

IFN146

Dual N-Channel Silicon Junction Field-Effect Transistor

- Low-Noise Audio Amplifier
- Equivalent to Japanese 2SK146

Absolute maximum ratings at $T_A = 25^\circ\text{C}$

| | |
|--|-----------------|
| Reverse Gate Source & Reverse Gate Drain Voltage | - 40 V |
| Continuous Forward Gate Current | 10 mA |
| Continuous Device Power Dissipation | 375 mW |
| Power Derating | 3 mW/°C |
| Storage Temperature Range | - 65°C to 200°C |

At 25°C free air temperature:

Static Electrical Characteristics

| | | IFN146 | | | Unit | Process NJ450 | |
|-----------------------------------|---------------|--------|-----|-------|---------------|---|--|
| | | Min | Typ | Max | | Test Conditions | |
| Gate Source Breakdown Voltage | $V_{(BR)GSS}$ | - 40 | | | V | $I_G = -1\ \mu\text{A}, V_{DS} = 0\text{V}$ | |
| Gate Reverse Current | I_{GSS} | | | - 1 | nA | $V_{GS} = -30\text{V}, V_{DS} = 0\text{V}$ | |
| | | | | - 1 | μA | $V_{GS} = -30\text{V}, V_{DS} = 0\text{V}$ $T_A = 150^\circ\text{C}$ | |
| Gate Source Cutoff Voltage | $V_{GS(OFF)}$ | - 0.3 | | - 1.2 | V | $V_{DS} = 10\text{V}, I_D = 1\ \mu\text{A}$ | |
| Drain Saturation Current (Pulsed) | I_{DSS} | | | 30 | mA | $V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$ | |

Dynamic Electrical Characteristics

| | | | | | | | |
|--|-----------------------|----|----|----|----|---|---------------------|
| Common Source Forward Transconductance | g_{fs} | 30 | 40 | | mS | $V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$ $I_{DSS} = 5\ \text{mA}$ | $f = 1\ \text{kHz}$ |
| Common Source Input Capacitance | C_{iss} | | | 75 | pF | $V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$ | $f = 1\ \text{kHz}$ |
| Common Source Reverse Transfer Capacitance | C_{rss} | | | 15 | pF | $V_{DS} = 10\text{V}, I_D = 0\text{A}$ | $f = 1\ \text{kHz}$ |
| Noise Figure | NF | | 1 | | dB | $V_{DS} = 10\text{V}, I_D = 5\ \text{mA}$ $R_G = 100\ \Omega$ | $f = 1\ \text{kHz}$ |
| Differential Gate Source Voltage | $ V_{GS1} - V_{GS2} $ | | | 20 | mV | $V_{DS} = 10\text{V}, I_D = 5\ \text{mA}$ | |

TO-71 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Gate, 3 Drain,
5 Source, 6 Gate, 7 Drain