

2SK3192

Silicon N-channel power MOSFET

■ Features

- Avalanche energy capability guaranteed
- High-speed switching
- Low ON resistance R_{on}
- No secondary breakdown

■ Applications

- PDP
- Switching mode regulator

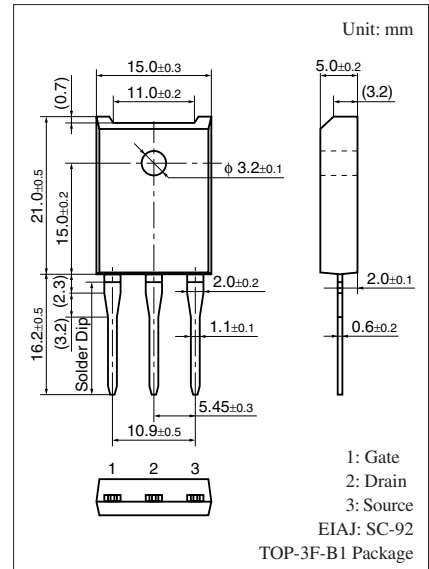
■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	250	V
Gate-source surrender voltage	V_{GSS}	± 30	V
Drain current	I_D	± 30	A
Peak drain current	I_{DP}	± 120	A
Avalanche energy capability *	EAS	925	mJ
Power dissipation	P_D	100	W
		$T_a = 25^\circ\text{C}$	
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *: $L = 1.74 \text{ mH}$, $I_L = 30 \text{ A}$, $V_{DD} = 50 \text{ V}$, 1 pulse, $T_a = 25^\circ\text{C}$

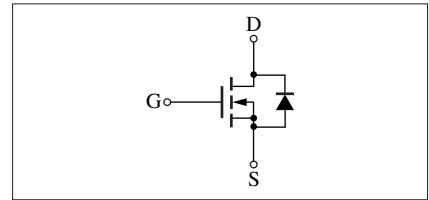
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = 1 \text{ mA}$, $V_{GS} = 0$	250			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 200 \text{ V}$, $V_{GS} = 0$			10	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$			± 1	μA
Gate threshold voltage	V_{th}	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$	2		4	V
Drain-source ON resistance	$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 15 \text{ A}$		50	68	$\text{m}\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10 \text{ V}$, $I_D = 15 \text{ A}$	8	15		S
Short-circuit forward transfer capacitance (Common source)	C_{iss}	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$		4200		pF
	C_{oss}			1600		pF
	C_{rss}			650		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 100 \text{ V}$, $I_D = 15 \text{ A}$, $R_L = 6.7 \Omega$ $V_{GS} = 10 \text{ V}$		45		ns
Rise time	t_r			115		ns
Turn-off delay time	$t_{d(off)}$			330		ns
Fall time	t_f			130		ns



Marking Symbol: K3192

Internal Connection

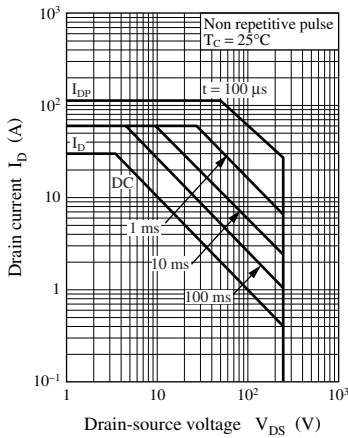


■ Electrical Characteristics (continued) $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

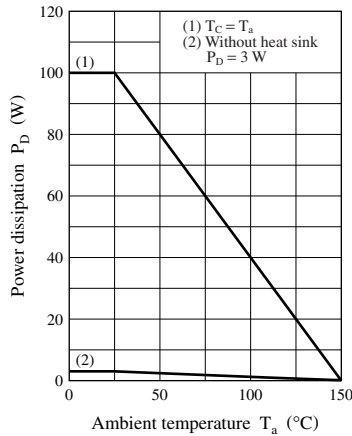
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode forward voltage	V_{DSF}	$I_{DR} = 30\text{ A}, V_{GS} = 0$			-1.5	V
Reverse recovery time	t_{rr}	$L = 230\ \mu\text{H}, V_{DD} = 100\text{ V}$		260		ns
Reverse recovery charge	Q_{rr}	$I_{DR} = 15\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		1.6		μC
Gate charge load	Q_g	$V_{DD} = 100\text{ V}, I_D = 15\text{ A}$		95		nC
Gate-source charge	Q_{gs}	$V_{GS} = 10\text{ V}$		34		nC
Gate-drain charge	Q_{gd}			12		nC
Thermal resistance (ch-c)	$R_{th(ch-c)}$				1.25	$^\circ\text{C}/\text{W}$
Thermal resistance (ch-a)	$R_{th(ch-a)}$				41.7	$^\circ\text{C}/\text{W}$

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

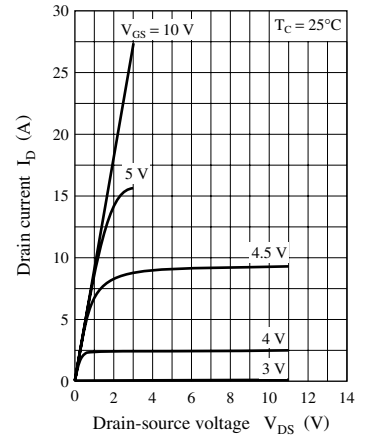
Safe operation area



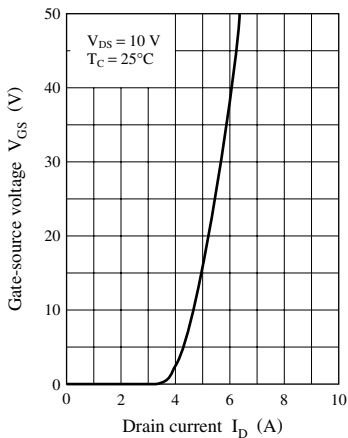
$P_D - T_a$



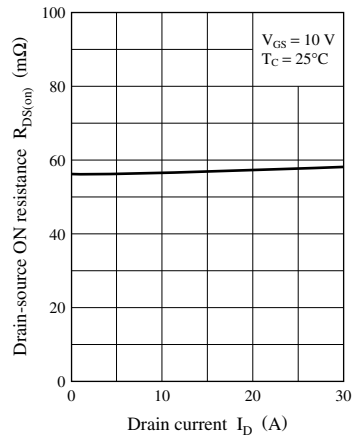
$I_D - V_{DS}$



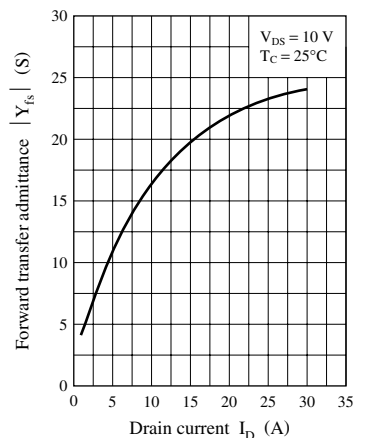
$V_{GS} - I_D$

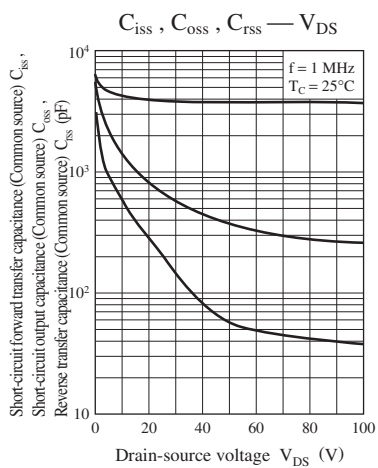


$R_{DS(on)} - I_D$



$|Y_{fs}| - I_D$





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