



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# CPH3356 — P-Channel Silicon MOSFET

## General-Purpose Switching Device

### Applications

#### Features

- 1.8V drive
- Halogen free compliance
- Protection diode in

#### Specifications

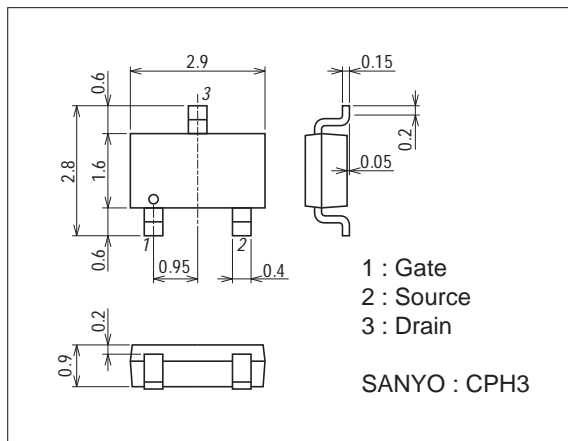
Absolute Maximum Ratings at Ta=25°C

| Parameter                   | Symbol           | Conditions  | Ratings     | Unit |
|-----------------------------|------------------|---|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |   | -20         | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |   | ±10         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |   | -2.5        | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%  | -10         | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) | 1.0         | W    |
| Channel Temperature         | T <sub>ch</sub>  |   | 150         | °C   |
| Storage Temperature         | T <sub>stg</sub> |   | -55 to +150 | °C   |

#### Package Dimensions

unit : mm (typ)

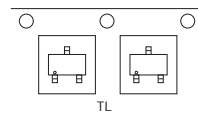
7015A-004



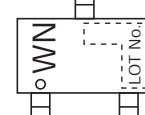
#### Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

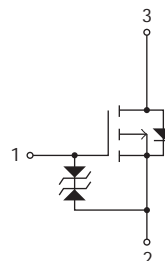
#### Packing Type: TL



#### Marking



#### Electrical Connection

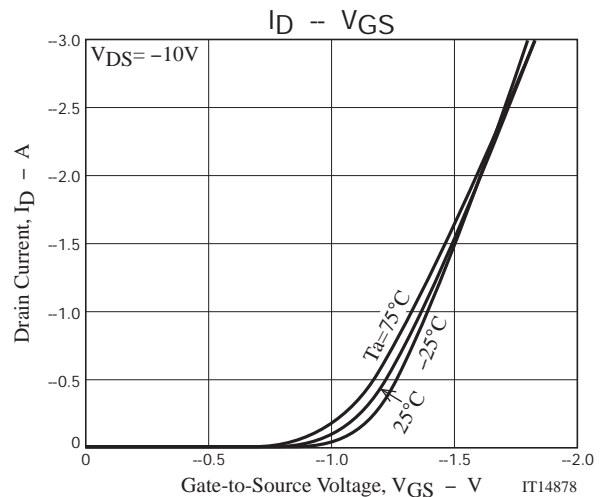
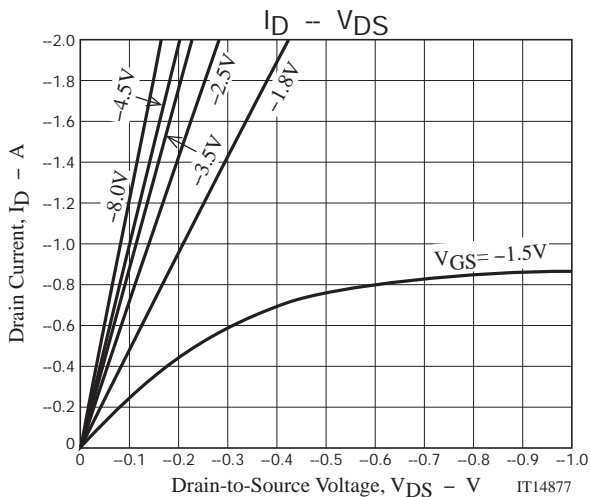
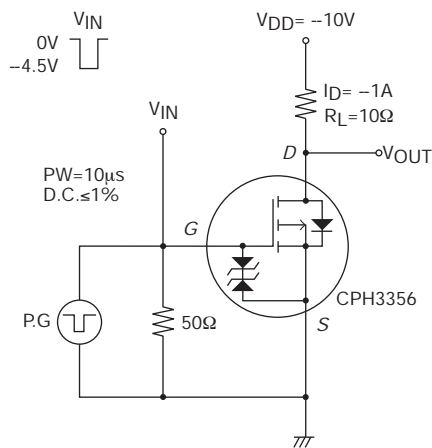


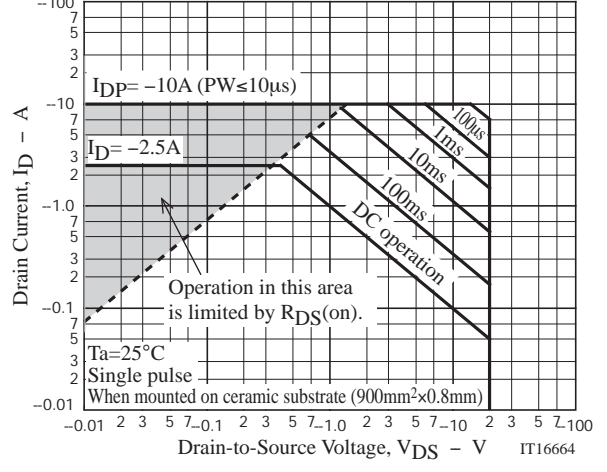
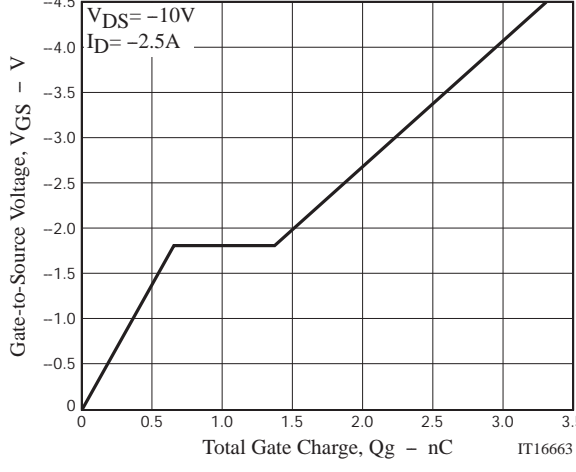
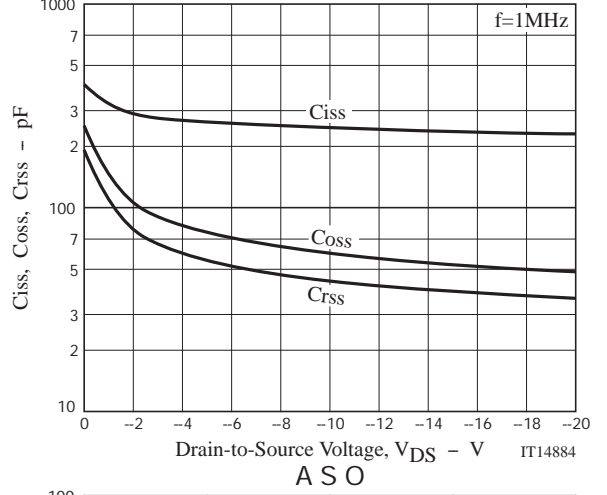
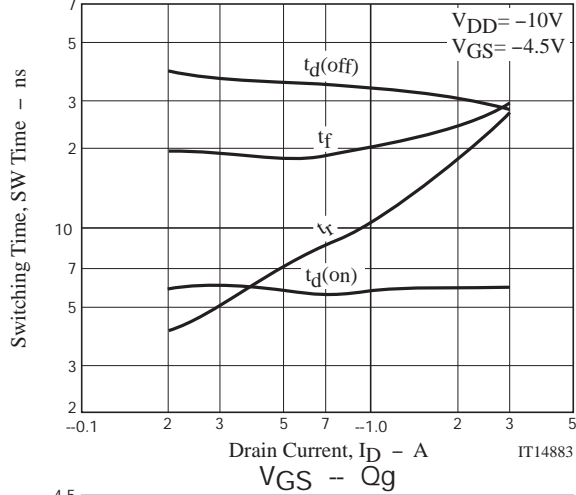
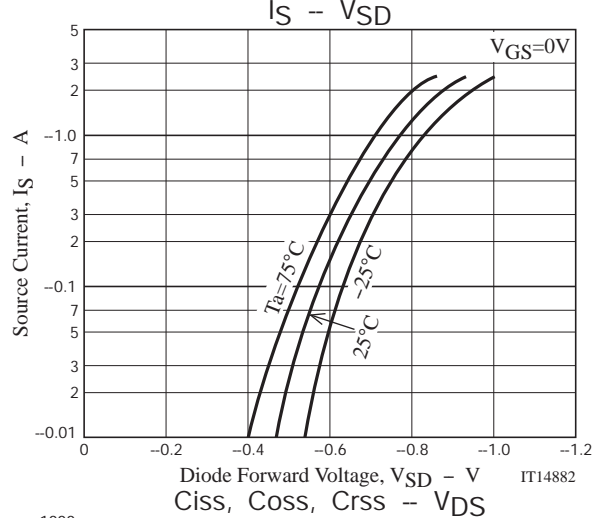
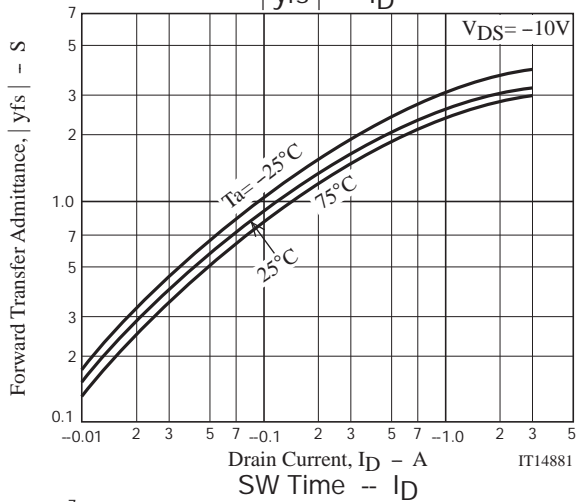
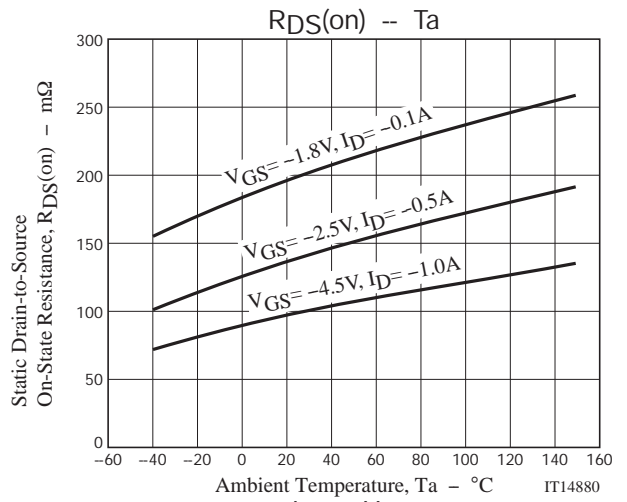
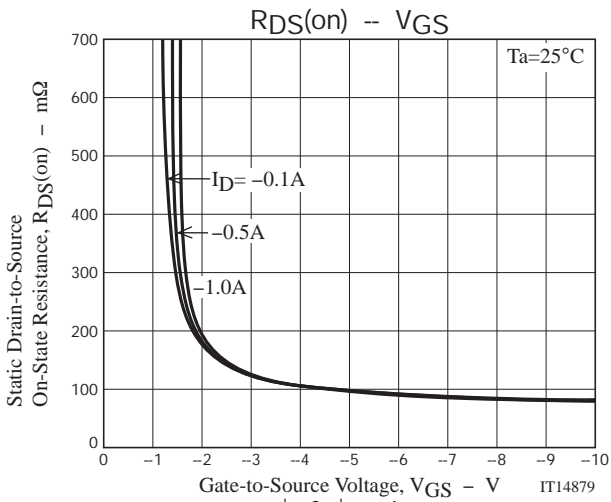
# CPH3356

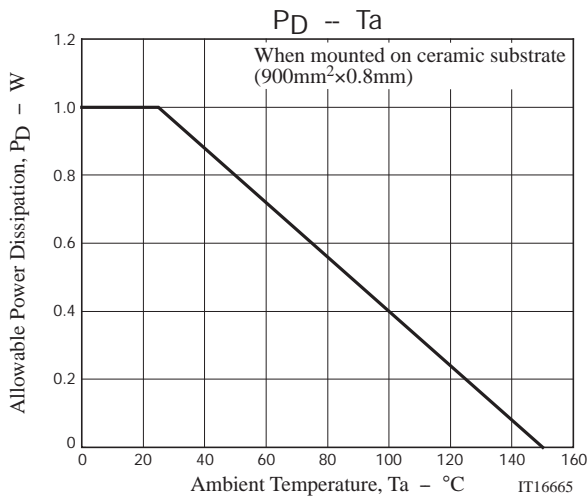
## Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter                                  | Symbol        | Conditions  | Ratings                              |      |          | Unit             |
|--|---------------|---|--------------------------------------|------|----------|------------------|
|  |               |   | min                                  | typ  | max      |                  |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D=-1\text{mA}, V_{GS}=0\text{V}$                         | -20                                  |      |          | V                |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS}=-20\text{V}, V_{GS}=0\text{V}$                      |                                      |      | -1       | $\mu\text{A}$    |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$                    |                                      |      | $\pm 10$ | $\mu\text{A}$    |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS}=-10\text{V}, I_D=-1\text{mA}$                       | -0.4                                 |      | -1.4     | V                |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS}=-10\text{V}, I_D=-1\text{A}$                        |                                      | 2.7  |          | S                |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=-1\text{A}, V_{GS}=-4.5\text{V}$                       |                                      | 105  | 137      | $\text{m}\Omega$ |
|  | $R_{DS(on)2}$ | $I_D=-0.5\text{A}, V_{GS}=-2.5\text{V}$                     |                                      | 145  | 203      | $\text{m}\Omega$ |
|  | $R_{DS(on)3}$ | $I_D=-0.1\text{A}, V_{GS}=-1.8\text{V}$                     |                                      | 215  | 323      | $\text{m}\Omega$ |
| Input Capacitance                          | $C_{iss}$     | $V_{DS}=-10\text{V}, f=1\text{MHz}$                         |                                      | 250  |          | pF               |
| Output Capacitance                         | $C_{oss}$     |   |                                      | 60   |          | pF               |
| Reverse Transfer Capacitance               | $C_{rss}$     |   |                                      | 45   |          | pF               |
| Turn-ON Delay Time                         | $t_d(on)$     |   |                                      | 5.7  |          | ns               |
| Rise Time                                  | $t_r$         | See specified Test Circuit.                                 |                                      | 11   |          | ns               |
| Turn-OFF Delay Time                        | $t_d(off)$    |   |                                      | 34   |          | ns               |
| Fall Time                                  | $t_f$         |   |                                      | 20   |          | ns               |
| Total Gate Charge                          | $Q_g$         | $V_{DS}=-10\text{V}, V_{GS}=-4.5\text{V}, I_D=-2.5\text{A}$ |                                      | 3.3  |          | nC               |
| Gate-to-Source Charge                      | $Q_{gs}$      |   |                                      | 0.65 |          | nC               |
| Gate-to-Drain "Miller" Charge              | $Q_{gd}$      |   |                                      | 0.72 |          | nC               |
| Diode Forward Voltage                      | $V_{SD}$      |   | $I_S=-2.5\text{A}, V_{GS}=0\text{V}$ |      | -0.87    | -1.5             |

## Switching Time Test Circuit







Note on usage : Since the CPH3356 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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