

# 2SK2276

## Silicon N-Channel MOS

For switching

### ■ Features

- Low ON-resistance  $R_{DS(on)}$
- High-speed switching

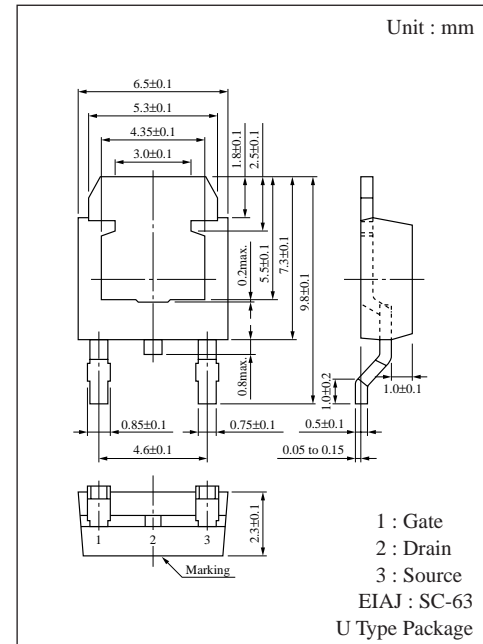
### ■ Absolute Maximum Ratings ( $T_c = 25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit
Drain-Source breakdown voltage	$V_{DSS}$	60	V
Gate-Source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	$I_D$	$\pm 3$	A
Max drain current	$I_{DP}^{*1}$	$\pm 5$	A
Allowable power dissipation Channel temperature	$P_D^{*2}$	10	W
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

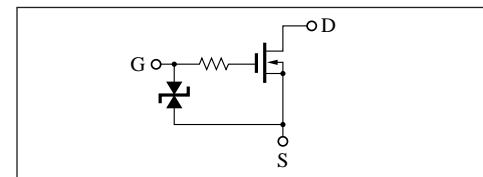
\* 1  $t \leq 300\mu\text{s}$ , Duty Cycle < 10% \* 2  $T_c = 25^\circ\text{C}$

### ■ Electrical Characteristics ( $T_c = 25^\circ\text{C}$ )

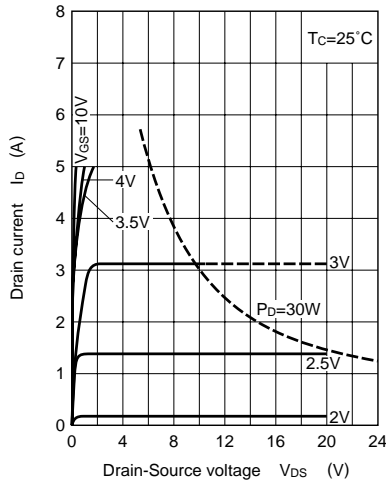
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source cut-off current	$I_{DSS}$	$V_{DS} = 40\text{V}, V_{GS} = 0$			10	$\mu\text{A}$
Gate-Source leakage current	$I_{GSS}$	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			$\pm 1$	$\mu\text{A}$
Drain-Source breakdown voltage	$V_{DSS}$	$I_D = 1\text{mA}, V_{GS} = 0$	60			V
Gate threshold voltage	$V_{th}$	$V_{DS} = 10\text{V}, I_D = 1\text{mA}$	1		2.5	V
Drain-Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 3\text{A}$		0.135	0.2	$\Omega$
Forward transadmittance	$ Y_{fs} $	$V_{DS} = 10\text{V}, I_D = 3\text{A}$	2.4	4		S
Input capacitance	$C_{iss}$	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		400		pF
Output capacitance	$C_{oss}$			210		pF
Feedback capacitance	$C_{rss}$			80		pF
Turn-on time	$t_{on}$	$V_{GS} = 10\text{V}, I_D = 3\text{A}, R_L = 10\Omega$		29		ns
Fall time	$t_f$			53		ns
Turn-off time (delay time)	$t_{d(off)}$			97		ns



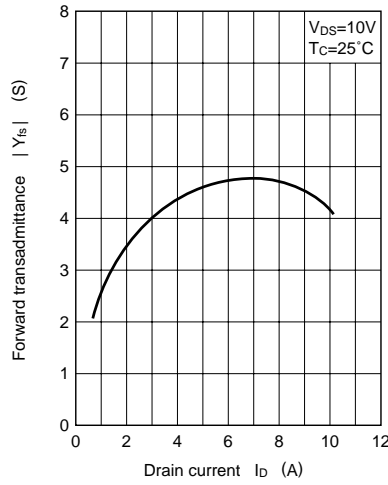
### ■ Internal Connection



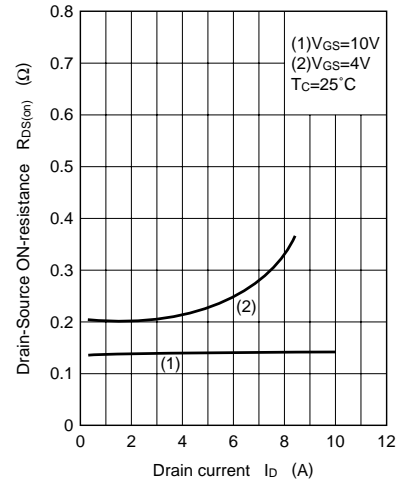
$I_D - V_{DS}$



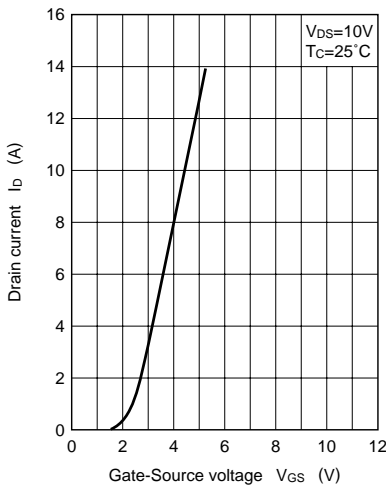
$|Y_{fs}| - I_D$



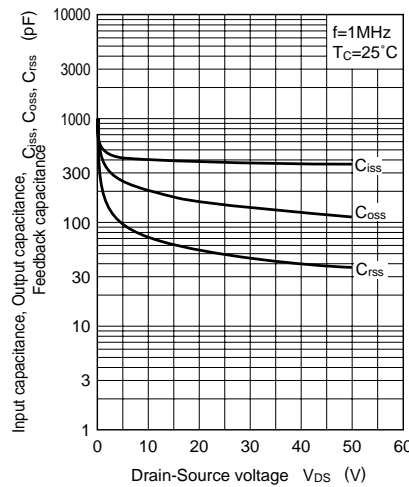
$R_{DS(on)} - I_D$



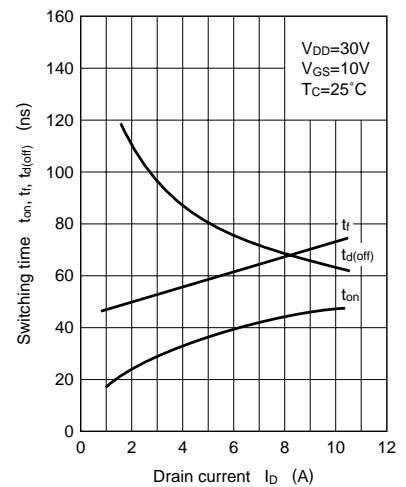
$I_D - V_{GS}$



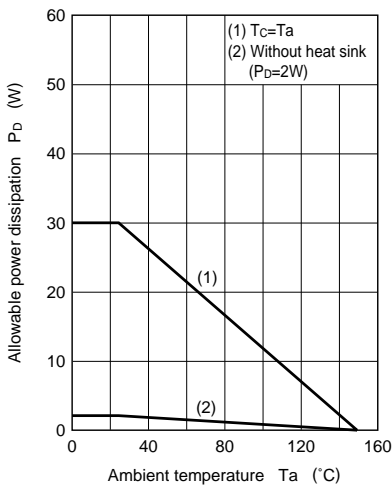
$C_{iss}, C_{oss}, C_{rss} - V_{DS}$



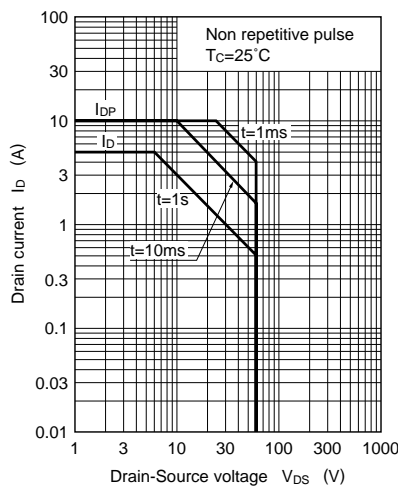
$t_{on}, t_f, t_{d(off)} - I_D$



$P_D - T_a$



Area of safe operation (ASO)



$R_{DS(on)} - I_D$

