

**2SJ273**

## Ultrahigh-Speed Switching Applications

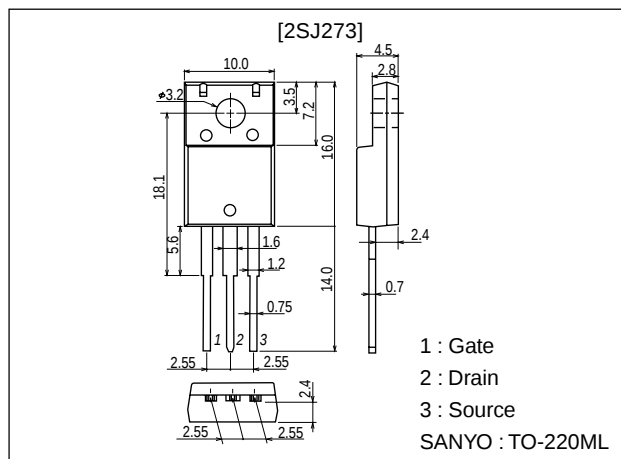
### Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.
- Micaless package facilitating easy 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     | $V_{DS}$  |                                           | -100        | V                |
| Gate-to-Source Voltage      | $V_{GS}$  |                                           | $\pm 20$    | V                |
| Drain Current (DC)          | $I_D$     |                                           | -6          | A                |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$ | -24         | A                |
| Allowable Power Dissipation | $P_D$     |                                           | 2.0         | W                |
|                             |           | $T_c = 25^\circ\text{C}$                  | 25          | W                |
| Channel Temperature         | $T_{ch}$  |                                           | 150         | $^\circ\text{C}$ |
| Storage Temperature         | $T_{stg}$ |                                           | -55 to +150 | $^\circ\text{C}$ |

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

| Parameter                                  | Symbol        | Conditions                                   | Ratings  |      |          | Unit     |
|--------------------------------------------|---------------|----------------------------------------------|----------|------|----------|----------|
|                                            |               |                                              | min      | typ  | max      |          |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DS}$  | $I_D = -1\text{mA}$ , $V_{GS} = 0$           | -100     |      |          | V        |
| Gate-to-Source Breakdown Voltage           | $V_{(BR)GS}$  | $I_G = \pm 100\mu A$ , $V_{DS} = 0$          | $\pm 20$ |      |          | V        |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = -100\text{V}$ , $V_{GS} = 0$       |          |      | -100     | $\mu A$  |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0$     |          |      | $\pm 10$ | $\mu A$  |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$ | -1.0     |      | -2.0     | V        |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS} = -10\text{V}$ , $I_D = -4\text{A}$  | 3.5      | 6.5  |          | S        |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)}$  | $I_D = -4\text{A}$ , $V_{GS} = -10\text{V}$  |          | 0.22 | 0.3      | $\Omega$ |
|                                            | $R_{DS(on)}$  | $I_D = -4\text{A}$ , $V_{GS} = -4\text{V}$   |          | 0.3  | 0.4      | $\Omega$ |

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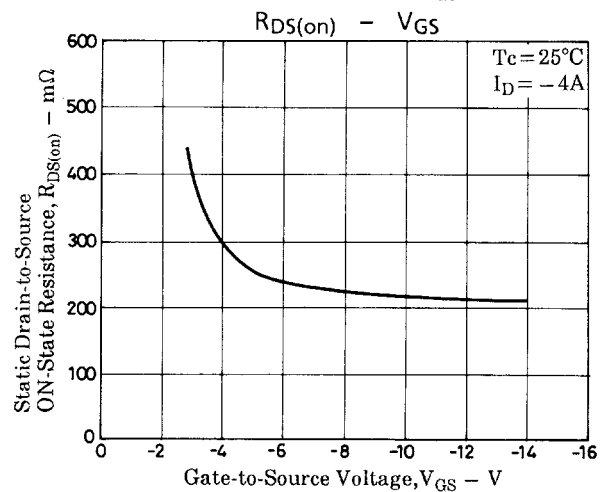
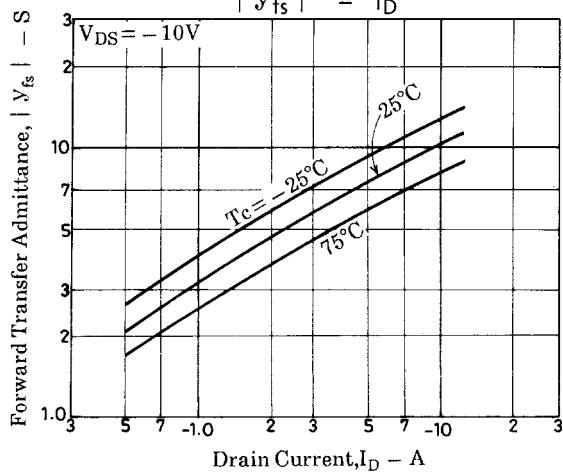
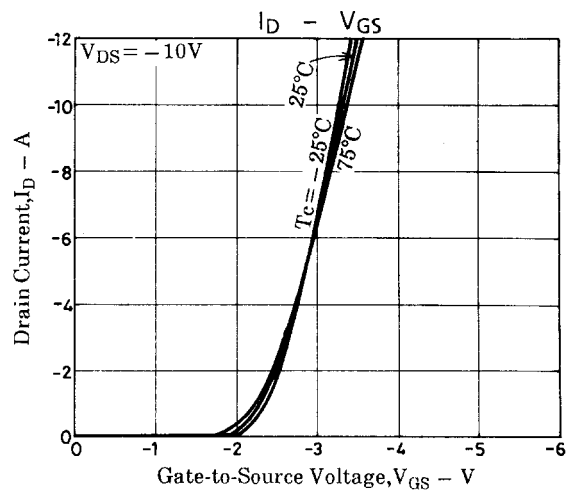
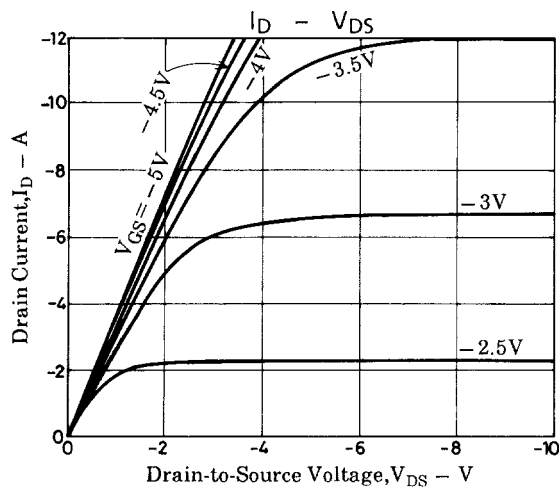
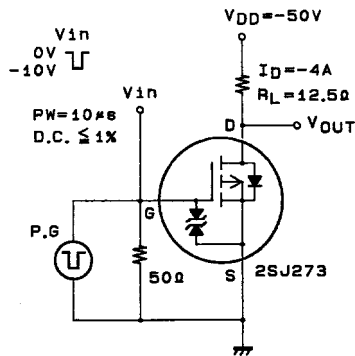
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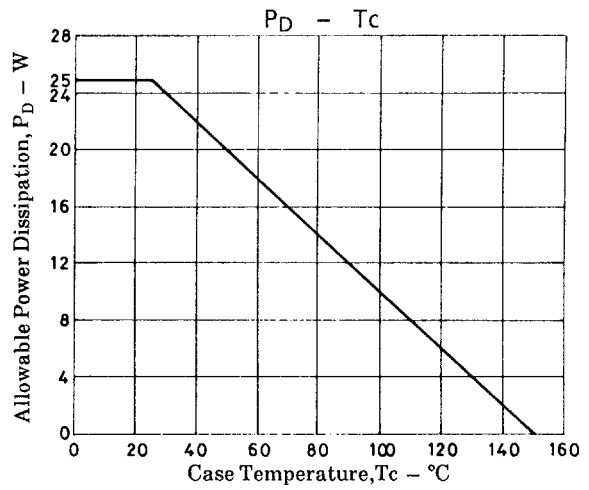
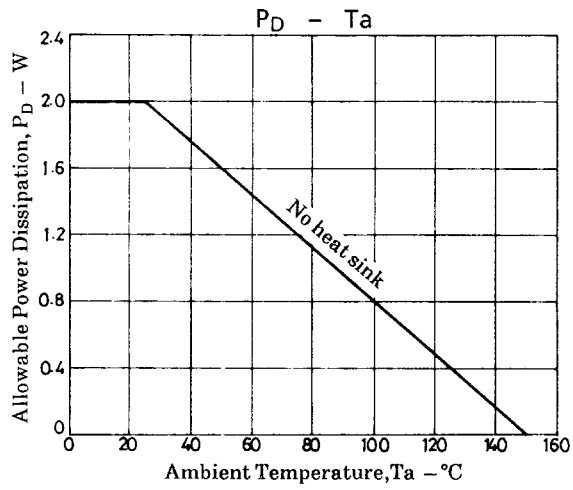
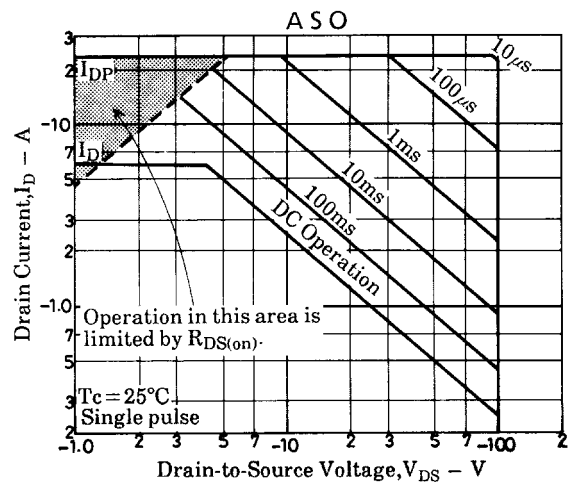
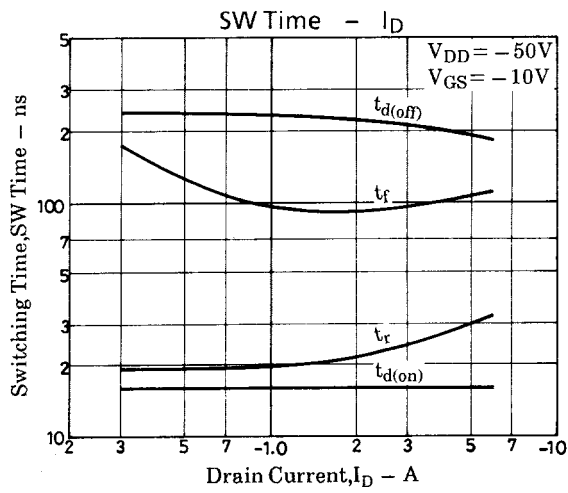
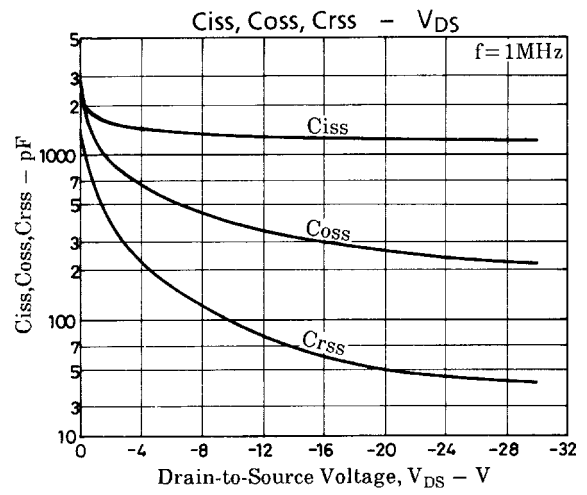
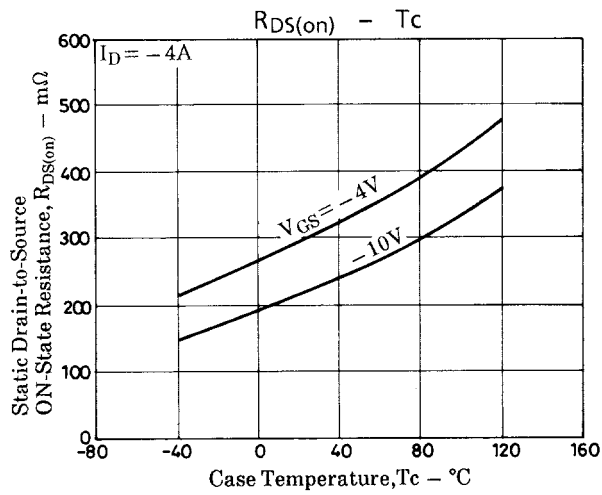
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| Parameter                    | Symbol       | Conditions                 | Ratings |      |      | Unit |
|------------------------------|--------------|----------------------------|---------|------|------|------|
|                              |              |                            | min     | typ  | max  |      |
| Input Capacitance            | $C_{iss}$    | $V_{DS} = -20V, f = 1MHz$  |         | 1230 |      | pF   |
| Output Capacitance           | $C_{oss}$    | $V_{DS} = -20V, f = 1MHz$  |         | 260  |      | pF   |
| Reverse Transfer Capacitance | $C_{rss}$    | $V_{DS} = -20V, f = 1MHz$  |         | 50   |      | pF   |
| Turn-ON Delay Time           | $t_{d(on)}$  | See specified Test Circuit |         | 16   |      | ns   |
| Rise Time                    | $t_r$        | See specified Test Circuit |         | 27   |      | ns   |
| Turn-OFF Delay Time          | $t_{d(off)}$ | See specified Test Circuit |         | 200  |      | ns   |
| Fall Time                    | $t_f$        | See specified Test Circuit |         | 100  |      | ns   |
| Diode Forward Voltage        | $V_{SD}$     | $I_S = -6A, V_{GS} = 0$    |         | -1.0 | -1.5 | V    |

### Switching Time Test Circuit





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