

**2SJ191**

## Ultrahigh-Speed Switching Applications

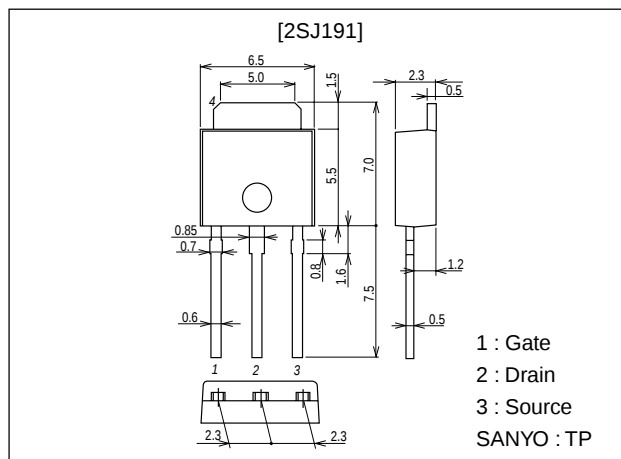
### Features

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

### Package Dimensions

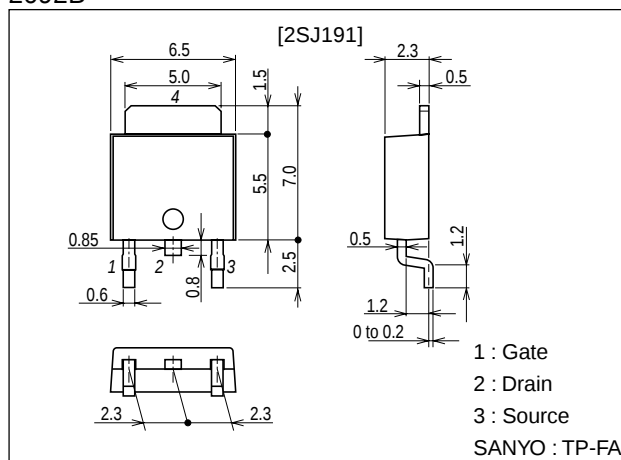
unit:mm

2083B



unit:mm

2092B



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**SANYO Electric Co.,Ltd. Semiconductor Company**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

40199TH (KT)/42893TH/N1292MH (KOTO) 8-7542, 7921 No.3764-1/4

# 2SJ191

## Specifications

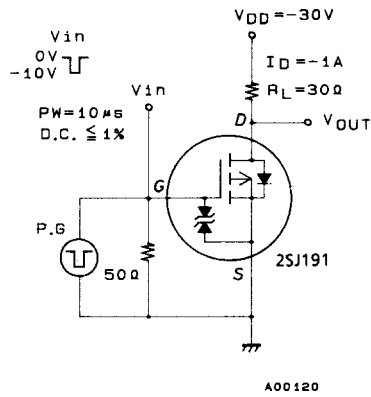
### Absolute Maximum Ratings at Ta = 25°C

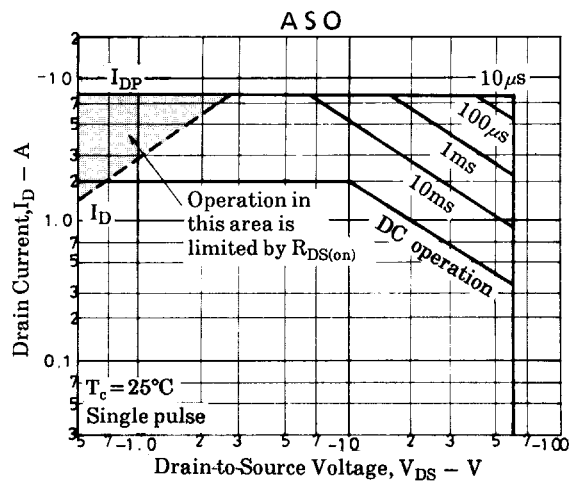
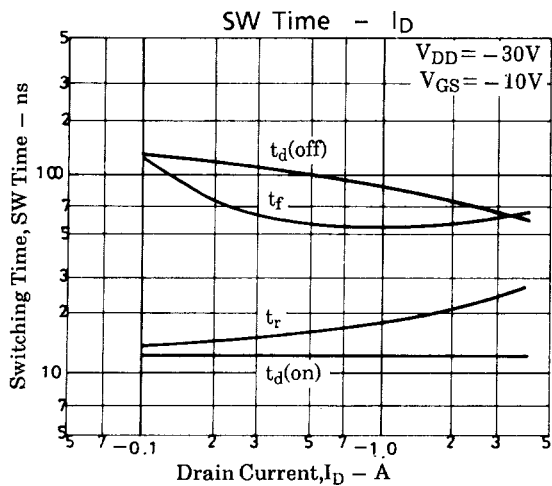
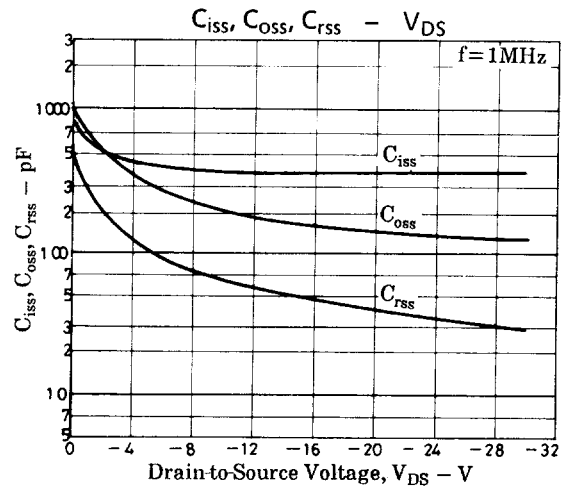
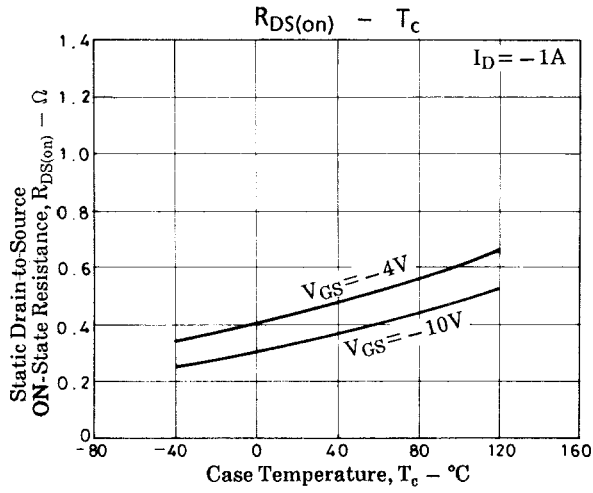
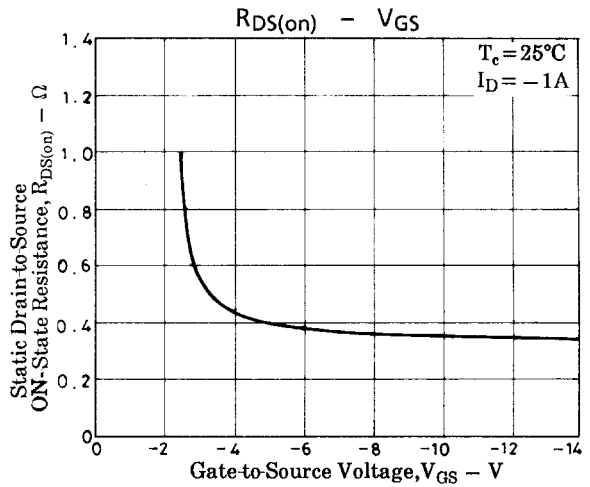
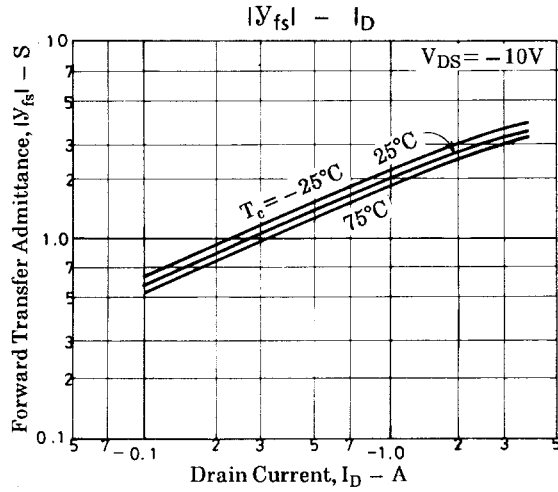
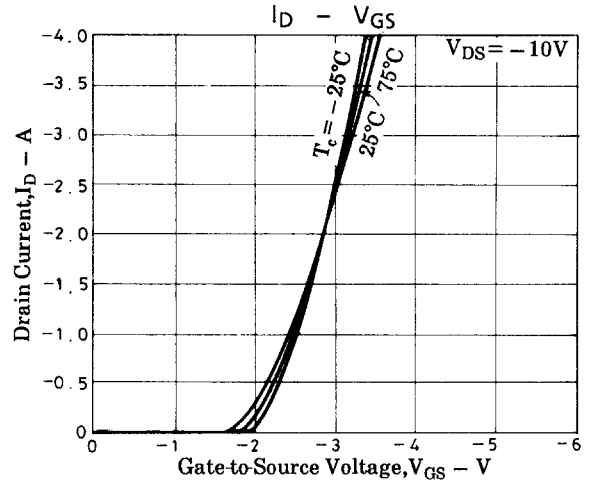
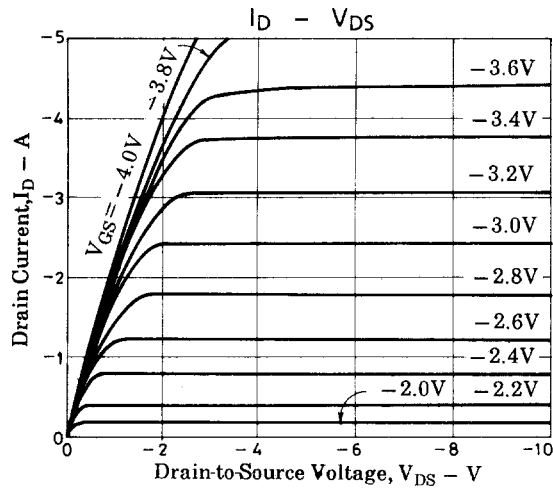
| Parameter                   | Symbol    | Conditions                                | Ratings     | Unit |
|-----------------------------|-----------|-------------------------------------------|-------------|------|
| Drain-to-Source Voltage     | $V_{DSS}$ |                                           | -60         | V    |
| Gate-to-Source Voltage      | $V_{GSS}$ |                                           | ±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   |

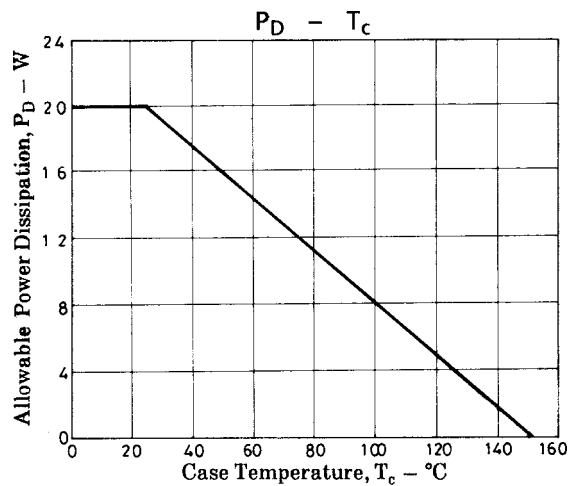
### Electrical Characteristics at Ta = 25°C

| Parameter                                  | Symbol        | Conditions                          | Ratings |      |      | Unit |
|--------------------------------------------|---------------|-------------------------------------|---------|------|------|------|
|                                            |               |                                     | min     | typ  | max  |      |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D = -1mA$ , $V_{GS} = 0$         | -60     |      |      | 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            | $I_{DSS}$     | $V_{DS} = -60V$ , $V_{GS} = 0$      |         |      | -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 | $R_{DS(on)}$  | $I_D = -1A$ , $V_{GS} = -10V$       |         | 0.35 | 0.45 | Ω    |
|                                            | $R_{DS(on)}$  | $I_D = -1A$ , $V_{GS} = -4V$        |         | 0.45 | 0.6  | Ω    |
| Input Capacitance                          | $C_{iss}$     | $V_{DS} = -20V$ , $f = 1MHz$        |         | 380  |      | pF   |
| Output Capacitance                         | $C_{oss}$     | $V_{DS} = -20V$ , $f = 1MHz$        |         | 150  |      | pF   |
| Reverse Transfer Capacitance               | $C_{rss}$     | $V_{DS} = -20V$ , $f = 1MHz$        |         | 40   |      | pF   |
| Turn-ON Delay Time                         | $t_{d(on)}$   | See specified Test Circuit          |         | 12   |      | ns   |
| Rise Time                                  | $t_r$         | See specified Test Circuit          |         | 18   |      | ns   |
| Turn-OFF Delay Time                        | $t_{d(off)}$  | See specified Test Circuit          |         | 85   |      | ns   |
| Fall Time                                  | $t_f$         | See specified Test Circuit          |         | 55   |      | 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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