

# 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

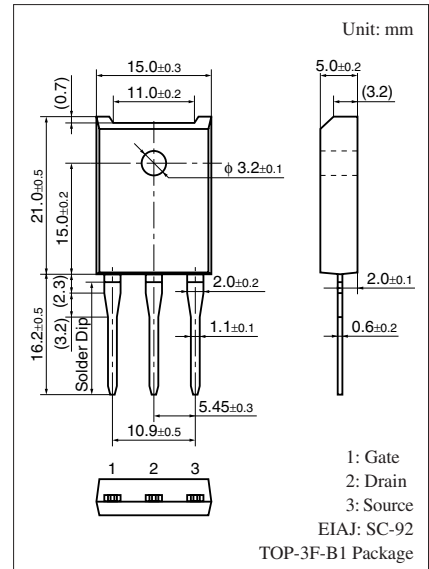
### ■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	$V_{DSS}$	250	V
Gate-source surrender voltage	$V_{GSS}$	$\pm 30$	V
Drain current	$I_D$	$\pm 30$	A
Peak drain current	$I_{DP}$	$\pm 120$	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,  $T_a = 25^\circ\text{C}$

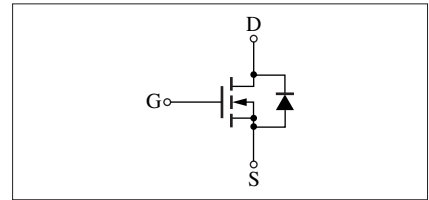
### ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

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	$\mu\text{A}$
Gate-source cutoff current	$I_{GSS}$	$V_{GS} = \pm 30 \text{ V}$ , $V_{DS} = 0$			$\pm 1$	$\mu\text{A}$
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

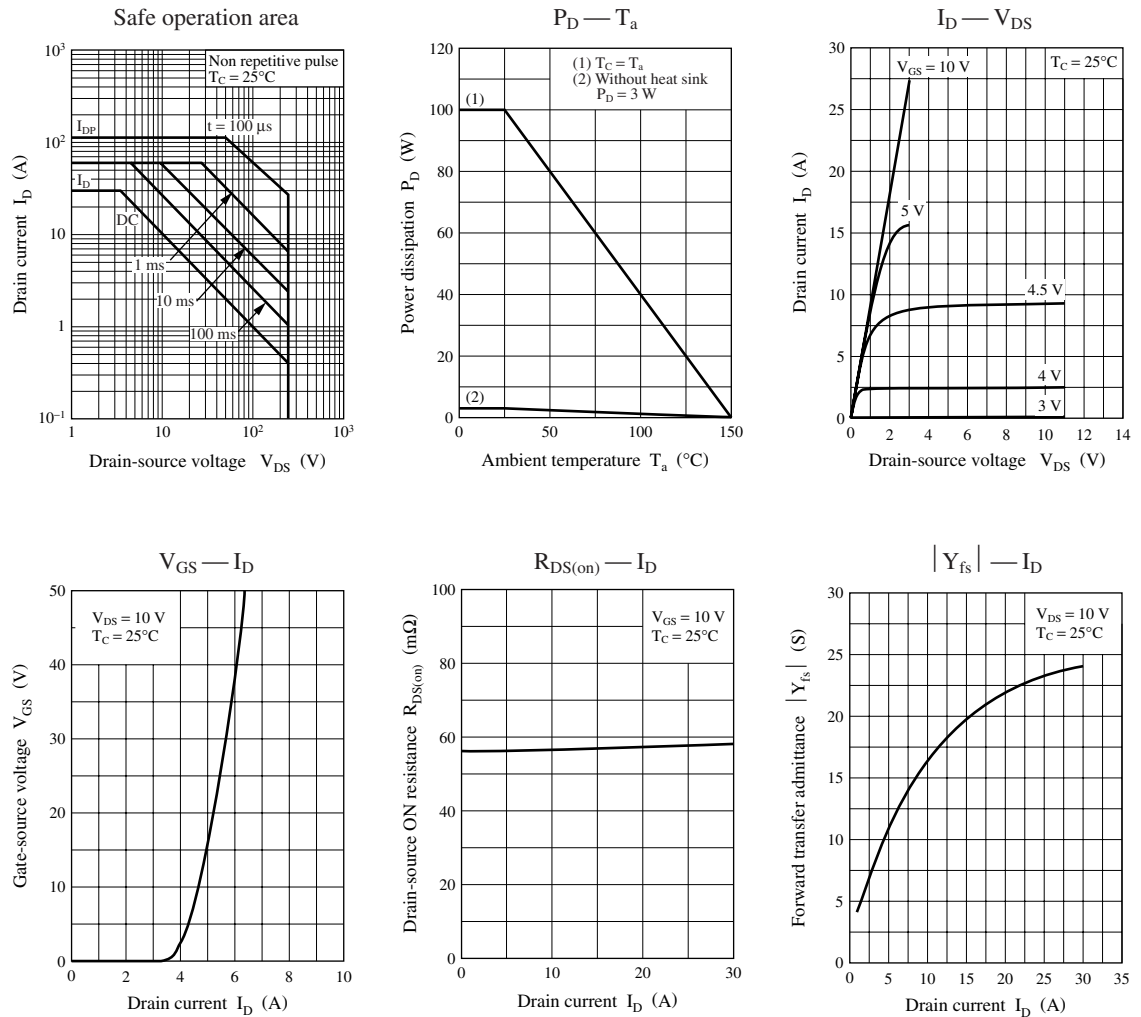
Internal Connection

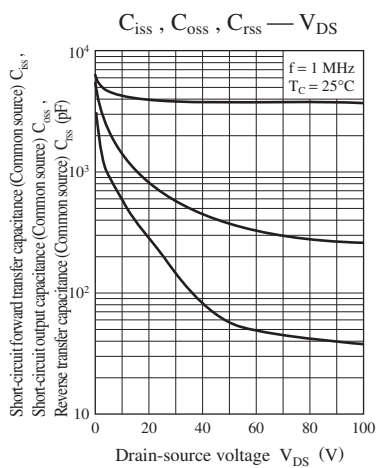


■ Electrical Characteristics (continued)  $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

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		$\mu\text{C}$
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.





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