

# 2N4117, 2N4117A, 2N4118, 2N4118A, 2N4119, 2N4119A

## N-Channel Silicon Junction Field-Effect Transistor

- Audio Amplifiers
- Ultra-High Input Impedance Amplifiers

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

Reverse Gate Source &amp; Reverse Gate Drain Voltage

– 40 V

Continuous Forward Gate Current

50 mA

Continuous Device Power Dissipation

300 mW

Power Derating (to  $175^\circ\text{C}$ )2 mW/ $^\circ\text{C}$ 

### At $25^\circ\text{C}$ free air temperature:

#### Static Electrical Characteristics

|                                                                                          |               | 2N4117<br>2N4117A |       | 2N4118<br>2N4118A |      | 2N4119<br>2N4119A |      | Process NJ01 |                                                       |
|------------------------------------------------------------------------------------------|---------------|-------------------|-------|-------------------|------|-------------------|------|--------------|-------------------------------------------------------|
|                                                                                          |               | Min               | Max   | Min               | Max  | Min               | Max  | Unit         | Test Conditions                                       |
| Gate Source Breakdown Voltage                                                            | $V_{(BR)GSS}$ | – 40              |       | – 40              |      | – 40              |      | V            | $I_G = -1\mu\text{A}$ , $V_{DS} = \emptyset\text{V}$  |
| Gate Reverse Current<br>2N4117, 2N4118, 2N4119<br>2N4117A, 2N4118A, 2N4119A              | $I_{GSS}$     |                   | – 10  |                   | – 10 |                   | – 10 | pA           | $V_{GS} = -20\text{V}$ , $V_{DS} = \emptyset\text{V}$ |
|                                                                                          |               |                   | – 1   |                   | – 1  |                   | – 1  | pA           | $V_{GS} = -20\text{V}$ , $V_{DS} = \emptyset\text{V}$ |
| Gate Source Cutoff Voltage                                                               | $V_{GS(OFF)}$ | – 0.6             | – 1.8 | – 1               | – 3  | – 2               | – 6  | V            | $V_{DS} = 10\text{V}$ , $I_D = 1\text{nA}$            |
| Drain Saturation Current (Pulsed)<br>2N4117, 2N4118, 2N4119<br>2N4117A, 2N4118A, 2N4119A | $I_{GSS}$     | 0.03              | 0.09  | 0.08              | 0.24 | 0.2               | 0.6  | mA           | $V_{DS} = 10\text{V}$ , $V_{GS} = \emptyset\text{V}$  |
|                                                                                          |               | 0.015             | 0.09  | 0.08              | 0.24 | 0.2               | 0.6  | mA           | $V_{DS} = 10\text{V}$ , $V_{GS} = \emptyset\text{V}$  |

#### Dynamic Electrical Characteristics

|                                            |           |    |     |    |     |     |     |               |                                                      |                    |
|--------------------------------------------|-----------|----|-----|----|-----|-----|-----|---------------|------------------------------------------------------|--------------------|
| Common Source Forward Transconductance     | $g_{fs}$  | 70 | 210 | 80 | 250 | 100 | 330 | $\mu\text{S}$ | $V_{DS} = 10\text{V}$ , $V_{GS} = \emptyset\text{V}$ | $f = 1\text{ kHz}$ |
| Common Source Output Conductance           | $g_{os}$  |    | 3   |    | 5   |     | 10  | $\mu\text{S}$ | $V_{DS} = 10\text{V}$ , $V_{GS} = \emptyset\text{V}$ | $f = 1\text{ kHz}$ |
| Common Source Input Capacitance            | $C_{iss}$ |    | 3   |    | 3   |     | 3   | pF            | $V_{DS} = 10\text{V}$ , $V_{GS} = \emptyset\text{V}$ | $f = 1\text{ MHz}$ |
| Common Source Reverse Transfer Capacitance | $C_{rss}$ |    | 1.5 |    | 1.5 |     | 1.5 | pF            | $V_{DS} = 10\text{V}$ , $V_{GS} = \emptyset\text{V}$ | $f = 1\text{ MHz}$ |

### TO-72 Package

Dimensions in Inches (mm)

### Pin Configuration

1 Source, 2 Drain, 3 Gate, 4 Case

