



ON Semiconductor®

# ON Semiconductor DATA SHEET

## CPH6311 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

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

### Specifications

Absolute Maximum Ratings at  $T_a=25^{\circ}\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		-20	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-20	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board ( $900\text{mm}^2 \times 0.8\text{mm}$ )	1.6	W
		Mounted on a FR4 board $PW \leq 5\text{S}$	2.0	W
Channel Temperature	$T_{ch}$		150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics at  $T_a=25^{\circ}\text{C}$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0\text{V}$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20\text{V}$ , $V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}$ , $V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$	-0.4		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$ , $I_D = -3\text{A}$	5.8	8.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -3\text{A}$ , $V_{GS} = -4.5\text{V}$		32	42	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -1\text{A}$ , $V_{GS} = -2.5\text{V}$		46	60	$\text{m}\Omega$

Marking : JM

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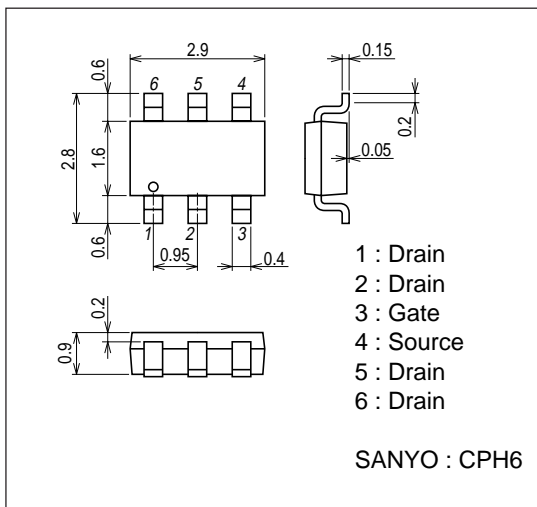
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=-10V, f=1MHz$		1230		pF
Output Capacitance	Coss	$V_{DS}=-10V, f=1MHz$		200		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=-10V, f=1MHz$		170		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		17		ns
Rise Time	$t_r$	See specified Test Circuit.		100		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		100		ns
Fall Time	$t_f$	See specified Test Circuit.		95		ns
Total Gate Charge	Qg	$V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$		31		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$		2.8		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$		4.2		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-5A, V_{GS}=0V$		-0.83	-1.5	V

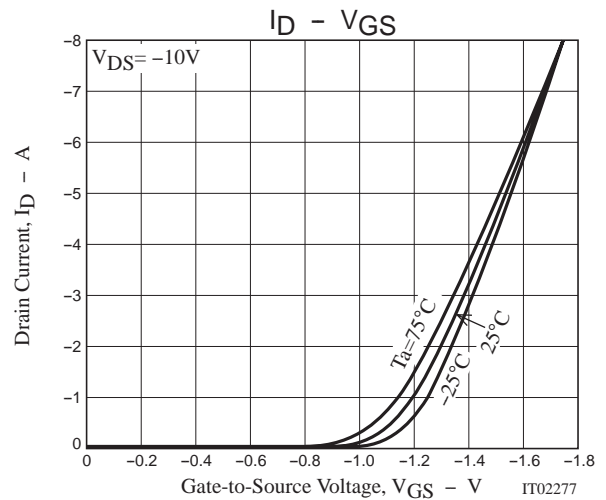
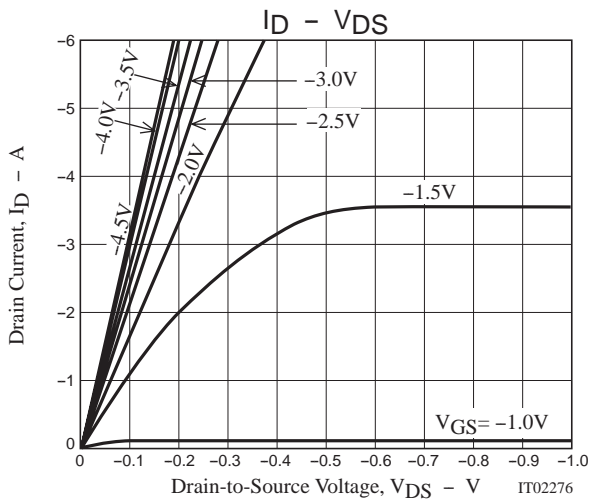
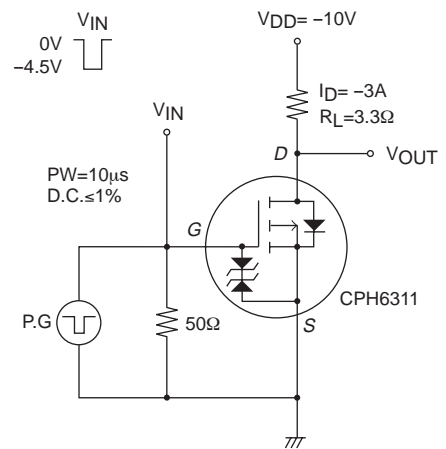
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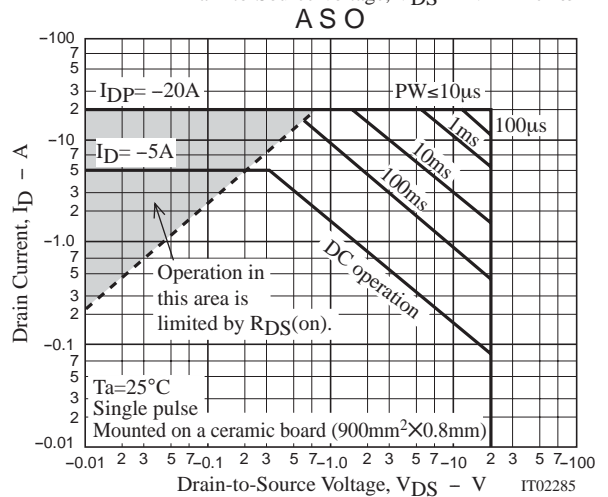
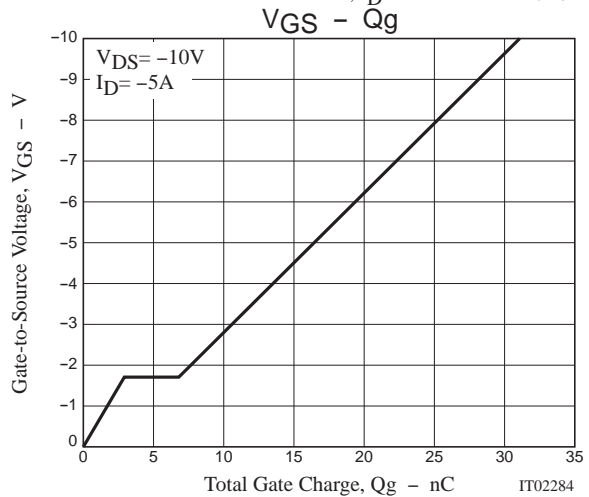
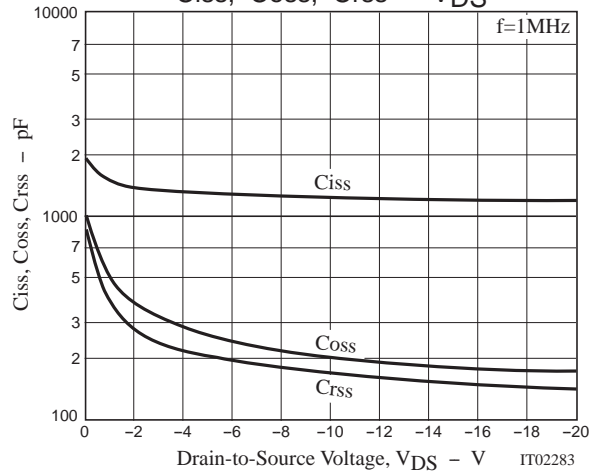
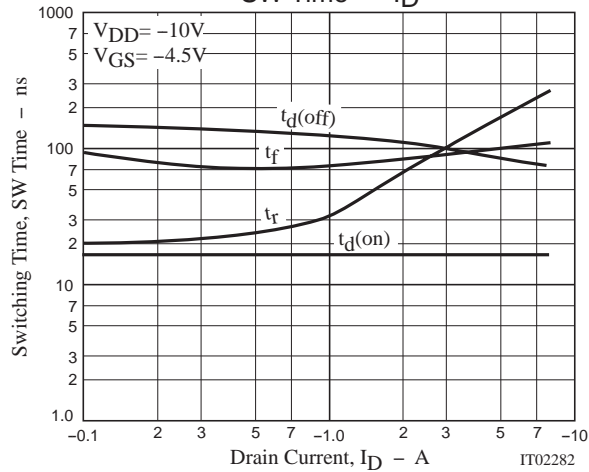
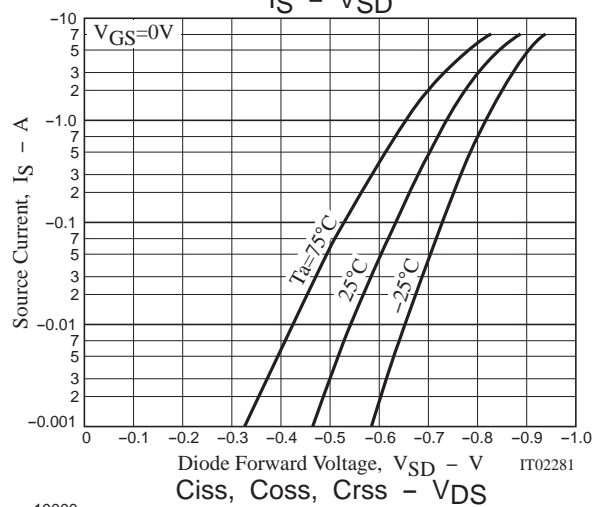
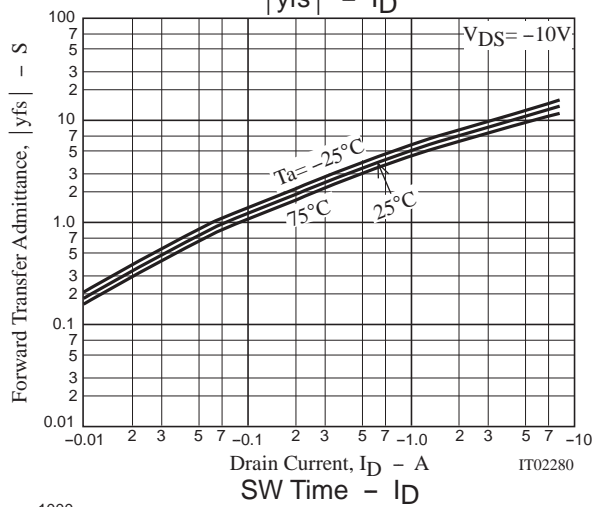
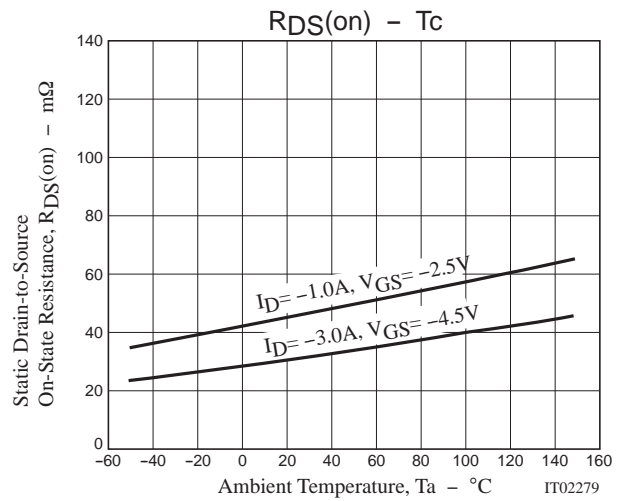
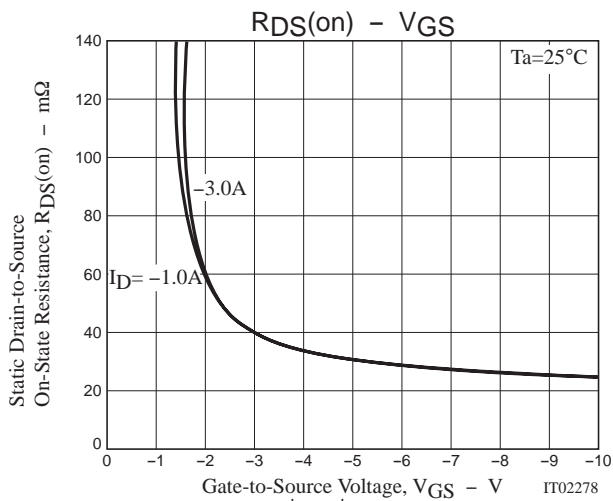
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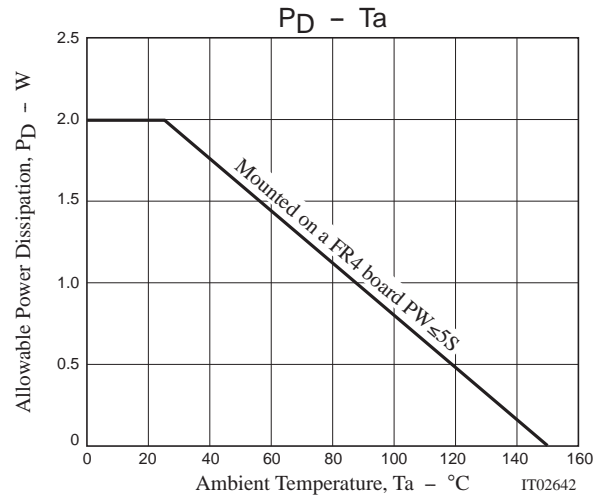
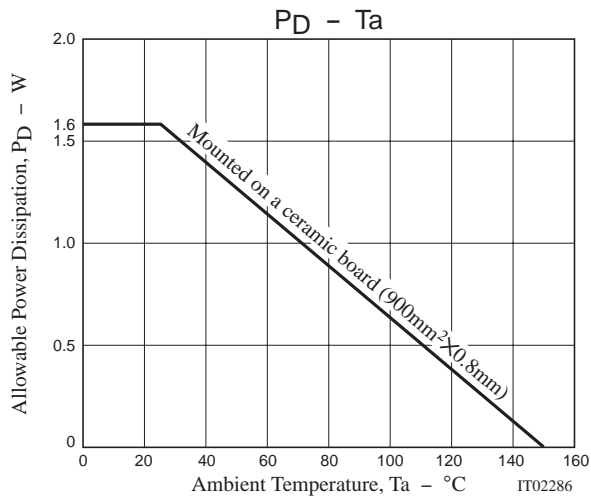
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## Switching Time Test Circuit







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