

**2SK1419**

## Ultrahigh-Speed Switching Applications

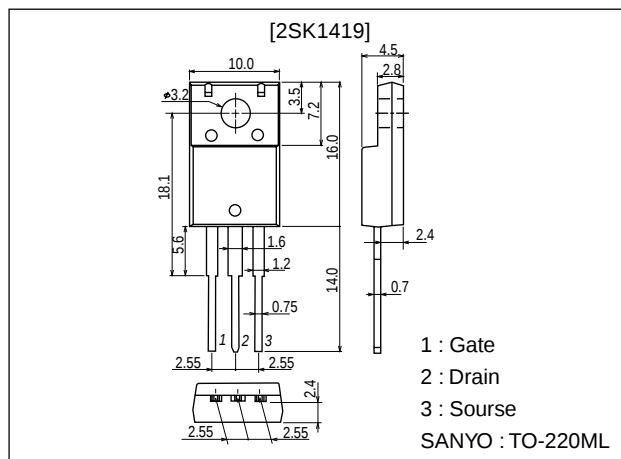
### Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Converters.
- Micaless package facilitating mounting.

### Package Dimensions

unit:mm

2063A



### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

| Parameter                   | Symbol    | Conditions                                | Ratings     | Unit |
|-----------------------------|-----------|-------------------------------------------|-------------|------|
| Drain-to-Source Voltage     | $V_{DS}$  |                                           | 60          | V    |
| Gate-to-Source Voltage      | $V_{GS}$  |                                           | ±20         | V    |
| Drain Current (DC)          | $I_D$     |                                           | 15          | A    |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$ | 60          | A    |
| Allowable Power Dissipation | $P_D$     | $T_c = 25^\circ C$                        | 25          | W    |
|                             |           |                                           | 2.0         | W    |
| Channel Temperature         | $T_{ch}$  |                                           | 150         | °C   |
| Storage Temperature         | $T_{stg}$ |                                           | -55 to +150 | °C   |

#### Electrical Characteristics at Ta = 25°C

| Parameter                                  | Symbol        | Conditions                        | Ratings |     |      | Unit |
|--------------------------------------------|---------------|-----------------------------------|---------|-----|------|------|
|                                            |               |                                   | min     | typ | max  |      |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D = 1mA$ , $V_{GS} = 0$        | 60      |     |      | V    |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = 60V$ , $V_{GS} = 0$     |         |     | 100  | μA   |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 20V$ , $V_{DS} = 0$ |         |     | ±100 | nA   |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS} = 10V$ , $I_D = 1mA$      | 1.5     |     | 2.5  | V    |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS} = 10V$ , $I_D = 10A$      | 6.0     | 10  |      | S    |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)}$  | $I_D = 10A$ , $V_{GS} = 10V$      |         | 60  | 80   | mΩ   |

(Note) Be careful in handling the 2SK1419 because it has no protection diode between gate and source.

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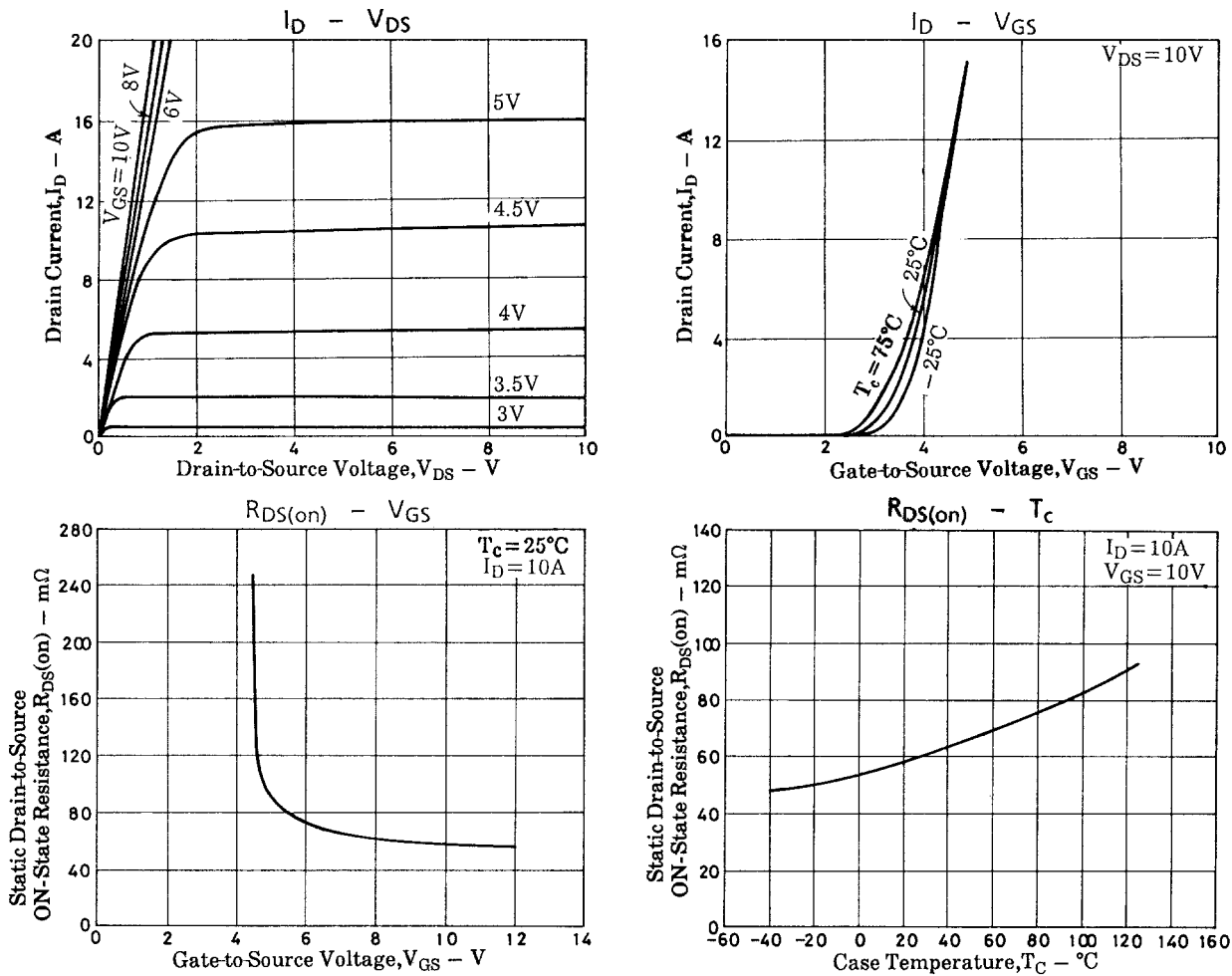
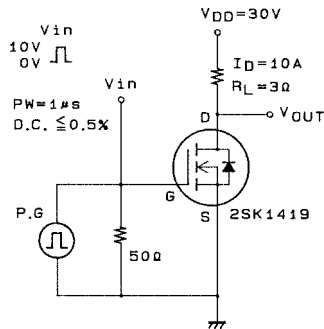
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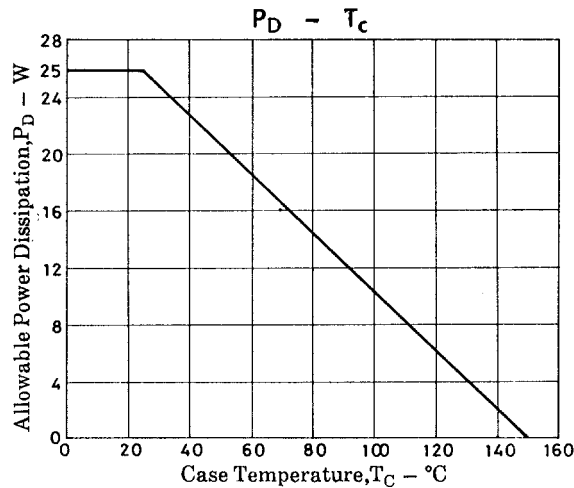
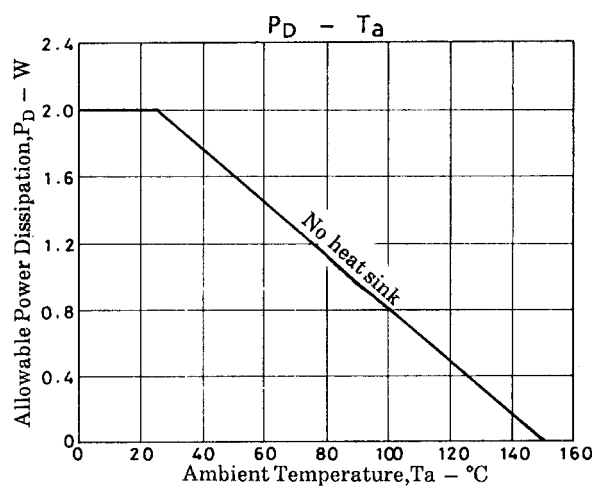
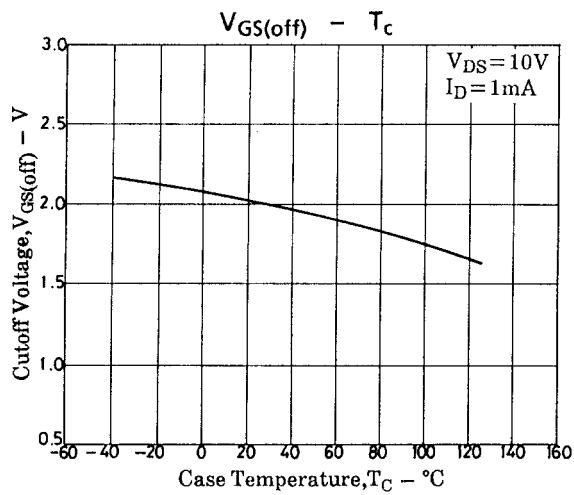
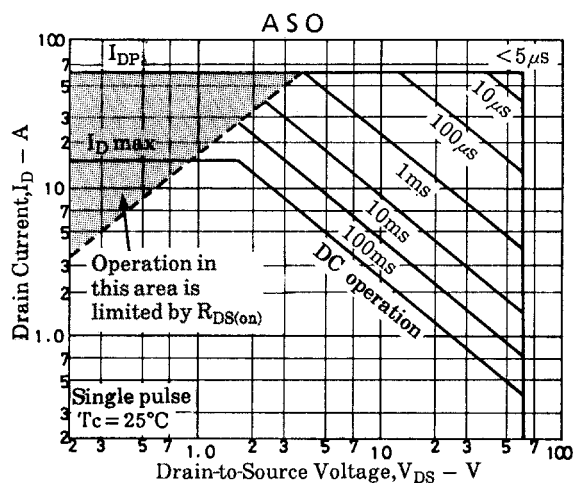
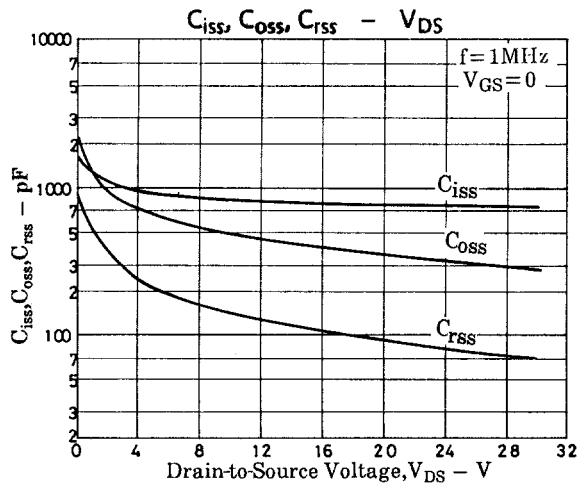
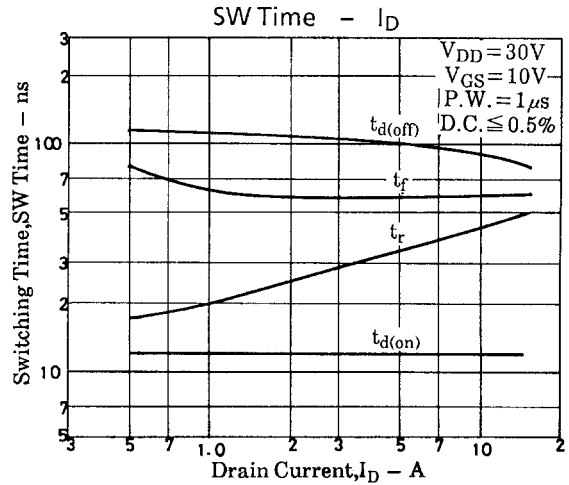
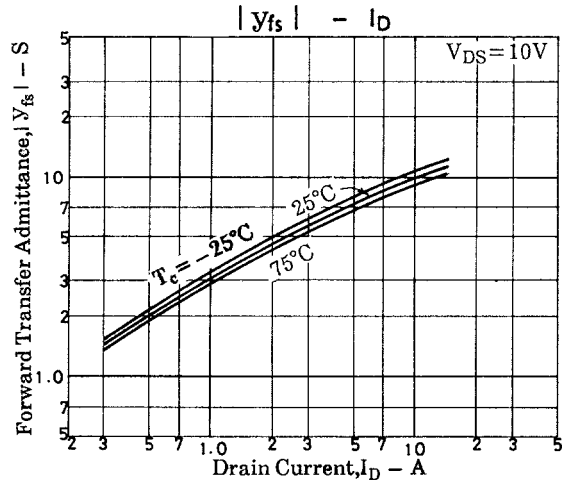
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| Parameter                    | Symbol       | Conditions                                         | Ratings |     |     | Unit |
|------------------------------|--------------|----------------------------------------------------|---------|-----|-----|------|
|                              |              |                                                    | min     | typ | max |      |
| Input Capacitance            | Ciss         | $V_{DS}=20V, f=1MHz$                               |         | 750 |     | pF   |
| Output Capacitance           | Coss         | $V_{DS}=20V, f=1MHz$                               |         | 350 |     | pF   |
| Reverse Transfer Capacitance | Crss         | $V_{DS}=20V, f=1MHz$                               |         | 90  |     | pF   |
| Turn-ON Delay Time           | $t_{d(on)}$  | $I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$ |         | 12  |     | ns   |
| Rise Time                    | $t_r$        | $I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$ |         | 43  |     | ns   |
| Turn-OFF Delay Time          | $t_{d(off)}$ | $I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$ |         | 90  |     | ns   |
| Fall Time                    | $t_f$        | $I_D=10A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$ |         | 60  |     | ns   |
| Diode Forward Voltage        | $V_{SD}$     | $I_S=15A, V_{GS}=0$                                |         |     | 1.8 | V    |

Switching Time Test Circuit





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