

2SK3031

Silicon N-channel power MOSFET

■ Features

- Avalanche energy capability guaranteed
- High-speed switching
- Low ON resistance R_{on}
- No secondary breakdown
- Low-voltage drive
- High electrostatic energy capability

■ Applications

- Non-contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator

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

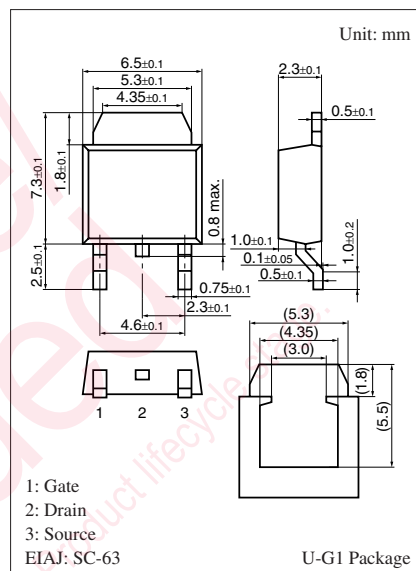
Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	100	V
Gate-source surrender voltage	V_{GSS}	± 20	V
Drain current	I_D	± 15	A
Peak drain current	I_{DP}	± 45	A
Avalanche energy capability *	EAS	7.2	mJ
Power dissipation	P_D	20	W
		1	
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *: $L = 0.1\text{ mH}$, $I_L = 12\text{ A}$, 1 pulse

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

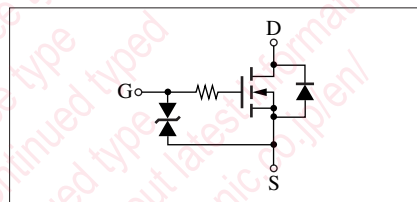
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = 1\text{ mA}$, $V_{GS} = 0$	100			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 80\text{ V}$, $V_{GS} = 0$			10	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 20\text{ V}$, $V_{DS} = 0$			± 10	μA
Gate threshold voltage	V_{th}	$V_{DS} = 10\text{ V}$, $I_D = 1\text{ mA}$	1.0		2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10\text{ V}$, $I_D = 8\text{ A}$	6	11		S
Drain-source ON resistance	$R_{DS(on)1}$	$V_{GS} = 10\text{ V}$, $I_D = 8\text{ A}$		90	135	$\text{m}\Omega$
	$R_{DS(on)2}$	$V_{GS} = 4\text{ V}$, $I_D = 8\text{ A}$		105	160	
Diode forward voltage	V_{DSF}	$I_{DR} = 15\text{ A}$, $V_{GS} = 0$			-1.4	V
Short-circuit forward transfer capacitance (Common source)	C_{iss}	$V_{DS} = 10\text{ V}$, $V_{GS} = 0$, $f = 1\text{ MHz}$		300		pF
Short-circuit output capacitance (Common source)	C_{oss}			190		pF
Reverse transfer capacitance (Common source)	C_{rss}			33		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30\text{ V}$, $I_D = 8\text{ A}$, $R_L = 3.75\ \Omega$		20		ns
Rise time	t_r	$V_{GS} = 10\text{ V}$		90		ns
Fall time	t_f			330		ns
Turn-off delay time	$t_{d(off)}$			1450		ns
Thermal resistance (ch-c)	$R_{th(ch-c)}$			6.25		$^\circ\text{C/W}$
Thermal resistance (ch-a)	$R_{th(ch-a)}$			125		$^\circ\text{C/W}$

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



Marking Symbol: K3031

Internal Connection



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