



Ultrahigh-Speed Switching Applications

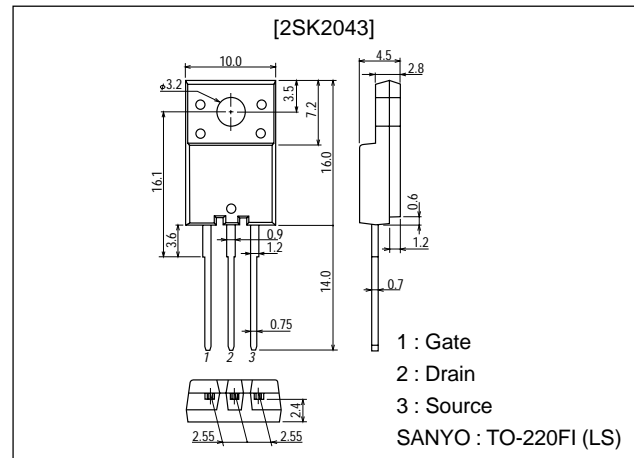
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- High-speed diode built in (trr=100ns).
- Micaless package facilitating easy mounting.

Package Dimensions

unit:mm

2078B



Specifications

Absolute Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|------------------------|-------------|------|
| Drain-to-Source Voltage | V_{DSS} | | 600 | V |
| Gate-to-Source Voltage | V_{GSS} | | ±30 | V |
| Drain Current (DC) | I_D | | 2 | A |
| Drain Current (pulse) | I_{DP} | | 8 | A |
| Allowable Power Dissipation | P_D | | 2.0 | W |
| | | $T_c=25^\circ\text{C}$ | 25 | 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 | $V_{(BR)DSS}$ | $I_D=10\text{mA}$, $V_{GS}=0$ | 600 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=480\text{V}$, $V_{GS}=0$ | | | 1.0 | mA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 30\text{V}$, $V_{DS}=0$ | | | ±100 | nA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=10\text{V}$, $I_D=1\text{mA}$ | 2.0 | | 3.0 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=10\text{V}$, $I_D=1\text{A}$ | 0.8 | 1.5 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)}$ | $I_D=1\text{A}$, $V_{GS}=10\text{V}$ | | 3.2 | 4.3 | Ω |

(Note) Be careful in handling the 2SK2043 because it has no protection diode between gate and source.

Continued on next page.

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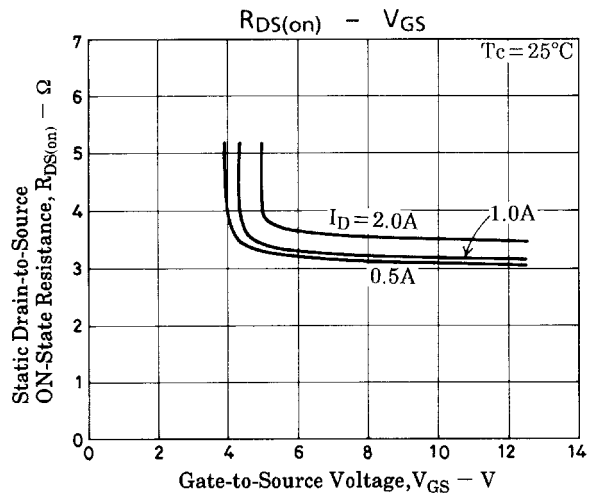
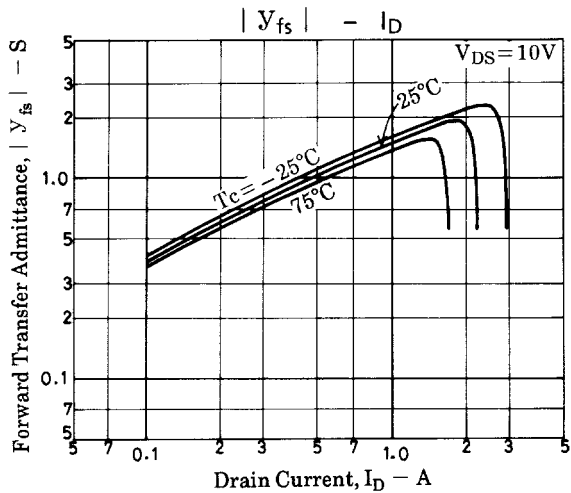
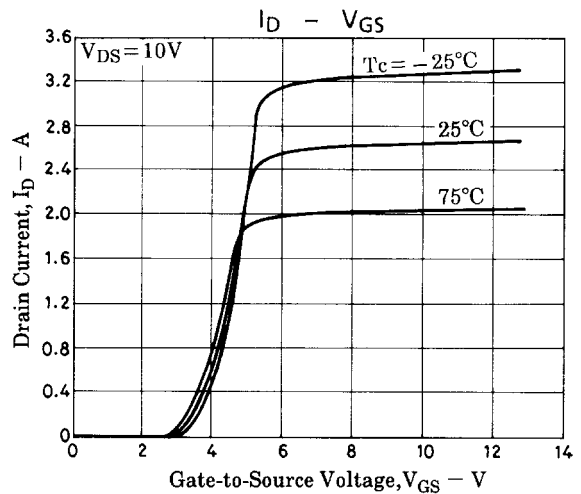
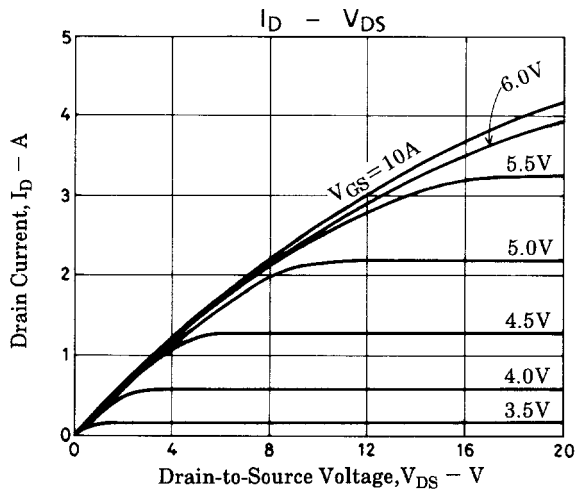
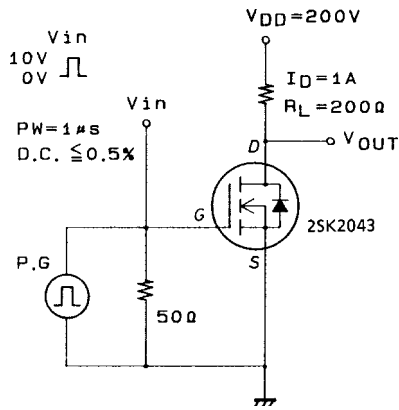
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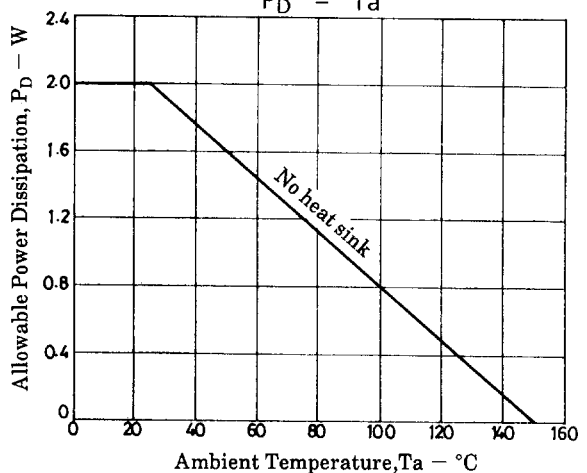
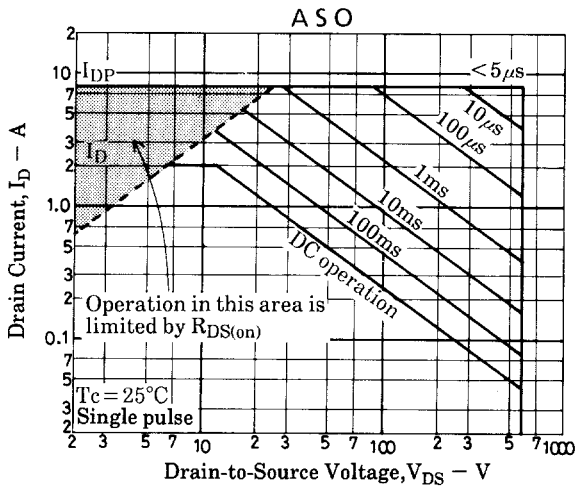
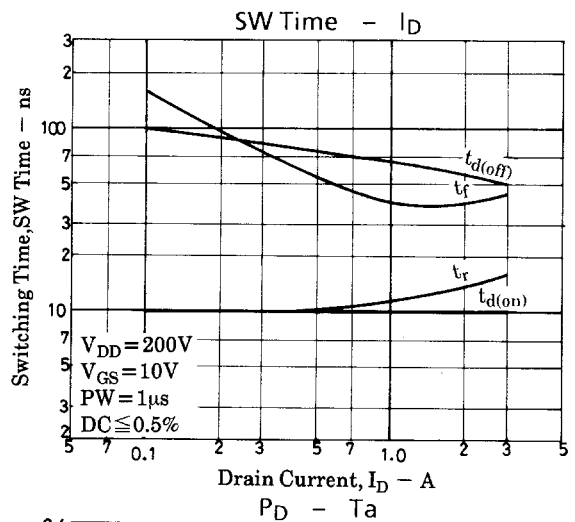
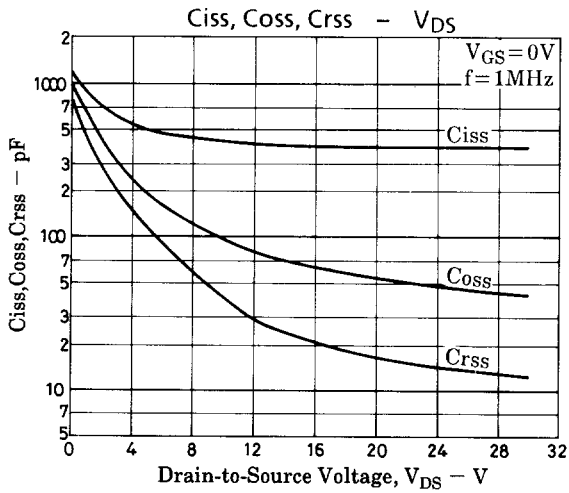
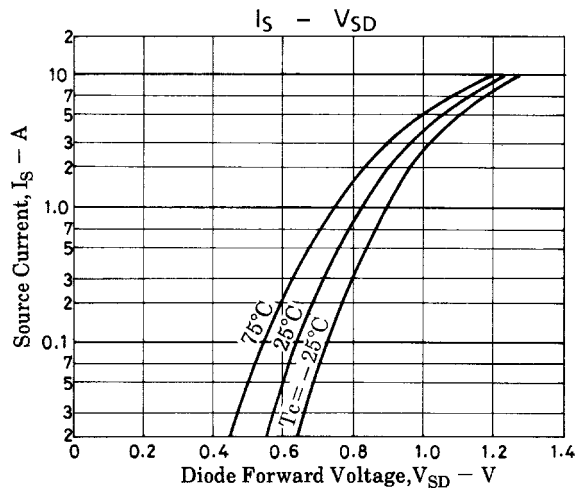
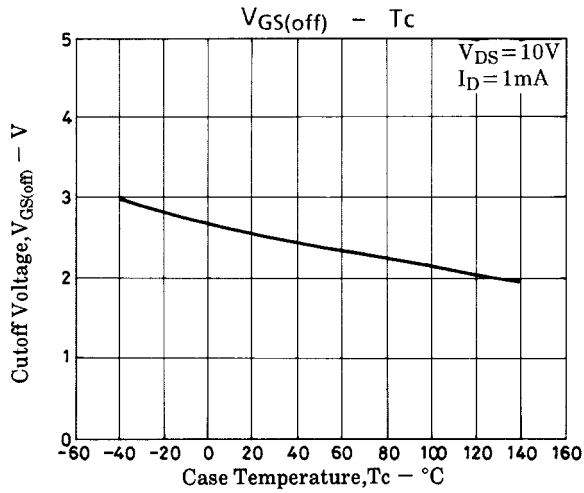
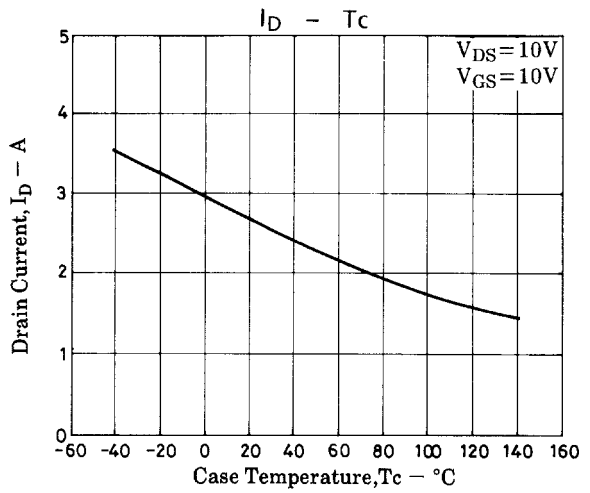
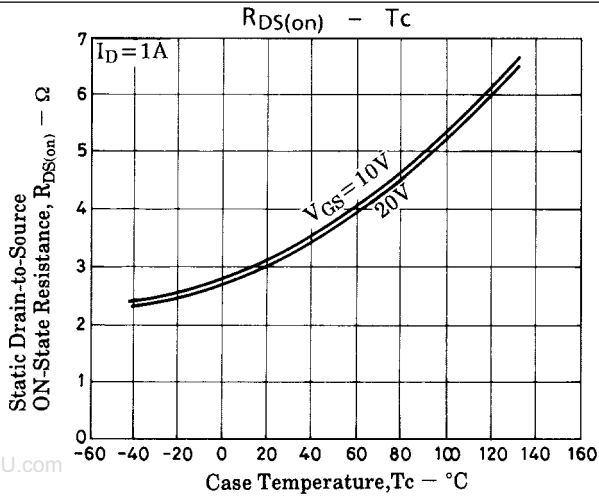
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| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|--------------|-----------------------------|---------|------|
| Input Capacitance | Ciss | $V_{DS}=20V, f=1MHz$ | 400 | pF |
| Output Capacitance | Coss | $V_{DS}=20V, f=1MHz$ | 55 | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}=20V, f=1MHz$ | 15 | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | 10 | ns |
| Rise Time | t_r | See specified Test Circuit. | 12 | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit. | 65 | ns |
| Fall Time | t_f | See specified Test Circuit. | 40 | ns |
| Diode Forward Voltage | V_{SD} | $I_S=2A, V_{GS}=0$ | 1.5 | V |
| Diode Reverse Recovery Time | trr | $I_S=2A, di/dt=100A/\mu s$ | 100 | ns |

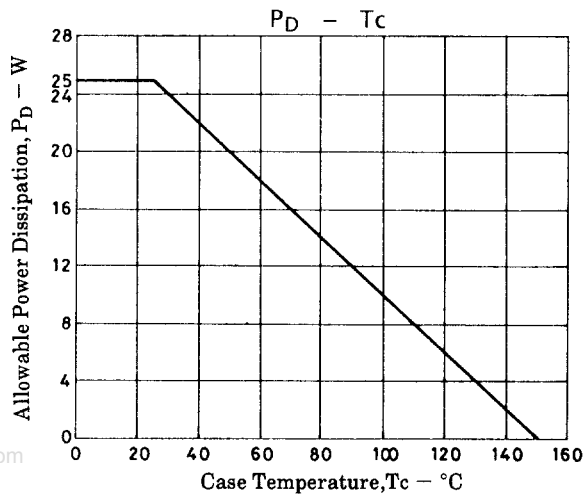
Switching Time Test Circuit



2SK2043



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