

**N-Channel JFETs****Product Summary**

<b>V<sub>GS(off)</sub> (V)</b>	<b>V<sub>(BR)GSS Min (V)</sub></b>	<b>g<sub>fs</sub> Min (mS)</b>	<b>I<sub>DSS</sub> Min (mA)</b>
≤ -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<sub>V</sub> = 60 @ 100 μA

**Benefits**

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

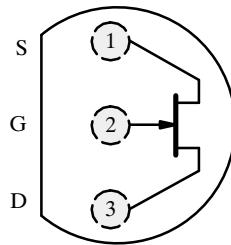
**Applications**

- 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
Forward Gate Current .....	10 mA
Storage Temperature .....	-55 to 150°C
Operating Junction Temperature .....	-55 to 150°C

Lead Temperature (1/16" from case for 10 sec.) .....	300°C
Power Dissipation <sup>a</sup> .....	350 mW

## Notes

a. Derate 2.8 mW/°C above 25°C

# 2N3819

**TEMIC**

Siliconix

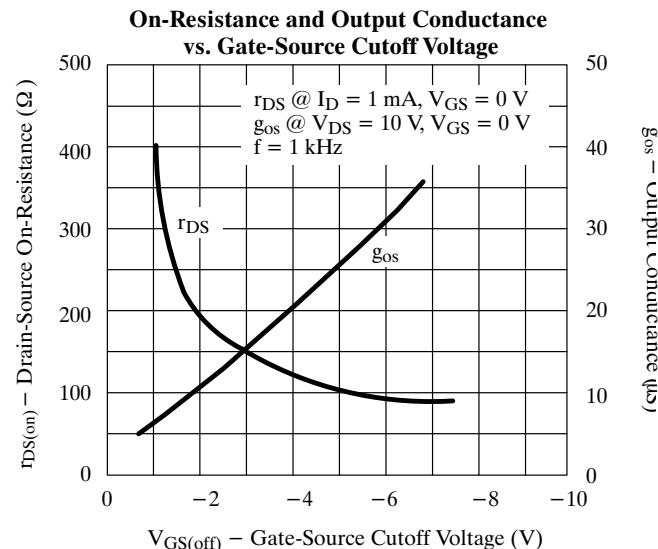
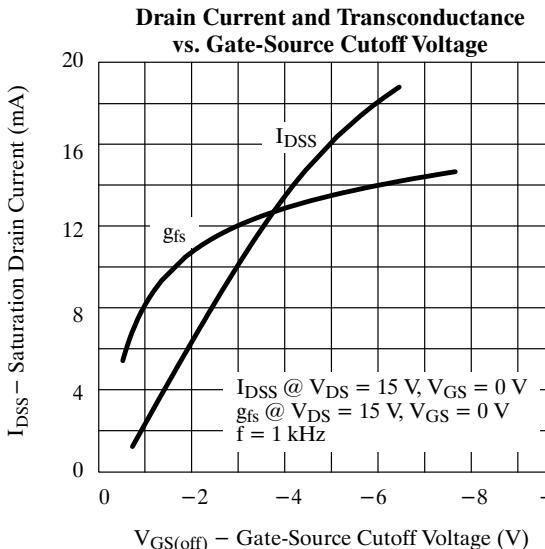
## Specifications<sup>a</sup>

Parameter	Symbol	Test Conditions	Limits			Unit	
			Min	Typ <sup>b</sup>	Max		
<b>Static</b>							
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = -1 \mu\text{A}, V_{DS} = 0 \text{ V}$	-25	-35		V	
Gate-Source Cutoff Voltage	$V_{GS(\text{off})}$	$V_{DS} = 15 \text{ V}, I_D = 2 \text{ nA}$		-3	-8		
Saturation Drain Current <sup>c</sup>	$I_{DSS}$	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V}$	2	10	20	mA	
Gate Reverse Current	$I_{GSS}$	$V_{GS} = -15 \text{ V}, V_{DS} = 0 \text{ V}$ $T_A = 100^\circ\text{C}$		-0.002	-2	nA	
Gate Operating Current <sup>d</sup>	$I_G$	$V_{DG} = 10 \text{ V}, I_D = 1 \text{ mA}$		-20		pA	
Drain Cutoff Current	$I_{D(\text{off})}$	$V_{DS} = 10 \text{ V}, V_{GS} = -8 \text{ V}$		2			
Drain-Source On-Resistance	$r_{DS(\text{on})}$	$V_{GS} = 0 \text{ V}, I_D = 1 \text{ mA}$		150		$\Omega$	
Gate-Source Voltage	$V_{GS}$	$V_{DS} = 15 \text{ V}, I_D = 200 \mu\text{A}$	-0.5	-2.5	-7.5	V	
Gate-Source Forward Voltage	$V_{GS(F)}$	$I_G = 1 \text{ mA}, V_{DS} = 0 \text{ V}$		0.7			
<b>Dynamic</b>							
Common-Source Forward Transconductance <sup>d</sup>	$g_{fs}$	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V}$	$f = 1 \text{ kHz}$	2	5.5	6.5	mS
			$f = 100 \text{ MHz}$	1.6	5.5		
Common-Source Output Conductance <sup>d</sup>	$g_{os}$		$f = 1 \text{ kHz}$		15	50	$\mu\text{S}$
Common-Source Input Capacitance	$C_{iss}$	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$			2.2	8	$\text{pF}$
Common-Source Reverse Transfer Capacitance	$C_{rss}$				0.7	4	
Equivalent Input Noise Voltage <sup>d</sup>	$\bar{e}_n$	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}, f = 100 \text{ Hz}$			6		$\text{nV}/\sqrt{\text{Hz}}$

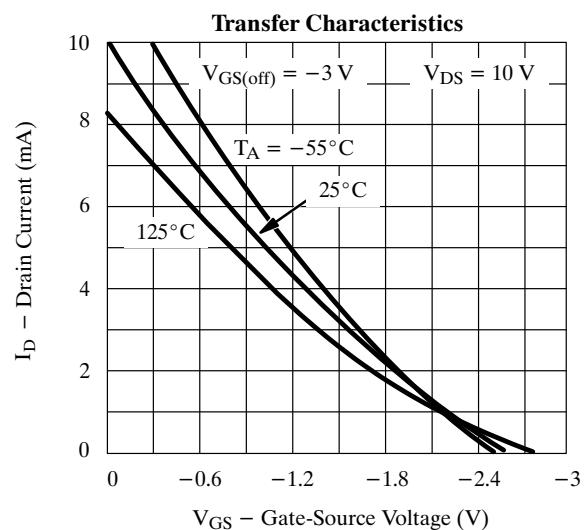
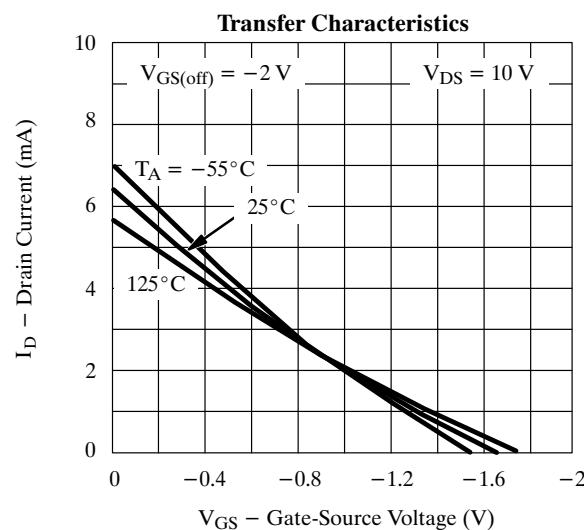
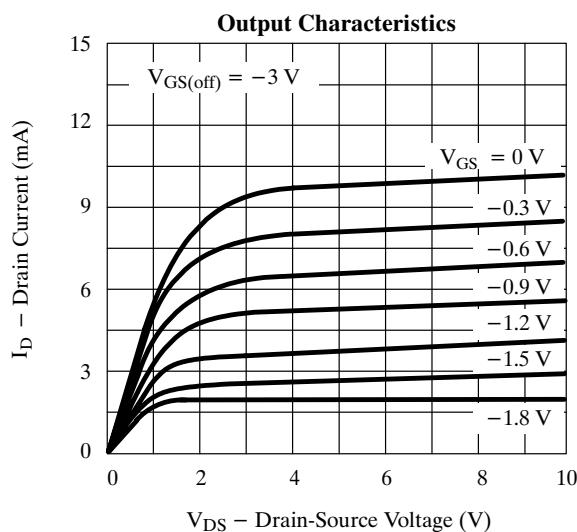
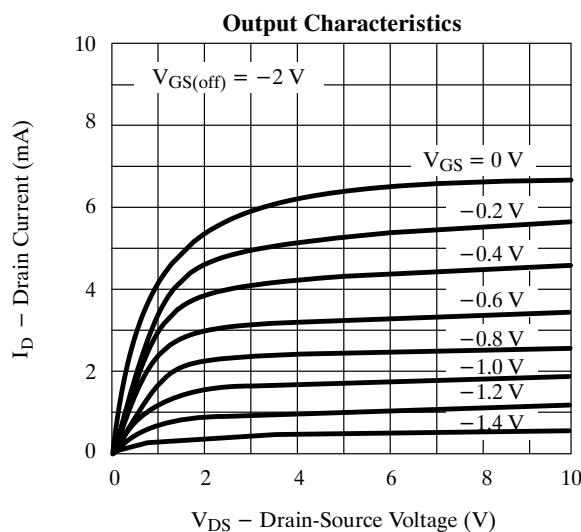
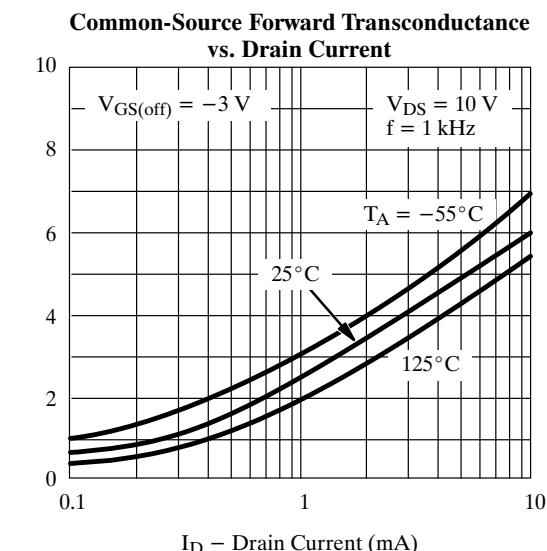
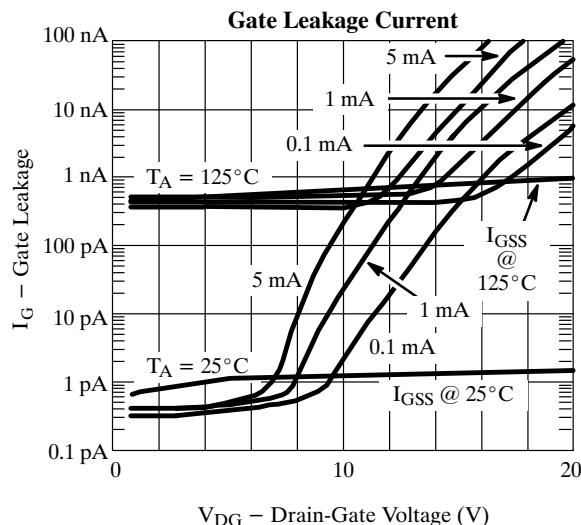
### Notes

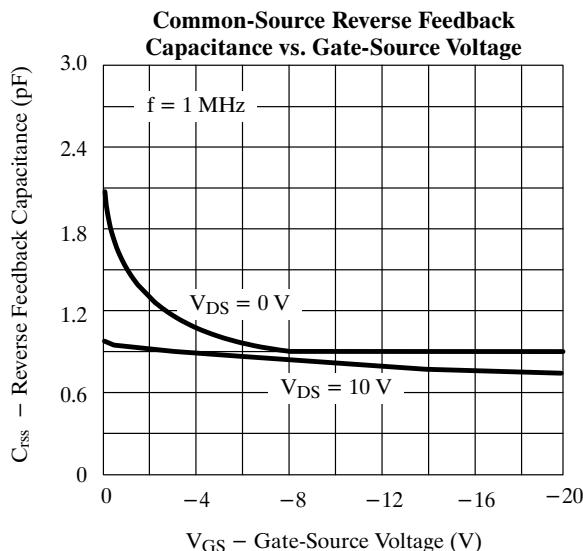
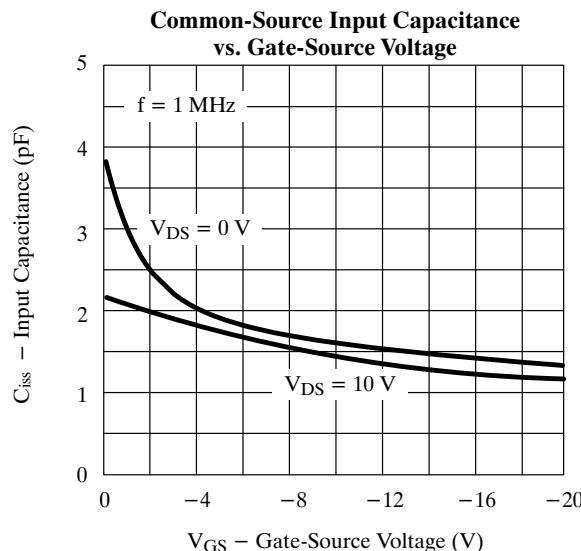
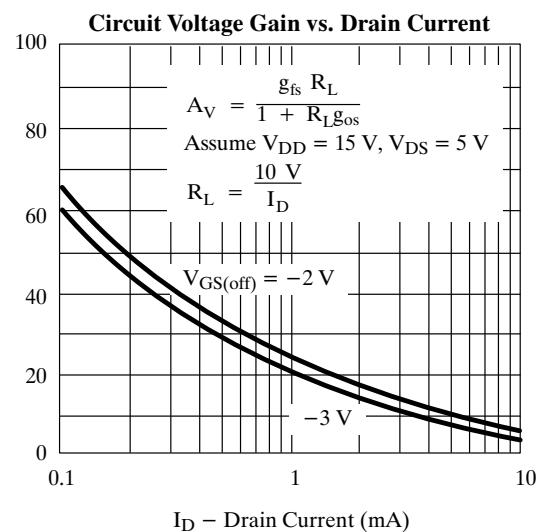
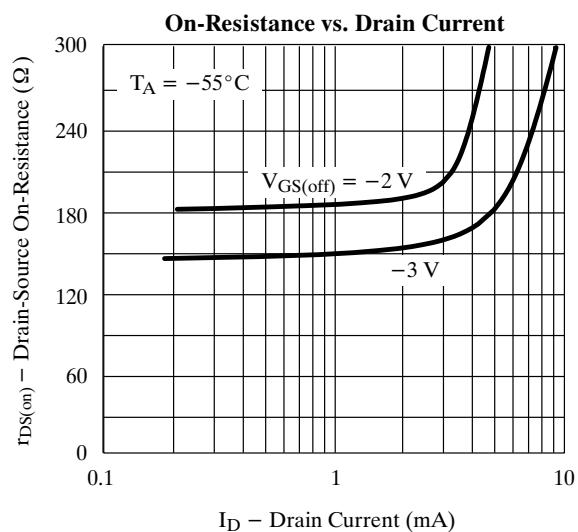
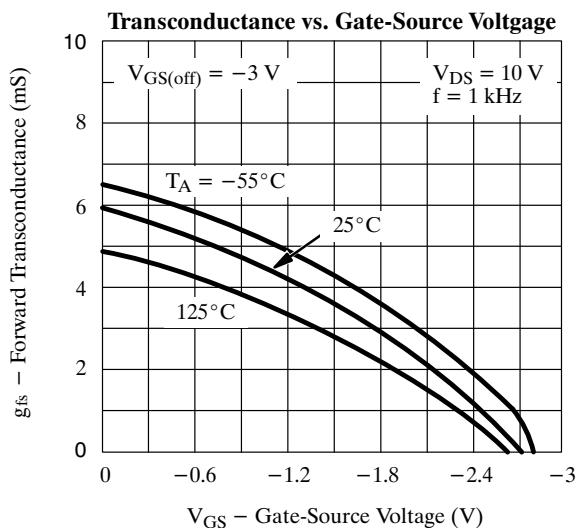
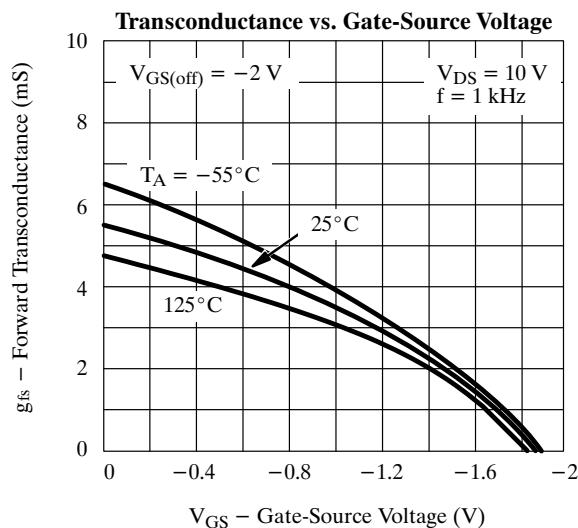
- a.  $T_A = 25^\circ\text{C}$  unless otherwise noted.
- b. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- c. Pulse test: PW  $\leq 300 \mu\text{s}$ , duty cycle  $\leq 2\%$ .
- d. This parameter not registered with JEDEC.

## Typical Characteristics



## Typical Characteristics (Cont'd)



**2N3819****Typical Characteristics (Cont'd)**

## Typical Characteristics (Cont'd)

