



## N-Channel JFETs

2N5484    SST5484  
 2N5485    SST5485  
 2N5486    SST5486

PRODUCT SUMMARY				
Part Number	$V_{GS(off)}$ (V)	$V_{(BR)GSS}$ Min (V)	$g_{fs}$ Min (mS)	$I_{DSS}$ Min (mA)
2N/SST5484	-0.3 to -3	-25	3	1
2N/SST5485	-0.5 to -4	-25	3.5	4
2N/SST5486	-2 to -6	-25	4	8

### FEATURES

- Excellent High-Frequency Gain: Gps 13 dB (typ) @ 400 MHz – 5485/6
- Very Low Noise: 2.5 dB (typ) @ 400 MHz – 5485/6
- Very Low Distortion
- High AC/DC Switch Off-Isolation

### BENEFITS

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

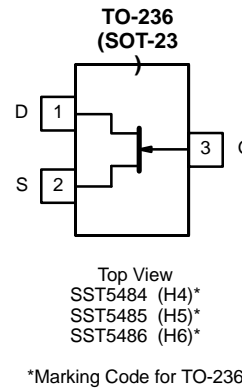
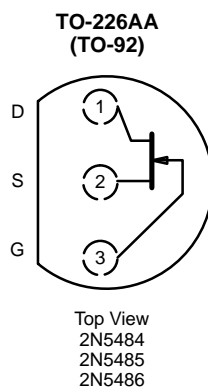
### APPLICATIONS

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

### DESCRIPTION

The 2N/SST5484 series consists of n-channel JFETs designed to provide high-performance amplification, especially at high frequencies up to and beyond 400 MHz.

The 2N series, TO-226AA (TO-92), and SST series, TO-236 (SOT-23), packages provide low-cost options and are available with tape-and-reel to support automated assembly (see Packaging Information).



For applications information see AN102 and AN105.



### ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage ..... -25 V  
 Gate Current ..... 10 mA  
 Lead Temperature ..... 300°C  
 Storage Temperature ..... -65 to 150°C

Operating Junction Temperature ..... -55 to 150°C  
 Power Dissipation<sup>a</sup> ..... 350 mW

Notes

a. Derate 2.8 mW/°C above 25°C

SPECIFICATIONS FOR 2N SERIES (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)										
Parameter	Symbol	Test Conditions	Typ <sup>a</sup>	Limits						Unit
				2N5484		2N5485		2N5486		
				Min	Max	Min	Max	Min	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	-35	-25		-25		-25		V
Gate-Source Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 nA		-0.3	-3	-0.5	-4	-2	-6	
Saturation Drain Current <sup>b</sup>	I <sub>DSS</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V		1	5	4	10	8	20	mA
Gate Reverse Current	I <sub>GSS</sub>	V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V	-0.002		-1		-1		-1	nA
		T <sub>A</sub> = 100°C	-0.2		-200		-200		-200	
Gate Operating Current <sup>c</sup>	I <sub>G</sub>	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 1 mA	-20							μA
Gate-Source Forward Voltage <sup>c</sup>	V <sub>GS(F)</sub>	I <sub>G</sub> = 10 mA, V <sub>DS</sub> = 0 V	0.8							V
<b>Dynamic</b>										
Common-Source Forward Transconductance <sup>b</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 1 kHz		3	6	3.5	7	4	8	mS
Common-Source Output Conductance <sup>b</sup>	g <sub>os</sub>				50		60		75	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		5		5		5	pF
Common-Source Reverse Transfer Capacitance	C <sub>rss</sub>		0.7		1		1		1	
Common-Source Output Capacitance	C <sub>oss</sub>		1		2		2		2	
Equivalent Input Noise Voltage <sup>c</sup>	e <sub>n</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 100 Hz	10							nV/ √Hz
<b>High-Frequency</b>										
Common-Source Transconductance	Y <sub>fs(RE)</sub>	V <sub>DS</sub> = 15 V V <sub>GS</sub> = 0 V	f = 100 MHz	5.5	2.5					mS
			f = 400 MHz	5.5		3		3.5		
Common-Source Output Conductance	Y <sub>os(RE)</sub>		f = 100 MHz	45		75				μS
			f = 400 MHz	65			100		100	
Common-Source Input Conductance	Y <sub>is(RE)</sub>		f = 100 MHz	0.05		0.1				mS
			f = 400 MHz	0.8			1		1	
Common-Source Power Gain	G <sub>ps</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1 mA f = 100 MHz	20	16	25					dB
		V <sub>DS</sub> = 15 V I <sub>D</sub> = 4 mA	f = 100 MHz	21		18	30	18	30	
			f = 400 MHz	13		10	20	10	20	
Noise Figure	NF	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V R <sub>G</sub> = 1 MΩ, f = 1 kHz	0.3		2.5		2.5		2.5	dB
		V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1 mA R <sub>G</sub> = 1 kΩ, f = 100 MHz	2		3					
		V <sub>DS</sub> = 15 V I <sub>D</sub> = 4 mA R <sub>G</sub> = 1 kΩ	f = 100 MHz	1			2		2	
			f = 400 MHz	2.5			4		4	

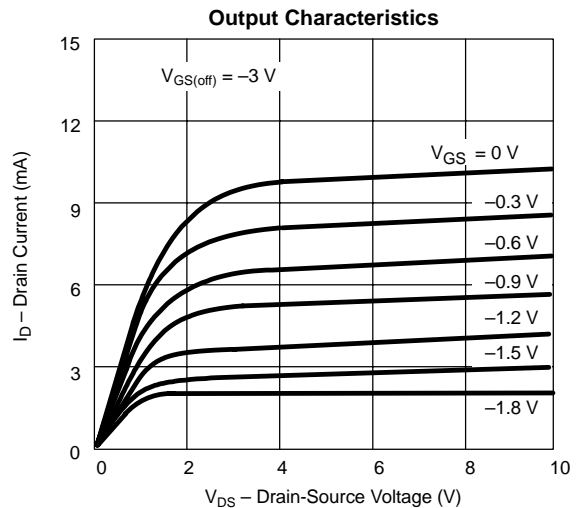
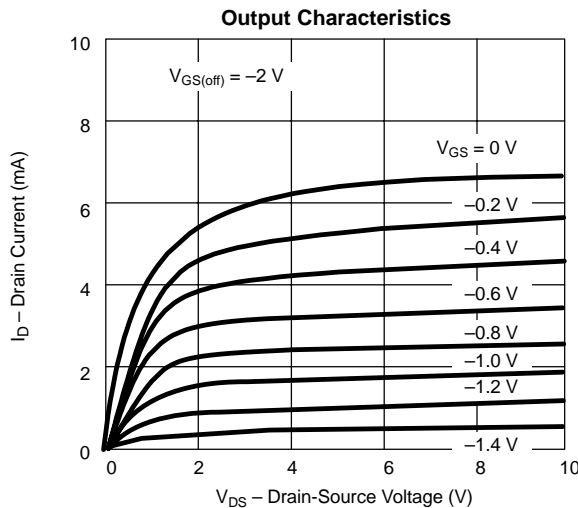
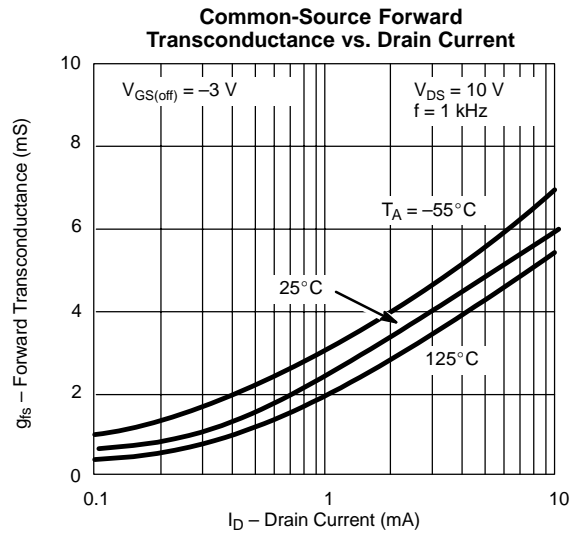
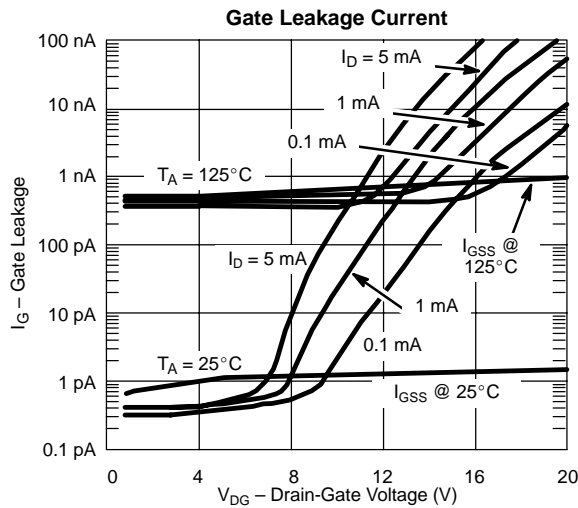
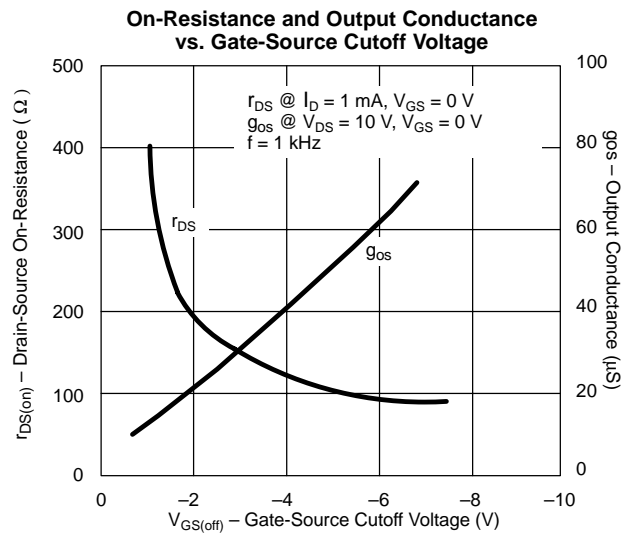
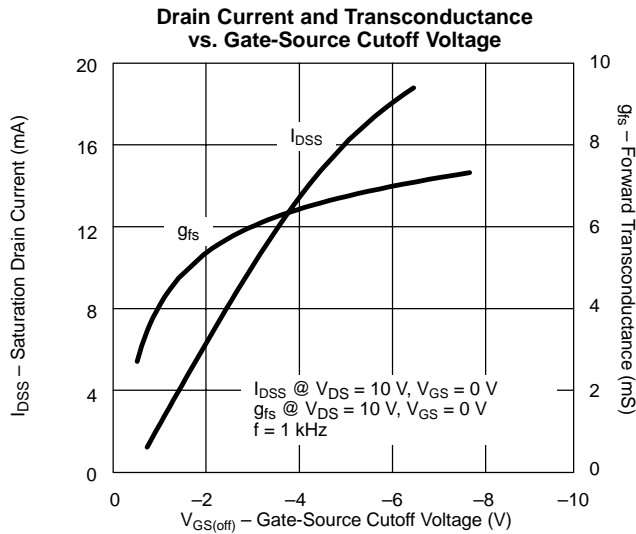


**SPECIFICATIONS FOR SST SERIES (T<sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Conditions	Typ <sup>b</sup>	Limits						Unit
				SST5484		SST5485		SST5486		
				Min	Max	Min	Max	Min	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	-35	-25		-25		-25		V
Gate-Source Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 nA		-0.3	-3	-0.5	-4	-2	-6	
Saturation Drain Current <sup>b</sup>	I <sub>DSS</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V		1	5	4	10	8	20	mA
Gate Reverse Current	I <sub>GSS</sub>	V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V	-0.002		-1		-1		-1	nA
		T <sub>A</sub> = 100 °C	-0.2		-200		-200		-200	
Gate Operating Current <sup>c</sup>	I <sub>G</sub>	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 1 mA	-20							pA
Gate-Source Forward Voltage <sup>c</sup>	V <sub>GS(F)</sub>	I <sub>G</sub> = 10 mA, V <sub>DS</sub> = 0 V	0.8							V
<b>Dynamic</b>										
Common-Source Forward Transconductance <sup>b</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 1 kHz		3	6	3.5	7	4	8	mS
Common-Source Output Conductance <sup>b</sup>	g <sub>os</sub>				50		60		75	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							pF
Common-Source Reverse Transfer Capacitance	C <sub>rss</sub>		0.7							
Common-Source Output Capacitance	C <sub>oss</sub>		1							
Equivalent Input Noise Voltage <sup>c</sup>	e <sub>n</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 100 Hz	10							nV/ √Hz
<b>High-Frequency</b>										
Common-Source Transconductance	Y <sub>fs</sub>	V <sub>DS</sub> = 15 V V <sub>GS</sub> = 0 V	f = 100 MHz	5.5						mS
			f = 400 MHz	5.5						
Common-Source Output Conductance	Y <sub>os</sub>		f = 100 MHz	45						μS
			f = 400 MHz	65						
Common-Source Input Conductance	Y <sub>is</sub>		f = 100 MHz	0.05						mS
			f = 400 MHz	0.8						
Common-Source Power Gain	G <sub>ps</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1 mA f = 100 MHz	20							dB
		V <sub>DS</sub> = 15 V I <sub>D</sub> = 4 mA	f = 100 MHz	21						
			f = 400 MHz	13						
Noise Figure	NF	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V R <sub>G</sub> = 1 MΩ, f = 1 kHz	0.3							dB
		V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1 mA R <sub>G</sub> = 1 kΩ, f = 100 MHz	2							
		V <sub>DS</sub> = 15 V I <sub>D</sub> = 4 mA R <sub>G</sub> = 1 kΩ	f = 100 MHz	1						
f = 400 MHz	2.5									

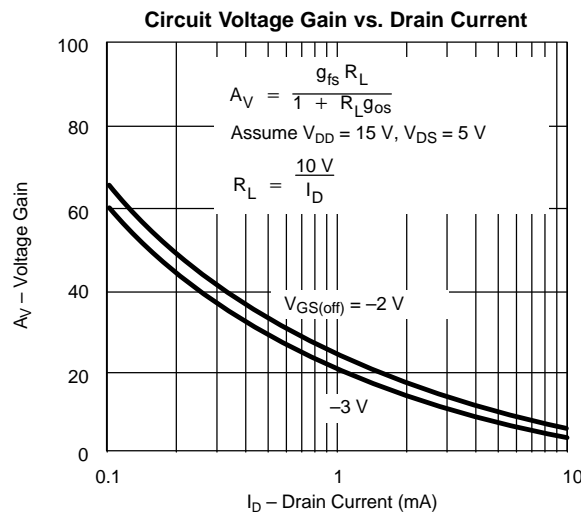
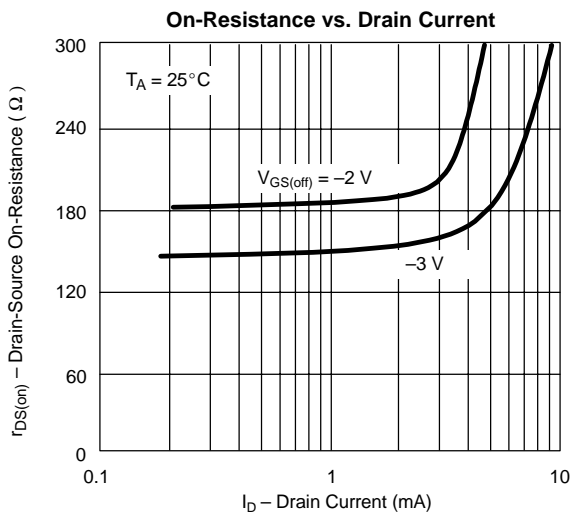
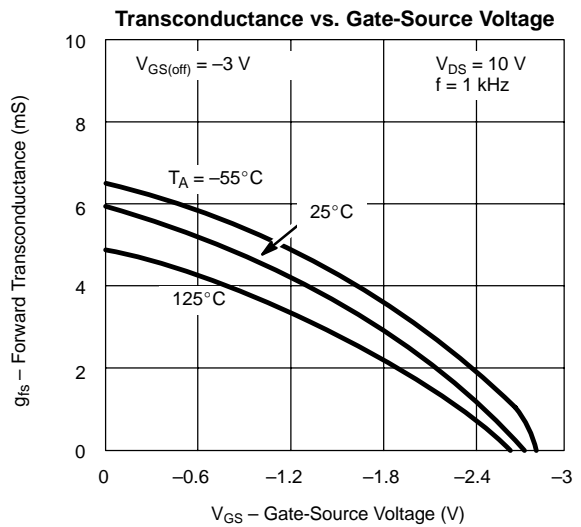
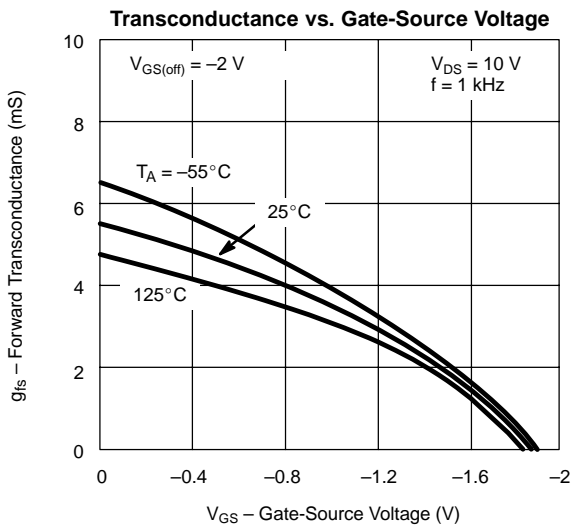
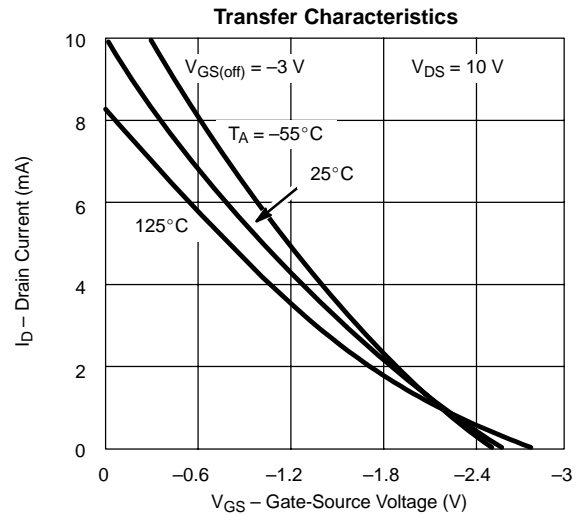
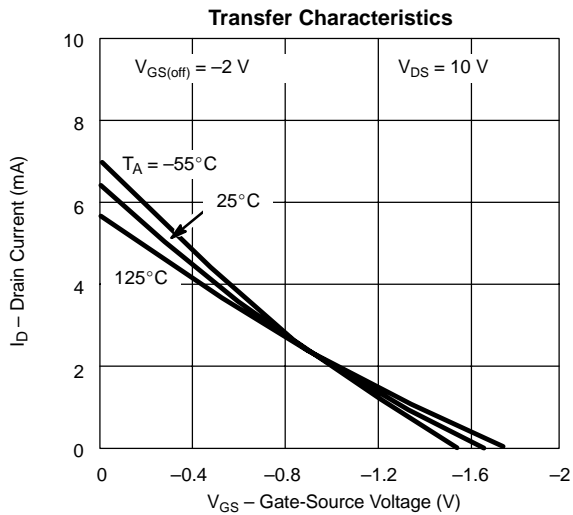
Notes  
a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.  
b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.  
c. This parameter not registered with JEDEC.

### TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)



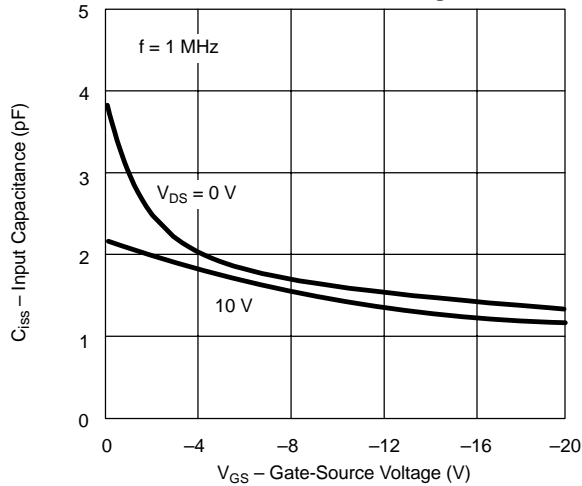


**TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)**

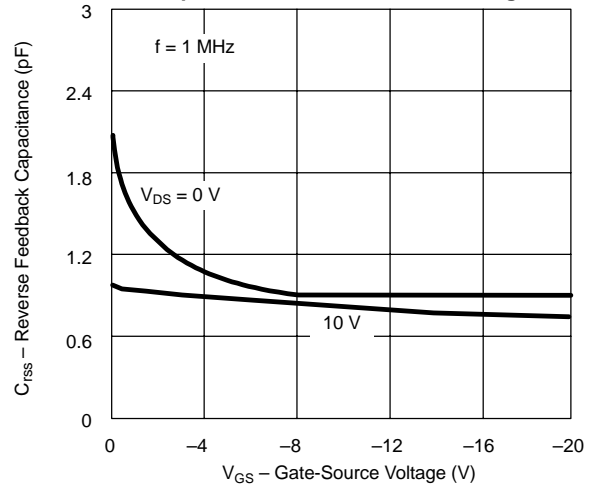


### TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

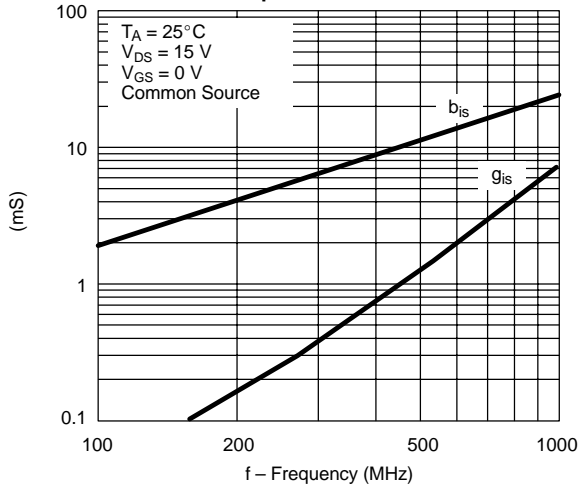
**Common-Source Input Capacitance vs. Gate-Source Voltage**



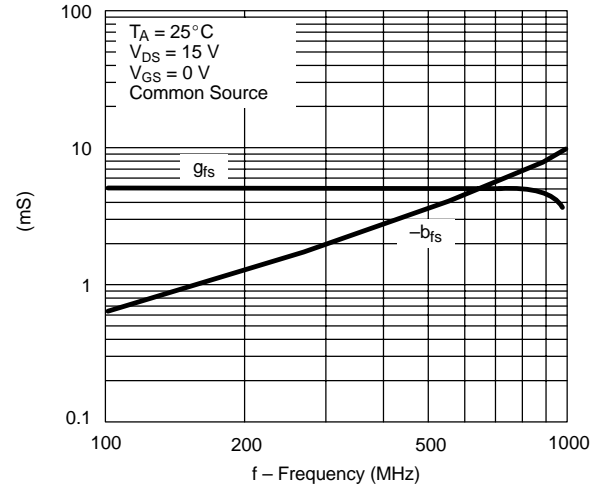
**Common-Source Reverse Feedback Capacitance vs. Gate-Source Voltage**



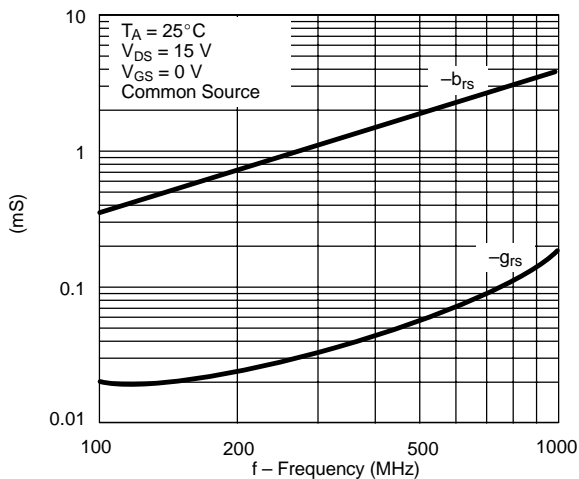
**Input Admittance**



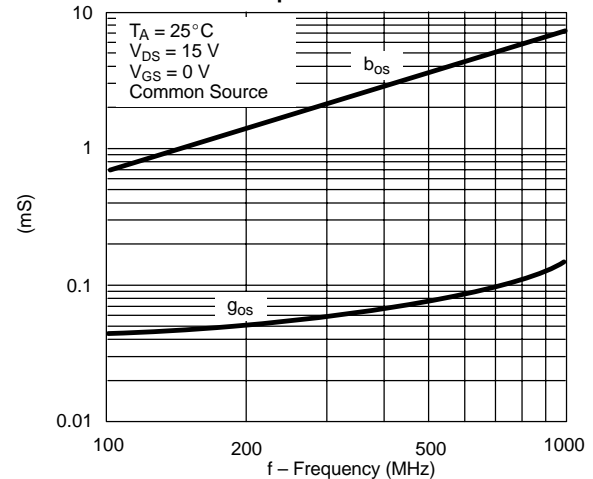
**Forward Admittance**



**Reverse Admittance**



**Output Admittance**





**TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**

