

# 2SK2759-01R

FUJI POWER MOSFET

## N-CHANNEL SILICON POWER MOSFET

### FAP-2S Series

#### Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- Avalanche-proof

#### Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

#### Maximum ratings and characteristic Absolute maximum ratings

(T<sub>c</sub>=25°C unless otherwise specified)

| Item                                    | Symbol                              | Ratings             | Unit |
|---|-------------------------------------|---------------------|------|
| Drain-source voltage                    | V <sub>DS</sub>                     | 500                 | V    |
| Continuous drain current                | I <sub>D</sub>                      | ±15                 | A    |
| Pulsed drain current                    | I <sub>D(puls)</sub>                | ±60                 | A    |
| Gate-source voltage                     | V <sub>GS</sub>                     | ±35                 | V    |
| Repetitive or non-repetitive            | IAR*2                               | 15                  | A    |
| Maximum Avalanche Energy                | EAS*1                               | 108                 | mJ   |
| Max. power dissipation                  | P <sub>D</sub>                      | 80                  | W    |
| Operating and storage temperature range | T <sub>ch</sub><br>T <sub>stg</sub> | +150<br>-55 to +150 | °C   |

\*1 L=0.88mH, V<sub>cc</sub>=50V \*2 T<sub>ch</sub>≧150°C

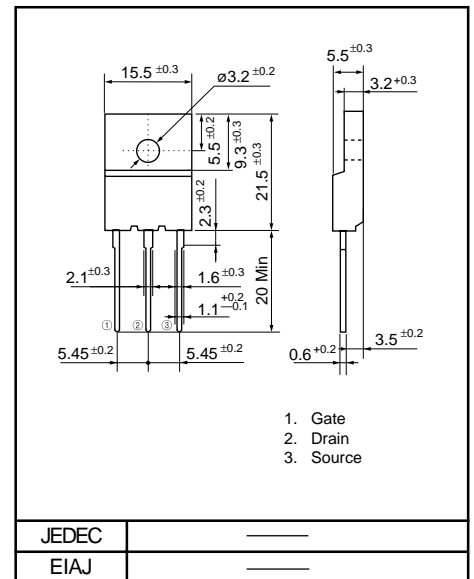
#### Electrical characteristics (T<sub>c</sub> =25°C unless otherwise specified)

| Item                             | Symbol               | Test Conditions  | Min.                   | Typ. | Max. | Units |
|----------------------------------|----------------------|--|------------------------|------|------|-------|
| Drain-source breakdown voltage   | V <sub>(BR)DSS</sub> | I <sub>D</sub> =1mA V <sub>GS</sub> =0V                                    | 500                    |      |      | V     |
| Gate threshold voltage           | V <sub>GS(th)</sub>  | I <sub>D</sub> =1mA V <sub>DS</sub> =V <sub>GS</sub>                       | 3.5                    | 4.0  | 4.5  | V     |
| Zero gate voltage drain current  | I <sub>DSS</sub>     | V <sub>DS</sub> =500V<br>V <sub>GS</sub> =0V                               | T <sub>ch</sub> =25°C  | 10   | 500  | μA    |
|                                  |                      |  | T <sub>ch</sub> =125°C | 0.2  | 1.0  | mA    |
| Gate-source leakage current      | I <sub>GSS</sub>     | V <sub>GS</sub> =±35V V <sub>DS</sub> =0V                                  |                        | 10   | 100  | nA    |
| Drain-source on-state resistance | R <sub>DS(on)</sub>  | I <sub>D</sub> =7.5A V <sub>GS</sub> =10V                                  |                        | 0.44 | 0.55 | Ω     |
| Forward transconductance         | g <sub>fs</sub>      | I <sub>D</sub> =7.5A V <sub>DS</sub> =25V                                  | 4.5                    | 9.0  |      | S     |
| Input capacitance                | C <sub>iss</sub>     | V <sub>DS</sub> =25V   |                        | 1400 | 2100 | pF    |
| Output capacitance               | C <sub>oss</sub>     | V <sub>GS</sub> =0V  |                        | 250  | 380  |       |
| Reverse transfer capacitance     | C <sub>rss</sub>     | f=1MHz   |                        | 110  | 170  |       |
| Turn-on time t <sub>on</sub>     | td(on)               | V <sub>CC</sub> =300V I <sub>D</sub> =15A                                  |                        | 30   | 50   | ns    |
|                                  | t <sub>r</sub>       | V <sub>GS</sub> =10V   |                        | 110  | 170  |       |
| Turn-off time t <sub>off</sub>   | td(off)              | R <sub>GS</sub> =10Ω   |                        | 90   | 140  |       |
|                                  | t <sub>f</sub>       |  |                        | 55   | 90   |       |
| Avalanche capability             | I <sub>AV</sub>      | L=100μH T <sub>ch</sub> =25°C  | 15                     |      |      | A     |
| Diode forward on-voltage         | V <sub>SD</sub>      | I <sub>F</sub> =2I <sub>DR</sub> V <sub>GS</sub> =0V T <sub>ch</sub> =25°C |                        | 1.1  | 1.65 | V     |
| Reverse recovery time            | t <sub>rr</sub>      | I <sub>F</sub> =I <sub>DR</sub> V <sub>GS</sub> =0V                        |                        | 500  |      | ns    |
| Reverse recovery charge          | Q <sub>rr</sub>      | -di/dt=100A/μs T <sub>ch</sub> =25°C                                       |                        | 8.0  |      | μC    |

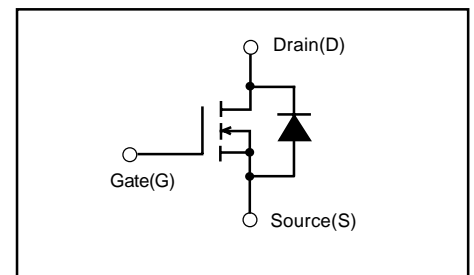
#### Thermal characteristics

| Item               | Symbol                | Test Conditions    | Min. | Typ. | Max. | Units |
|--------------------|-----------------------|--------------------|------|------|------|-------|
| Thermal resistance | R <sub>th(ch-c)</sub> | channel to case    |      |      | 1.56 | °C/W  |
|                    | R <sub>th(ch-a)</sub> | channel to ambient |      |      | 30.0 | °C/W  |

#### Outline Drawings



#### Equivalent circuit schematic



Characteristics

