

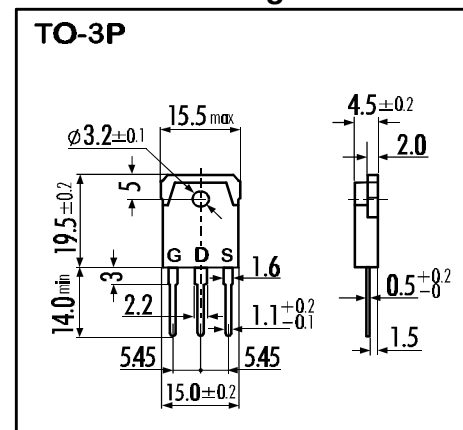
### > Features

- High Speed Switching
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Voltage
- $V_{GS} = \pm 30V$  Guarantee
- Avalanche Proof

### > Applications

- Switching Regulators
- UPS
- DC-DC converters
- General Purpose Power Amplifier

### > Outline Drawing

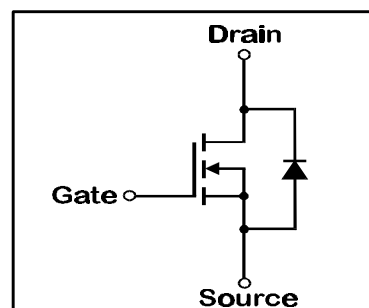


### > Maximum Ratings and Characteristics

- Absolute Maximum Ratings ( $T_C=25^\circ\text{C}$ ), unless otherwise specified

| Item                                      | Symbol        | Rating     | Unit             |
|-------------------------------------------|---------------|------------|------------------|
| Drain-Source-Voltage                      | $V_{DS}$      | 900        | V                |
| Drain-Gate-Voltage ( $R_{GS}=20K\Omega$ ) | $V_{DGR}$     | 900        | V                |
| Continuous Drain Current                  | $I_D$         | 9          | A                |
| Pulsed Drain Current                      | $I_{D(puls)}$ | 36         | A                |
| Gate-Source-Voltage                       | $V_{GS}$      | $\pm 30$   | V                |
| Max. Power Dissipation                    | $P_D$         | 150        | W                |
| Operating and Storage Temperature Range   | $T_{ch}$      | 150        | $^\circ\text{C}$ |
|                                           | $T_{stg}$     | -55 ~ +150 | $^\circ\text{C}$ |

### > Equivalent Circuit



- Electrical Characteristics ( $T_C=25^\circ\text{C}$ ), unless otherwise specified

| Item                                                 | Symbol        | Test conditions                                     | Min. | Typ. | Max. | Unit          |
|------------------------------------------------------|---------------|-----------------------------------------------------|------|------|------|---------------|
| Drain-Source Breakdown-Voltage                       | $V_{(BR)DSS}$ | $I_D=1mA$ $V_{GS}=0V$                               | 900  |      |      | V             |
| Gate Threshold Voltage                               | $V_{GS(th)}$  | $I_D=1mA$ $V_{DS}=V_{GS}$                           | 2,5  | 3,0  | 3,5  | V             |
| Zero Gate Voltage Drain Current                      | $I_{DSS}$     | $V_{DS}=900V$ $T_{ch}=25^\circ\text{C}$             |      | 10   | 500  | $\mu\text{A}$ |
|                                                      |               | $V_{GS}=0V$ $T_{ch}=125^\circ\text{C}$              |      | 0,2  | 1,0  | mA            |
| Gate Source Leakage Current                          | $I_{GSS}$     | $V_{GS}=\pm 30V$ $V_{DS}=0V$                        |      | 10   | 100  | nA            |
| Drain Source On-State Resistance                     | $R_{DS(on)}$  | $I_D=4,5A$ $V_{GS}=10V$                             |      | 1,1  | 1,4  | $\Omega$      |
| Forward Transconductance                             | $g_{fs}$      | $I_D=4,5A$ $V_{DS}=25V$                             | 5    | 10   |      | S             |
| Input Capacitance                                    | $C_{iss}$     | $V_{DS}=25V$                                        |      | 2200 | 3300 | pF            |
| Output Capacitance                                   | $C_{oss}$     | $V_{GS}=0V$                                         |      | 210  | 320  | pF            |
| Reverse Transfer Capacitance                         | $C_{rss}$     | $f=1MHz$                                            |      | 65   | 100  | pF            |
| Turn-On-Time $t_{on}$ ( $t_{on}=t_{d(on)}+t_r$ )     | $t_{d(on)}$   | $V_{CC}=600V$                                       |      | 25   | 40   | ns            |
|                                                      | $t_r$         | $I_D=9A$                                            |      | 60   | 90   | ns            |
| Turn-Off-Time $t_{off}$ ( $t_{off}=t_{d(off)}+t_f$ ) | $t_{d(off)}$  | $V_{GS}=10V$                                        |      | 140  | 210  | ns            |
|                                                      | $t_f$         | $R_{GS}=10\Omega$                                   |      | 70   | 110  | ns            |
| Avalanche Capability                                 | $I_{AV}$      | $L=100\mu H$ $T_{ch}=25^\circ\text{C}$              | 9    |      |      | A             |
| Continuous Reverse Drain Current                     | $I_{DR}$      |                                                     |      |      | 9    | A             |
| Pulsed Reverse Drain Current                         | $I_{DRM}$     |                                                     |      |      | 36   | A             |
| Diode Forward On-Voltage                             | $V_{SD}$      | $I_F=2I_{DR}$ $V_{GS}=0V$ $T_{ch}=25^\circ\text{C}$ |      | 1,2  | 1,8  | V             |
| Reverse Recovery Time                                | $t_{rr}$      | $I_F=I_{DR}$ $V_{GS}=0V$                            |      | 450  |      | ns            |
| Reverse Recovery Charge                              | $Q_{rr}$      | $-dI_F/dt=100A/\mu s$ $T_{ch}=25^\circ\text{C}$     |      | 4    |      | $\mu\text{C}$ |

- Thermal Characteristics

| Item               | Symbol         | Test conditions | Min. | Typ. | Max.  | Unit               |
|--------------------|----------------|-----------------|------|------|-------|--------------------|
| Thermal Resistance | $R_{th(ch-a)}$ | channel to air  |      |      | 35    | $^\circ\text{C/W}$ |
|                    | $R_{th(ch-c)}$ | channel to case |      |      | 0,833 | $^\circ\text{C/W}$ |

| N-channel MOS-FET |      |    |      |
|-------------------|------|----|------|
| 900V              | 1,4Ω | 9A | 150W |

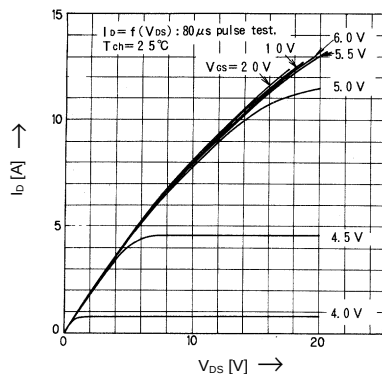
# 2SK2082-01

## FAP-IIA Series

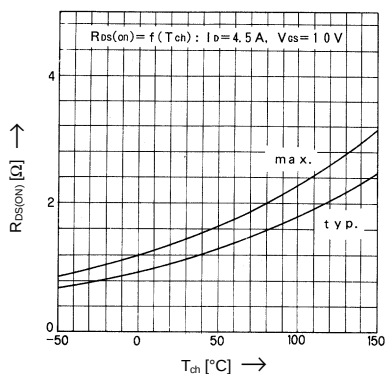
**FUJI**  
ELECTRIC

### > Characteristics

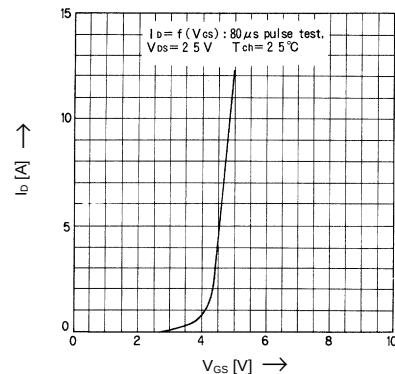
Typical Output Characteristics



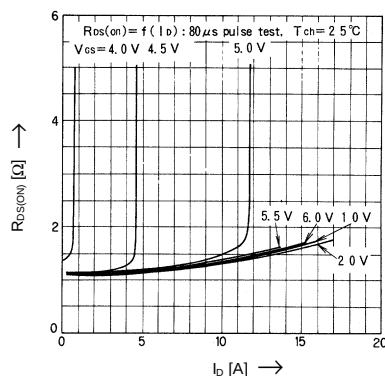
Drain-Source-On-State Resistance vs.  $T_{ch}$



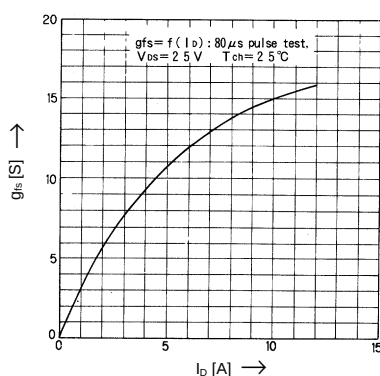
Typical Transfer Characteristics



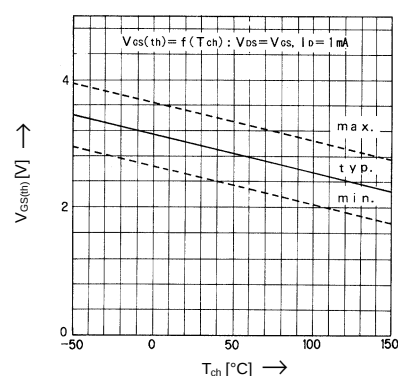
Typical Drain-Source-On-State-Resistance vs.  $I_D$



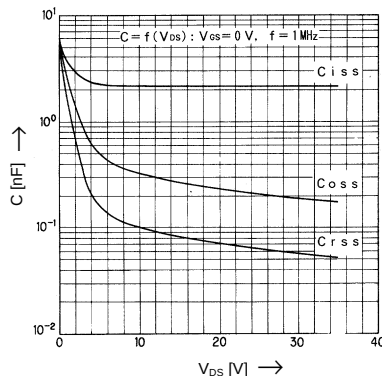
Typical Forward Transconductance vs.  $I_D$



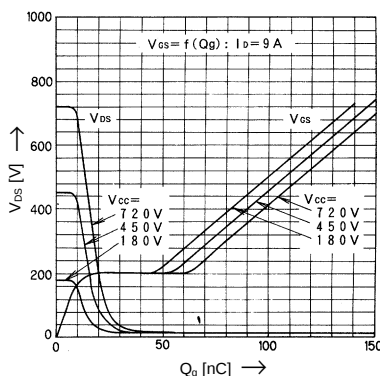
Gate Threshold Voltage vs.  $T_{ch}$



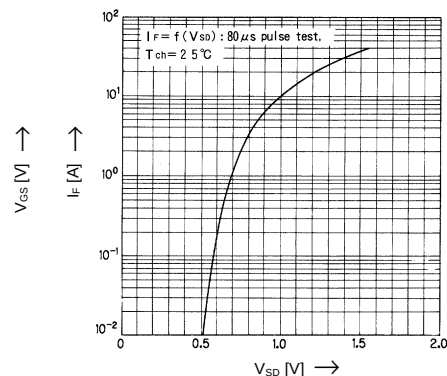
Typical Capacitance vs.  $V_{DS}$



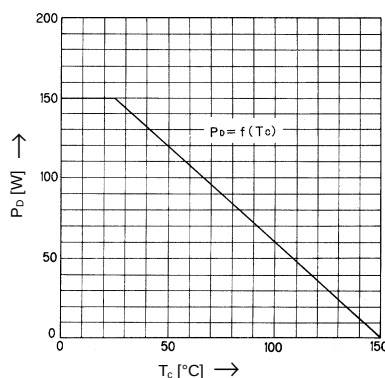
Typical Input Charge



Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs.  $T_c$



Safe operation area

