

## N-Channel JFETs

**J210**            **SSTJ211**  
**J211**            **SSTJ212**  
**J212**

<b>PRODUCT SUMMARY</b>				
Part Number	$V_{GS(off)}$ (V)	$V_{(BR)GSS}$ Min (V)	$g_{fs}$ Min (mS)	$I_{DSS}$ Min (mA)
J210	-1 to -3	-25	4	2
J/SSTJ211	-2.5 to -4.5	-25	6	7
J/SSTJ212	-4 to -6	-25	7	15

### FEATURES

- Excellent High Frequency Gain: J211/212, Gps 12 dB (typ) @ 400 MHz
- Very Low Noise: 3 dB (typ) @ 400 MHz
- Very Low Distortion
- High ac/dc Switch Off-Isolation
- High Gain:  $A_V = 35$  @ 100  $\mu$ A

### BENEFITS

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

### APPLICATIONS

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

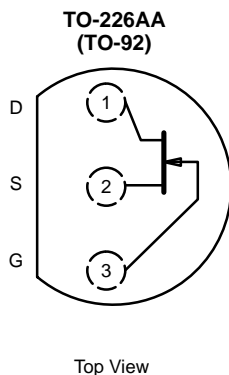
### DESCRIPTION

The J/SSTJ210 Series n-channel JFETs are general-purpose and high-frequency amplifiers for a wide range of applications. These devices feature low leakage ( $I_{GSS} < 100$  pA).

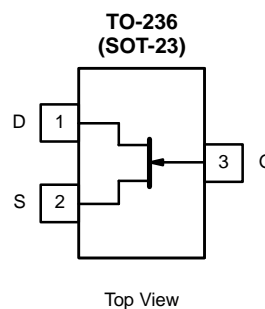
capability. The J/SSTJ210 Series is available in tape-and-reel for automated assembly (see Packaging Information).

The TO-226AA (TO-92) plastic package, provides low cost while the TO-236 (SOT-23) package provides surface-mount

For similar dual products, see the 2N5911/5912 and U440/441 data sheets.



J210  
 J211  
 J212



SSTJ211 (Z1)\*  
 SSTJ212 (Z2)\*  
 \*Marking Code for TO-236

For applications information see AN104.



### ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage ..... -25 V  
 Gate Current ..... 10 mA  
 Lead Temperature (1/16" from case for 10 sec.) ..... 300°C  
 Storage Temperature ..... -55 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

<b>SPECIFICATIONS (T<sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)</b>										
Parameter	Symbol	Test Conditions	Typ <sup>a</sup>	Limits						Unit
				J210		J/SSTJ211		J/SSTJ212		
				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> = 1 nA		-1	-3	-2.5	-4.5	-4	-6	
Saturation Drain Current <sup>b</sup>	I <sub>DSS</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V		2	15	7	20	15	40	mA
Gate Reverse Current	I <sub>GSS</sub>	V <sub>GS</sub> = -15 V, V <sub>DS</sub> = 0 V	-1		-100		-100		-100	pA
		T <sub>A</sub> = 125°C	-0.5							nA
Gate Operating Current <sup>a</sup>	I <sub>G</sub>	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 1 mA	-1							pA
Drain Cutoff Current	I <sub>D(off)</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = -8 V	1							
Gate-Source Forward Voltage	V <sub>GS(F)</sub>	I <sub>G</sub> = 1 mA, V <sub>DS</sub> = 0 V	0.7							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		4	12	6	12	7	12	mS
Common-Source Output Conductance	g <sub>os</sub>				150		200		200	μS
Common-Source Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 1 MHz	4							pF
Common-Source Reverse Transfer Capacitance	C <sub>rss</sub>		1.5							
Equivalent Input Noise Voltage	e <sub>n</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 1 kHz	5							nV/ √Hz

**Notes**

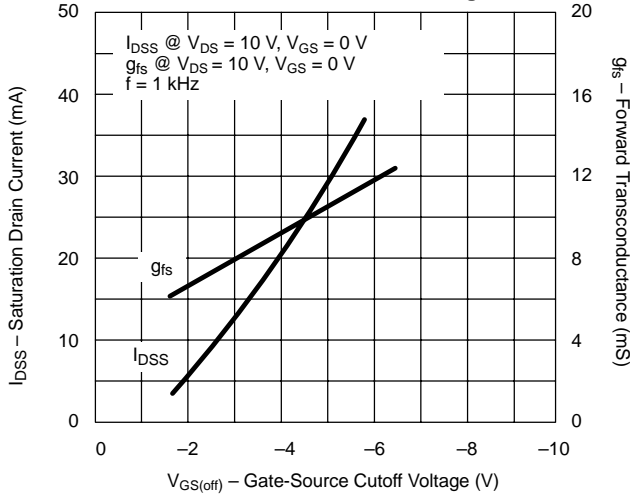
a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.

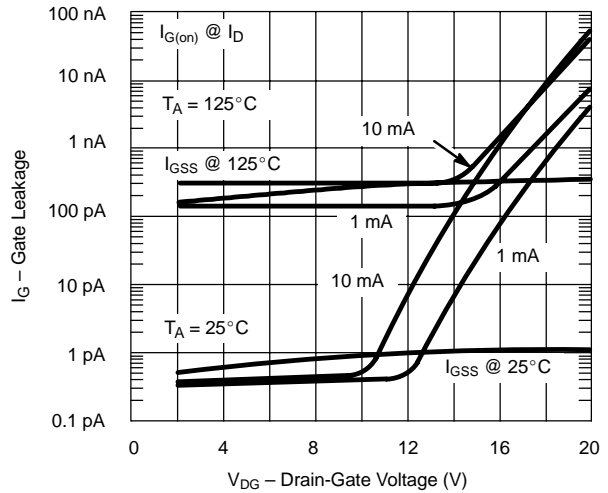
NZF

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

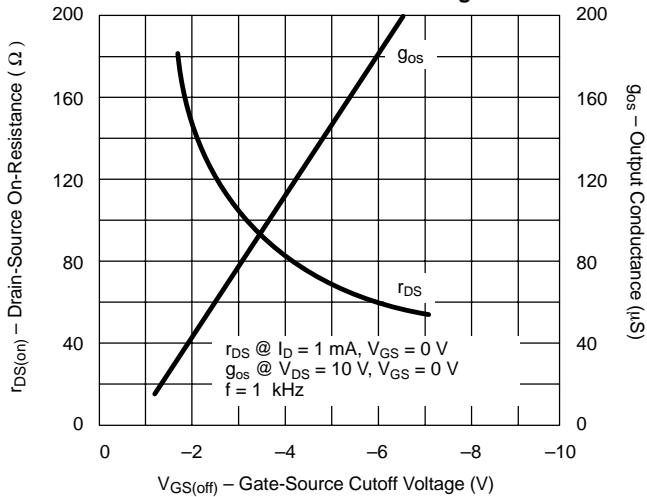
**Drain Current and Transconductance vs. Gate-Source Cutoff Voltage**



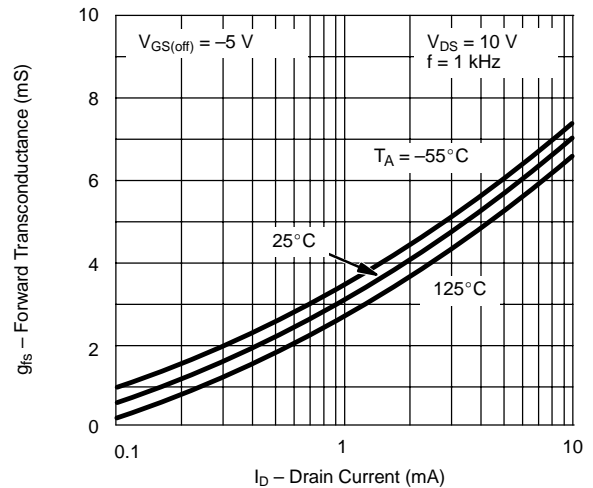
**Gate Leakage Current**



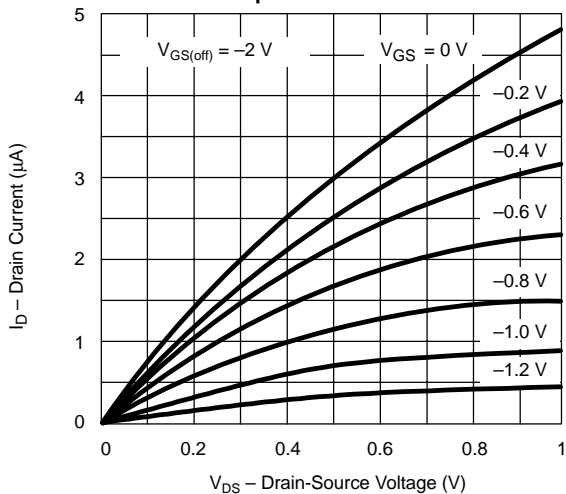
**On-Resistance and Output Conductance vs. Gate-Source Cutoff Voltage**



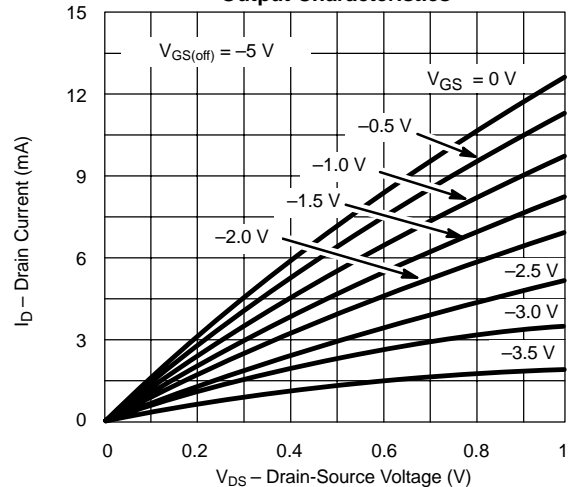
**Common-Source Forward Transconductance vs. Drain Current**



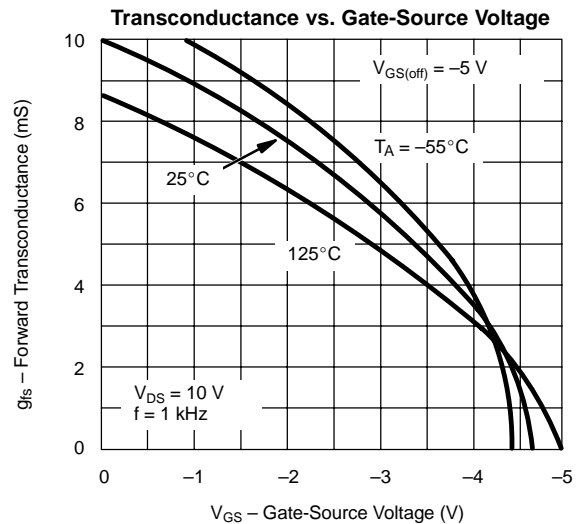
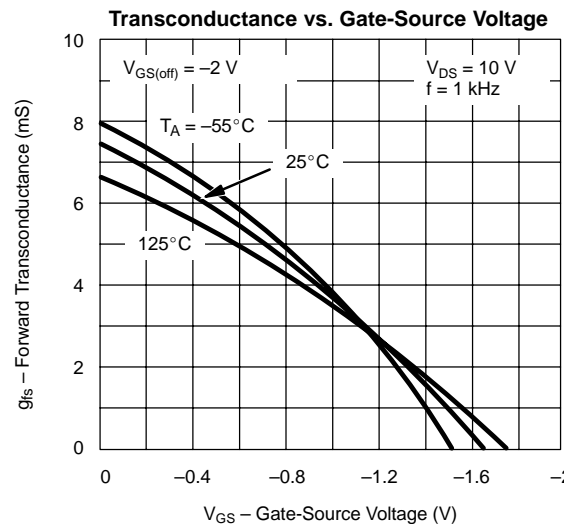
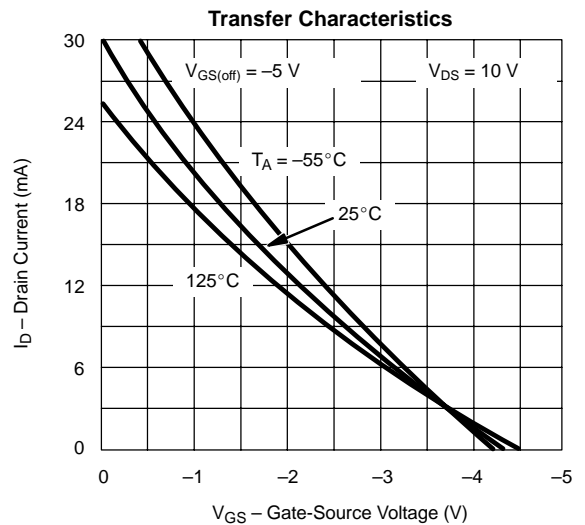
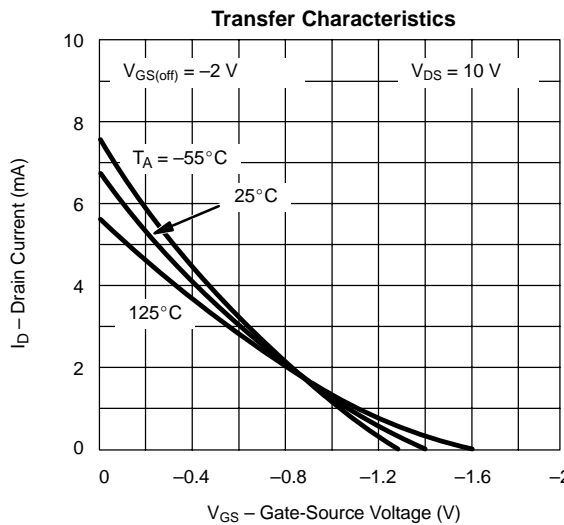
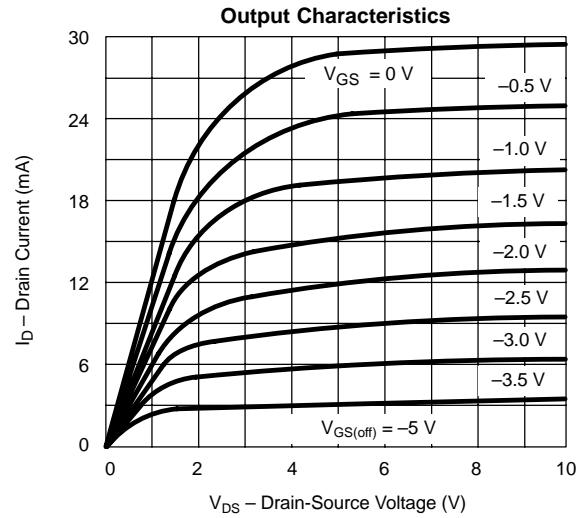
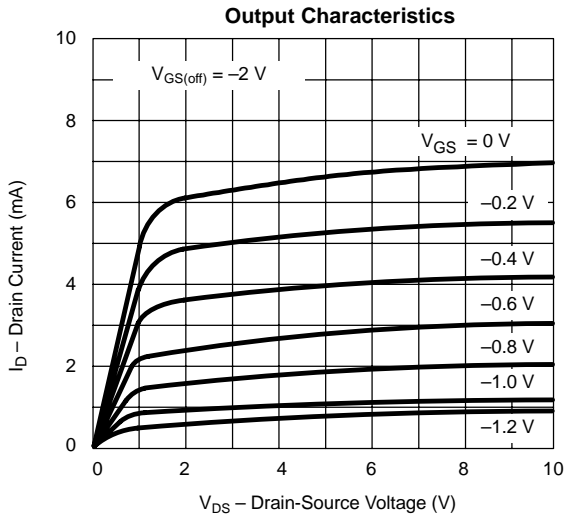
**Output Characteristics**



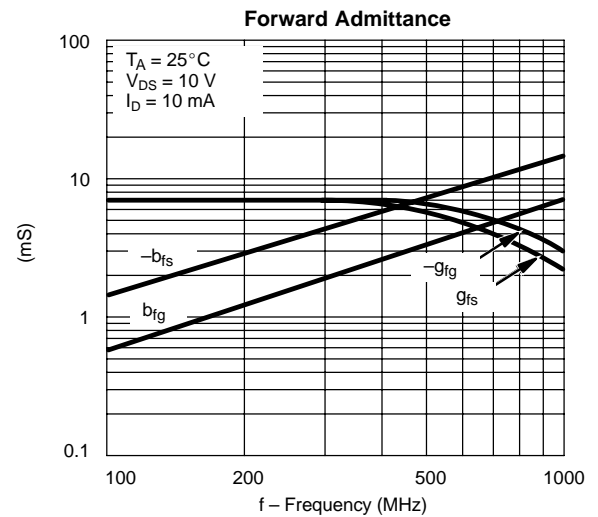
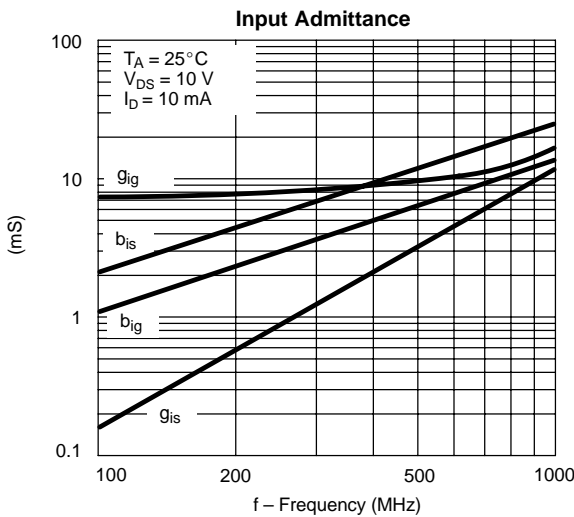
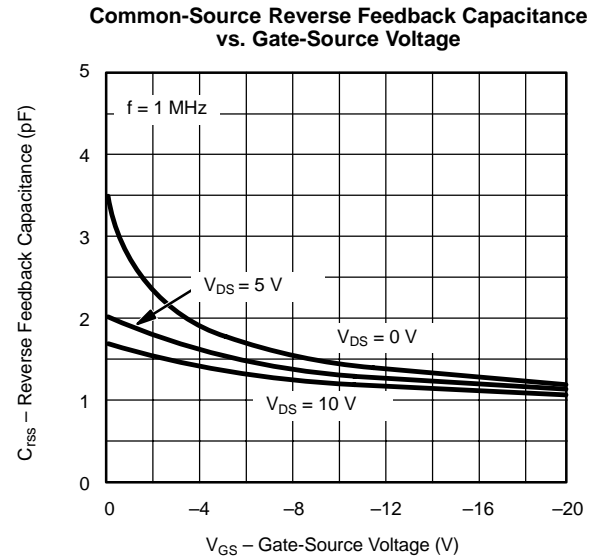
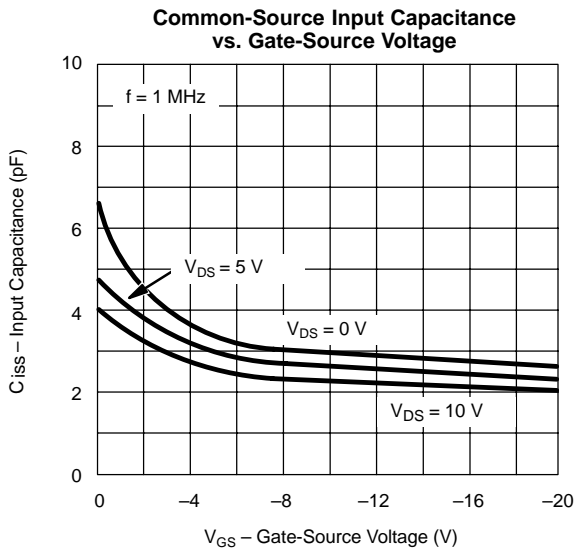
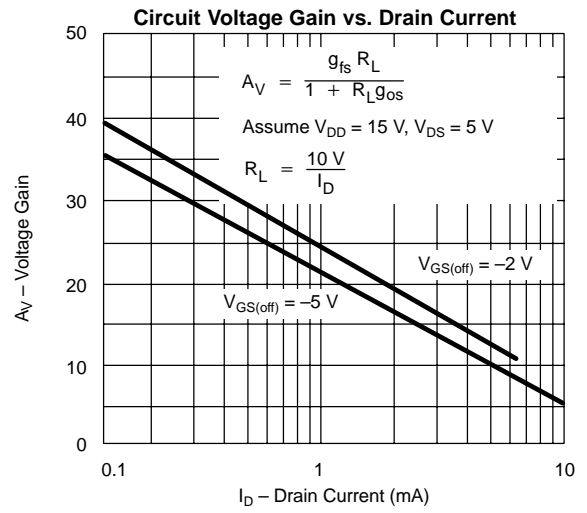
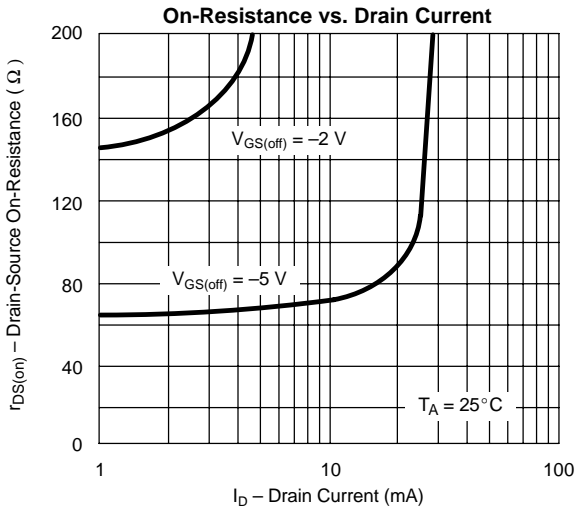
**Output Characteristics**



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

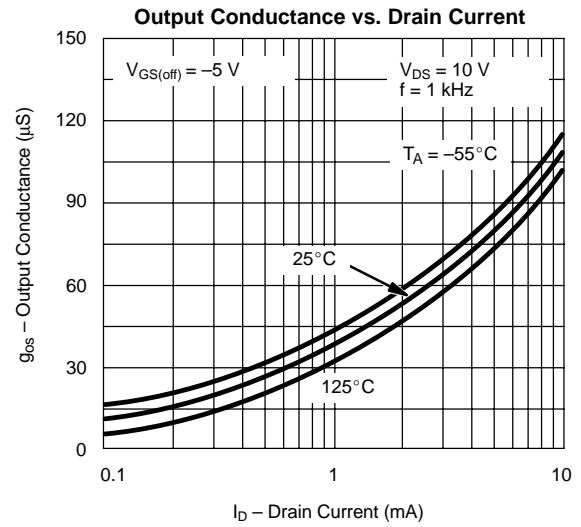
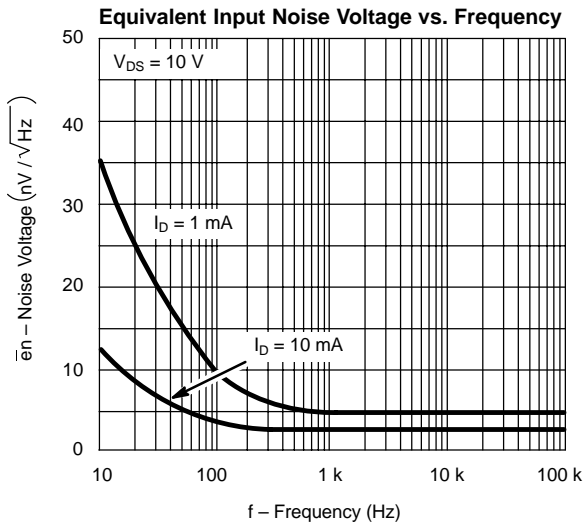
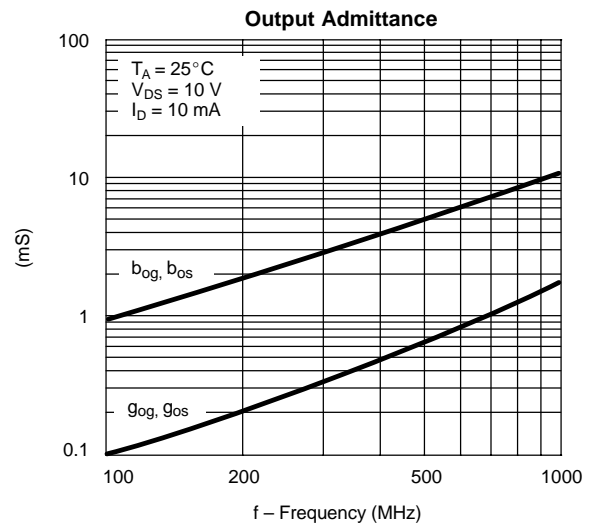
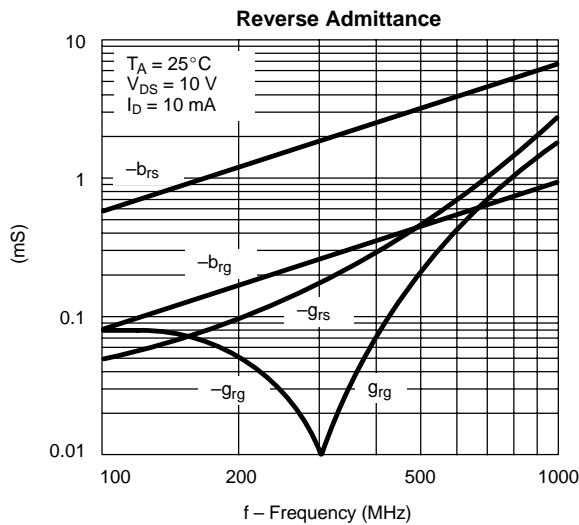


### TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)





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