

## 2SK665

## Silicon N-Channel MOS FET

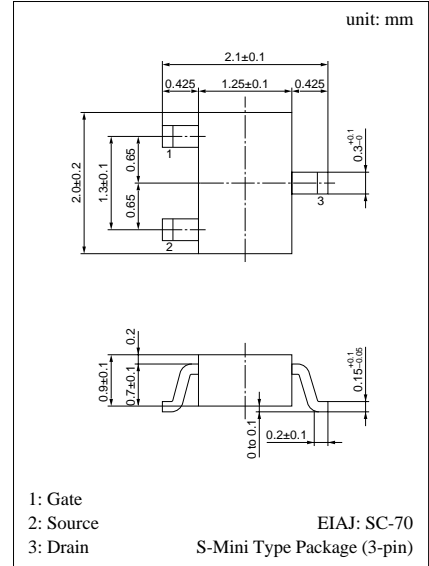
For switching

## ■ Features

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

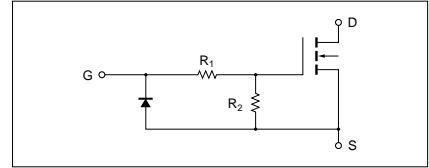
## ■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Rated	Unit
Drain to Source voltage	V <sub>DS</sub>	20	V
Gate to Source voltage	V <sub>GSO</sub>	8	V
Drain current	I <sub>D</sub>	100	mA
Max drain current	I <sub>DP</sub>	200	mA
Allowable power dissipation	P <sub>D</sub>	150	mW
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C



Marking Symbol: 30

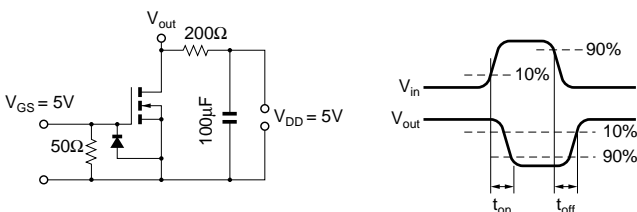
Internal Connection



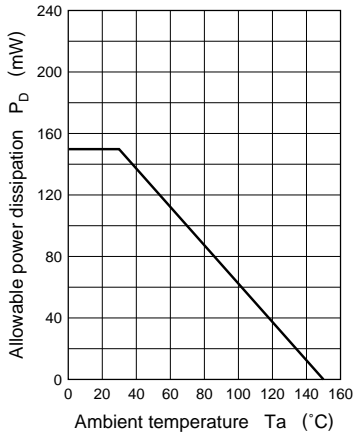
## ■ Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I <sub>DSS</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0			10	μA
Gate to Source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = 8V, V <sub>DS</sub> = 0	40		80	μA
Drain to Source breakdown voltage	V <sub>DSS</sub>	I <sub>D</sub> = 100μA, V <sub>GS</sub> = 0	20			V
Gate threshold voltage	V <sub>th</sub>	I <sub>D</sub> = 100μA, V <sub>DS</sub> = V <sub>GS</sub>	1.5		3.5	V
Drain to Source ON-resistance	R <sub>DS(on)</sub> <sup>*3</sup>	I <sub>D</sub> = 20mA, V <sub>GS</sub> = 5V			50	Ω
Forward transfer admittance	Y <sub>fs</sub>	I <sub>D</sub> = 20mA, V <sub>DS</sub> = 5V, f = 1kHz	20			mS
High level output voltage	V <sub>OH</sub>	V <sub>DD</sub> = 5V, V <sub>GS</sub> = 1V, R <sub>L</sub> = 200Ω	4.5			V
Low level output voltage	V <sub>SL</sub>	V <sub>DD</sub> = 5V, V <sub>GS</sub> = 5V, R <sub>L</sub> = 200Ω			1	V
Input resistance	R <sub>1</sub> + R <sub>2</sub> <sup>*1</sup>		100		200	kΩ
Turn-on time	t <sub>on</sub> <sup>*2</sup>	V <sub>DD</sub> = 5V, V <sub>GS</sub> = 0 to 5V, R <sub>L</sub> = 200Ω			1	μs
Turn-off time	t <sub>off</sub> <sup>*2</sup>	V <sub>DD</sub> = 5V, V <sub>GS</sub> = 5 to 0V, R <sub>L</sub> = 200Ω			1	μs

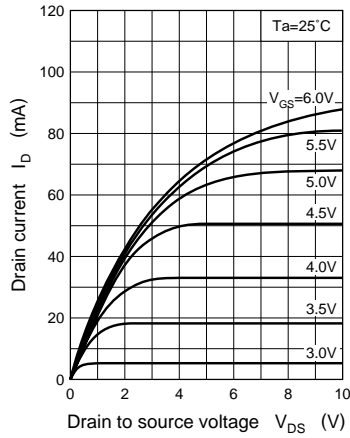
<sup>\*1</sup> Resistance ratio R<sub>1</sub>/R<sub>2</sub> = 1/50 <sup>\*2</sup> t<sub>on</sub>, t<sub>off</sub> measurement circuit <sup>\*3</sup> Pulse measurement



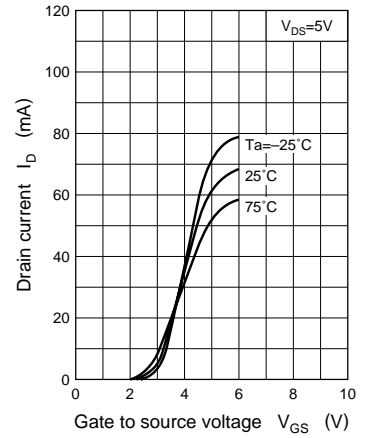
$P_D - T_a$



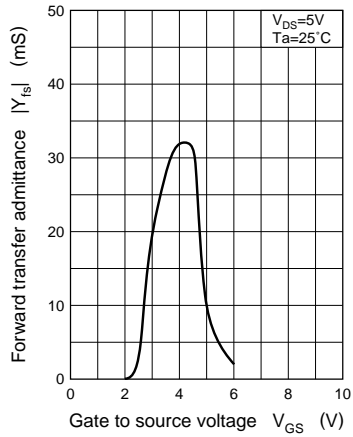
$I_D - V_{DS}$



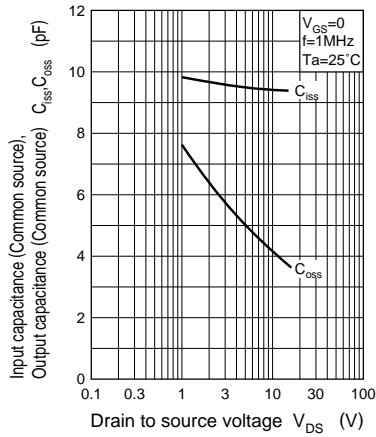
$I_D - V_{GS}$



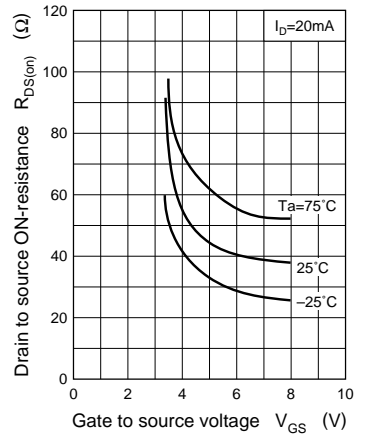
$|Y_{fs}| - V_{GS}$



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



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



$V_{IN} - I_O$

