



SANYO Semiconductors

## DATA SHEET

# EC4307KF

P-Channel Silicon MOSFET  
**General-Purpose Switching Device**  
**Applications**

## Features

- Low ON-resistance.
- 1.8V drive.
- mounting height : 0.4mm.

## Specifications

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

| Parameter                   | Symbol           | Conditions                     | Ratings     | Unit |
|-----------------------------|------------------|--------------------------------|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |                                | -12         | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |                                | ±10         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |                                | -1.1        | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%         | -4.4        | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | Mounted on a glass-epoxy board | 0.4         | 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     | -12     |     |      | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =-12V, V <sub>GS</sub> =0V    |         |     | -10  | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V     |         |     | ±10  | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> =-6V, I <sub>D</sub> =-1mA    | -0.3    |     | -1.0 | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =-6V, I <sub>D</sub> =-0.5A   | 0.9     | 1.5 |      | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =-0.5A, V <sub>GS</sub> =-4.5V |         | 250 | 327  | mΩ   |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =-0.2A, V <sub>GS</sub> =-2.5V |         | 380 | 528  | mΩ   |
|  | R <sub>DS(on)3</sub> | I <sub>D</sub> =-0.1A, V <sub>GS</sub> =-1.8V |         | 520 | 740  | mΩ   |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =-6V, f=1MHz                  |         | 160 |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     | V <sub>DS</sub> =-6V, f=1MHz                  |         | 45  |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     | V <sub>DS</sub> =-6V, f=1MHz                  |         | 35  |      | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>   | See specified Test Circuit.                   |         | 11  |      | ns   |
| Rise Time                                  | t <sub>r</sub>       | See specified Test Circuit.                   |         | 20  |      | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub>  | See specified Test Circuit.                   |         | 32  |      | ns   |
| Fall Time                                  | t <sub>f</sub>       | See specified Test Circuit.                   |         | 30  |      | ns   |

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**SANYO Electric Co., Ltd. Semiconductor Company**

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# EC4307KF

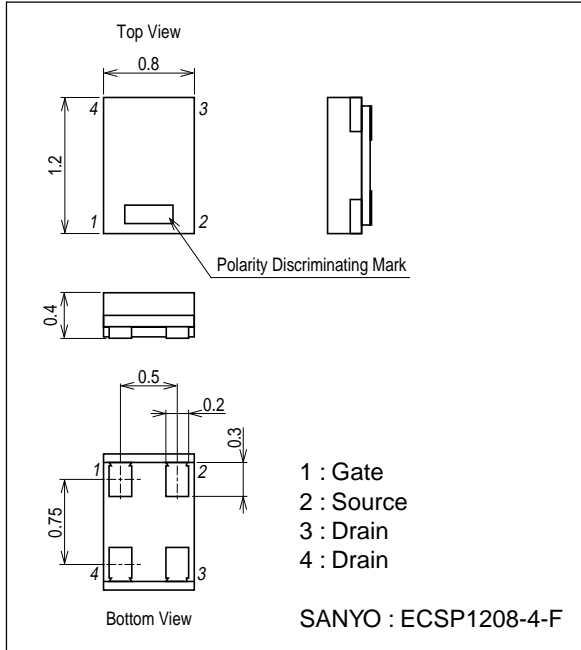
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| Parameter                     | Symbol | Conditions                            | Ratings |      |      | Unit |
|-------------------------------|--------|---------------------------------------|---------|------|------|------|
|                               |        |                                       | min     | typ  | max  |      |
| Total Gate Charge             | Qg     | $V_{DS}=-6V, V_{GS}=-4.5V, I_D=-1.1A$ |         | 2.6  |      | nC   |
| Gate-to-Source Charge         | Qgs    | $V_{DS}=-6V, V_{GS}=-4.5V, I_D=-1.1A$ |         | 0.25 |      | nC   |
| Gate-to-Drain "Miller" Charge | Qgd    | $V_{DS}=-6V, V_{GS}=-4.5V, I_D=-1.1A$ |         | 0.65 |      | nC   |
| Diode Forward Voltage         | VSD    | $I_S=-1.1A, V_{GS}=0V$                |         | -0.9 | -1.2 | V    |

## Package Dimensions

unit : mm

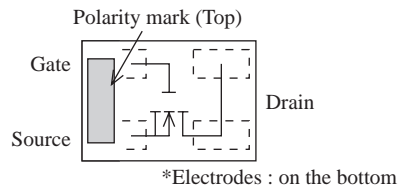
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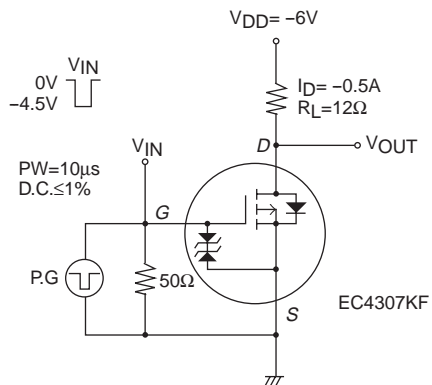
## Type No. Indication (Top view)



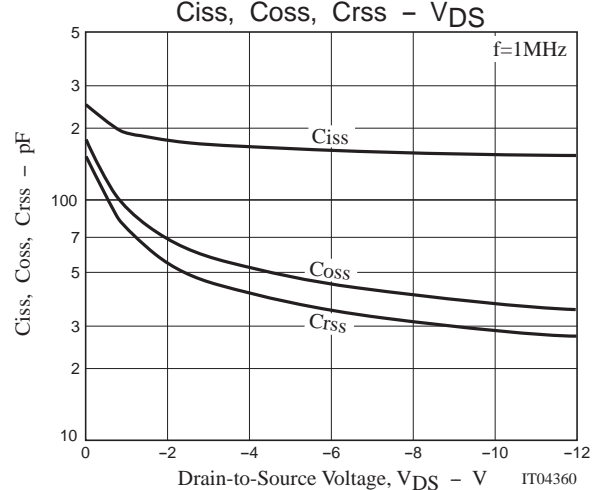
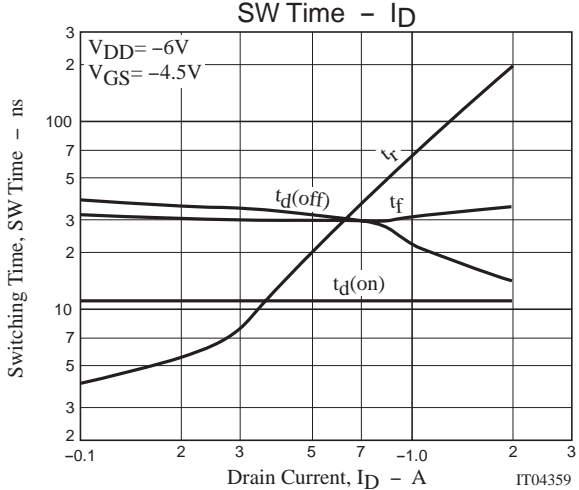
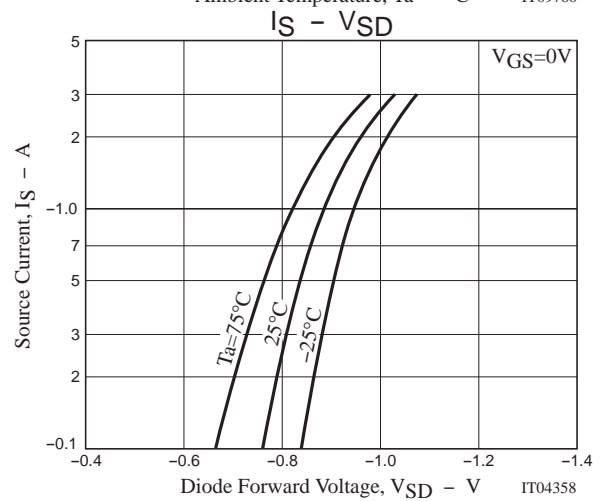
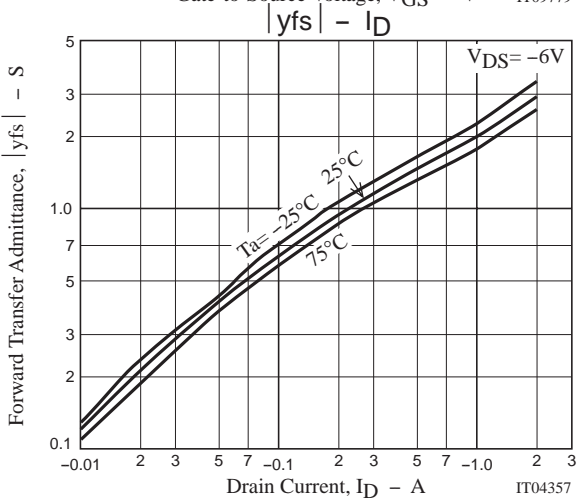
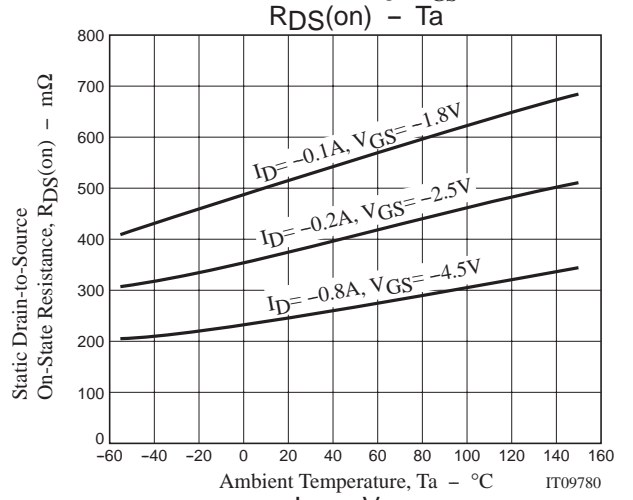
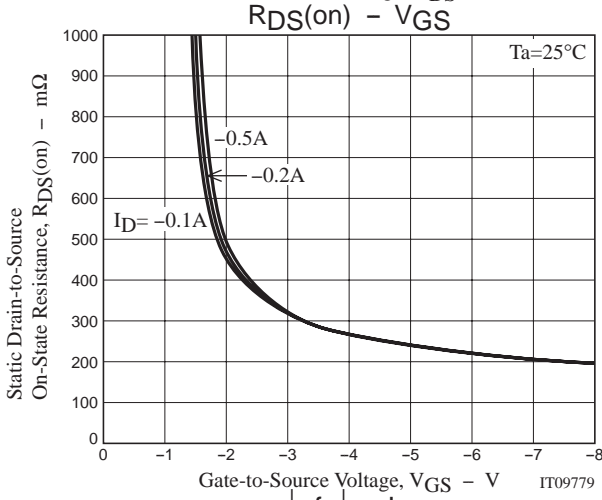
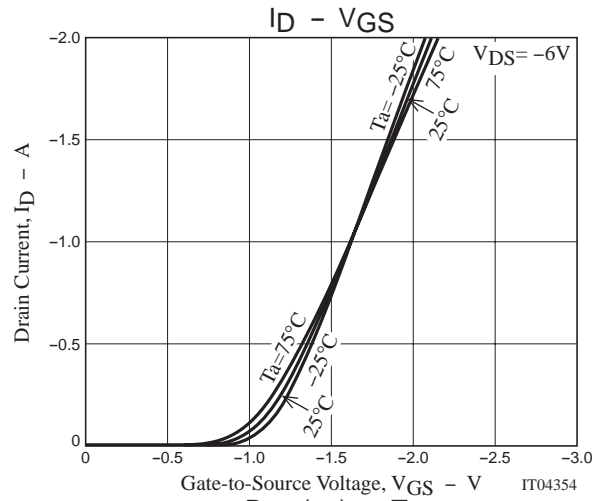
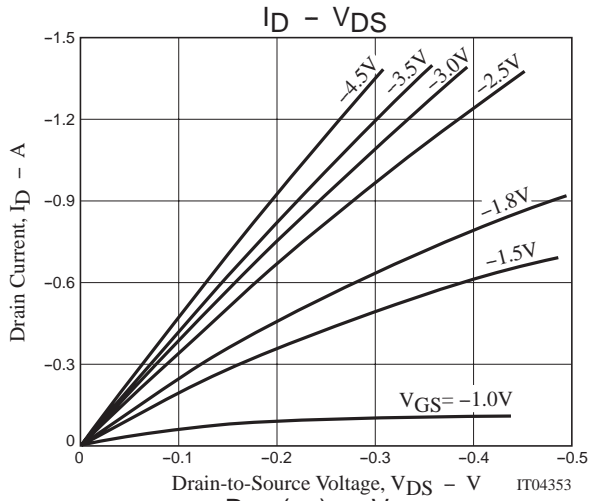
## Electrical Connection (Top view)



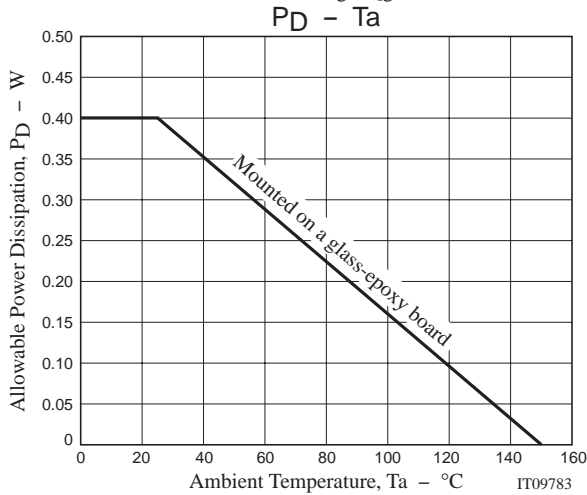
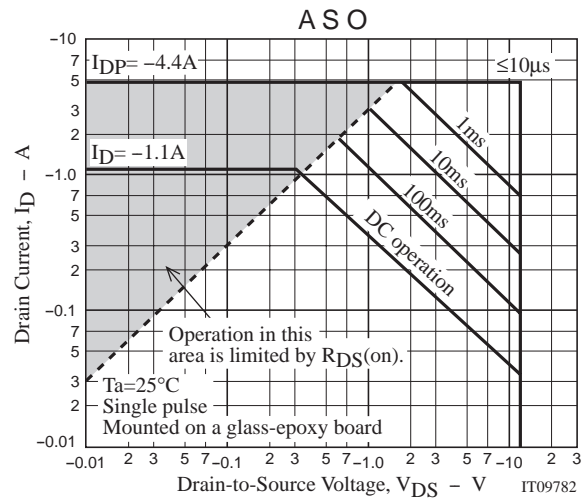
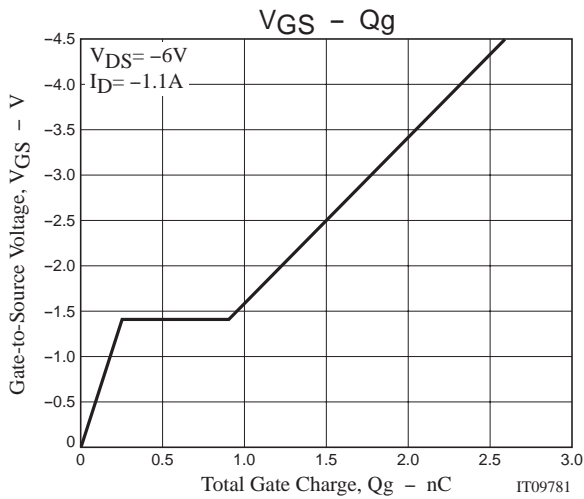
## Switching Time Test Circuit



# EC4307KF



# EC4307KF



Note on usage : Since the EC4307KF is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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