

Ordering number : ENN8174

**SANYO****SANYO Semiconductors****DATA SHEET**

P-Channel Silicon MOSFET

# CPH3338 — General-Purpose Switching Device Applications

## Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

## Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter                   | Symbol           | Conditions                                | Ratings     | Unit |
|-----------------------------|------------------|-------------------------------------------|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |                                           | -30         | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |                                           | ±20         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |                                           | -3.5        | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%                    | -14         | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | Mounted on a ceramic board (900mm²×0.8mm) | 1.0         | 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(BR) <sub>DSS</sub> | I <sub>D</sub> =-1mA, V <sub>GS</sub> =0    | -30     |     |      | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =-30V, V <sub>GS</sub> =0   |         |     | -1   | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±16V, V <sub>DS</sub> =0   |         |     | ±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> =-2A  | 2.4     | 4   |      | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =-2A, V <sub>GS</sub> =-10V  |         | 57  | 74   | mΩ   |
|                                            | R <sub>DS(on)2</sub> | I <sub>D</sub> =-1A, V <sub>GS</sub> =-4.5V |         | 101 | 141  | mΩ   |
|                                            | R <sub>DS(on)3</sub> | I <sub>D</sub> =-1A, V <sub>GS</sub> =-4V   |         | 118 | 165  | mΩ   |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =-10V, f=1MHz               |         | 566 |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     | V <sub>DS</sub> =-10V, f=1MHz               |         | 101 |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     | V <sub>DS</sub> =-10V, f=1MHz               |         | 84  |      | 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.                 |         | 13  |      | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub>  | See specified Test Circuit.                 |         | 49  |      | ns   |
| Fall Time                                  | t <sub>f</sub>       | See specified Test Circuit.                 |         | 36  |      | ns   |

Marking : YN

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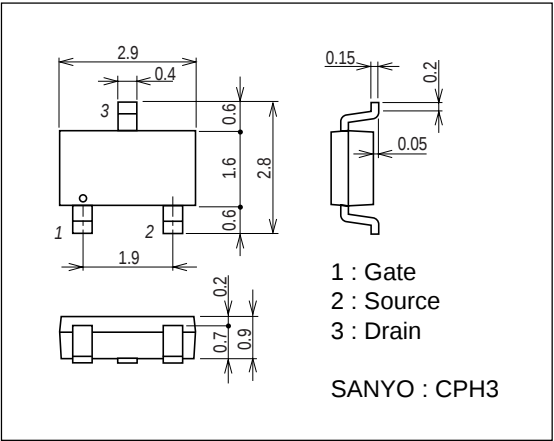
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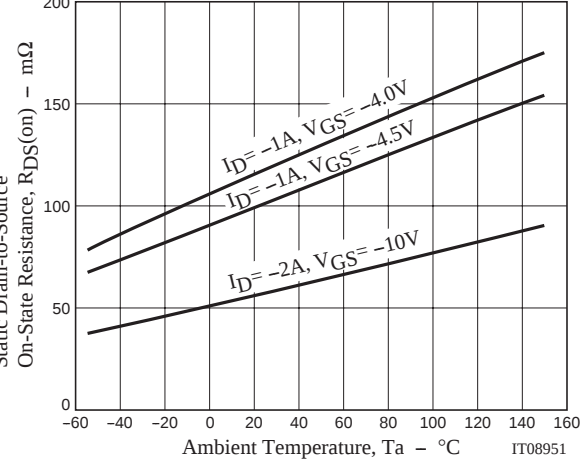
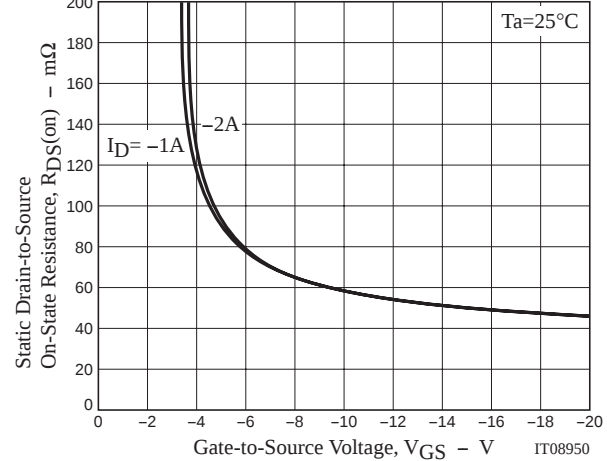
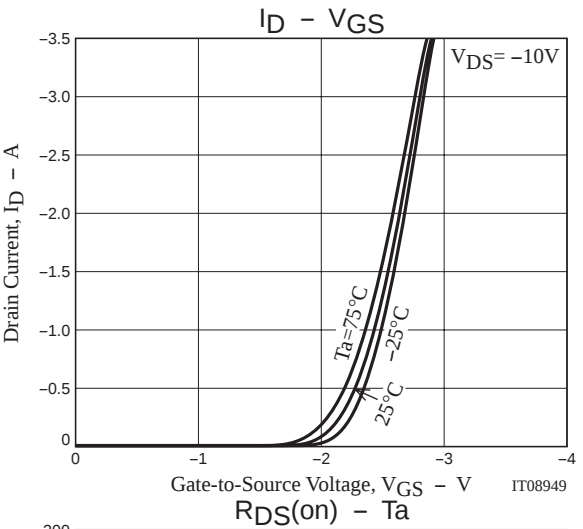
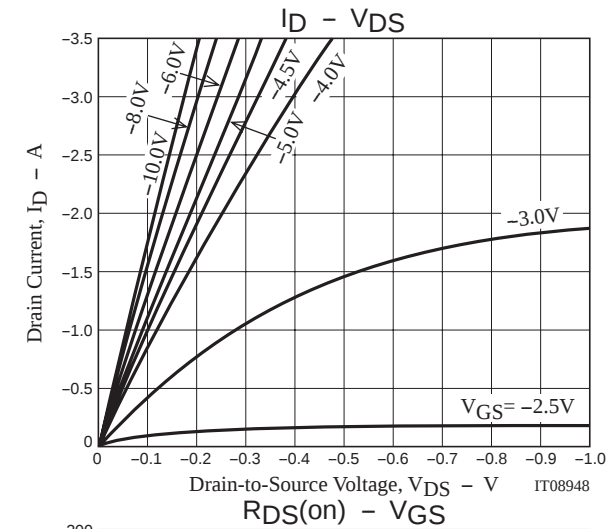
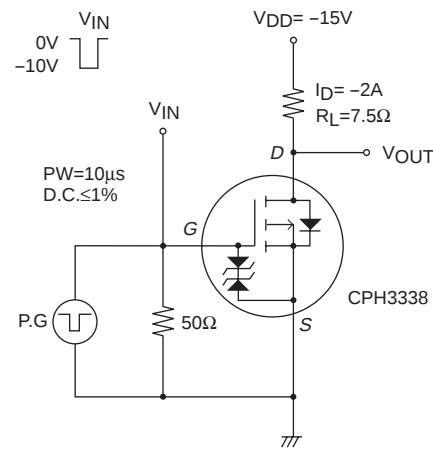
| Parameter                     | Symbol          | Conditions                                                          | Ratings |       |      | Unit |
|-------------------------------|-----------------|---------------------------------------------------------------------|---------|-------|------|------|
|                               |                 |                                                                     | min     | typ   | max  |      |
| Total Gate Charge             | Qg              | V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A |         | 11.7  |      | nC   |
| Gate-to-Source Charge         | Qgs             | V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A |         | 2.04  |      | nC   |
| Gate-to-Drain "Miller" Charge | Qgd             | V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A |         | 2.64  |      | nC   |
| Diode Forward Voltage         | V <sub>SD</sub> | I <sub>S</sub> =-3.5A, V <sub>GS</sub> =0                           |         | -0.86 | -1.2 | V    |

Package Dimensions

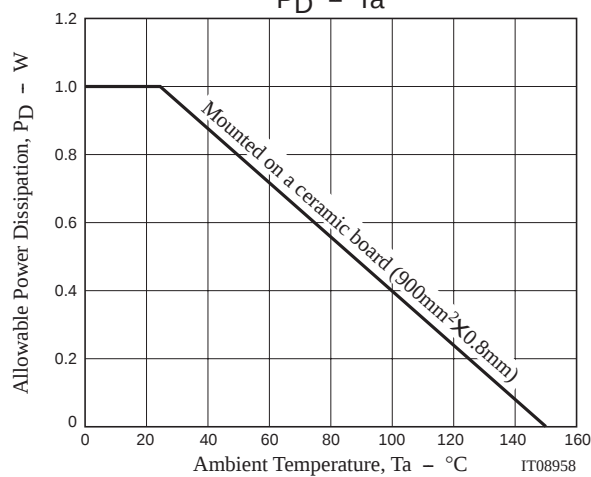
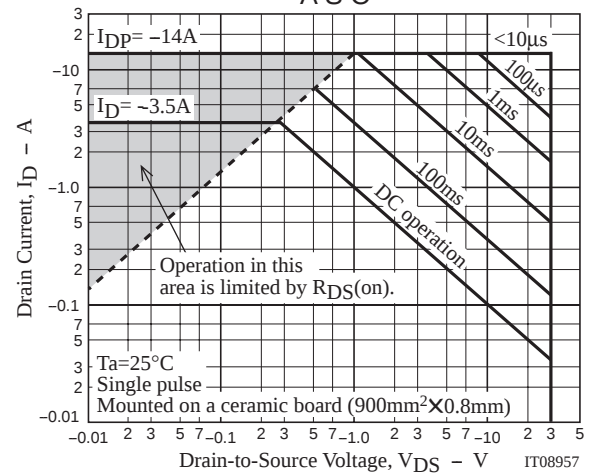
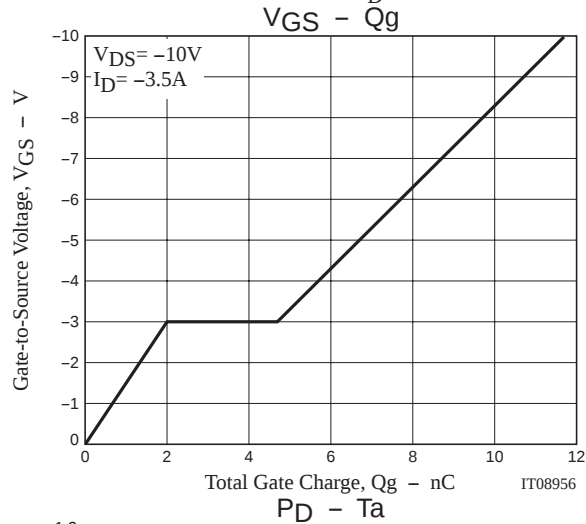
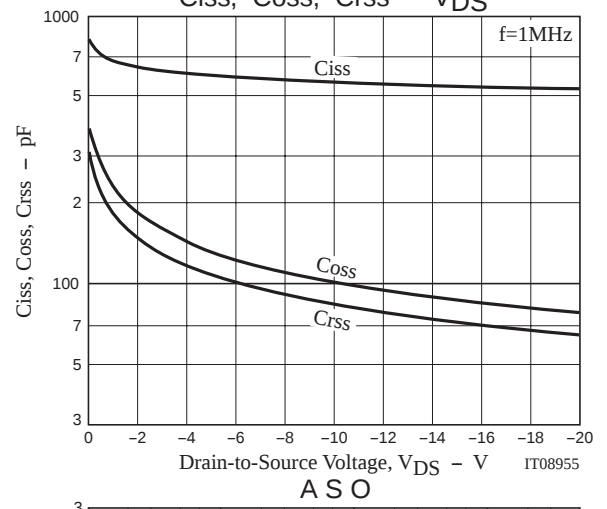
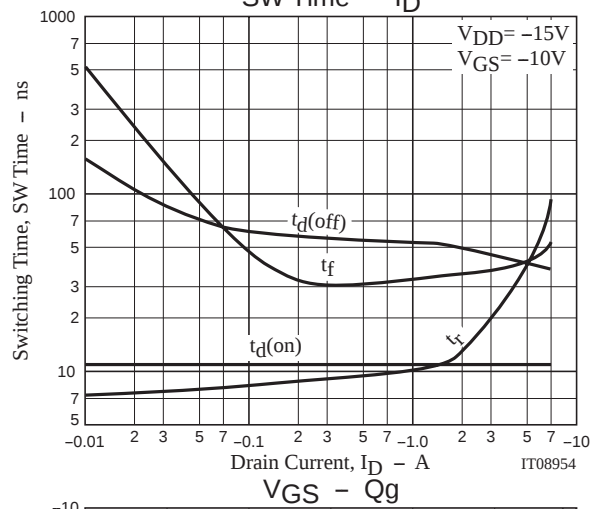
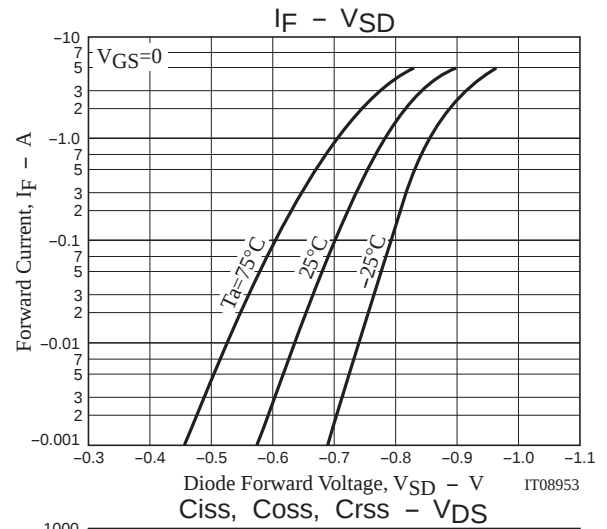
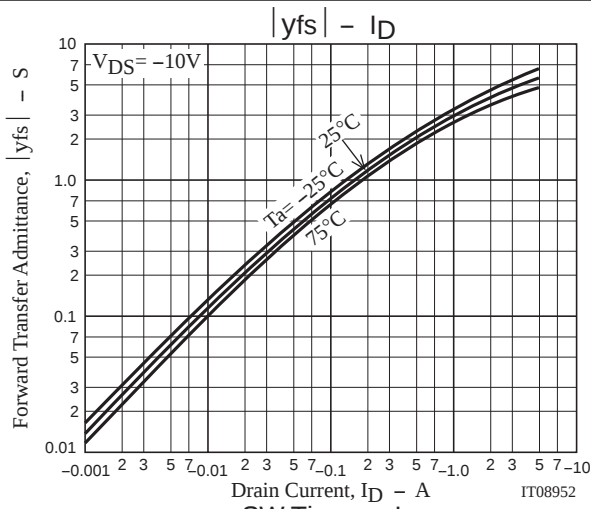
unit : mm  
2152A



Switching Time Test Circuit



# CPH3338



Note on usage : Since the CPH3338 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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