



## Ultrahigh-Speed Switching Applications

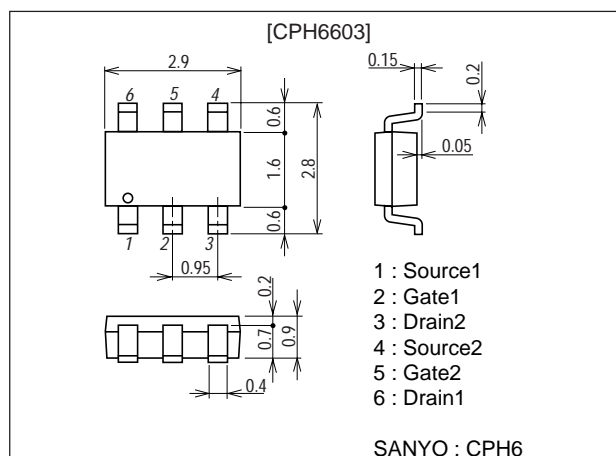
### Features

- 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	$V_{DS}$		-30	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 20$	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
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-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	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16V$ , $V_{DS} = 0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V$ , $I_D = -1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V$ , $I_D = -0.8A$	1.0	1.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -0.8A$ , $V_{GS} = -10V$		190	250	$m\Omega$
	$R_{DS(on)2}$	$I_D = -0.4A$ , $V_{GS} = -4V$		330	460	$m\Omega$

Marking : FN

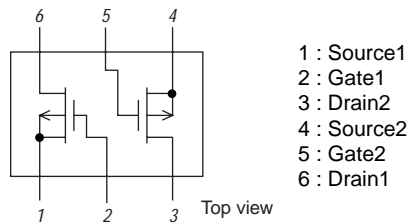
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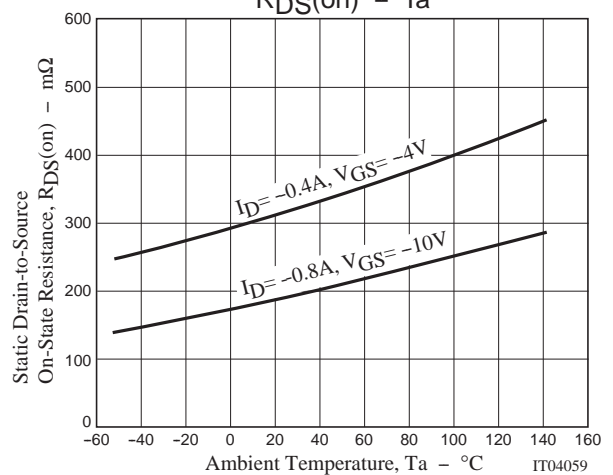
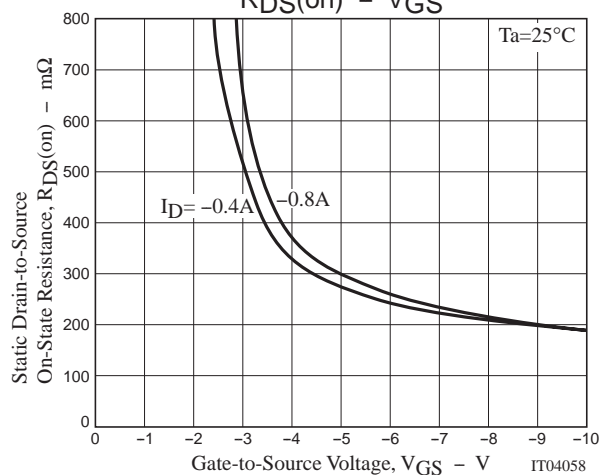
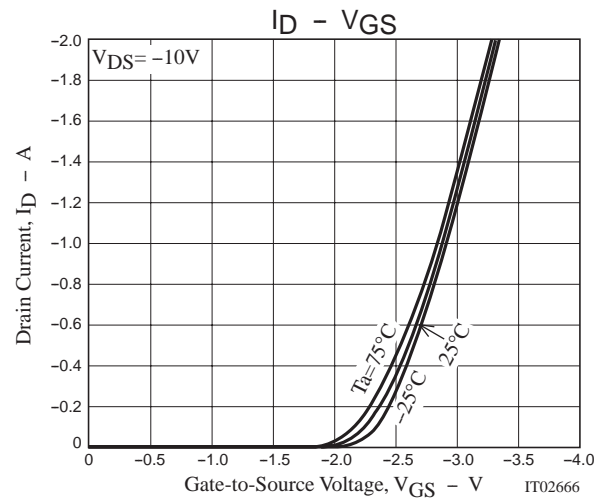
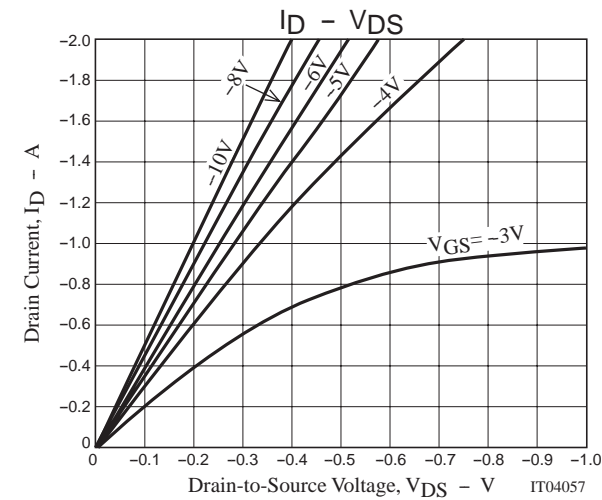
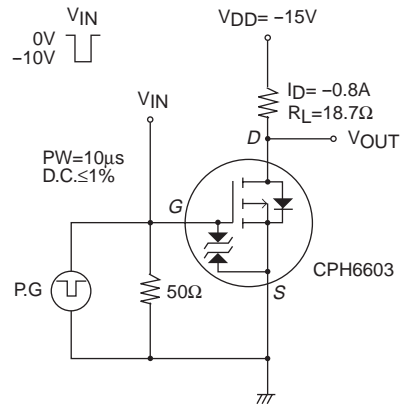
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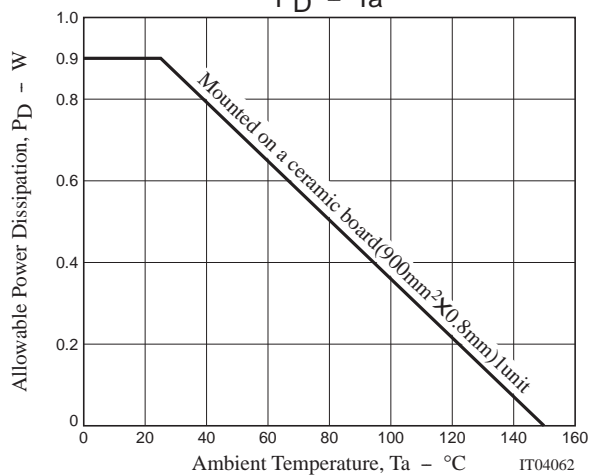
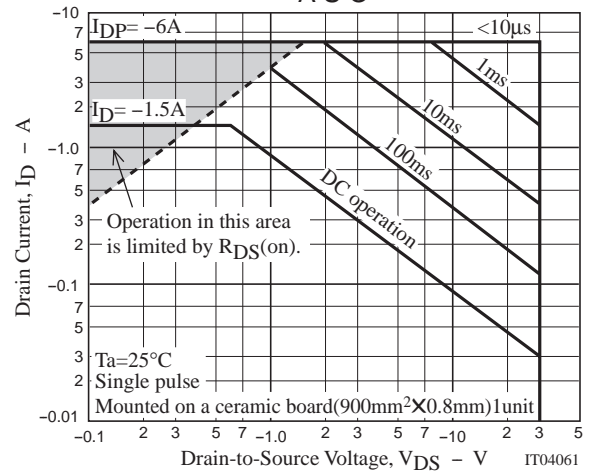
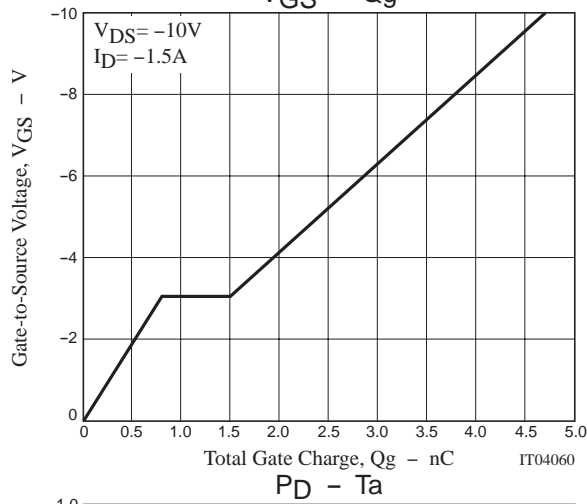
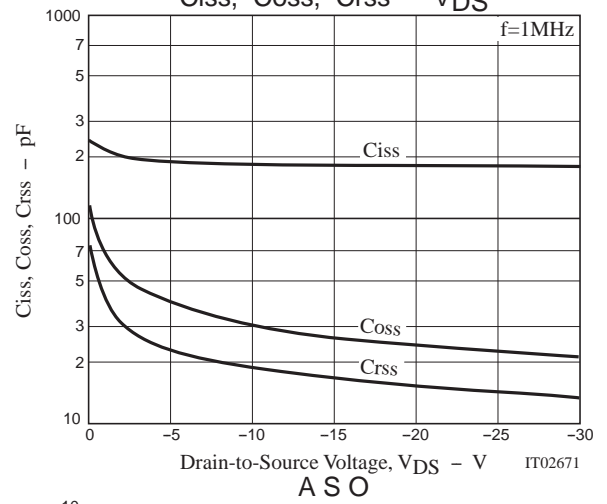
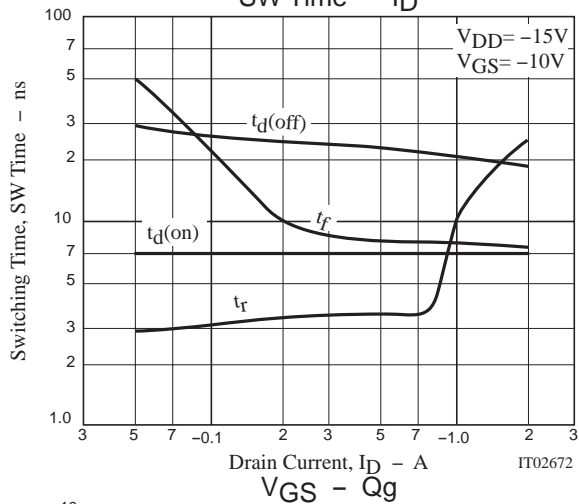
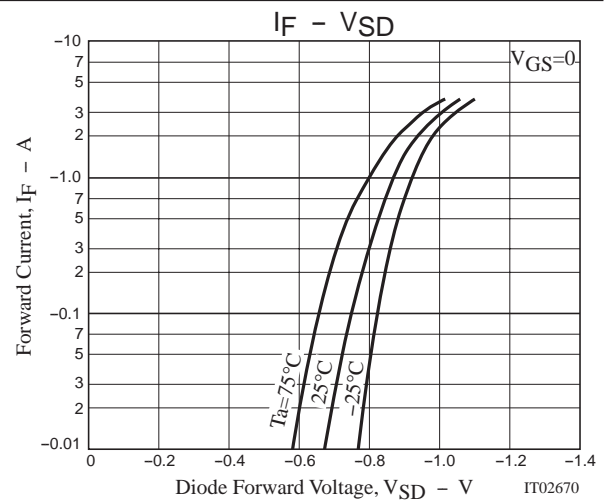
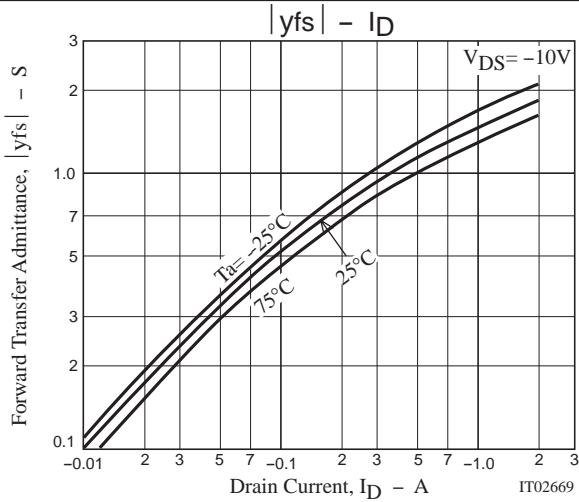
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	VDS=-10V, f=1MHz		185		pF
Output Capacitance	Coss	VDS=-10V, f=1MHz		30		pF
Reverse Transfer Capacitance	Crss	VDS=-10V, f=1MHz		20		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		7		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		4		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		22		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		8		ns
Total Gate Charge	Q <sub>g</sub>	VDS=-10V, VGS=-10V, ID=-1.5A		4.7		nC
Gate-to-Source Charge	Q <sub>gs</sub>	VDS=-10V, VGS=-10V, ID=-1.5A		0.8		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	VDS=-10V, VGS=-10V, ID=-1.5A		0.7		nC
Diode Forward Voltage	V <sub>SD</sub>	IS=-1.5A, VGS=0		-0.88	-1.5	V

## Electrical Connection



## Switching Time Test Circuit





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