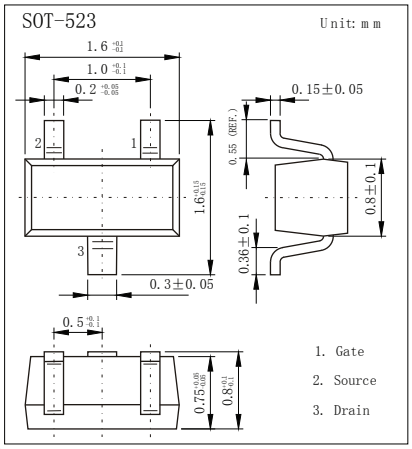
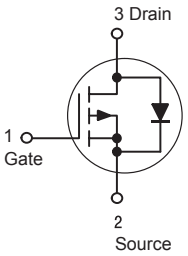
# P-Channel MOSFET

# 2SJ3501




## ■ Features

- $V_{DS\ (V)}$ = -50V
- $I_D$ =-130 mA
- $R_{DS(ON)}$ < 10Ω ($V_{GS}$ =-5 V)




## ■ Absolute Maximum Ratings (Ta = 25℃)

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | -50 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | |
| Continuous Drain Current @ $T_A$ = 25°C | $I_D$ | -130 | mA |
| Pulsed Drain Current (tp ≤ 10 μs) | $I_{DM}$ | -520 | |
| Power Dissipation | $P_D$ | 150 | mW |
| Thermal Resistance.Junction- to-Ambient | $R_{thJA}$ | 833 | ℃/W |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature Range | $T_{stg}$ | -55 to 150 | |

# P-Channel MOSFET

# 2SJ3501

## ■ Electrical Characteristics (Ta = 25℃)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{DSS}$ | $I_D$=-250μA, $V_{GS}$=0V | -50 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-25V, $V_{GS}$=0V | | | -0.1 | μA |
| | | $V_{DS}$=-50V, $V_{GS}$=0V | | | -15 | |
| | | $V_{DS}$=-50V, $V_{GS}$=0V, $T_J$=125℃ | | | -60 | |
| Gate-Body Leakage Current | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$=±20V | | | ±10 | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ , $I_D$=-250μA | -0.8 | | -2.0 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}$=-5V, $I_D$=-100mA | | | 10 | Ω |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=-25V, $I_D$=-100mA, f=1.0kHz | 50 | | | mS |
| Input Capacitance | $C_{iss}$ | $V_{GS}$=0V, $V_{DS}$=-5V | | 30 | | pF |
| Output Capacitance | $C_{oss}$ | | | 10 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 5 | | |
| Gate Charge | $Q_T$ | | | 6000 | | pC |
| Turn-On DelayTime | $t_{d(on)}$ | $V_{DD}$ = –15 V, $I_D$ = –2.5 A,$R_L$ = 50Ω | | 2.5 | | ns |
| Turn-On Rise Time | $t_r$ | | | 1 | | |
| Turn-Off DelayTime | $t_{d(off)}$ | | | 16 | | |
| Turn-Off Fall Time | $t_f$ | | | 8 | | |
| Maximum Body-Diode Continuous Current | $I_S$ | | | | -0.13 | A |
| Pulsed Current | $I_{SM}$ | | | | -0.52 | |
| Diode Forward Voltage (Note 2.) | $V_{SD}$ | $I_S$=-0.13A,$V_{GS}$=0V | | | -1.2 | V |

Note 1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

2. Switching characteristics are independent of operating junction temperature.

## ■ Marking

| Marking | PD |
|---|---|

# P-Channel MOSFET

## 2SJ3501

■ Typical Characterisitics

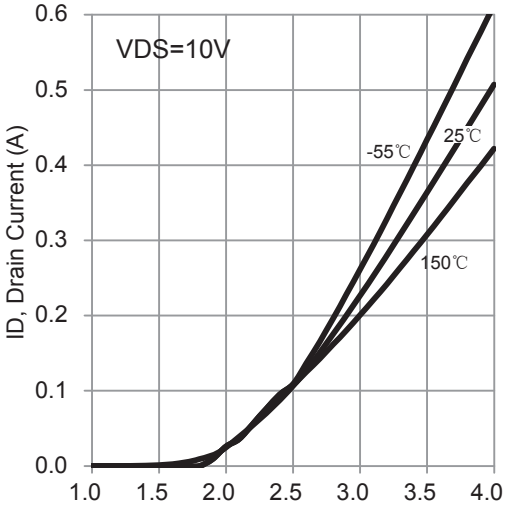



FIG.1 Transfer Characteristics

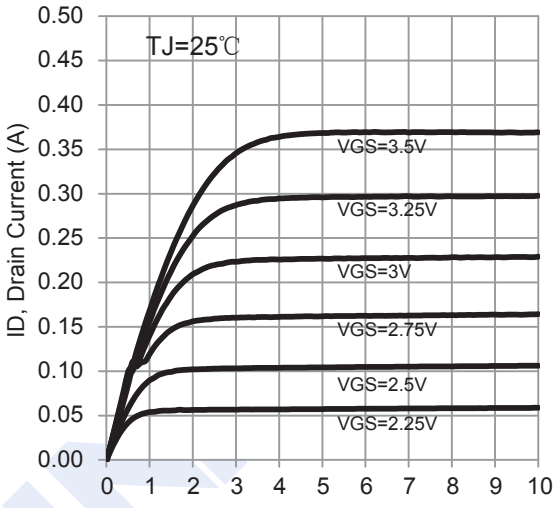



FIG.2 On-Region Characteristics

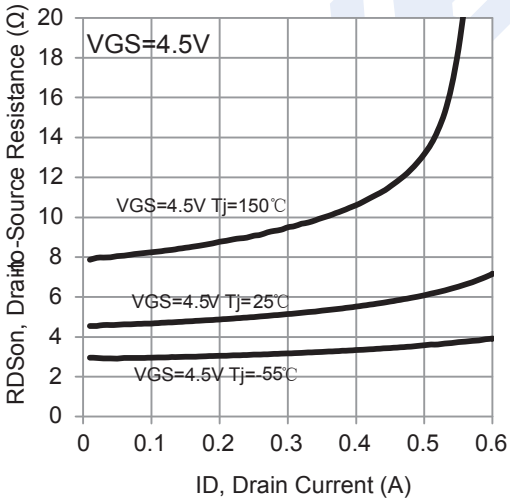



FIG.3 On-Resistance versus Drain Current

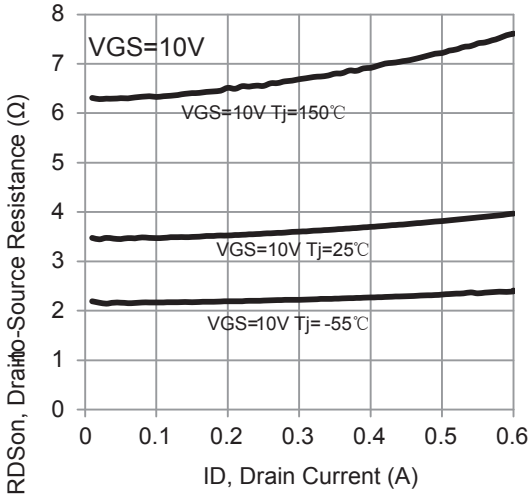



FIG.4 On-Resistance versus Drain Current

# P-Channel MOSFET

## 2SJ3501

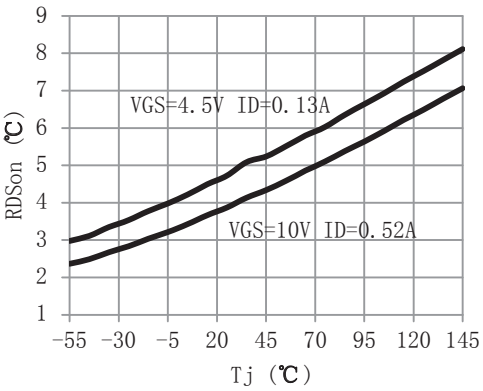



FIG.5 On-Resistance Variation with Temperature

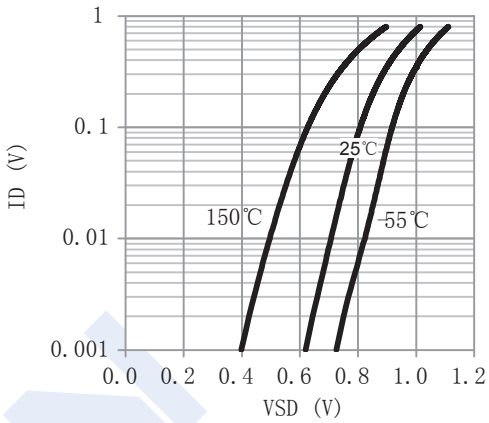



FIG.6 Body Diode Forward Voltage