

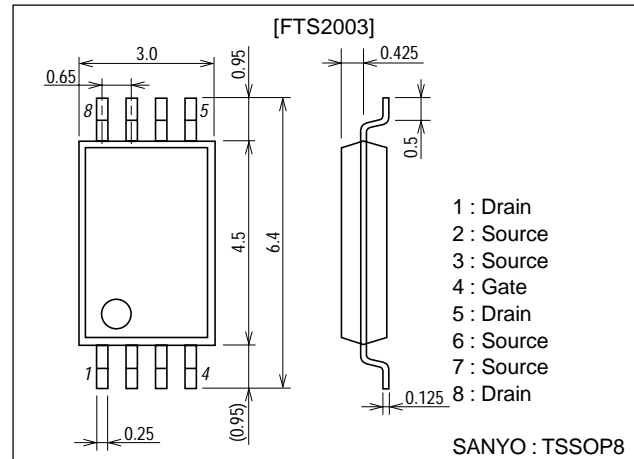
**FTS2003****DC/DC Converter Applications****Features**

- Low ON resistance.
- 2.5V drive.
- Mount height of 1.1mm.

**Package Dimensions**

unit:mm

2147A

**Specifications****Absolute Maximum Ratings** at Ta = 25°C

| Parameter                   | Symbol    | Conditions  | Ratings     | Unit |
|-----------------------------|-----------|---|-------------|------|
| Drain-to-Source Voltage     | $V_{DSS}$ |   | 20          | V    |
| Gate-to-Source Voltage      | $V_{GSS}$ |   | ±10         | V    |
| Drain Current (DC)          | $I_D$     |   | 4           | A    |
| Drain Current (pulse)       | $I_{DP}$  | PW≤10μs, duty cycle≤1%                                  | 25          | A    |
| Allowable Power Dissipation | $P_D$     | Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) | 1.3         | W    |
| Channel Temperature         | Tch       |   | 150         | °C   |
| Storage Temperature         | Tstg      |   | -55 to +150 | °C   |

**Electrical Characteristics** at Ta = 25°C

| Parameter                                  | Symbol        | Conditions             | Ratings |     |     | Unit |
|--|---------------|------------------------|---------|-----|-----|------|
|  |               |                        | min     | typ | max |      |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D=1mA, V_{GS}=0$    | 20      |     |     | V    |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS}=20V, V_{GS}=0$ |         |     | 10  | μA   |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS}=±8V, V_{DS}=0$ |         |     | ±10 | μA   |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS}=10V, I_D=1mA$  | 0.4     |     | 1.3 | V    |
| Forward Transfer Admittance                | yfs           | $V_{DS}=10V, I_D=4A$   | 7       | 10  |     | S    |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=4A, V_{GS}=4V$    |         | 38  | 50  | mΩ   |
|  | $R_{DS(on)2}$ | $I_D=2A, V_{GS}=2.5V$  |         | 50  | 70  | mΩ   |
| Input Capacitance                          | Ciss          | $V_{DS}=10V, f=1MHz$   |         | 500 |     | pF   |
| Output Capacitance                         | Coss          | $V_{DS}=10V, f=1MHz$   |         | 280 |     | pF   |
| Reverse Transfer Capacitance               | Crss          | $V_{DS}=10V, f=1MHz$   |         | 150 |     | pF   |

Marking : S2003

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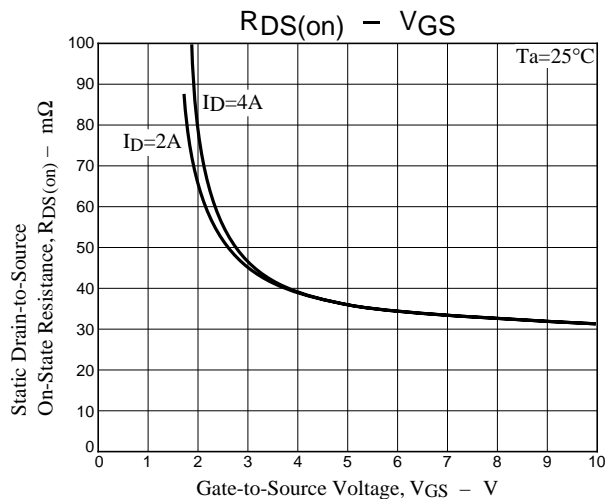
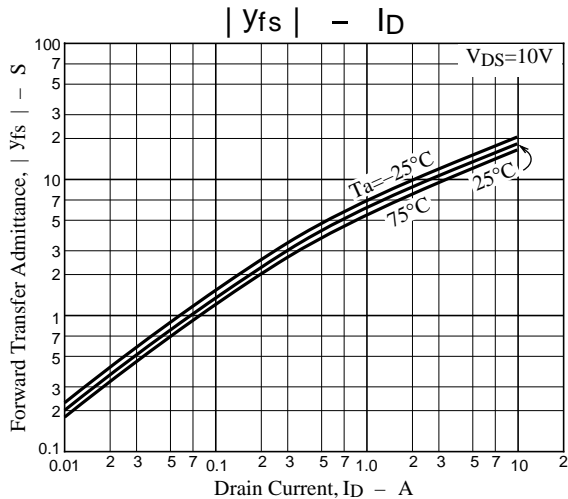
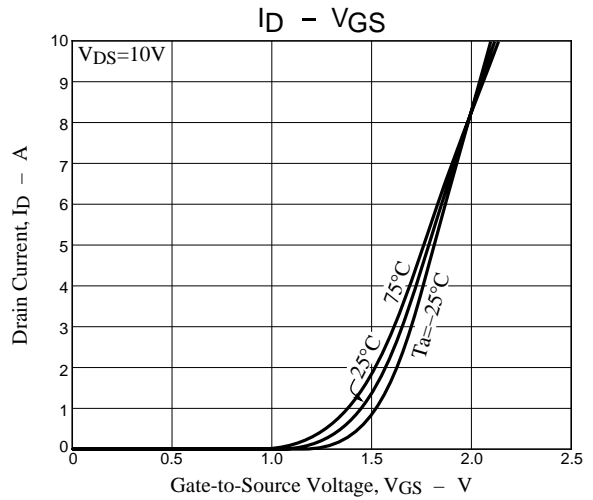
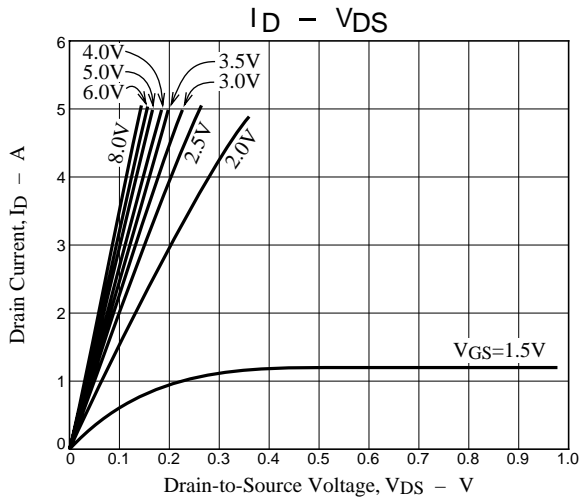
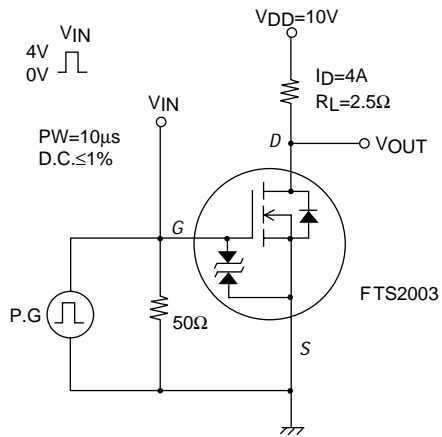
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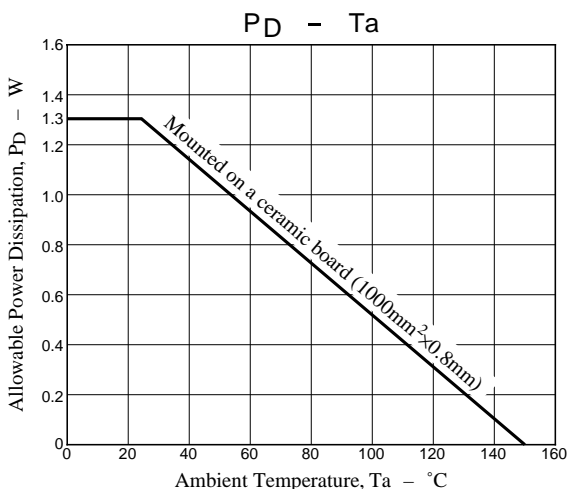
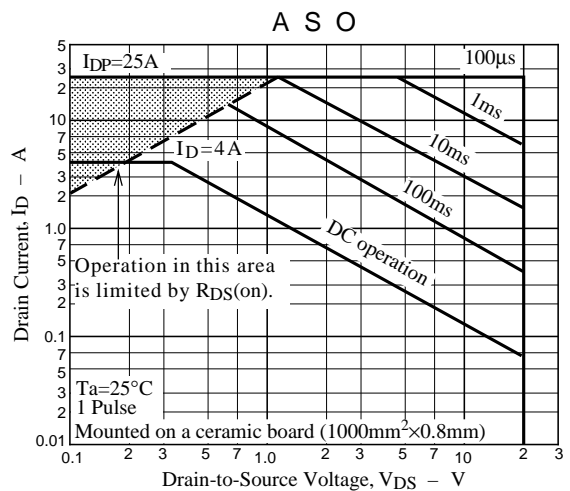
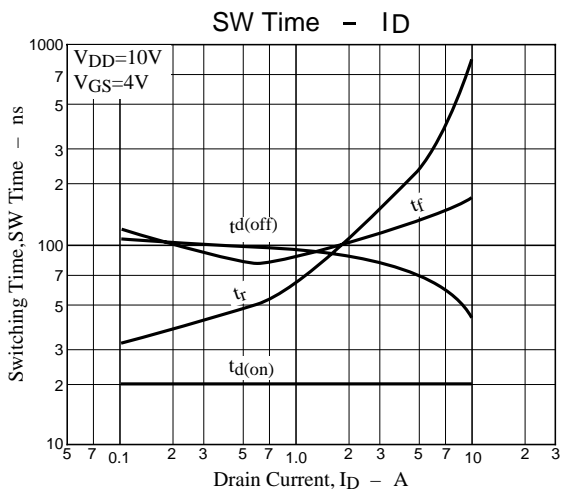
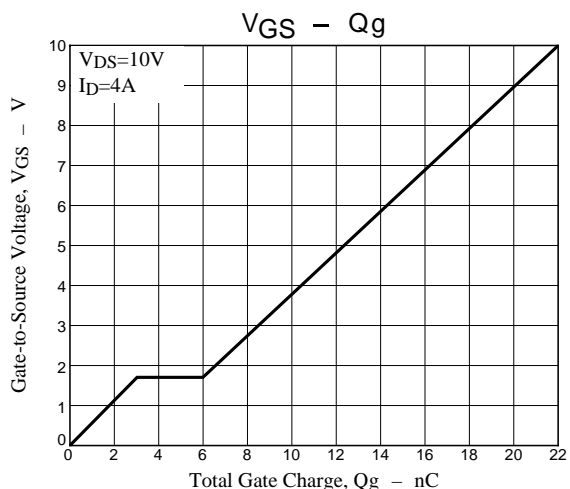
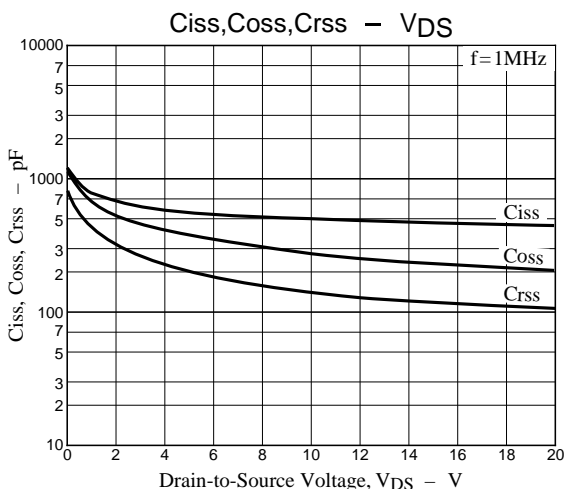
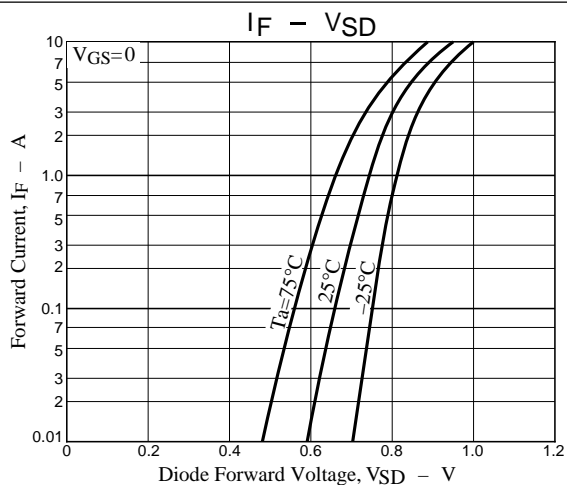
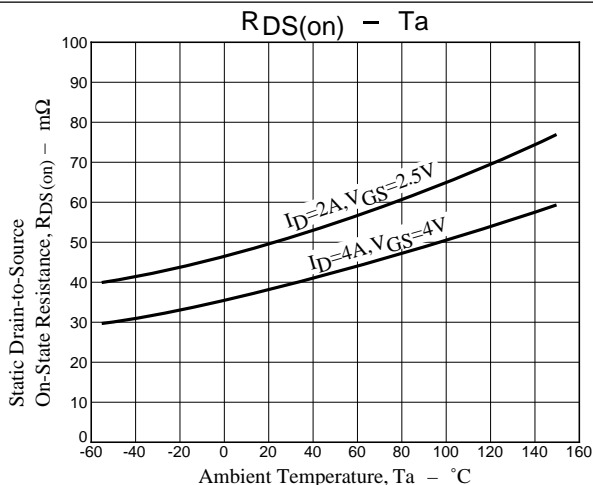
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| Parameter                     | Symbol       | Conditions                       | Ratings |      |     | Unit |
|-------------------------------|--------------|----------------------------------|---------|------|-----|------|
|                               |              |                                  | min     | typ  | max |      |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit       |         | 20   |     | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit       |         | 200  |     | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit       |         | 80   |     | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit       |         | 150  |     | ns   |
| Total Gate Charge             | $Q_g$        | $V_{DS}=10V, V_{GS}=10V, I_D=4A$ |         | 22   |     | nC   |
| Gate-to-Source Charge         | $Q_{gs}$     | $V_{DS}=10V, V_{GS}=10V, I_D=4A$ |         | 3    |     | nC   |
| Gate-to-Drain "Miller" Charge | $Q_{gd}$     | $V_{DS}=10V, V_{GS}=10V, I_D=4A$ |         | 3    |     | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S=4A, V_{GS}=0$               |         | 0.82 | 1.2 | V    |

## Switching Time Test Circuit



# FTS2003



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