

## 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 & Gate Drain Voltage | -40V            |
| Continuous Forward Gate Current          | 50 mA           |
| Continuous Device Power Dissipation      | 300 mW          |
| Power Derating                           | 2 mW/°C         |
| Operating Temperature Range              | -55°C to +125°C |
| Storage Temperature Range                | -65°C to +150°C |

| At 25°C free air temperature<br>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            | $I_G = -1 \mu\text{A}$ ,<br>$V_{DS} = 0 \text{ V}$   |
| Gate Reverse Current<br>2N4117, 2N4118, 2N4119<br>2N4117A, 2N4118A, 2N4119A              | $I_{GSS}$     |                   | -10<br>-1    |                   | -10<br>-1    |                   | -10<br>-1  | pA           | $V_{GS} = -20 \text{ V}$ ,<br>$V_{DS} = 0 \text{ V}$ |
| Gate Source Cutoff Voltage   | $V_{GS(OFF)}$ | -0.6              | -1.8         | -1                | -3           | -2                | -6         | V            | $V_{DS} = 10 \text{ V}$ ,<br>$I_D = 1 \text{ nA}$    |
| Drain Saturation Current (pulsed)<br>2N4117, 2N4118, 2N4119<br>2N4117A, 2N4118A, 2N4119A | $I_{DSS}$     | 0.03<br>0.015     | 0.09<br>0.09 | 0.08<br>0.08      | 0.24<br>0.24 | 0.2<br>0.2        | 0.6<br>0.6 | mA           | $V_{DS} = 10 \text{ V}$ ,<br>$V_{GS} = 0 \text{ V}$  |

#### Dynamic Electrical Characteristics

|  |           |    |     |    |     |     |     |               |   |                     |
|--|-----------|----|-----|----|-----|-----|-----|---------------|---|---------------------|
| Common-Source Forward Transconductance     | $g_{fs}$  | 70 | 210 | 80 | 250 | 100 | 330 | $\mu\text{S}$ | $V_{GS} = 0 \text{ V}$ ,<br>$V_{DS} = 10 \text{ V}$ | $f = 1 \text{ kHz}$ |
| Common-Source Output Conductance           | $g_{os}$  |    | 3   |    | 5   |     | 10  | $\mu\text{S}$ | $V_{DS} = 10 \text{ V}$ ,<br>$V_{GS} = 0 \text{ V}$ | $f = 1 \text{ kHz}$ |
| Common-Source Input Capacitance            | $C_{iss}$ |    | 3   |    | 3   |     | 3   | pF            | $V_{DS} = 10 \text{ V}$ ,<br>$V_{GS} = 0 \text{ V}$ | $f = 1 \text{ MHz}$ |
| Common-Source Reverse Transfer Capacitance | $C_{rss}$ |    | 1.5 |    | 1.5 |     | 1.5 | pF            | $V_{DS} = 10 \text{ V}$ ,<br>$V_{GS} = 0 \text{ V}$ | $f = 1 \text{ MHz}$ |



**SOT-23:** SMP4117, SMP4117A, SMP4118, SMP4118A, SMP4119, SMP4119A  
1-Source, 2-Drain, 3-Gate



**TO-92:** 2N4117, 2N4117A, 2N4118, 2N4118A, 2N4119, 2N4119A  
1-Source, 2-Drain, 3-Gate, 4- Case

Dimensions  
in Inches  
(mm)

**TO-92:** PN4117, PN4117A, PN4118, PN4118A, PN4119, PN4119A  
1-Source, 2-Drain, 3-Gate



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