

## N-Channel JFET

<b>PRODUCT SUMMARY</b>			
$V_{GS(off)}$ (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  $\mu$ A

### BENEFITS

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

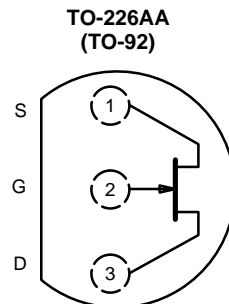
### APPLICATIONS

- 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.



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

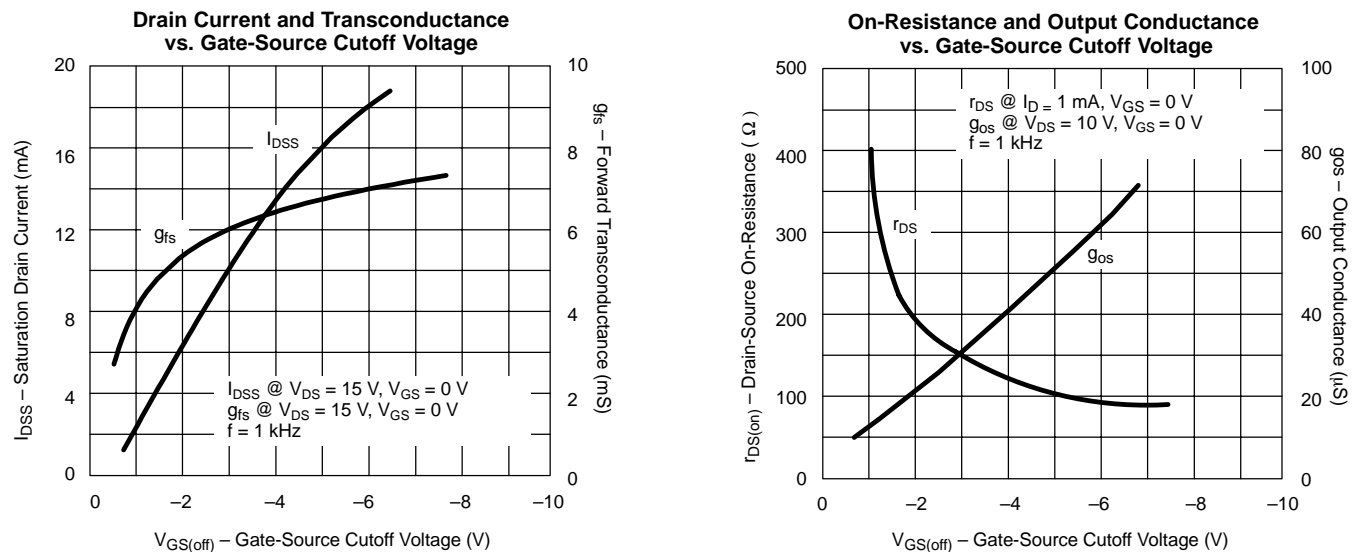
SPECIFICATIONS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Conditions	Limits			Unit	
			Min	Typ <sup>a</sup>	Max		
<b>Static</b>							
Gate-Source Breakdown Voltage	V <sub>(BR)GSS</sub>	I <sub>G</sub> = -1 μA, V <sub>DS</sub> = 0 V	-25	-35		V	
Gate-Source Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 2 nA		-3	-8		
Saturation Drain Current <sup>b</sup>	I <sub>DSS</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V	2	10	20	mA	
Gate Reverse Current	I <sub>GSS</sub>	V <sub>GS</sub> = -15 V, V <sub>DS</sub> = 0 V		-0.002	-2	nA	
		T <sub>A</sub> = 100 °C		-0.002	-2	μA	
Gate Operating Current <sup>c</sup>	I <sub>G</sub>	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 1 mA		-20		pA	
Drain Cutoff Current	I <sub>D(off)</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = -8 V		2			
Drain-Source On-Resistance	r <sub>DS(on)</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 1 mA		150		Ω	
Gate-Source Voltage	V <sub>GS</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 200 μA	-0.5	-2.5	-7.5	V	
Gate-Source Forward Voltage	V <sub>GS(F)</sub>	I <sub>G</sub> = 1 mA, V <sub>DS</sub> = 0 V		0.7			
<b>Dynamic</b>							
Common-Source Forward Transconductance <sup>c</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V V <sub>GS</sub> = 0 V	f = 1 kHz	2	5.5	6.5	mS
			f = 100 MHz	1.6	5.5		
Common-Source Output Conductance <sup>c</sup>	g <sub>os</sub>		f = 1 kHz		25	50	μS
Common-Source Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V, f = 1 MHz		2.2	8	pF	
Common-Source Reverse Transfer Capacitance	C <sub>rss</sub>			0.7	4		
Equivalent Input Noise Voltage <sup>c</sup>	$\bar{e}_n$	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0 V, f = 100 Hz		6		nV/ √Hz	

Notes

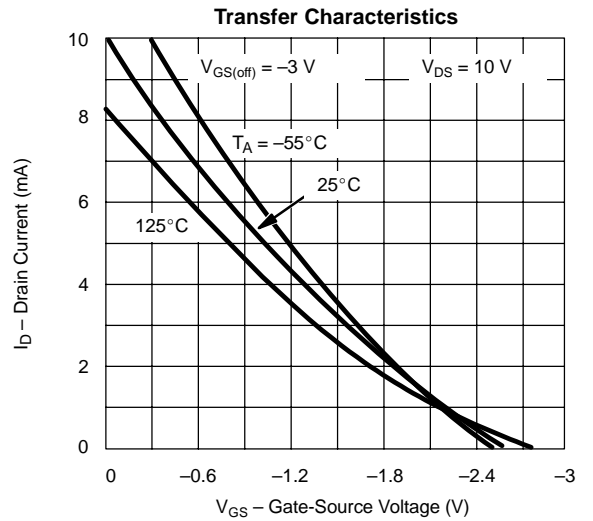
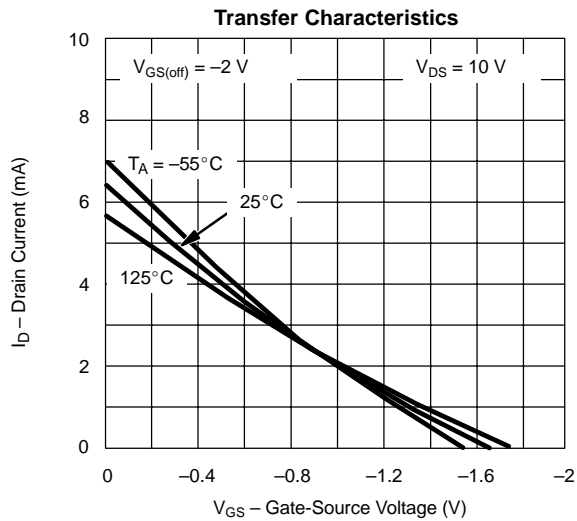
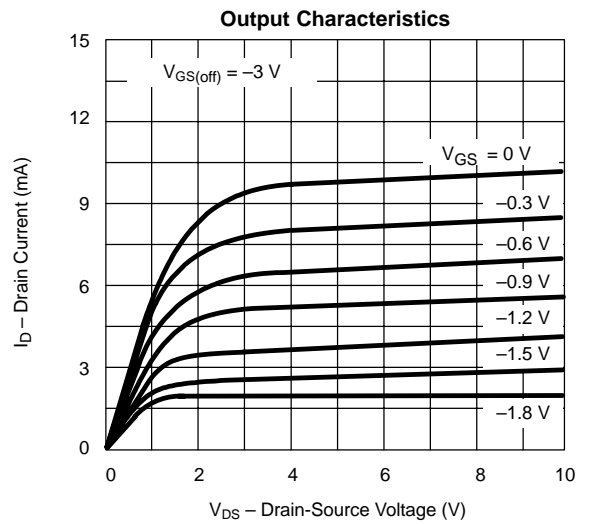
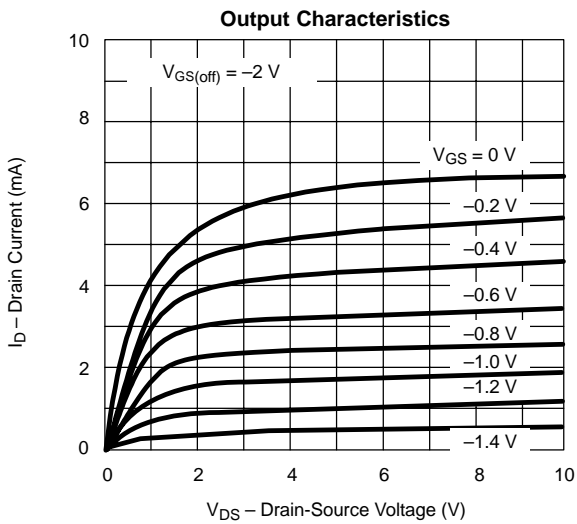
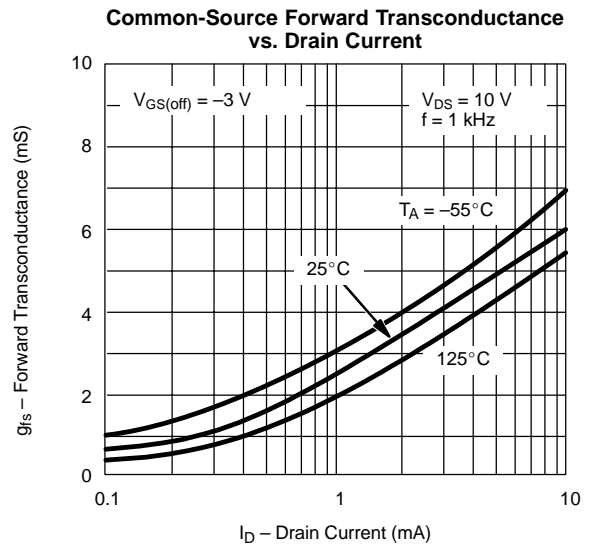
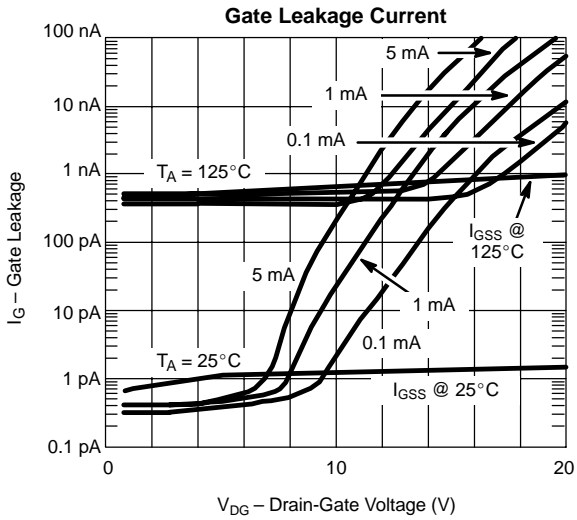
- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- b. Pulse test: PW ≤ 300 μs, duty cycle ≤ 2%.
- c. This parameter not registered with JEDEC.

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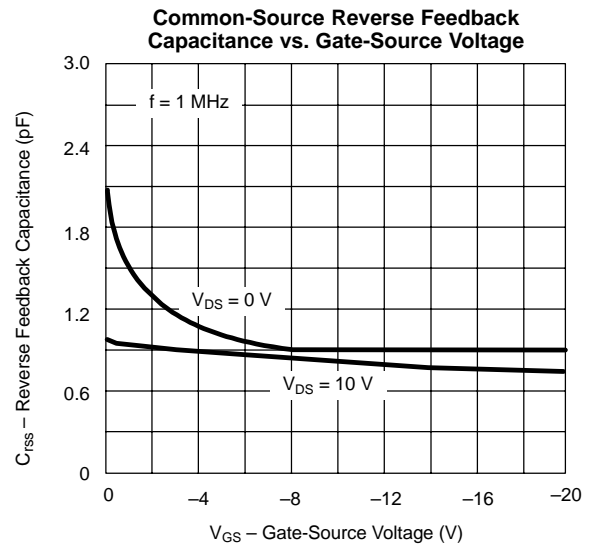
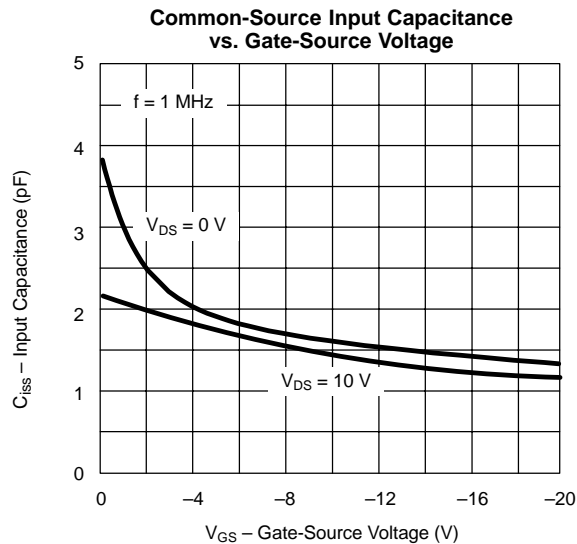
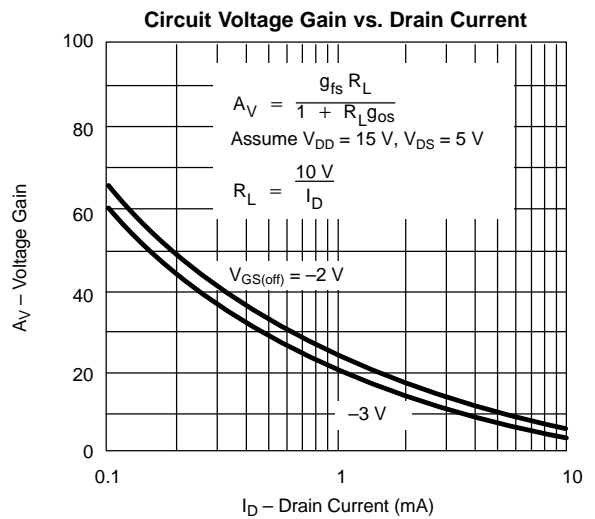
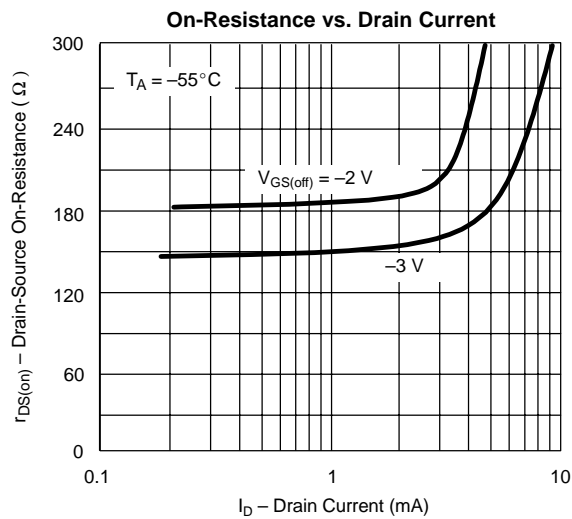
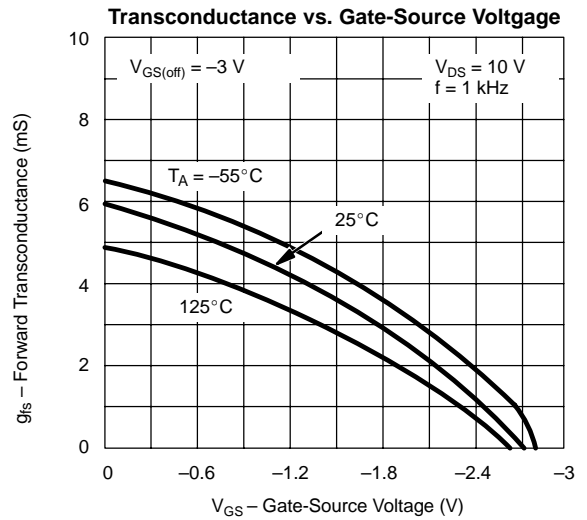
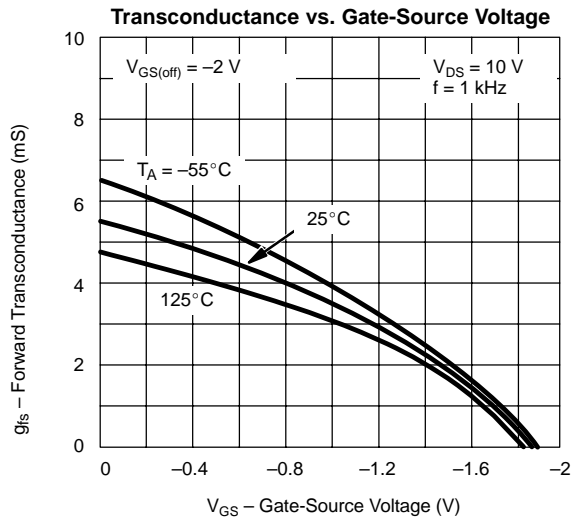
**TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)**



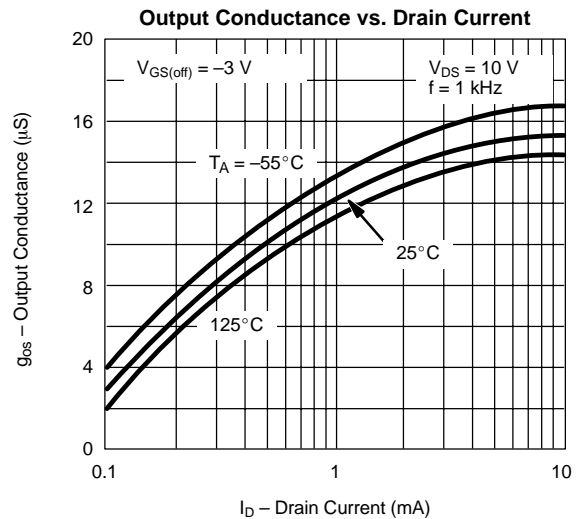
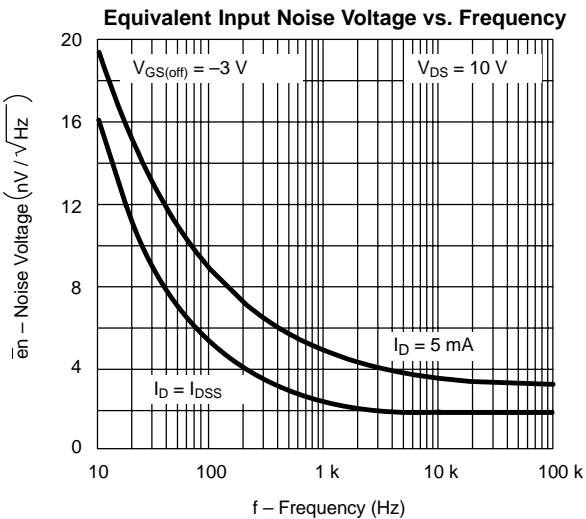
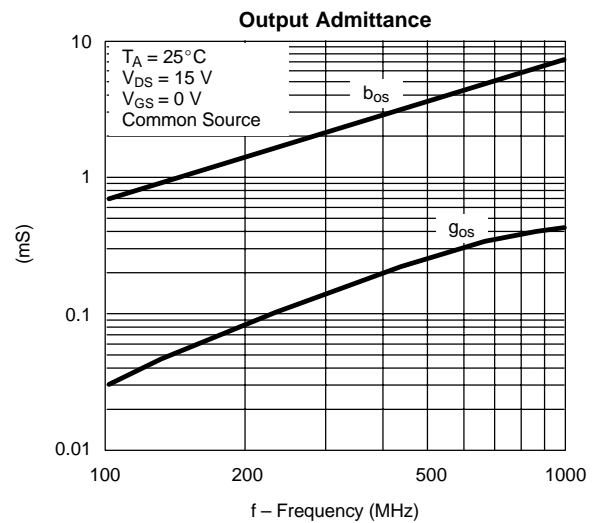
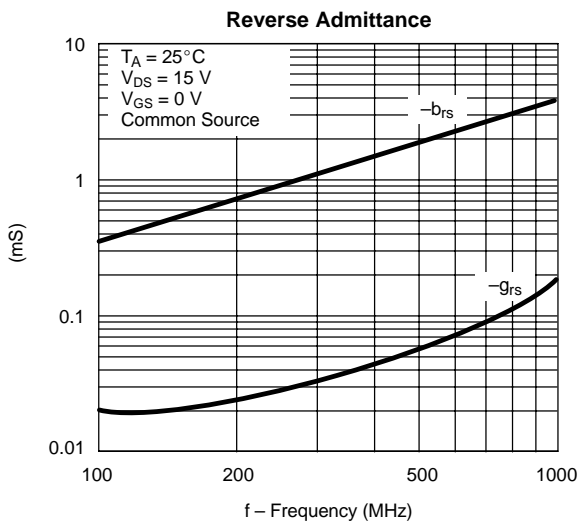
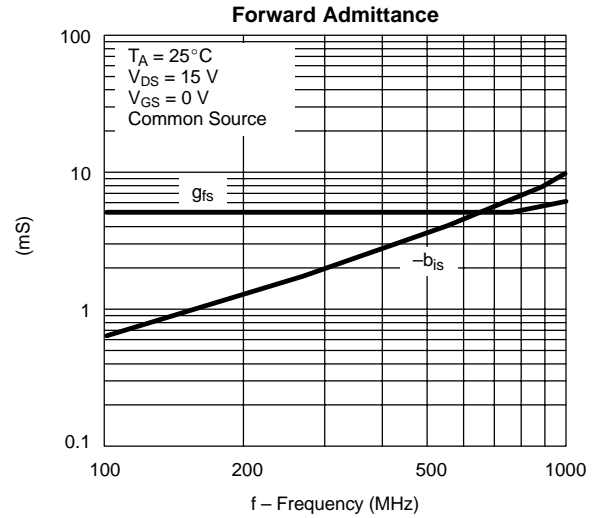
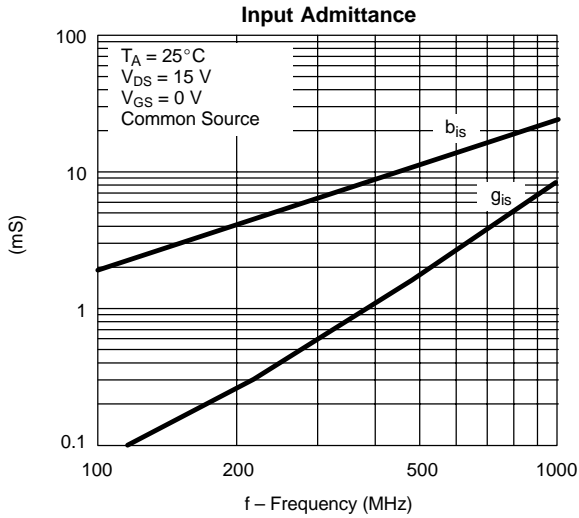
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