

**2SK1899**

Ultrahigh-Speed Switching Applications

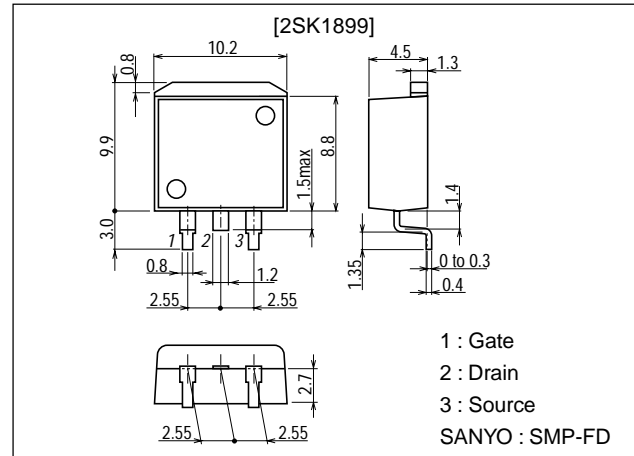
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.
- Surface mount type device making the following possible.
 - Reduction in the assembling time for 2SK1899-applied equipment.
 - High-density surface mount applications.
 - Small size of 2SK1899-applied equipment.

Package Dimensions

unit:mm

2090A



Specifications

Absolute Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|--|-------------|------------|
| Drain-to-Source Voltage | V_{DSS} | | 60 | V |
| Gate-to-Source Voltage | V_{GSS} | | ± 20 | V |
| Drain Current (DC) | I_D | | 18 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10 \mu s$, duty cycle $\leq 1\%$ | 72 | A |
| Allowable Power Dissipation | P_D | | 1.65 | W |
| | | $T_c = 25^\circ C$ | 60 | W |
| Channel Temperature | T_{ch} | | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ C$ |
| Avalanche Current | I_{AV} | $V_{DS} = 30V$, $V_{GS} = 10V$, $L = 0.1mH$, $T_c = 25^\circ C$, Single pulse | 18 | A |

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 |
| Gate-to-Source Breakdown Voltage | $V_{(BR)GSS}$ | $I_G = \pm 100 \mu A$, $V_{DS} = 0$ | ± 20 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 60V$, $V_{GS} = 0$ | | | 100 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 16V$, $V_{DS} = 0$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = 10V$, $I_D = 1mA$ | 1.0 | | 2.0 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = 10V$, $I_D = 9A$ | 8 | 13 | | S |

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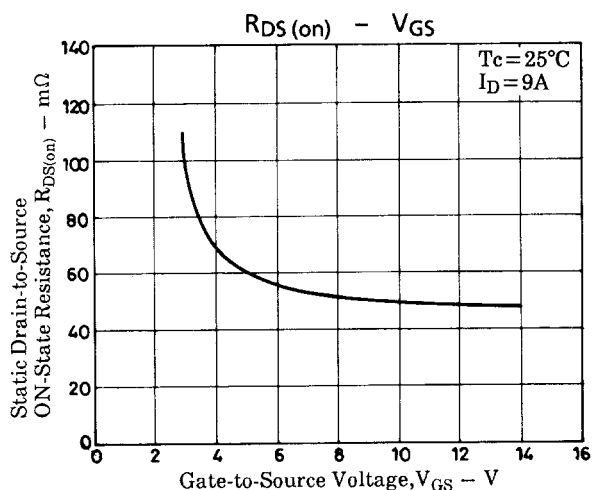
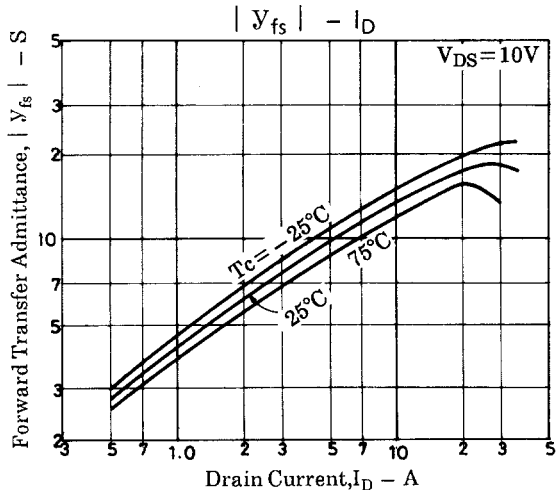
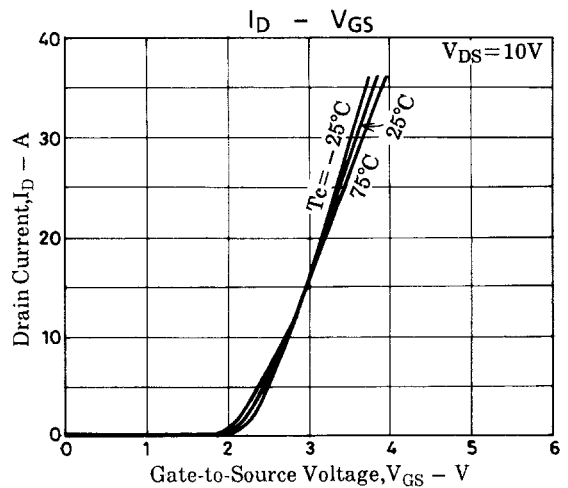
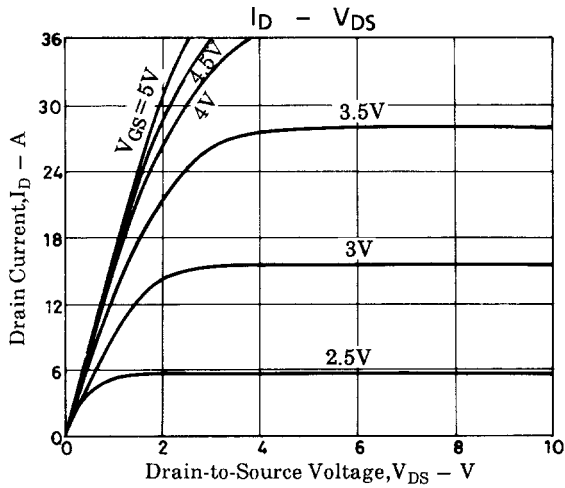
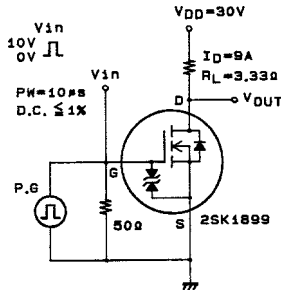
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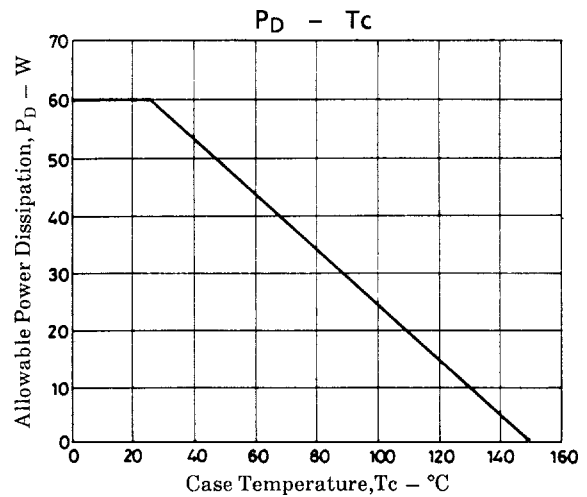
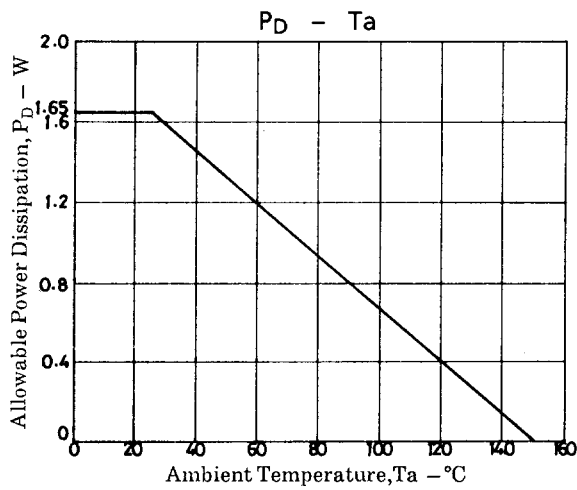
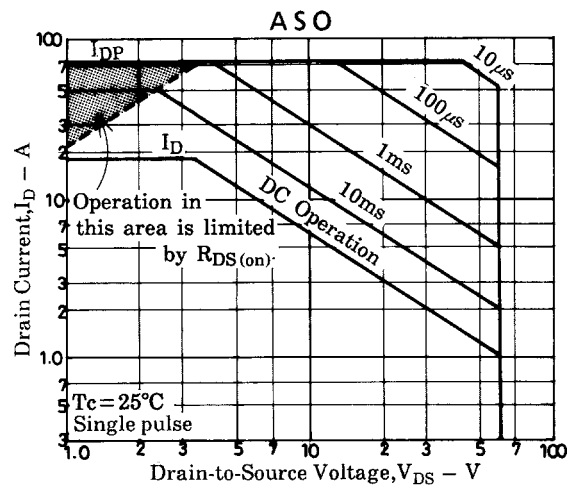
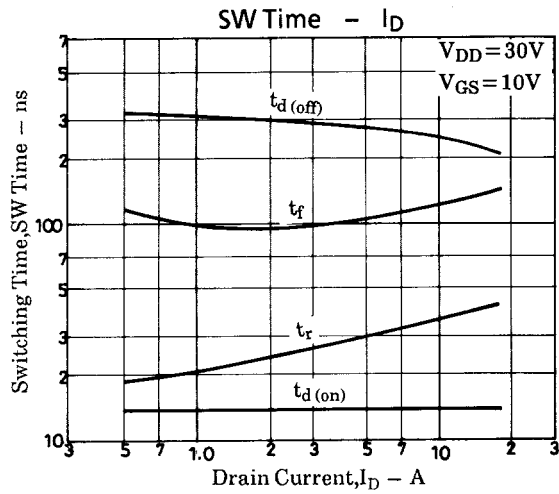
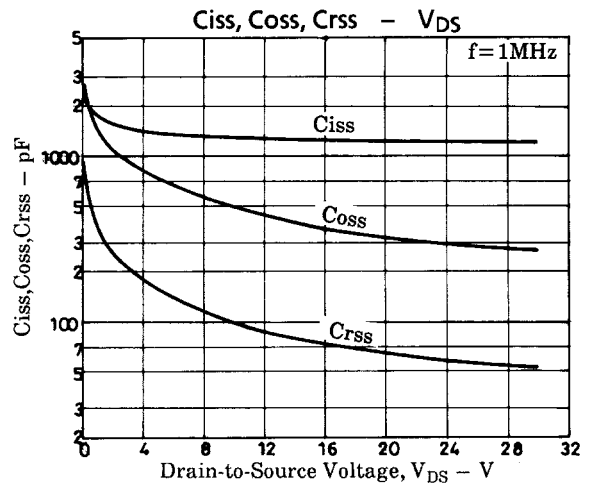
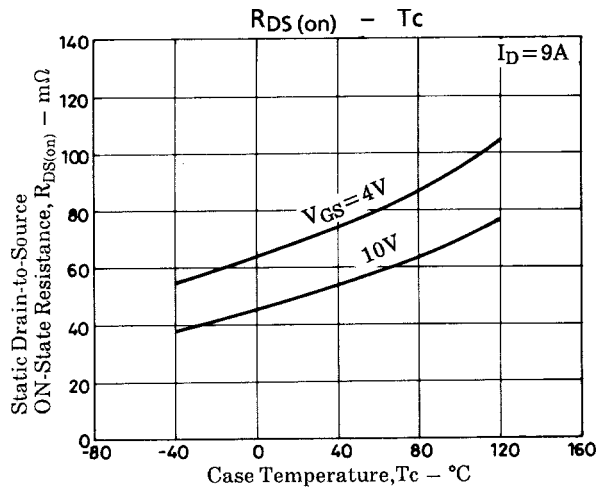
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|--------------|----------------------------|---------|------|-------|----------|
| | | | min | typ | max | |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)}$ | $I_D=9A, V_{GS}=10V$ | | 0.05 | 0.07 | Ω |
| | $R_{DS(on)}$ | $I_D=9A, V_{GS}=4V$ | | 0.07 | 0.095 | Ω |
| Input Capacitance | C_{iss} | $V_{DS}=20V, f=1MHz$ | | 1230 | | pF |
| Output Capacitance | C_{oss} | $V_{DS}=20V, f=1MHz$ | | 330 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=20V, f=1MHz$ | | 65 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit | | 14 | | ns |
| Rise Time | t_r | See specified Test Circuit | | 35 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit | | 250 | | ns |
| Fall Time | t_f | See specified Test Circuit | | 120 | | ns |
| Diode Forward Voltage | V_{SD} | $I_S=18A, V_{GS}=0$ | | 1.0 | 1.5 | V |

Switching Time Test Circuit



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