Power MOSFETs Panasonic

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

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

■ Absolute Maximum Ratings $T_C = 25$ °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 $T_a = 25^{\circ}C$	P_{D}	40	W	
		2.0	W	
Junction temperature	T_{j}	150	°C	
Storage temperature	T _{stg}	-55 to +150	S°C √	

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

■ Package

- Code
 - TO-220D-A1
- Pin Name
 - 1: Gate
 - 2: Drain
- 3: Source
- Marking Symbol: K3892
- Internal Connection



■ Electrical Characteristics $T_C = 25$ °C±3°C

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Drain-source surrender voltage	$V_{\rm DSS}$	$I_D = 1 \text{ mA}, V_{GS} = 0$	200			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 160 \text{ V}, V_{GS} = 0$			10	μΑ
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 30 \text{ V}, V_{DS} = 0$			±1.0	μΑ
Gate threshold voltage	V _{th}	$V_{DS} = 10 \text{ V}, I_{D} = 1.0 \text{ mA}$	2.5		4.5	V
Drain-source ON resistance	R _{DS(on)}	$V_{GS} = 10 \text{ V}, I_D = 11.0 \text{ A}$		48	62	mΩ
Forward transfer admittance	Yfs	$V_{DS} = 10 \text{ V}, I_{D} = 11.0 \text{ A}$	7	15		S
Short-circuit input capacitance (Common source)	C _{iss}	$V_{DS} = 25 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$		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)}			54		ns
Rise time	t _r	$V_{DD} = 100 \text{ V}, I_D = 11.0 \text{ A}$		60		ns
Turn-off delay time	t _{d(off)}	$R_L = 9.1 \Omega, V_{GS} = 10 V$		194		ns
Fall time	t _f			39		ns

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

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■ Electrical Characteristics (continued) $T_C = 25$ °C±3°C

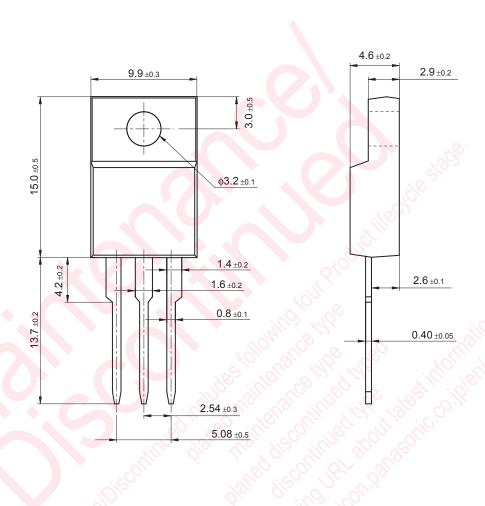
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Diode forward voltage	V _{DSF}	$I_{DR} = 22 \text{ A}, V_{GS} = 0$			-1.5	V
Reverse recovery time	t _{rr}	$L = 230 \mu H, V_{DD} = 100 V$		127		ns
Reverse recovery charge	Q _{rr}	$I_{DR} = 11.0 \text{ A}, d_i / d_t = 100 \text{ A/}\mu\text{s}$		756		nC
Gate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