

**2SK2058**

Ultrahigh-Speed Switching Applications

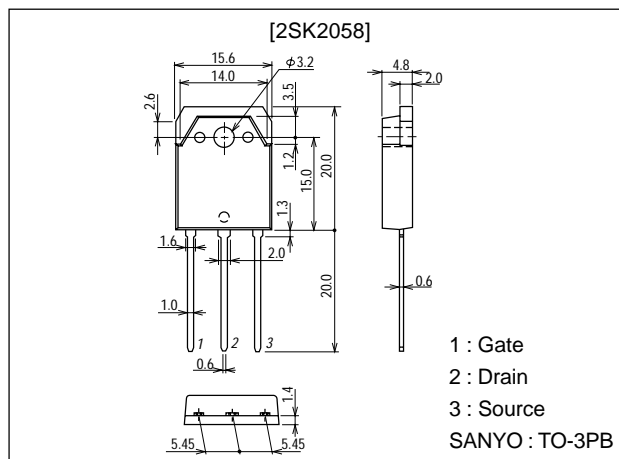
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.

Package Dimensions

unit:mm

2056A



Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|---|-----------------|------------------|
| Drain-to-Source Voltage | V_{DSS} | | 250 | V |
| Gate-to-Source Voltage | V_{GSS} | | ± 30 | V |
| Drain Current (DC) | I_D | | 25 | A |
| Drain Current (pulse) | I_{DP} | $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | 100 | A |
| Allowable Power Dissipation | P_D | | 2.5 | W |
| | | $T_c = 25^\circ\text{C}$ | 120 | W |
| Channel Temperature | T_{ch} | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to $+150$ | $^\circ\text{C}$ |

Electrical Characteristics at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|--|----------|------|----------|---------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = 1\text{mA}$, $V_{GS} = 0$ | 250 | | | V |
| Gate-to-Source Breakdown Voltage | $V_{(BR)GSS}$ | $I_G = \pm 100\mu\text{A}$, $V_{DS} = 0$ | ± 30 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 250\text{V}$, $V_{GS} = 0$ | | | 100 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 25\text{V}$, $V_{DS} = 0$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = 10\text{V}$, $I_D = 1\text{mA}$ | 1.5 | | 2.5 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = 10\text{V}$, $I_D = 12\text{A}$ | 11 | 18 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)}$ | $I_D = 12\text{A}$, $V_{GS} = 10\text{V}$ | | 0.12 | 0.16 | Ω |

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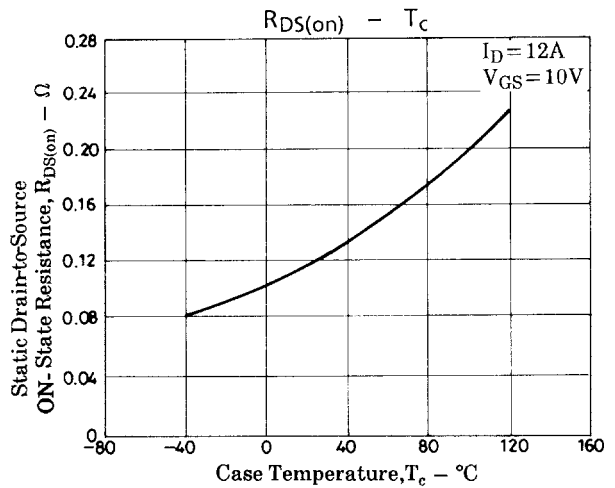
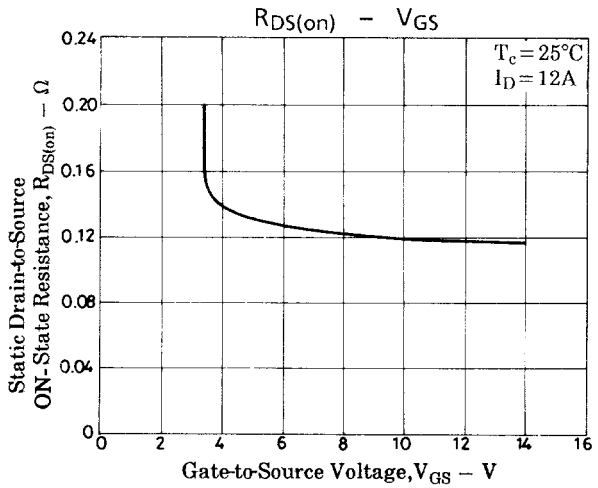
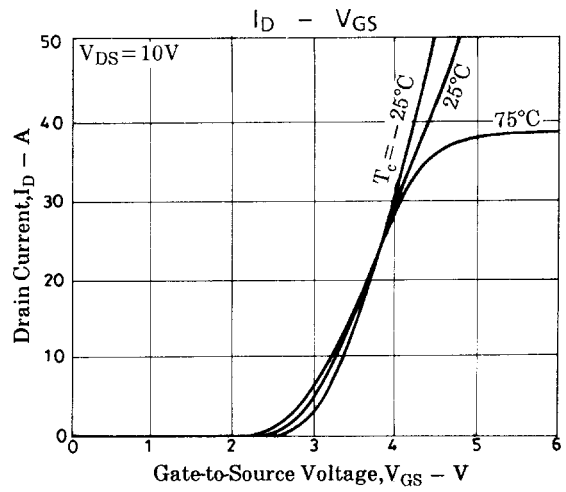
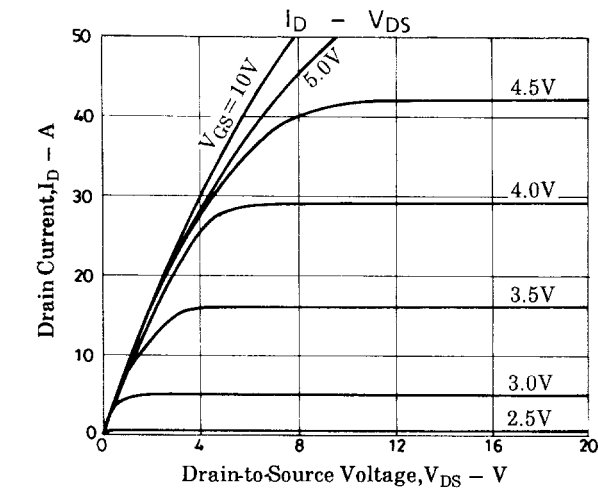
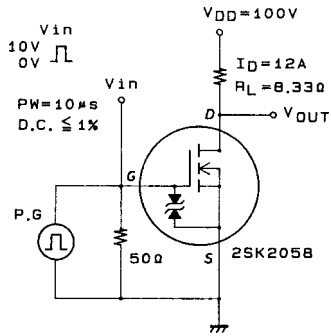
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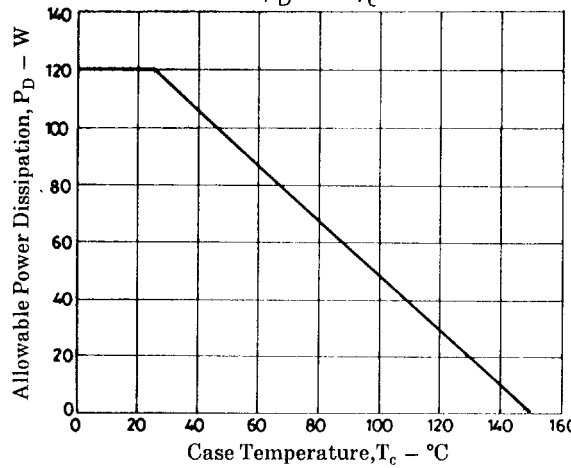
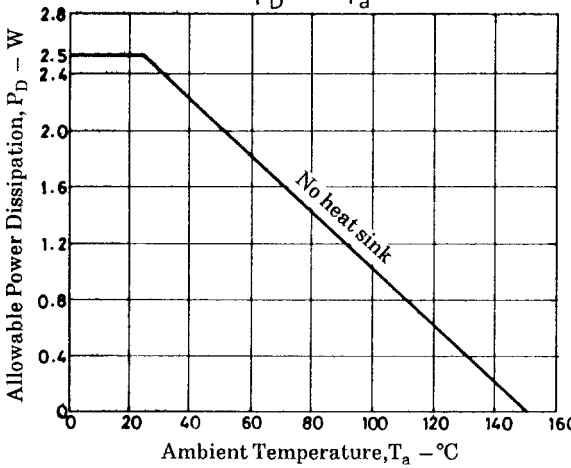
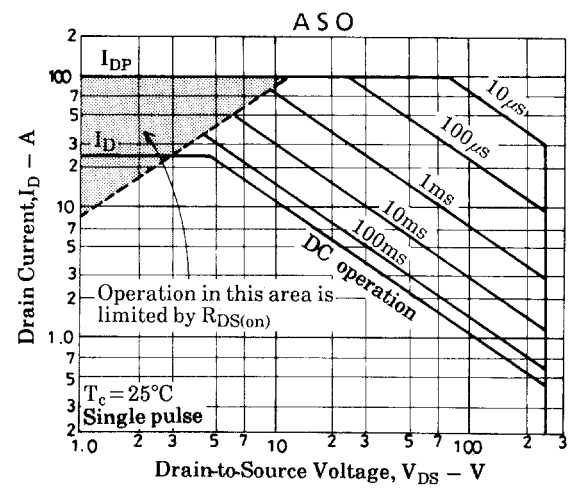
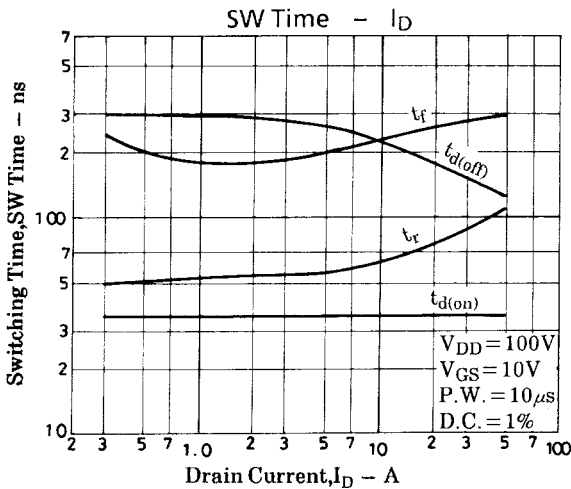
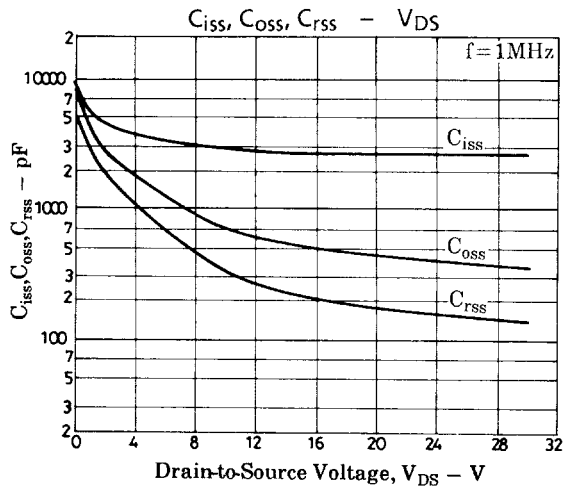
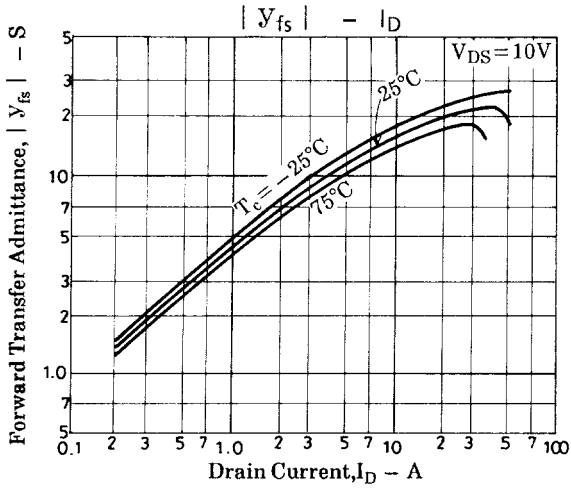
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|------------------------------|--------------|----------------------------|---------|------|-----|------|
| | | | min | typ | max | |
| Input Capacitance | C_{iss} | $V_{DS}=20V, f=1MHz$ | | 2700 | | pF |
| Output Capacitance | C_{oss} | $V_{DS}=20V, f=1MHz$ | | 450 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=20V, f=1MHz$ | | 180 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit | | 35 | | ns |
| Rise Time | t_r | See specified Test Circuit | | 65 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit | | 210 | | ns |
| Fall Time | t_f | See specified Test Circuit | | 235 | | ns |
| Diode Forward Voltage | V_{SD} | $I_S=25A, V_{GS}=0$ | | 1.0 | 1.5 | V |

Switching Time Test Circuit



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