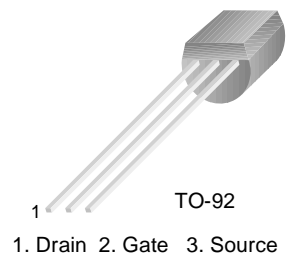


N-Channel RF Amplifier

- This device is designed for RF amplifier and mixer applications operating up to 450MHz, and for analog switching requiring low capacitance.
- Sourced from process 50.



Epitaxial Silicon Transistor

Absolute Maximum Ratings* $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Ratings | Units |
|-----------|---------------------------|-----------|------------------|
| V_{DG} | Drain-Gate Voltage | 25 | V |
| V_{GS} | Gate-Source Voltage | -25 | V |
| I_D | Drain Current | 50 | mA |
| I_{GF} | Forward Gate Current | 10 | mA |
| T_{STG} | Storage Temperature Range | -55 ~ 150 | $^\circ\text{C}$ |

* This ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These rating are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|-------------------------------------|---------------------------------|------------------------------------------------------|------|------|------|------------------|
| Off Characteristics | | | | | | |
| $V_{(BR)GSS}$ | Gate-Source Breakdwon Voltage | $I_G = 1.0\mu\text{A}, V_{DS} = 0$ | 25 | | | V |
| I_{GSS} | Gate Reverse Current | $V_{GS} = -15\text{V}, V_{DS} = 0$ | | | 2.0 | nA |
| $V_{GS(off)}$ | Gate-Source Cutoff Voltage | $V_{DS} = 15\text{V}, I_D = 2.0\text{nA}$ | | | 8.0 | V |
| V_{GS} | Gate-Source Voltage | $V_{DS} = 15\text{V}, I_D = 200\mu\text{A}$ | -0.5 | | -7.5 | V |
| On Characteristics | | | | | | |
| I_{DSS} | Zero-Gate Voltage Drain Current | $V_{DS} = 15\text{V}, V_{GS} = 0$ | 2.0 | | 20 | mA |
| Small Signal Characteristics | | | | | | |
| g_{fs} | Forward Transfer Conductance | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$ | 2000 | | 6500 | μmhos |
| g_{oss} | Output Conductance | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$ | | | 50 | μmhos |
| y_{fs} | Forward Transfer Admittance | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$ | 1600 | | | μmhos |
| C_{iss} | Input Capacitance | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$ | | | 8.0 | pF |
| C_{rss} | Reverse Transfer Capacitance | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$ | | | 4.0 | pF |

Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Max. | Units |
|-----------------|-------------------------------------------------------------|------------|----------------------------|
| P_D | Total Device Dissipation Derate above 25°C | 350 2.8 | mW mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 125 | $^\circ\text{C/W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357 | $^\circ\text{C/W}$ |

* Device mounted on FR-4 PCB $1.5" \times 1.6" \times 0.06"$

Package Dimensions

2N3819

TO-92



Dimensions in Millimeters

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|--------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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