

# 2SK0665 (2SK665)

## Silicon N-channel MOSFET

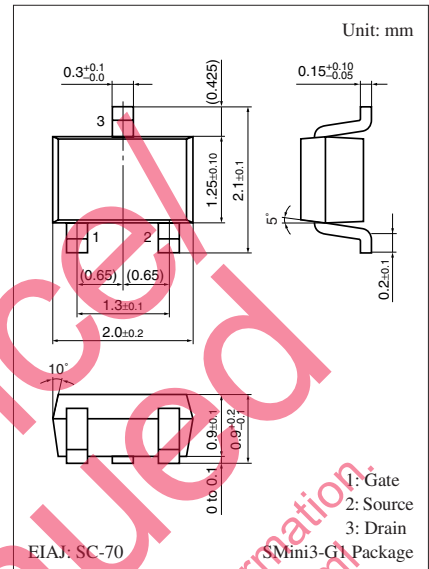
For switching circuits

### ■ Features

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

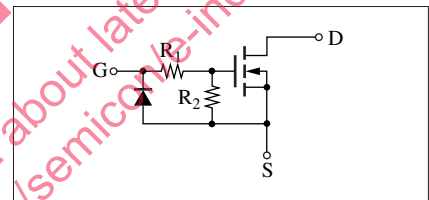
### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

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	$\mu\text{A}$
Gate-source cutoff current	$I_{GSS}$	$V_{GS} = 8 \text{ V}, V_{DS} = 0$	40		80	$\mu\text{A}$
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	$\Omega$
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 $\Omega$
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	$\mu\text{s}$
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	$\mu\text{s}$

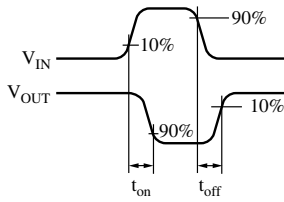
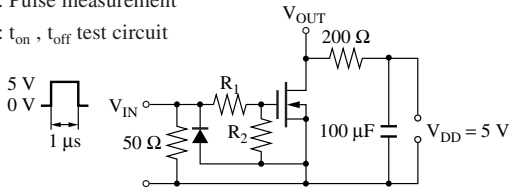
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

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

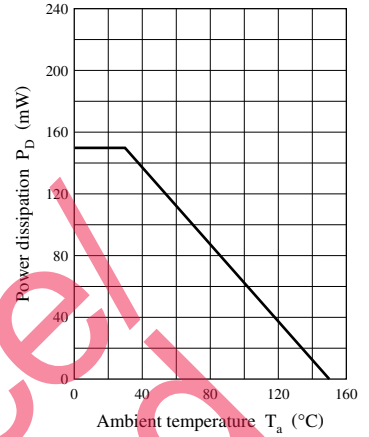
■ Electrical Characteristics (continued)

Note) (continued)

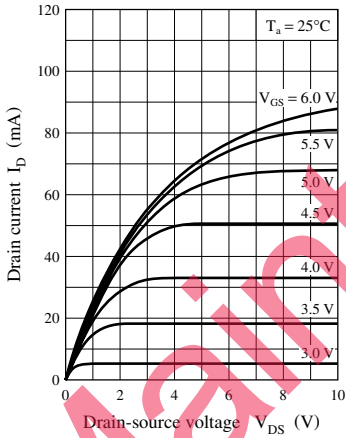
- 2. \*1: Resistance ratio  $R_1/R_2 = 1/50$  (typ.)
- \*2: Pulse measurement
- \*3:  $t_{on}$ ,  $t_{off}$  test circuit



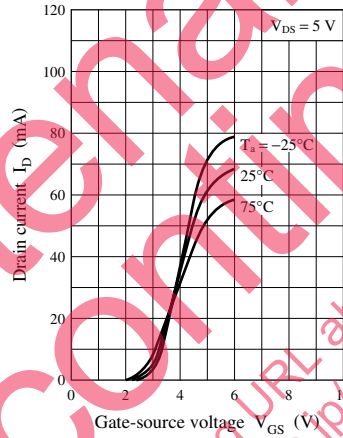
$P_D - T_a$



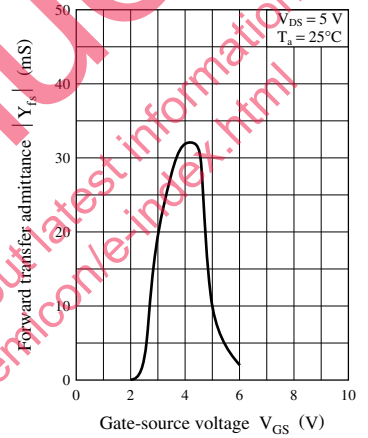
$I_D - V_{DS}$



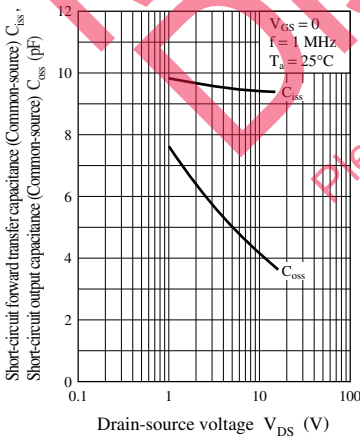
$I_D - V_{GS}$



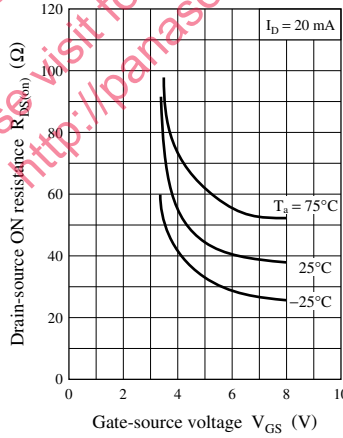
$|Y_{fs}| - V_{GS}$



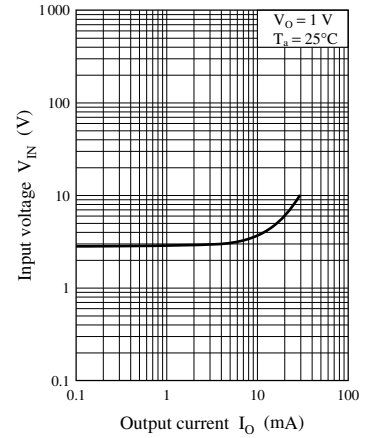
$C_{iss}, C_{oss} - V_{DS}$



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



$V_{IN} - I_O$



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