

2SK3892

Silicon N-channel power MOSFET

For contactless relay, diving circuit for a solenoid, driving circuit for a motor, control equipment and switching power supply

■ Features

- Gate-source surrender voltage $V_{GSS} : \pm 30$ guaranteed
- Avalanche energy capacity guaranteed: $EAS > 986$ mJ
- High-speed switching: $t_f = 39$ ns

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

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	200	V
Gate-source surrender voltage	V_{GSS}	± 30	V
Drain current	I_D	22	A
Peak drain current	I_{DP}	88	A
Avalanche energy capability *	EAS	986	mJ
Drain power dissipation	P_D	40	W
		$T_a = 25^\circ C$	2.0
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

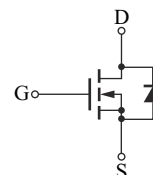
Note) *: $L = 2.67$ mH, $I_L = 22$ A, $V_{DD} = 50$ V, 1 pulse

■ Package

- Code
TO-220D-A1
- Pin Name
1: Gate
2: Drain
3: Source

■ Marking Symbol: K3892

■ Internal Connection



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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit	
Drain-source surrender voltage	V_{DSS}	$I_D = 1$ mA, $V_{GS} = 0$	200			V	
Drain-source cutoff current	I_{DSS}	$V_{DS} = 160$ V, $V_{GS} = 0$			10	μA	
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 30$ V, $V_{DS} = 0$			± 1.0	μA	
Gate threshold voltage	V_{th}	$V_{DS} = 10$ V, $I_D = 1.0$ mA	2.5		4.5	V	
Drain-source ON resistance	$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = 11.0$ A		48	62	m Ω	
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10$ V, $I_D = 11.0$ A	7	15		S	
Short-circuit input capacitance (Common source)	C_{iss}	$V_{DS} = 25$ V, $V_{GS} = 0$, $f = 1$ MHz		3 177		pF	
Short-circuit output capacitance (Common source)	C_{oss}				456		pF
Reverse transfer capacitance (Common source)	C_{rss}				41		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 100$ V, $I_D = 11.0$ A $R_L = 9.1 \Omega$, $V_{GS} = 10$ V		54		ns	
Rise time	t_r				60		ns
Turn-off delay time	$t_{d(off)}$				194		ns
Fall time	t_f				39		ns

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

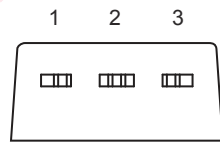
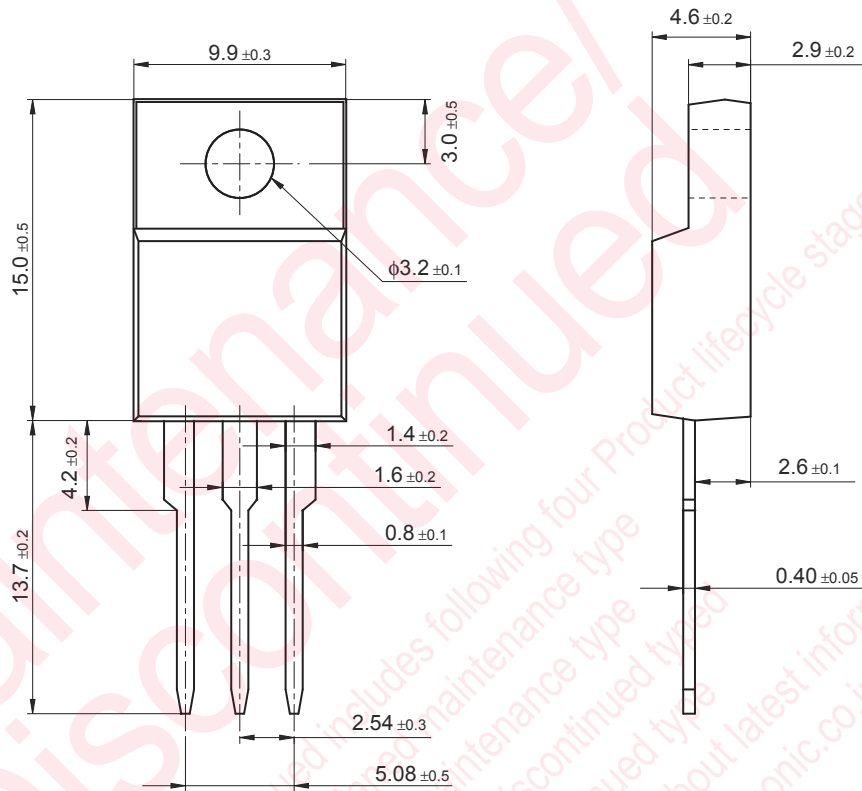
■ Electrical Characteristics (continued) $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode forward voltage	V_{DSF}	$I_{DR} = 22\text{ A}, V_{GS} = 0$			-1.5	V
Reverse recovery time	t_{rr}	$L = 230\ \mu\text{H}, V_{DD} = 100\text{ V}$		127		ns
Reverse recovery charge	Q_{rr}	$I_{DR} = 11.0\text{ A}, d_f / d_t = 100\text{ A}/\mu\text{s}$		756		nC
Gate charge load	Q_g	$V_{DD} = 100\text{ V}, I_D = 11.0\text{ A}, V_{GS} = 10\text{ V}$		50		nC
Gate-source charge	Q_{gs}			12		nC
Gate-drain charge	Q_{gd}			18		nC
Thermal resistance (ch-c)	$R_{th(ch-c)}$				3.13	$^\circ\text{C}/\text{W}$
Thermal resistance (ch-a)	$R_{th(ch-a)}$				62.5	$^\circ\text{C}/\text{W}$

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

TO-220D-A1

Unit: mm



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