



## Ultrahigh-Speed Switching Applications

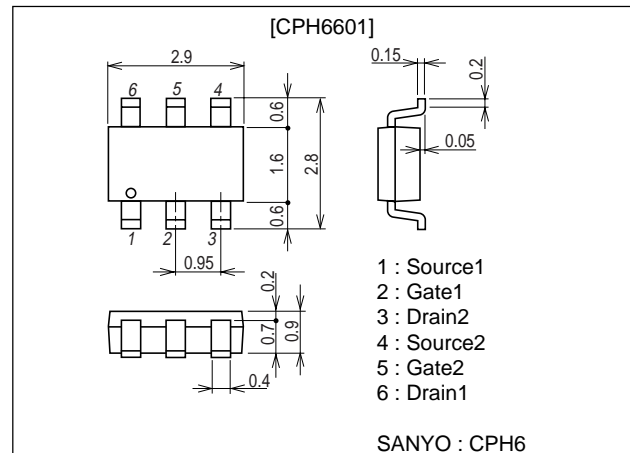
### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

### Package Dimensions

unit : mm

2202



### Specifications

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

| Parameter                   | Symbol    | Conditions   | Ratings     | Unit |
|-----------------------------|-----------|--|-------------|------|
| Drain-to-Source Voltage     | $V_{DSS}$ |  | -20         | V    |
| Gate-to-Source Voltage      | $V_{GSS}$ |  | ±10         | V    |
| Drain Current (DC)          | $I_D$     |  | -1.5        | A    |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$                    | -6.0        | A    |
| Allowable Power Dissipation | $P_D$     | Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm) 1unit | 0.9         | W    |
| Total Power Dissipation     | $P_D$     | Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm)       | 1.2         | 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          | $V_{(BR)DSS}$ | $I_D = -1mA$ , $V_{GS} = 0$      | -20     |     |      | V    |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = -20V$ , $V_{GS} = 0$   |         |     | -1   | μA   |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 8V$ , $V_{DS} = 0$ |         |     | ±10  | μA   |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS} = -10V$ , $I_D = -1mA$   | -0.4    |     | -1.3 | V    |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS} = -10V$ , $I_D = -0.8A$  | 1.6     | 2.3 |      | S    |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -0.8A$ , $V_{GS} = -4V$   |         | 180 | 235  | mΩ   |
|  | $R_{DS(on)2}$ | $I_D = -0.4A$ , $V_{GS} = -2.5V$ |         | 240 | 340  | mΩ   |

Marking : FL

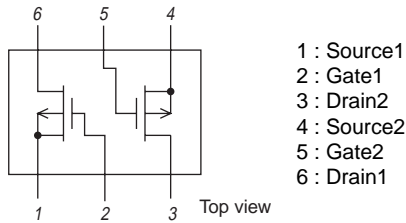
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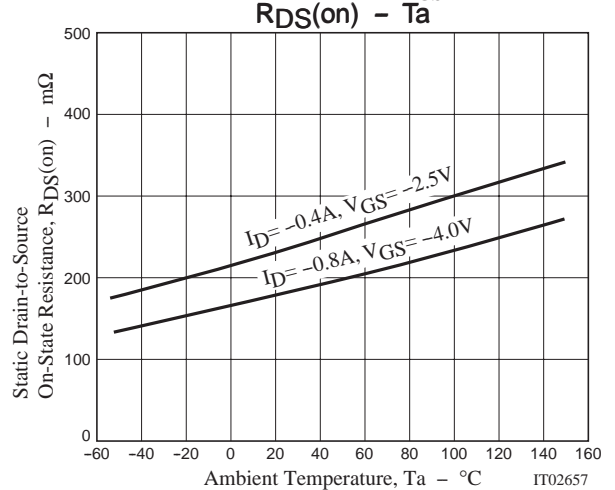
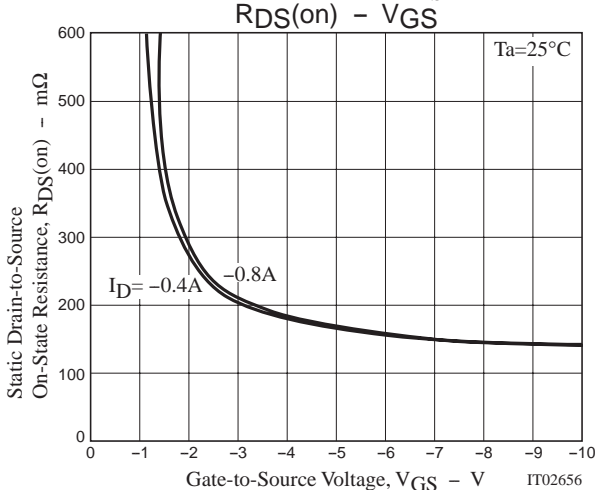
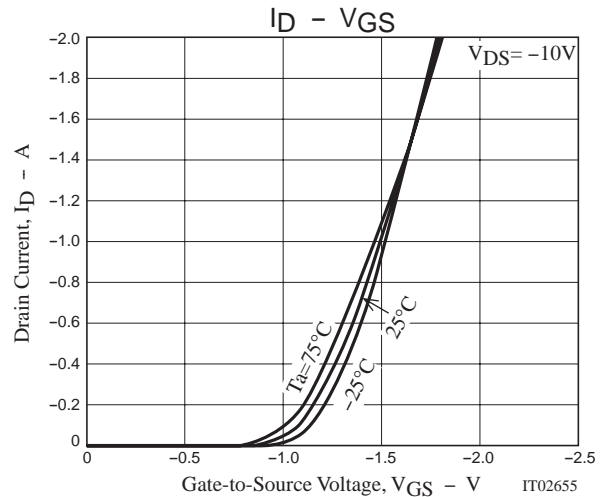
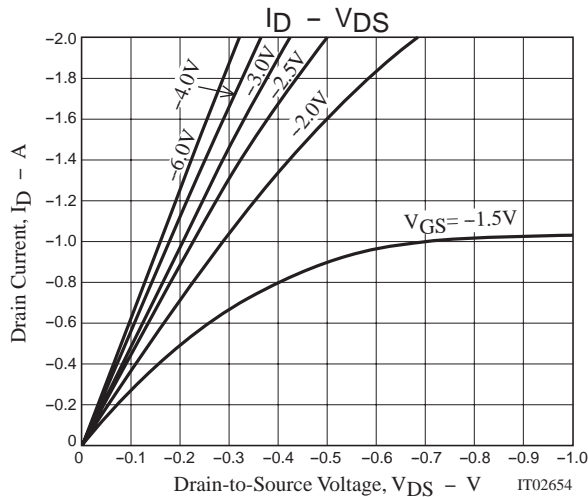
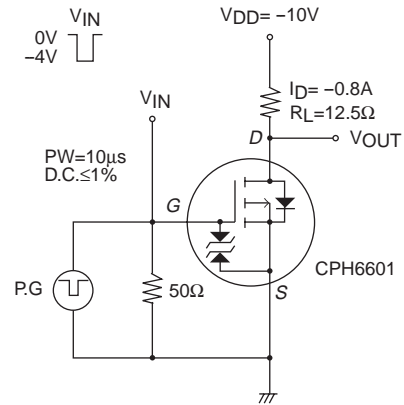
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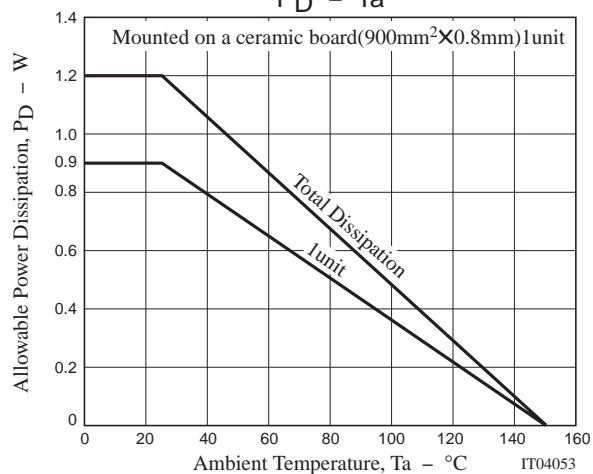
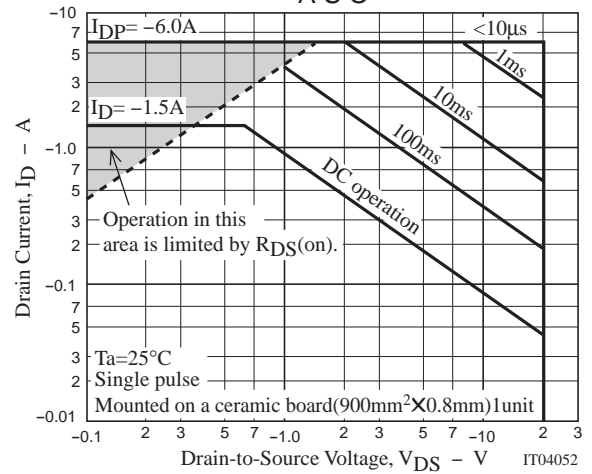
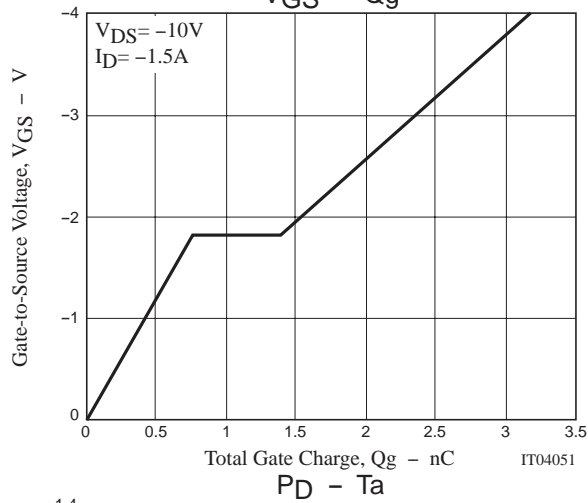
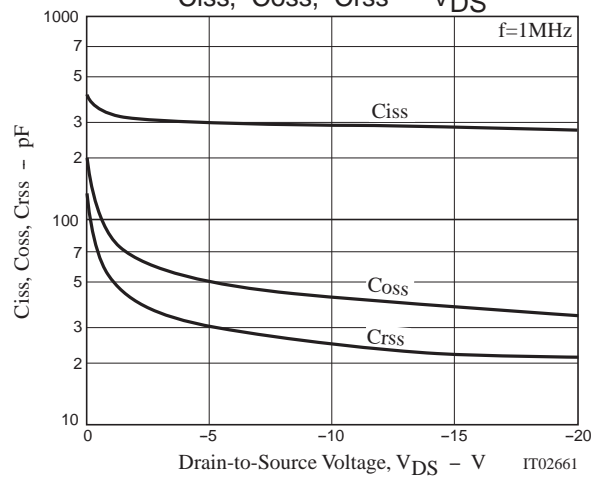
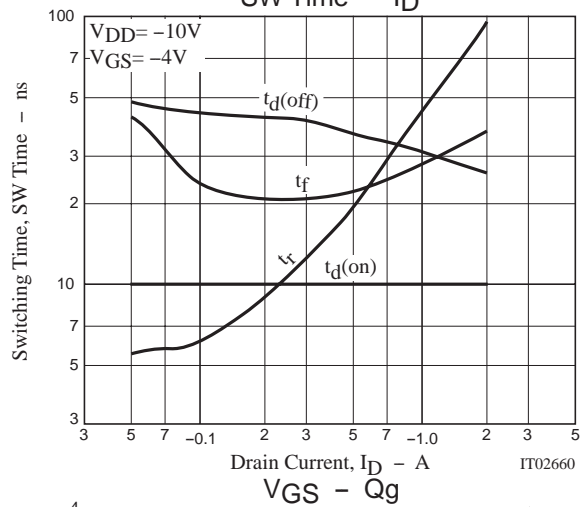
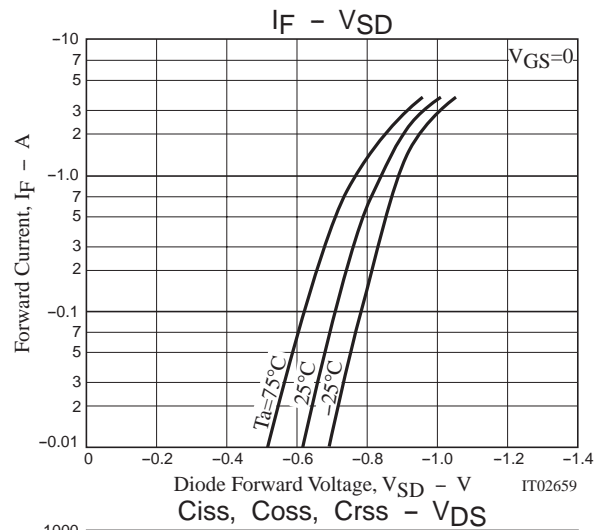
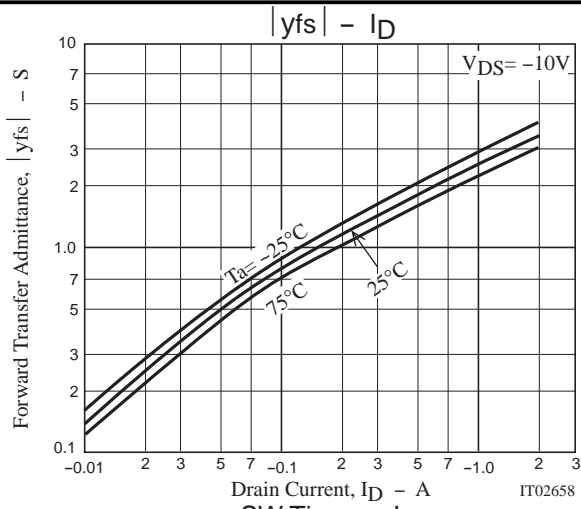
| Parameter                     | Symbol     | Conditions                           | Ratings |       |      | Unit |
|-------------------------------|------------|--------------------------------------|---------|-------|------|------|
|                               |            |                                      | min     | typ   | max  |      |
| Input Capacitance             | Ciss       | $V_{DS}=-10V, f=1MHz$                |         | 290   |      | pF   |
| Output Capacitance            | Coss       | $V_{DS}=-10V, f=1MHz$                |         | 40    |      | pF   |
| Reverse Transfer Capacitance  | Crss       | $V_{DS}=-10V, f=1MHz$                |         | 25    |      | pF   |
| Turn-ON Delay Time            | $t_d(on)$  | See specified Test Circuit.          |         | 10    |      | ns   |
| Rise Time                     | $t_r$      | See specified Test Circuit.          |         | 35    |      | ns   |
| Turn-OFF Delay Time           | $t_d(off)$ | See specified Test Circuit.          |         | 32    |      | ns   |
| Fall Time                     | $t_f$      | See specified Test Circuit.          |         | 27    |      | ns   |
| Total Gate Charge             | Qg         | $V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$ |         | 3.2   |      | nC   |
| Gate-to-Source Charge         | Qgs        | $V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$ |         | 0.8   |      | nC   |
| Gate-to-Drain "Miller" Charge | Qgd        | $V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$ |         | 0.6   |      | nC   |
| Diode Forward Voltage         | $V_{SD}$   | $I_S=-1.5A, V_{GS}=0$                |         | -0.87 | -1.5 | V    |

## Electrical Connection



## Switching Time Test Circuit





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