

**2SJ187**

## Ultrahigh-Speed Switching Applications

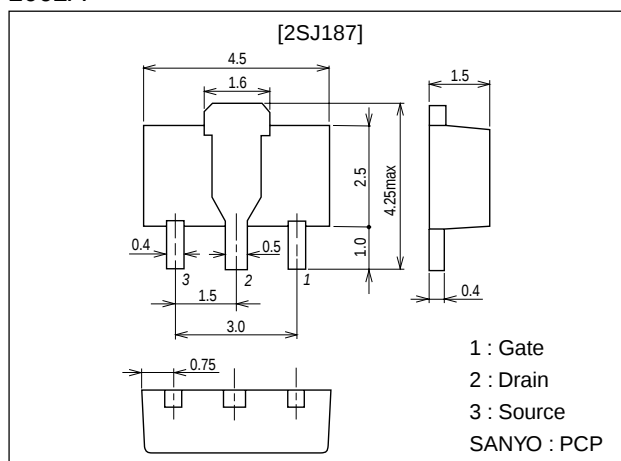
### Features

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

### Package Dimensions

unit:mm

2062A



### 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)          | $I_D$     |                                                       | -1          | A    |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$             | -4          | A    |
| Allowable Power Dissipation | $P_D$     | $T_c = 25^\circ C$                                    | 3.5         | W    |
|                             |           | Mounted on ceramic board (250mm <sup>2</sup> × 0.8mm) | 1.5         | 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    |
| 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} $    | $V_{DS} = -10V$ , $I_D = -500mA$  | 0.6     | 1.0  |      | S    |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)}$  | $I_D = -500mA$ , $V_{GS} = -10V$  |         | 0.5  | 0.75 | Ω    |
|                                            | $R_{DS(on)}$  | $I_D = -500mA$ , $V_{GS} = -4V$   |         | 0.75 | 1.1  | Ω    |

Marking : JA

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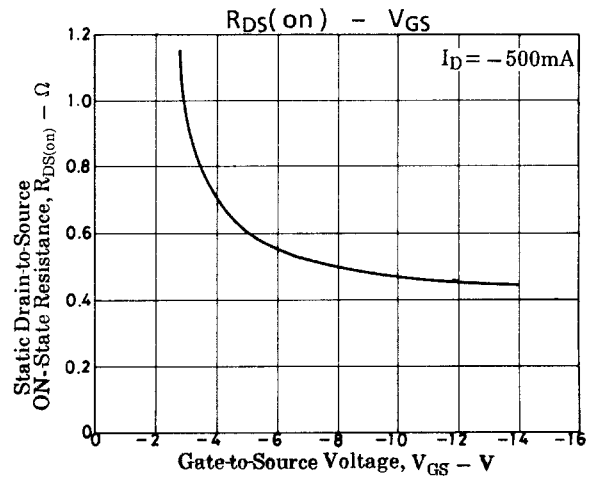
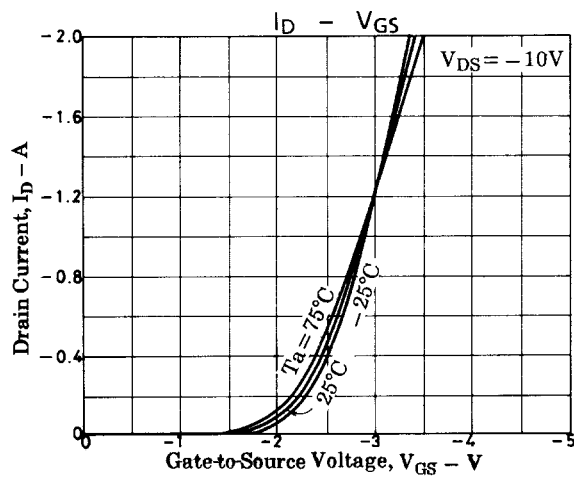
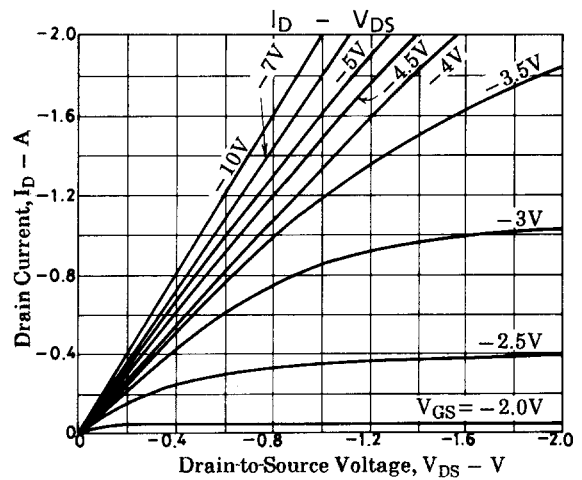
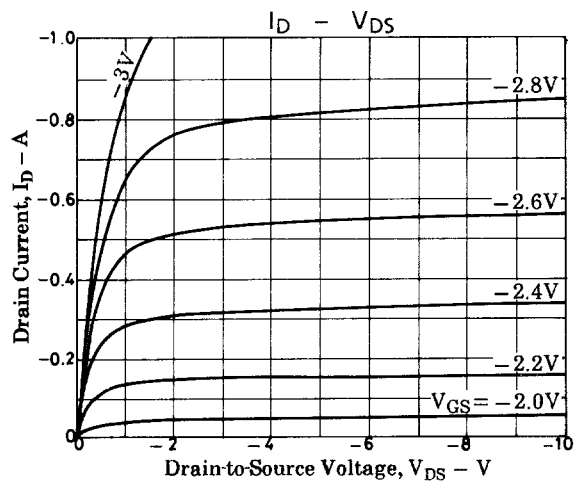
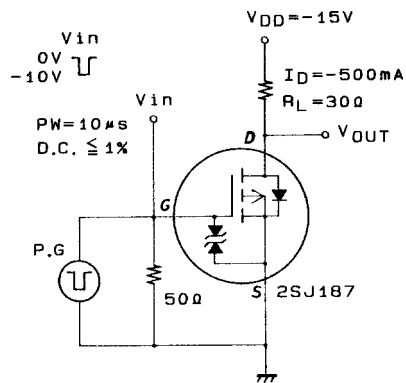
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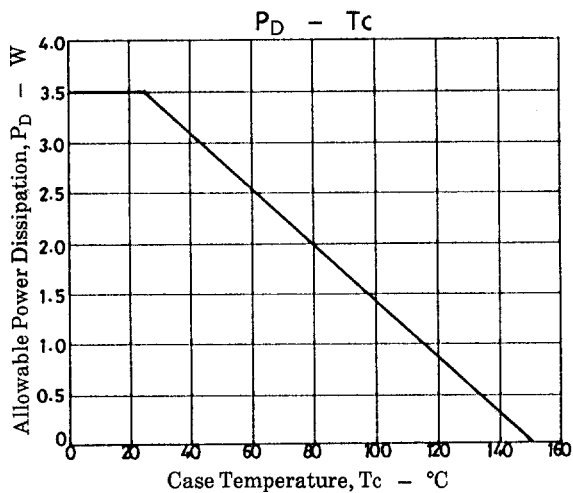
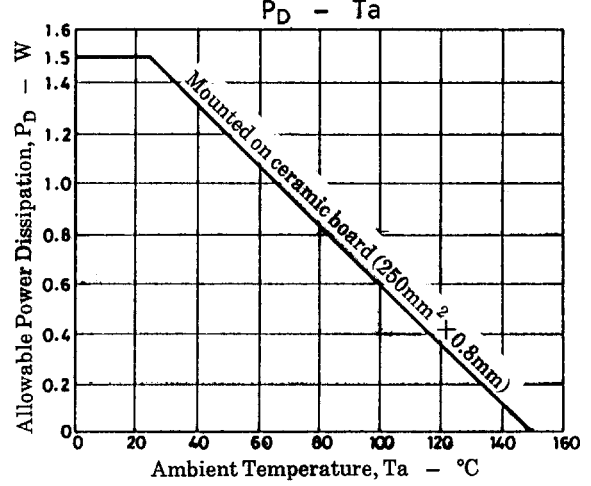
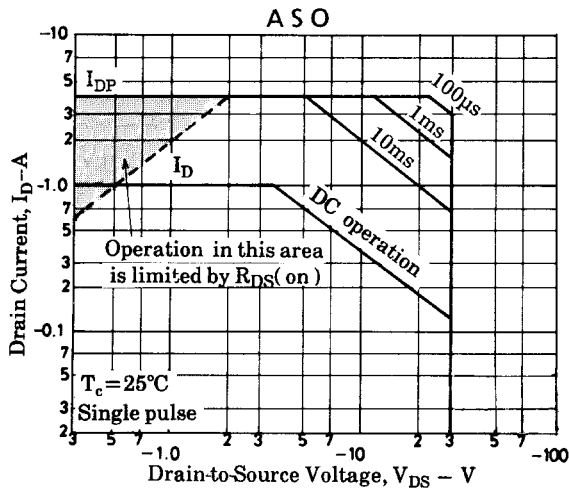
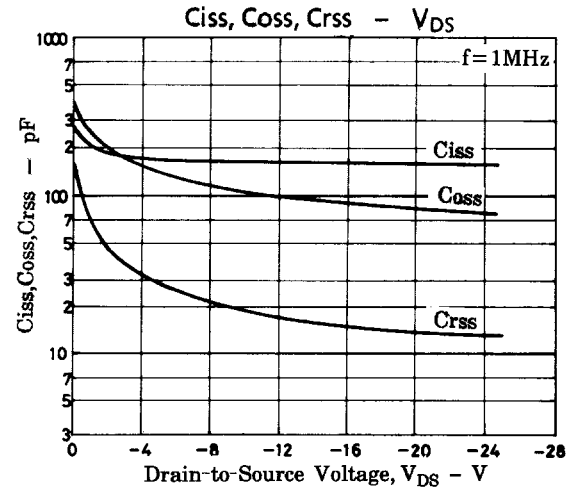
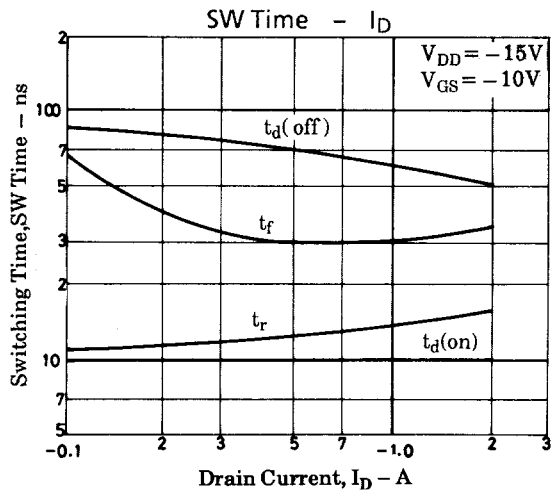
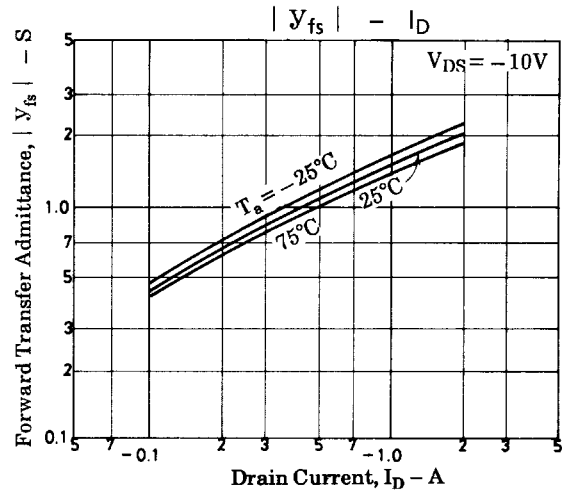
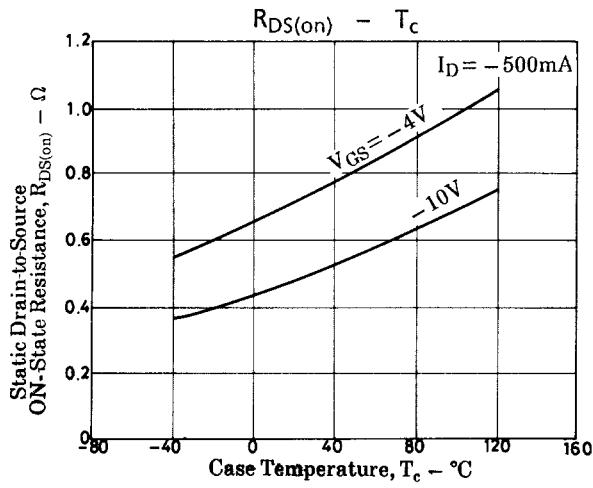
31599TH (KT)/N1292MH (KOTO) X-6951, 7305 No.3509-1/4

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| Parameter                    | Symbol       | Conditions                 | Ratings |      |     | Unit |
|------------------------------|--------------|----------------------------|---------|------|-----|------|
|                              |              |                            | min     | typ  | max |      |
| Input Capacitance            | $C_{iss}$    | $V_{DS} = -10V, f = 1MHz$  |         | 170  |     | pF   |
| Output Capacitance           | $C_{oss}$    | $V_{DS} = -10V, f = 1MHz$  |         | 110  |     | pF   |
| Reverse Transfer Capacitance | $C_{rss}$    | $V_{DS} = -10V, f = 1MHz$  |         | 20   |     | pF   |
| Turn-ON Delay Time           | $t_{d(on)}$  | See specified Test Circuit |         | 10   |     | ns   |
| Rise Time                    | $t_r$        | See specified Test Circuit |         | 13   |     | ns   |
| Turn-OFF Delay Time          | $t_{d(off)}$ | See specified Test Circuit |         | 70   |     | ns   |
| Fall Time                    | $t_f$        | See specified Test Circuit |         | 30   |     | ns   |
| Diode Forward Voltage        | $V_{SD}$     | $I_S = -1A, V_{GS} = 0$    |         | -0.9 |     | V    |

## Switching Time Test Circuit





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