Ordering number : ENN7147

N-Channel Silicon MOSFET

# CPH6604

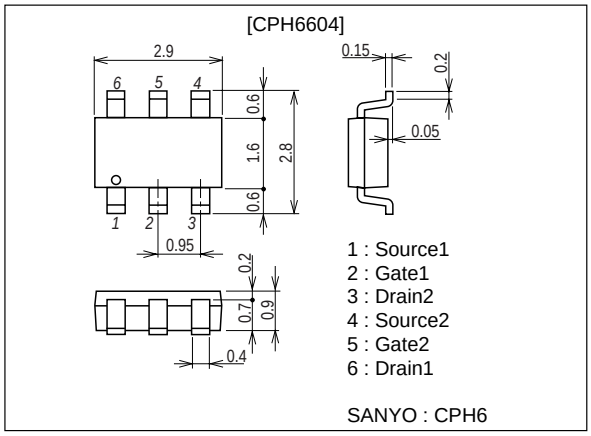
## Ultrahigh-Speed Switching Applications

### Features

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

### Package Dimensions

unit : mm
2202




### Specifications

**Absolute Maximum Ratings** at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Drain-to-Source Voltage | $V_{DSS}$ | | 30 | V |
| Gate-to-Source Voltage | $V_{GSS}$ | | ±20 | V |
| Drain Current (DC) | $I_D$ | | 2.0 | A |
| Drain Current (Pulse) | $I_{DP}$ | PW≤10μs, duty cycle≤1% | 8.0 | A |
| Allowable Power Dissipation | $P_D$ | Mounted on a ceramic board (900mm²×0.8mm)1unit | 0.9 | W |
| Channel Temperature | Tch | | 150 | °C |
| Storage Temperature | Tstg | | −55 to +150 | °C |

**Electrical Characteristics** at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D$=1mA, $V_{GS}$=0 | 30 | | | V |
| Zero-Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=30V, $V_{GS}$=0 | | | 1 | μA |
| Gate-to-Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±16V, $V_{DS}$=0 | | | ±10 | μA |
| Cutoff Voltage | $V_{GS}(off)$ | $V_{DS}$=10V, $I_D$=1mA | 1.2 | | 2.6 | V |
| Forward Transfer Admittance | \|yfs\| | $V_{DS}$=10V, $I_D$=1A | 1.3 | 1.8 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS}(on)1$ | $I_D$=1A, $V_{GS}$=10V | | 115 | 150 | mΩ |
| | $R_{DS}(on)2$ | $I_D$=0.5A, $V_{GS}$=4V | | 190 | 270 | mΩ |

Marking : FP

Continued on next page.



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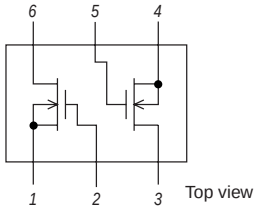
Continued from preceding page.

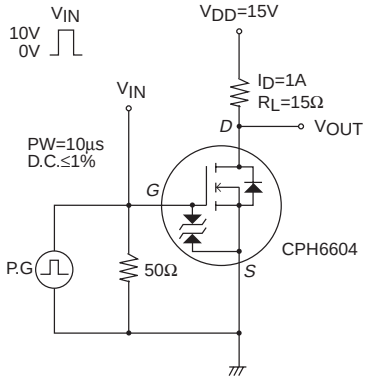
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Input Capacitance | Ciss | $V_{DS}$=10V, f=1MHz | | 120 | | pF |
| Output Capacitance | Coss | $V_{DS}$=10V, f=1MHz | | 30 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}$=10V, f=1MHz | | 15 | | pF |
| Turn-ON Delay Time | $t_d$(on) | See specified Test Circuit. | | 6 | | ns |
| Rise Time | $t_r$ | See specified Test Circuit. | | 4 | | ns |
| Turn-OFF Delay Time | $t_d$(off) | See specified Test Circuit. | | 17 | | ns |
| Fall Time | $t_f$ | See specified Test Circuit. | | 5 | | ns |
| Total Gate Charge | Qg | $V_{DS}$=10V, $V_{GS}$=10V, $I_D$=2.0A | | 3.6 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}$=10V, $V_{GS}$=10V, $I_D$=2.0A | | 0.6 | | nC |
| Gate-to-Drain “Miller” Charge | Qgd | $V_{DS}$=10V, $V_{GS}$=10V, $I_D$=2.0A | | 0.5 | | nC |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=2.0A, $V_{GS}$=0 | | 0.87 | 1.2 | V |

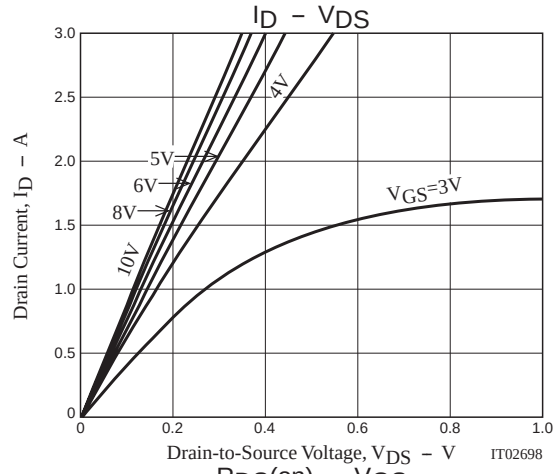
## Electrical Connection

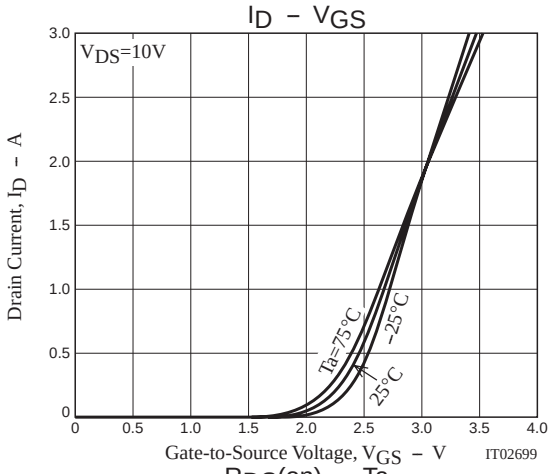


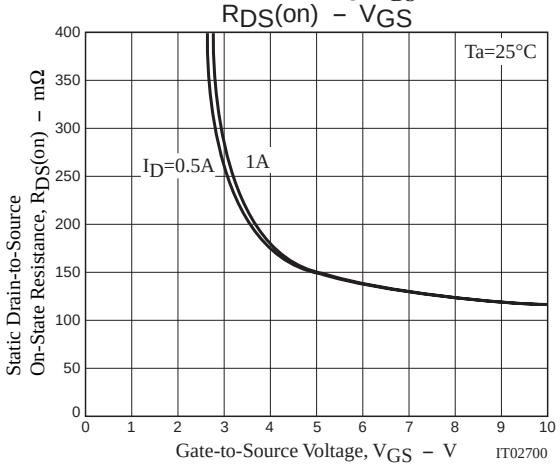

1 : Source1
2 : Gate1
3 : Drain2
4 : Source2
5 : Gate2
6 : Drain1

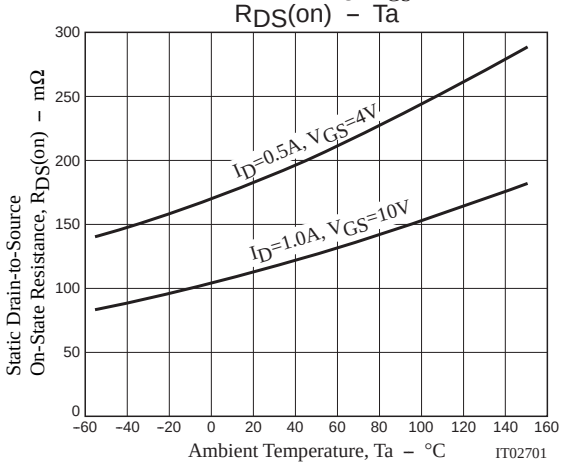
## Switching Time Test Circuit

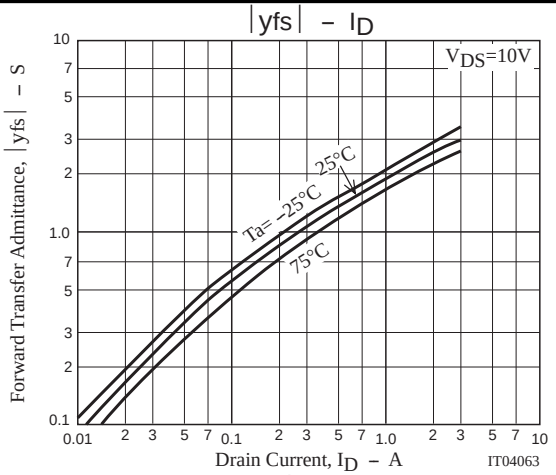


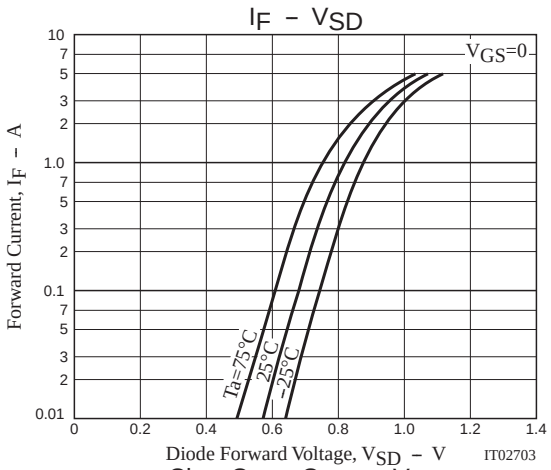



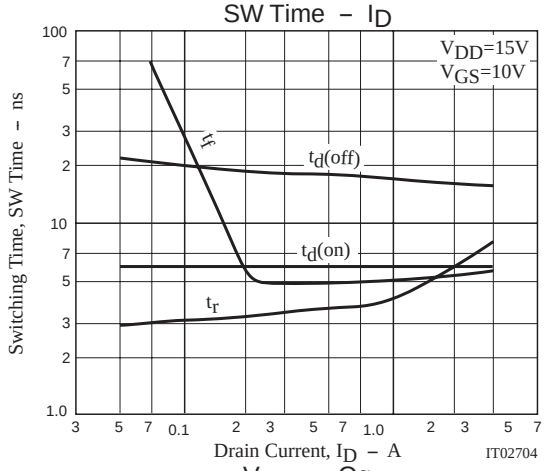



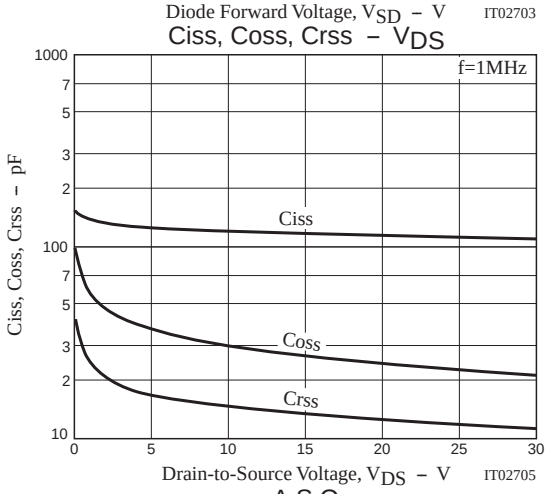



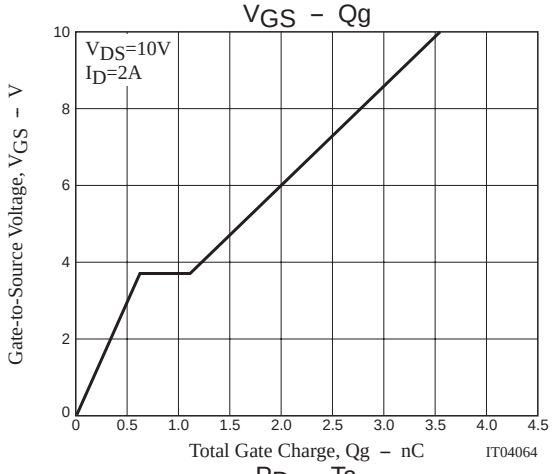



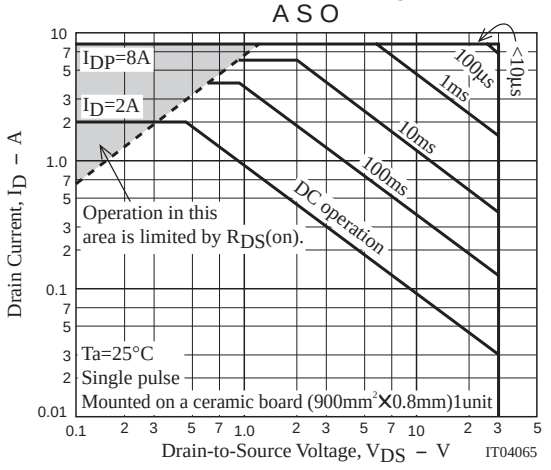


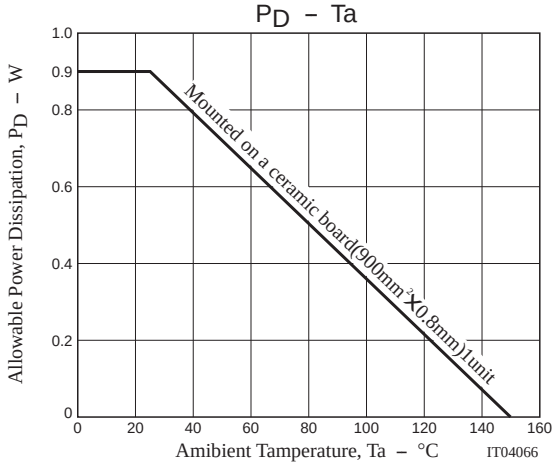



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