

# 2SK3938

## Silicon N-channel MOSFET

For switching circuits

### ■ Features

- High-speed switching
- SSSMini type package, allowing downsizing of the equipment and automatic insertion through the tape packing

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

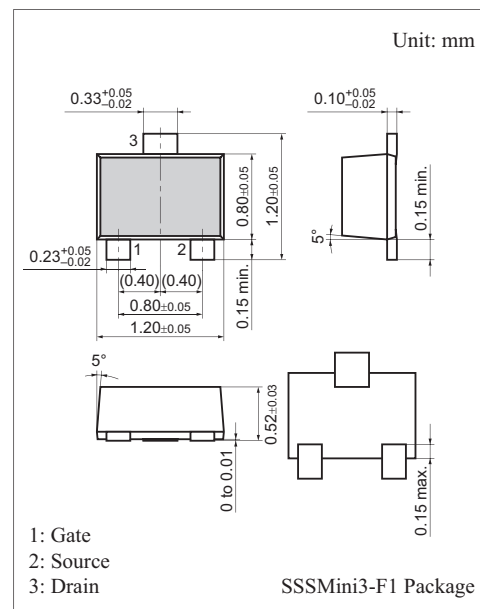
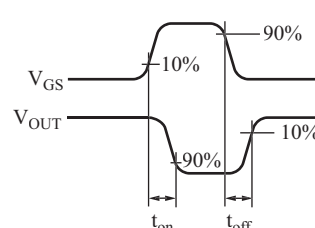
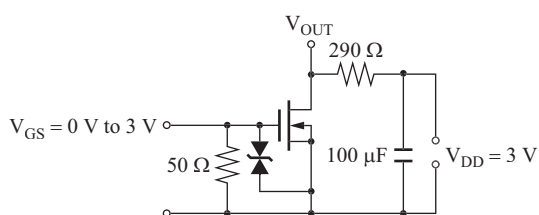
| Parameter                      | Symbol    | Rating          | Unit             |
|--------------------------------|-----------|-----------------|------------------|
| Drain-source surrender voltage | $V_{DSS}$ | 30              | V                |
| Gate-source surrender voltage  | $V_{GSS}$ | $\pm 12$        | V                |
| Drain current                  | $I_D$     | 100             | mA               |
| Peak drain current             | $I_{DP}$  | 200             | mA               |
| Power dissipation              | $P_D$     | 100             | mW               |
| Channel temperature            | $T_{ch}$  | 125             | $^\circ\text{C}$ |
| Storage temperature            | $T_{stg}$ | $-55$ to $+125$ | $^\circ\text{C}$ |

### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

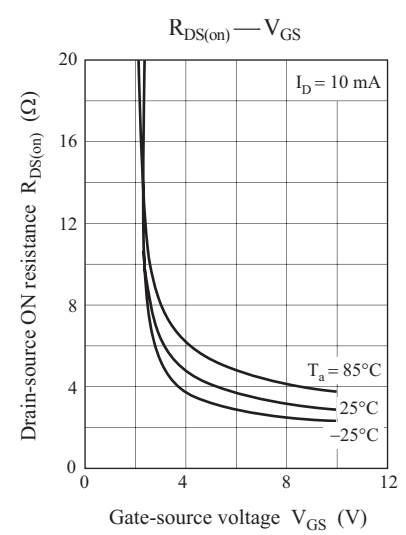
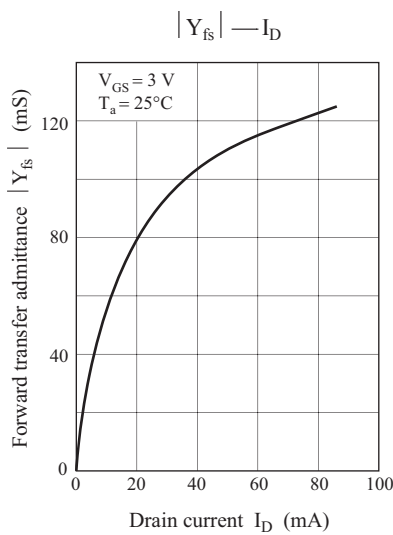
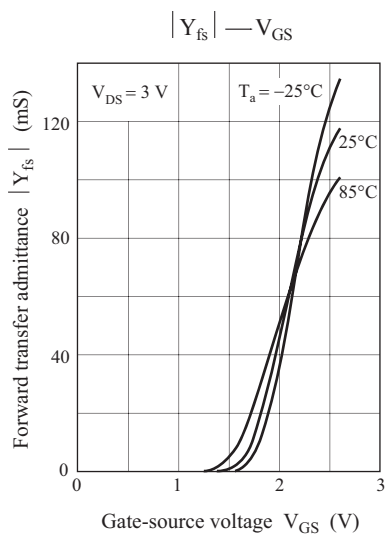
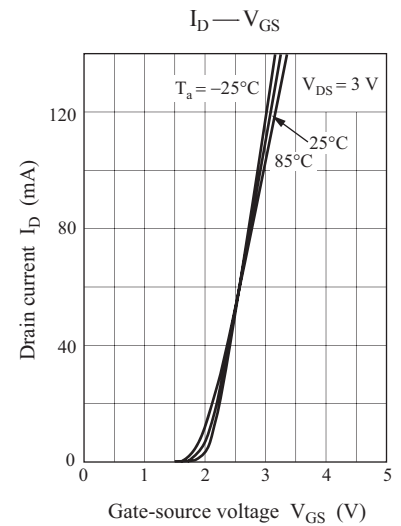
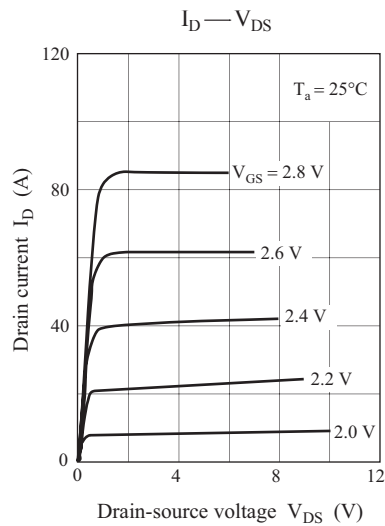
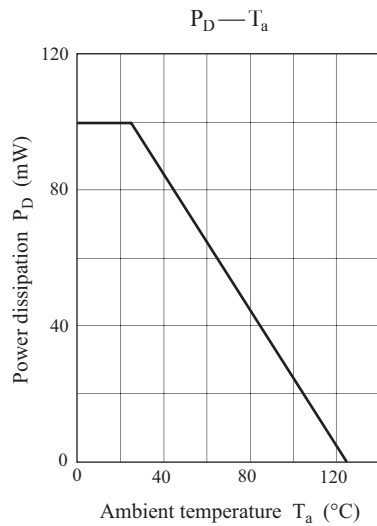
| Parameter                                                  | Symbol       | Conditions                                                                               | Min | Typ | Max      | Unit          |
|------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------|-----|-----|----------|---------------|
| Drain-source surrender voltage                             | $V_{DSS}$    | $I_D = 10\ \mu\text{A}$ , $V_{GS} = 0$                                                   | 30  |     |          | V             |
| Drain-source cutoff current                                | $I_{DSS}$    | $V_{DS} = 20\ \text{V}$ , $V_{GS} = 0$                                                   |     |     | 1.0      | $\mu\text{A}$ |
| Gate-source cutoff current                                 | $I_{GSS}$    | $V_{GS} = \pm 10\ \text{V}$ , $V_{DS} = 0$                                               |     |     | $\pm 10$ | $\mu\text{A}$ |
| Gate threshold voltage                                     | $V_{TH}$     | $I_D = 1.0\ \mu\text{A}$ , $V_{DS} = 3\ \text{V}$                                        | 0.5 | 1.0 | 1.5      | V             |
| Drain-source ON resistance                                 | $R_{DS(on)}$ | $I_D = 10\ \text{mA}$ , $V_{GS} = 2.5\ \text{V}$                                         |     | 7   | 12       | $\Omega$      |
|                                                            |              | $I_D = 10\ \text{mA}$ , $V_{GS} = 4.0\ \text{V}$                                         |     | 5   | 8        |               |
| Forward transfer admittance                                | $ Y_{fs} $   | $I_D = 10\ \text{mA}$ , $V_{DS} = 3\ \text{V}$ , $f = 1\ \text{kHz}$                     | 20  | 55  |          | mS            |
| Short-circuit forward transfer capacitance (Common source) | $C_{iss}$    | $V_{DS} = 3\ \text{V}$ , $V_{GS} = 0$ , $f = 1\ \text{MHz}$                              |     | 12  |          | pF            |
| Short-circuit output capacitance (Common source)           | $C_{oss}$    |                                                                                          |     | 10  |          | pF            |
| Reverse transfer capacitance (Common source)               | $C_{rss}$    |                                                                                          |     | 6   |          | pF            |
| Turn-on time *                                             | $t_{on}$     | $V_{DD} = 3\ \text{V}$ , $V_{GS} = 0\ \text{V}$ to $3\ \text{V}$ , $I_D = 10\ \text{mA}$ |     | 350 |          | ns            |
| Turn-off time *                                            | $t_{off}$    | $V_{DD} = 3\ \text{V}$ , $V_{GS} = 3\ \text{V}$ to $0\ \text{V}$ , $I_D = 10\ \text{mA}$ |     | 350 |          | ns            |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \* :  $t_{on}$ ,  $t_{off}$  measurement circuit



Marking Symbol: 6U



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