



SANYO Semiconductors

## DATA SHEET

# EC4308C — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- 4V drive.
- Halogen free compliance (UL94 HB).

### Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter                   | Symbol           | Conditions   | Ratings     | Unit |
|-----------------------------|------------------|--|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |  | -60         | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |  | ±20         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |  | -120        | mA   |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%                                   | -480        | mA   |
| Allowable Power Dissipation | P <sub>D</sub>   | When mounted on glass epoxy substrate (145mmX80mmX1.6mm) | 0.15        | 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> =0V     | -60     |      |      | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =-60V, 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> =-100μA | -1.2    |      | -2.6 | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =-10V, I <sub>D</sub> =-60mA  | 100     | 180  |      | mS   |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =-60mA, V <sub>GS</sub> =-10V  |         | 5.1  | 6.6  | Ω    |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =-30mA, V <sub>GS</sub> =-4V   |         | 6.8  | 9.6  | Ω    |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =-20V, f=1MHz                 |         | 13.5 |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     | V <sub>DS</sub> =-20V, f=1MHz                 |         | 3.4  |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     | V <sub>DS</sub> =-20V, f=1MHz                 |         | 1.3  |      | pF   |

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**SANYO Semiconductor Co., Ltd.**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

# EC4308C

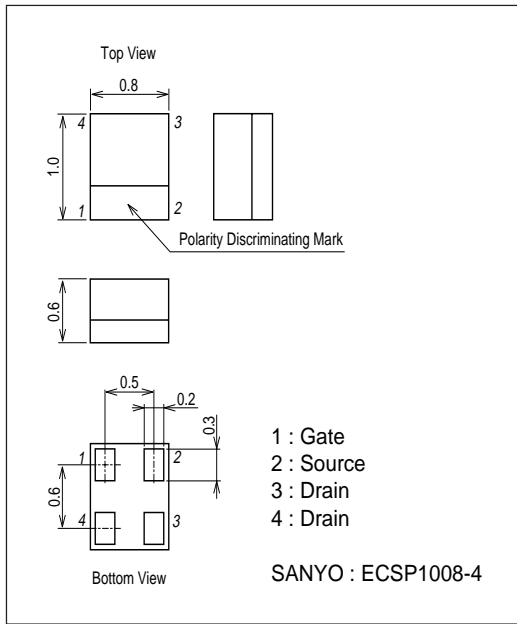
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| Parameter                     | Symbol       | Conditions                             | Ratings |       |      | Unit |
|-------------------------------|--------------|--|---------|-------|------|------|
|                               |              |  | min     | typ   | max  |      |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit.            |         | 36.5  |      | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit.            |         | 38    |      | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit.            |         | 455   |      | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit.            |         | 160   |      | ns   |
| Total Gate Charge             | $Q_g$        | $V_{DS}=-30V, V_{GS}=-10V, I_D=-120mA$ |         | 1.6   |      | nC   |
| Gate-to-Source Charge         | $Q_{gs}$     | $V_{DS}=-30V, V_{GS}=-10V, I_D=-120mA$ |         | 0.4   |      | nC   |
| Gate-to-Drain "Miller" Charge | $Q_{gd}$     | $V_{DS}=-30V, V_{GS}=-10V, I_D=-120mA$ |         | 0.16  |      | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S=-120mA, V_{GS}=0V$                |         | -0.85 | -1.2 | V    |

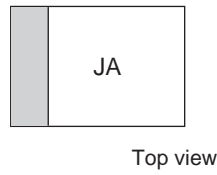
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unit : mm (typ)

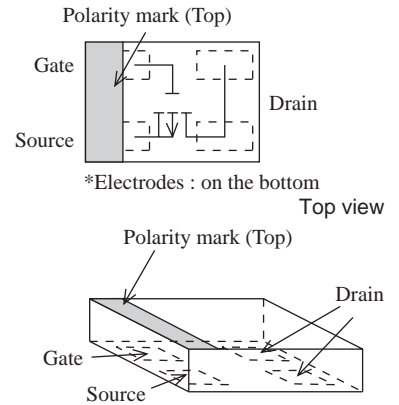
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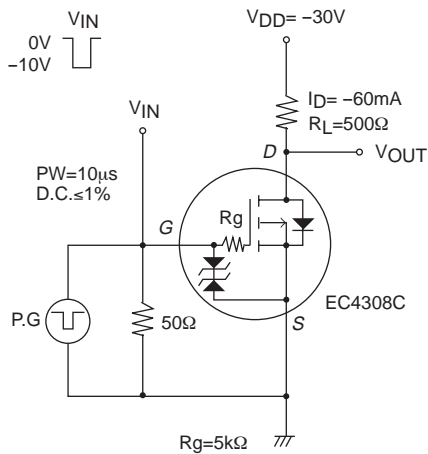
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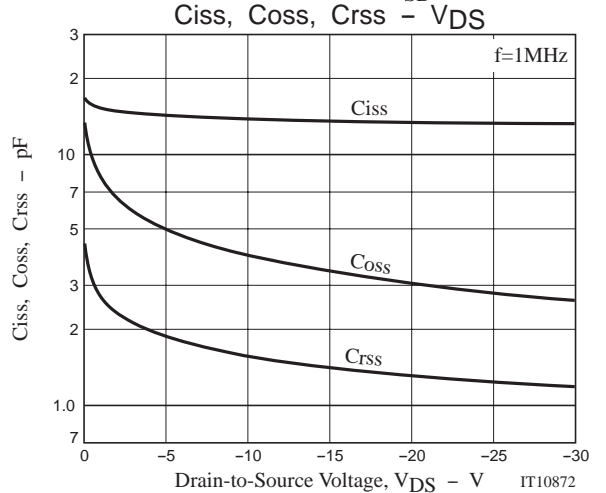
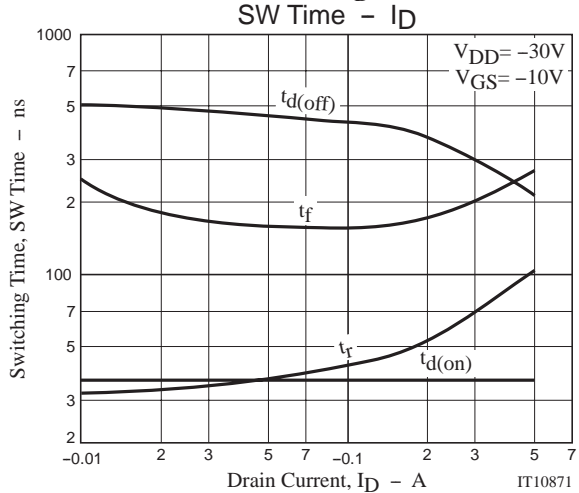
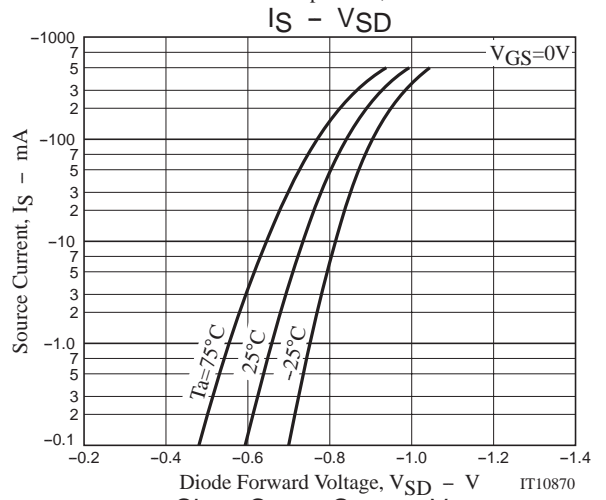
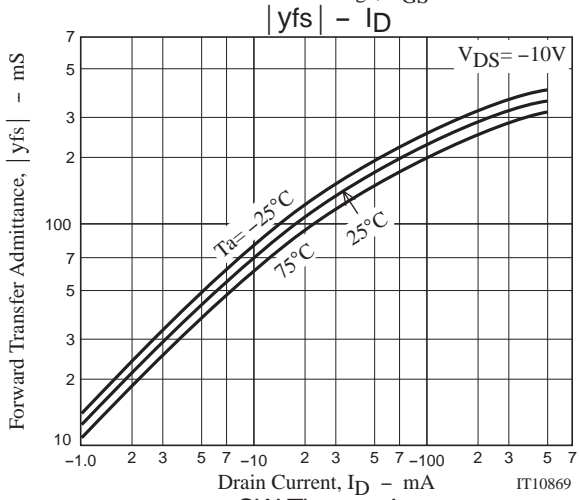
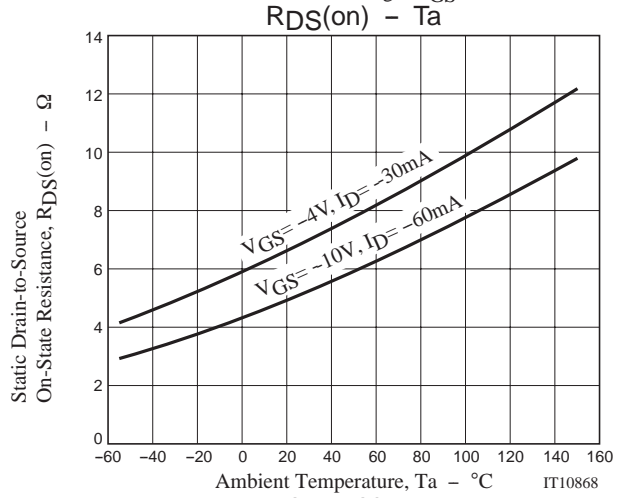
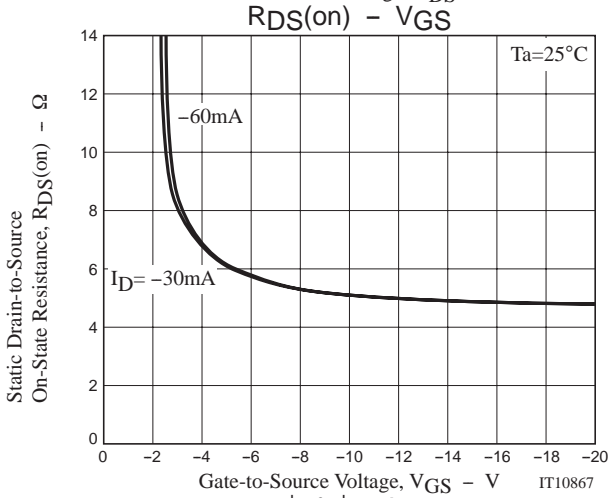
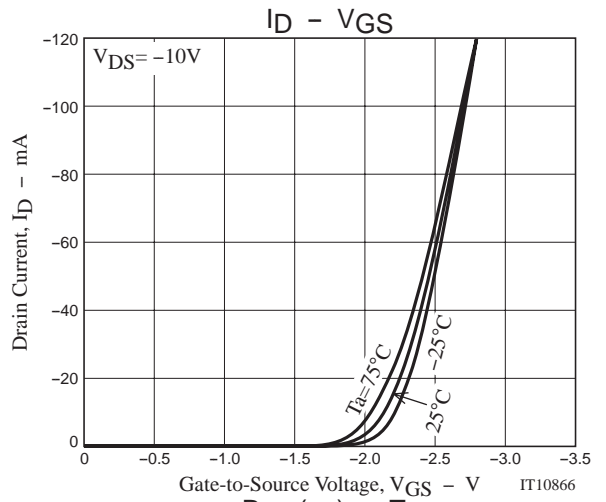
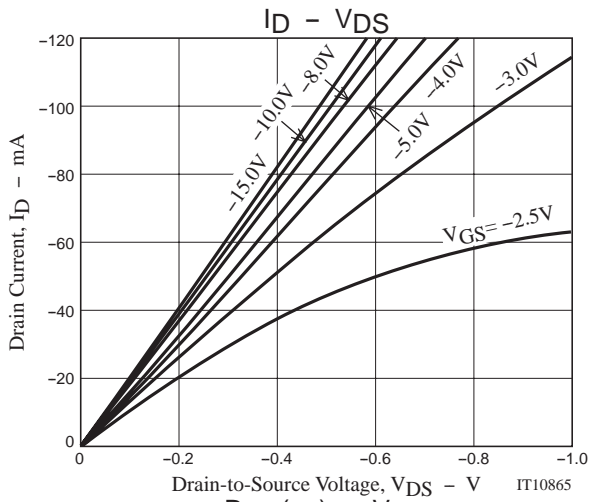


## Electrical Connection

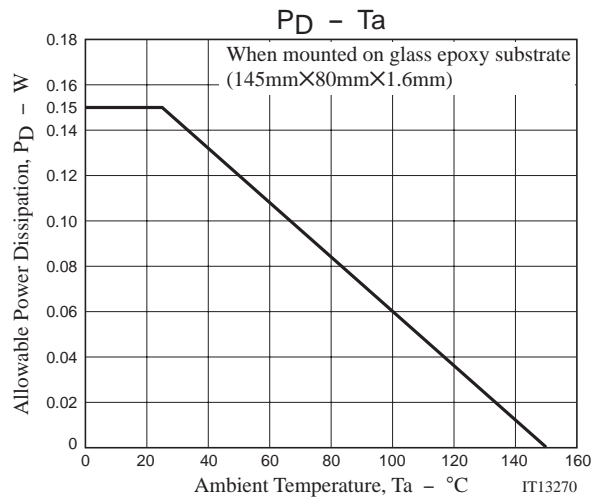
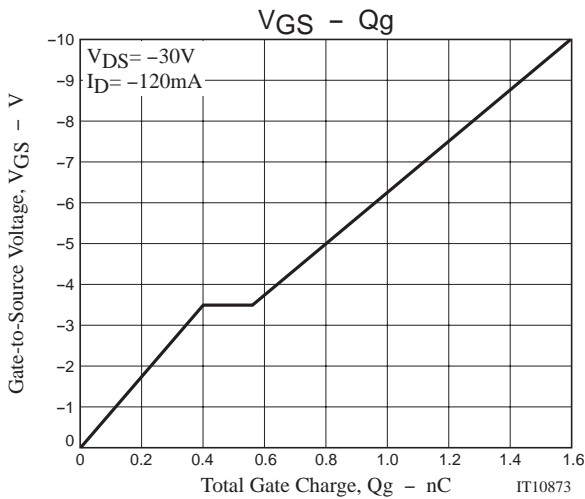


## Switching Time Test Circuit





# EC4308C



Note on usage : Since the EC4308C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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