

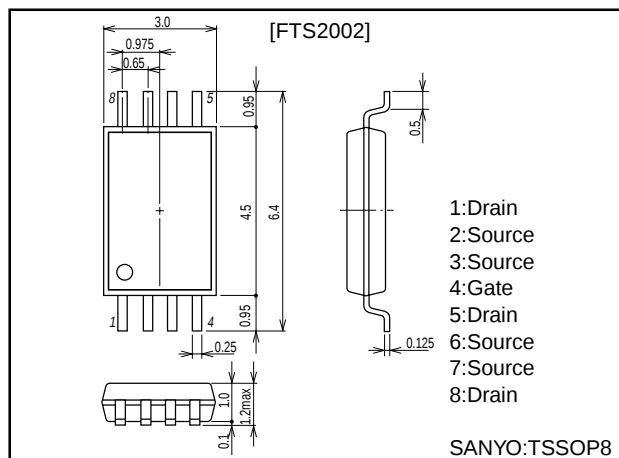
**FTS2002****DC-DC Converter Applications****Features**

- Low ON resistance.
- 4V drive.
- Mount height 1.1mm.

**Package Dimensions**

unit:mm

2147

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

| Parameter                   | Symbol    | Conditions                                              | Ratings     | Unit             |
|-----------------------------|-----------|---------------------------------------------------------|-------------|------------------|
| Drain-to-Source Voltage     | $V_{DSS}$ |                                                         | 30          | V                |
| Gate-to-Source Voltage      | $V_{GSS}$ |                                                         | $\pm 20$    | V                |
| Drain Current (DC)          | $I_D$     |                                                         | 5           | A                |
| Drain Current (pulse)       | $I_{DP}$  | $PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$         | 30          | A                |
| Allowable Power Dissipation | $P_D$     | Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) | 1.5         | 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          | $V_{(BR)DSS}$ | $I_D = 1\text{mA}$ , $V_{GS} = 0$          | 30      |     |          | V                |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = 30\text{V}$ , $V_{GS} = 0$       |         |     | 100      | $\mu\text{A}$    |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0$   |         |     | $\pm 10$ | $\mu\text{A}$    |
| Gate-to-Source Cutoff Voltage              | $V_{GS(off)}$ | $V_{DS} = 10\text{V}$ , $I_D = 1\text{mA}$ | 1.0     |     | 2.5      | V                |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS} = 10\text{V}$ , $I_D = 5\text{A}$  | 8       | 10  |          | S                |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = 5\text{A}$ , $V_{GS} = 10\text{V}$  |         | 24  | 32       | $\text{m}\Omega$ |
|                                            | $R_{DS(on)2}$ | $I_D = 3\text{A}$ , $V_{GS} = 4\text{V}$   |         | 37  | 50       | $\text{m}\Omega$ |
| Input Capacitance                          | $C_{iss}$     | $V_{DS} = 10\text{V}$ , $f = 1\text{MHz}$  |         | 700 |          | pF               |
| Output Capacitance                         | $C_{oss}$     | $V_{DS} = 10\text{V}$ , $f = 1\text{MHz}$  |         | 380 |          | pF               |
| Reverse Transfer Capacitance               | $C_{rss}$     | $V_{DS} = 10\text{V}$ , $f = 1\text{MHz}$  |         | 180 |          | pF               |

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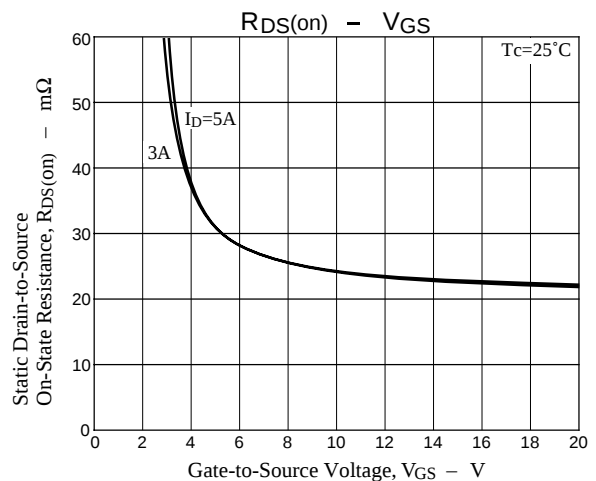
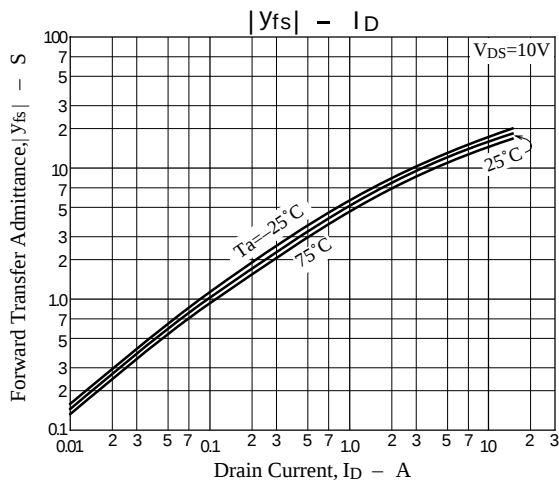
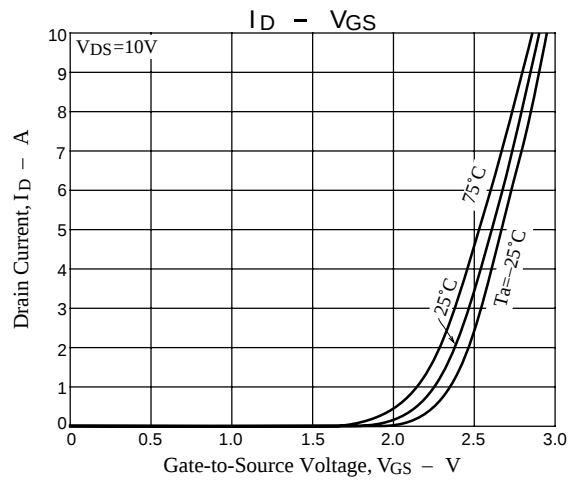
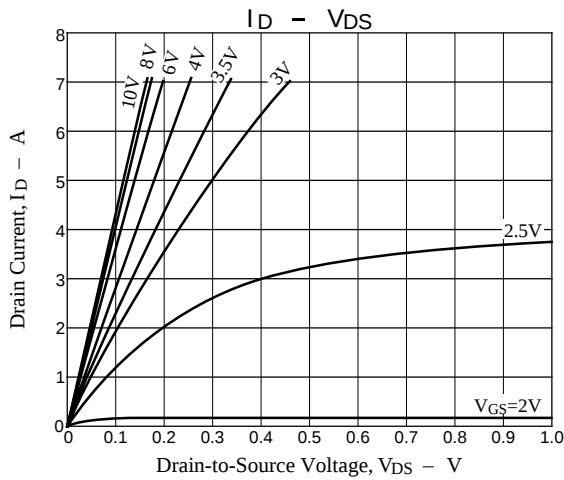
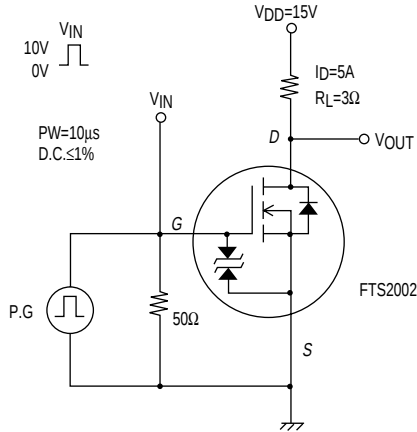
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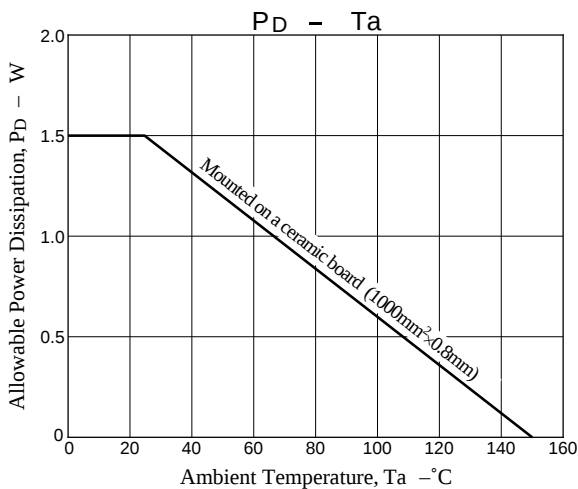
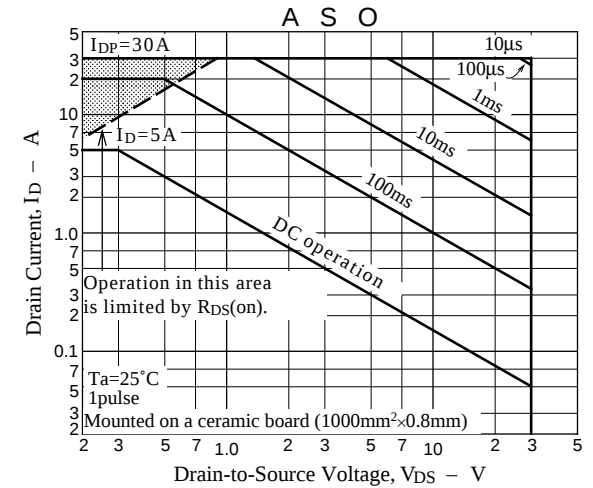
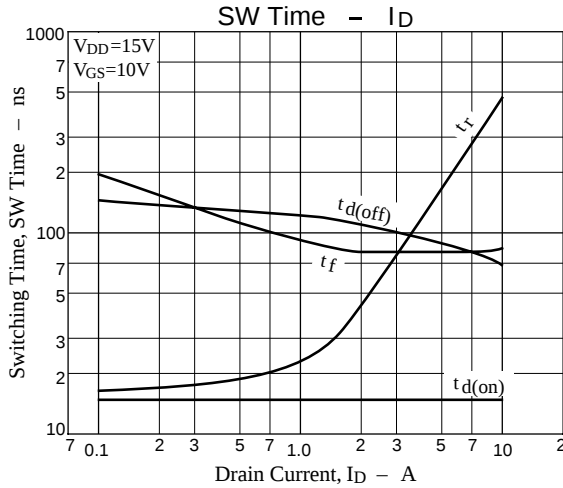
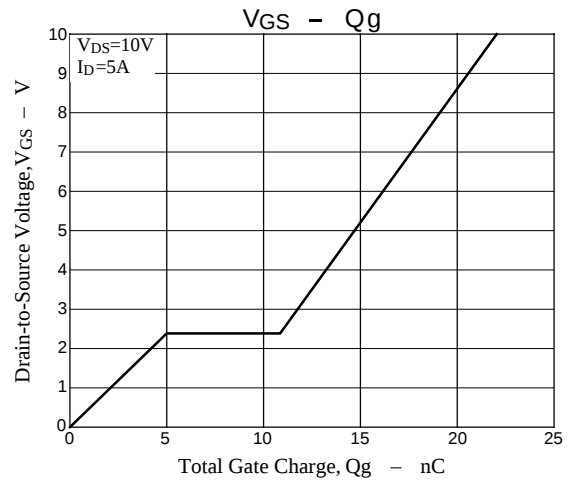
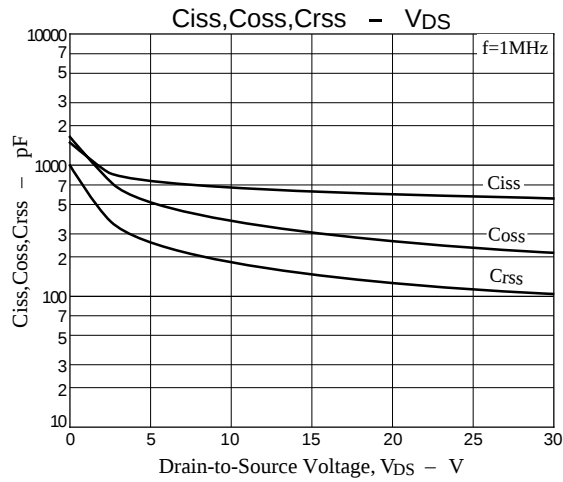
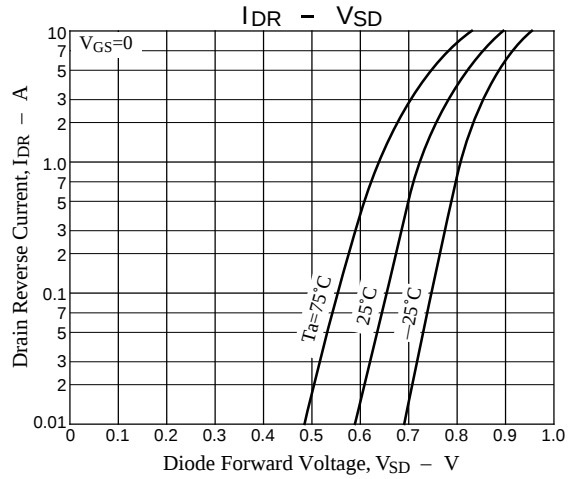
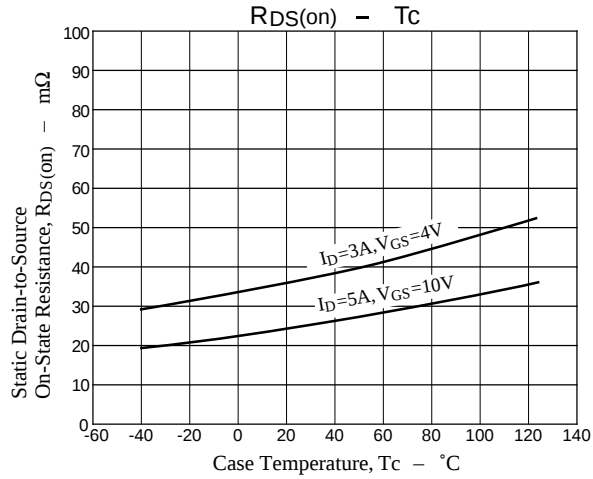
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| Parameter                     | Symbol       | Conditions                       | Ratings |     | Unit |
|-------------------------------|--------------|----------------------------------|---------|-----|------|
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit       | 15      |     | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit       | 180     |     | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit       | 90      |     | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit       | 80      |     | ns   |
| Total Gate Charge             | Qg           | $V_{DS}=10V, V_{GS}=10V, I_D=5A$ | 22      |     | nC   |
| Gate-to-Source Charge         | Qgs          | $V_{DS}=10V, V_{GS}=10V, I_D=5A$ | 5       |     | nC   |
| Gate-to-Drain "Miller" Charge | Qgd          | $V_{DS}=10V, V_{GS}=10V, I_D=5A$ | 6       |     | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S=5A, V_{GS}=0$               | 1.0     | 1.2 | V    |

### Switching Time Test Circuit





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