



**THE DATASHEET OF  
FW811-TL-E**





SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## N-Channel Silicon MOSFET FW811 — General-Purpose Switching Device Applications

### Features

- 4V drive.
- Composite type, facilitating high-density mounting.

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

| Parameter                   | Symbol           | Conditions   | Ratings     | Unit |
|-----------------------------|------------------|--|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |  | 35          | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |  | ±20         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |  | 8           | A    |
| Drain Current (PW≤10s)      | I <sub>D</sub>   | Duty cycle≤1%  | 9           | A    |
| Drain Current (PW≤10μs)     | I <sub>DP</sub>  | Duty cycle≤1%  | 52          | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | When mounted on ceramic substrate (2000mm <sup>2</sup> ×0.8mm) 1unit, PW≤10s | 2.0         | W    |
| Total Dissipation           | P <sub>T</sub>   | When mounted on ceramic substrate (2000mm <sup>2</sup> ×0.8mm), PW≤10s       | 2.2         | W    |
| Channel Temperature         | T <sub>ch</sub>  |  | 150         | °C   |
| Storage Temperature         | T <sub>stg</sub> |  | -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) <sub>DSS</sub> | I <sub>D</sub> =1mA, V <sub>GS</sub> =0V   | 35      |     |     | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =35V, V <sub>GS</sub> =0V  |         |     | 1   | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V |         |     | ±10 | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> =10V, I <sub>D</sub> =1mA  | 1.2     |     | 2.6 | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =10V, I <sub>D</sub> =8A   | 2.7     | 4.5 |     | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =8A, V <sub>GS</sub> =10V   |         | 18  | 24  | mΩ   |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =4A, V <sub>GS</sub> =4.5V  |         | 29  | 41  | mΩ   |
|  | R <sub>DS(on)3</sub> | I <sub>D</sub> =4A, V <sub>GS</sub> =4V    |         | 39  | 55  | mΩ   |

Marking : W811

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# FW811

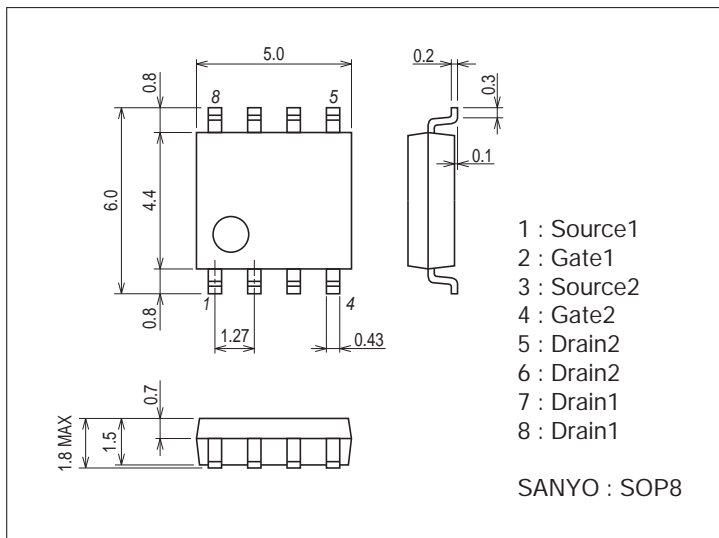
Continued from preceding page.

| Parameter                     | Symbol       | Conditions                       | Ratings |      |     | Unit |
|-------------------------------|--------------|----------------------------------|---------|------|-----|------|
|                               |              |                                  | min     | typ  | max |      |
| Input Capacitance             | Ciss         | $V_{DS}=20V, f=1MHz$             |         | 660  |     | pF   |
| Output Capacitance            | Coss         | $V_{DS}=20V, f=1MHz$             |         | 90   |     | pF   |
| Reverse Transfer Capacitance  | Crss         | $V_{DS}=20V, f=1MHz$             |         | 60   |     | pF   |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit.      |         | 10   |     | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit.      |         | 50   |     | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit.      |         | 40   |     | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit.      |         | 40   |     | ns   |
| Total Gate Charge             | Qg           | $V_{DS}=20V, V_{GS}=10V, I_D=8A$ |         | 13.0 |     | nC   |
| Gate-to-Source Charge         | Qgs          | $V_{DS}=20V, V_{GS}=10V, I_D=8A$ |         | 2.4  |     | nC   |
| Gate-to-Drain "Miller" Charge | Qgd          | $V_{DS}=20V, V_{GS}=10V, I_D=8A$ |         | 3.2  |     | nC   |
| Diode Forward Voltage         | VSD          | $I_S=8A, V_{GS}=0V$              |         | 0.81 | 1.2 | V    |

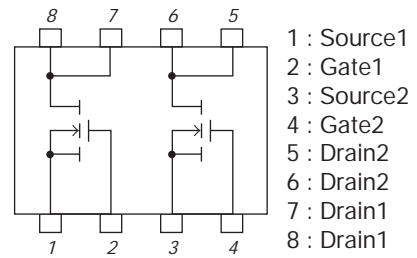
## Package Dimensions

unit : mm (typ)

7005A-003

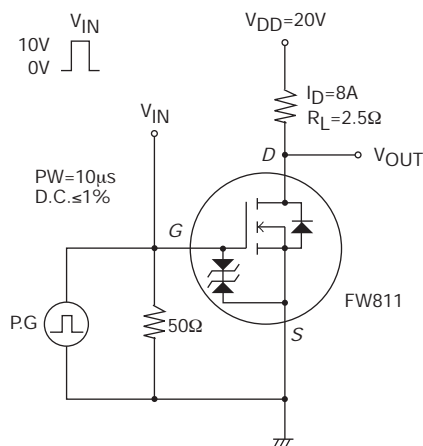


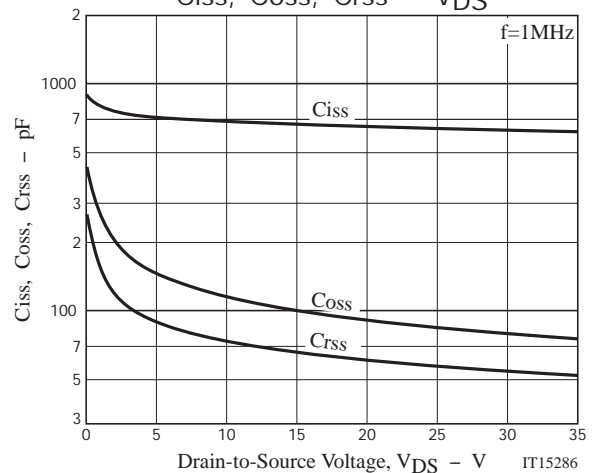
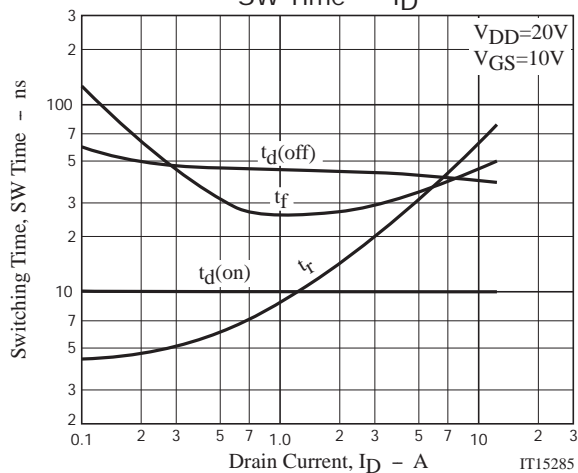
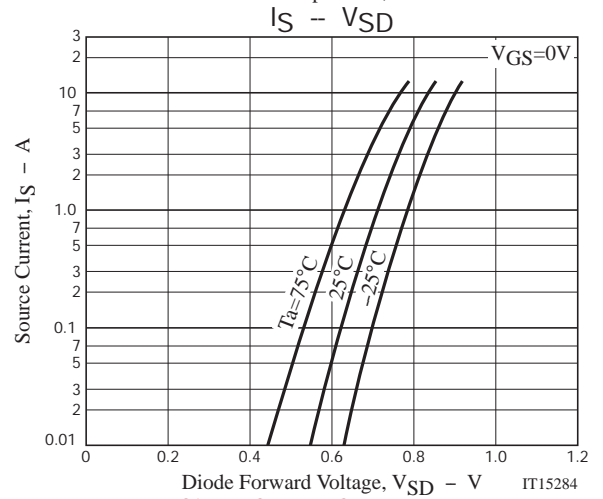
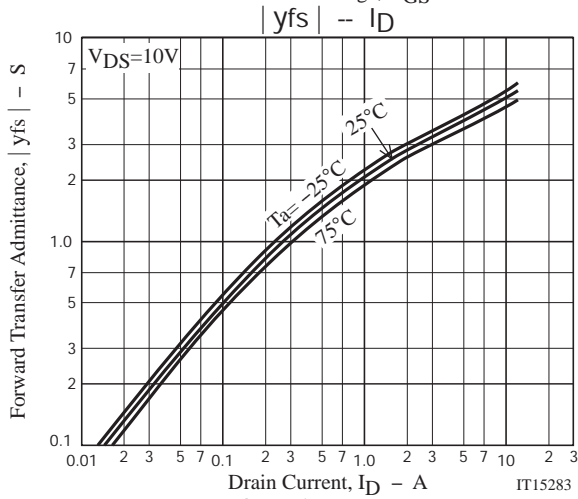
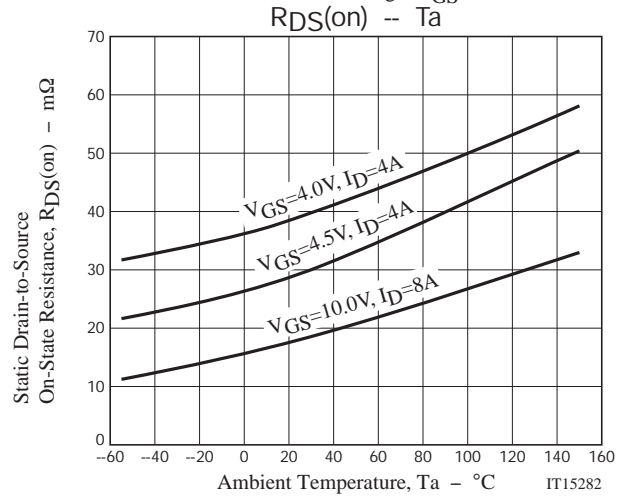
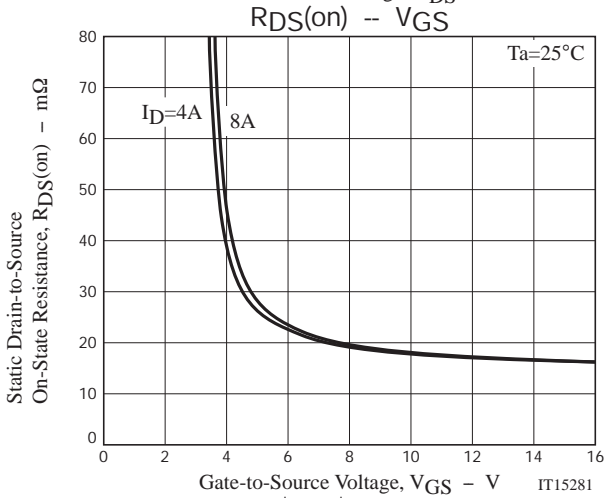
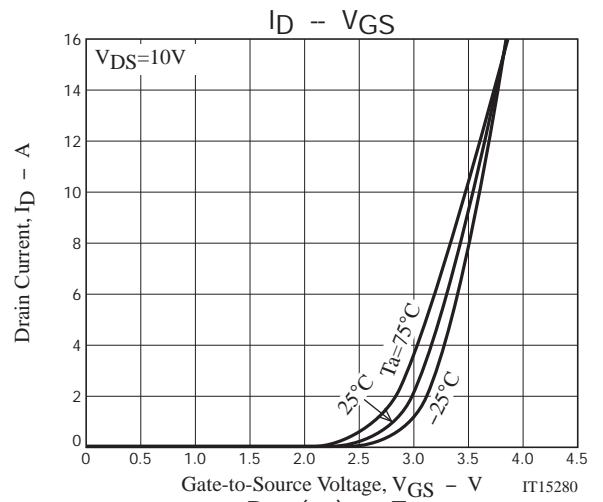
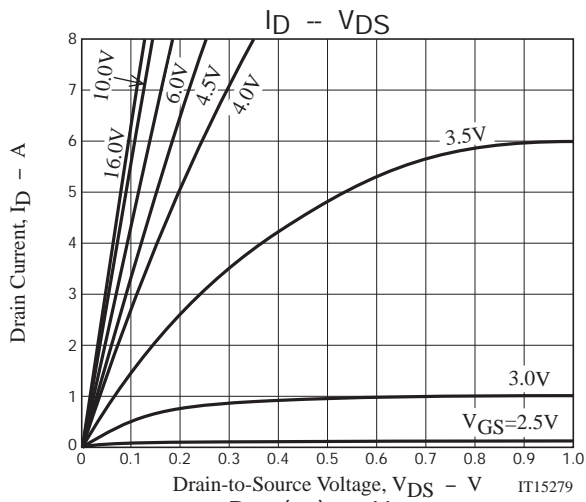
## Electrical Connection

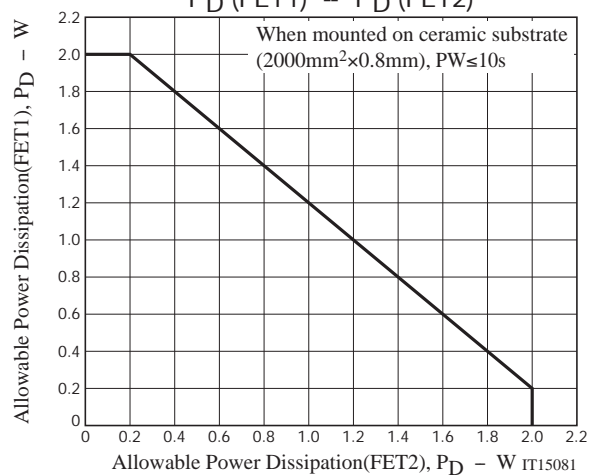
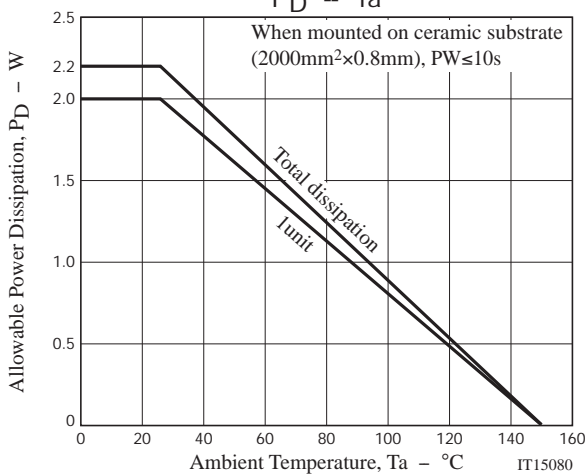
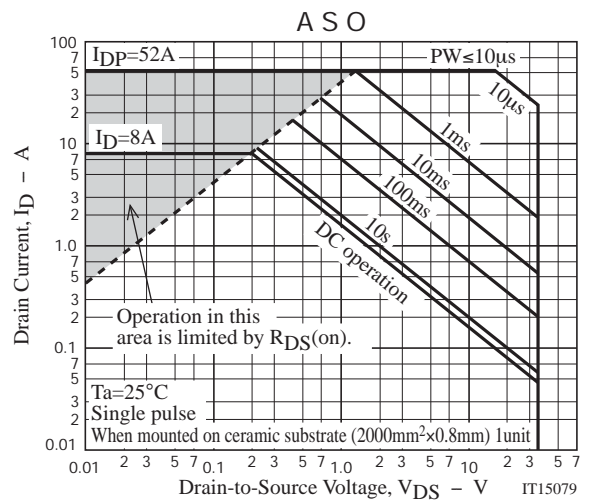
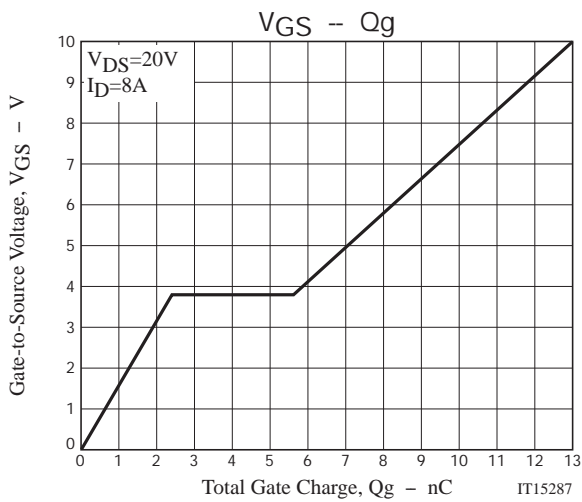


Top view

## Switching Time Test Circuit







Note on usage : Since the FW811 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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