## SPECIFICATIONS ($T_A$ = 25°C UNLESS OTHERWISE NOTED)

| Parameter | Symbol | Test Conditions | Typ[a] | Limits 2N5564 Min | 2N5564 Max | 2N5565 Min | 2N5565 Max | 2N5566 Min | 2N5566 Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Static** | | | | | | | | | | |
| Gate-Source Breakdown Voltage | $V_{(BR)GSS}$ | $I_G$ = −1 μA, $V_{DS}$ = 0 V | −55 | −40 | | −40 | | −40 | | V |
| Gate-Source Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}$ = 15 V, $I_D$ = 1 nA | −2 | −0.5 | −3 | −0.5 | −3 | −0.5 | −3 | V |
| Saturation Drain Current[b] | $I_{DSS}$ | $V_{DS}$ = 15 V, $V_{GS}$ = 0 V | 20 | 5 | 30 | 5 | 30 | 5 | 30 | mA |
| Gate Reverse Current | $I_{GSS}$ | $V_{GS}$ = −20 V, $V_{DS}$ = 0 V | −5 | | −100 | | −100 | | −100 | pA |
| | | $T_A$ = 150°C | −10 | | −200 | | −200 | | −200 | nA |
| Gate Operating Current[c] | $I_G$ | $V_{DG}$ = 15 V, $I_D$ = 2 mA | −3 | | | | | | | pA |
| | | $T_A$ = 125°C | −1 | | | | | | | nA |
| Drain-Source On-Resistance | $r_{DS(on)}$ | $V_{GS}$ = 0 V, $I_D$ = 1 mA | 50 | | 100 | | 100 | | 100 | Ω |
| Gate-Source Voltage[c] | $V_{GS}$ | $V_{DG}$ = 15 V, $I_D$ = 2 mA | −1.2 | | | | | | | V |
| Gate-Source Forward Voltage | $V_{GS(F)}$ | $I_G$ = 2 mA , $V_{DS}$ = 0 V | 0.7 | | 1 | | 1 | | 1 | V |
| **Dynamic** | | | | | | | | | | |
| Common-Source Forward Transconductance | $g_{fs}$ | $V_{DS}$ = 15 V, $I_D$ = 2 mA f = 1 kHz | 9 | 7.5 | 12.5 | 7.5 | 12.5 | 7.5 | 12.5 | mS |
| Common-Source Output Conductance | $g_{os}$ | | 35 | | 45 | | 45 | | 45 | μS |
| Common-Source Forward Transconductance[d] | $g_{fs}$ | $V_{DS}$ = 15 V, $I_D$ = 2 mA f = 100 MHz | 8.5 | 7 | | 7 | | 7 | | mS |
| Common-Source Input Capacitance | $C_{iss}$ | $V_{DS}$ = 15 V, $I_D$ = 2 mA f = 1 MHz | 10 | | 12 | | 12 | | 12 | pF |
| Common-Source Reverse Transfer Capacitance | $C_{rss}$ | | 2.5 | | 3 | | 3 | | 3 | pF |
| Equivalent Input Noise Voltage | $\overline{e}_n$ | $V_{DS}$ = 15 V, $I_D$ = 2 mA f = 10 Hz | 12 | | 50 | | 50 | | 50 | $\frac{nV}{\sqrt{Hz}}$ |
| Noise Figure | NF | $R_G$ = 10 MΩ | | | 1 | | 1 | | 1 | dB |
| **Matching** | | | | | | | | | | |
| Differential Gate-Source Voltage | $\lvert V_{GS1} - V_{GS2} \rvert$ | $V_{DG}$ = 15 V, $I_D$ = 2 mA | | | 5 | | 10 | | 20 | mV |
| Gate-Source Voltage Differential Change with Temperature | $\frac{\Delta \lvert V_{GS1} - V_{GS2} \rvert}{\Delta T}$ | $V_{DG}$ = 15 V, $I_D$ = 2 mA $T_A$ = −55 to 125°C | | | 10 | | 25 | | 50 | $\frac{\mu V}{°C}$ |
| Saturation Drain Current Ratio[c] | $\frac{I_{DSS1}}{I_{DSS2}}$ | $V_{DS}$ = 15 V, $V_{GS}$ = 0 V | 0.98 | 0.95 | 1 | 0.95 | 1 | 0.95 | 1 | |
| Transconductance Ratio | $\frac{g_{fs1}}{g_{fs2}}$ | $V_{DS}$ = 15 V, $I_D$ = 2 mA f = 1 kHz | 0.98 | 0.95 | 1 | 0.90 | 1 | 0.90 | 1 | |
| Common Mode Rejection Ratio[c] | CMRR | $V_{DG}$ = 10 to 20 V $I_D$ = 2 mA | 76 | | | | | | | dB |

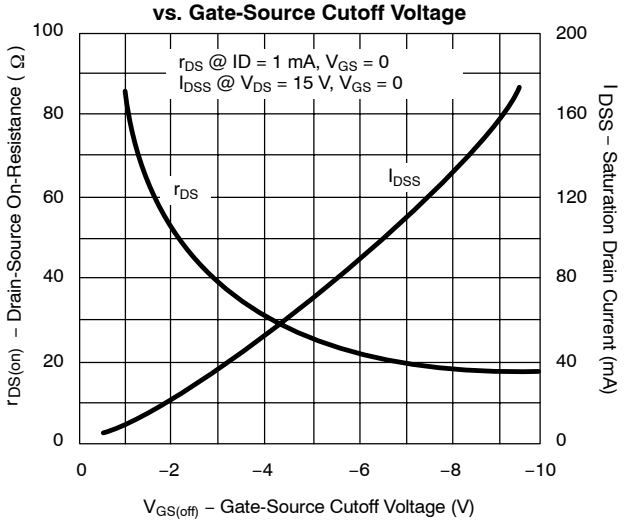
Notes
a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
b. Pulse test: PW ≤300 μs duty cycle ≤3%.
c. This parameter not registered with JEDEC.
d. Not a production test.

NCBD

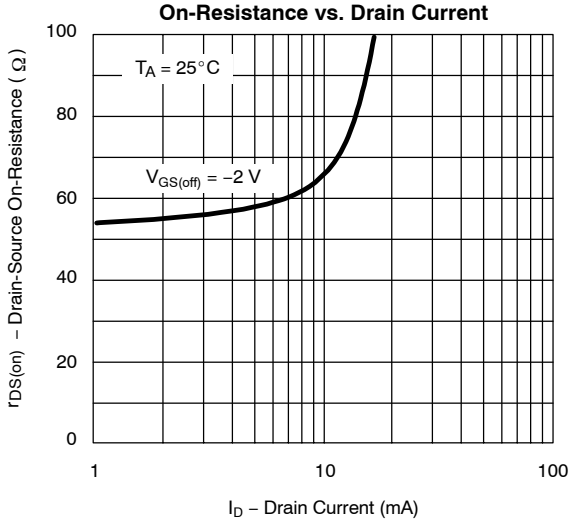
*Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.*

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

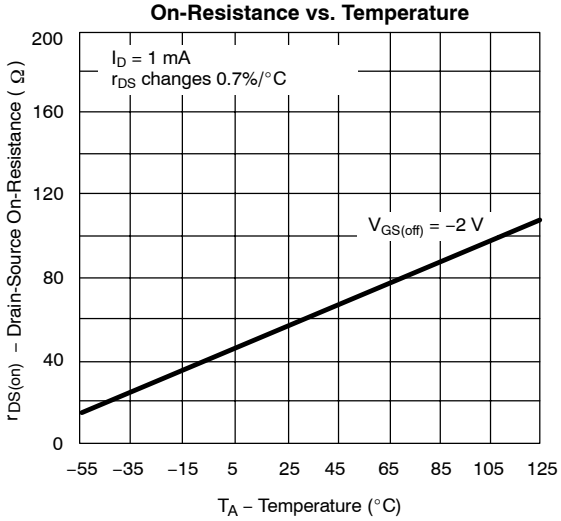
**On-Resistance and Drain Current vs. Gate-Source Cutoff Voltage**



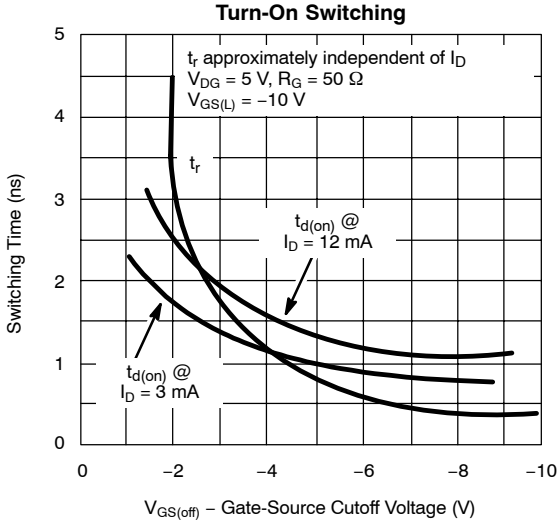

**On-Resistance vs. Drain Current**



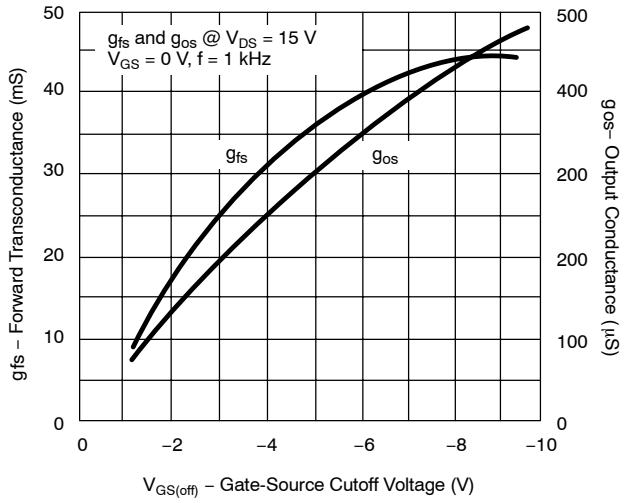

**On-Resistance vs. Temperature**



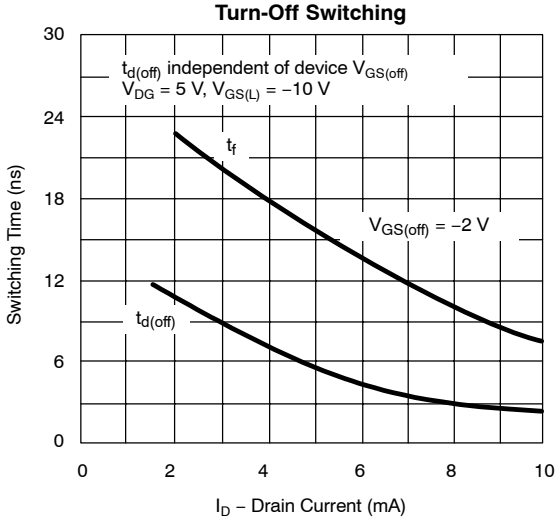

**Turn-On Switching**




**Forward Transconductance and Output Conductance vs. Gate-Source Cutoff Voltage**

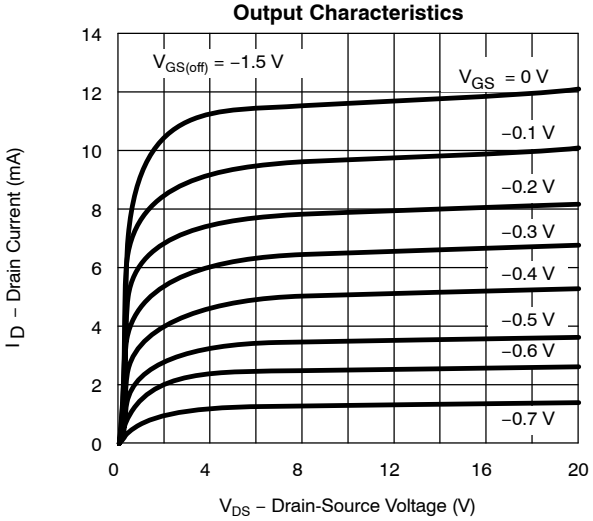



**Turn-Off Switching**

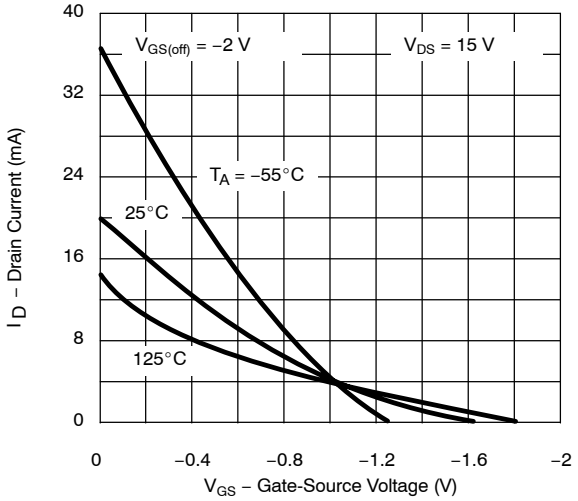


## TYPICAL CHARACTERISTICS ($T_A$ = 25°C UNLESS OTHERWISE NOTED)

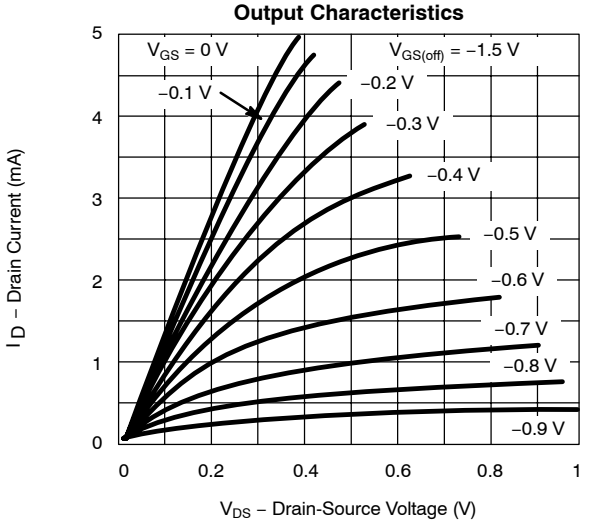
**Output Characteristics**



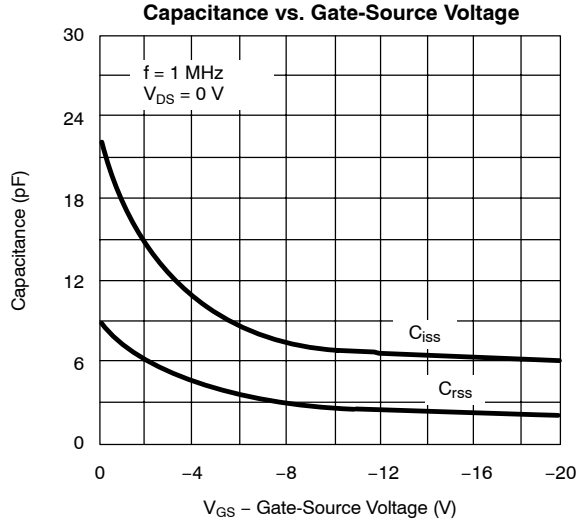

**Transfer Characteristics**



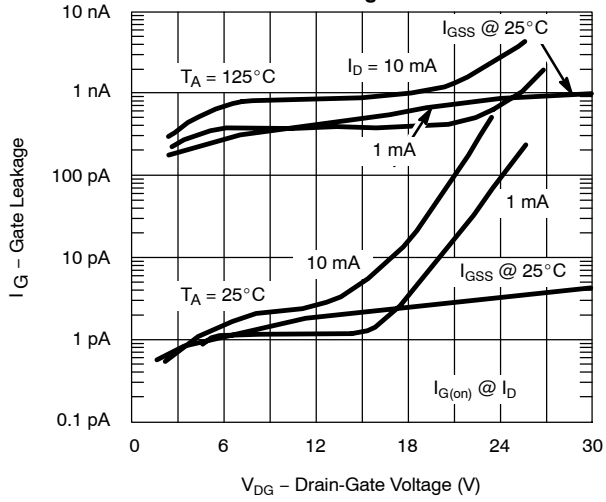

**Output Characteristics**



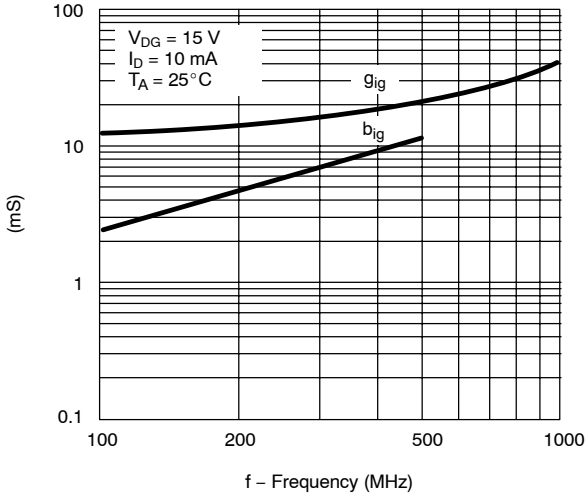

**Capacitance vs. Gate-Source Voltage**




**Gate Leakage Current**

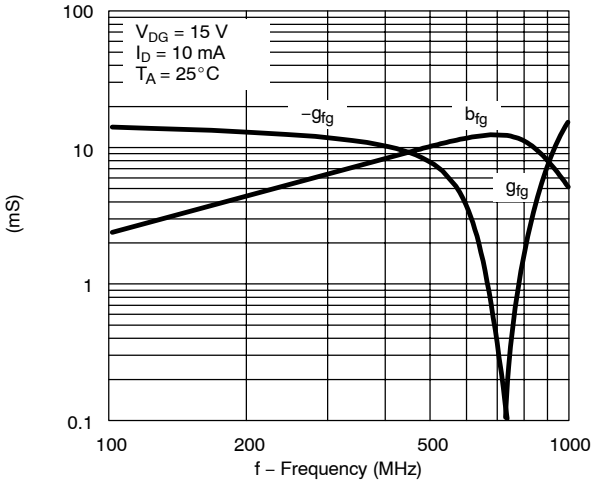



**Common-Gate Input Admittance**

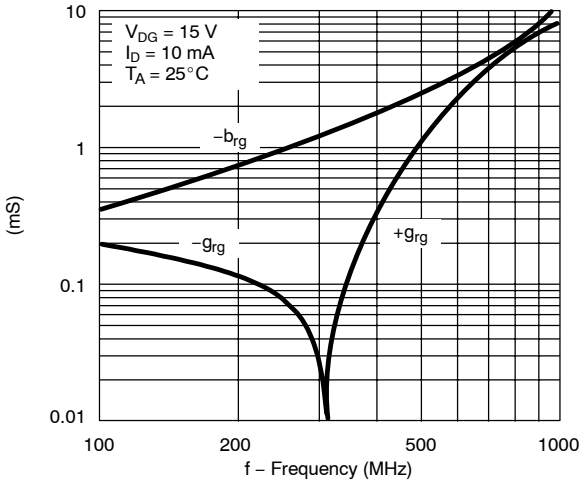


## TYPICAL CHARACTERISTICS ($T_A$ = 25°C UNLESS OTHERWISE NOTED)

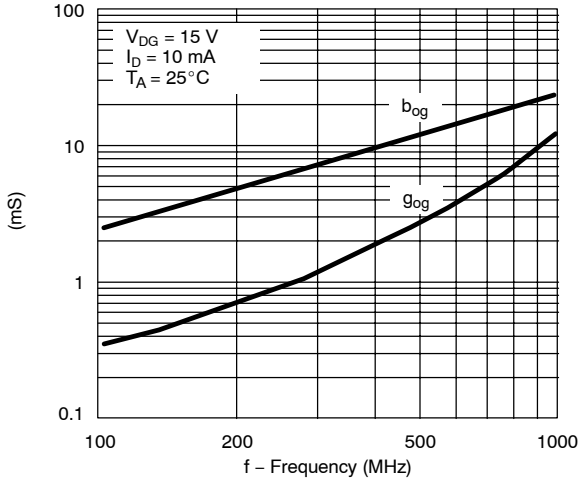
### Common-Gate Forward Admittance



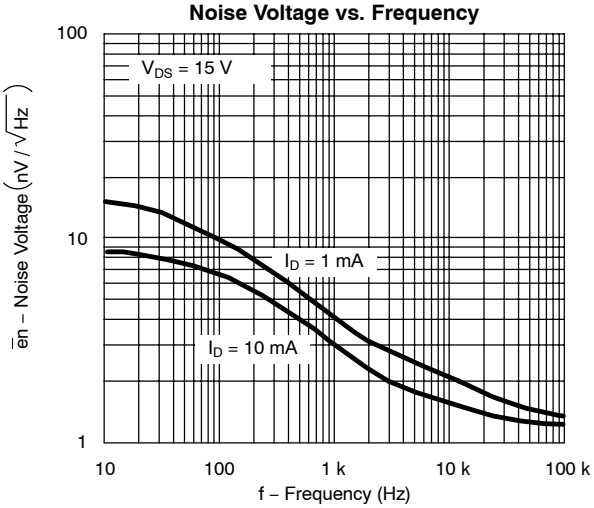

### Common-Gate Reverse Admittance



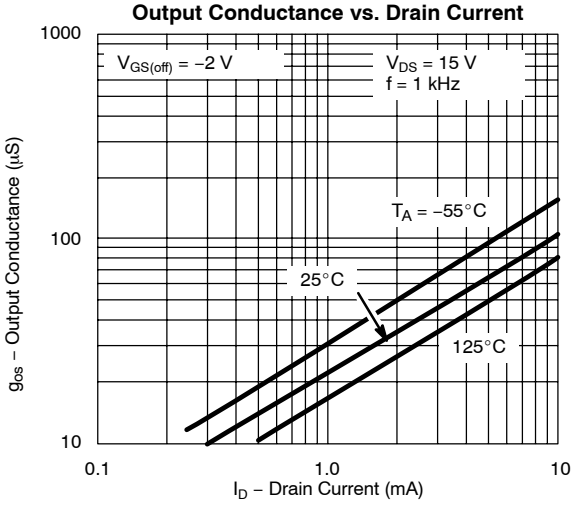

### Common-Gate Output Admittance



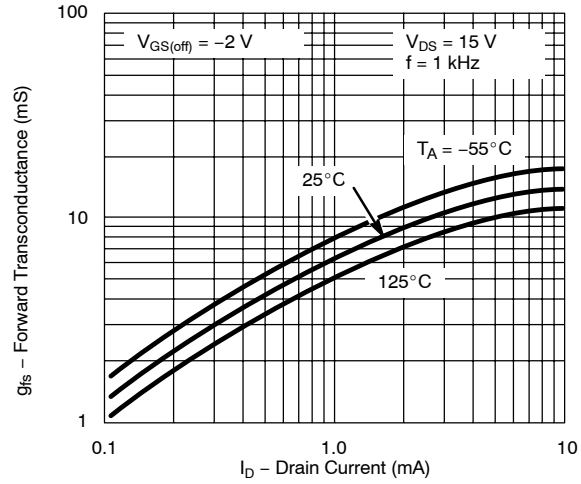

### Noise Voltage vs. Frequency




### Output Conductance vs. Drain Current




### Transconductance vs. Drain Current

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