

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

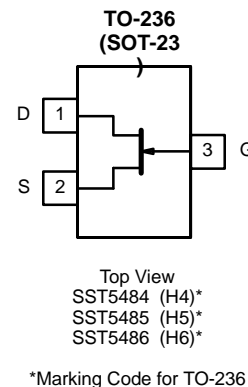
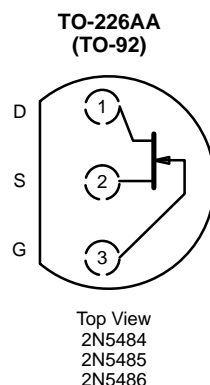
APPLICATIONS

- 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^a 350 mW

Notes
 a. Derate 2.8 mW/°C above 25°C

SPECIFICATIONS FOR 2N SERIES (T _A = 25°C UNLESS OTHERWISE NOTED)										
Parameter	Symbol	Test Conditions	Typ ^a	Limits						Unit
				2N5484		2N5485		2N5486		
				Min	Max	Min	Max	Min	Max	
Static										
Gate-Source Breakdown Voltage	V _{(BR)GSS}	I _G = -1 μA, V _{DS} = 0 V	-35	-25		-25		-25		V
Gate-Source Cutoff Voltage	V _{GS(off)}	V _{DS} = 15 V, I _D = 10 nA		-0.3	-3	-0.5	-4	-2	-6	
Saturation Drain Current ^b	I _{DSS}	V _{DS} = 15 V, V _{GS} = 0 V		1	5	4	10	8	20	mA
Gate Reverse Current	I _{GSS}	V _{GS} = -20 V, V _{DS} = 0 V	-0.002		-1		-1		-1	nA
		T _A = 100°C	-0.2		-200		-200		-200	
Gate Operating Current ^c	I _G	V _{DG} = 10 V, I _D = 1 mA	-20							μA
Gate-Source Forward Voltage ^c	V _{GS(F)}	I _G = 10 mA, V _{DS} = 0 V	0.8							V
Dynamic										
Common-Source Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, V _{GS} = 0 V f = 1 kHz		3	6	3.5	7	4	8	mS
Common-Source Output Conductance ^b	g _{os}				50		60		75	μS
Common-Source Input Capacitance	C _{iss}	V _{DS} = 15 V, V _{GS} = 0 V f = 1 MHz	2.2		5		5		5	pF
Common-Source Reverse Transfer Capacitance	C _{rss}		0.7		1		1		1	
Common-Source Output Capacitance	C _{oss}		1		2		2		2	
Equivalent Input Noise Voltage ^c	e _n	V _{DS} = 15 V, V _{GS} = 0 V f = 100 Hz	10							nV/ √Hz
High-Frequency										
Common-Source Transconductance	Y _{fs(RE)}	V _{DS} = 15 V V _{GS} = 0 V	f = 100 MHz	5.5	2.5					mS
			f = 400 MHz	5.5		3		3.5		
Common-Source Output Conductance	Y _{os(RE)}		f = 100 MHz	45		75				μS
			f = 400 MHz	65			100		100	
Common-Source Input Conductance	Y _{is(RE)}		f = 100 MHz	0.05		0.1				mS
			f = 400 MHz	0.8			1		1	
Common-Source Power Gain	G _{ps}	V _{DS} = 15 V, I _D = 1 mA f = 100 MHz	20	16	25					dB
		V _{DS} = 15 V I _D = 4 mA	f = 100 MHz	21		18	30	18	30	
			f = 400 MHz	13		10	20	10	20	
Noise Figure	NF	V _{DS} = 15 V, V _{GS} = 0 V R _G = 1 MΩ, f = 1 kHz	0.3		2.5		2.5		2.5	dB
		V _{DS} = 15 V, I _D = 1 mA R _G = 1 kΩ, f = 100 MHz	2		3					
		V _{DS} = 15 V I _D = 4 mA R _G = 1 kΩ	f = 100 MHz	1			2		2	
			f = 400 MHz	2.5			4		4	



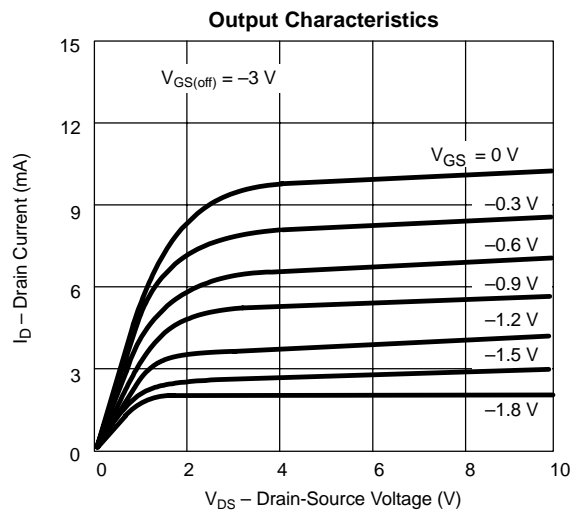
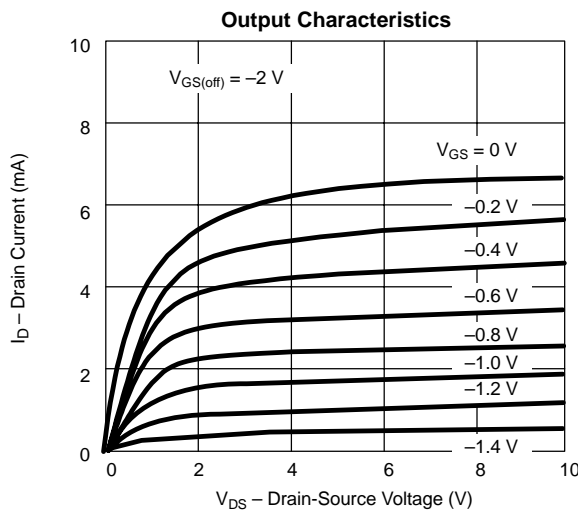
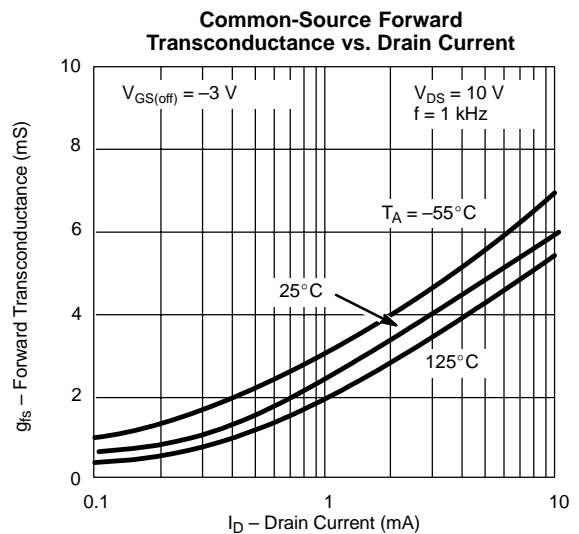
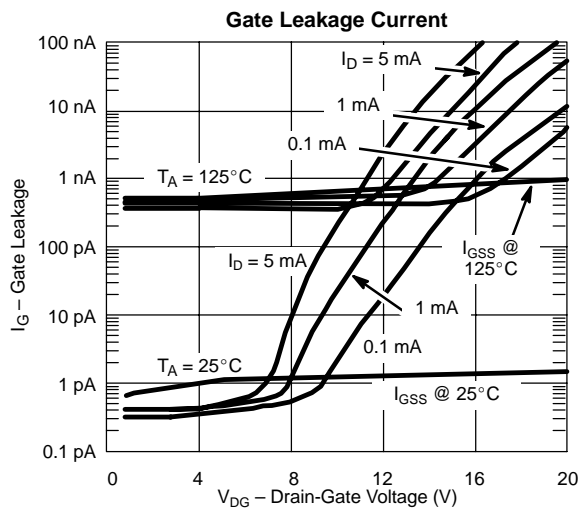
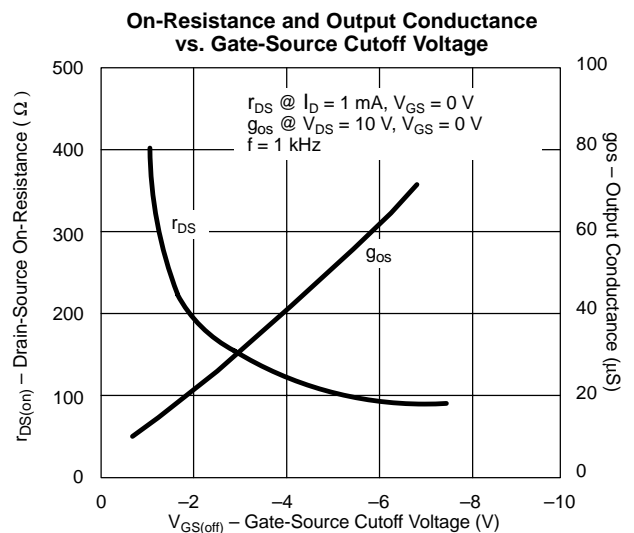
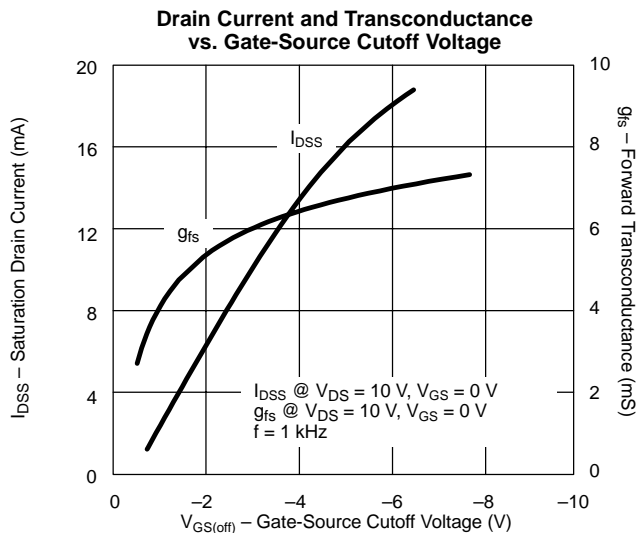
SPECIFICATIONS FOR SST SERIES (T _A = 25 °C UNLESS OTHERWISE NOTED)										
Parameter	Symbol	Test Conditions	Typ ^b	Limits						Unit
				SST5484		SST5485		SST5486		
				Min	Max	Min	Max	Min	Max	
Static										
Gate-Source Breakdown Voltage	V _{(BR)GSS}	I _G = -1 μA, V _{DS} = 0 V	-35	-25		-25		-25		V
Gate-Source Cutoff Voltage	V _{GS(off)}	V _{DS} = 15 V, I _D = 10 nA		-0.3	-3	-0.5	-4	-2	-6	
Saturation Drain Current ^b	I _{DSS}	V _{DS} = 15 V, V _{GS} = 0 V		1	5	4	10	8	20	mA
Gate Reverse Current	I _{GSS}	V _{GS} = -20 V, V _{DS} = 0 V	-0.002		-1		-1		-1	nA
		T _A = 100 °C	-0.2		-200		-200		-200	
Gate Operating Current ^c	I _G	V _{DG} = 10 V, I _D = 1 mA	-20							pA
Gate-Source Forward Voltage ^c	V _{GS(F)}	I _G = 10 mA, V _{DS} = 0 V	0.8							V
Dynamic										
Common-Source Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, V _{GS} = 0 V f = 1 kHz		3	6	3.5	7	4	8	mS
Common-Source Output Conductance ^b	g _{os}				50		60		75	μS
Common-Source Input Capacitance	C _{iss}	V _{DS} = 15 V, V _{GS} = 0 V f = 1 MHz	2.2							pF
Common-Source Reverse Transfer Capacitance	C _{rss}		0.7							
Common-Source Output Capacitance	C _{oss}		1							
Equivalent Input Noise Voltage ^c	e _n	V _{DS} = 15 V, V _{GS} = 0 V f = 100 Hz	10							nV/ √Hz
High-Frequency										
Common-Source Transconductance	Y _{fs}	V _{DS} = 15 V V _{GS} = 0 V	f = 100 MHz	5.5						mS
			f = 400 MHz	5.5						
Common-Source Output Conductance	Y _{os}		f = 100 MHz	45						μS
			f = 400 MHz	65						
Common-Source Input Conductance	Y _{is}		f = 100 MHz	0.05						mS
			f = 400 MHz	0.8						
Common-Source Power Gain	G _{ps}	V _{DS} = 15 V, I _D = 1 mA f = 100 MHz	20							dB
		V _{DS} = 15 V I _D = 4 mA	f = 100 MHz	21						
			f = 400 MHz	13						
Noise Figure	NF	V _{DS} = 15 V, V _{GS} = 0 V R _G = 1 MΩ, f = 1 kHz	0.3							dB
		V _{DS} = 15 V, I _D = 1 mA R _G = 1 kΩ, f = 100 MHz	2							
		V _{DS} = 15 V I _D = 4 mA R _G = 1 kΩ	f = 100 MHz	1						
f = 400 MHz	2.5									

Notes

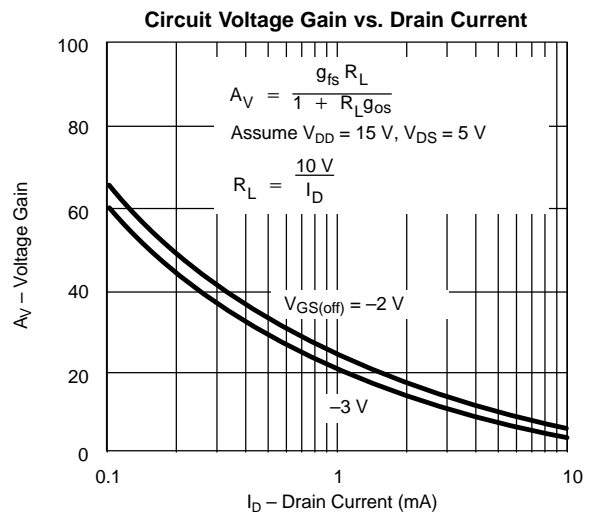
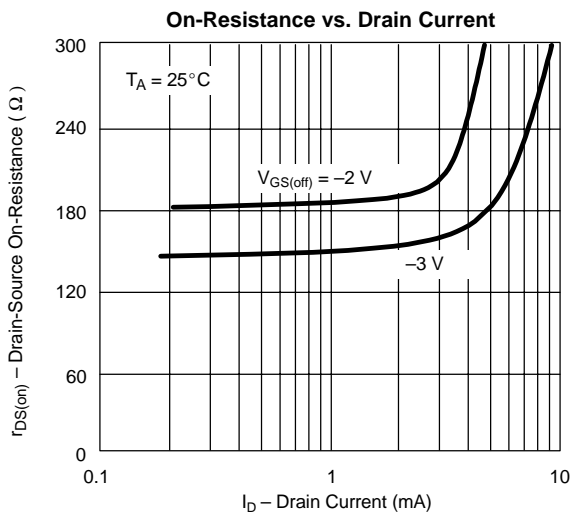
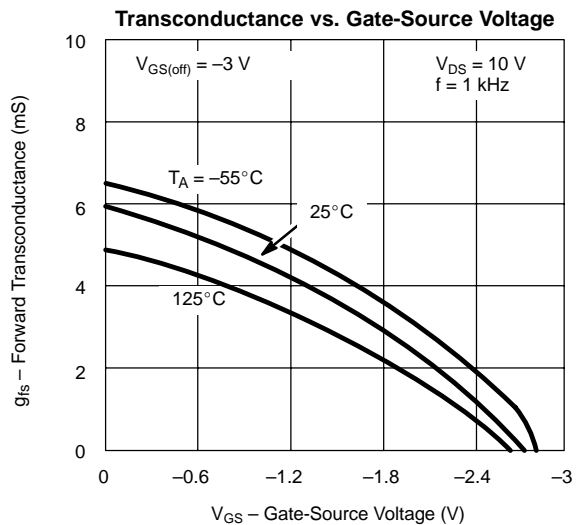
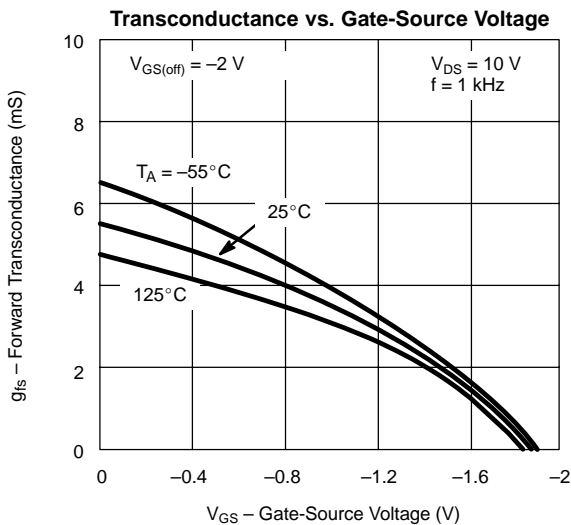
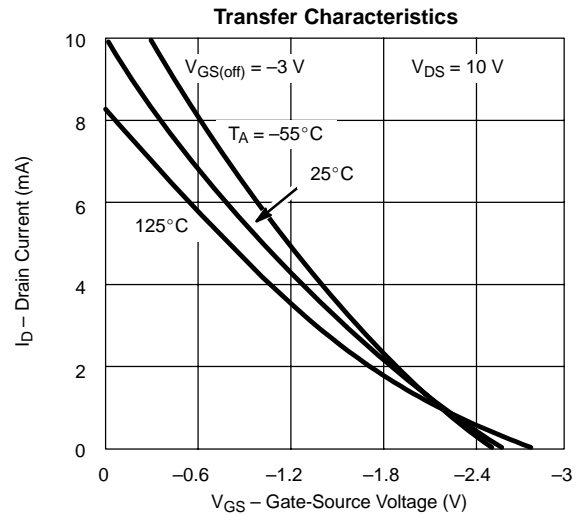
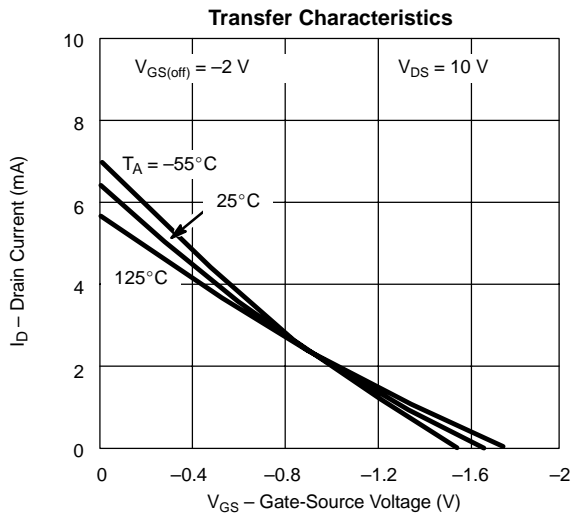
- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.
- c. This parameter not registered with JEDEC.

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

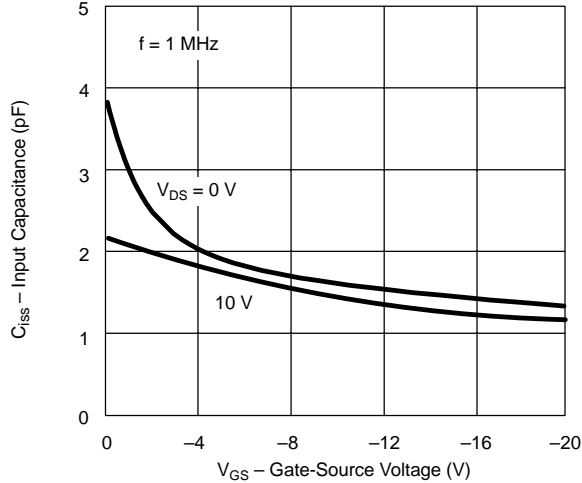


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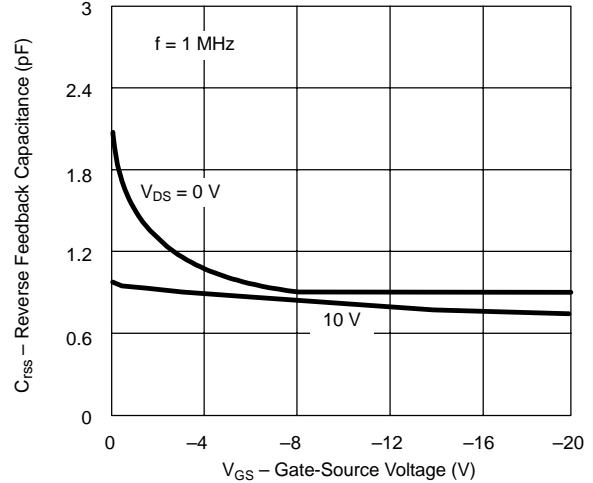


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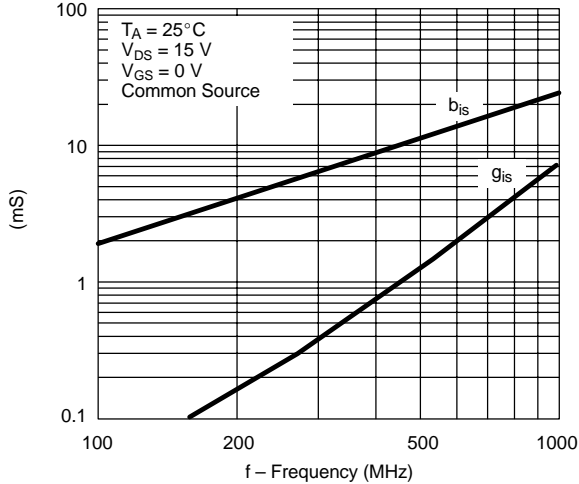
Common-Source Input Capacitance vs. Gate-Source Voltage



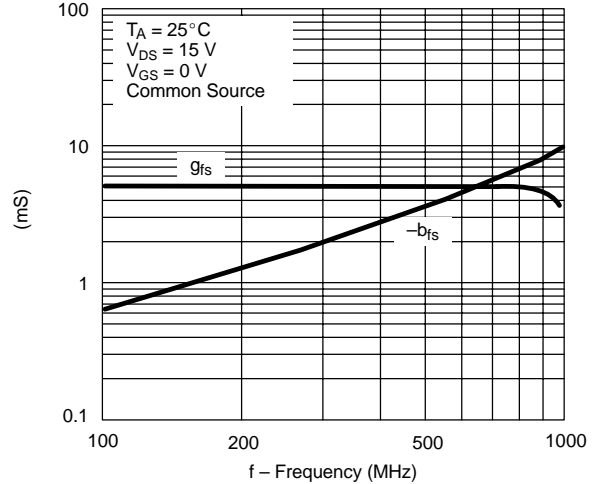
Common-Source Reverse Feedback Capacitance vs. Gate-Source Voltage



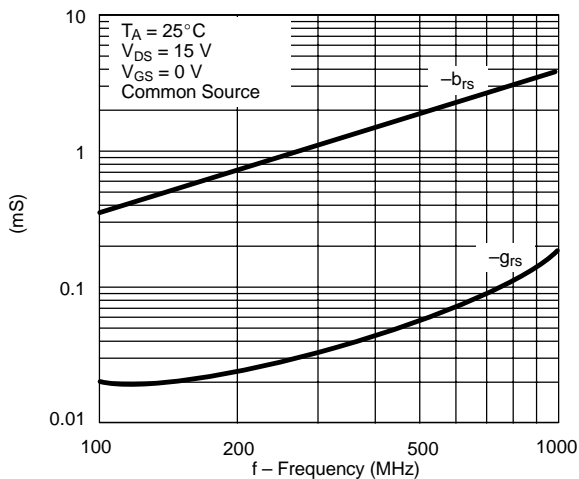
Input Admittance



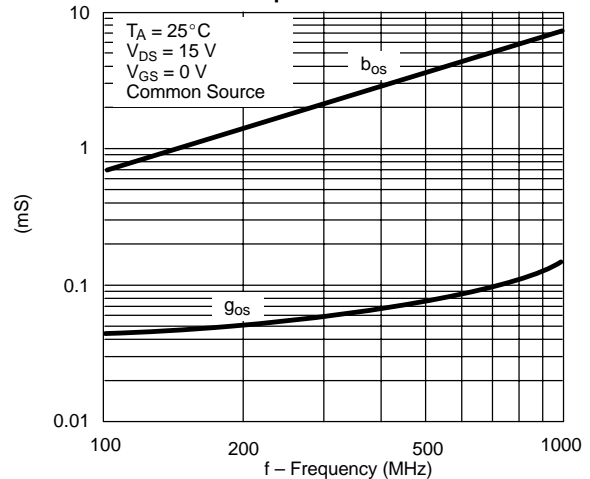
Forward Admittance



Reverse Admittance



Output Admittance



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

