



## N-Channel JFETs

J210                      SSTJ211  
J211                      SSTJ212  
J212

| PRODUCT SUMMARY |                   |                       |                   |                    |
|-----------------|-------------------|-----------------------|-------------------|--------------------|
| 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

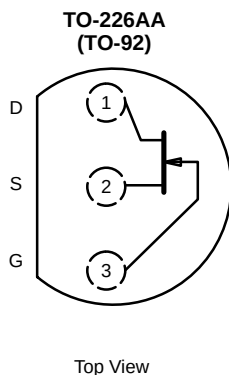
### DESCRIPTION

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).

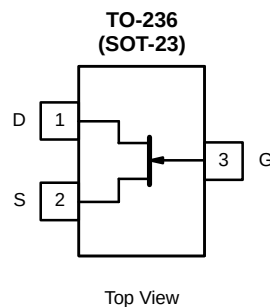
capability. The J/SSTJ210 Series is available in tape-and-reel for automated assembly (see Packaging Information).

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

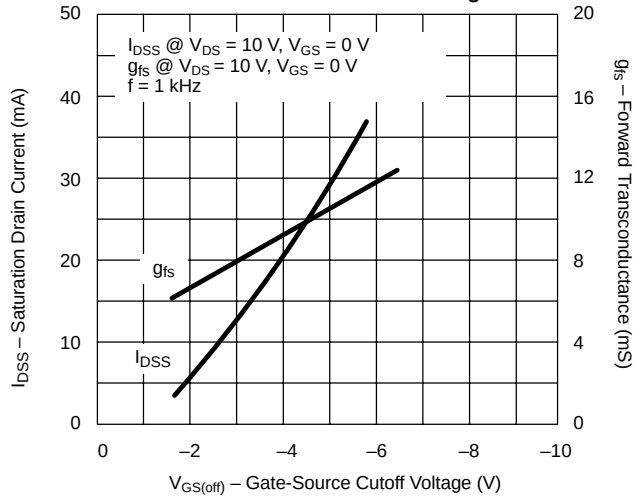
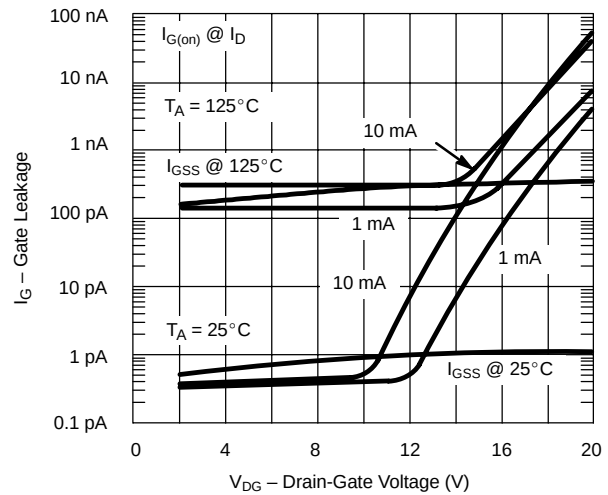
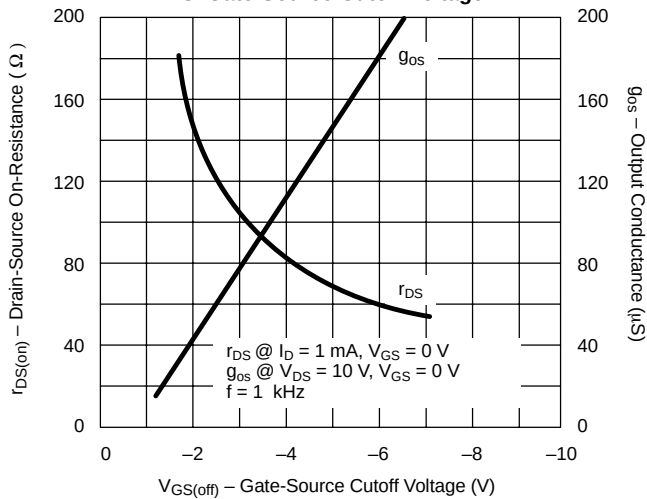
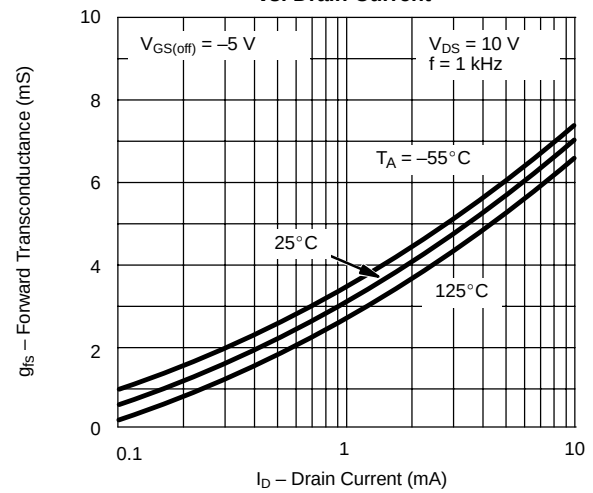
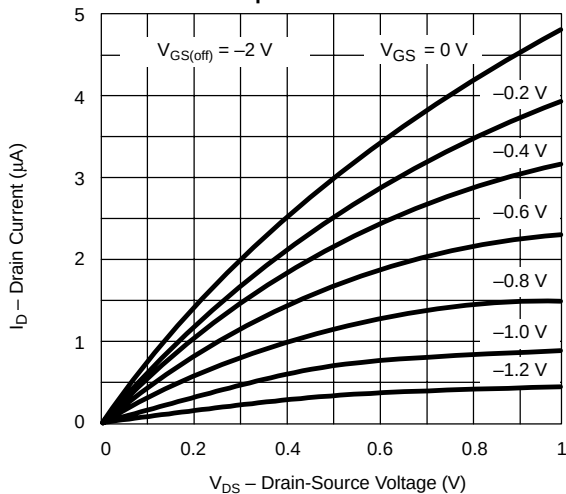
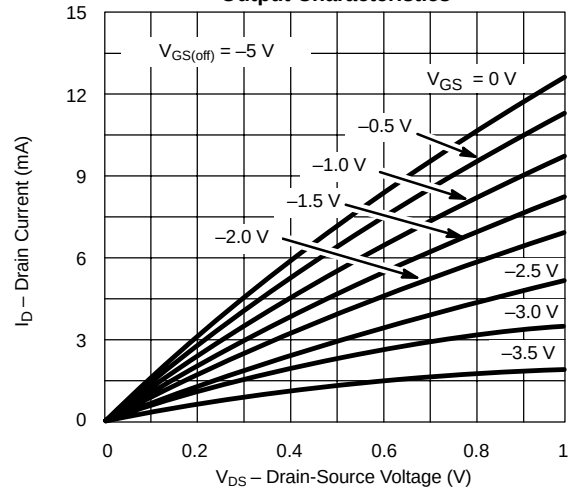
SPECIFICATIONS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)

| Parameter                                           | Symbol               | Test Conditions                                            | Typ <sup>a</sup> | Limits |      |           |      |           |      | Unit       |
|-----------------------------------------------------|----------------------|------------------------------------------------------------|------------------|--------|------|-----------|------|-----------|------|------------|
|                                                     |                      |                                                            |                  | J210   |      | J/SSTJ211 |      | J/SSTJ212 |      |            |
|                                                     |                      |                                                            |                  | Min    | Max  | Min       | Max  | Min       | Max  |            |
| Static                                              |                      |                                                            |                  |        |      |           |      |           |      |            |
| 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          |
| Dynamic                                             |                      |                                                            |                  |        |      |           |      |           |      |            |
| Common-Source Forward Transconductance <sup>b</sup> | g <sub>fs</sub>      | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V<br>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<br>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<br>f = 1 kHz | 5                |        |      |           |      |           |      | nV/<br>√Hz |

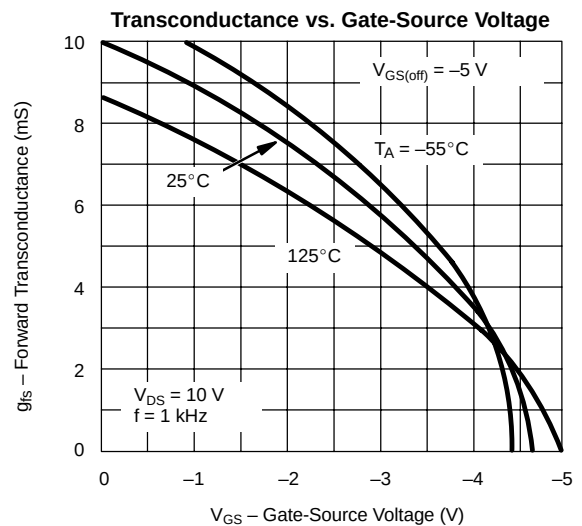
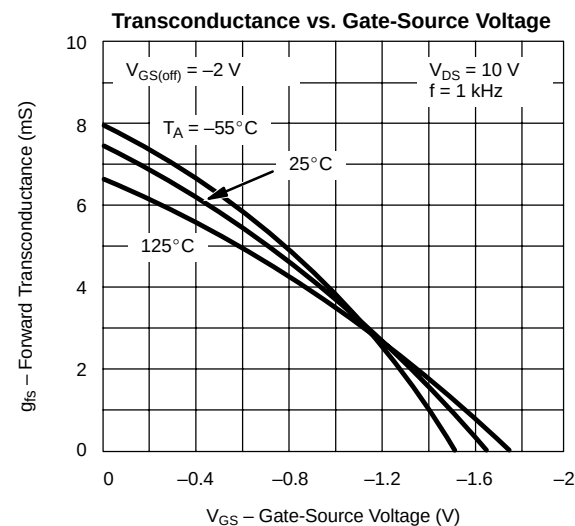
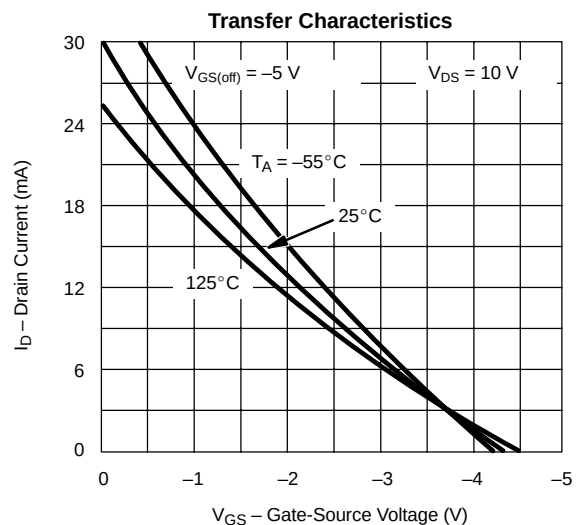
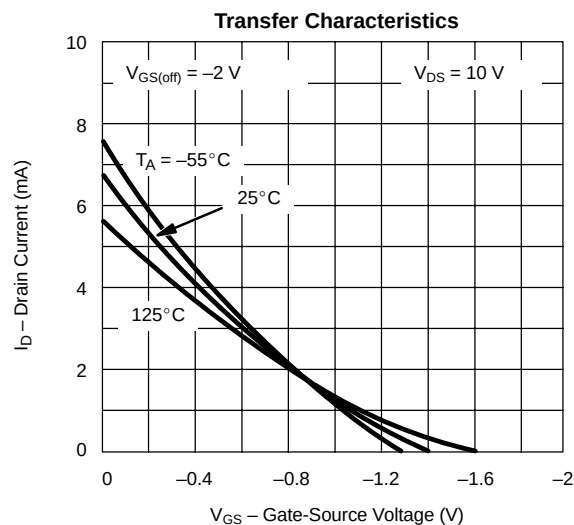
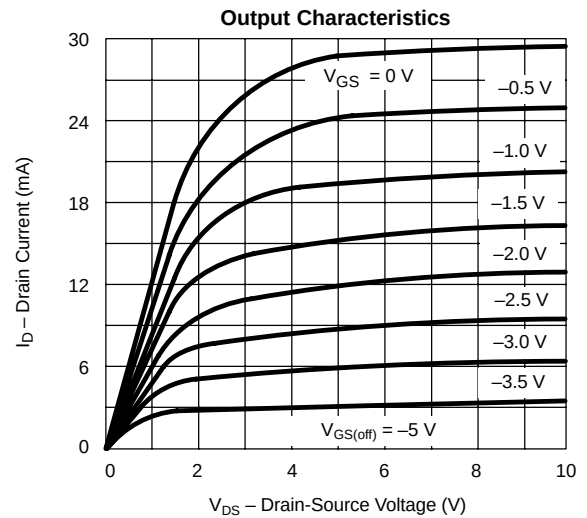
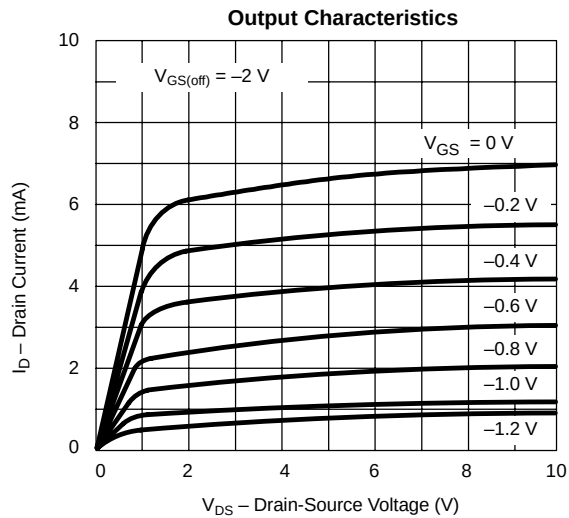
## Notes

- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.  
 b. Pulse test:  $PW \leq 300\ \mu\text{s}$  duty cycle  $\leq 3\%$ .

NZF

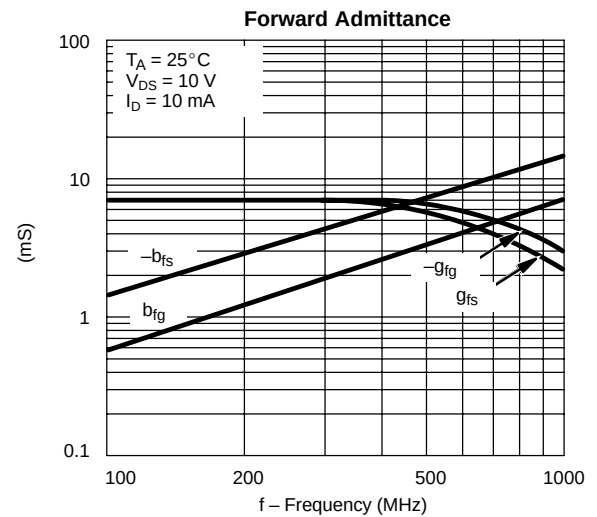
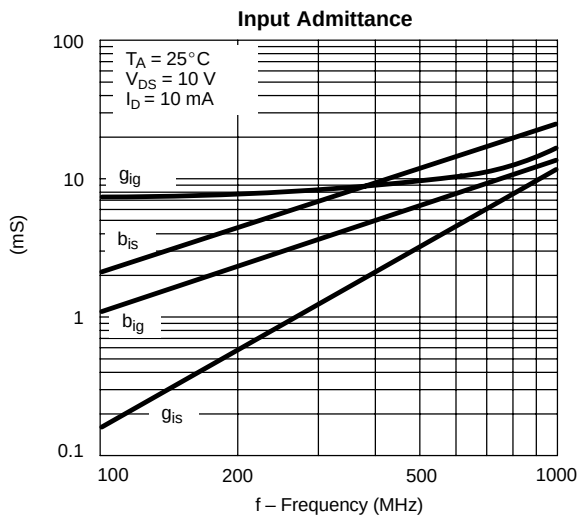
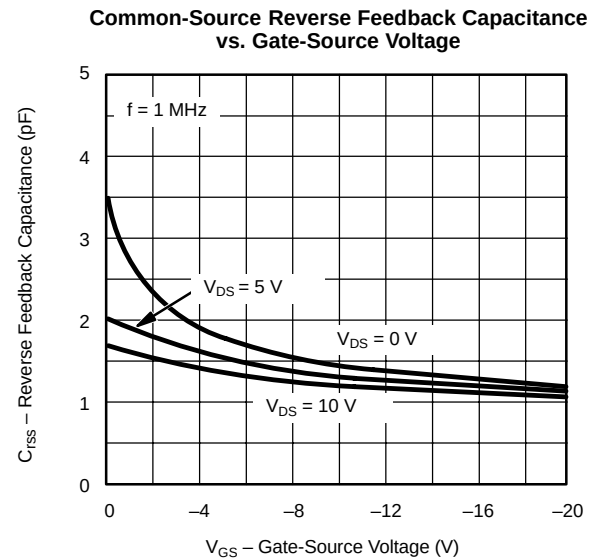
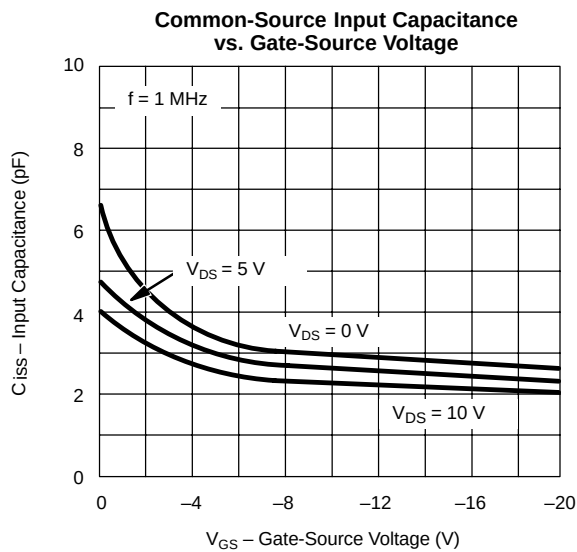
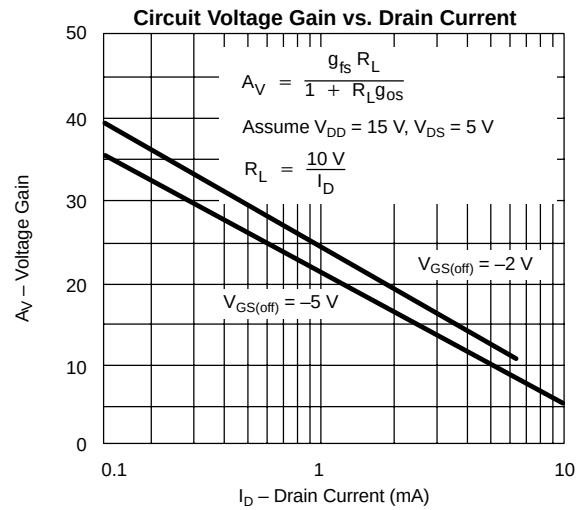
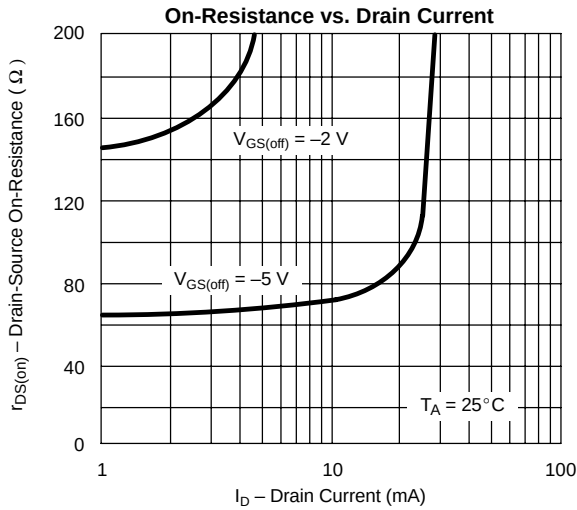
**TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)****Drain Current and Transconductance  
vs. Gate-Source Cutoff Voltage****Gate Leakage Current****On-Resistance and Output Conductance  
vs. Gate-Source Cutoff Voltage****Common-Source Forward Transconductance  
vs. Drain Current****Output Characteristics****Output Characteristics**

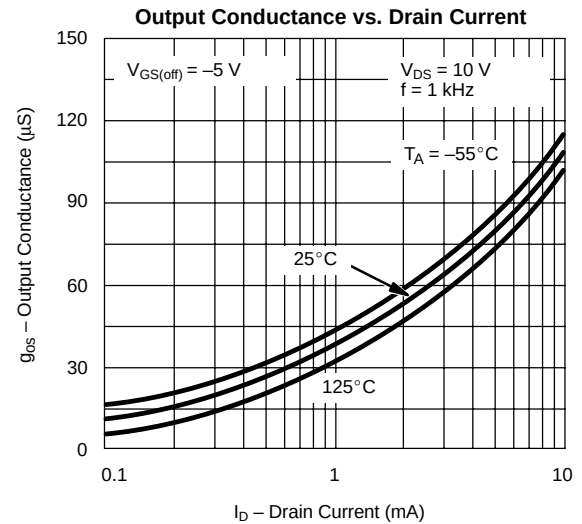
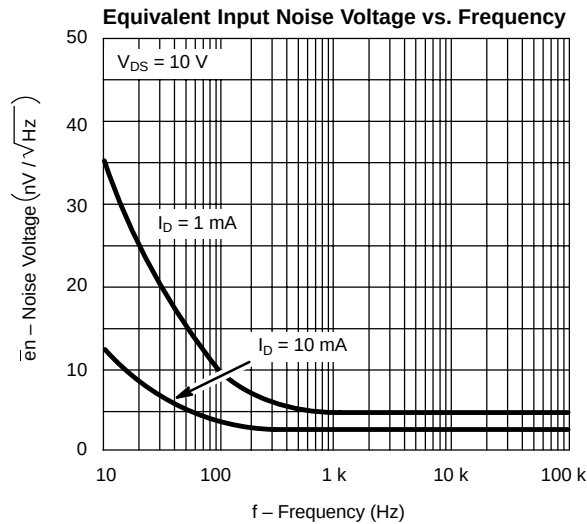
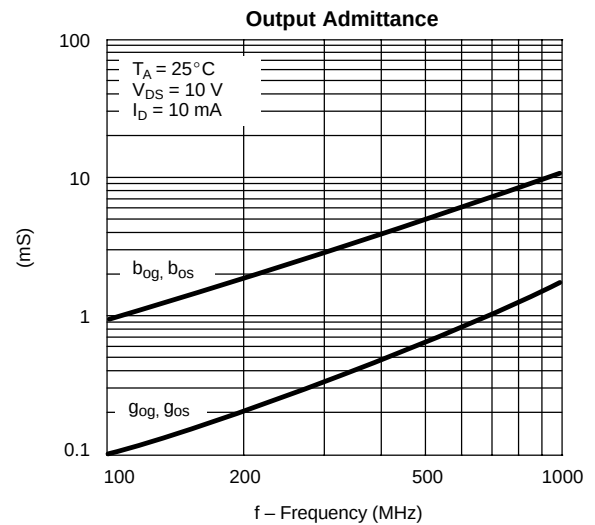
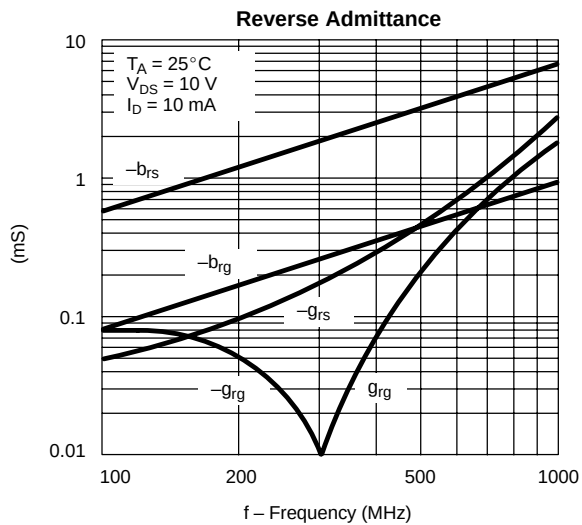
### TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)





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



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