



SANYO Semiconductors

## DATA SHEET

N-Channel Silicon MOSFET

# 2SK4065 — General-Purpose Switching Device Applications

## Features

- Ultralow ON-resistance.
- Load switching applications.
- Avalanche resistance guarantee.

## Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter                          | Symbol           | Conditions             | Ratings     | Unit |
|------------------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage            | V <sub>DSS</sub> |                        | 75          | V    |
| Gate-to-Source Voltage             | V <sub>GSS</sub> |                        | ±20         | V    |
| Drain Current (DC)                 | I <sub>D</sub>   |                        | 100         | A    |
| Drain Current (Pulse)              | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1% | 400         | A    |
| Allowable Power Dissipation        | P <sub>D</sub>   |                        | 1.65        | W    |
|                                    |                  | Tc=25°C                | 90          | W    |
| Channel Temperature                | T <sub>ch</sub>  |                        | 150         | °C   |
| Storage Temperature                | T <sub>stg</sub> |                        | -55 to +150 | °C   |
| Avalanche Energy (Single Pulse) *1 | E <sub>AS</sub>  |                        | 735         | mJ   |
| Avalanche Current *2               | I <sub>AV</sub>  |                        | 70          | A    |

Note : \*1 V<sub>DD</sub>=30V, L=200μH, I<sub>AV</sub>=70A

\*2 L≤200μH, Single pulse

Electrical Characteristics at Ta=25°C

| Parameter                                  | Symbol               | Conditions                                 | Ratings |     |     | Unit |
|--------------------------------------------|----------------------|--------------------------------------------|---------|-----|-----|------|
|                                            |                      |                                            | min     | typ | max |      |
| Drain-to-Source Breakdown Voltage          | V(BR)DSS             | I <sub>D</sub> =1mA, V <sub>GS</sub> =0V   | 75      |     |     | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =75V, 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> =50A  | 47      | 78  |     | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =50A, V <sub>GS</sub> =10V  |         | 4.6 | 6.0 | mΩ   |
|                                            | R <sub>DS(on)2</sub> | I <sub>D</sub> =50A, V <sub>GS</sub> =4V   |         | 5.7 | 8.0 | mΩ   |

Marking : K4065

Continued on next page.

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SANYO Semiconductor Co., Ltd.

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## 2SK4065

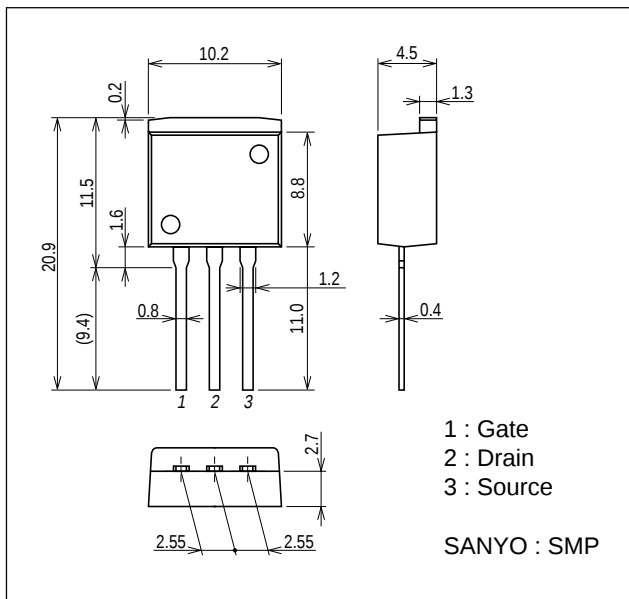
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| Parameter                     | Symbol       | Conditions                         | Ratings |       |     | Unit |
|-------------------------------|--------------|------------------------------------|---------|-------|-----|------|
|                               |              |                                    | min     | typ   | max |      |
| Input Capacitance             | Ciss         | $V_{DS}=20V, f=1MHz$               |         | 12200 |     | pF   |
| Output Capacitance            | Coss         | $V_{DS}=20V, f=1MHz$               |         | 950   |     | pF   |
| Reverse Transfer Capacitance  | Crss         | $V_{DS}=20V, f=1MHz$               |         | 730   |     | pF   |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit.        |         | 80    |     | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit.        |         | 460   |     | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit.        |         | 930   |     | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit.        |         | 640   |     | ns   |
| Total Gate Charge             | Qg           | $V_{DS}=35V, V_{GS}=10V, I_D=100A$ |         | 220   |     | nC   |
| Gate-to-Source Charge         | Qgs          | $V_{DS}=35V, V_{GS}=10V, I_D=100A$ |         | 40    |     | nC   |
| Gate-to-Drain "Miller" Charge | Qgd          | $V_{DS}=35V, V_{GS}=10V, I_D=100A$ |         | 50    |     | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S=100A, V_{GS}=0V$              |         | 0.9   | 1.2 | V    |

### Package Dimensions

unit : mm

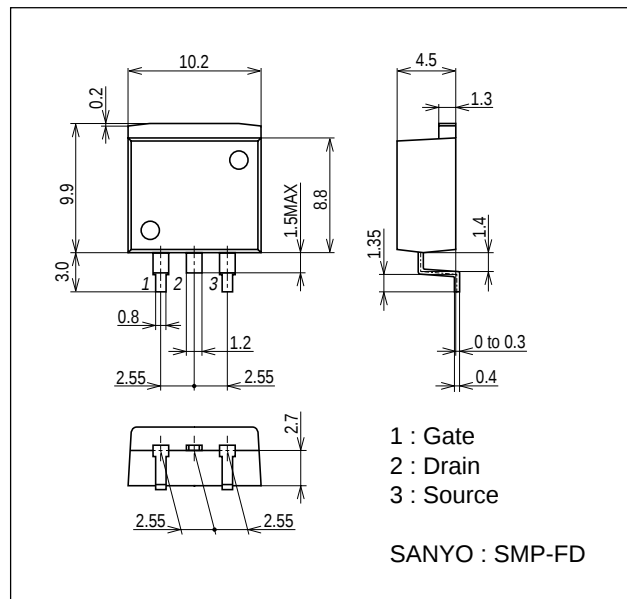
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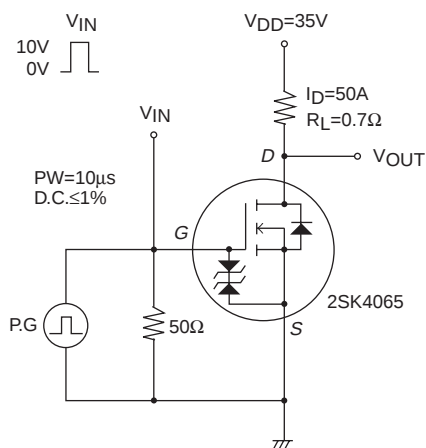
### Package Dimensions

unit : mm

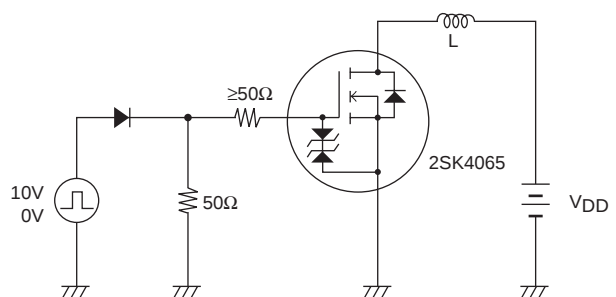
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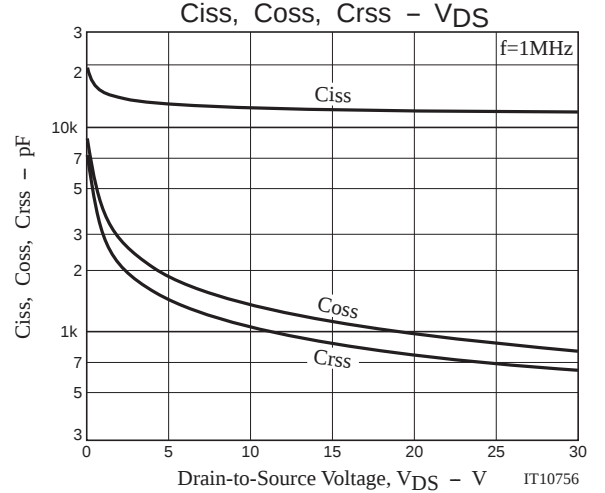
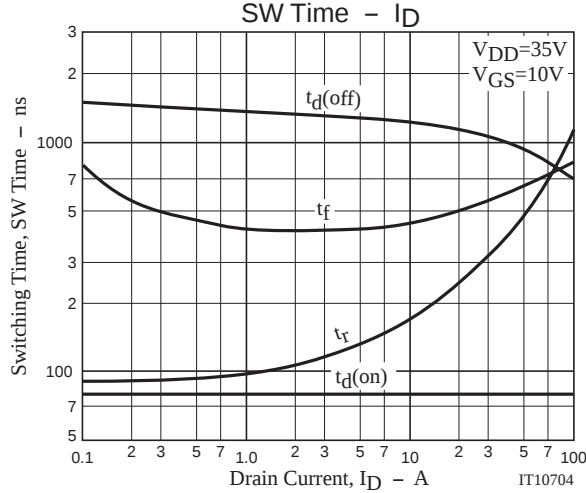
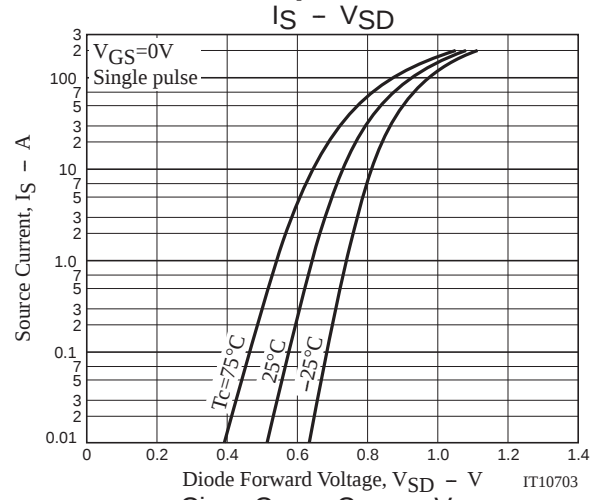
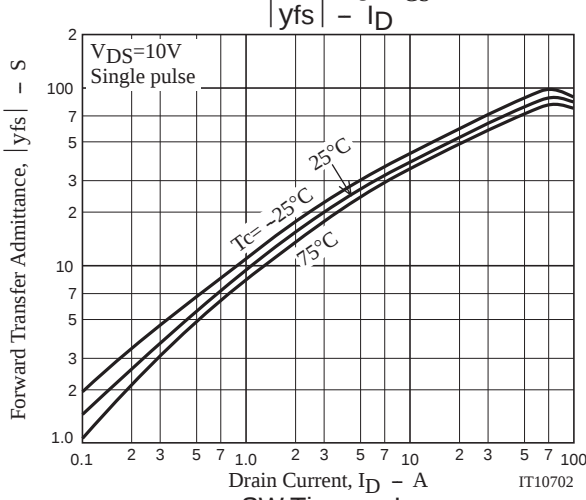
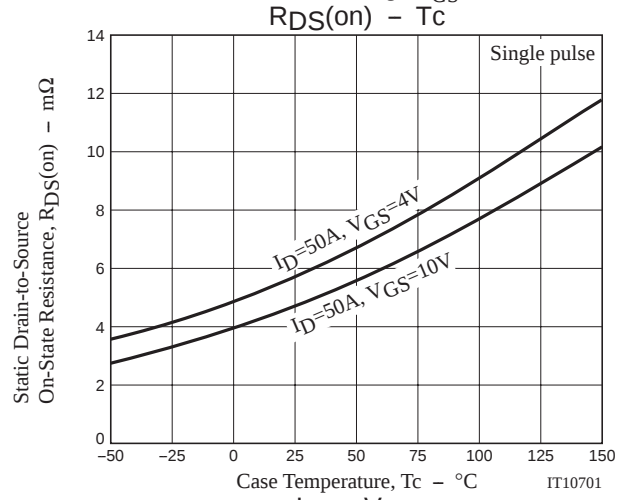
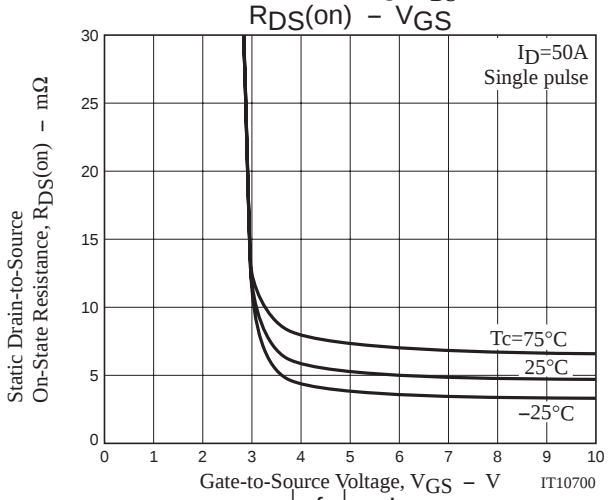
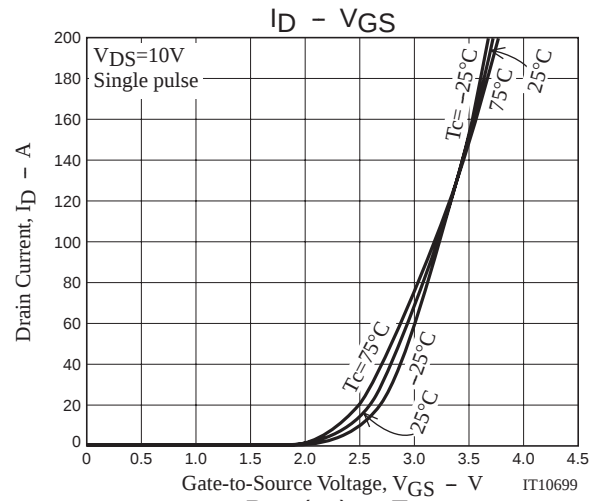
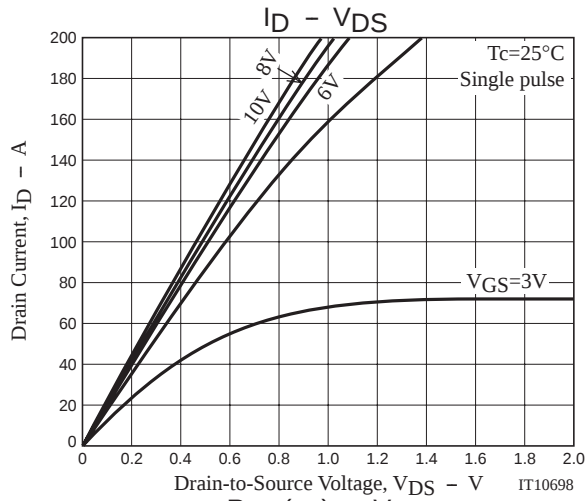


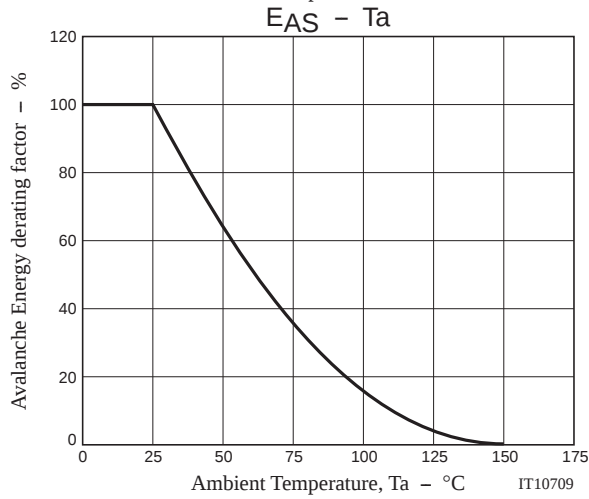
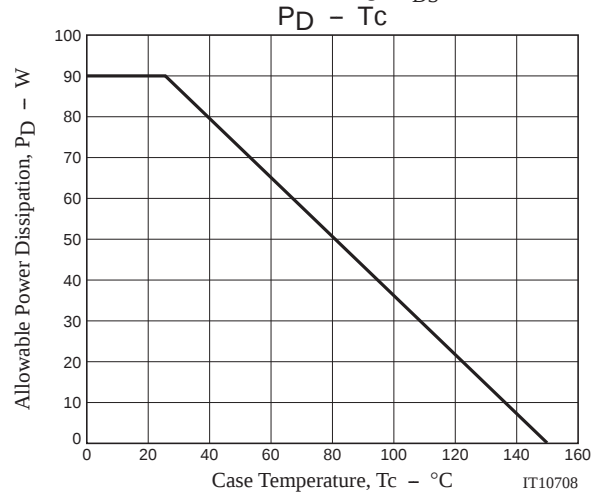
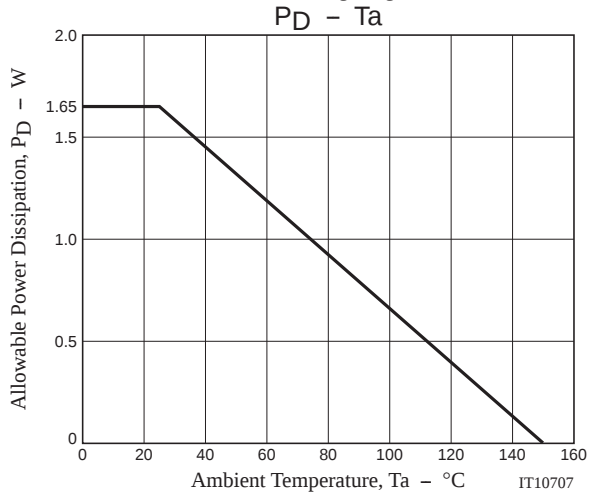
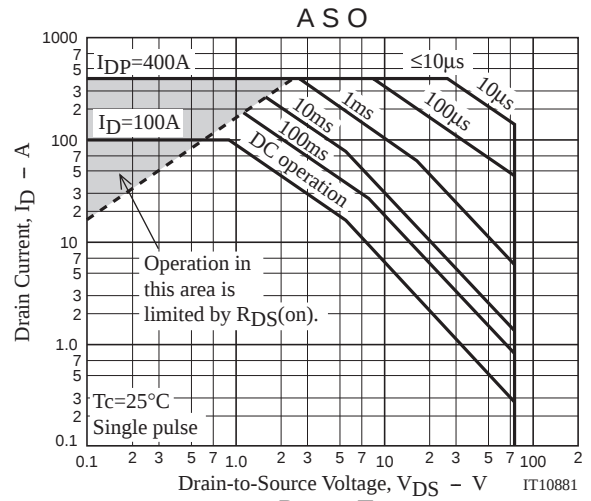
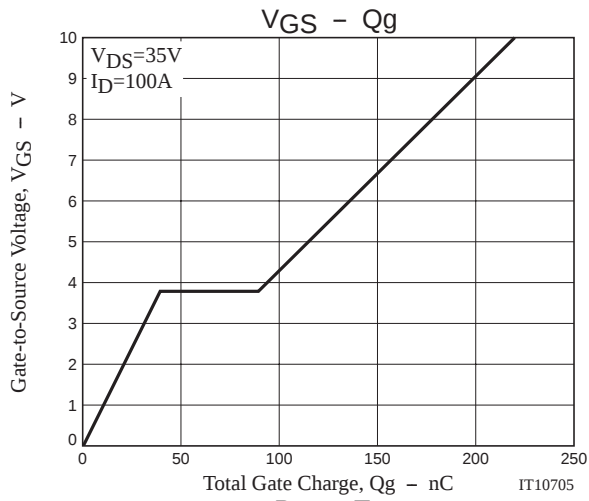
### Switching Time Test Circuit



### Avalanche Resistance Test Circuit







Note on usage : Since the 2SK4065 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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