

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 $T_C = 25^\circ\text{C}$

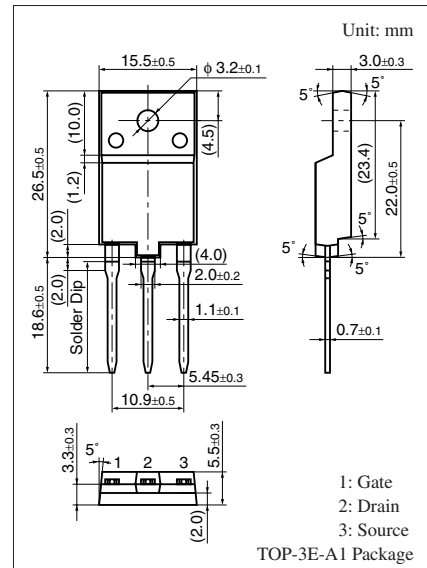
Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	200	V
Gate-source surrender voltage	V_{GSS}	± 30	V
Drain current	I_D	50	A
Peak drain current	I_{DP}	200	A
Avalanche energy capability *	EAS	2000	mJ
Power dissipation	P_D	100	W
		$T_a = 25^\circ\text{C}$	
Channel temperature	T_{ch}	150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

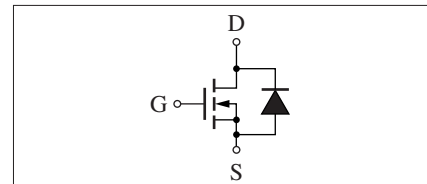
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

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	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$			± 1	μA
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	$t_{d(on)}$	$V_{DD} = 100 \text{ V}$, $I_D = 25 \text{ A}$ $R_L = 4 \Omega$, $V_{GS} = 10 \text{ V}$		50		ns
Rise time	t_r			125		ns
Turn-off delay time	$t_{d(off)}$			390		ns
Fall time	t_f			140		ns
Reverse recovery time	t_{rr}	$L = 230 \mu\text{H}$, $V_{DD} = 100 \text{ V}$ $I_{DR} = 25 \text{ A}$, $di/dt = 100 \text{ A}/\mu\text{s}$		210		ns
Reverse recovery charge	Q_{rr}			820		nC

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



Internal Connection

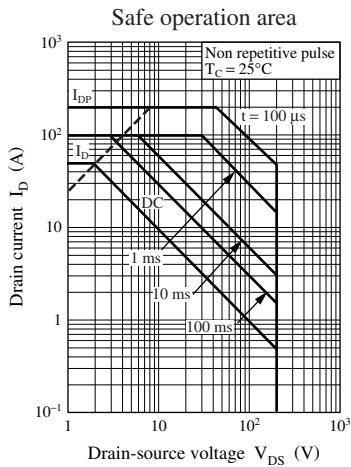


■ Electrical Characteristics (Continued) $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Total gate charge	Q_g	$V_{DD} = 100\text{ V}, I_D = 25\text{ A}$ $V_{GS} = 10\text{ V}$		85		nC
Gate-source charge	Q_{gs}			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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