

N-Channel JFET

PRODUCT SUMMARY

| $V_{GS(off)}$ (V) | $V_{(BR)GSS}$ MIN (V) | g_{fs} MIN (MS) | I_{DSS} MIN (MA) |
|-------------------|-----------------------|-------------------|--------------------|
| ≤ -8 | -25 | 2 | 2 |

FEATURES

- Excellent High-Frequency Gain: Gps 11 dB @ 400 MHz
- Very Low Noise: 3 dB @ 400 MHz
- Very Low Distortion
- High ac/dc Switch Off-Isolation
- High Gain: $A_V = 60$ @ 100 μ A

BENEFITS

- Wideband High Gain
- Very High System Sensitivity
- High Quality of Amplification
- High-Speed Switching Capability
- High Low-Level Signal Amplification

APPLICATIONS

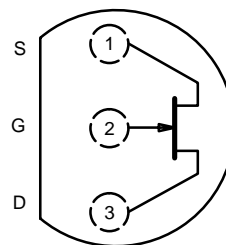
- High-Frequency Amplifier/Mixer
- Oscillator
- Sample-and-Hold
- Very Low Capacitance Switches

DESCRIPTION

The 2N3819 is a low-cost, all-purpose JFET which offers good performance at mid-to-high frequencies. It features low noise and leakage and guarantees high gain at 100 MHz.

Its TO-226AA (TO-92) package is compatible with various tape-and-reel options for automated assembly (see Packaging Information). For similar products in TO-206AF (TO-72) and TO-236 (SOT-23) packages, see the 2N4416/2N4416A/SST4416 data sheet.

TO-226AA
(TO-92)



Top View

ABSOLUTE MAXIMUM RATINGS

| | | | |
|--------------------------------|--------------|--|--------|
| Gate-Source/Gate-Drain Voltage | -25 V | Lead Temperature ($1/16$ " from case for 10 sec.) | 300°C |
| Forward Gate Current | 10 mA | Power Dissipation ^A | 350 mW |
| Storage Temperature | -55 to 150°C | Notes | |
| Operating Junction Temperature | -55 to 150°C | A. Derate 2.8 mW/°C above 25°C | |

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70238.



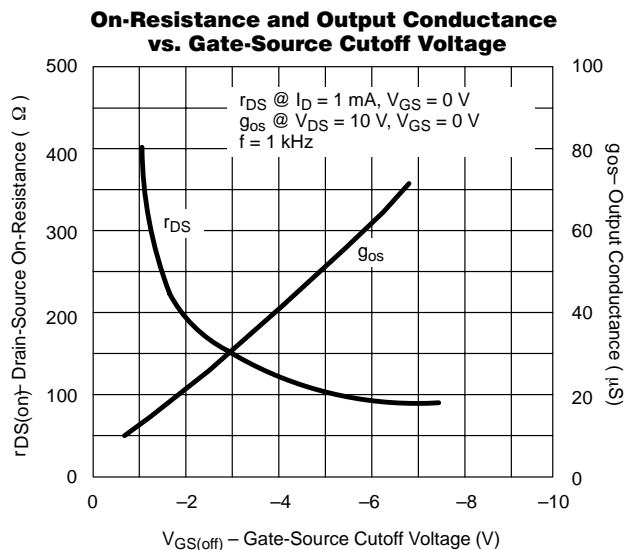
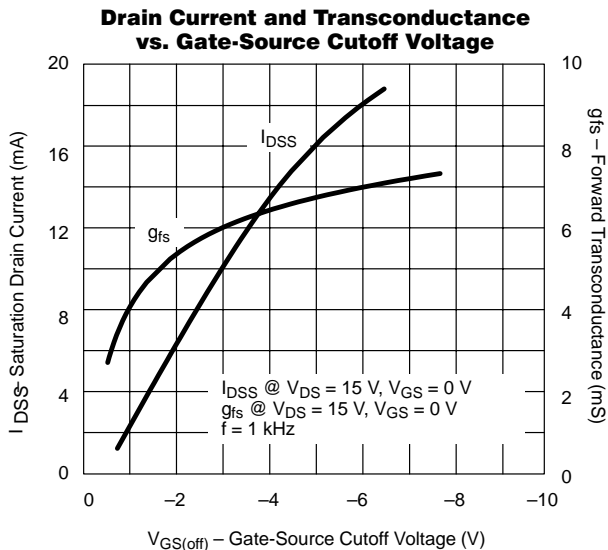
| SPECIFICATIONS ^A | | | | | | | |
|---|---------------|---|---------------|------------------|------|----------------|---------|
| PARAMETER | SYMBOL | TEST CONDITIONS | LIMITS | | | UNIT | |
| | | | MIN | TYP ^B | MAX | | |
| STATIC | | | | | | | |
| Gate-Source Breakdown Voltage | $V_{(BR)GSS}$ | $I_G = -1 \mu A, V_{DS} = 0 V$ | -25 | -35 | | V | |
| Gate-Source Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = 15 V, I_D = 2 nA$ | | -3 | -8 | | |
| Saturation Drain Current ^C | I_{DSS} | $V_{DS} = 15 V, V_{GS} = 0 V$ | 2 | 10 | 20 | mA | |
| Gate Reverse Current | I_{GSS} | $V_{GS} = -15 V, V_{DS} = 0 V$ | | -0.002 | -2 | nA | |
| | | $T_A = 100^\circ C$ | | -0.002 | -2 | μA | |
| Gate Operating Current ^D | I_G | $V_{DG} = 10 V, I_D = 1 mA$ | | -20 | | pA | |
| Drain Cutoff Current | $I_{D(off)}$ | $V_{DS} = 10 V, V_{GS} = -8 V$ | | 2 | | | |
| Drain-Source On-Resistance | $r_{DS(on)}$ | $V_{GS} = 0 V, I_D = 1 mA$ | | 150 | | Ω | |
| Gate-Source Voltage | V_{GS} | $V_{DS} = 15 V, I_D = 200 \mu A$ | -0.5 | -2.5 | -7.5 | V | |
| Gate-Source Forward Voltage | $V_{GS(F)}$ | $I_G = 1 mA, V_{DS} = 0 V$ | | 0.7 | | | |
| DYNAMIC | | | | | | | |
| Common-Source Forward Transconductance ^D | g_{fs} | $V_{DS} = 15 V, V_{GS} = 0 V$ | $f = 1 kHz$ | 2 | 5.5 | 6.5 | mS |
| | | | $f = 100 MHz$ | 1.6 | 5.5 | | |
| Common-Source Output Conductance ^D | g_{os} | | $f = 1 kHz$ | | 25 | 50 | μS |
| Common-Source Input Capacitance | C_{iss} | $V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz$ | | | 2.2 | 8 | pF |
| Common-Source Reverse Transfer Capacitance | C_{rss} | | | | 0.7 | 4 | |
| Equivalent Input Noise Voltage ^D | \bar{e}_n | $V_{DS} = 10 V, V_{GS} = 0 V, f = 100 Hz$ | | 6 | | nV/\sqrt{Hz} | |

Notes

- A. $T_A = 25^\circ C$ unless otherwise noted.
- B. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- C. Pulse test: $PW \leq 300 \mu s$, duty cycle $\leq 2\%$.
- D. This parameter not registered with JEDEC.

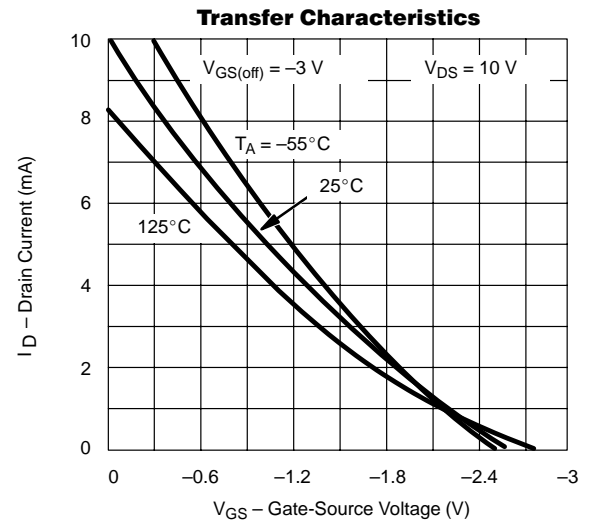
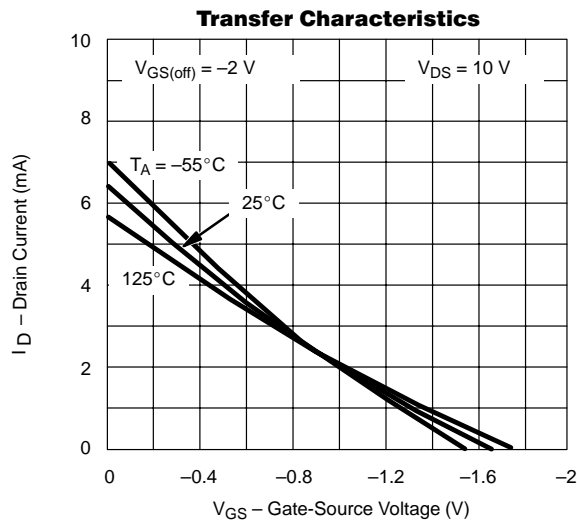
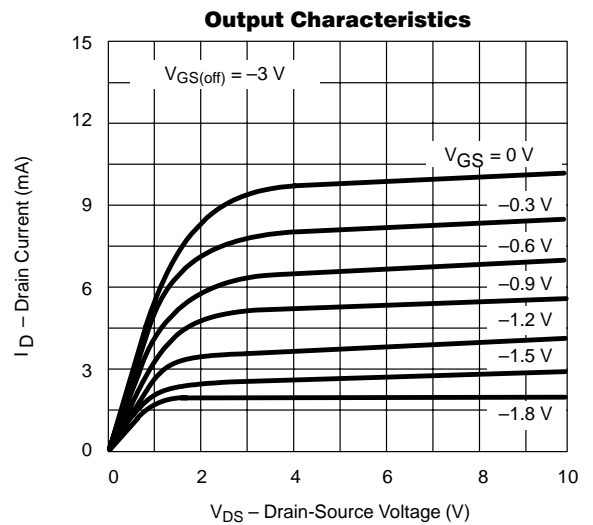
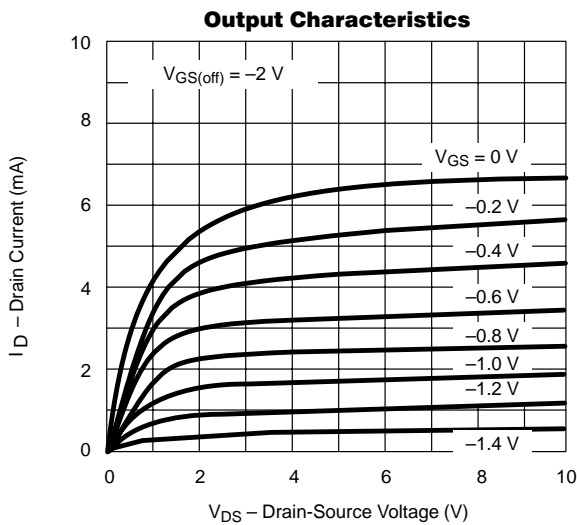
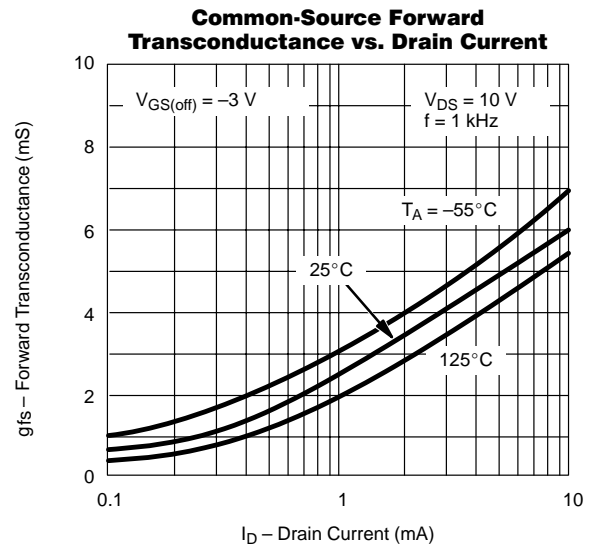
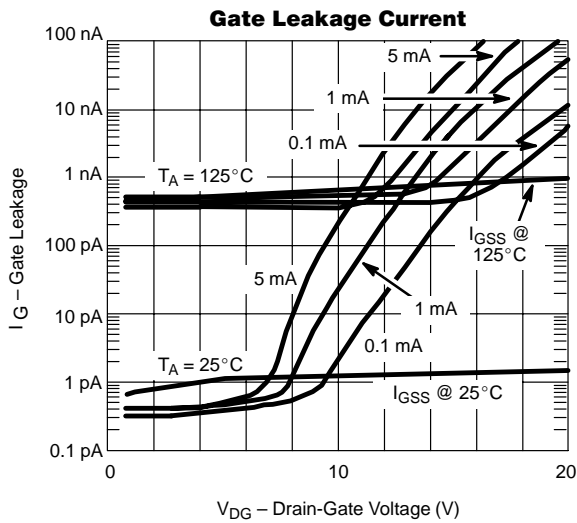
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TYPICAL CHARACTERISTICS



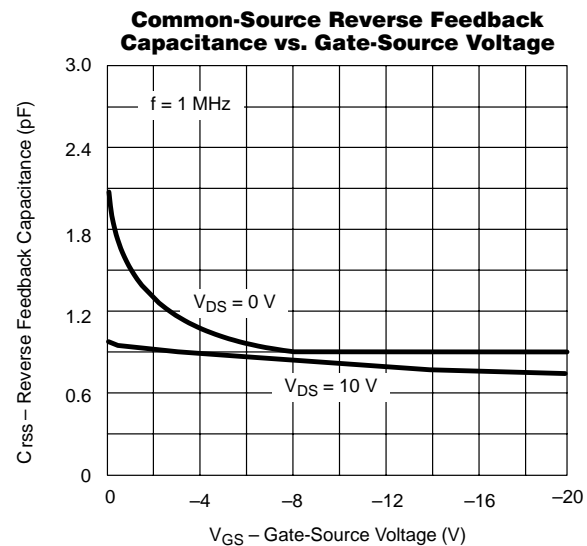
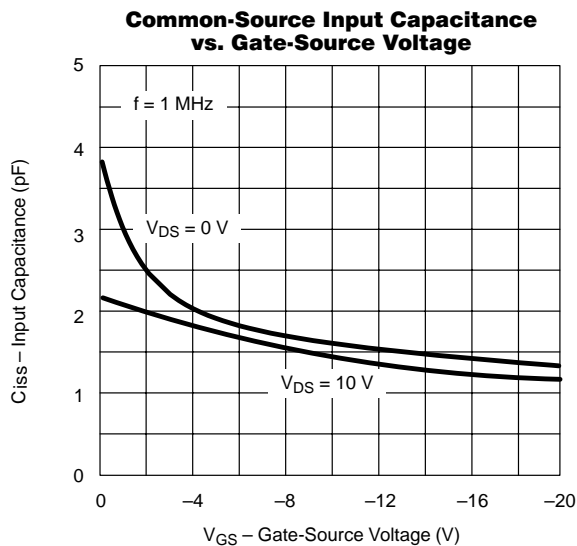
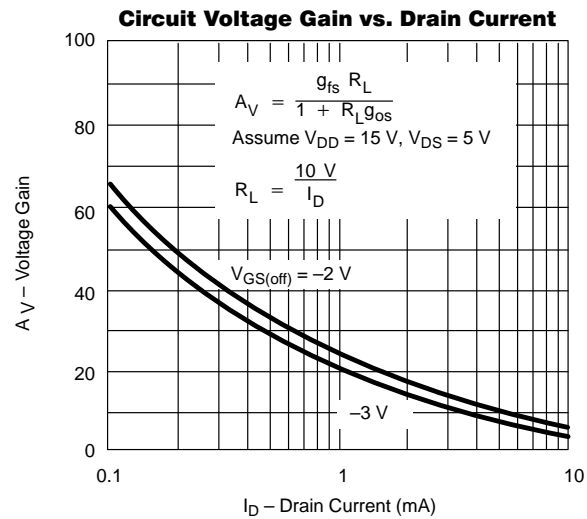
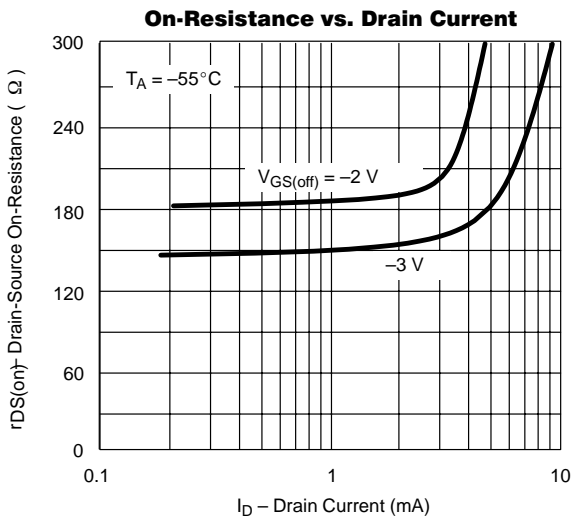
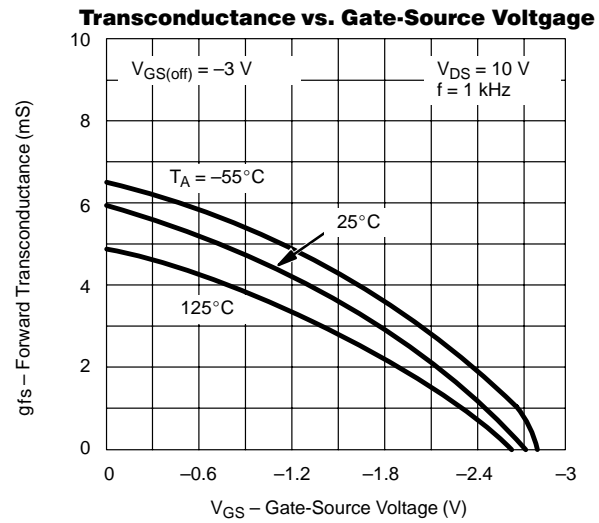
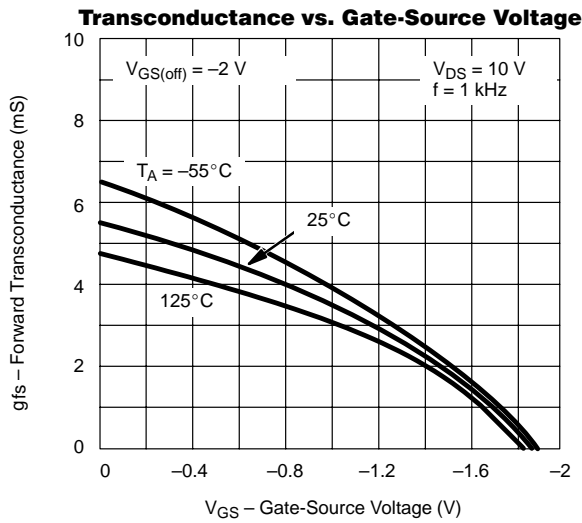


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