



# CPH6402

## Ultrahigh-Speed Switching Applications

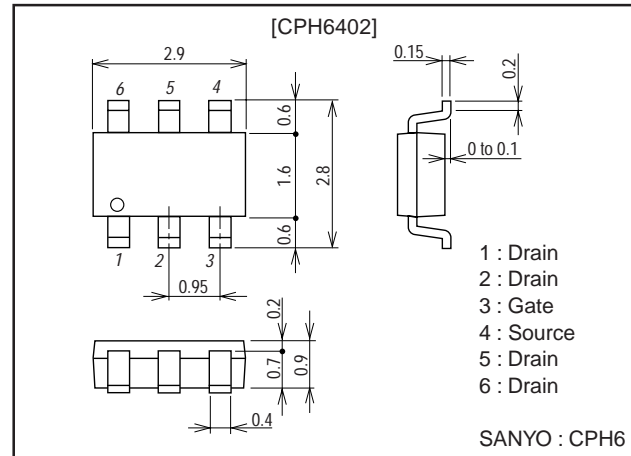
### Features

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

### Package Dimensions

unit:mm

2151



### 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	$V_{GSS}$		$\pm 24$	V
Drain Current (DC)	$I_D$		4	A
Drain Current (pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	16	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm $\times$ 0.8mm)	1.6	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	$I_{DSS}$	$V_{DS}=30V$ , $V_{GS}=0$			10	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V$ , $V_{DS}=0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V$ , $I_D=1mA$	1.0		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V$ , $I_D=2A$	3.0	4.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=2A$ , $V_{GS}=10V$		55	75	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A$ , $V_{GS}=4V$		110	155	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10V$ , $f=1MHz$		240		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V$ , $f=1MHz$		160		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V$ , $f=1MHz$		70		pF

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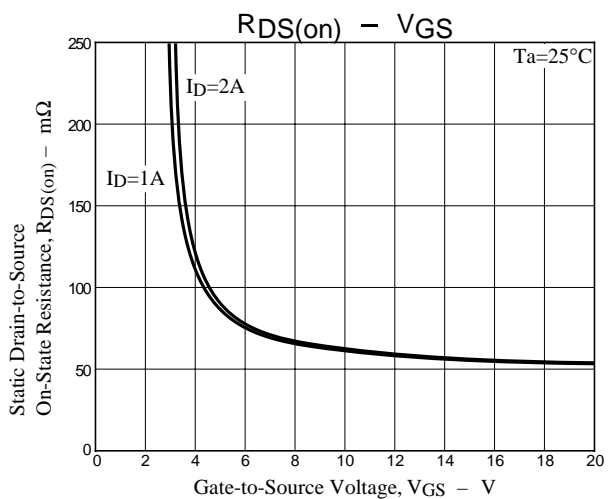
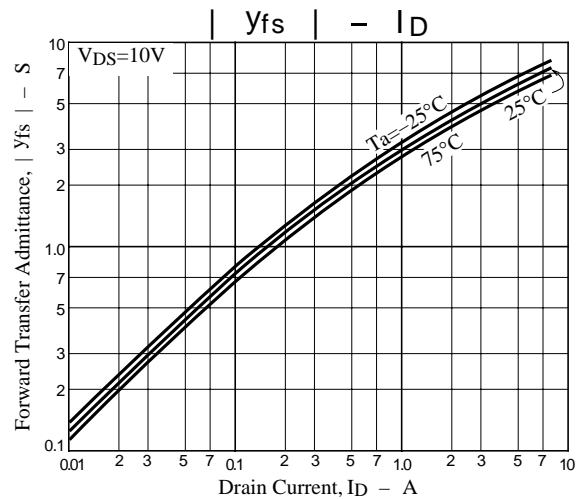
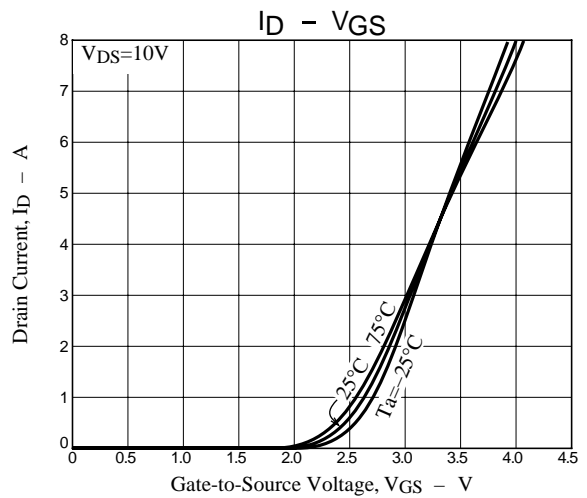
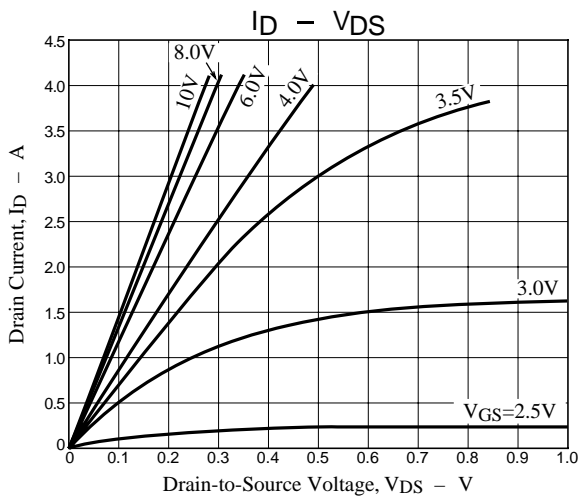
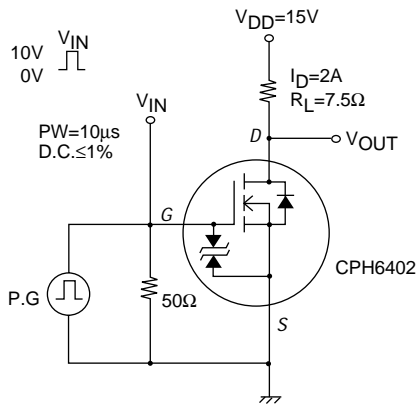
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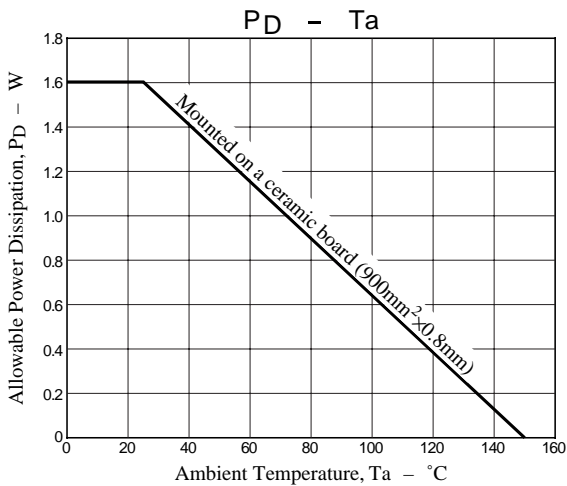
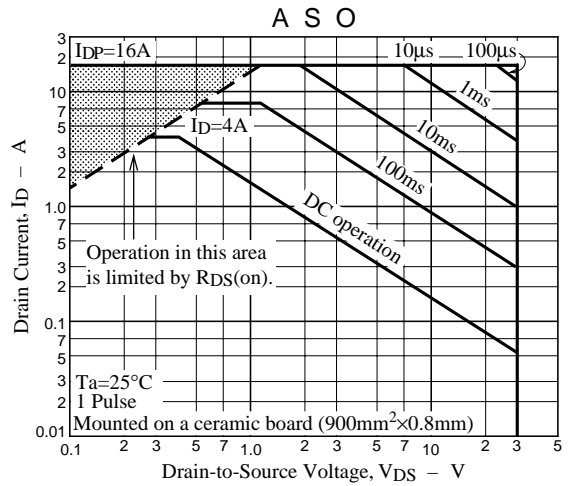
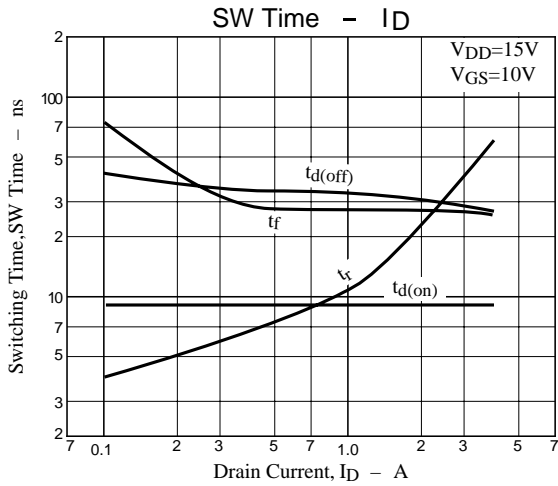
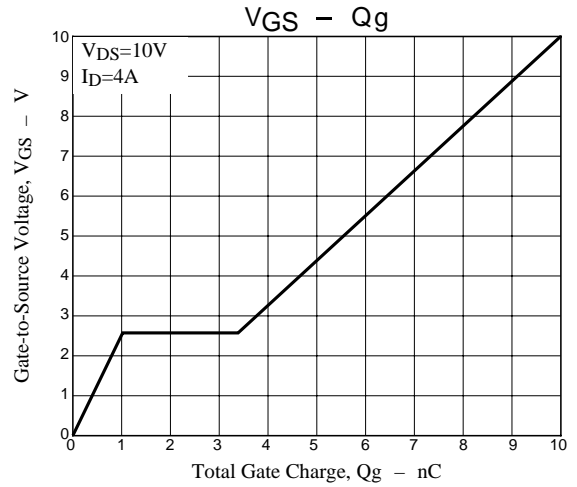
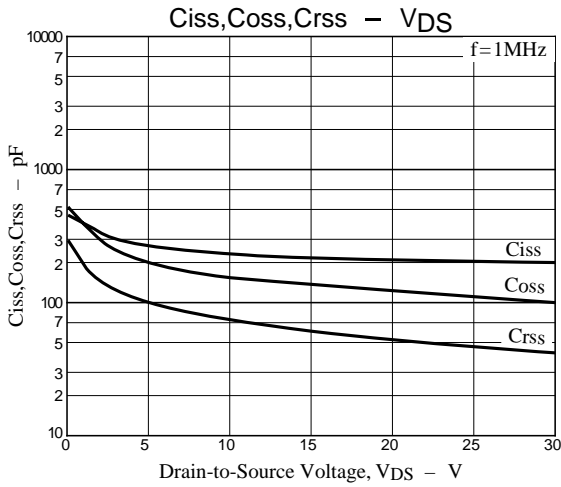
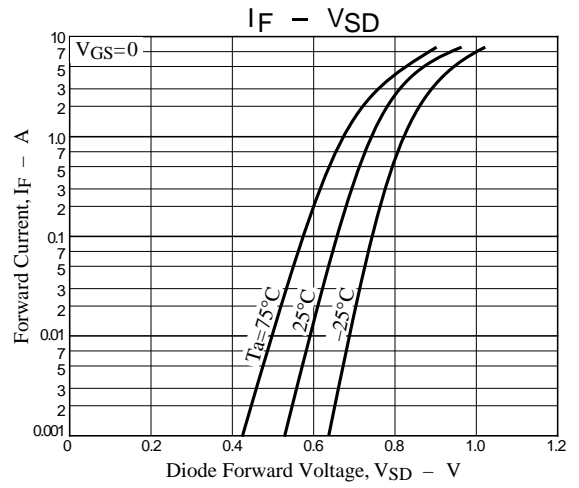
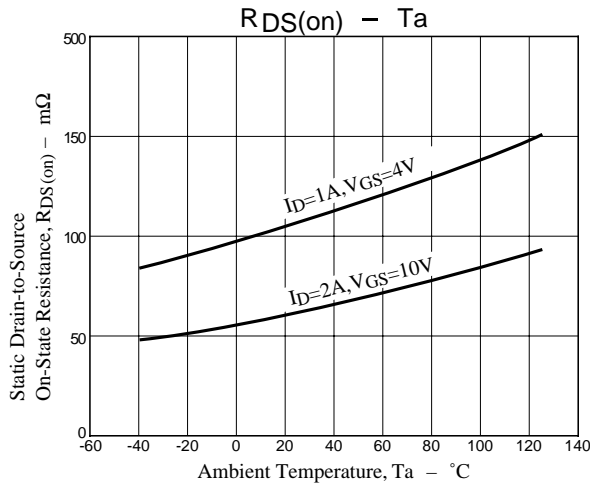
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		9		ns
Rise Time	$t_r$	See specified Test Circuit		25		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		30		ns
Fall Time	$t_f$	See specified Test Circuit		28		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=10V, I_D=4A$		10		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=10V, I_D=4A$		1		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=10V, I_D=4A$		2.4		nC
Diode Forward Voltage	$V_{SD}$	$I_S=4A, V_{GS}=0$		0.85	1.2	V

## Switching Time Test Circuit





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