



**2SJ339**

## Ultrahigh-Speed Switching Applications

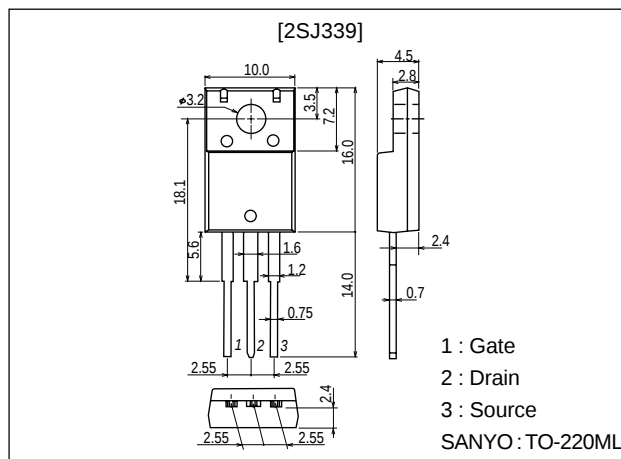
## Features

- Low ON resistance.
- Ultrahigh-speed switching.
- 4V drive.
- Micaless package facilitating mounting.

## Package Dimensions

unit:mm

2063A



## Specifications

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

| Parameter                   | Symbol    | Conditions             | Ratings     | Unit |
|-----------------------------|-----------|------------------------|-------------|------|
| Drain-to-Source Voltage     | $V_{DSS}$ |                        | −60         | V    |
| Gate-to-Source Voltage      | $V_{GSS}$ |                        | ±20         | V    |
| Drain Current (DC)          | $I_D$     |                        | −25         | A    |
| Drain Current (Pulse)       | $I_{DP}$  | PW≤10μs, duty cycle≤1% | −100        | A    |
| Allowable Power Dissipation | $P_D$     |                        | 2           | W    |
|                             |           | Tc=25°C                | 40          | W    |
| Channel Temperature         | Tch       |                        | 150         | °C   |
| Storage Temperature         | Tstg      |                        | −55 to +150 | °C   |

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

| Parameter                                  | Symbol        | Conditions                       | Ratings  |     |          | Unit       |
|--------------------------------------------|---------------|----------------------------------|----------|-----|----------|------------|
|                                            |               |                                  | min      | typ | max      |            |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D = -1mA, V_{GS} = 0$         | -60      |     |          | V          |
| Gate-to-Source Breakdown Voltage           | $V_{(BR)GSS}$ | $I_G = \pm 100\mu A, V_{DS} = 0$ | $\pm 20$ |     |          | V          |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = -60V, V_{GS} = 0$      |          |     | -100     | $\mu A$    |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 16V, V_{DS} = 0$   |          |     | $\pm 10$ | $\mu A$    |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS} = -10V, I_D = -1mA$      | -1.0     |     | -2.0     | V          |
| Forward Transfer Admittance                | yfs           | $V_{DS} = -10V, I_D = -15A$      | 15       | 25  |          | S          |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)}$  | $I_D = -15A, V_{GS} = -10V$      |          | 30  | 40       | m $\Omega$ |
|                                            |               | $I_D = -15A, V_{GS} = -4V$       |          | 40  | 55       | m $\Omega$ |

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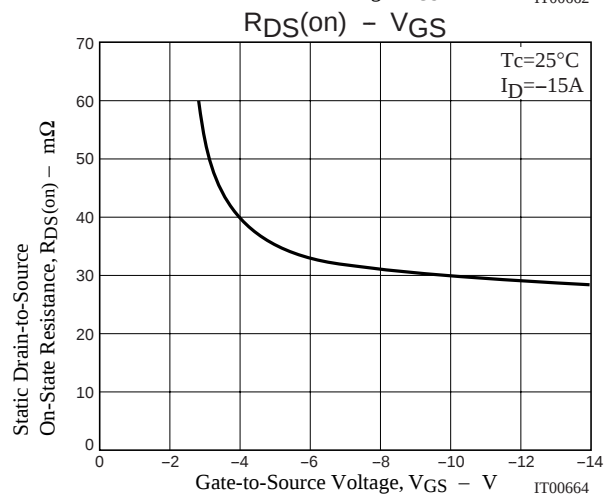
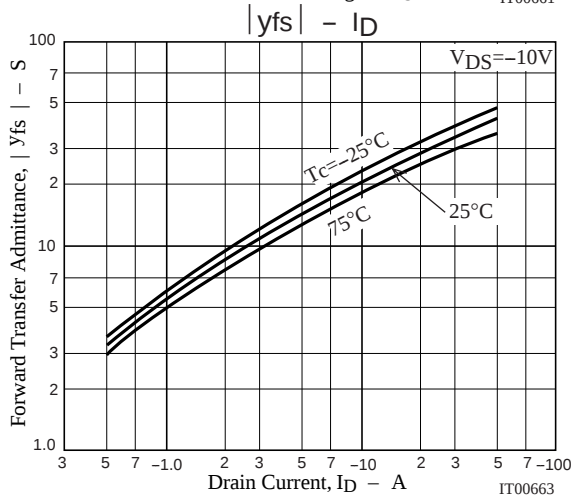
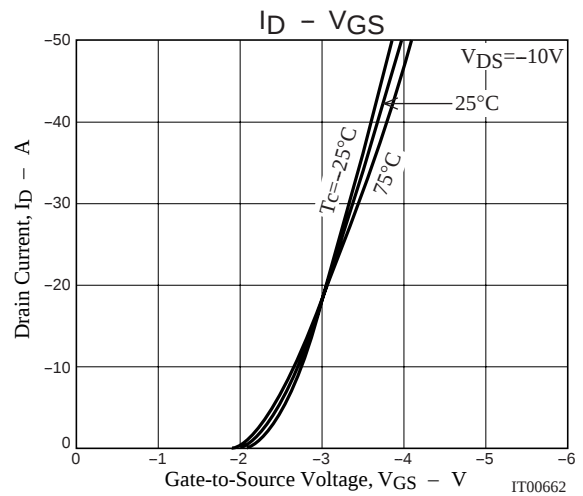
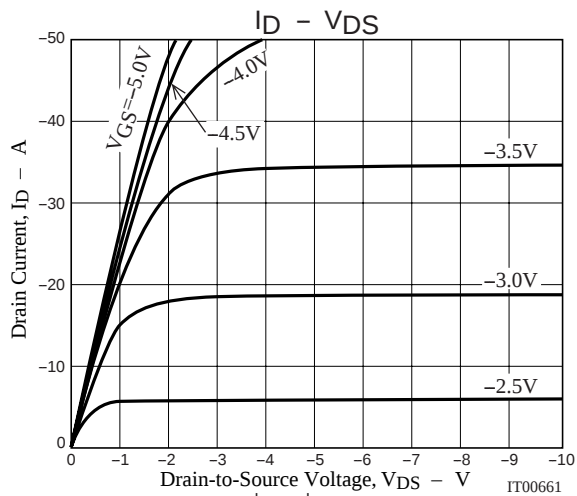
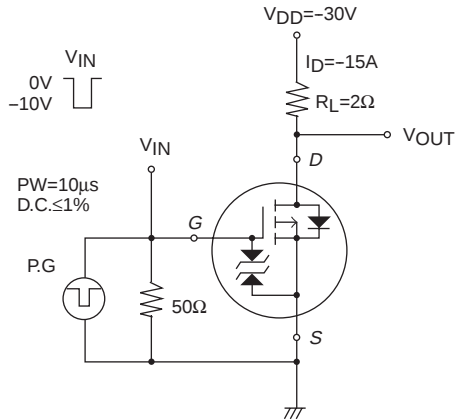
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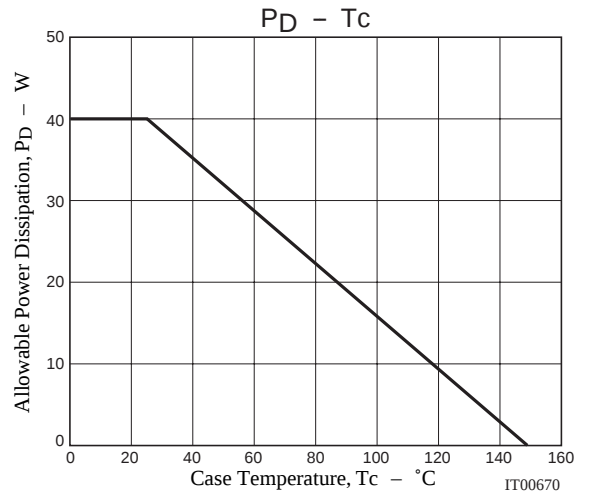
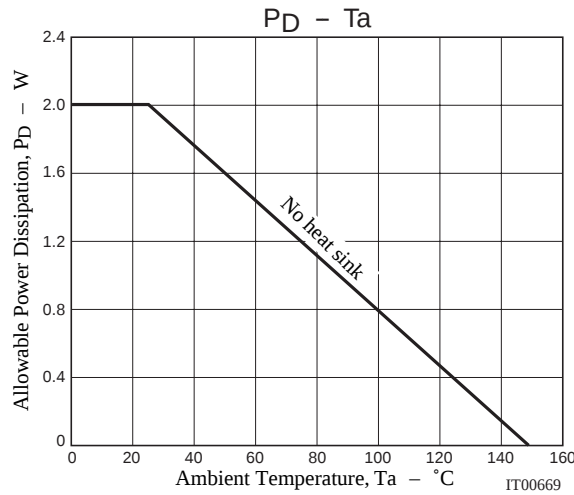
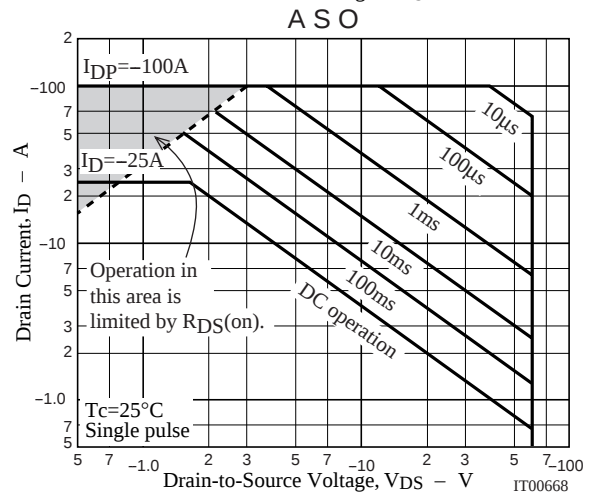
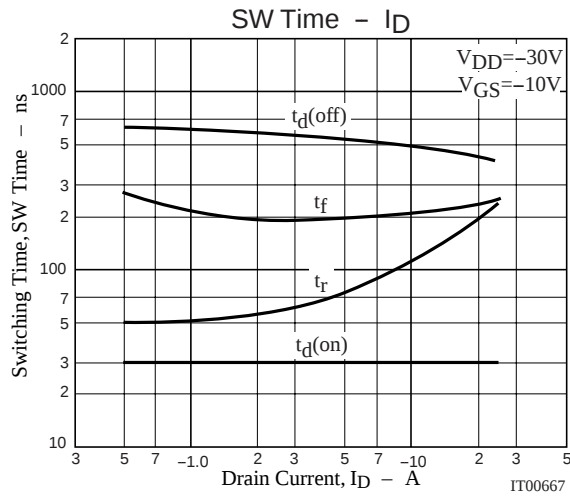
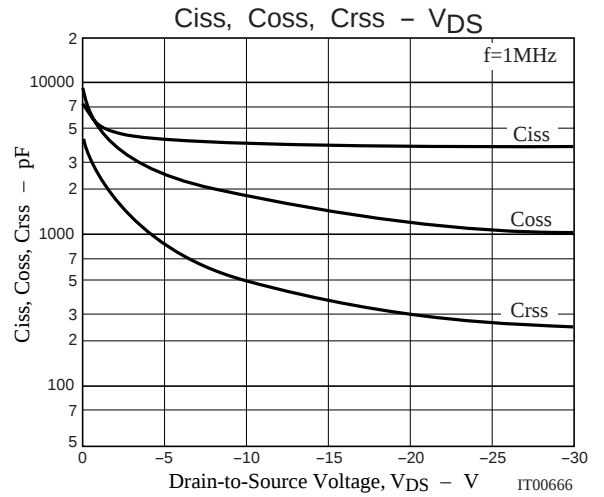
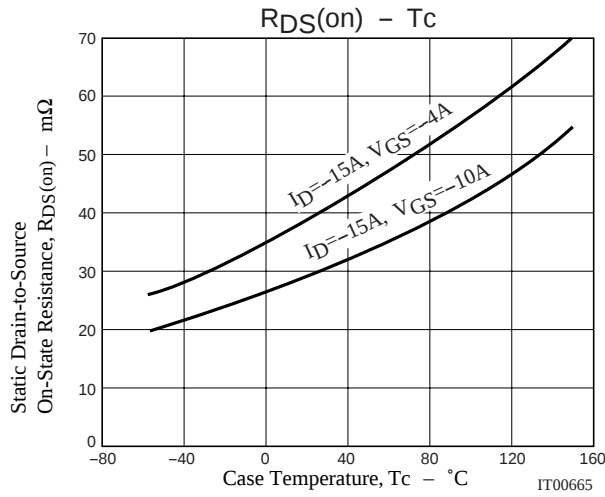
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| Parameter                    | Symbol       | Conditions                 | Ratings |      |      | Unit |
|------------------------------|--------------|----------------------------|---------|------|------|------|
|                              |              |                            | min     | typ  | max  |      |
| Input Capacitance            | $C_{iss}$    | $V_{DS}=-20V, f=1MHz$      |         | 3800 |      | pF   |
| Output Capacitance           | $C_{oss}$    | $V_{DS}=-20V, f=1MHz$      |         | 1200 |      | pF   |
| Reverse Transfer Capacitance | $C_{rss}$    | $V_{DS}=-20V, f=1MHz$      |         | 300  |      | pF   |
| Turn-ON Delay Time           | $t_{d(on)}$  | See specified Test Circuit |         | 30   |      | ns   |
| Rise Time                    | $t_r$        | See specified Test Circuit |         | 150  |      | ns   |
| Turn-OFF Delay Time          | $t_{d(off)}$ | See specified Test Circuit |         | 450  |      | ns   |
| Fall Time                    | $t_f$        | See specified Test Circuit |         | 220  |      | 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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