

# N-Channel Silicon Junction Field-Effect Transistor

## • Audio Amplifier

### 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

360 mW

Power Derating

3.27 mW/°C

### At 25°C free air temperature:

#### Static Electrical Characteristics

|                                   |               | J232 |     |       | Process NJ16 |                                                |  |
|-----------------------------------|---------------|------|-----|-------|--------------|------------------------------------------------|--|
|                                   |               | Min  | Typ | Max   | Unit         | 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              | $I_{GSS}$     |      |     | – 250 | pA           | $V_{GS} = -30\text{V}$ , $V_{DS} = 0\text{V}$  |  |
| Gate Operating Current            | $I_G$         |      | – 2 |       | pA           | $V_{DS} = 20\text{V}$ , $I_D = 0\text{V}$      |  |
| Gate Source Cutoff Voltage        | $V_{GS(OFF)}$ | – 3  |     | – 6   | V            | $V_{DS} = 20\text{V}$ , $I_D = 1\ \mu\text{A}$ |  |
| Drain Saturation Current (Pulsed) | $I_{DSS}$     | 5    |     | 10    | mA           | $V_{DS} = 20\text{V}$ , $V_{GS} = 0\text{V}$   |  |

#### Dynamic Electrical Characteristics

|                                              |             |      |    |      |               |                                              |                    |
|----------------------------------------------|-------------|------|----|------|---------------|----------------------------------------------|--------------------|
| Common Source Forward Transconductance       | $g_{fs}$    | 2500 |    | 5000 | $\mu\text{S}$ | $V_{DS} = 20\text{V}$ , $V_{GS} = 0\text{V}$ | $f = 1\text{ kHz}$ |
| Common Source Output Conductance             | $g_{os}$    |      | 5  |      | $\mu\text{S}$ | $V_{DS} = 20\text{V}$ , $V_{GS} = 0\text{V}$ | $f = 1\text{ kHz}$ |
| Common Source Input Capacitance              | $C_{iss}$   |      | 4  |      | pF            | $V_{DS} = 20\text{V}$ , $V_{GS} = 0\text{V}$ | $f = 1\text{ MHz}$ |
| Common Source Reverse Transfer Capacitance   | $C_{rss}$   |      | 1  |      | pF            | $V_{DS} = 20\text{V}$ , $V_{GS} = 0\text{V}$ | $f = 1\text{ MHz}$ |
| Equivalent Short Circuit Input Noise Voltage | $\bar{e}_N$ |      | 20 | 30   | nV/√Hz        | $V_{DS} = 10\text{V}$ , $V_{GS} = 0\text{V}$ | $f = 10\text{ Hz}$ |
|                                              |             |      | 6  |      | nV/√Hz        | $V_{DS} = 10\text{V}$ , $V_{GS} = 0\text{V}$ | $f = 1\text{ kHz}$ |

### TO-226AA Package

Dimensions in Inches (mm)

### Pin Configuration

1 Drain, 2 Source, 3 Gate

### Surface Mount

SMPJ232

