

# 2SK3560

## Silicon N-channel power MOSFET

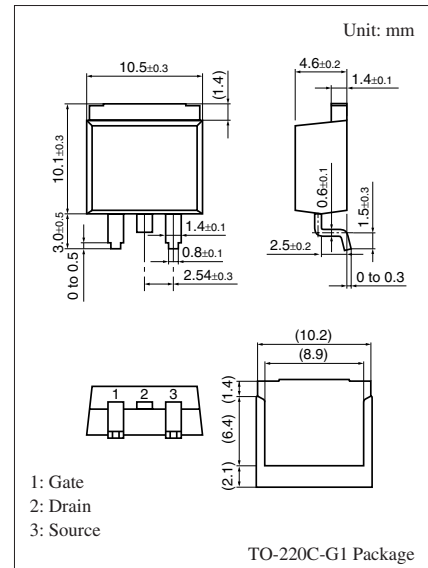
For PDP/For high-speed switching

### ■ Features

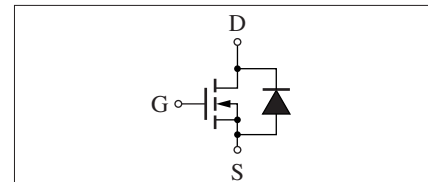
- Low on-resistance, low  $Q_g$
- High avalanche resistance

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

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	$V_{DSS}$	230	V
Gate-source surrender voltage	$V_{GSS}$	$\pm 30$	V
Drain current	$I_D$	30	A
Peak drain current	$I_{DP}$	120	A
Power dissipation	$P_D$	50	W
		$T_a = 25^\circ\text{C}$	
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



### Internal Connection



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

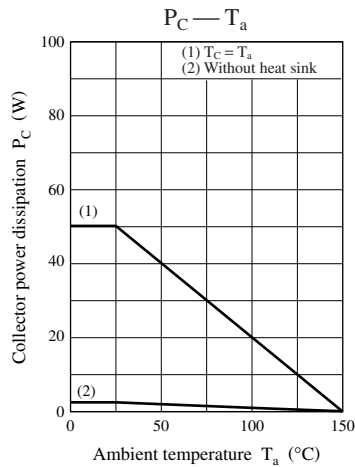
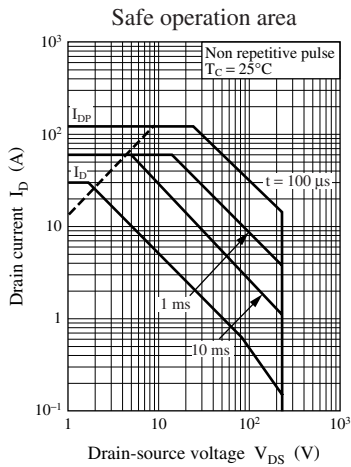
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Gate-drain surrender voltage	$V_{DSS}$	$I_D = 1 \text{ mA}$ , $V_{GS} = 0$	230			V
Diode forward voltage	$V_{DSF}$	$I_{DR} = 30 \text{ A}$ , $V_{GS} = 0$			-1.5	V
Gate threshold voltage	$V_{th}$	$V_{DS} = 25 \text{ V}$ , $I_D = 1 \text{ mA}$	2		4	V
Drain-source cutoff current	$I_{DSS}$	$V_{DS} = 184 \text{ V}$ , $V_{GS} = 0$			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	$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 15 \text{ A}$		55	74	$\text{m}\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25 \text{ V}$ , $I_D = 15 \text{ A}$	8	19		S
Short-circuit forward transfer capacitance (Common-source)	$C_{iss}$	$V_{DS} = 25 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$		2330		pF
Short-circuit output capacitance (Common-source)	$C_{oss}$			356		pF
Reverse transfer capacitance (Common-source)	$C_{rss}$			44		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} \approx 100 \text{ V}$ , $I_D = 15 \text{ A}$ $R_L \approx 6.7 \Omega$ , $V_{GS} = 10 \text{ V}$		39		ns
Rise time	$t_r$			37		ns
Turn-off delay time	$t_{d(off)}$			221		ns
Fall time	$t_f$			46		ns
Reverse recovery time	$t_{rr}$	$L = 230 \mu\text{H}$ , $V_{DD} = 100 \text{ V}$ $I_{DR} = 15 \text{ A}$ , $di/dt = 100 \text{ A}/\mu\text{s}$		164		ns
Reverse recovery charge	$Q_{rr}$			853		nC

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

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Total gate charge	$Q_g$	$V_{DD} = 100\text{ V}, I_D = 25\text{ A}$ $V_{GS} = 10\text{ V}$		51.2		nC
Gate-source charge	$Q_{gs}$			8.2		nC
Gate-drain charge	$Q_{gd}$			19.4		nC
Channel-case heat resistance	$R_{th(ch-c)}$				2.5	$^\circ\text{C}/\text{W}$
Channel-atmosphere heat resistance	$R_{th(ch-a)}$				89.2	$^\circ\text{C}/\text{W}$

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



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