



# CPH3457 — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)} = 73\text{m}\Omega$  (typ.)
- 1.8V drive
- Halogen free compliance

### Specifications

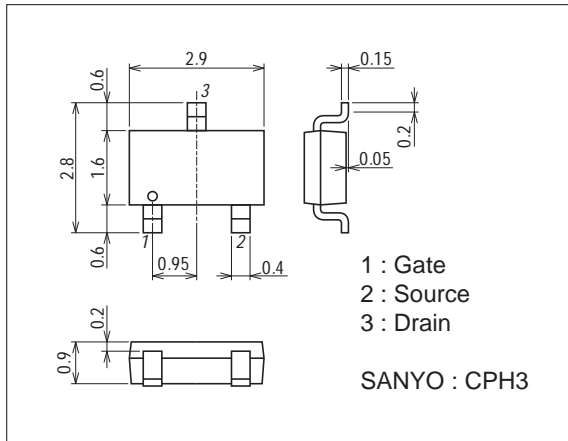
Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$

| Parameter                   | Symbol    | Conditions   | Ratings     | Unit             |
|-----------------------------|-----------|--|-------------|------------------|
| Drain-to-Source Voltage     | $V_{DSS}$ |  | 30          | V                |
| Gate-to-Source Voltage      | $V_{GSS}$ |  | $\pm 12$    | V                |
| Drain Current (DC)          | $I_D$     |  | 3           | A                |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$                | 12          | A                |
| Allowable Power Dissipation | $P_D$     | When mounted on ceramic substrate (900mm <sup>2</sup> x 0.8mm) | 1.0         | W                |
| Channel Temperature         | $T_{ch}$  |  | 150         | $^\circ\text{C}$ |
| Storage Temperature         | $T_{stg}$ |  | -55 to +150 | $^\circ\text{C}$ |

### Package Dimensions

unit : mm (typ)

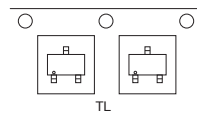
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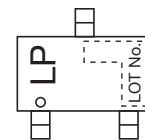
### Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-96, SC-95, SOT346, SOT457
- Minimum Packing Quantity : 3,000 pcs./reel

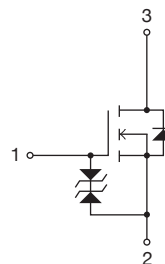
### Packing Type: TL



### Marking



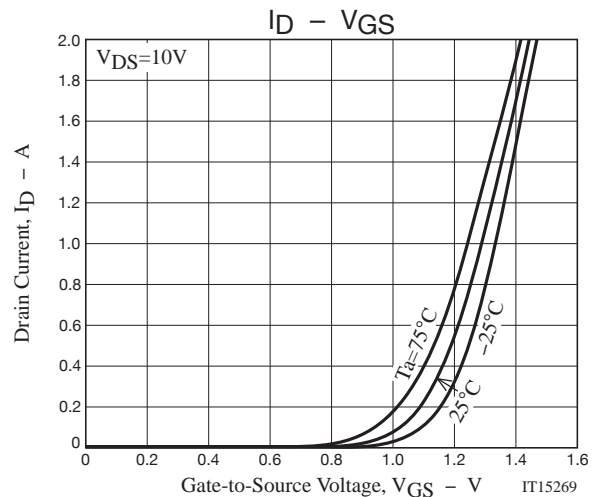
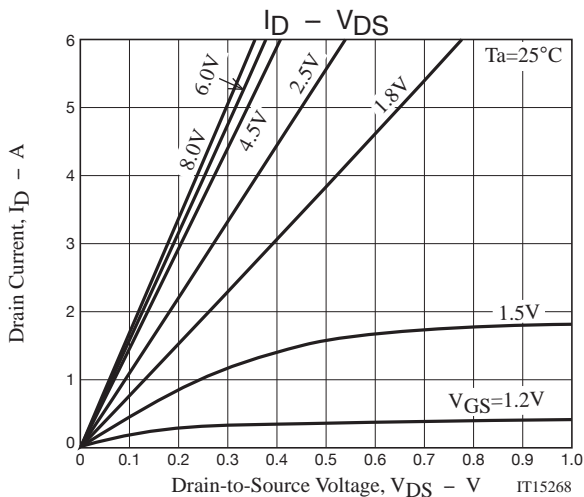
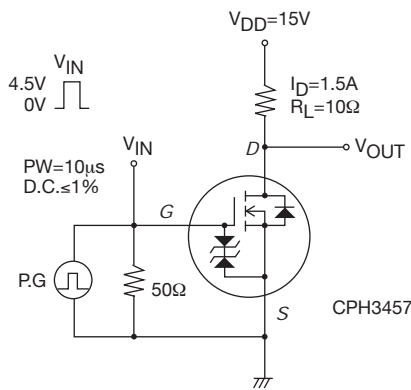
### Electrical Connection

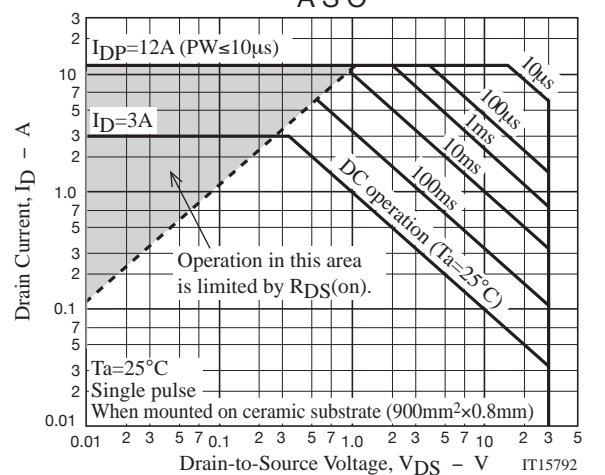
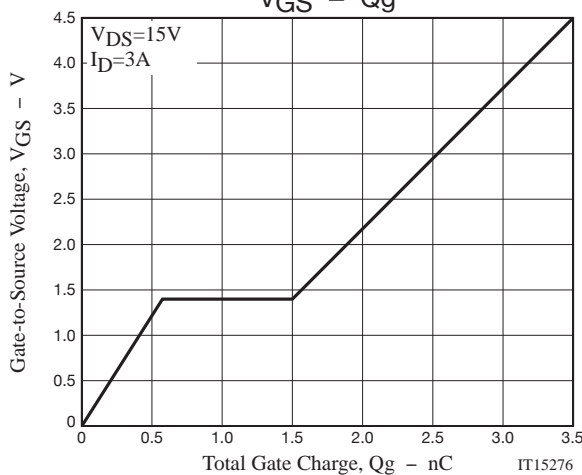
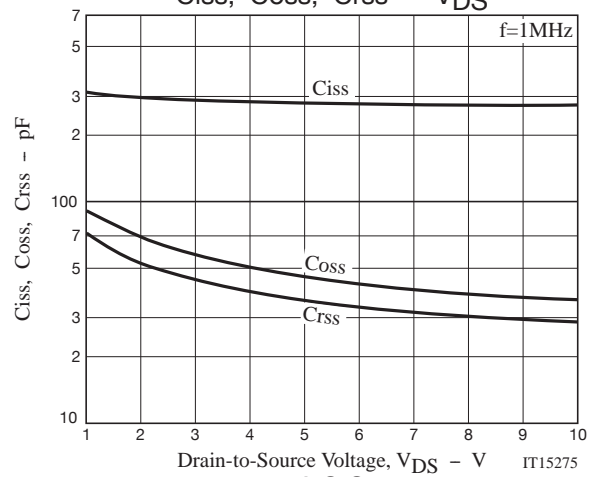
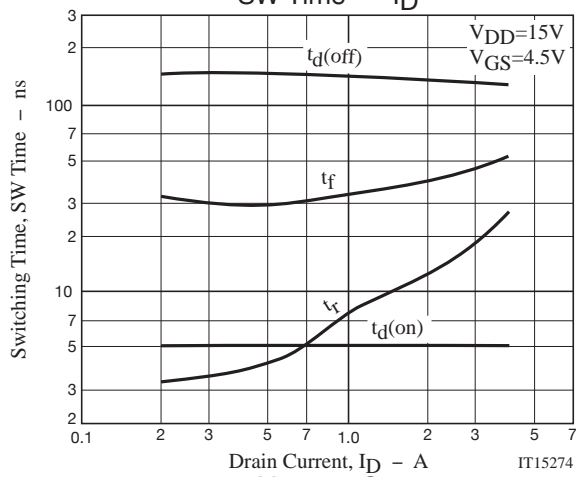
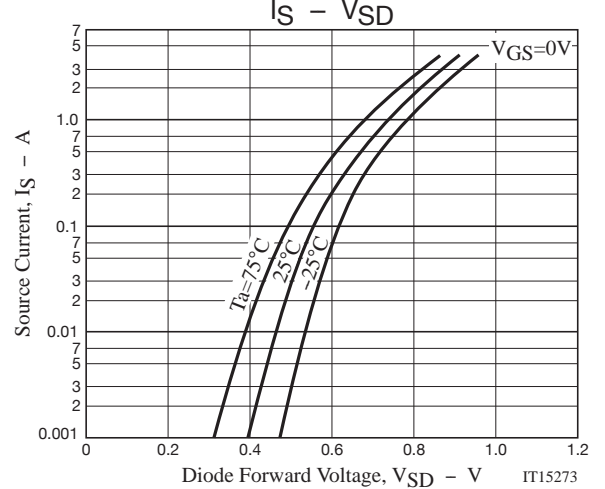
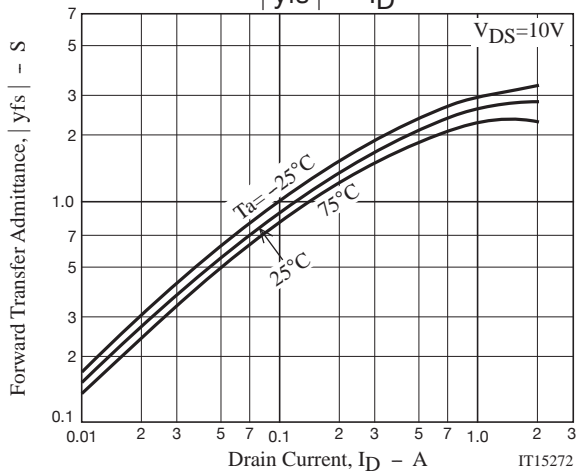
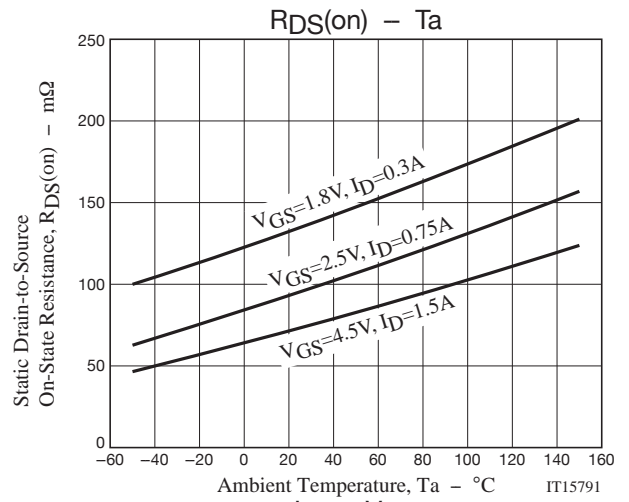
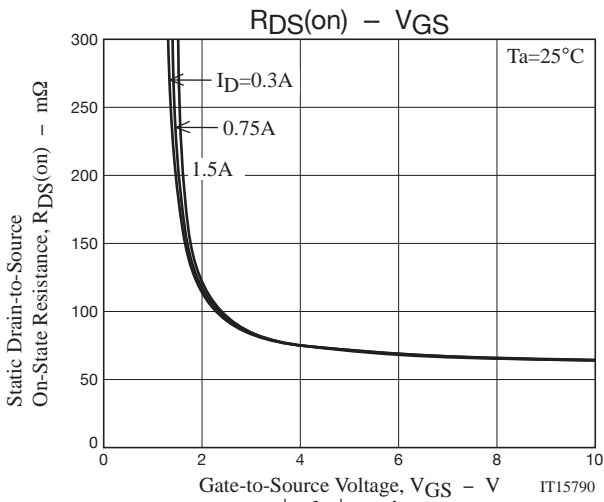


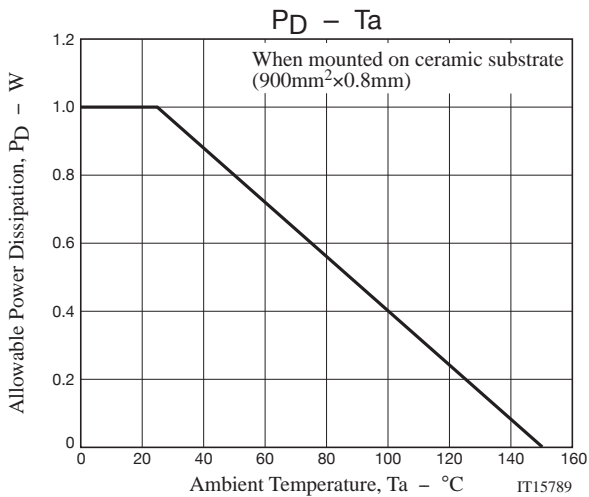
Electrical Characteristics at Ta=25°C

| Parameter                                  | Symbol              | Conditions                  | Ratings |      |     | Unit |
|--|---------------------|-----------------------------|---------|------|-----|------|
|  |                     |                             | min     | typ  | max |      |
| Drain-to-Source Breakdown Voltage          | V(BR)DSS            | ID=1mA, VGS=0V              | 30      |      |     | V    |
| Zero-Gate Voltage Drain Current            | IDSS                | VDS=30V, VGS=0V             |         |      | 1   | μA   |
| Gate-to-Source Leakage Current             | IGSS                | VGS=±8V, VDS=0V             |         |      | ±10 | μA   |
| Cutoff Voltage                             | VGS(off)            | VDS=10V, ID=1mA             | 0.4     |      | 1.3 | V    |
| Forward Transfer Admittance                | yfs                 | VDS=10V, ID=1.5A            |         | 2.7  |     | S    |
| Static Drain-to-Source On-State Resistance | RDS(on)1            | ID=1.5A, VGS=4.5V           |         | 73   | 95  | mΩ   |
|  | RDS(on)2            | ID=0.75A, VGS=2.5V          |         | 95   | 133 | mΩ   |
|  | RDS(on)2            | ID=0.3A, VGS=1.8V           |         | 135  | 203 | mΩ   |
| Input Capacitance                          | Ciss                | VDS=10V, f=1MHz             |         | 265  |     | pF   |
| Output Capacitance                         | Coss                | VDS=10V, f=1MHz             |         | 35   |     | pF   |
| Reverse Transfer Capacitance               | Crss                | VDS=10V, f=1MHz             |         | 28   |     | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>  | See specified Test Circuit. |         | 5.1  |     | ns   |
| Rise Time                                  | t <sub>r</sub>      | See specified Test Circuit. |         | 10   |     | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub> | See specified Test Circuit. |         | 137  |     | ns   |
| Fall Time                                  | t <sub>f</sub>      | See specified Test Circuit. |         | 36   |     | ns   |
| Total Gate Charge                          | Qg                  | VDS=15V, VGS=4.5V, ID=3A    |         | 3.5  |     | nC   |
| Gate-to-Source Charge                      | Qgs                 | VDS=15V, VGS=4.5V, ID=3A    |         | 0.57 |     | nC   |
| Gate-to-Drain "Miller" Charge              | Qgd                 | VDS=15V, VGS=4.5V, ID=3A    |         | 0.93 |     | nC   |
| Diode Forward Voltage                      | VSD                 | IS=3A, VGS=0V               |         | 0.87 | 1.2 | V    |

Switching Time Test Circuit







Note on usage : Since the CPH3457 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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