



SANYO Semiconductors

## DATA SHEET

# MCH6429

N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V 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> |  | ±12         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |  | 6           | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%                                 | 24          | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm) | 1.5         | 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    | 20      |     |     | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =20V, V <sub>GS</sub> =0V   |         |     | 1   | 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> =10V, I <sub>D</sub> =1mA   | 0.4     |     | 1.3 | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =10V, I <sub>D</sub> =3A    | 3.8     | 6.4 |     | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =3A, V <sub>GS</sub> =4V     |         | 21  | 28  | mΩ   |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =1.5A, V <sub>GS</sub> =2.5V |         | 27  | 38  | mΩ   |
|  | R <sub>DS(on)3</sub> | I <sub>D</sub> =1A, V <sub>GS</sub> =1.8V   |         | 38  | 76  | mΩ   |

Marking : ZD

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**SANYO Semiconductor Co., Ltd.**

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# MCH6429

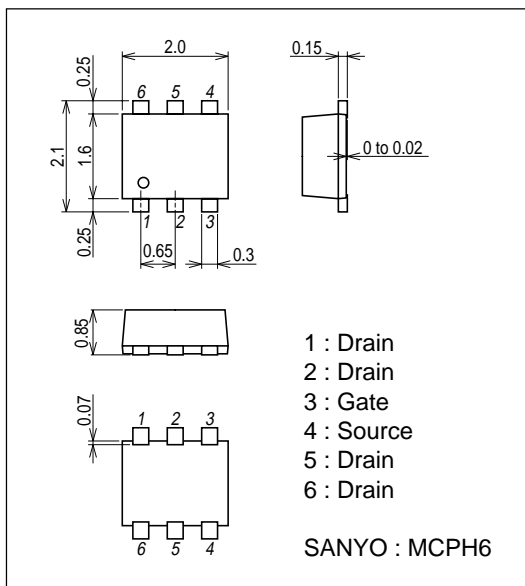
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| Parameter                     | Symbol       | Conditions                      | Ratings |      |     | Unit |
|-------------------------------|--------------|---------------------------------|---------|------|-----|------|
|                               |              |                                 | min     | typ  | max |      |
| Input Capacitance             | $C_{iss}$    | $V_{DS}=10V, f=1MHz$            |         | 680  |     | pF   |
| Output Capacitance            | $C_{oss}$    | $V_{DS}=10V, f=1MHz$            |         | 175  |     | pF   |
| Reverse Transfer Capacitance  | $C_{rss}$    | $V_{DS}=10V, f=1MHz$            |         | 135  |     | pF   |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit.     |         | 13   |     | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit.     |         | 90   |     | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit.     |         | 57   |     | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit.     |         | 91   |     | ns   |
| Total Gate Charge             | $Q_g$        | $V_{DS}=10V, V_{GS}=4V, I_D=6A$ |         | 8.2  |     | nC   |
| Gate-to-Source Charge         | $Q_{gs}$     | $V_{DS}=10V, V_{GS}=4V, I_D=6A$ |         | 1.45 |     | nC   |
| Gate-to-Drain "Miller" Charge | $Q_{gd}$     | $V_{DS}=10V, V_{GS}=4V, I_D=6A$ |         | 2.7  |     | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S=6A, V_{GS}=0V$             |         | 0.8  | 1.2 | V    |

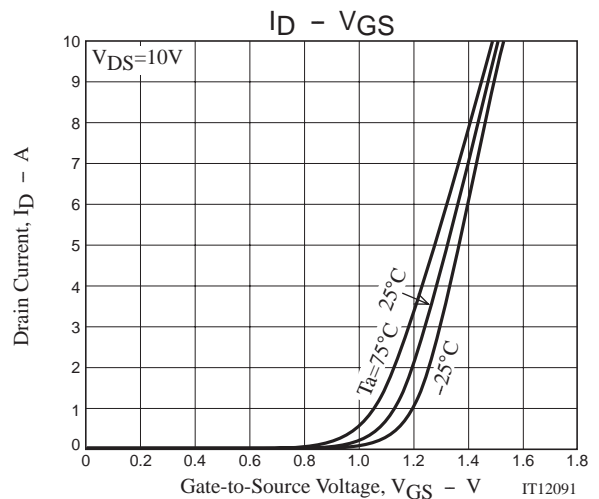
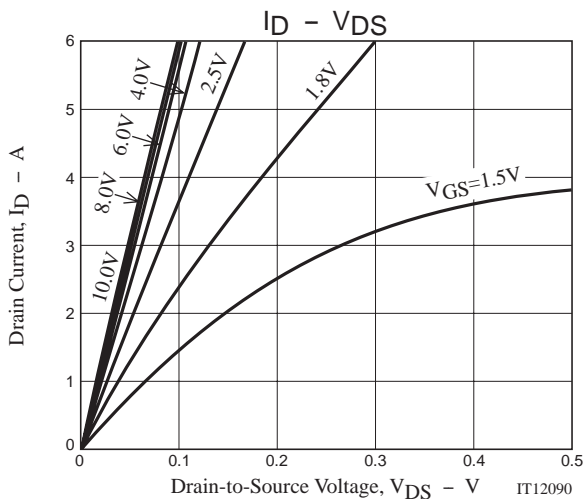
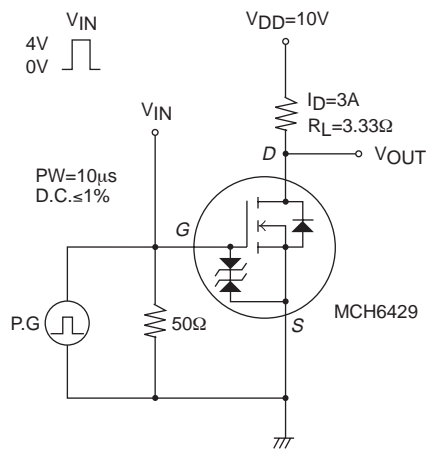
## Package Dimensions

unit : mm (typ)

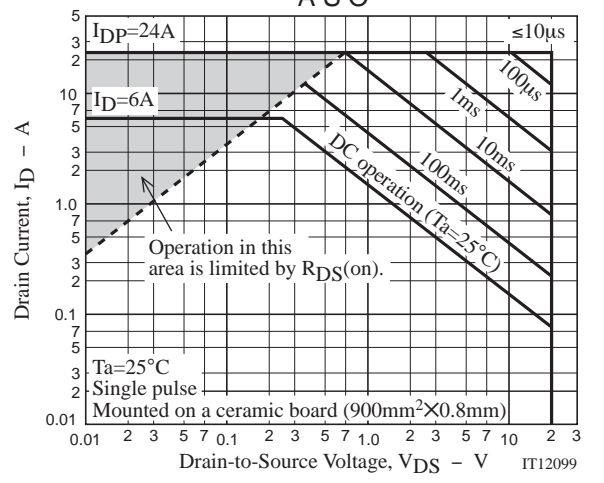
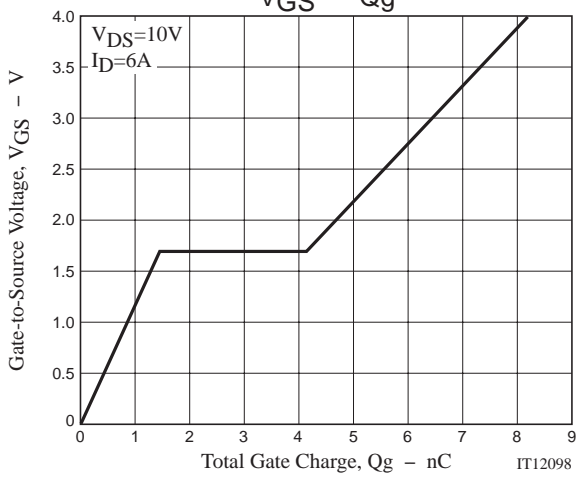
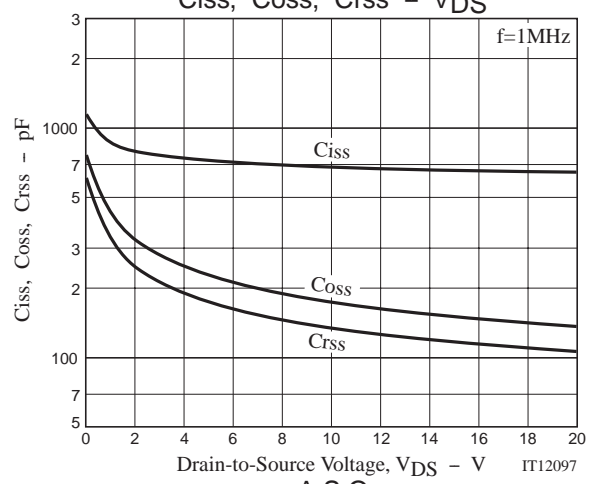
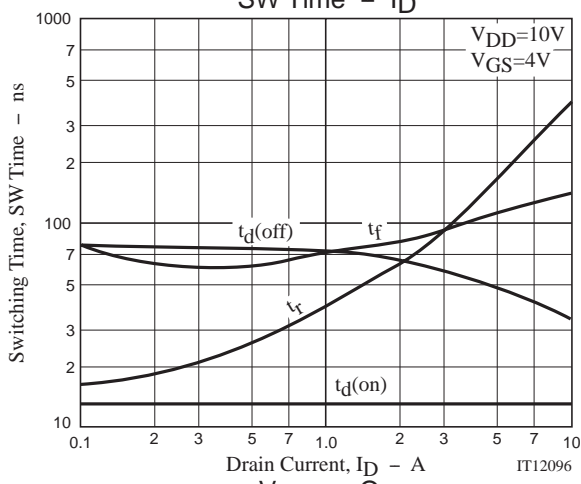
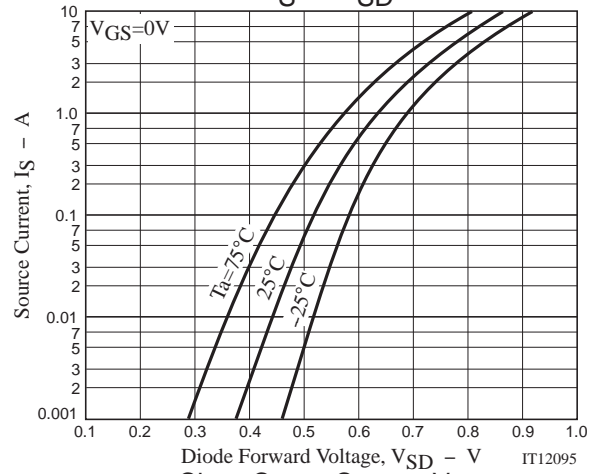
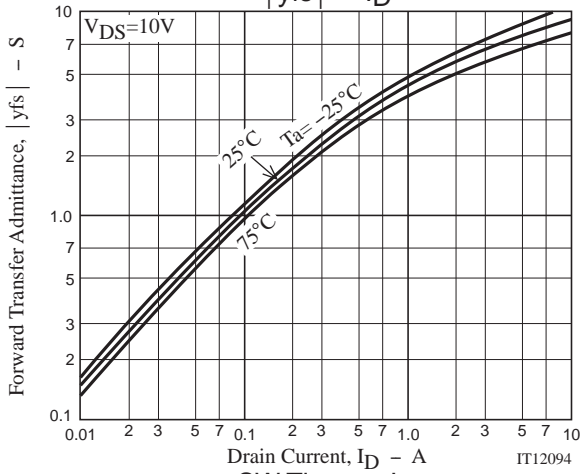
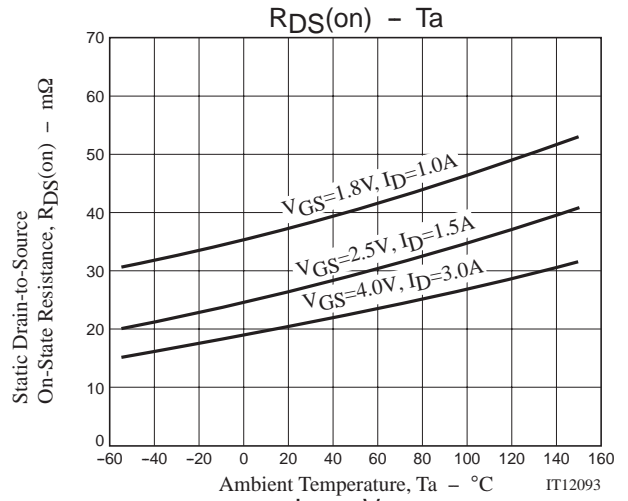
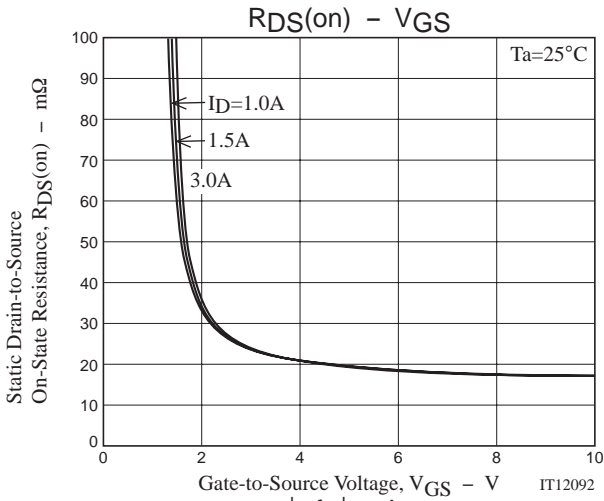
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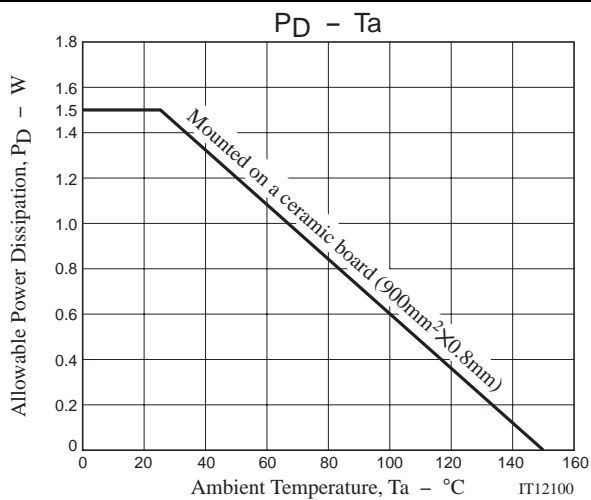
## Switching Time Test Circuit



# MCH6429



## MCH6429



Note on usage : Since the MCH6429 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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