## 2SK3318

## Silicon N-channel power MOSFET

#### For switching

#### ■ Features

- Avalanche energy capability guaranteed
- High-speed switching
- Low ON resistance Ron
- No secondary breakdown

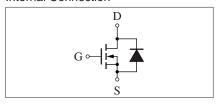
## ■ Absolute Maximum Ratings $T_C = 25$ °C

| Parameter                       | Symbol           | Rating      | Unit |  |
|---------------------------------|------------------|-------------|------|--|
| Drain-source surrender voltage  | V <sub>DSS</sub> | 600         | V    |  |
| Gate-source surrender voltage   | V <sub>GSS</sub> | ±30         | V    |  |
| Drain current                   | $I_D$            | ±15         | A    |  |
| Peak drain current              | $I_{DP}$         | ±60         | A    |  |
| Avalanche energy capability *   | EAS              | 112.5       | mJ   |  |
| Power                           | $P_{\mathrm{D}}$ | 100         | W    |  |
| dissipation $T_a = 25^{\circ}C$ |                  | 3           |      |  |
| Channel temperature             | T <sub>ch</sub>  | 150         | °C   |  |
| Storage temperature             | $T_{stg}$        | -55 to +150 | °C   |  |

Note) \*: L = 1 mH,  $I_L = 15 A$ , 1 pulse

#### Unit: mm 15.0±0.3 (3.2) 11.0±0.2 ф 3.2±0.1 21.0±0.5 15.0±0.2 2.0±0.1 2.0±0.2 16.2±0.5 1.1±0.1 0.6±0.2 5.45±0.3 1: Gate 2: Drain 3: Source TOP-3F-A1 Package

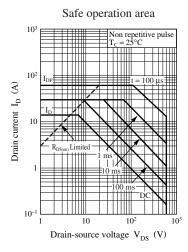
#### Internal Connection

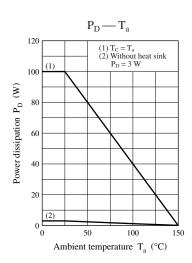


### ■ Electrical Characteristics $T_C = 25$ °C $\pm 3$ °C

| Parameter  | Symbol                | Conditions   | Min | Тур   | Max  | Unit |
|--|-----------------------|--|-----|-------|------|------|
| Gate-drain surrender voltage                               | V <sub>DSS</sub>      | $I_D = 1 \text{ mA}, V_{GS} = 0$                       | 600 |       |      | V    |
| Diode forward voltage                                      | V <sub>DSF</sub>      | $I_{DR} = 15 \text{ A}, V_{GS} = 0$                    |     |       | -1.5 | V    |
| Gate threshold voltage                                     | V <sub>th</sub>       | $V_{DS} = 25 \text{ V}, I_{D} = 1 \text{ mA}$          | 2   |       | 4    | V    |
| Drain-source cutoff current                                | $I_{DSS}$             | $V_{DS} = 480 \text{ V}, V_{GS} = 0$                   |     |       | 10   | μΑ   |
| Gate-source cutoff currentt                                | $I_{GSS}$             | $V_{GS} = \pm 30 \text{ V}, V_{DS} = 0$                |     |       | ±1   | μΑ   |
| Drain-source on resistance                                 | R <sub>DS(on)</sub>   | $V_{GS} = 10 \text{ V}, I_D = 7.5 \text{ A}$           |     | 0.33  | 0.46 | Ω    |
| Forward transfer admittance                                | Y <sub>fs</sub>       | $V_{DS} = 25 \text{ V}, I_{D} = 7.5 \text{ A}$         | 6   | 10    |      | S    |
| Short-circuit forward transfer capacitance (Common-source) | C <sub>iss</sub>      | $V_{DS} = 20 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$ |     | 3 500 |      | pF   |
| Short-circuit output capacitance (Common-source)           | C <sub>oss</sub>      |  |     | 340   |      | pF   |
| Reverse transfer capacitance<br>(Common-source)            | C <sub>rss</sub>      |  |     | 50    |      | pF   |
| Turn-on delay time   | t <sub>d(on)</sub>    | $V_{DD} = 150 \text{ V}, I_D = 7.5 \text{ A}$          |     | 40    |      | ns   |
| Rise time  | t <sub>r</sub>        | $R_{L} = 20 \Omega, V_{GS} = 10 V$                     |     | 55    |      | ns   |
| Turn-off delay time  | t <sub>d(off)</sub>   |  |     | 310   |      | ns   |
| Fall time  | t <sub>f</sub>        |  |     | 70    |      | ns   |
| Channel-case heat resistance                               | R <sub>th(ch-c)</sub> |  |     |       | 1.25 | °C/W |
| Channel-atmosphere heat resistance                         | R <sub>th(ch-a)</sub> |  |     |       | 41.7 | °C/W |

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





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