

# 2SK3637

## Silicon N-channel power MOSFET

For PDP/For high-speed switching

### ■ Features

- Low on-resistance, low  $Q_g$
- High avalanche resistance

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

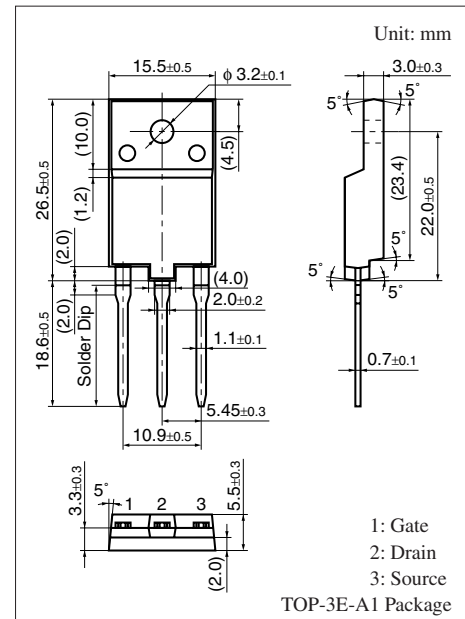
Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	$V_{DSS}$	200	V
Gate-source surrender voltage	$V_{GSS}$	$\pm 30$	V
Drain current	$I_D$	50	A
Peak drain current	$I_{DP}$	200	A
Avalanche energy capability *	EAS	2000	mJ
Power dissipation	$P_D$	100	W
	$T_a = 25^\circ\text{C}$	3	
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Note) \*:  $L = 0.8 \text{ mH}$ ,  $I_L = 50 \text{ A}$ ,  $V_{DD} = 100 \text{ V}$ , 1 pulse,  $T_a = 25^\circ\text{C}$

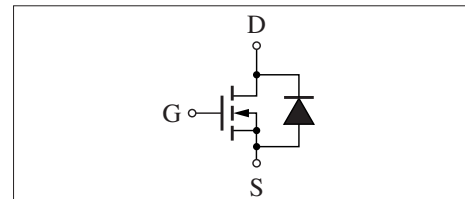
### ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Gate-drain surrender voltage	$V_{DSS}$	$I_D = 1 \text{ mA}$ , $V_{GS} = 0$	200			V
Diode forward voltage	$V_{DSF}$	$I_{DR} = 50 \text{ A}$ , $V_{GS} = 0$			-1.5	V
Gate threshold voltage	$V_{th}$	$V_{DS} = 25 \text{ V}$ , $I_D = 10 \text{ mA}$	2		4	V
Drain-source cutoff current	$I_{DSS}$	$V_{DS} = 160 \text{ V}$ , $V_{GS} = 0$			100	$\mu\text{A}$
Gate-source cutoff current	$I_{GSS}$	$V_{GS} = \pm 30 \text{ V}$ , $V_{DS} = 0$			$\pm 1$	$\mu\text{A}$
Drain-source on resistance	$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 25 \text{ A}$		29	40	$\text{m}\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25 \text{ V}$ , $I_D = 25 \text{ A}$	15	30		S
Short-circuit forward transfer capacitance (Common-source)	$C_{iss}$	$V_{DS} = 25 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$		4550		pF
Short-circuit output capacitance (Common-source)	$C_{oss}$			750		pF
Reverse transfer capacitance (Common-source)	$C_{rss}$			75		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 100 \text{ V}$ , $I_D = 25 \text{ A}$		50		ns
Rise time	$t_r$	$R_L = 4 \Omega$ , $V_{GS} = 10 \text{ V}$		125		ns
Turn-off delay time	$t_{d(off)}$			390		ns
Fall time	$t_f$			140		ns
Reverse recovery time	$t_{rr}$	$L = 230 \mu\text{H}$ , $V_{DD} = 100 \text{ V}$		210		ns
Reverse recovery charge	$Q_{rr}$	$I_{DR} = 25 \text{ A}$ , $di/dt = 100 \text{ A}/\mu\text{s}$		820		nC

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



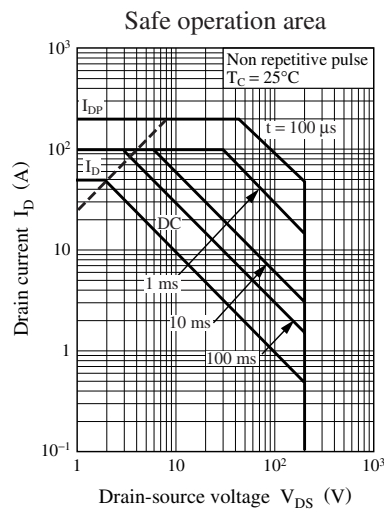
### Internal Connection



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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Total gate charge	$Q_g$	$V_{DD} = 100\text{ V}, I_D = 25\text{ A}$		85		nC
Gate-source charge	$Q_{gs}$	$V_{GS} = 10\text{ V}$		30		nC
Gate-drain charge	$Q_{gd}$			12		nC
Channel-case heat resistance	$R_{th(ch-c)}$				1.25	$^\circ\text{C}/\text{W}$
Channel-atmosphere heat resistance	$R_{th(ch-a)}$				41.6	$^\circ\text{C}/\text{W}$

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



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