

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

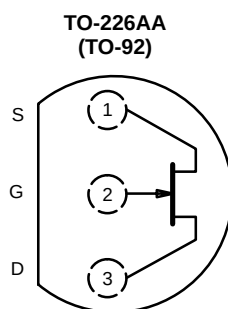
APPLICATIONS

- 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.



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.

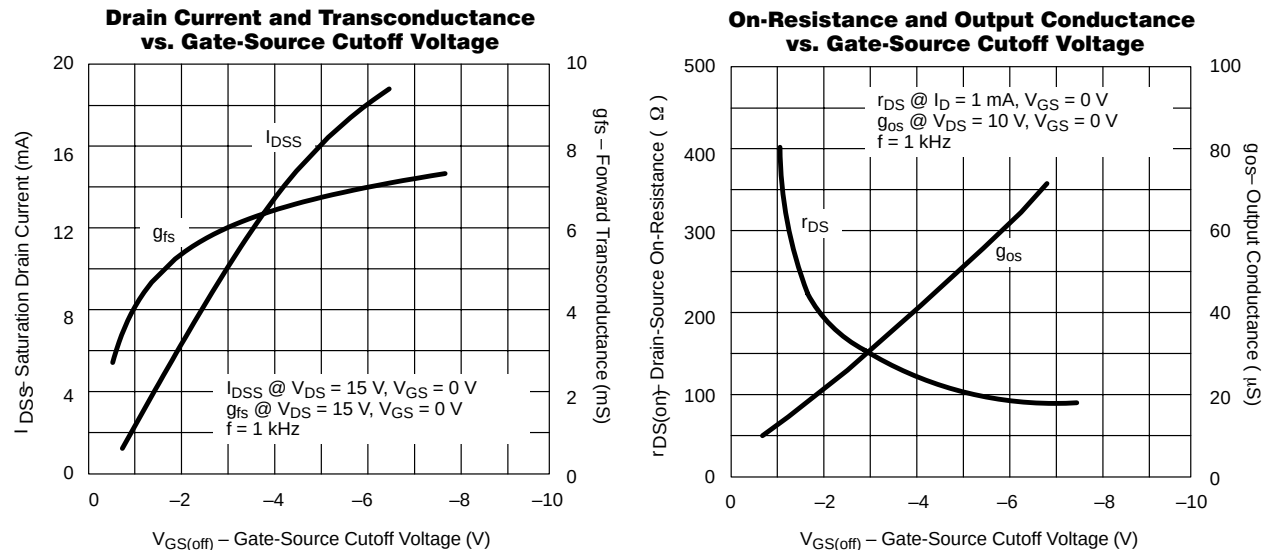


SPECIFICATIONS ^A							
PARAMETER	SYMBOL	TEST CONDITIONS		LIMITS			UNIT
				MIN	TYP ^B	MAX	
STATIC							
Gate-Source Breakdown Voltage	V _{(BR)GSS}	I _G = −1 μA , V _{DS} = 0 V	−25	−35		V	
Gate-Source Cutoff Voltage	V _{GS(off)}	V _{DS} = 15 V, I _D = 2 nA		−3	−8		
Saturation Drain Current ^C	I _{DSS}	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°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 μA	−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
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	ē _n	V _{DS} = 10 V, V _{GS} = 0 V, f = 100 Hz			6		nV/ √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: $PW \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- D. This parameter not registered with JEDEC.

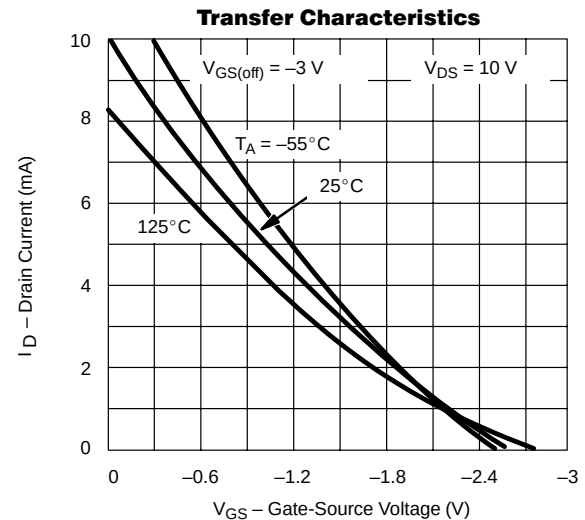
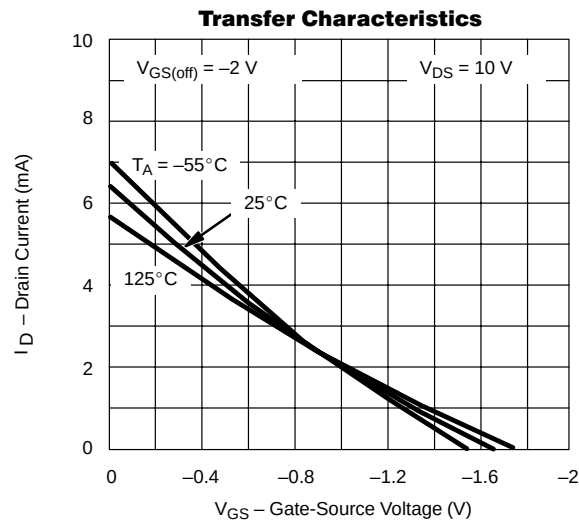
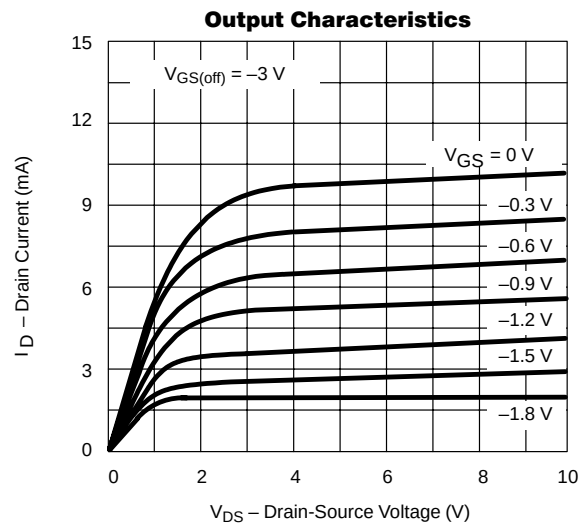
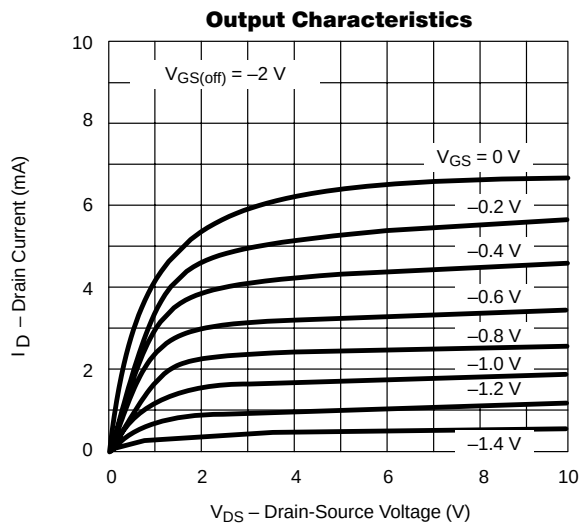
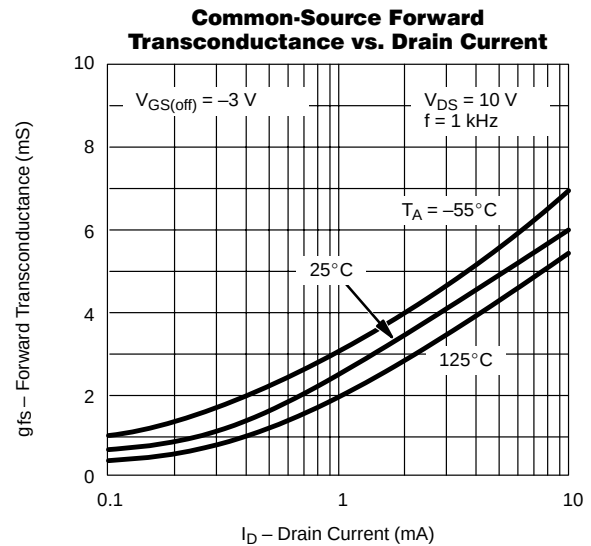
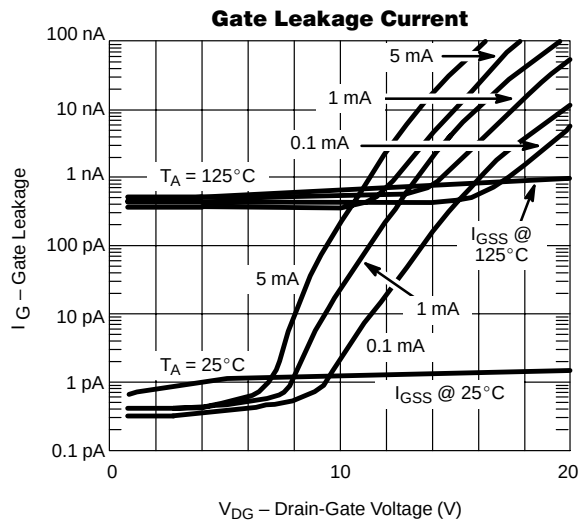
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TYPICAL CHARACTERISTICS



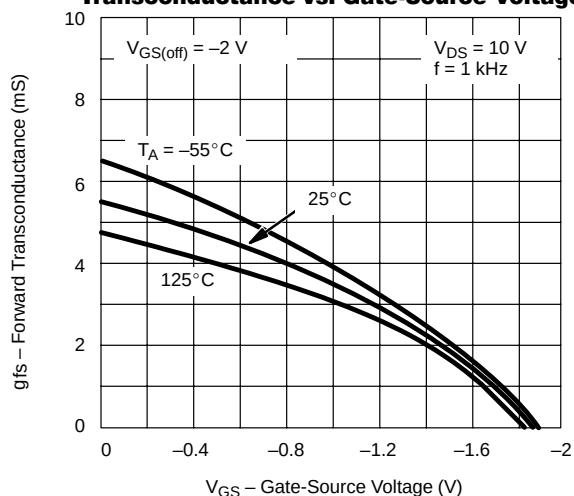


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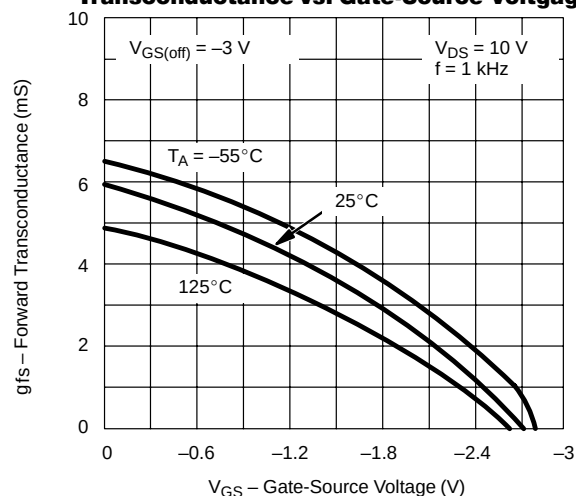


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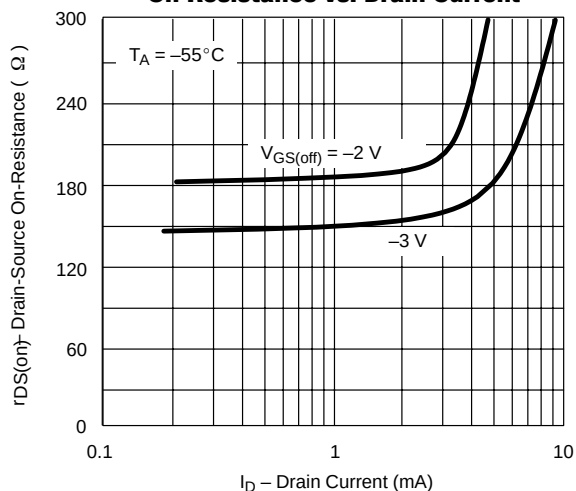
Transconductance vs. Gate-Source Voltage



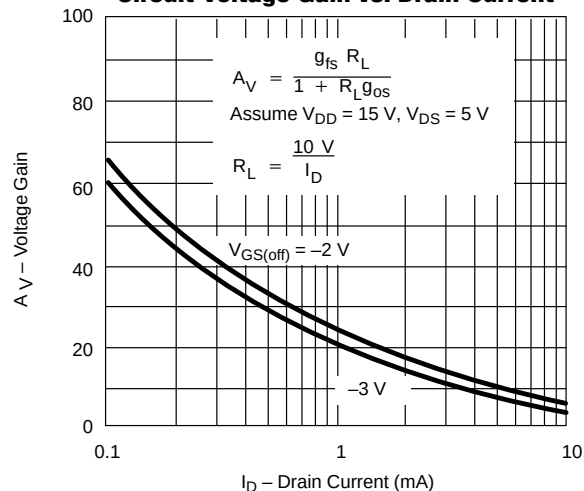
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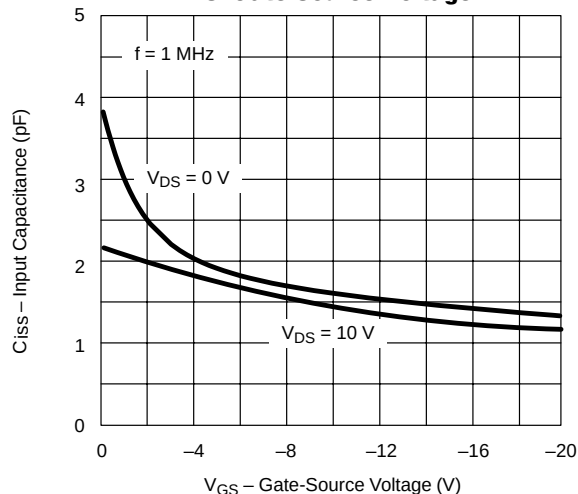
On-Resistance vs. Drain Current



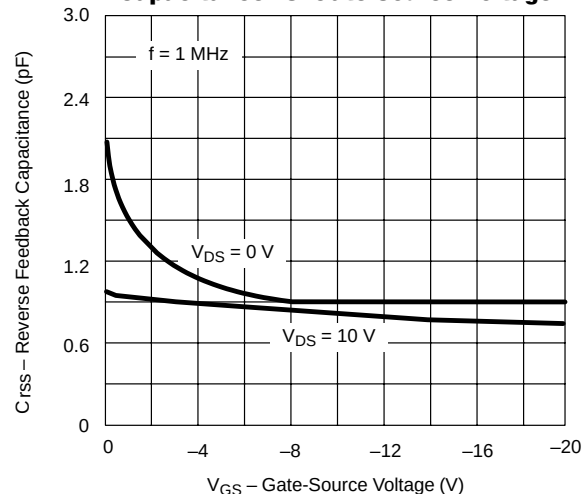
Circuit Voltage Gain vs. Drain Current



Common-Source Input Capacitance vs. Gate-Source Voltage



Common-Source Reverse Feedback Capacitance vs. Gate-Source Voltage





TYPICAL CHARACTERISTICS

