

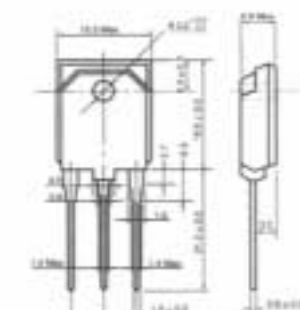
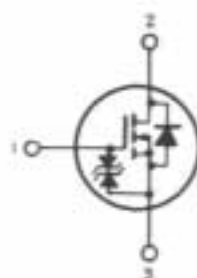
## 2SK1206, 2SK1225

## SILICON N-CHANNEL MOS FET

## 高速度電力スイッチング

■ 特 長

- オン抵抗が低い。
- スイッチングスピードが速い。
- 駆動電力が小さい。
- 2次降伏がない。
- スイッチングレギュレータ、DC-DCコンバータ、モータドライバなどに最適。



1. Gate
2. Drain
3. Source  
(Thermocouple in river)

(TO-3P-FM)

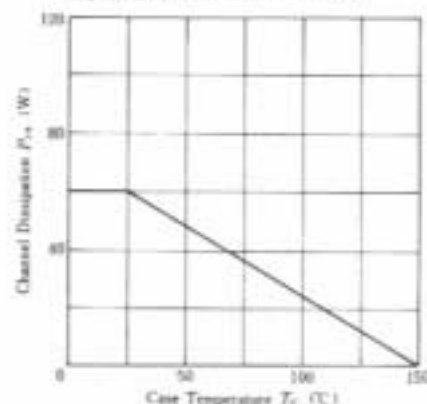
■ ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

| Item                                      | Symbol        | 2SK1225    | 2SK1206 | Unit |
|-------------------------------------------|---------------|------------|---------|------|
| Drain-Source Voltage                      | $V_{DS}$      | 450        | 500     | V    |
| Gate-Source Voltage                       | $V_{GS}$      | $\pm 20$   |         | V    |
| Drain Current                             | $I_D$         | 12         |         | A    |
| Drain Peak Current                        | $I_{Dpeak}$ * | 48         |         | A    |
| Body-Drain Diode<br>Reverse Drain Current | $I_{SA}$      | 12         |         | A    |
| Channel Dissipation                       | $P_{ch}$ *    | 60         |         | W    |
| Channel Temperature                       | $T_{ch}$      | 150        |         | °C   |
| Storage Temperature                       | $T_{stg}$     | -55 ~ +150 |         | °C   |

\*PW≤10μs, duty cycle≤1%

<sup>a</sup> Value at  $T_c = 25^\circ\text{C}$ .

### POWER VS. TEMPERATURE DERATING

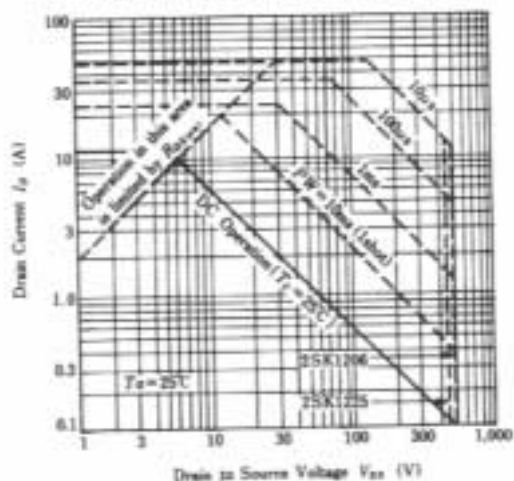
■ ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

| Item                                    |         | Symbol        | Test Condition                                                    | min.     | typ. | max.     | Unit          |
|-----------------------------------------|---------|---------------|-------------------------------------------------------------------|----------|------|----------|---------------|
| Drain-Source Breakdown Voltage          | 2SK1225 | $V_{(BRSS)}$  | $I_B=10\text{mA}$ , $V_{GS}=0$                                    | 450      | —    | —        | V             |
|                                         | 2SK1206 |               |                                                                   | 500      | —    | —        |               |
| Gate-Source Breakdown Voltage           |         | $V_{(BRGS)}$  | $I_G=\pm 100\mu\text{A}$ , $V_{DS}=0$                             | $\pm 20$ | —    | —        | V             |
| Gate-Source Leak Current                |         | $I_{GSS}$     | $V_{GS}=\pm 16\text{V}$ , $V_{DS}=0$                              | —        | —    | $\pm 10$ | $\mu\text{A}$ |
| Zero Gate Voltage Drain Current         | 2SK1225 | $I_{DSS}$     | $V_{DS}=360\text{V}$ , $V_{GS}=0$                                 | —        | —    | 250      | $\mu\text{A}$ |
|                                         | 2SK1206 |               | $V_{DS}=400\text{V}$ , $V_{GS}=0$                                 |          |      |          |               |
| Gate-Source Cutoff Voltage              |         | $V_{GS(off)}$ | $I_D=1\text{mA}$ , $V_{DS}=10\text{V}$                            | 2.0      | —    | 4.0      | V             |
| Static Drain-Source On State Resistance | 2SK1225 | $R_{DS(on)}$  | $I_D=6\text{A}$ , $V_{GS}=10\text{V}^*$                           | —        | 0.4  | 0.55     | $\Omega$      |
|                                         | 2SK1206 |               |                                                                   | —        | 0.45 | 0.60     |               |
| Forward Transfer Admittance             |         | $ y_{fs} $    | $I_D=6\text{A}$ , $V_{DS}=10\text{V}^*$                           | 6        | 10   | —        | S             |
| Input Capacitance                       |         | $C_{iss}$     | $V_{DS}=10\text{V}$ , $V_{GS}=0$ , $f=1\text{MHz}$                | —        | 2050 | —        | pF            |
| Output Capacitance                      |         | $C_{oss}$     |                                                                   | —        | 720  | —        | pF            |
| Reverse Transfer Capacitance            |         | $C_{rss}$     |                                                                   | —        | 80   | —        | pF            |
| Turn-on Delay Time                      |         | $t_{d(on)}$   |                                                                   | —        | 25   | —        | ns            |
| Rise Time                               |         | $t_r$         |                                                                   | —        | 85   | —        | ns            |
| Turn-off Delay Time                     |         | $t_{d(off)}$  | $I_D=6\text{A}$ , $V_{GS}=10\text{V}$ , $R_L=5\Omega$             | —        | 145  | —        | ns            |
| Fall Time                               |         | $t_f$         |                                                                   | —        | 85   | —        | ns            |
| Body-Drain Diode Forward Voltage        |         | $V_{SD}$      | $I_F=12\text{A}$ , $V_{GS}=0$                                     | —        | 1.0  | —        | V             |
| Body-Drain Diode Reverse Recovery Time  |         | $t_{rr}$      | $I_F=12\text{A}$ , $V_{GS}=0$ , $di_F/dt=100\text{A}/\mu\text{s}$ | —        | 450  | —        | ns            |

\*Fisher Test

■電氣的特性曲線は、2SK556、2SK557参照。

## MAXIMUM SAFE OPERATION AREA



## NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH

