

2SK3045

Silicon N-channel power MOSFET

■ Features

- Avalanche energy capability guaranteed: EAS > 15.6 mJ
- Gate-source surrender voltage V_{GSS} : ± 30 V guaranteed
- High-speed switching
- No secondary breakdown

■ Applications

- Non-contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator

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

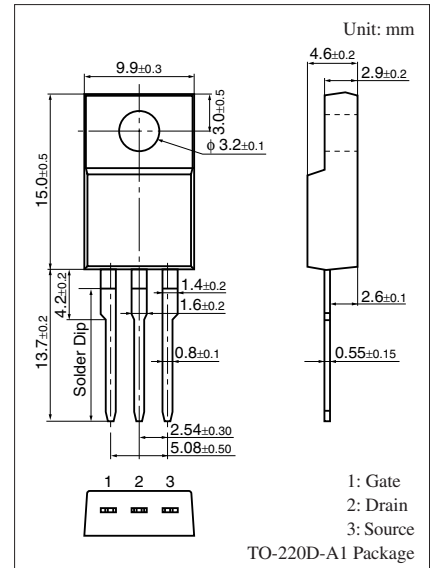
Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	500	V
Gate-source surrender voltage	V_{GSS}	± 30	V
Drain current	I_D	± 2.5	A
Peak drain current	I_{DP}	± 5	A
Avalanche energy capability *	EAS	15.6	mJ
Power dissipation	P_D	30	W
		2	
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *: $L = 5$ mH, $I_L = 2.5$ A, 1 pulse

■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

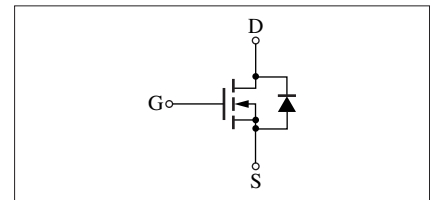
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = 1$ mA, $V_{GS} = 0$	500			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 400$ V, $V_{GS} = 0$			100	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 30$ V, $V_{DS} = 0$			± 1	μA
Gate threshold voltage	V_{th}	$V_{DS} = 25$ V, $I_D = 1$ mA	2.0		5.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25$ V, $I_D = 1.5$ A	1.0	1.5		S
Drain-source ON resistance	$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = 1.5$ A		3.2	4.0	Ω
Diode forward voltage	V_{DF}	$I_{DR} = 2.5$ A, $V_{GS} = 0$			-1.5	V
Short-circuit forward transfer capacitance (Common source)	C_{iss}	$V_{DS} = 20$ V, $V_{GS} = 0$, $f = 1$ MHz		330		pF
Short-circuit output capacitance (Common source)	C_{oss}			55		pF
Reverse transfer capacitance (Common source)	C_{rss}			20		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 150$ V, $I_D = 1.5$ A, $R_L = 100$ Ω $V_{GS} = 10$ V		15		ns
Rise time	t_r			25		ns
Fall time	t_f			30		ns
Turn-off delay time	$t_{d(off)}$			55		ns
Thermal resistance (ch-c)	$R_{th(ch-c)}$				4.1	$^\circ\text{C/W}$
Thermal resistance (ch-a)	$R_{th(ch-a)}$				62.5	$^\circ\text{C/W}$

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

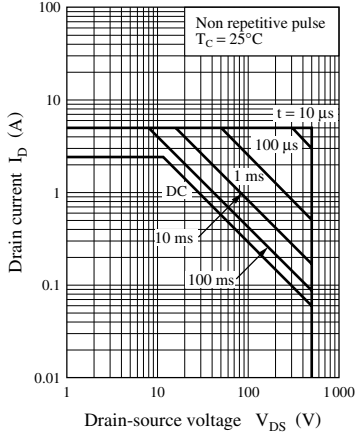


Marking Symbol: K3045

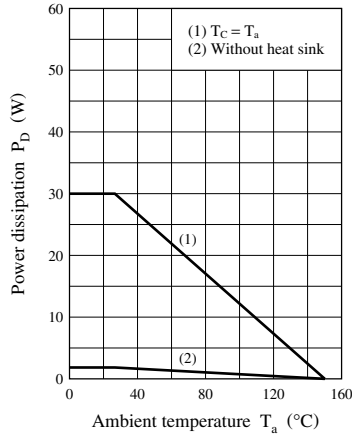
Internal Connection



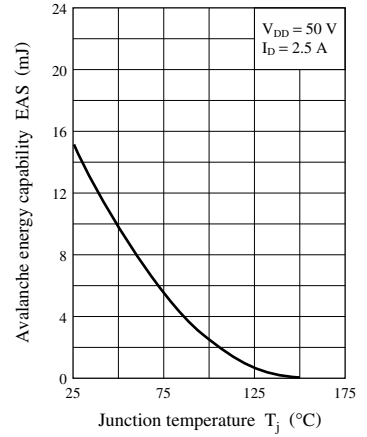
Safe operation area



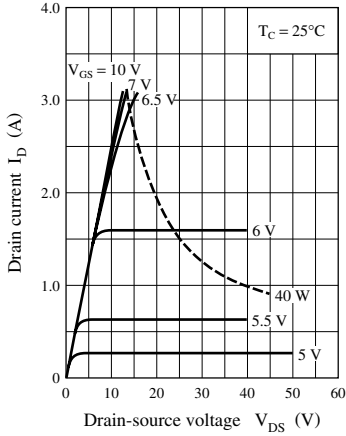
$P_D - T_a$



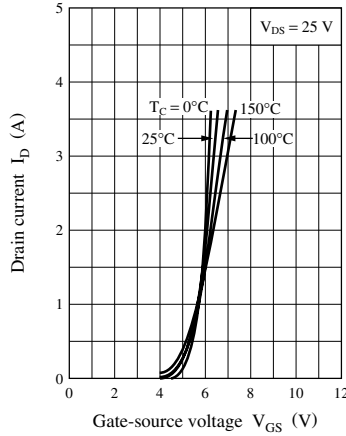
EAS — T_j



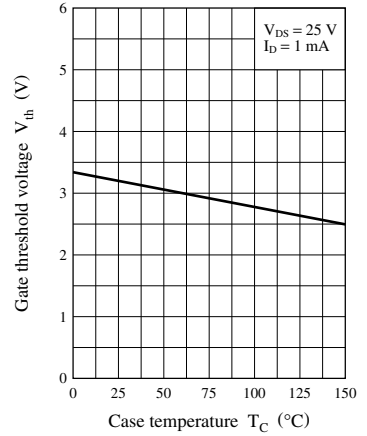
$I_D - V_{DS}$



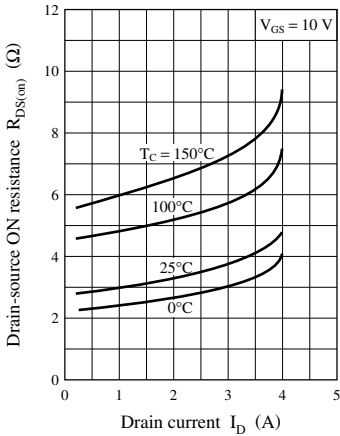
$I_D - V_{GS}$



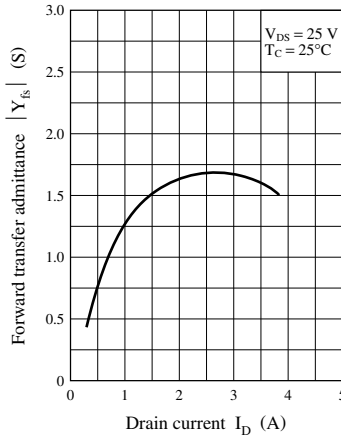
$V_{th} - T_C$



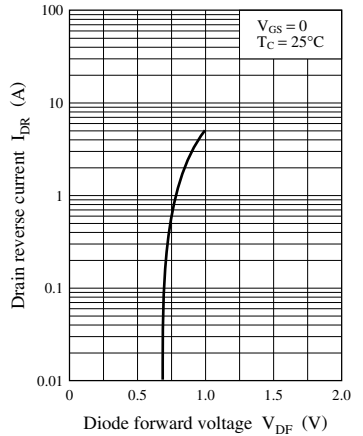
$R_{DS(on)} - I_D$

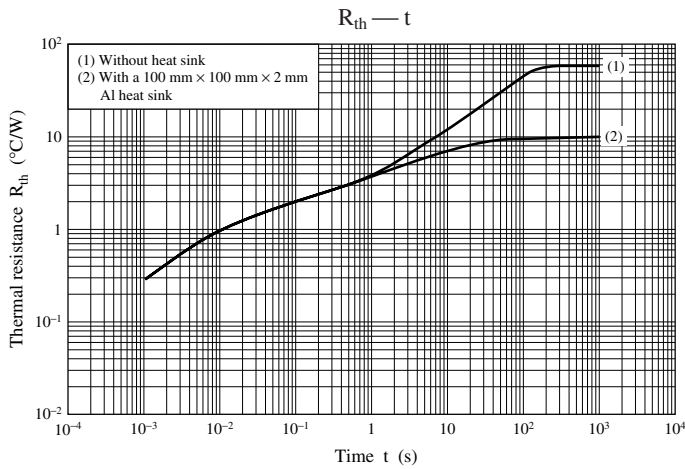
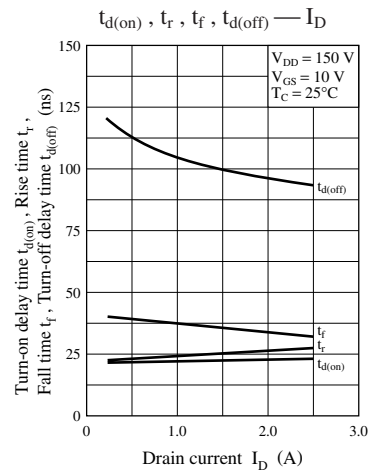
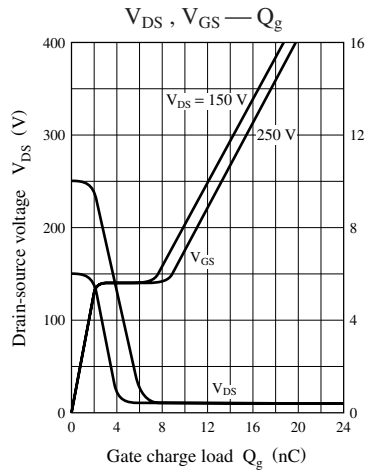
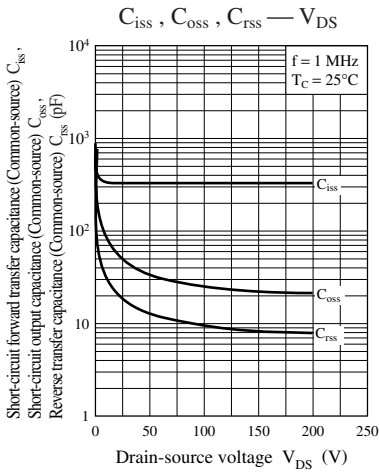


$|Y_{fs}| - I_D$



$I_{DR} - V_{DF}$





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