

2SK2130

## Silicon N-Channel Power F-MOS FET

## ■ Features

- Avalanche energy capacity guaranteed: EAS > 15mJ
- $V_{GSS} = \pm 30V$  guaranteed
- High-speed switching:  $t_f = 45\text{ns}$
- No secondary breakdown

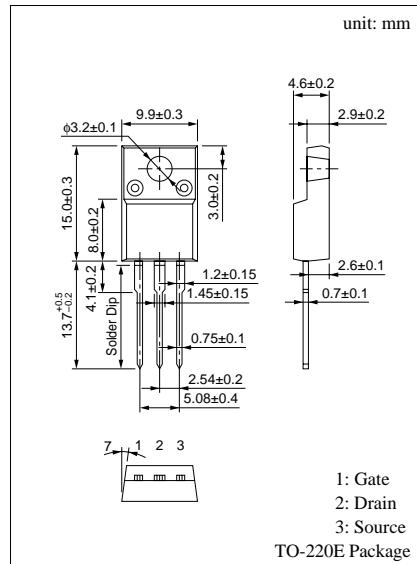
## ■ Applications

- Contactless relay
- Diving circuit for a solenoid
- Driving circuit for a motor
- Control equipment
- Switching power supply

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

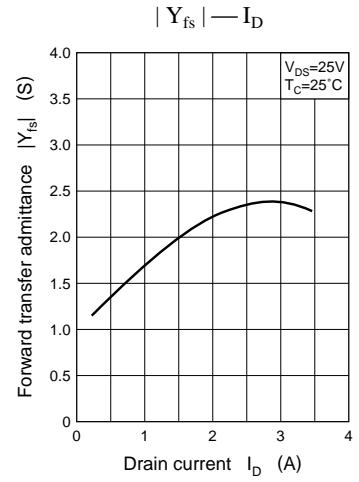
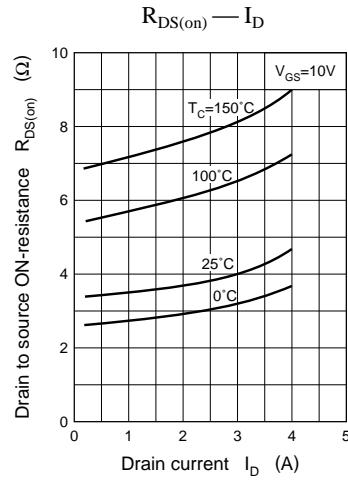
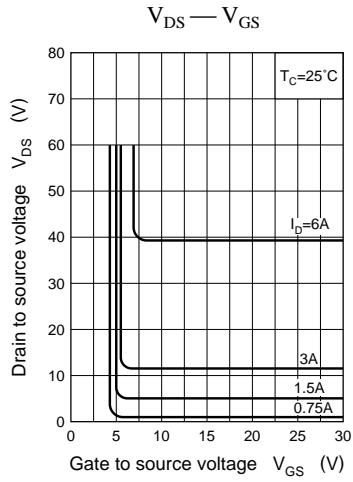
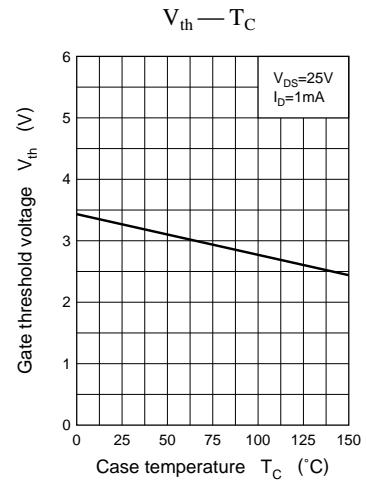
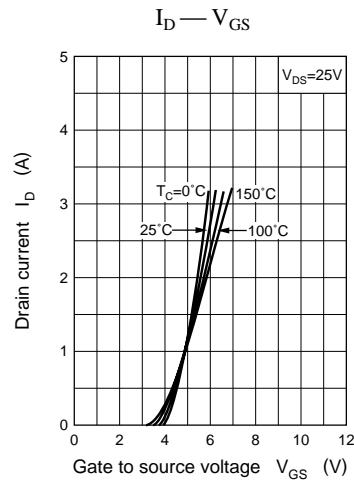
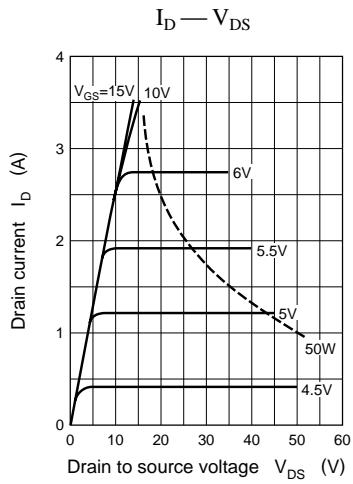
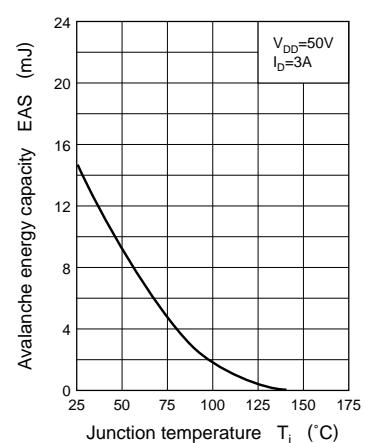
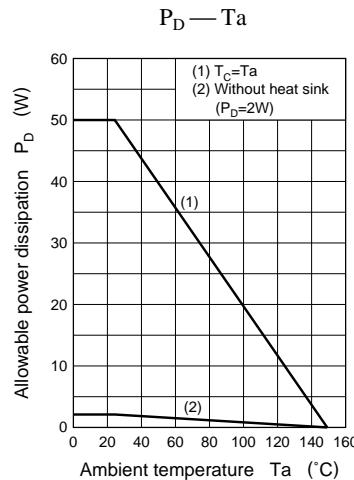
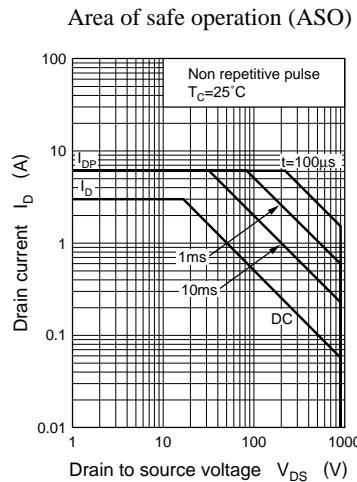
Parameter		Symbol	Ratings	Unit
Drain to Source breakdown voltage		V <sub>DSS</sub>	900	V
Gate to Source voltage		V <sub>GSS</sub>	±30	V
Drain current	DC	I <sub>D</sub>	±3	A
	Pulse	I <sub>DP</sub>	±6	A
Avalanche energy capacity		EAS*	15	mJ
Allowable power dissipation	T <sub>C</sub> = 25°C	P <sub>P</sub>	50	W
	T <sub>a</sub> = 25°C		2	
Channel temperature		T <sub>ch</sub>	150	°C
Storage temperature		T <sub>stg</sub>	-55 to +150	°C

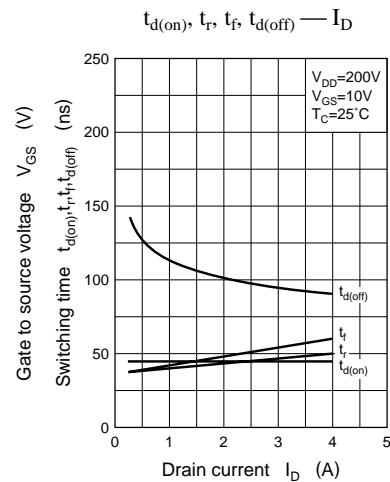
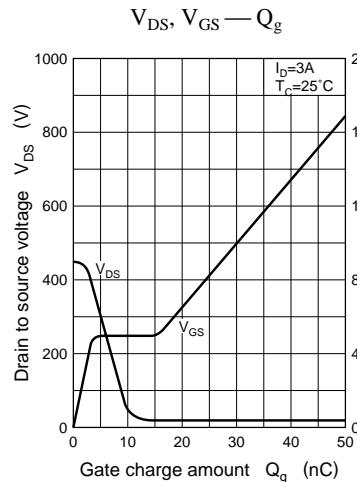
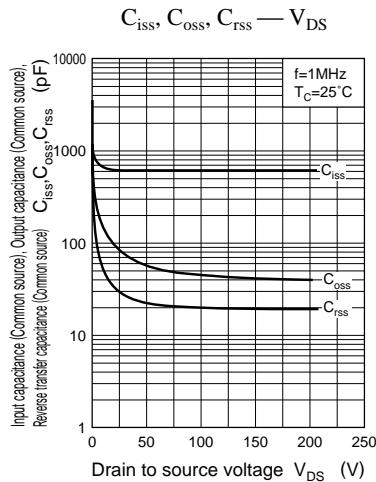
\*  $L = 5\text{mH}$ ,  $I_L = 2.45\text{A}$ ,  $V_{DD} = 50\text{V}$ , 1 pulse



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

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	$I_{DSS}$	$V_{DS} = 720V, V_{GS} = 0$			0.1	mA
Gate to Source leakage current	$I_{GSS}$	$V_{GS} = \pm 30V, V_{DS} = 0$			$\pm 1$	$\mu A$
Drain to Source breakdown voltage	$V_{DSS}$	$I_D = 1mA, V_{GS} = 0$	900			V
Gate threshold voltage	$V_{th}$	$V_{DS} = 25V, I_D = 1mA$	2		5	V
Drain to Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 2A$		3.8	5	$\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25V, I_D = 2A$	1.5	2.2		S
Diode forward voltage	$V_{DSF}$	$I_{DR} = 3A, V_{GS} = 0$			-1.6	V
Input capacitance (Common Source)	$C_{iss}$	$V_{DS} = 20V, V_{GS} = 0, f = 1MHz$		600		pF
Output capacitance (Common Source)	$C_{oss}$			90		pF
Reverse transfer capacitance (Common Source)	$C_{rss}$			30		pF
Turn-on time (delay time)	$t_{d(on)}$	$V_{GS} = 10V, I_D = 2A$ $V_{DD} = 200V, R_L = 100\Omega$		40		ns
Rise time	$t_r$			40		ns
Fall time	$t_f$			45		ns
Turn-off time (delay time)	$t_{d(off)}$			100		ns
Thermal resistance between channel and case	$R_{th(ch-c)}$				2.5	$^{\circ}C/W$





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