

# 2SK2571

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## Silicon N-Channel Power F-MOS FET

### ■ Features

- Avalanche energy capacity guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown

### ■ Applications

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

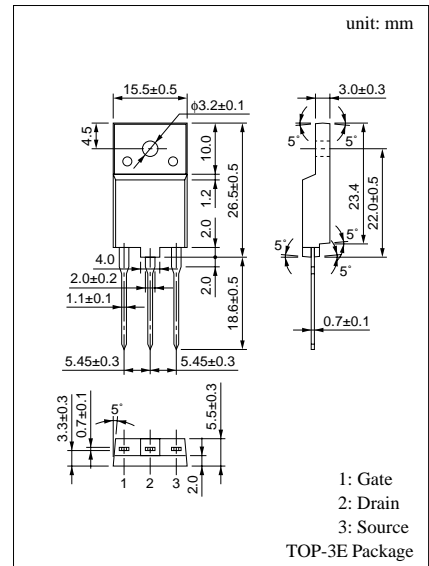
### ■ Absolute Maximum Ratings ( $T_C = 25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit	
Drain to Source breakdown voltage	$V_{DSS}$	450	V	
Gate to Source voltage	$V_{GSS}$	$\pm 30$	V	
Drain current	DC	$I_D$	$\pm 13$ A	
	Pulse	$I_{DP}$	$\pm 26$ A	
Avalanche energy capacity	EAS*	200	mJ	
Allowable power dissipation	$T_C = 25^\circ\text{C}$	$P_D$	100	W
	$T_a = 25^\circ\text{C}$		3	
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	

\*  $L = 2.4\text{mH}$ ,  $I_L = 13\text{A}$ , 1 pulse

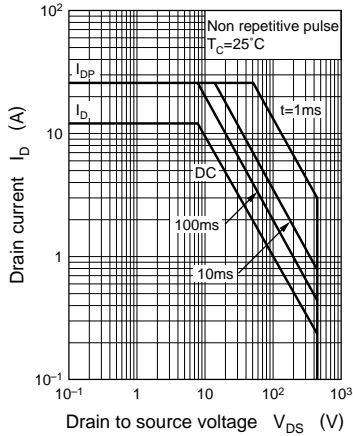
### ■ Electrical Characteristics ( $T_C = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	$I_{DSS}$	$V_{DS} = 360\text{V}$ , $V_{GS} = 0$			100	$\mu\text{A}$
Gate to Source leakage current	$I_{GSS}$	$V_{GS} = \pm 30\text{V}$ , $V_{DS} = 0$			$\pm 1$	$\mu\text{A}$
Drain to Source breakdown voltage	$V_{DSS}$	$I_D = 1\text{mA}$ , $V_{GS} = 0$	450			V
Gate threshold voltage	$V_{th}$	$V_{DS} = 25\text{V}$ , $I_D = 1\text{mA}$	2		5	V
Drain to Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$ , $I_D = 7\text{A}$		0.34	0.45	$\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25\text{V}$ , $I_D = 7\text{A}$	5	8		S
Diode forward voltage	$V_{DSF}$	$I_{DR} = 13\text{A}$ , $V_{GS} = 0$			-2	V
Input capacitance (Common Source)	$C_{iss}$	$V_{DS} = 20\text{V}$ , $V_{GS} = 0$ , $f = 1\text{MHz}$		1700		pF
Output capacitance (Common Source)	$C_{oss}$		300		pF	
Reverse transfer capacitance (Common Source)	$C_{rss}$		120		pF	
Turn-on time	$t_{on}$	$V_{DD} = 150\text{V}$ , $I_D = 7\text{A}$ $V_{GS} = 10\text{V}$ , $R_L = 21.4\Omega$		110		ns
Fall time	$t_f$		90		ns	
Turn-off time (delay time)	$t_{d(off)}$		220		ns	
Thermal resistance between channel and case	$R_{th(ch-c)}$				1.25	$^\circ\text{C/W}$
Thermal resistance between channel and atmosphere	$R_{th(ch-a)}$				41.67	$^\circ\text{C/W}$

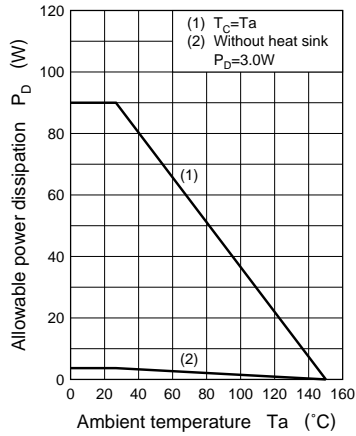


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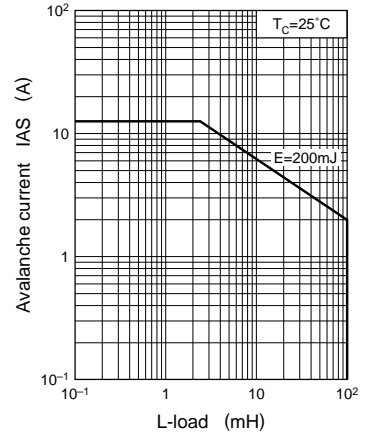
View 2SK2571 operation (ASD)



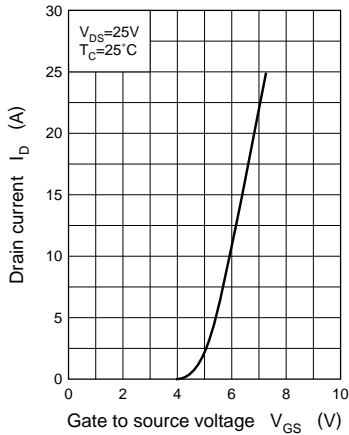
$P_D - T_a$



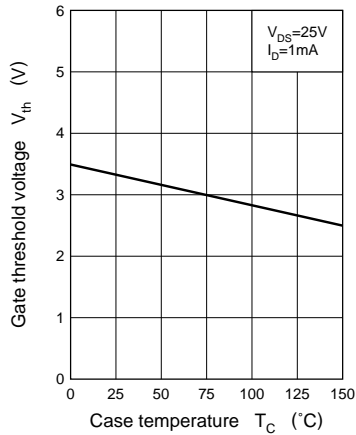
IAS — L-load



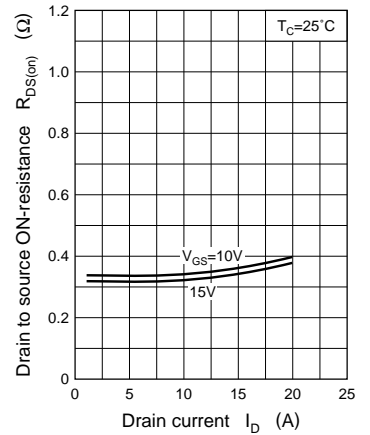
$I_D - V_{GS}$



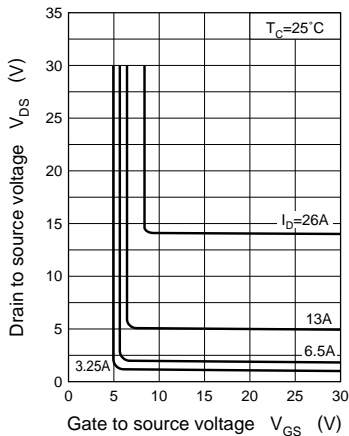
$V_{th} - T_C$



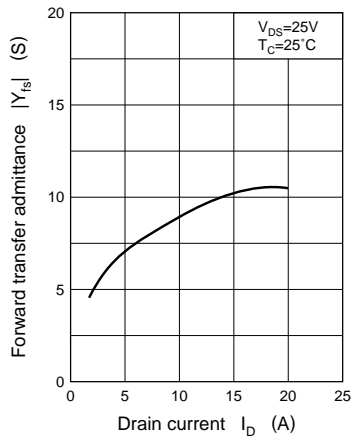
$R_{DS(on)} - I_D$



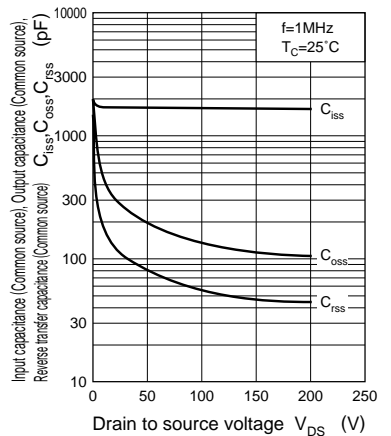
$V_{DS} - V_{GS}$



$|Y_{fs}| - I_D$



$C_{iss}, C_{oss}, C_{rss} - V_{DS}$



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