



SANYO Semiconductors

# DATA SHEET

P-Channel Silicon MOSFET

## SCH1306 — General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

### Specifications

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

| Parameter                   | Symbol           | Conditions                                             | Ratings     | Unit |
|-----------------------------|------------------|--------------------------------------------------------|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |                                                        | -20         | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |                                                        | ±10         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |                                                        | -1          | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%                                 | -4          | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm) | 0.8         | 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 <sub>(BR)DSS</sub> | I <sub>D</sub> =-1mA, V <sub>GS</sub> =0       | -20     |     |      | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =-20V, V <sub>GS</sub> =0      |         |     | -1   | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±8V, V <sub>DS</sub> =0       |         |     | ±10  | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA    | -0.4    |     | -1.4 | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =-10V, I <sub>D</sub> =-500mA  | 0.84    | 1.2 |      | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =-500mA, V <sub>GS</sub> =-4.0V |         | 380 | 500  | mΩ   |
|                                            | R <sub>DS(on)2</sub> | I <sub>D</sub> =-300mA, V <sub>GS</sub> =-2.5V |         | 540 | 760  | mΩ   |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =-10V, f=1MHz                  |         | 115 |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     | V <sub>DS</sub> =-10V, f=1MHz                  |         | 23  |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     | V <sub>DS</sub> =-10V, f=1MHz                  |         | 15  |      | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>   | See specified Test Circuit.                    |         | 8   |      | ns   |
| Rise Time                                  | t <sub>r</sub>       | See specified Test Circuit.                    |         | 6   |      | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub>  | See specified Test Circuit.                    |         | 15  |      | ns   |
| Fall Time                                  | t <sub>f</sub>       | See specified Test Circuit.                    |         | 7   |      | ns   |

Marking : JF

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# SCH1306

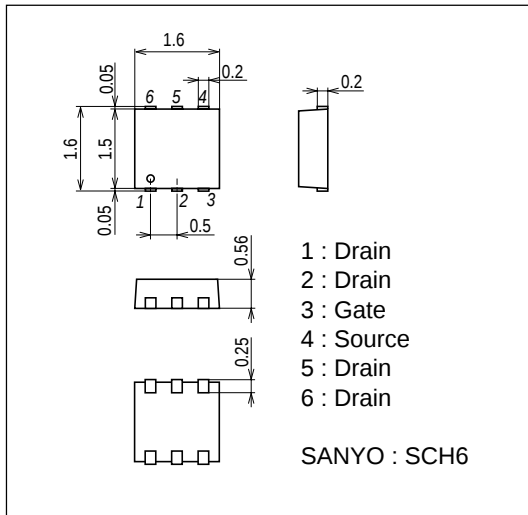
Continued from preceding page.

| Parameter                     | Symbol   | Conditions                             | Ratings |       |      | Unit |
|-------------------------------|----------|----------------------------------------|---------|-------|------|------|
|                               |          |                                        | min     | typ   | max  |      |
| Total Gate Charge             | $Q_g$    | $V_{DS}=-10V, V_{GS}=-4.0V, I_D=-1.0A$ |         | 1.5   |      | nC   |
| Gate-to-Source Charge         | $Q_{gs}$ | $V_{DS}=-10V, V_{GS}=-4.0V, I_D=-1.0A$ |         | 0.4   |      | nC   |
| Gate-to-Drain "Miller" Charge | $Q_{gd}$ | $V_{DS}=-10V, V_{GS}=-4.0V, I_D=-1.0A$ |         | 0.3   |      | nC   |
| Diode Forward Voltage         | $V_{SD}$ | $I_S=-1.0A, V_{GS}=0$                  |         | -0.89 | -1.2 | V    |

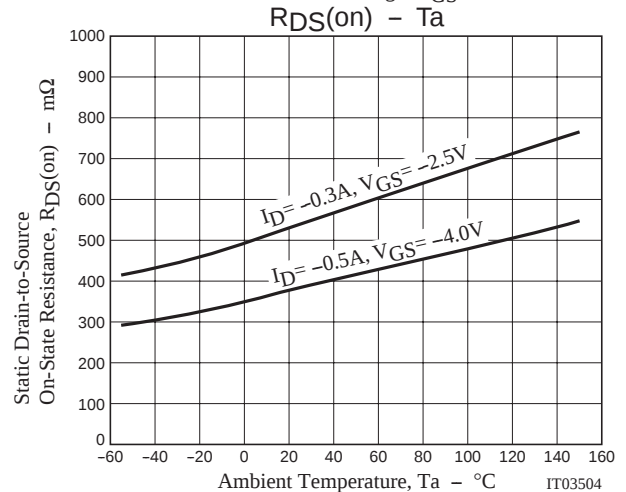
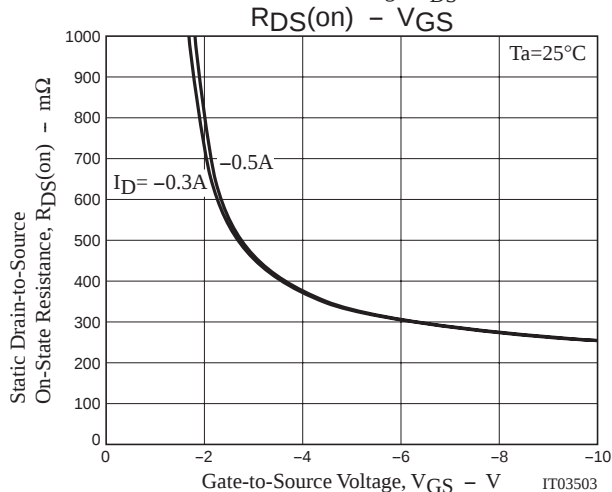
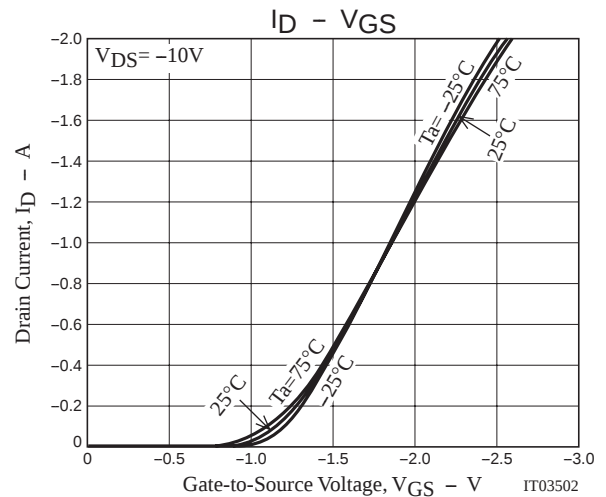
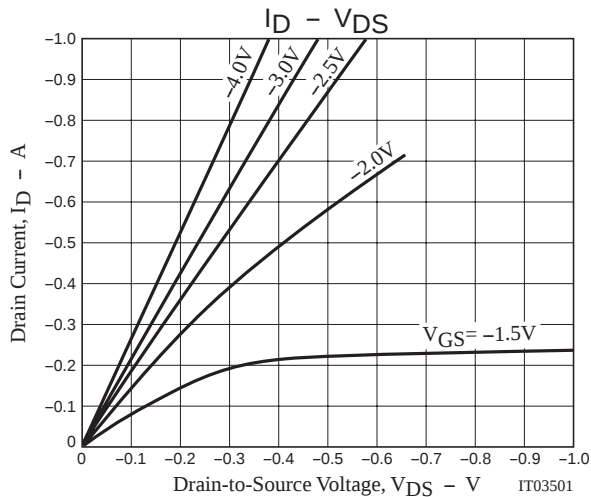
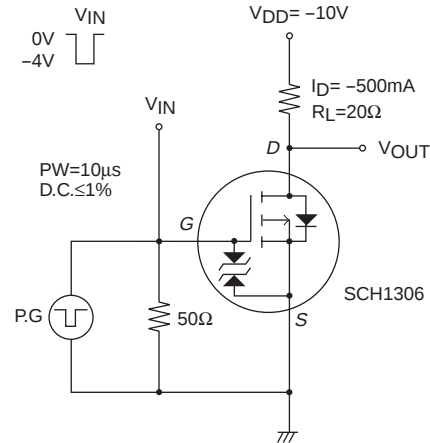
## Package Dimensions

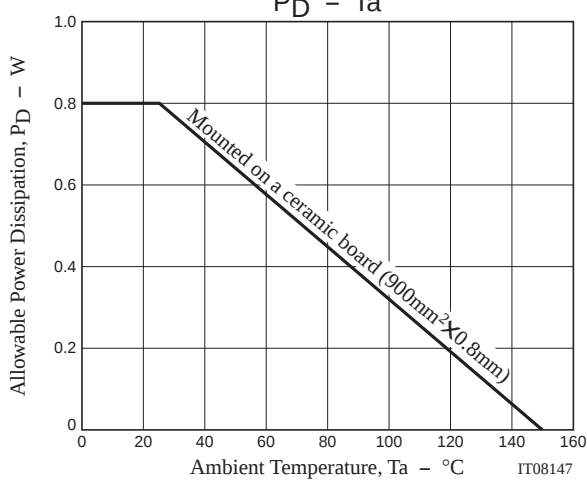
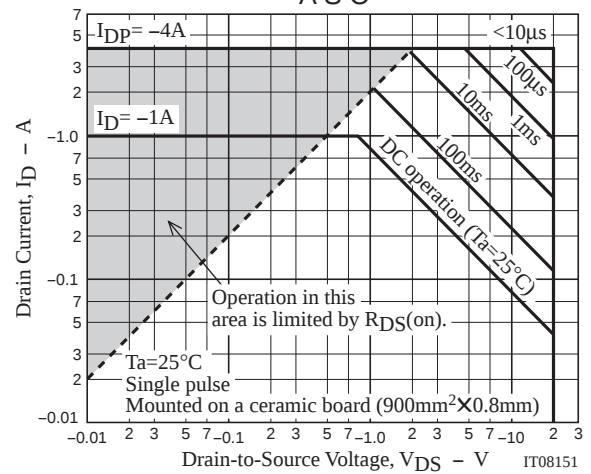
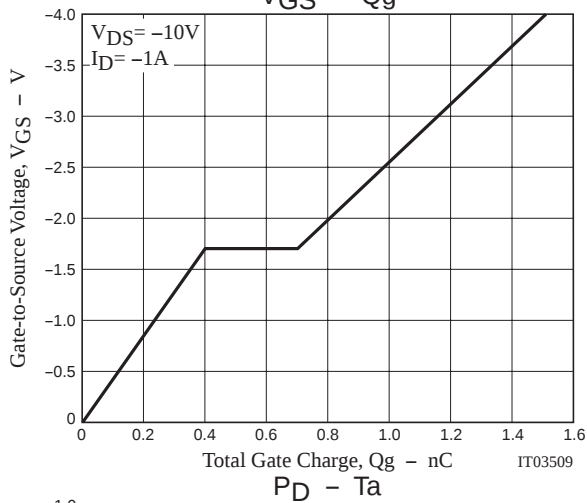
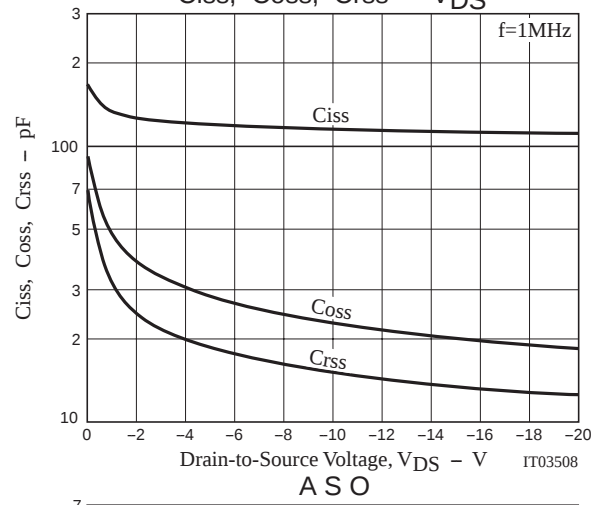
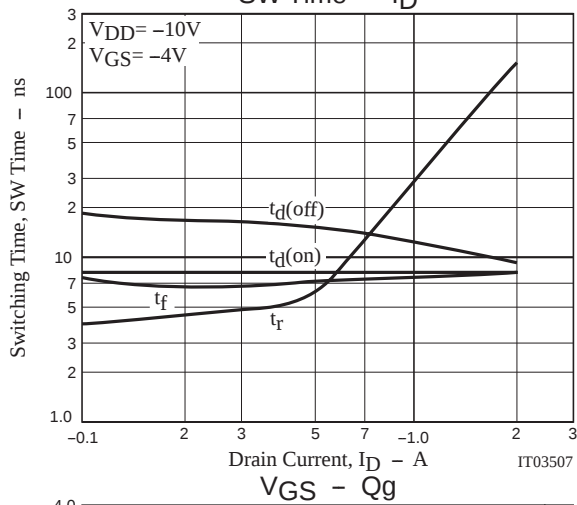
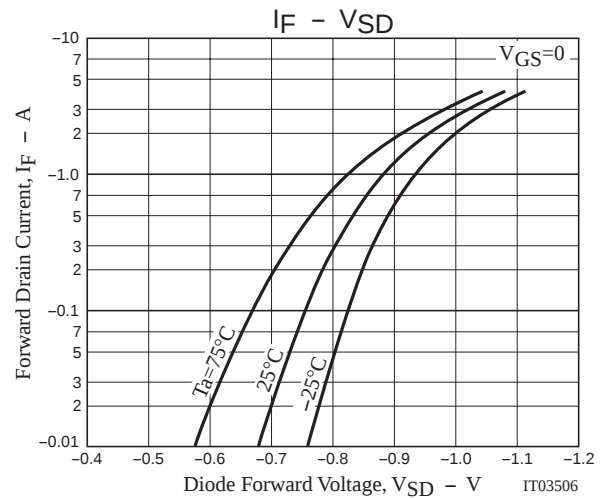
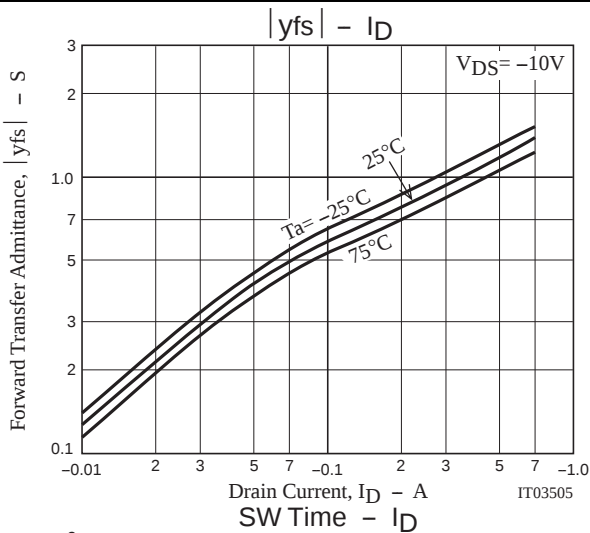
unit : mm

2221A



## Switching Time Test Circuit





Note on usage : Since the SCH1306 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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