

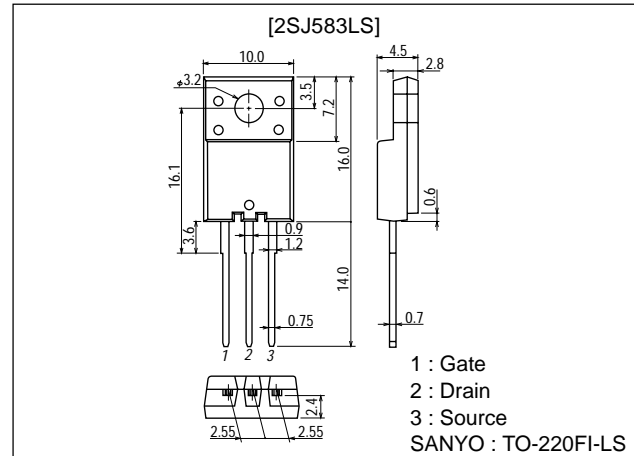
**2SJ583LS****Ultrahigh-Speed Switching Applications****Features**

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

**Package Dimensions**

unit:mm

2078B

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

| Parameter                   | Symbol    | Conditions                                      | Ratings     | Unit             |
|-----------------------------|-----------|---|-------------|------------------|
| Drain-to-Source Voltage     | $V_{DSS}$ |   | -250        | V                |
| Gate-to-Source Voltage      | $V_{GSS}$ |   | $\pm 30$    | V                |
| Drain Current (DC)          | $I_D$     |   | -3.5        | A                |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$ | -14         | A                |
| Allowable Power Dissipation | $P_D$     |   | 2.0         | W                |
|                             |           | $T_c = 25^\circ\text{C}$                        | 20          | 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          | $V_{(BR)DSS}$ | $I_D = -1\text{mA}$ , $V_{GS} = 0$           | -250     |     |          | V             |
| Gate-to-Source Breakdown Voltage           | $V_{(BR)GSS}$ | $I_G = \pm 100\mu\text{A}$ , $V_{DS} = 0$    | $\pm 30$ |     |          | V             |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = -250\text{V}$ , $V_{GS} = 0$       |          |     | -100     | $\mu\text{A}$ |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 25\text{V}$ , $V_{DS} = 0$     |          |     | $\pm 10$ | $\mu\text{A}$ |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$ | -3.5     |     | -5.0     | V             |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS} = -10\text{V}$ , $I_D = -2\text{A}$  | 1.2      | 2.0 |          | S             |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)}$  | $I_D = -2\text{A}$ , $V_{GS} = -10\text{V}$  |          | 1.2 | 1.5      | $\Omega$      |

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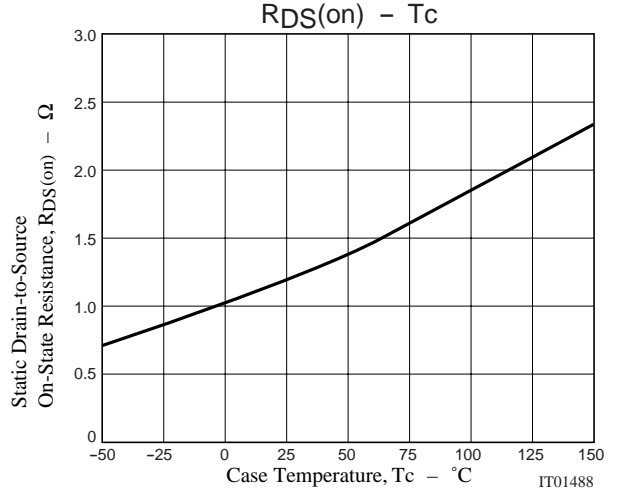
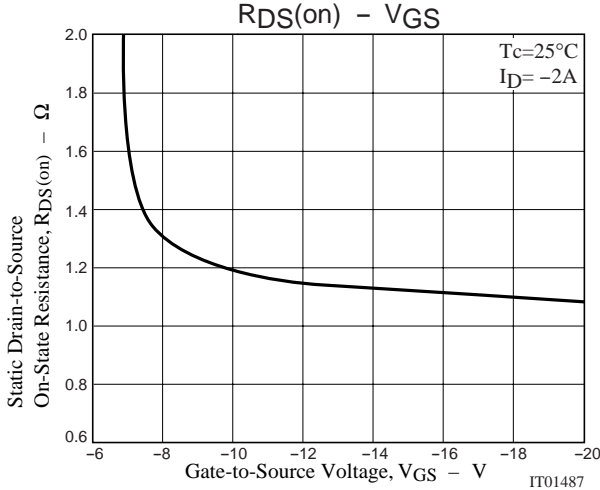
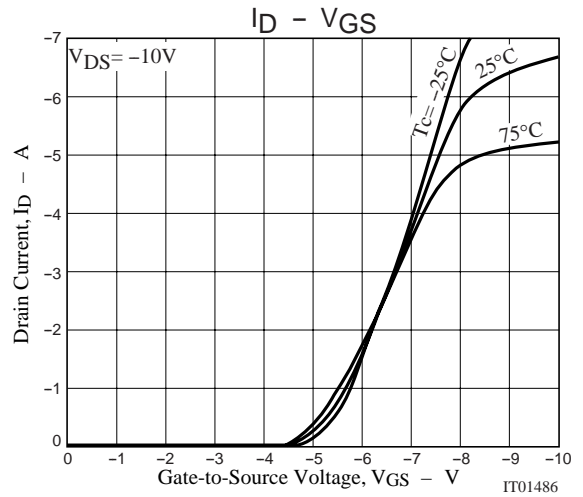
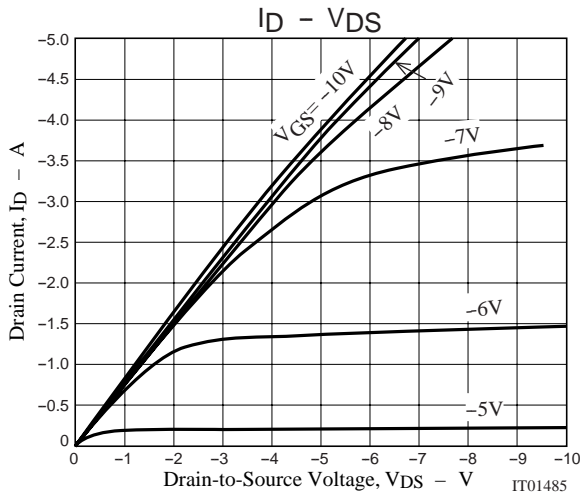
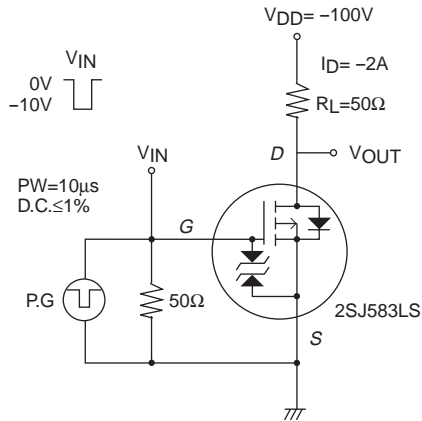
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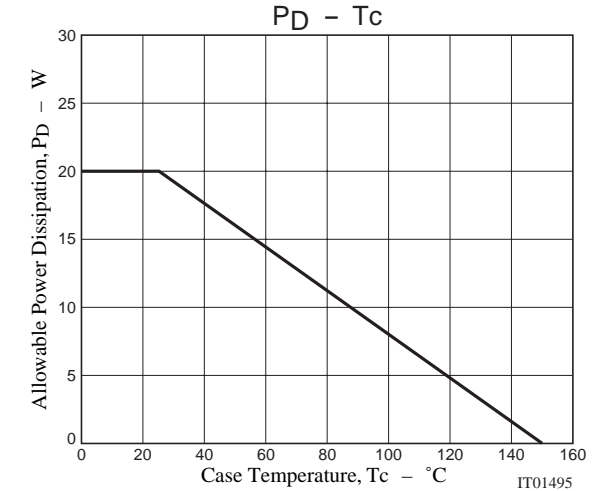
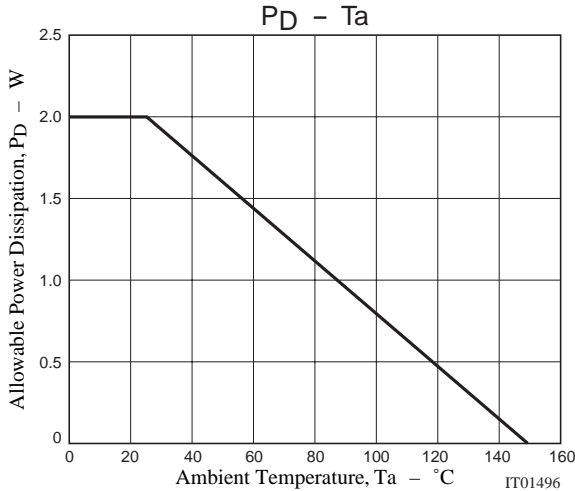
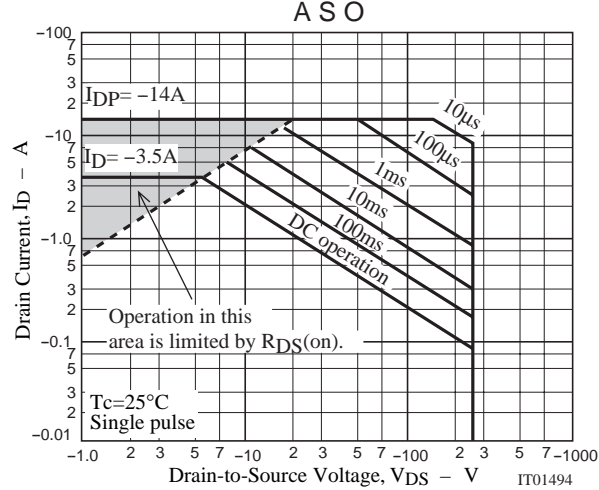
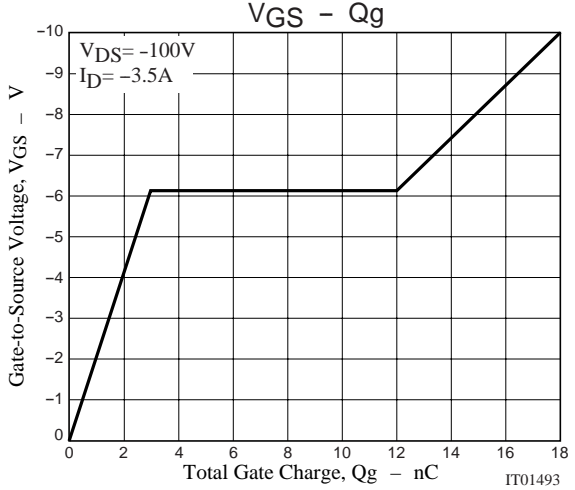
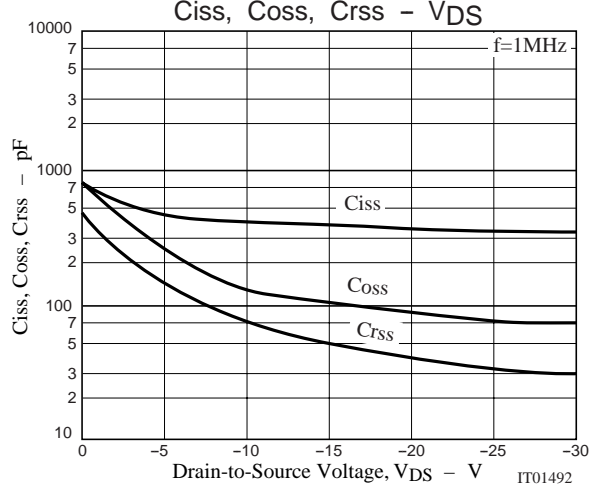
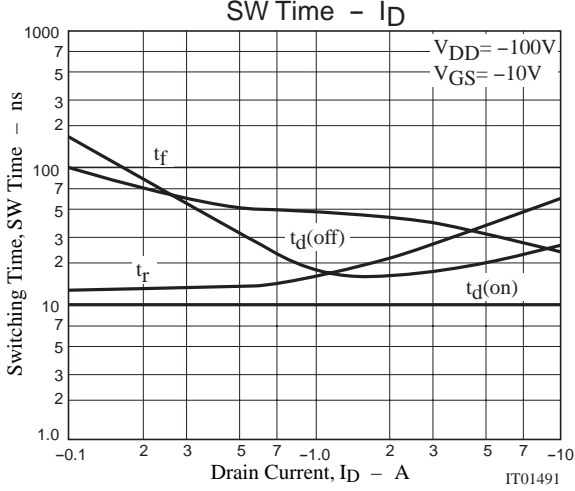
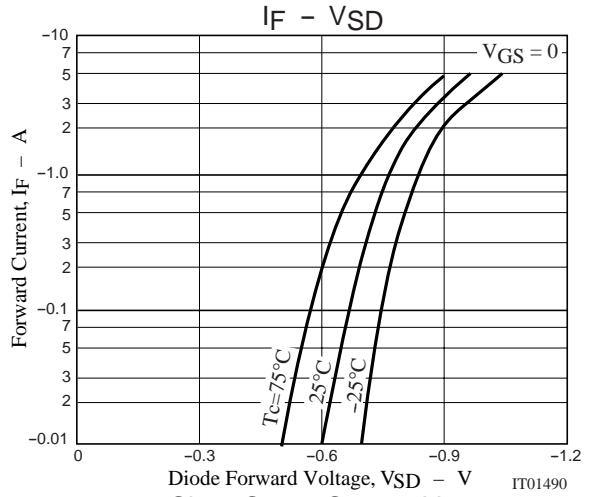
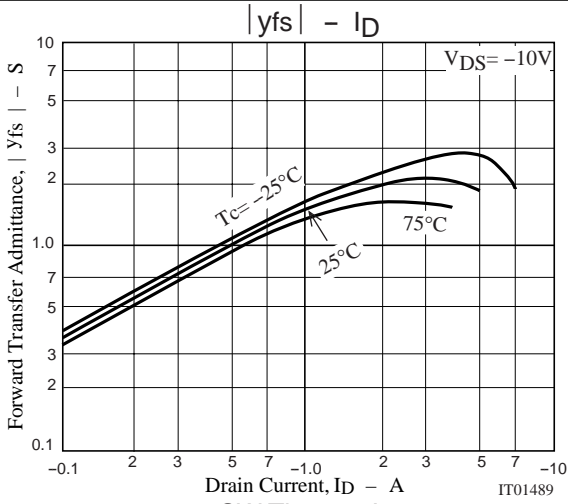
| Parameter                     | Symbol       | Conditions                                   | Ratings |      |      | Unit |
|-------------------------------|--------------|--|---------|------|------|------|
|                               |              |  | min     | typ  | max  |      |
| Input Capacitance             | $C_{iss}$    | $V_{DS} = -20V, f = 1MHz$                    |         | 360  |      | pF   |
| Output Capacitance            | $C_{oss}$    | $V_{DS} = -20V, f = 1MHz$                    |         | 95   |      | pF   |
| Reverse Transfer Capacitance  | $C_{rss}$    | $V_{DS} = -20V, f = 1MHz$                    |         | 40   |      | pF   |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit                   |         | 10   |      | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit                   |         | 21   |      | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit                   |         | 45   |      | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit                   |         | 16.5 |      | ns   |
| Total Gate Charge             | $Q_g$        | $V_{DS} = -100V, V_{GS} = -10V, I_D = -3.5A$ |         | 18   |      | nC   |
| Gate-to-Source Charge         | $Q_{gs}$     | $V_{DS} = -100V, V_{GS} = -10V, I_D = -3.5A$ |         | 3    |      | nC   |
| Gate-to-Drain "Miller" Charge | $Q_{gd}$     | $V_{DS} = -100V, V_{GS} = -10V, I_D = -3.5A$ |         | 9    |      | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S = -3.5A, V_{GS} = 0$                    |         | -0.9 | -1.5 | V    |

Marking : J583

## Switching Time Test Circuit



# 2SJ583LS



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