



CPH6402

Ultrahigh-Speed Switching Applications

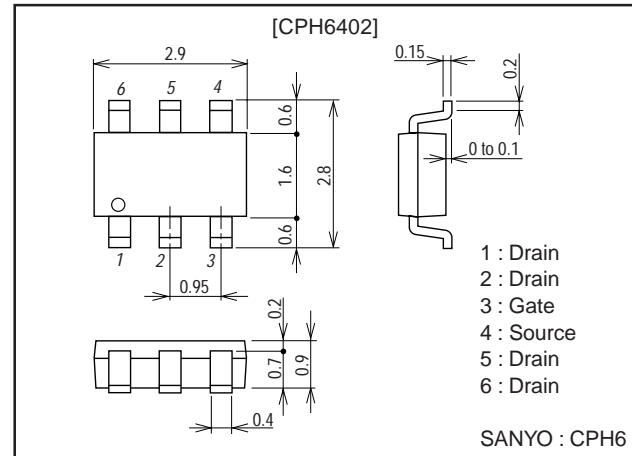
Features

- 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}		± 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	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V$, $V_{DS}=0$			± 10	μA
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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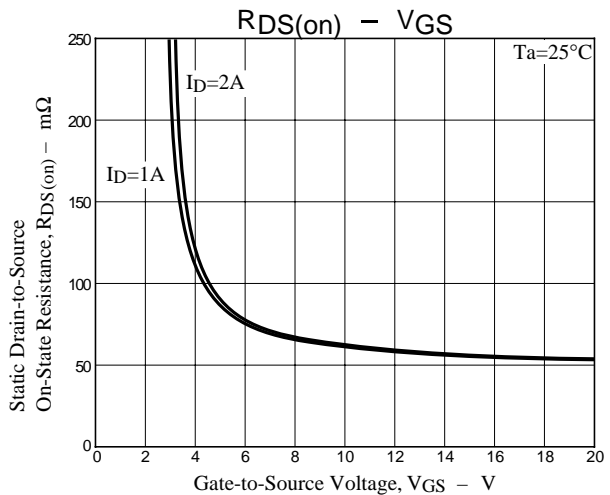
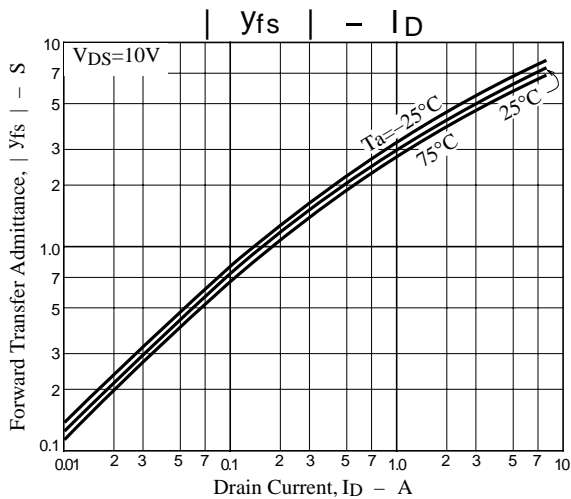
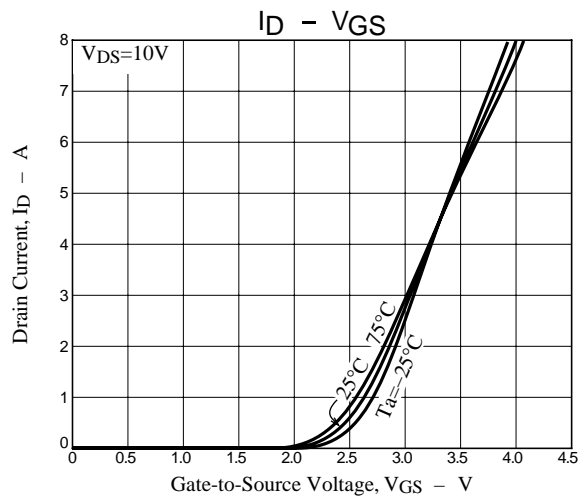
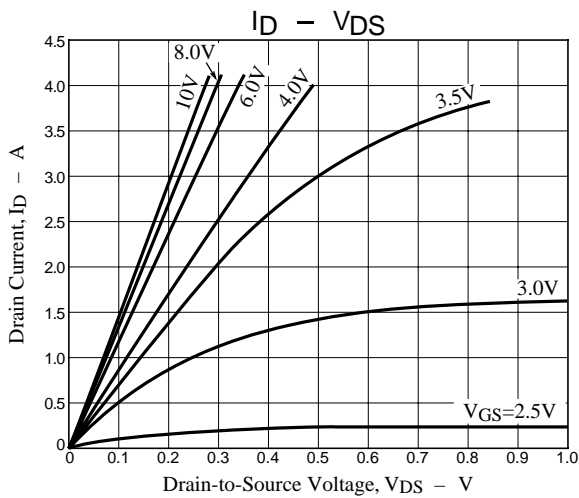
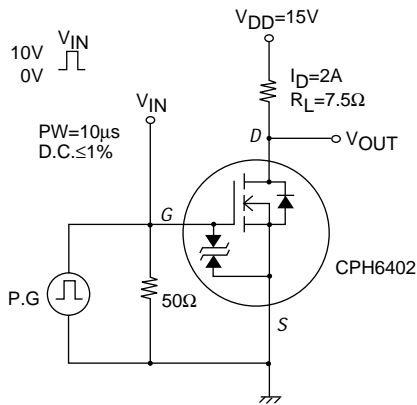
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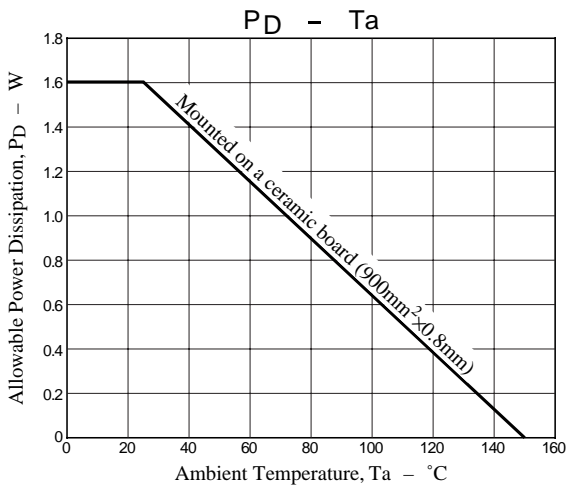
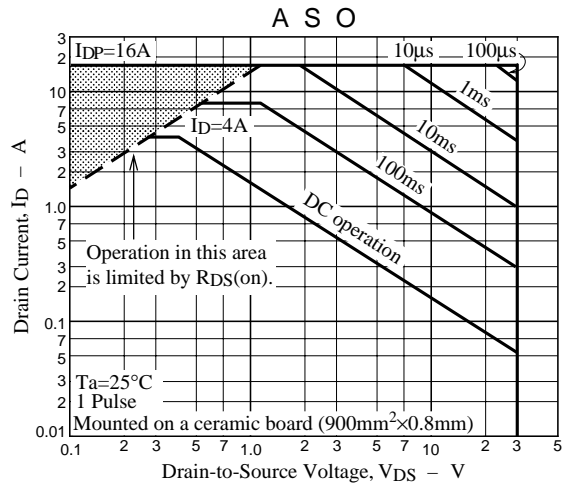
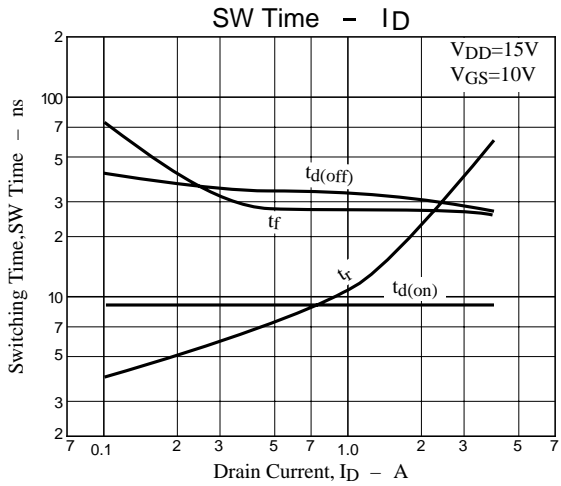
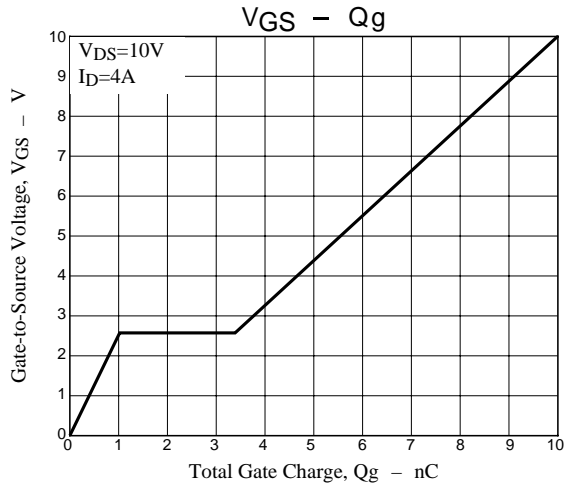
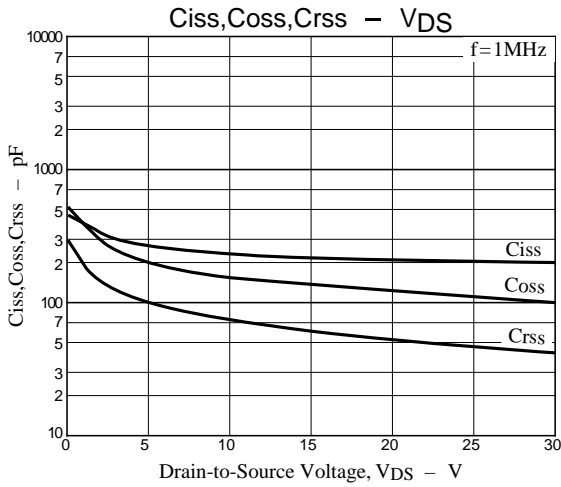
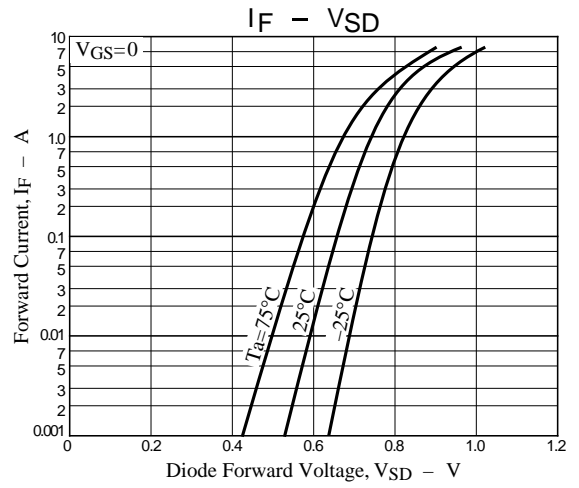
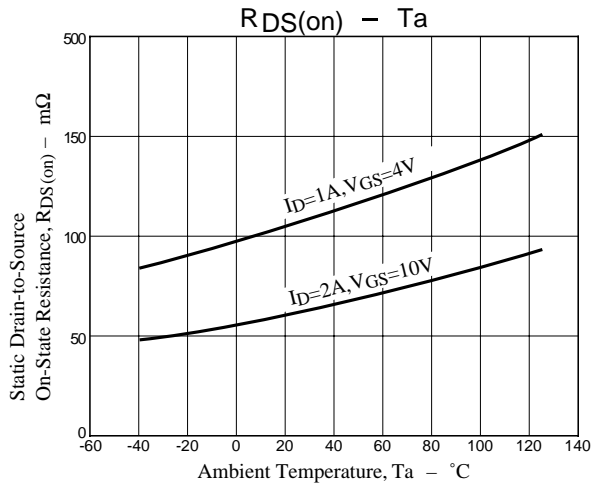
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		9		ns
Rise Time	t_r	See specified Test Circuit		25		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		30		ns
Fall Time	t_f	See specified Test Circuit		28		ns
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=10V, I_D=4A$		10		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V, V_{GS}=10V, I_D=4A$		1		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V, V_{GS}=10V, I_D=4A$		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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