

2N4338, 2N4339

N-Channel Silicon Junction Field-Effect Transistor

- Audio Amplifiers
- Small Signal Amplifiers
- Voltage-Controlled Resistors
- Current Limiters & Regulators

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

| | |
|--|--------|
| Reverse Gate Source & Reverse Gate Drain Voltage | - 50 V |
| Continuous Forward Gate Current | 50 mA |
| Continuous Device Power Dissipation | 300 mW |
| Power Derating (to 175°C) | 2mW/°C |

At 25°C free air temperature:

Static Electrical Characteristics

| | | 2N4339 | | 2N4339 | | Process NJ16 | |
|-----------------------------------|---------------|--------|---------------|--------|---------------|--------------|--|
| | | Min | Max | Min | Max | Unit | Test Conditions |
| Gate Source Breakdown Voltage | $V_{(BR)GSS}$ | - 50 | | - 50 | | V | $I_G = -1 \mu\text{A}$, $V_{DS} = 0\text{V}$ |
| Gate Reverse Current | I_{GSS} | | - 100 | | - 100 | pA | $V_{GS} = -30\text{V}$, $V_{DS} = 0\text{V}$ |
| | | | - 100 | | - 100 | nA | $V_{GS} = -30\text{V}$, $V_{DS} = 0\text{V}$ $T_A = 150^\circ\text{C}$ |
| Gate Source Cutoff Voltage | $V_{GS(OFF)}$ | - 0.3 | - 1 | - 0.6 | - 1.8 | V | $V_{DS} = 15\text{V}$, $I_D = 0.1 \mu\text{A}$ |
| Drain Saturation Current (Pulsed) | I_{DSS} | 0.2 | 0.6 | 0.5 | 1.5 | mA | $V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$ |
| Drain Cutoff Current | $I_{D(OFF)}$ | | 0.05 (- 5) | | 0.05 (- 5) | nA V | $V_{DS} = 15\text{V}$, $V_{GS} = ()$ |

Dynamic Electrical Characteristics

| | | | | | | | | |
|--|--------------|-----|------|-----|------|---------------|--|---------------------|
| Drain Source ON Resistance | $r_{ds(on)}$ | | 2500 | | 1700 | Ω | $V_{GS} = 0\text{V}$, $I_D = 0\text{A}$ | $f = 1 \text{ kHz}$ |
| Common Source Forward Transconductance | g_{fs} | 600 | 1800 | 800 | 2400 | μS | $V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$ | $f = 1 \text{ kHz}$ |
| Common Source Output Conductance | g_{os} | | 5 | | 15 | μS | $V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$ | $f = 1 \text{ kHz}$ |
| Common Source Input Capacitance | C_{iss} | | 7 | | 7 | pF | $V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$ | $f = 1 \text{ MHz}$ |
| Common Source Reverse Transfer Capacitance | C_{rss} | | 3 | | 3 | pF | $V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$ | $f = 1 \text{ MHz}$ |
| Noise Figure | NF | | 1 | | 1 | dB | $V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$ $R_G = 1 \text{ M}\Omega$, $\text{BW} = 200 \text{ Hz}$ | $f = 1 \text{ kHz}$ |

TO-18 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Drain, 3 Gate & Case