



2SJ188

Ultrahigh-Speed Switching Applications

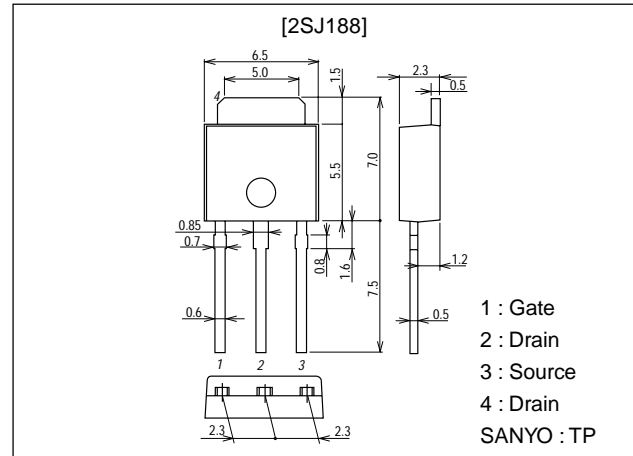
Features

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

Package Dimensions

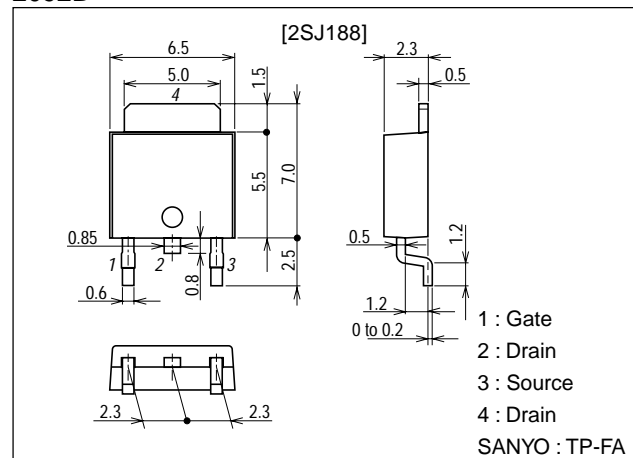
unit:mm

2083B



unit:mm

2092B



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Specifications

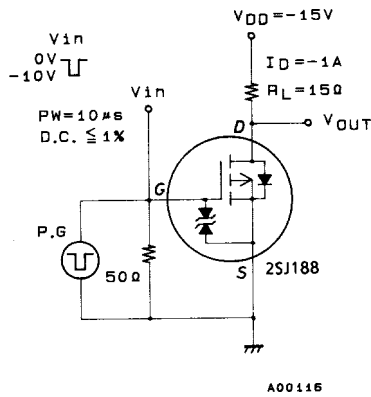
Absolute Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|---|-------------|------|
| Drain-to-Source Voltage | V_{DSS} | | -30 | V |
| Gate-to-Source Voltage | V_{GSS} | | ±15 | V |
| Drain Current (DC) | I_D | | -2 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu s$, duty cycle $\leq 1\%$ | -8 | A |
| Allowable Power Dissipation | P_D | $T_c = 25^\circ C$ | 20 | W |
| Channel Temperature | T_{ch} | | 150 | °C |
| Storage Temperature | T_{stg} | | -55 to +150 | °C |

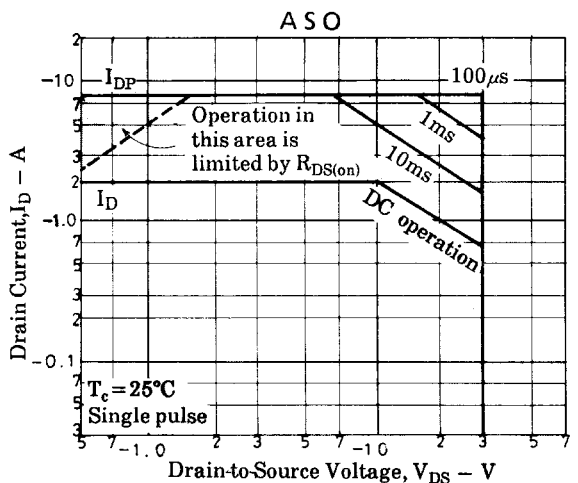
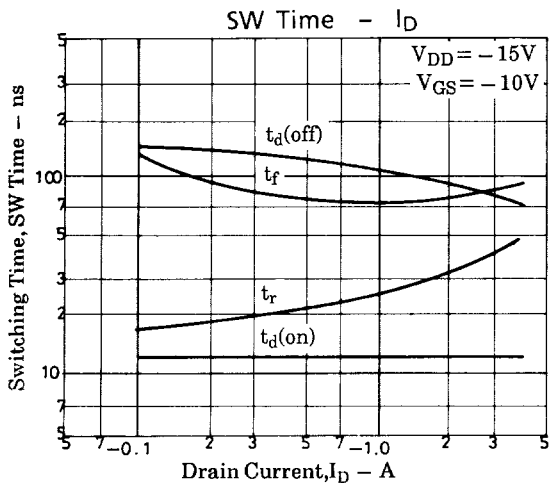
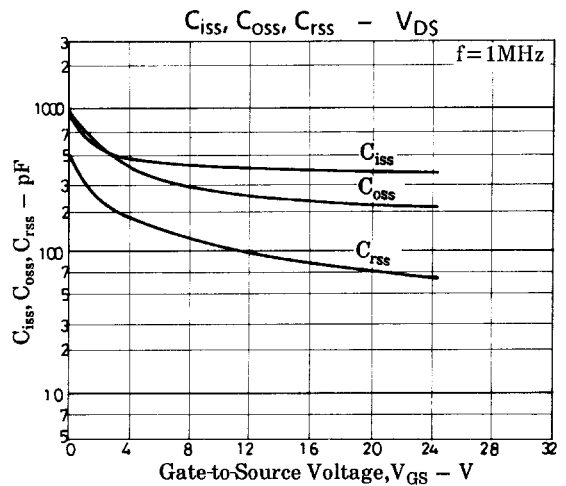
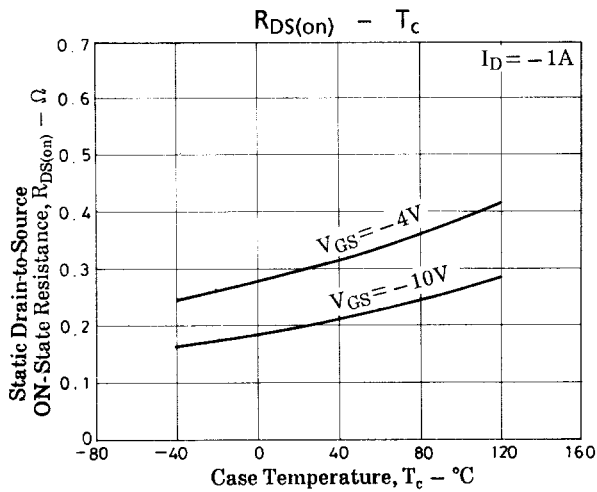
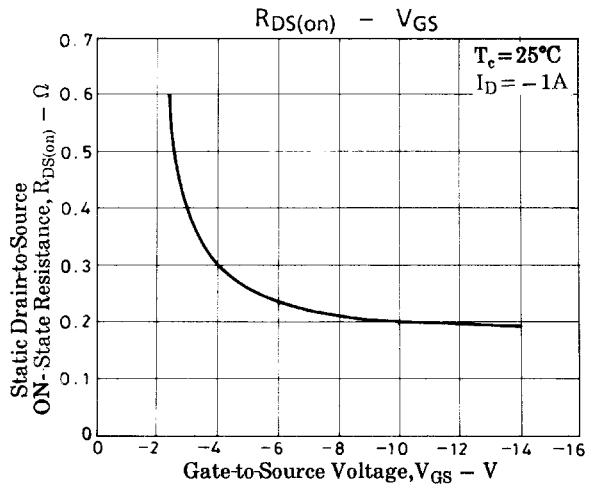
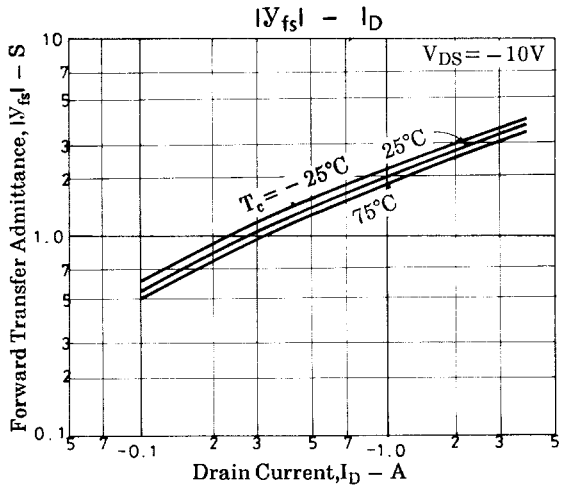
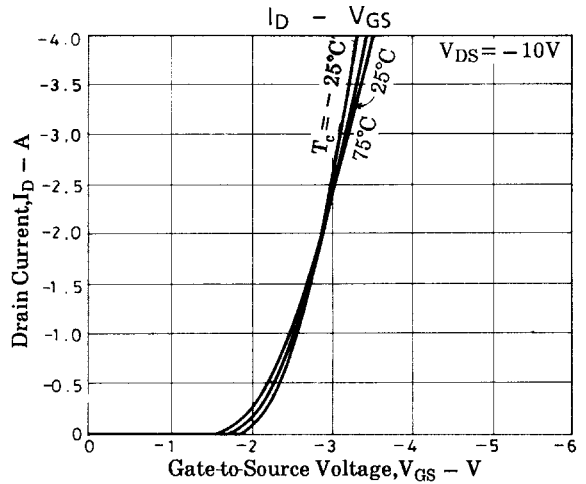
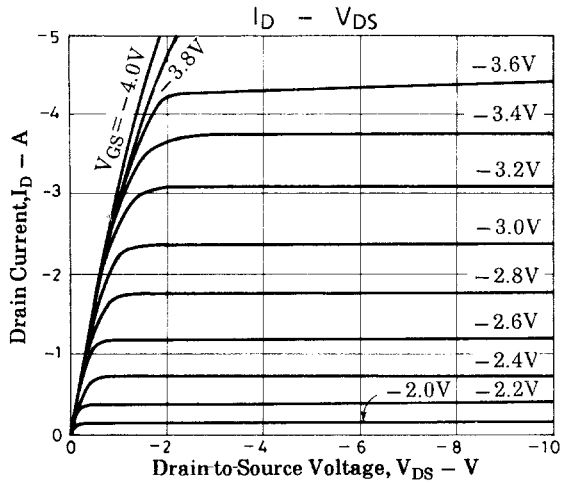
Electrical Characteristics at Ta = 25°C

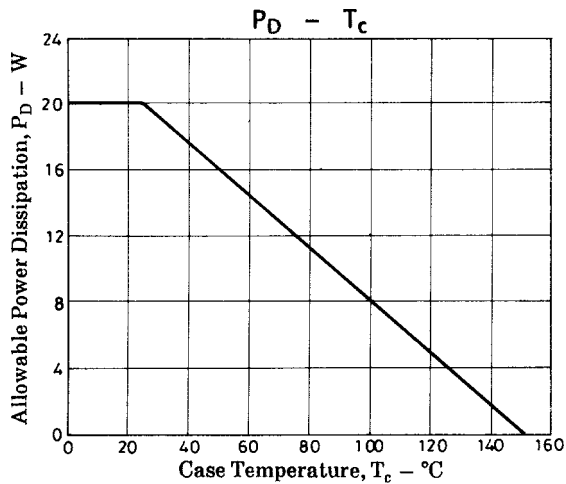
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|-------------------------------------|---------|------|------|------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = -1mA$, $V_{GS} = 0$ | -30 | | | V |
| Gate-to-Source Breakdown Voltage | $V_{(BR)GSS}$ | $I_G = \pm 100\mu A$, $V_{DS} = 0$ | ±15 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -30V$, $V_{GS} = 0$ | | | -100 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 12V$, $V_{DS} = 0$ | | | ±10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = -10V$, $I_D = -1mA$ | -1.0 | | -2.0 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = -10V$, $I_D = -1A$ | 1.2 | 2 | | S |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)}$ | $I_D = -1A$, $V_{GS} = -10V$ | | 0.2 | 0.3 | Ω |
| | $R_{DS(on)}$ | $I_D = -1A$, $V_{GS} = -4V$ | | 0.3 | 0.45 | Ω |
| Input Capacitance | C_{iss} | $V_{DS} = -10V$, $f = 1MHz$ | | 400 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -10V$, $f = 1MHz$ | | 280 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS} = -10V$, $f = 1MHz$ | | 110 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit | | 12 | | ns |
| Rise Time | t_r | See specified Test Circuit | | 25 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit | | 105 | | ns |
| Fall Time | t_f | See specified Test Circuit | | 75 | | ns |
| Diode Forward Voltage | V_{SD} | $I_S = -2A$, $V_{GS} = 0$ | | -1.0 | -1.5 | V |

Switching Time Test Circuit



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