

# 2SK3530-01MR

**FUJI**  
ELECTRIC

200304

## FUJI POWER MOSFET Super FAP-G Series

## N-CHANNEL SILICON POWER MOSFET

### ■ 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

● (Tc=25°C unless otherwise specified)

| Item                                    | Symbol                                | Ratings            | Unit  |
|-----------------------------------------|---------------------------------------|--------------------|-------|
| Drain-source voltage                    | V <sub>DS</sub>                       | 800                | V     |
|                                         | V <sub>DSX</sub> *5                   | 800                | V     |
| Continuous drain current                | I <sub>D</sub>                        | ±7                 | A     |
| Pulsed drain current                    | I <sub>D</sub> (puls)                 | ±28                | A     |
| Gate-source voltage                     | V <sub>GS</sub>                       | ±30                | V     |
| Repetitive or non-repetitive            | I <sub>AR</sub> *2                    | 7                  | A     |
| Maximum Avalanche Energy                | E <sub>AS</sub> *1                    | 235.3              | mJ    |
| Maximum Drain-Source dV/dt              | dV <sub>DS</sub> /dt *4               | 40                 | kV/μs |
| Peak Diode Recovery dV/dt               | dV <sub>DR</sub> /dt *3               | 5                  | kV/μs |
| Max. power dissipation                  | P <sub>D</sub> / T <sub>a</sub> =25°C | 2.16               | W     |
|                                         |                                       | 70                 | mW    |
| Operating and storage temperature range | T <sub>ch</sub> / T <sub>stg</sub>    | +150 / -55 to +150 | °C    |
| Isolation Voltage                       | V <sub>ISO</sub> *6                   | 3                  | kVrms |

\*1 L=8.8mH, V<sub>CC</sub>=80V, T<sub>ch</sub>=25°C See to Avalanche Energy Graph \*2 T<sub>ch</sub> ≤150°C

\*3 I<sub>F</sub> ≤ -I<sub>D</sub>, -di/dt=50A/μs, V<sub>CC</sub> ≤ BV<sub>DSS</sub>, T<sub>ch</sub> ≤150°C \*4 V<sub>DS</sub> ≤ 800V \*5 V<sub>GS</sub>=-30V \*6 t=60sec, f=60Hz

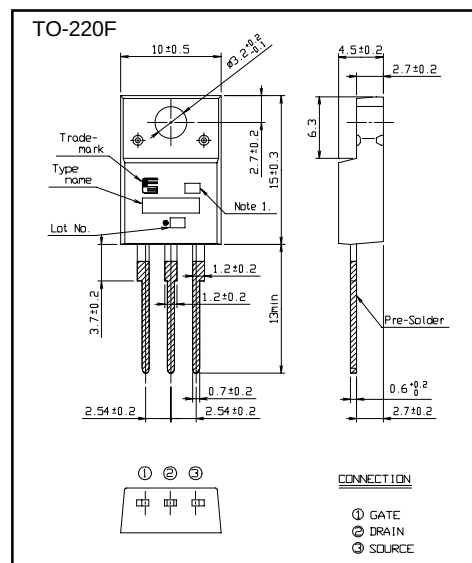
### ● Electrical characteristics (T<sub>c</sub>=25°C unless otherwise specified)

| Item                             | Symbol               | Test Conditions                                              | Min. | Typ. | Max. | Units |
|----------------------------------|----------------------|--------------------------------------------------------------|------|------|------|-------|
| Drain-source breakdown voltage   | V <sub>(BR)DSS</sub> | I <sub>D</sub> =250μA V <sub>GS</sub> =0V                    | 800  |      |      | V     |
| Gate threshold voltage           | V <sub>GS(th)</sub>  | I <sub>D</sub> =250μA V <sub>DS</sub> =V <sub>GS</sub>       | 3.0  |      | 5.0  | V     |
| Zero gate voltage drain current  | I <sub>DSS</sub>     | V <sub>DS</sub> =800V V <sub>GS</sub> =0V                    |      |      | 25   | μA    |
|                                  |                      | V <sub>DS</sub> =640V V <sub>GS</sub> =0V                    |      |      | 250  | μA    |
| Gate-source leakage current      | I <sub>GSS</sub>     | V <sub>GS</sub> =±30V V <sub>DS</sub> =0V                    |      |      | 100  | nA    |
| Drain-source on-state resistance | R <sub>DS(on)</sub>  | I <sub>D</sub> =3.5A V <sub>GS</sub> =10V                    |      | 1.46 | 1.90 | Ω     |
| Forward transconductance         | g <sub>fs</sub>      | I <sub>D</sub> =3.5A V <sub>DS</sub> =25V                    | 4.1  | 8.2  |      | S     |
| Input capacitance                | C <sub>iss</sub>     | V <sub>DS</sub> =25V                                         |      | 740  | 1110 | pF    |
| Output capacitance               | C <sub>oss</sub>     | V <sub>GS</sub> =0V                                          |      | 105  | 160  | pF    |
| Reverse transfer capacitance     | C <sub>rss</sub>     | f=1MHz                                                       |      | 7    | 10.5 | pF    |
| Turn-on time t <sub>on</sub>     | td(on)               | V <sub>CC</sub> =600V I <sub>D</sub> =3.5A                   |      | 21   | 31.5 | ns    |
|                                  | t <sub>r</sub>       | V <sub>GS</sub> =10V                                         |      | 8    | 12   | ns    |
| Turn-off time t <sub>off</sub>   | td(off)              | R <sub>GS</sub> =10 Ω                                        |      | 40   | 60   | ns    |
|                                  | t <sub>f</sub>       |                                                              |      | 9.6  | 14.4 | ns    |
| Total Gate Charge                | Q <sub>G</sub>       | V <sub>CC</sub> =400V                                        |      | 21.5 | 32   | nC    |
| Gate-Source Charge               | Q <sub>GS</sub>      | I <sub>D</sub> =7A                                           |      | 3    | 4.5  | nC    |
| Gate-Drain Charge                | Q <sub>GD</sub>      | V <sub>GS</sub> =10V                                         |      | 7    | 10.5 | nC    |
| Avalanche capability             | I <sub>AV</sub>      | L=8.8mH T <sub>ch</sub> =25°C                                | 7    |      |      | A     |
| Diode forward on-voltage         | V <sub>SD</sub>      | I <sub>F</sub> =7A V <sub>GS</sub> =0V T <sub>ch</sub> =25°C |      | 0.90 | 1.50 | V     |
| Reverse recovery time            | t <sub>rr</sub>      | I <sub>F</sub> =7A V <sub>GS</sub> =0V                       |      | 2.3  |      | μs    |
| Reverse recovery charge          | Q <sub>rr</sub>      | -di/dt=100A/μs T <sub>ch</sub> =25°C                         |      | 7.0  |      | μC    |

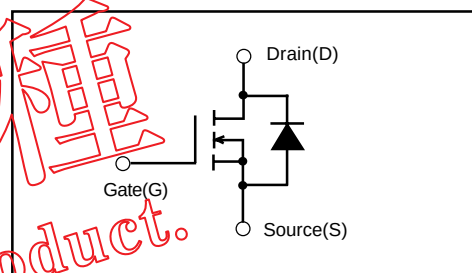
### ● Thermal characteristics

| Item               | Symbol                | Test Conditions    | Min. | Typ. | Max.  | Units |
|--------------------|-----------------------|--------------------|------|------|-------|-------|
| Thermal resistance | R <sub>th(ch-c)</sub> | channel to case    |      |      | 1.790 | °C/W  |
|                    | R <sub>th(ch-a)</sub> | channel to ambient |      |      | 58.0  | °C/W  |

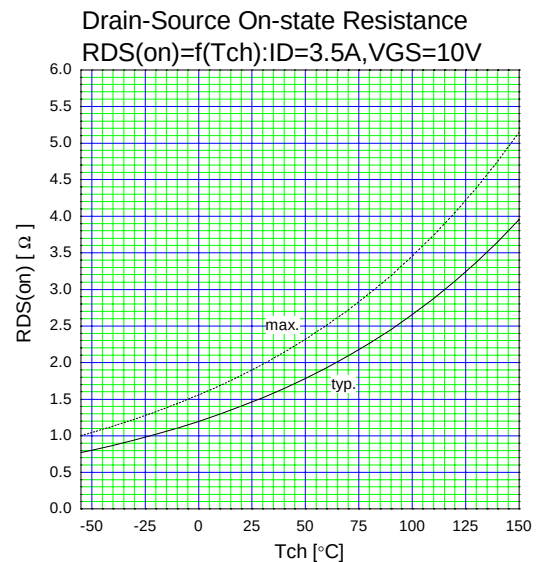
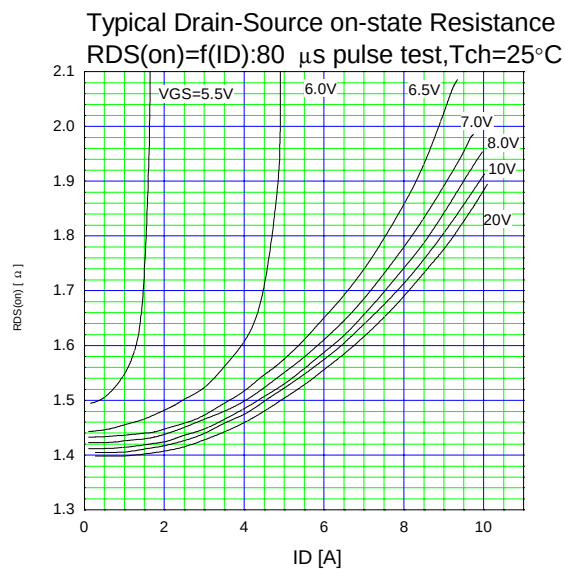
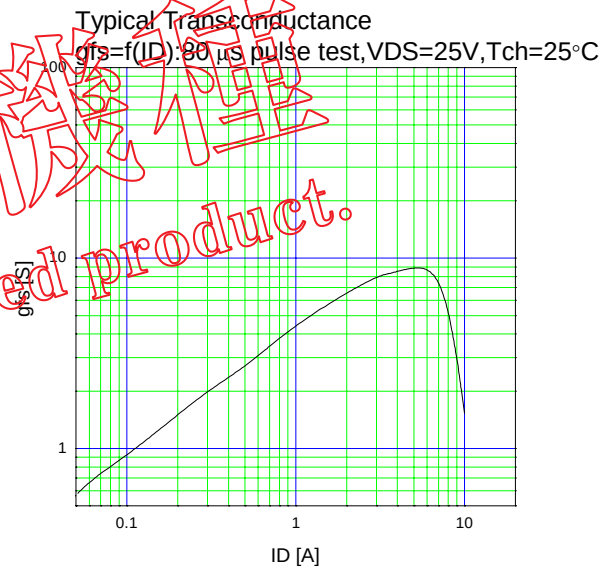
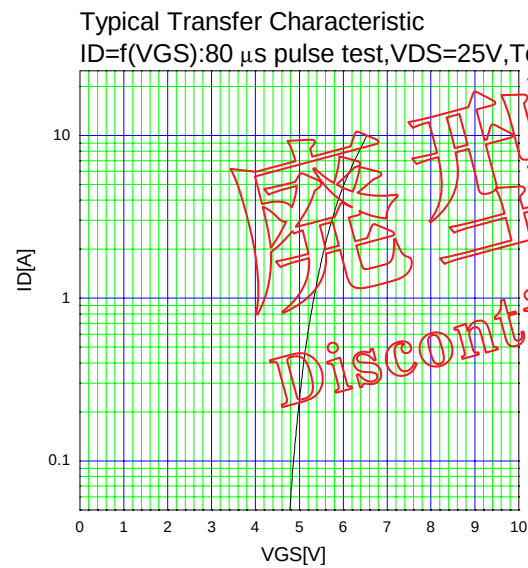
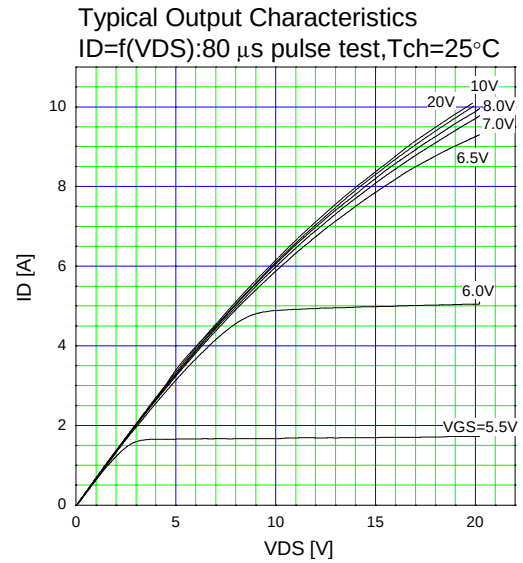
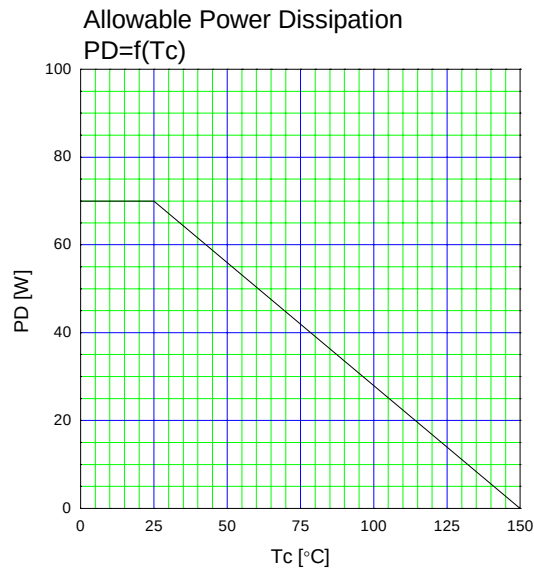
### ■ Outline Drawings [mm]

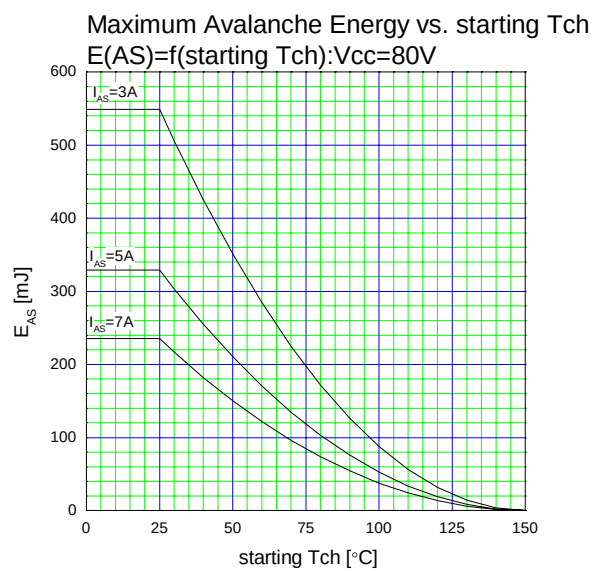
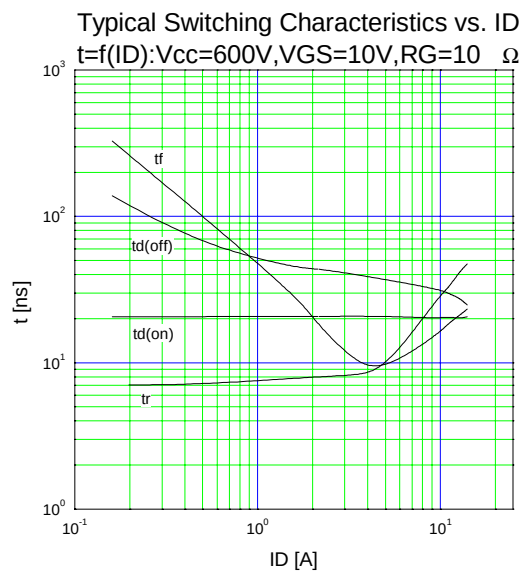
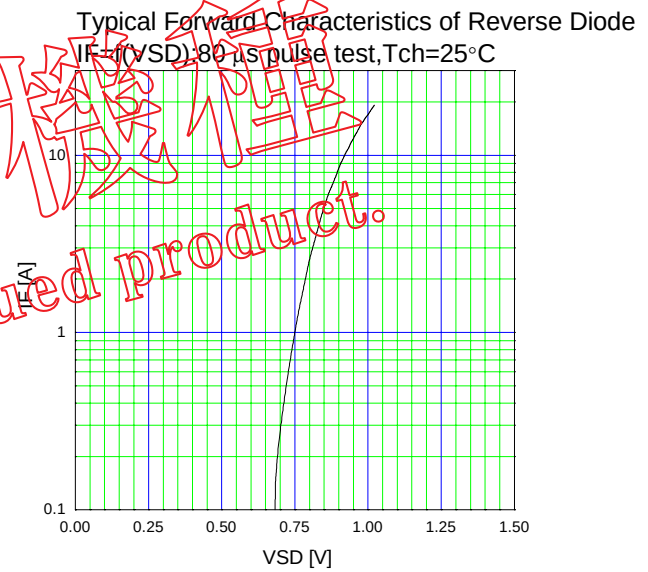
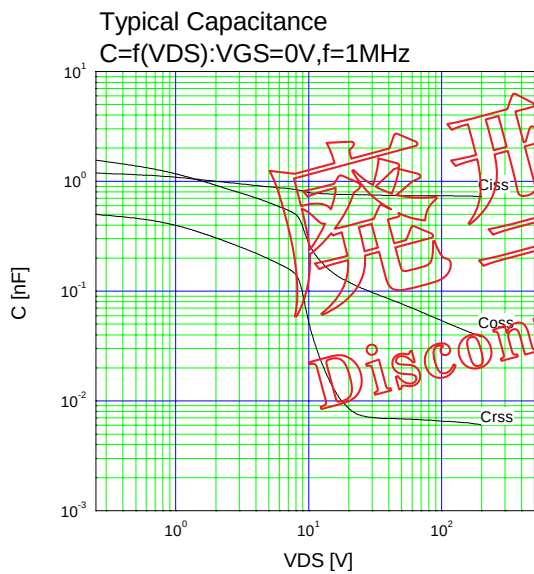
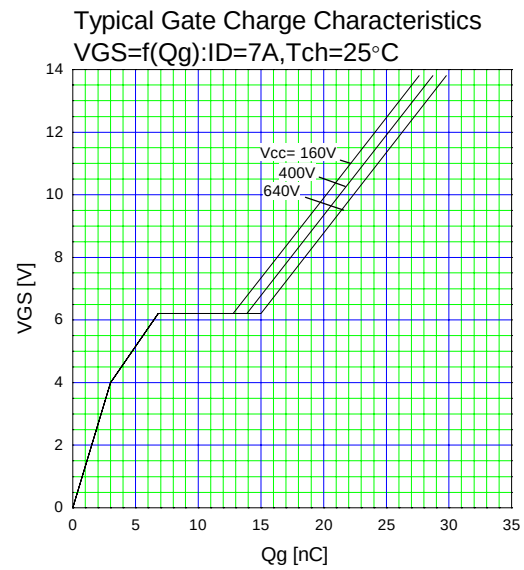
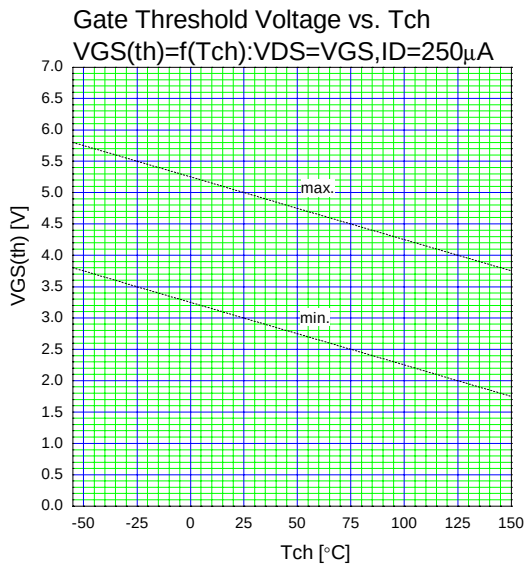


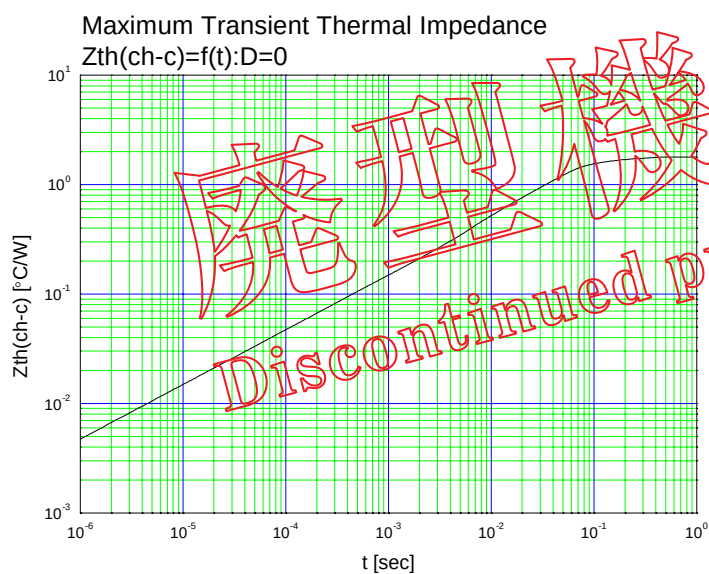
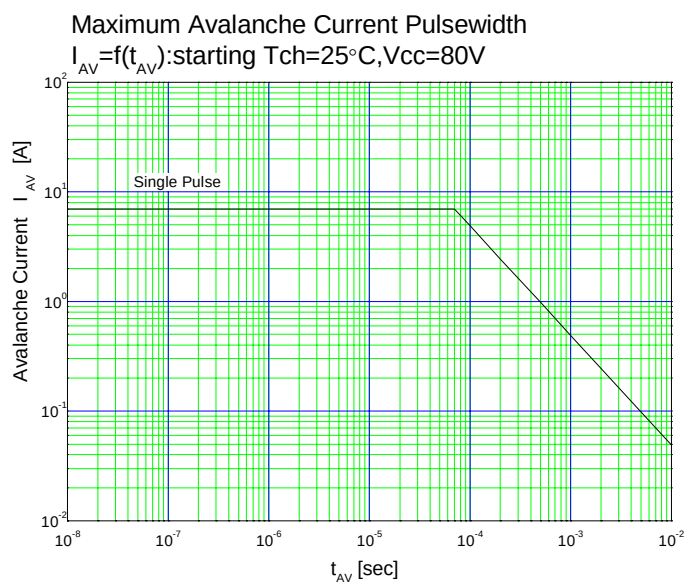
### ■ Equivalent circuit schematic



## Characteristics







廢型機種  
Discontinued product.