

**N-Channel JFET**

**Product Summary**

$V_{GS(off)}$ (V)	$V_{(BR)GSS}$ Min (V)	$g_{fs}$ Min (mS)	$I_{DSS}$ Min (mA)
$\leq -8$	-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  $\mu$ A

**Benefits**

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

**Applications**

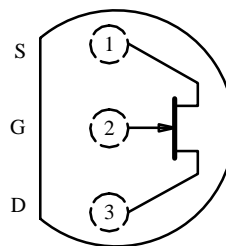
- High-Frequency Amplifier/Mixer
- Oscillator
- Sample-and-Hold
- Very Low Capacitance Switches

**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 <sup>a</sup>	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<sup>a</sup>

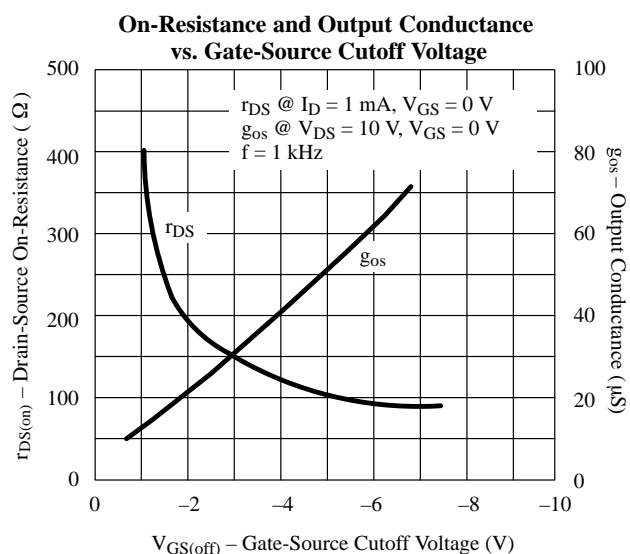
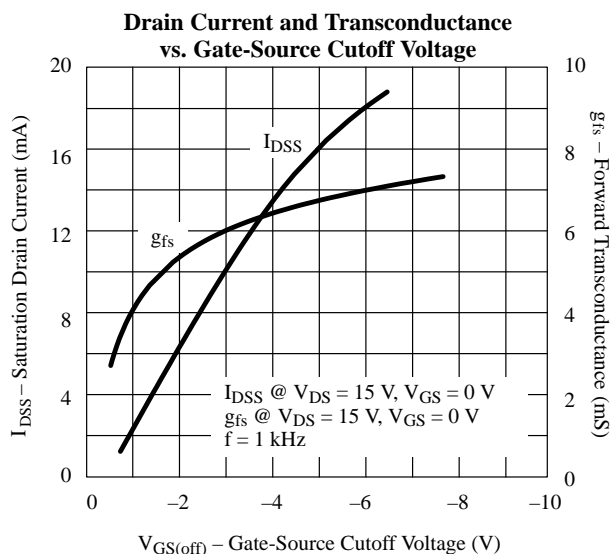
Parameter	Symbol	Test Conditions	Limits			Unit	
			Min	Typ <sup>b</sup>	Max		
<b>Static</b>							
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = -1 \mu A, V_{DS} = 0 V$	-25	-35		V	
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 15 V, I_D = 2 nA$		-3	-8		
Saturation Drain Current <sup>c</sup>	$I_{DSS}$	$V_{DS} = 15 V, V_{GS} = 0 V$	2	10	20	mA	
Gate Reverse Current	$I_{GSS}$	$V_{GS} = -15 V, V_{DS} = 0 V$ $T_A = 100^\circ C$		-0.002	-2	nA	
				-0.002	-2	$\mu A$	
Gate Operating Current <sup>d</sup>	$I_G$	$V_{DG} = 10 V, I_D = 1 mA$		-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		$\Omega$	
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			
<b>Dynamic</b>							
Common-Source Forward Transconductance <sup>d</sup>	$g_{fs}$	$V_{DS} = 15 V$ $V_{GS} = 0 V$	$f = 1 kHz$	2	5.5	6.5	mS
			$f = 100 MHz$	1.6	5.5		
Common-Source Output Conductance <sup>d</sup>	$g_{os}$		$f = 1 kHz$		25	50	$\mu S$
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 <sup>d</sup>	$\bar{e}_n$	$V_{DS} = 10 V, V_{GS} = 0 V, f = 100 Hz$		6		$nV/\sqrt{Hz}$	

### Notes

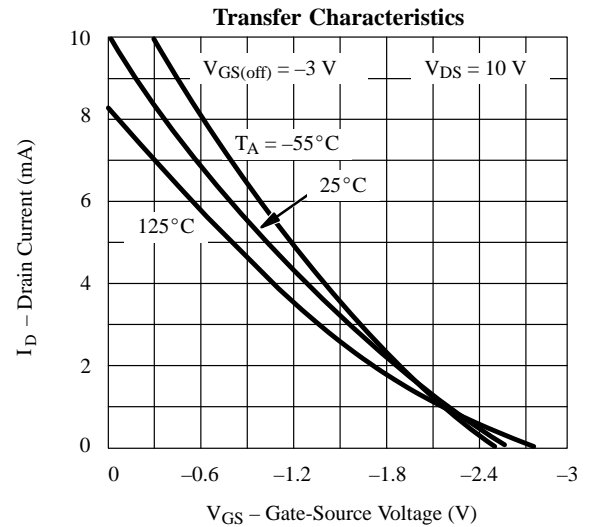
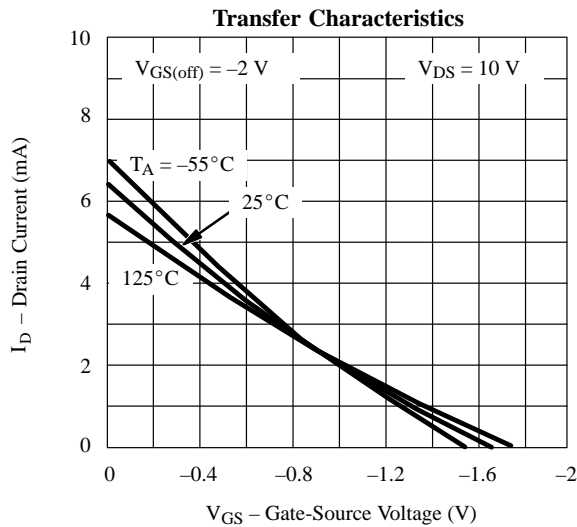
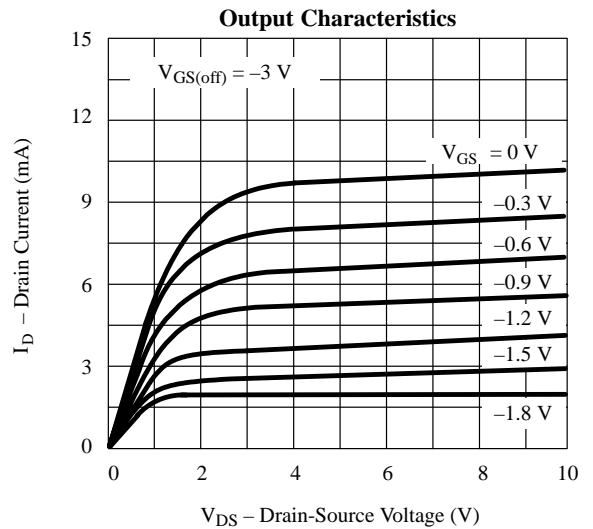
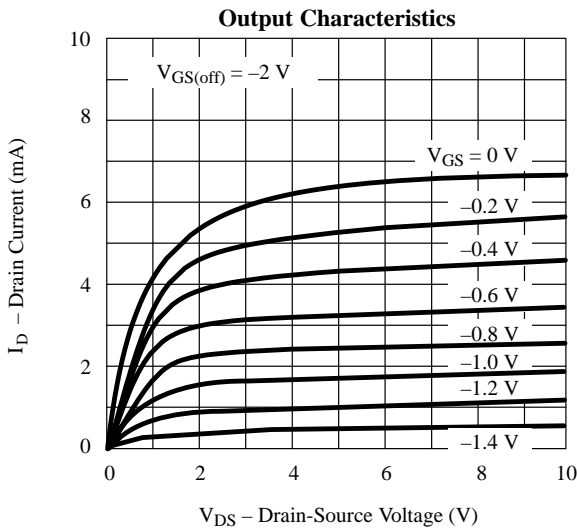
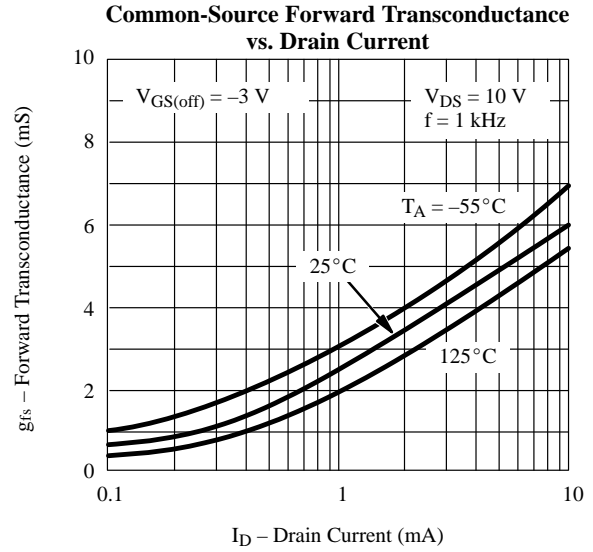
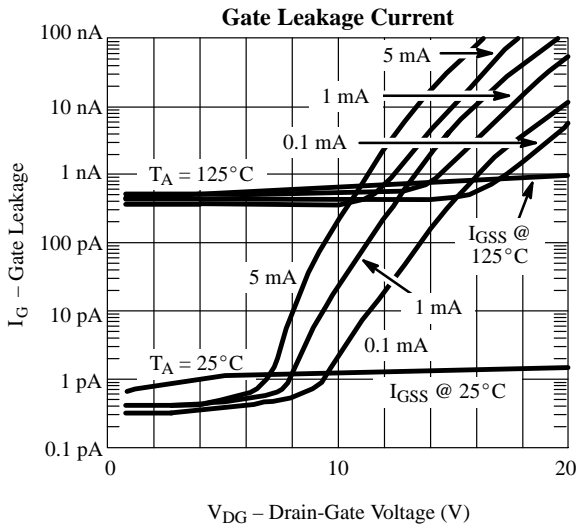
- $T_A = 25^\circ C$  unless otherwise noted.
- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- Pulse test:  $PW \leq 300 \mu s$ , duty cycle  $\leq 2\%$ .
- This parameter not registered with JEDEC.

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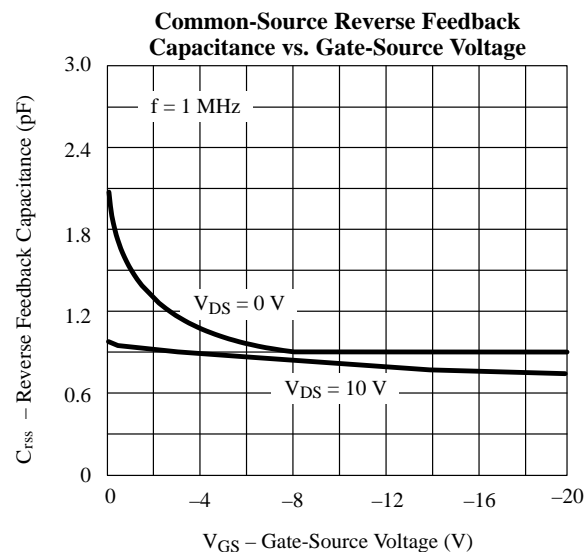
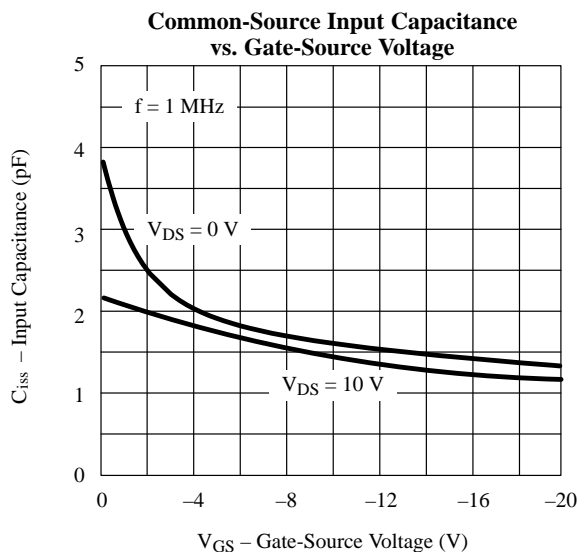
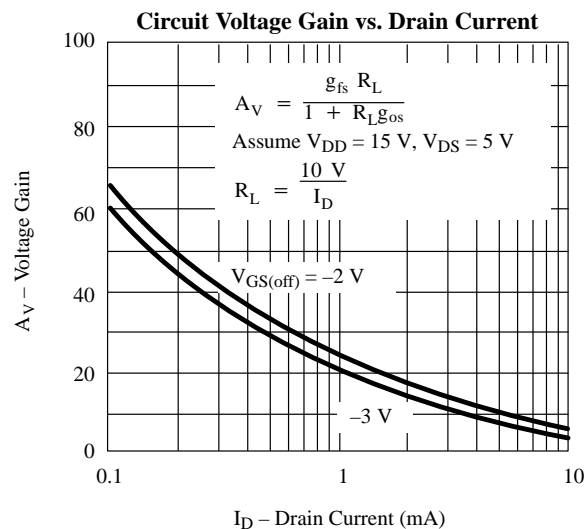
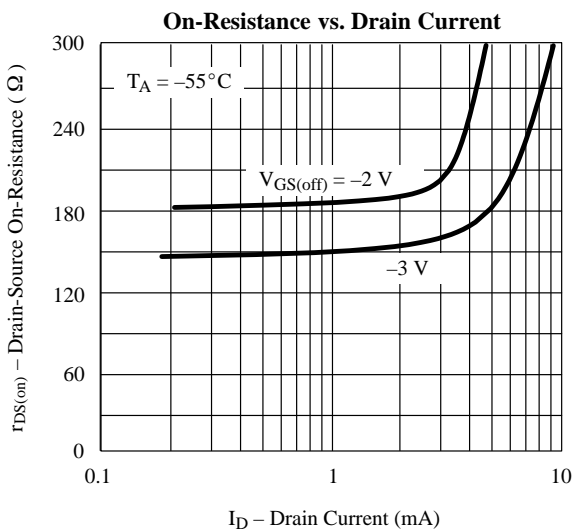
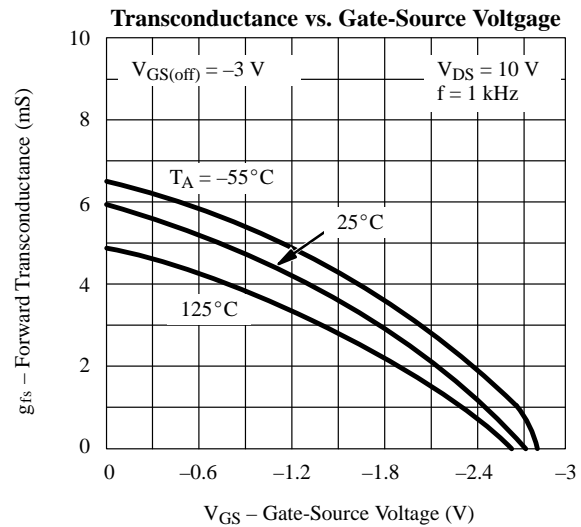
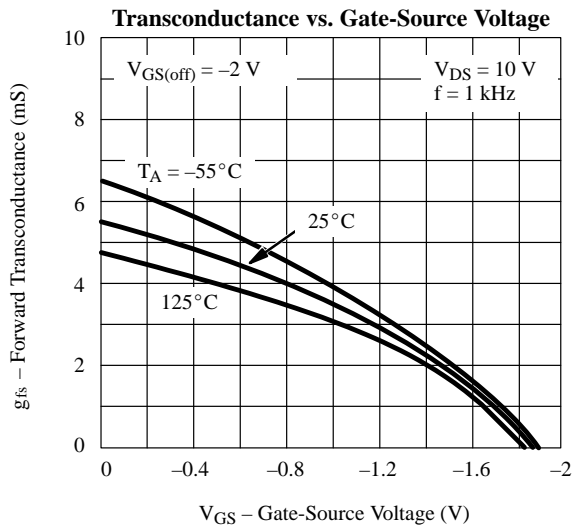
## Typical Characteristics



**Typical Characteristics (Cont'd)**



## Typical Characteristics (Cont'd)



## Typical Characteristics (Cont'd)

