# P-Channel JFETs

**2N5460 SST5460**
**2N5461 SST5461**
**2N5462 SST5462**

| PRODUCT SUMMARY | | | | |
|---|---|---|---|---|
| Part Number | $V_{GS(off)}$ (V) | $V_{(BR)GSS}$ Min (V) | $g_{fs}$ Min (mS) | $I_{DSS}$ Min (mA) |
| 2N/SST5460 | 0.75 to 6 | 40 | 1 | –1 |
| 2N/SST5461 | 1 to 7.5 | 40 | 1.5 | –2 |
| 2N/SST5462 | 1.8 to 9 | 40 | 2 | –4 |

## FEATURES

- High Input Impedance
- Very Low Noise
- High Gain: $A_V$ = 80 @ 20 μA
- Low Capacitance: 1.2 pF Typical

## BENEFITS

- Low Signal Loss/System Error
- High System Sensitivity
- High-Quality Low-Level Signal Amplification

## APPLICATIONS

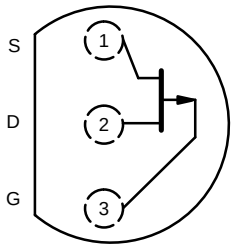
- Low-Current, Low-Voltage Amplifiers
- High-Side Switching
- Ultrahigh Input Impedance Pre-Amplifiers

## DESCRIPTION

The 2N/SST5460 series are p-channel JFETs designed to provide all-around performance in a wide range of amplifier and analog switch applications.

The 2N series, TO-226AA (TO-92), and SST series, TO-236 (SOT-23), plastic packages provide low cost options, and are available in tape-and-reel for automated assembly, (see Packaging Information).

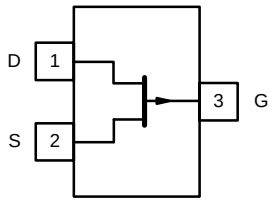
**TO-226AA**
**(TO-92)**




2N5460
2N5461
2N5462

Top View

**TO-236**
**(SOT-23)**




SST5460 (B0)*
SST5461 (B1)*
SST5462 (B2)*

*Marking Code for TO-236

Top View

## ABSOLUTE MAXIMUM RATINGS

Gate-Drain Voltage . . . . . 40 V
Gate-Source Voltage . . . . . 40 V
Gate Current . . . . . –10 mA
Storage Temperature . . . . . –65 to 150°C
Operating Junction Temperature . . . . . –55 to 150°C

Lead Temperature ($^1/_{16}$" from case for 10 sec.) . . . . . 300°C
Power Dissipation[a] . . . . . 350 mW

Notes
a. Derate 2.8 mW/°C above 25°C

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

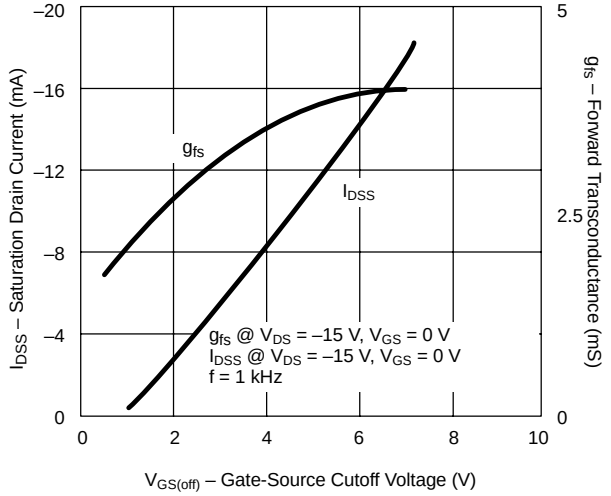
| Parameter | Symbol | Test Conditions | | Typ[a] | Limits 2N/SST5460 Min | 2N/SST5460 Max | 2N/SST5461 Min | 2N/SST5461 Max | 2N/SST5462 Min | 2N/SST5462 Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Static** | | | | | | | | | | | |
| Gate-Source Breakdown Voltage | $V_{(BR)GSS}$ | $I_G$ = 10 μA , $V_{DS}$ = 0 V | | 55 | 40 | | 40 | | 40 | | V |
| Gate-Source Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}$ = –15 V, $I_D$ = –1 μA | | | 0.75 | 6 | 1 | 7.5 | 1.8 | 9 | V |
| Saturation Drain Current[b] | $I_{DSS}$ | $V_{DS}$ = –15 V, $V_{GS}$ = 0 V | | | –1 | –5 | –2 | –9 | –4 | –16 | mA |
| Gate Reverse Current | $I_{GSS}$ | $V_{GS}$ = 20 V, $V_{DS}$ = 0 V | | 0.003 | | 5 | | 5 | | 5 | nA |
| | | | $T_A$ = 100°C | 0.0003 | | 1 | | 1 | | 1 | μA |
| Gate Operating Current | $I_G$ | $V_{DG}$ = –20 V, $I_D$ = –0.1 mA | | 3 | | | | | | | pA |
| Drain Cutoff Current | $I_{D(off)}$ | $V_{DS}$ = –15 V, $V_{GS}$ = 10 V | | –5 | | | | | | | pA |
| Gate-Source Voltage | $V_{GS}$ | $V_{DS}$ = –15 V | $I_D$ = –0.1 mA | 1.3 | 0.5 | 4 | | | | | V |
| | | | $I_D$ = –0.2 mA | 2.3 | | | 0.8 | 4.5 | | | V |
| | | | $I_D$ = –0.4 mA | 3.8 | | | | | 1.5 | 6 | V |
| Gate-Source Forward Voltage | $V_{GS(F)}$ | $I_G$ = –1 mA , $V_{DS}$ = 0 V | | –0.7 | | | | | | | V |
| **Dynamic** | | | | | | | | | | | |
| Common-Source Forward Transconductance | $g_{fs}$ | $V_{DS}$ = –15 V, $V_{GS}$ = 0 V<br>f = 1 kHz | | | 1 | 4 | 1.5 | 5 | 2 | 6 | mS |
| Common-Source Output Conductance | $g_{os}$ | | | | | 75 | | 75 | | 75 | μS |
| Common-Source Reverse Transfer Capacitance | $C_{iss}$ | $V_{DS}$ = –15 V, $V_{GS}$ = 0 V<br>f = 1 MHz | 2N | 4.5 | | 7 | | 7 | | 7 | pF |
| | | | SST | 4.5 | | | | | | | pF |
| Common-Source Reverse Transfer Capacitance | $C_{rss}$ | | | 1.2 | | | | | | | pF |
| Common-Source Output Capacitance | $C_{oss}$ | | 2N | 1.5 | | 2 | | 2 | | 2 | pF |
| | | | SST | 1.5 | | | | | | | pF |
| Equivalent Input Noise Voltage | $\overline{e}_n$ | $V_{DS}$ = –15 V, $V_{GS}$ = 0 V<br>f = 100 Hz | 2N | 15 | | 115 | | 115 | | 115 | nV/√Hz |
| | | | SST | 15 | | | | | | | nV/√Hz |
| Noise Figure | NF | $V_{DS}$ = –15 V, $V_{GS}$ = 0 V<br>f = 100 Hz, $R_G$ = 1 MΩ<br>BW = 1 Hz | 2N | 0.2 | | 2.5 | | 2.5 | | 2.5 | dB |
| | | | SST | 0.2 | | | | | | | 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 ≤ 2%.

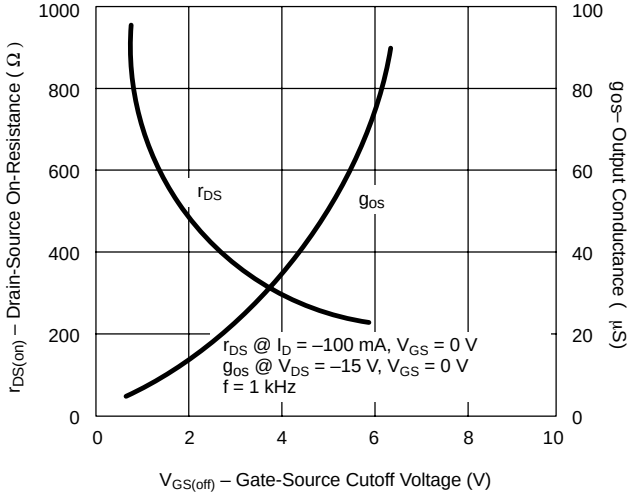
PSCIB

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

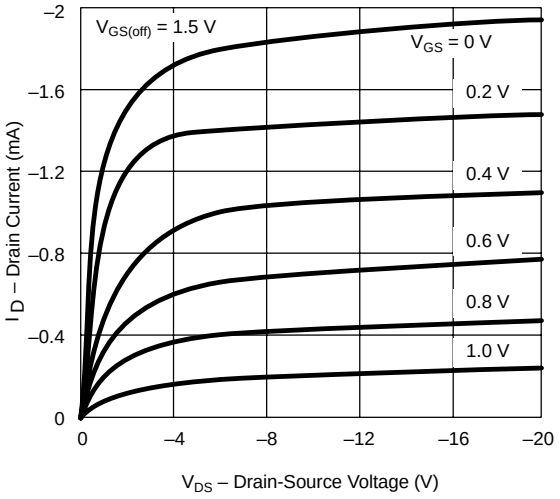
**Drain Current and Transconductance vs. Gate-Source Cutoff Voltage**



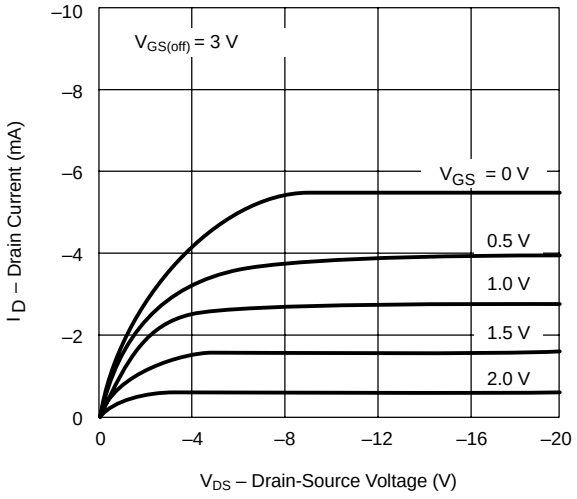

**On-Resistance and Output Conductance vs. Gate-Source Cutoff Voltage**



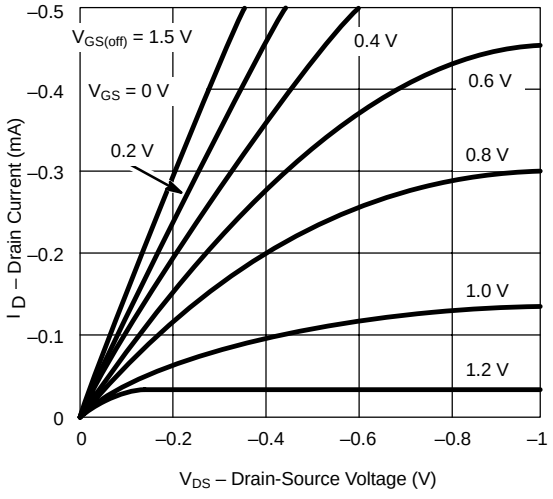

**Output Characteristics**



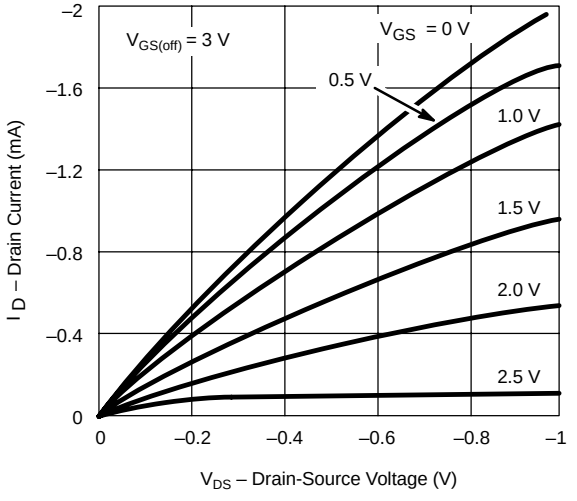

**Output Characteristics**




**Output Characteristics**

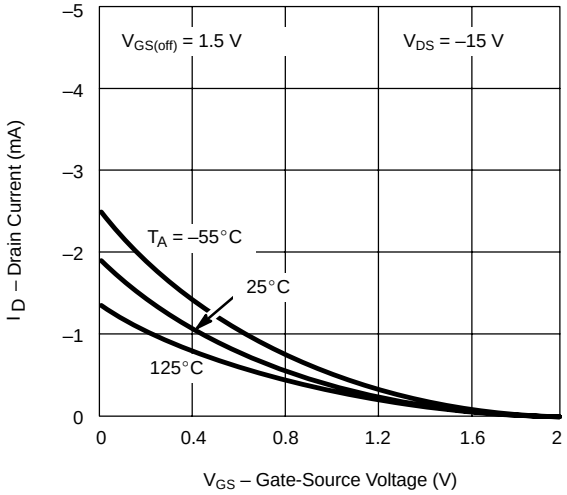



**Output Characteristics**

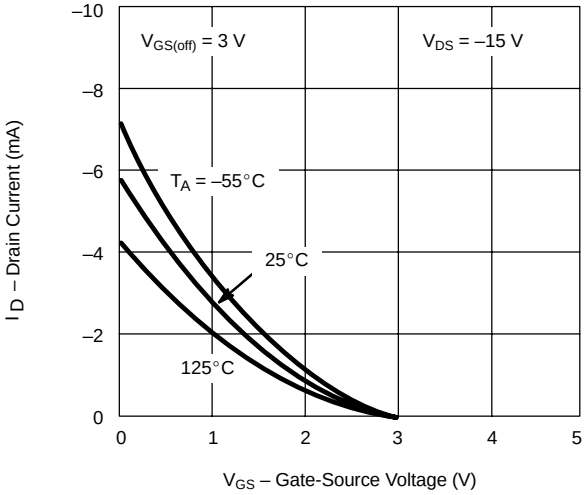


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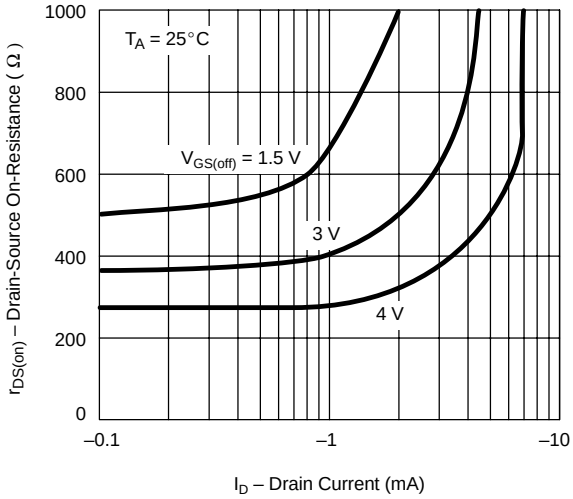
**Transfer Characteristics**



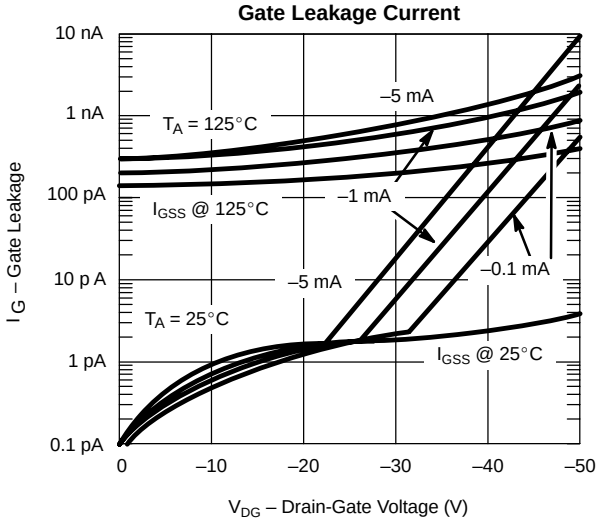

**Transfer Characteristics**



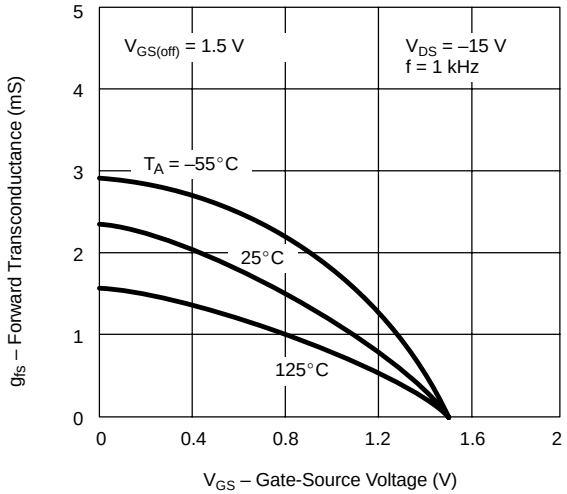

**On-Resistance vs. Drain Current**



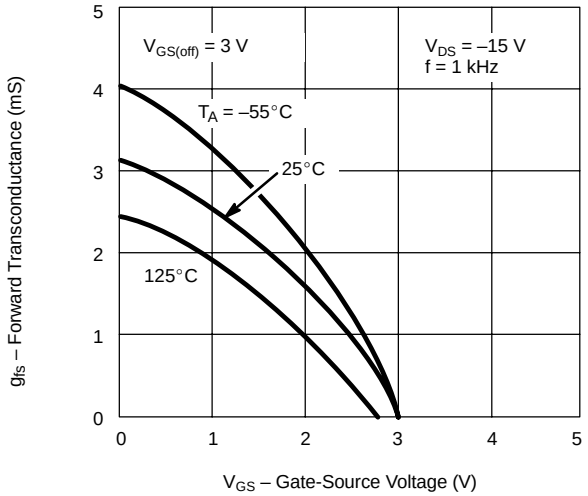

**Gate Leakage Current**




**Transconductance vs. Gate-Source Voltage**

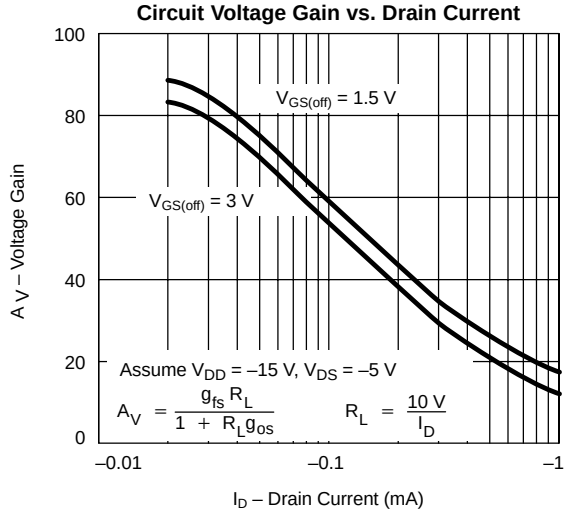



**Transconductance vs. Gate-Source Voltage**

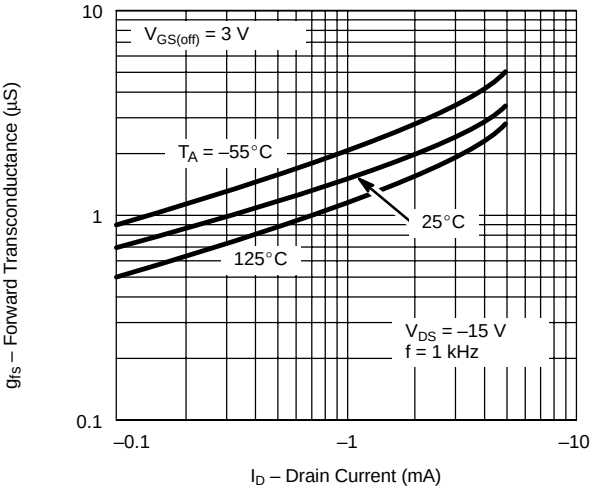


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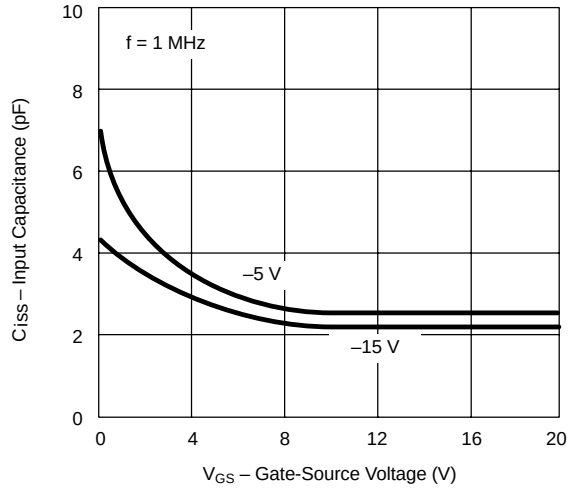
**Circuit Voltage Gain vs. Drain Current**



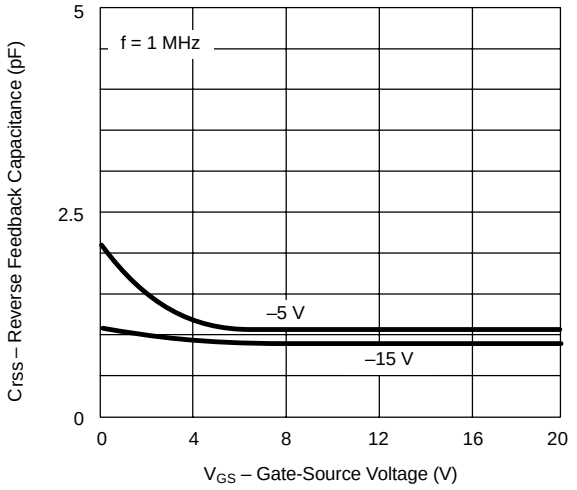

**Common-Source Forward Transconductance vs. Drain Current**



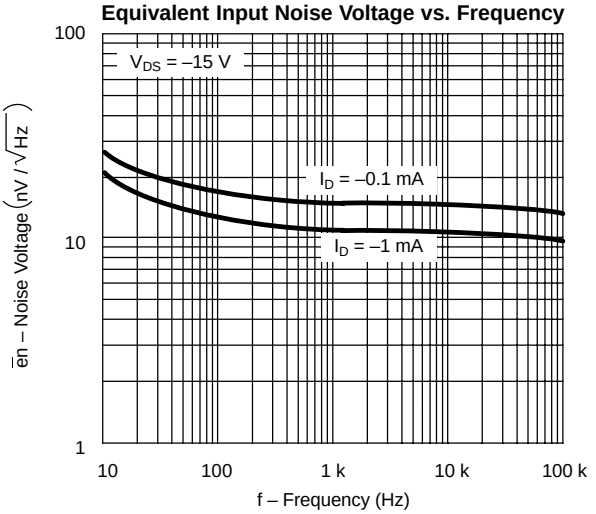

**Common-Source Input Capacitance vs. Gate-Source Voltage**




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




**Equivalent Input Noise Voltage vs. Frequency**




**Output Conductance vs. Drain Current**

