

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

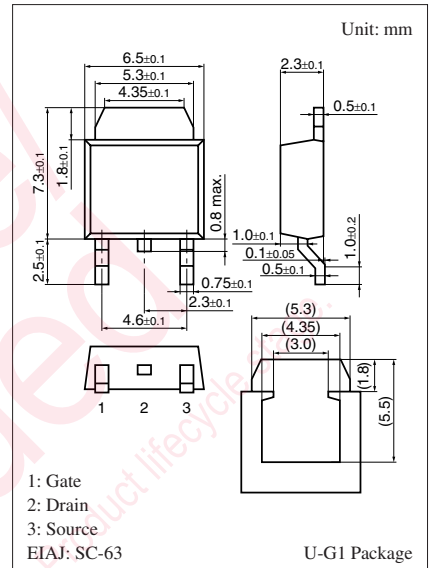
| Parameter | Symbol | Rating | Unit |
|--------------------------------|-----------|--------------------------|------------------|
| Drain-source surrender voltage | V_{DSS} | 100 | V |
| Gate-source surrender voltage | V_{GSS} | ± 20 | V |
| Drain current | I_D | ± 15 | A |
| Peak drain current | I_{DP} | ± 45 | A |
| Avalanche energy capability * | EAS | 7.2 | mJ |
| Power dissipation | P_D | 20 | W |
| | | $T_a = 25^\circ\text{C}$ | 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 $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

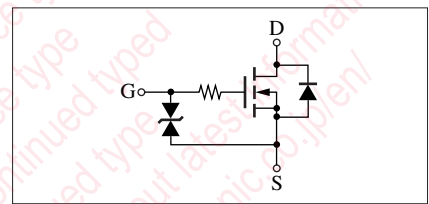
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|----------------|--|-----|------|----------|--------------------|
| Drain-source surrender voltage | V_{DSS} | $I_D = 1 \text{ mA}$, $V_{GS} = 0$ | 100 | | | V |
| Drain-source cutoff current | I_{DSS} | $V_{DS} = 80 \text{ V}$, $V_{GS} = 0$ | | | 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 | m Ω |
| | | $V_{GS} = 4 \text{ V}$, $I_D = 8 \text{ A}$ | | 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 |
| | | | | | 190 | |
| | | | | | 33 | |
| Reverse transfer capacitance (Common source) | C_{rss} | | | 33 | | pF |
| Turn-on delay time | $t_{d(on)}$ | $V_{DD} = 30 \text{ V}$, $I_D = 8 \text{ A}$, $R_L = 3.75 \Omega$ $V_{GS} = 10 \text{ V}$ | | 20 | | ns |
| Rise time | t_r | | | 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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and household appliances).

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reliability are required, or if the failure or malfunction of the prod-

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use of the products, therefore, ask for the most up-to-date Product
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take into the consideration of incidence of break down and failure
n the systems such as redundant design, arresting the spread of fire
al injury, fire, social damages, for example, by using the products.

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mounting or at customer's process. When using products for which
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