  | 14  | —   |    |
|   |  |          | 18 | —   | 30  |    |
|   |  |          | 10 | —   | 20  |    |