

2SK0665 (2SK665)

Silicon N-channel MOSFET

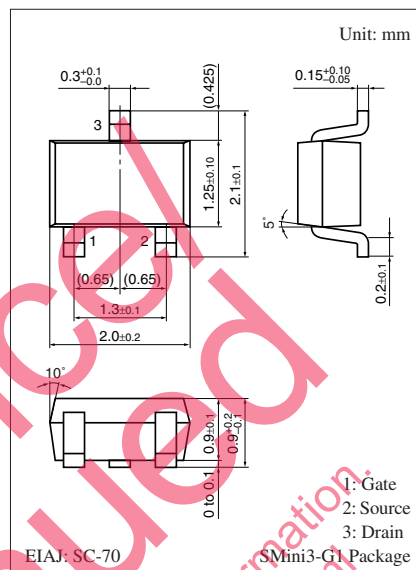
For switching circuits

■ Features

- High-speed switching
- Small drive current owing to high input impedance
- High electrostatic breakdown voltage

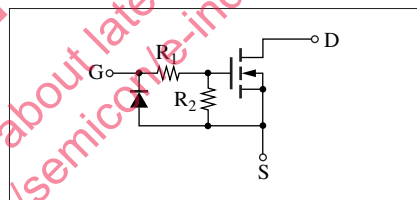
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Rating | Unit |
|----------------------------------|-----------|-------------|------------------|
| Drain-source voltage | V_{DS} | 20 | V |
| Gate-source voltage (Drain open) | V_{GSO} | 8 | V |
| Drain current | I_D | 100 | mA |
| Peak drain current | I_{DP} | 200 | mA |
| Power dissipation | P_D | 150 | mW |
| Channel temperature | T_{ch} | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |



Marking Symbol: 30

Internal Connection



■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 2^\circ\text{C}$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--------------------------------|--------------|--|-----|-----|-----|---------------|
| Drain-source surrender voltage | V_{DSS} | $I_D = 100 \mu\text{A}$, $V_{GS} = 0$ | 20 | | | V |
| Drain-source cutoff current | I_{DSS} | $V_{DS} = 10 \text{ V}$, $V_{GS} = 0$ | | | 10 | μA |
| Gate-source cutoff current | I_{GSS} | $V_{GS} = 8 \text{ V}$, $V_{DS} = 0$ | 40 | | 80 | μA |
| Gate threshold voltage | V_{th} | $I_D = 100 \mu\text{A}$, $V_{DS} = V_{GS}$ | 1.5 | | 3.5 | V |
| Forward transfer admittance | $ Y_{fs} $ | $I_D = 20 \text{ mA}$, $V_{DS} = 5 \text{ V}$, $f = 1 \text{ kHz}$ | 20 | | | mS |
| Drain-source ON resistance | $R_{DS(on)}$ | $I_D = 20 \text{ mA}$, $V_{GS} = 5 \text{ V}$ | | | 50 | Ω |
| Output voltage high-level | V_{OH} | $V_{DD} = 5 \text{ V}$, $V_{GS} = 1 \text{ V}$, $R_L = 200 \Omega$ | 4.5 | | | V |
| Output voltage low-level | V_{OL} | $V_{DD} = 5 \text{ V}$, $V_{GS} = 5 \text{ V}$, $R_L = 200 \Omega$ | | | 1.0 | V |
| Input resistance *1 | $R_1 + R_2$ | | 100 | | 200 | k Ω |
| Turn-on time *2, 3 | t_{on} | $V_{DD} = 5 \text{ V}$, $V_{GS} = 0 \text{ V to } 5 \text{ V}$, $R_L = 200 \Omega$ | | | 1.0 | μs |
| Turn-off time *2, 3 | t_{off} | $V_{DD} = 5 \text{ V}$, $V_{GS} = 5 \text{ V to } 0 \text{ V}$, $R_L = 200 \Omega$ | | | 1.0 | μs |

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Note) The part number in the parenthesis shows conventional part number.

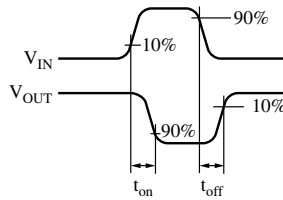
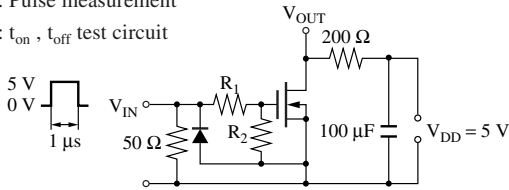
■ Electrical Characteristics (continued)

Note) (continued)

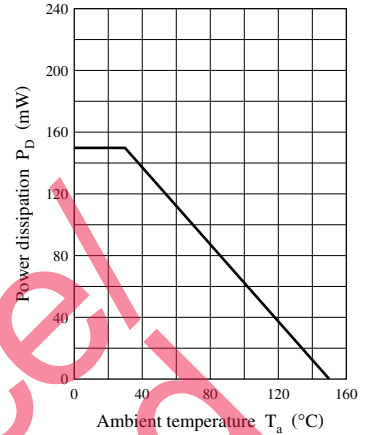
2. *1: Resistance ratio $R_1/R_2 = 1/50$ (typ.)

*2: Pulse measurement

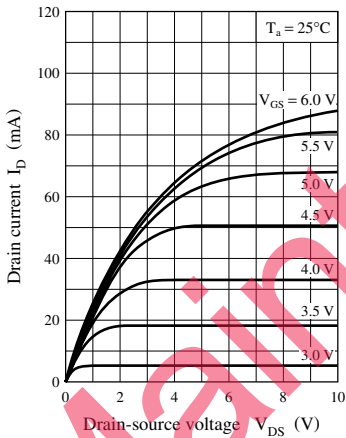
*3: t_{on} , t_{off} test circuit



$P_D - T_a$



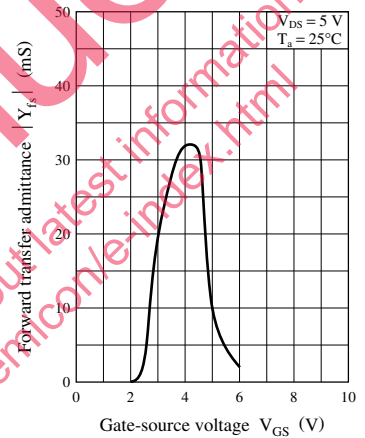
$I_D - V_{DS}$



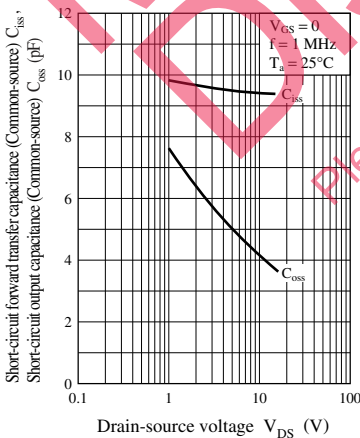
$I_D - V_{GS}$



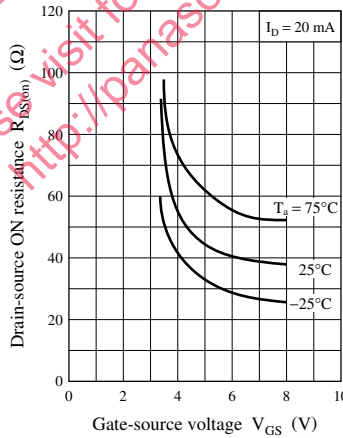
$|Y_{fs}| - V_{GS}$



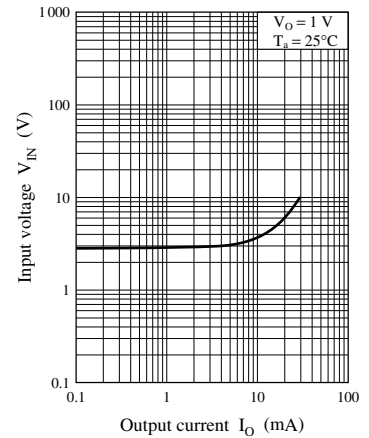
$C_{iss}, C_{oss} - V_{DS}$



$R_{DS(on)} - V_{GS}$



$V_{IN} - I_O$



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