



# 2SJ584LS

## Ultrahigh-Speed Switching Applications

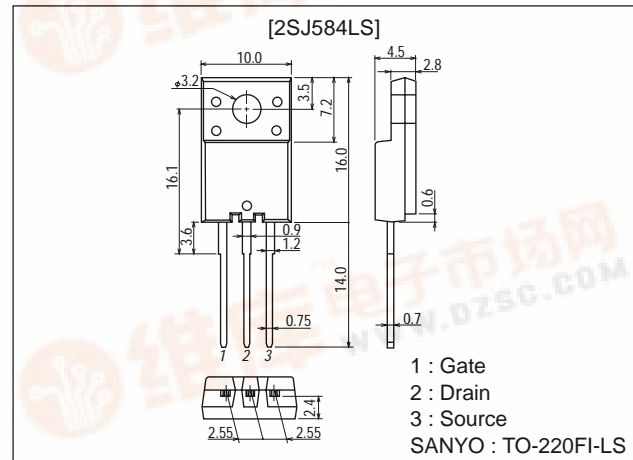
### Features

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

### Package Dimensions

unit:mm

2078B



### Specifications

Absolute Maximum Ratings at Ta = 25°C

| Parameter                   | Symbol    | Conditions                                | Ratings     | Unit |
|-----------------------------|-----------|---|-------------|------|
| Drain-to-Source Voltage     | $V_{DSS}$ |   | -250        | V    |
| Gate-to-Source Voltage      | $V_{GSS}$ |   | ±30         | V    |
| Drain Current (DC)          | $I_D$     |   | -4.5        | A    |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$ | -18         | A    |
| Allowable Power Dissipation | $P_D$     |   | 2.0         | W    |
|                             |           | $T_c = 25^\circ C$                        | 25          | 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          | $V_{(BR)DSS}$  | $I_D = -1mA$ , $V_{GS} = 0$         | -250    |      |      | V    |
| Gate-to-Source Breakdown Voltage           | $V_{(BR)GSS}$  | $I_G = \pm 100\mu A$ , $V_{DS} = 0$ | ±30     |      |      | V    |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$      | $V_{DS} = -250V$ , $V_{GS} = 0$     |         |      | -100 | μA   |
| Gate-to-Source Leakage Current             | $I_{GSS}$      | $V_{GS} = \pm 25V$ , $V_{DS} = 0$   |         |      | ±10  | μA   |
| Cutoff Voltage                             | $V_{GGS(off)}$ | $V_{DS} = -10V$ , $I_D = -1mA$      | -3.5    |      | -5.0 | V    |
| Forward Transfer Admittance                | $ y_{fs} $     | $V_{DS} = -10V$ , $I_D = -2.5A$     | 1.5     | 2.5  |      | S    |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)}$   | $I_D = -2.5A$ , $V_{GS} = -10V$     |         | 0.95 | 1.2  | Ω    |

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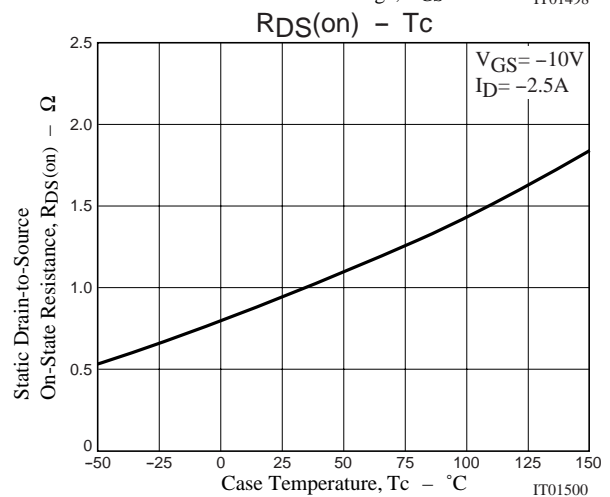
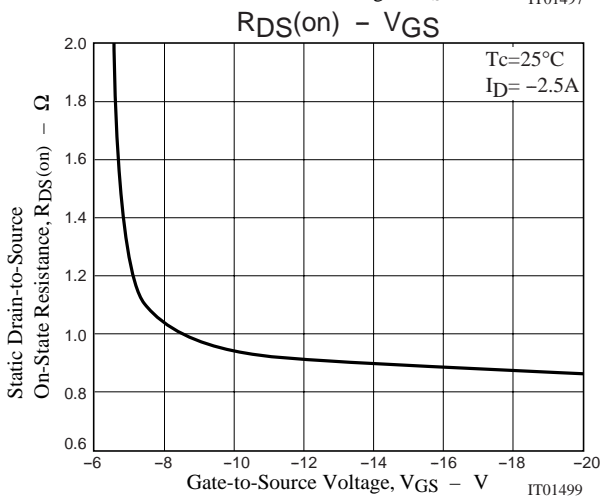
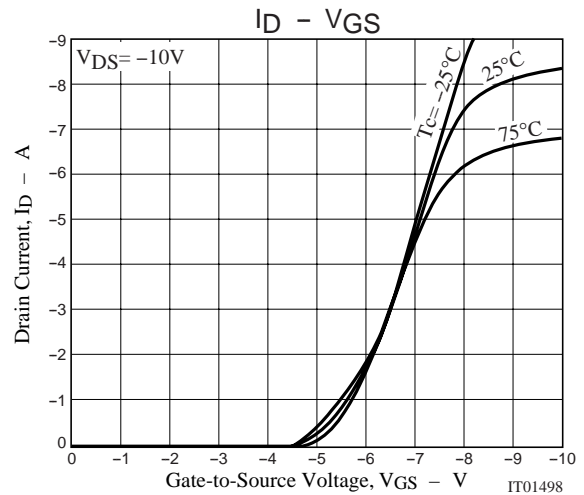
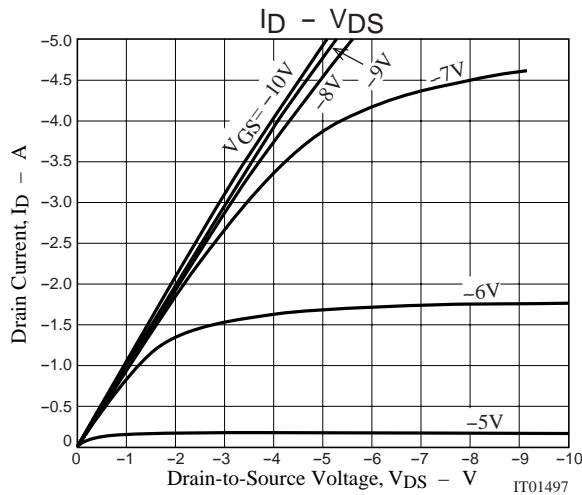
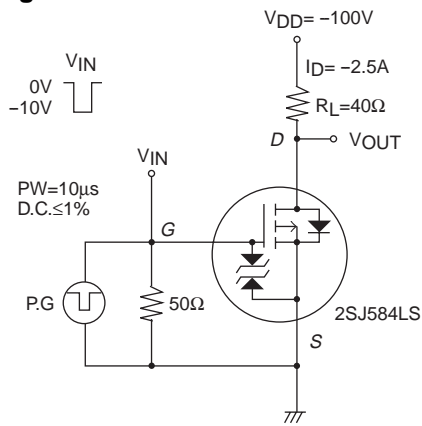
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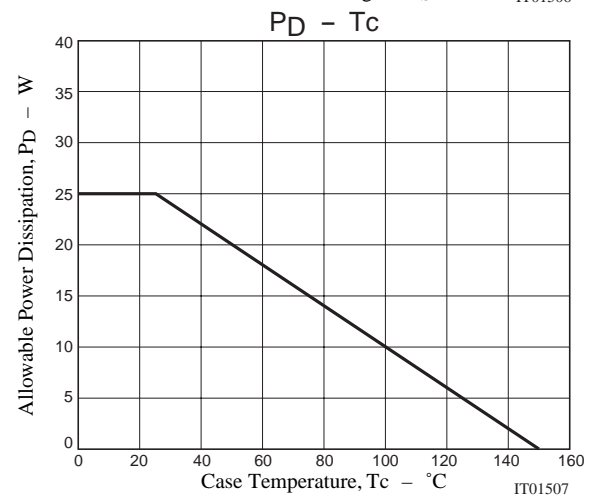
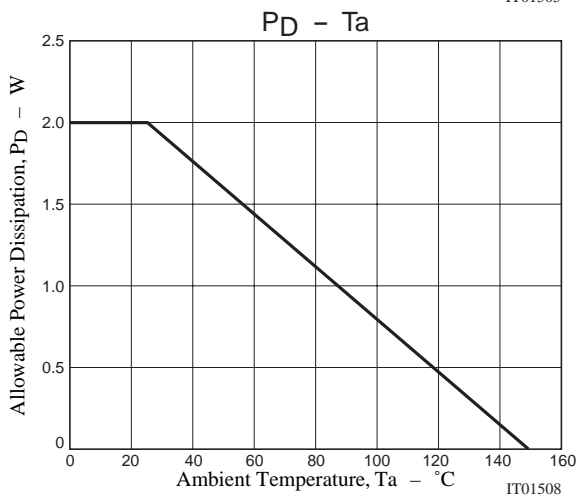
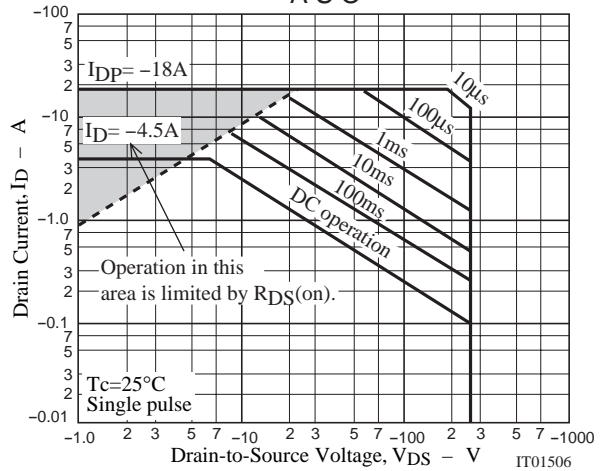
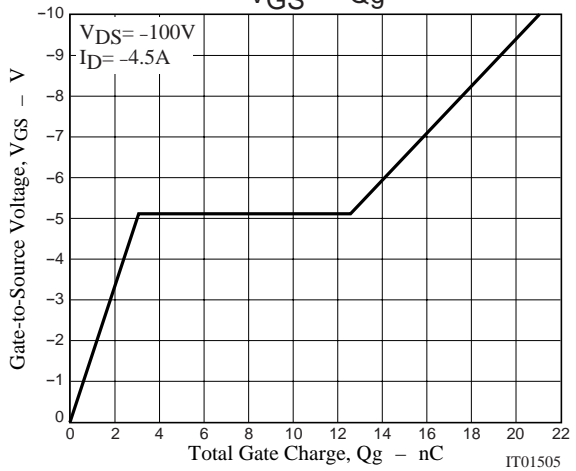
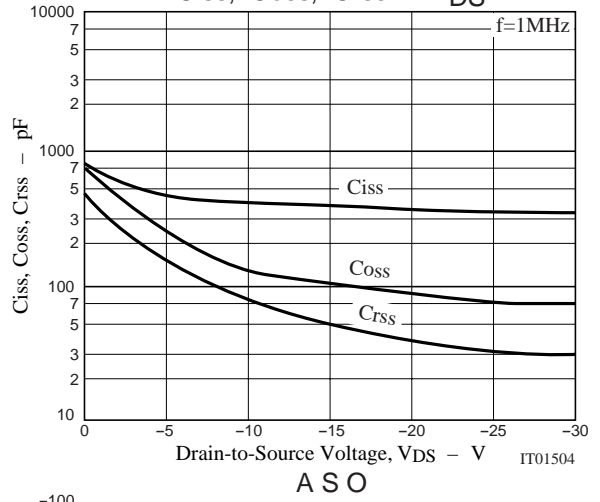
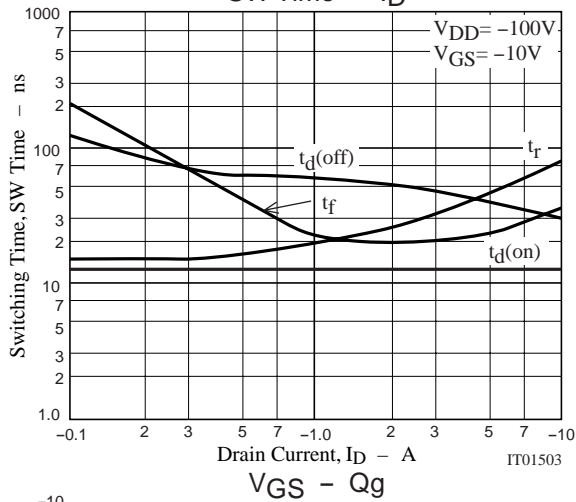
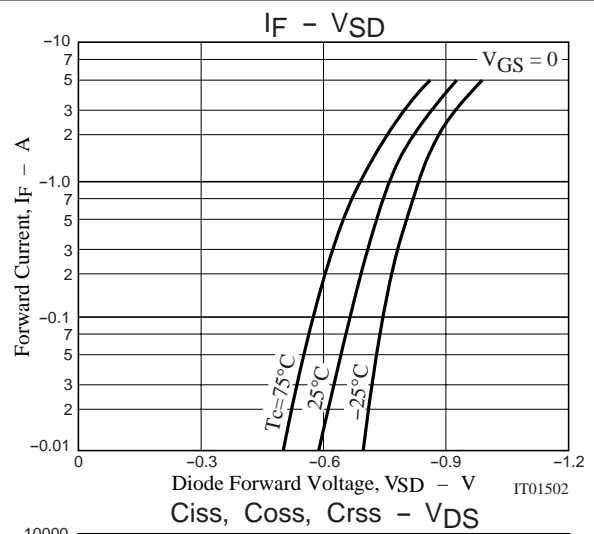
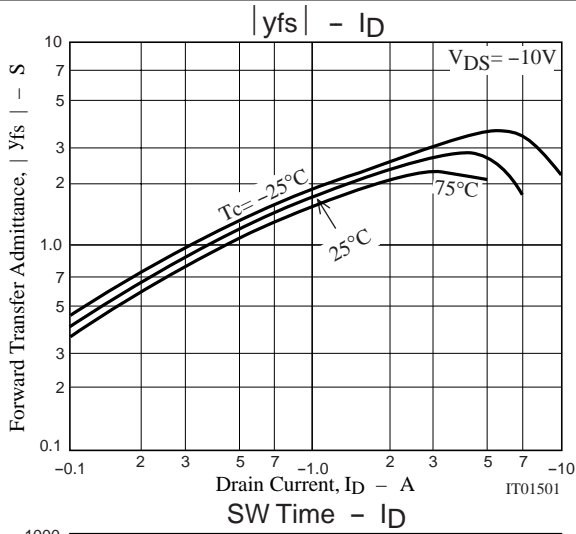
| Parameter                     | Symbol       | Conditions                             | Ratings |      |      | Unit |
|-------------------------------|--------------|--|---------|------|------|------|
|                               |              |  | min     | typ  | max  |      |
| Input Capacitance             | $C_{iss}$    | $V_{DS}=-20V, f=1MHz$                  |         | 450  |      | pF   |
| Output Capacitance            | $C_{oss}$    | $V_{DS}=-20V, f=1MHz$                  |         | 120  |      | pF   |
| Reverse Transfer Capacitance  | $C_{rss}$    | $V_{DS}=-20V, f=1MHz$                  |         | 50   |      | pF   |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit             |         | 12.5 |      | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit             |         | 30   |      | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit             |         | 52   |      | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit             |         | 21   |      | ns   |
| Total Gate Charge             | $Q_g$        | $V_{DS}=-100V, V_{GS}=-10V, I_D=-4.5A$ |         | 22   |      | nC   |
| Gate-to-Source Charge         | $Q_{gs}$     | $V_{DS}=-100V, V_{GS}=-10V, I_D=-4.5A$ |         | 3.7  |      | nC   |
| Gate-to-Drain "Miller" Charge | $Q_{gd}$     | $V_{DS}=-100V, V_{GS}=-10V, I_D=-4.5A$ |         | 11   |      | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S=-4.5A, V_{GS}=0$                  |         | -0.9 | -1.5 | V    |

Marking : J584

## Switching Time Test Circuit



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