



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

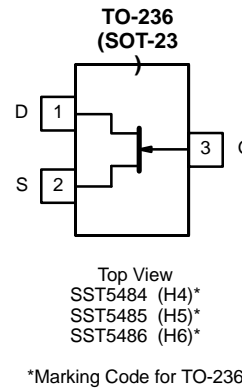
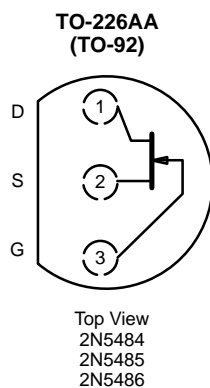
APPLICATIONS

- 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 | | | | | | | 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 | | 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 | |

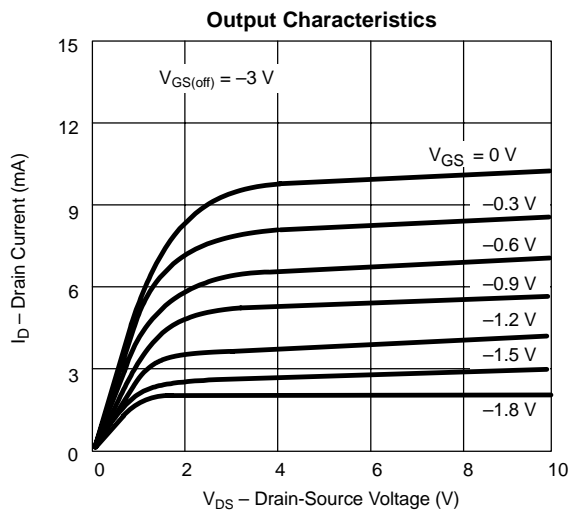
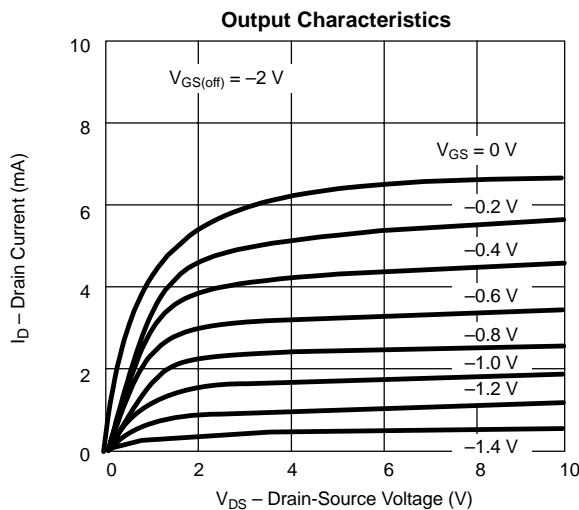
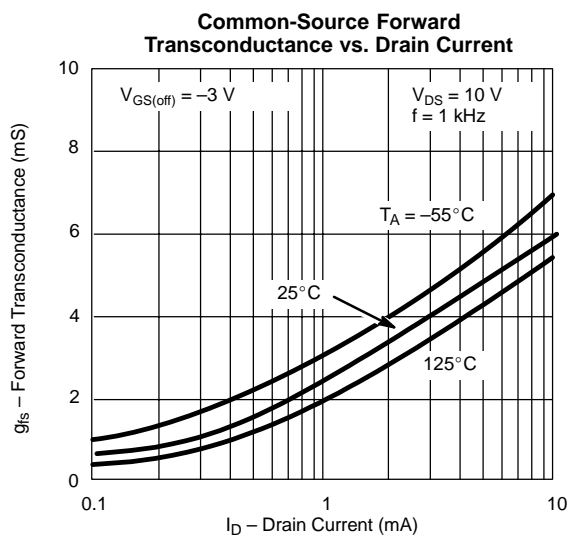
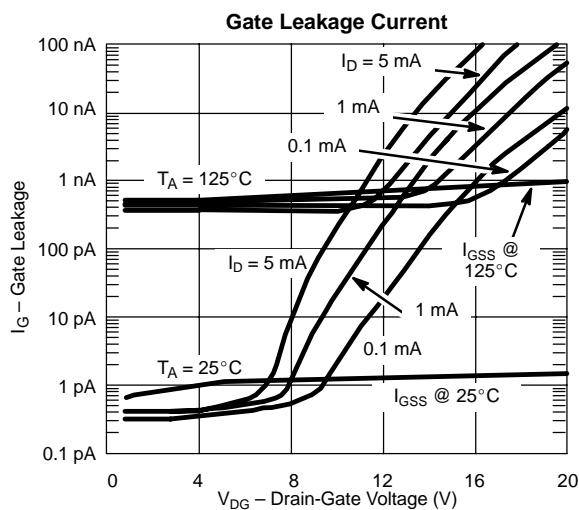
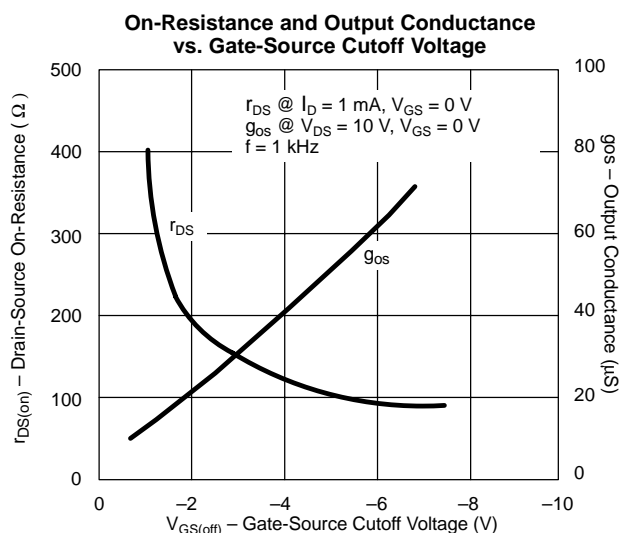
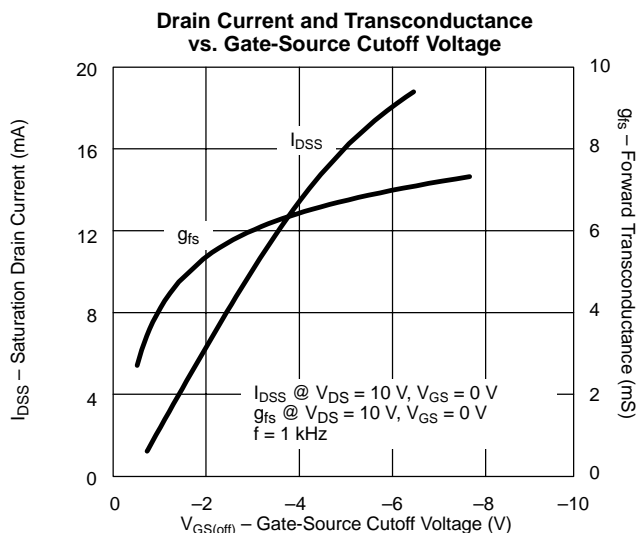


SPECIFICATIONS FOR SST SERIES (T_A = 25 °C UNLESS OTHERWISE NOTED)

| 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 | | | | | | |

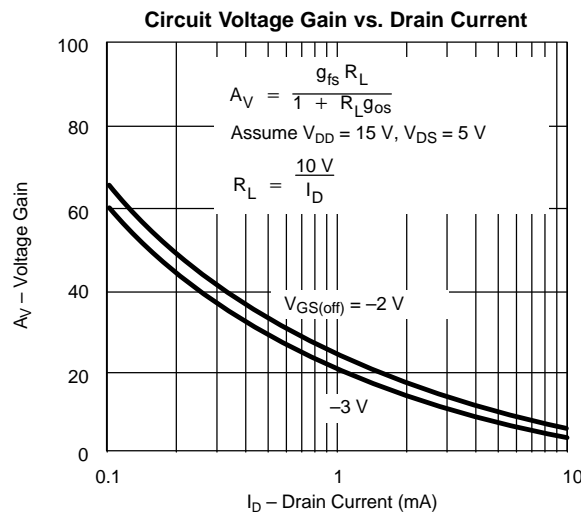
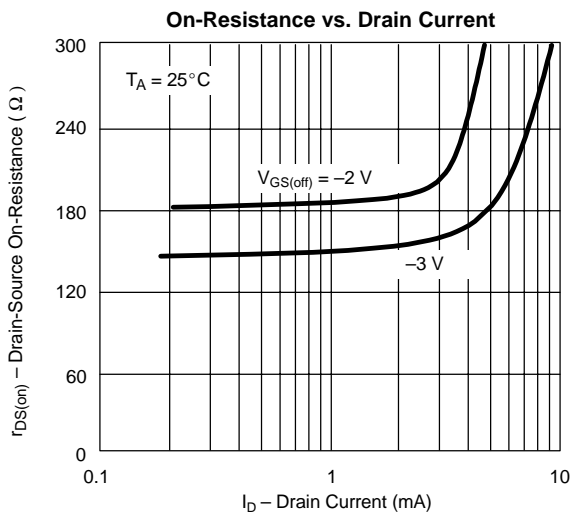
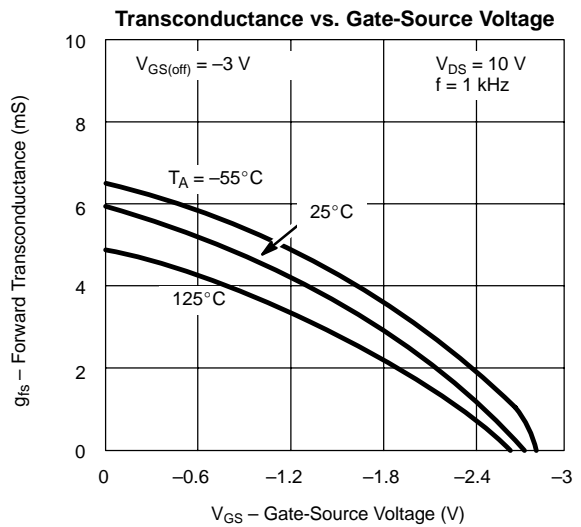
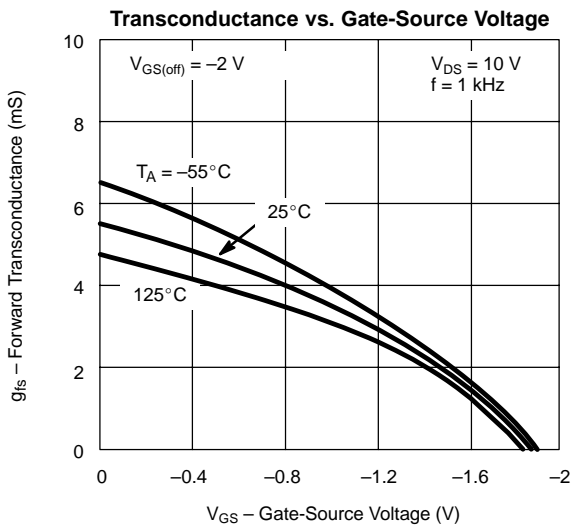
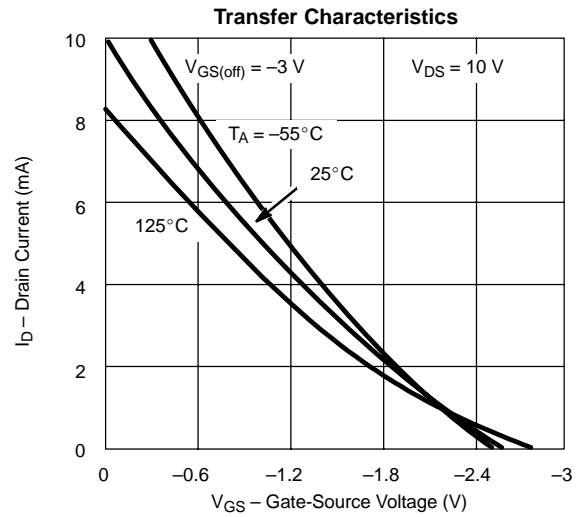
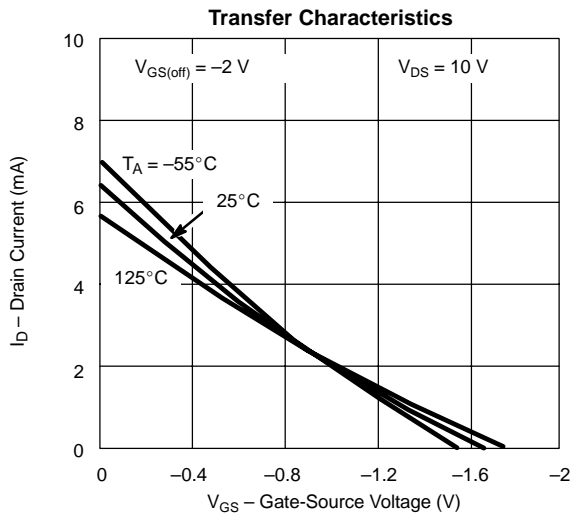
Notes
a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.
c. This parameter not registered with JEDEC.

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



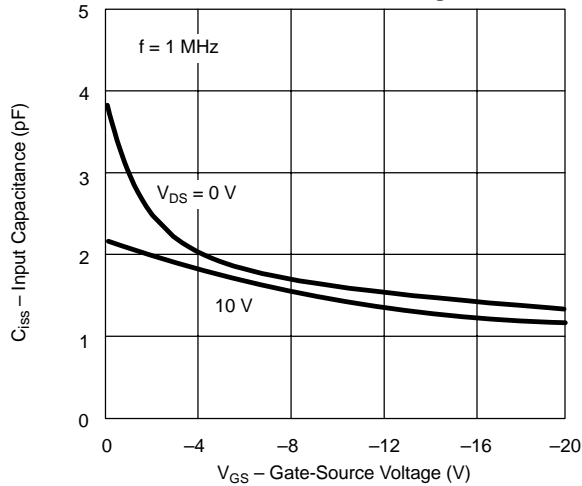


TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

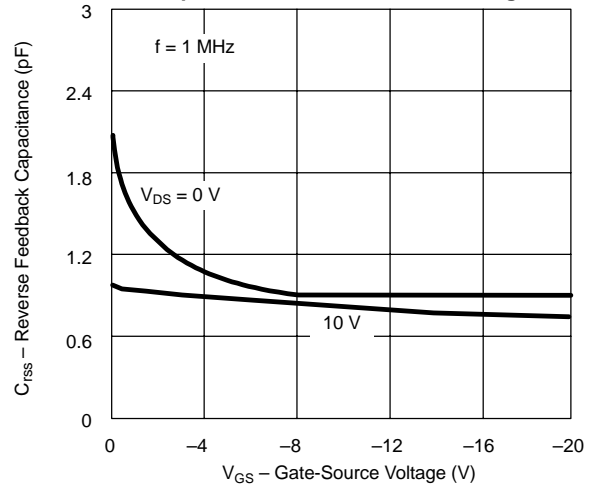


TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

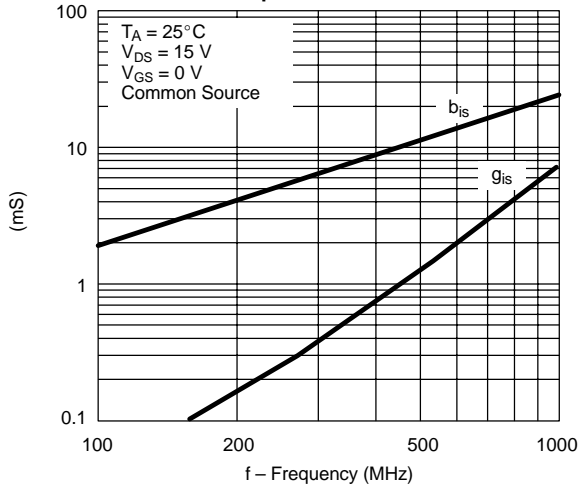
Common-Source Input Capacitance vs. Gate-Source Voltage



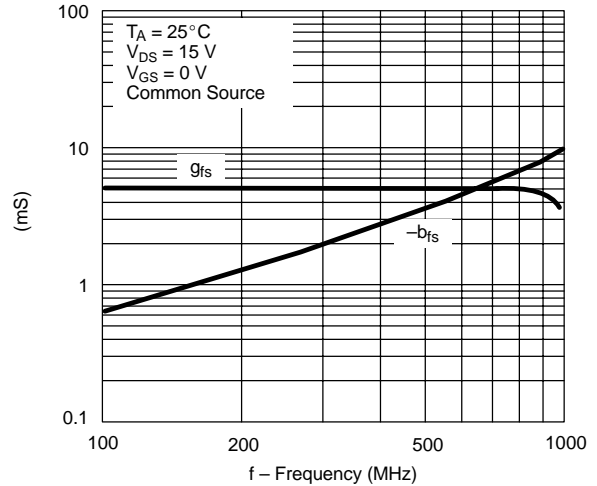
Common-Source Reverse Feedback Capacitance vs. Gate-Source Voltage



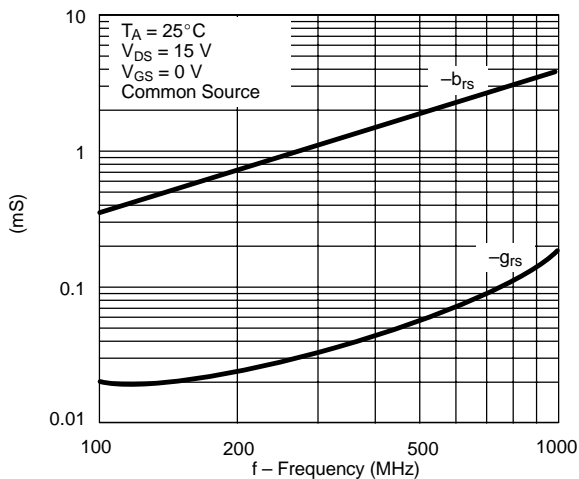
Input Admittance



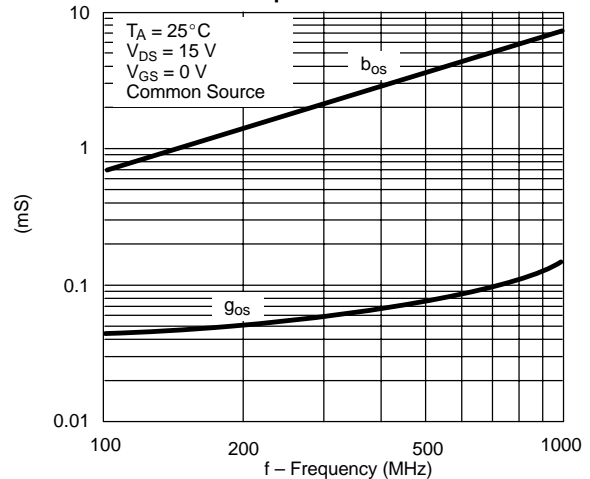
Forward Admittance



Reverse Admittance



Output Admittance





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

