



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}		± 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	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
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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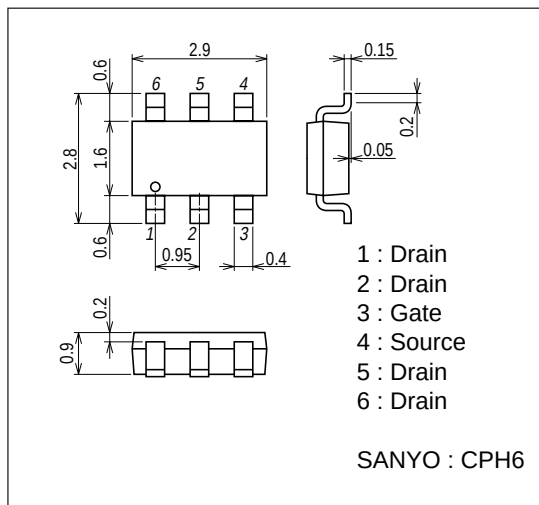
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=-10V, f=1MHz$		1230		pF
Output Capacitance	Coss	$V_{DS}=-10V, f=1MHz$		200		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=-10V, f=1MHz$		170		pF
Turn-ON Delay 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

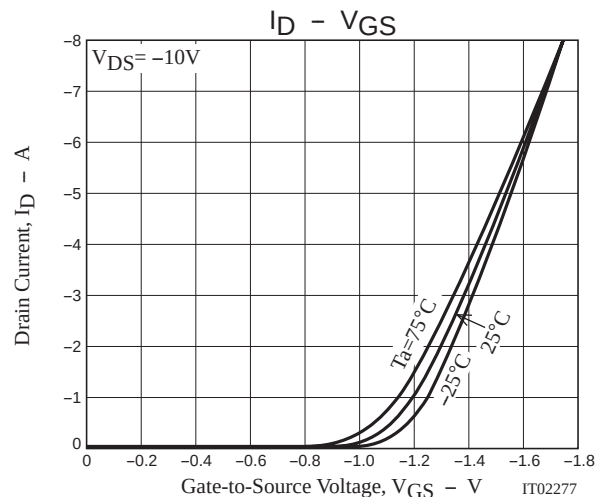
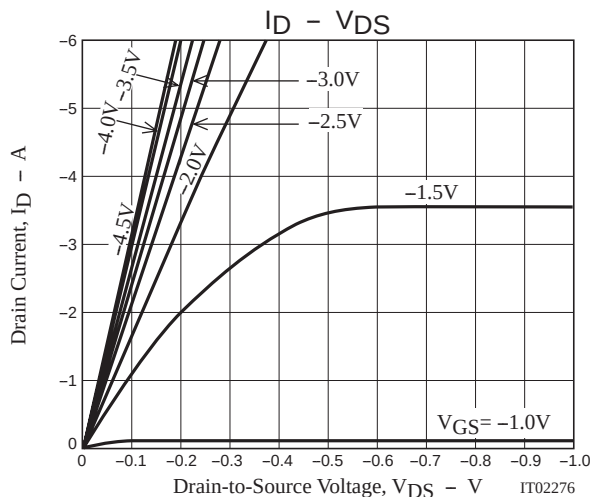
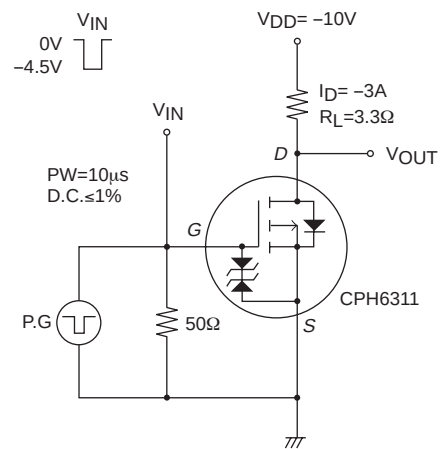
Package Dimensions

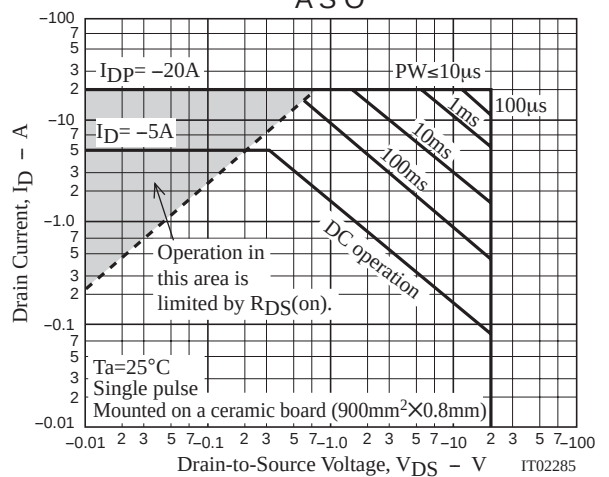
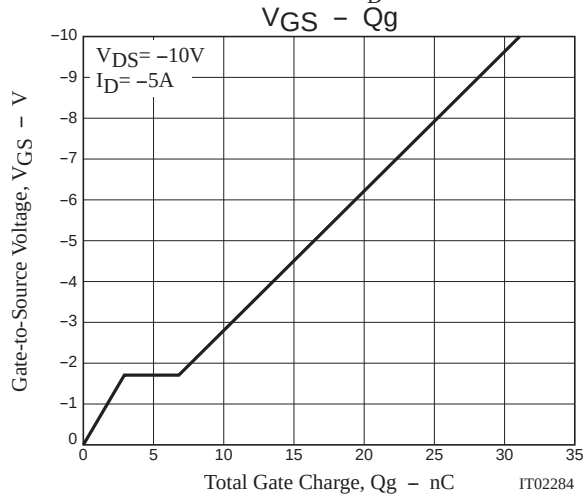
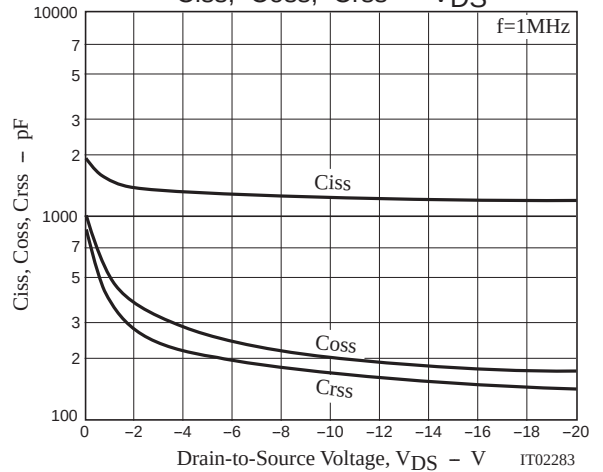
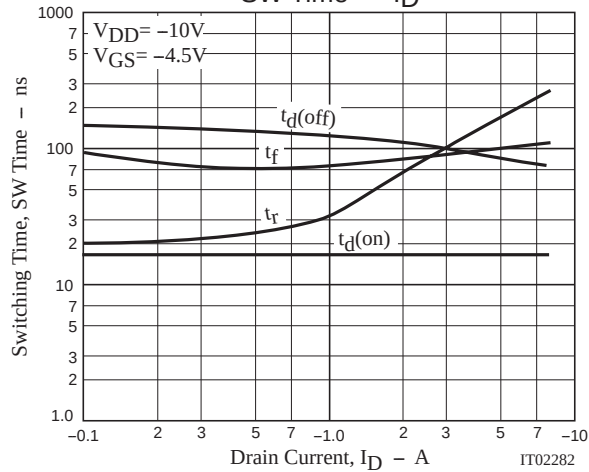
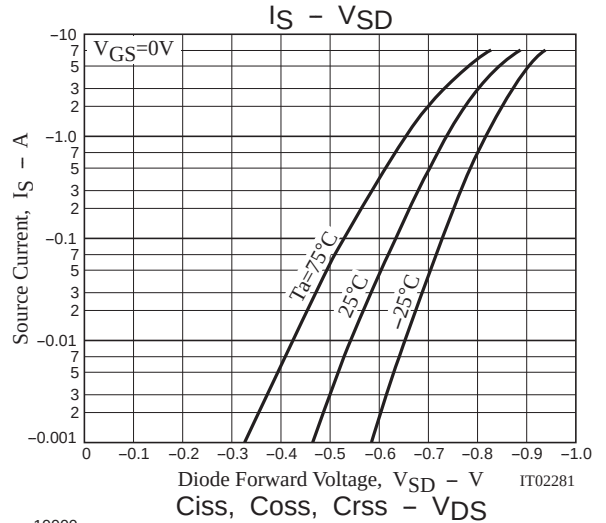
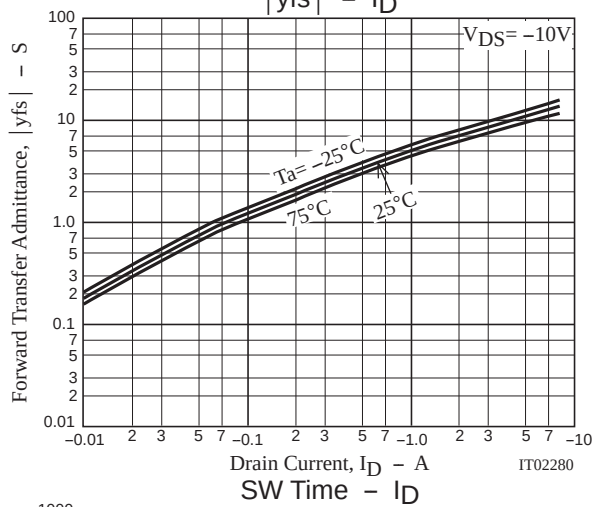
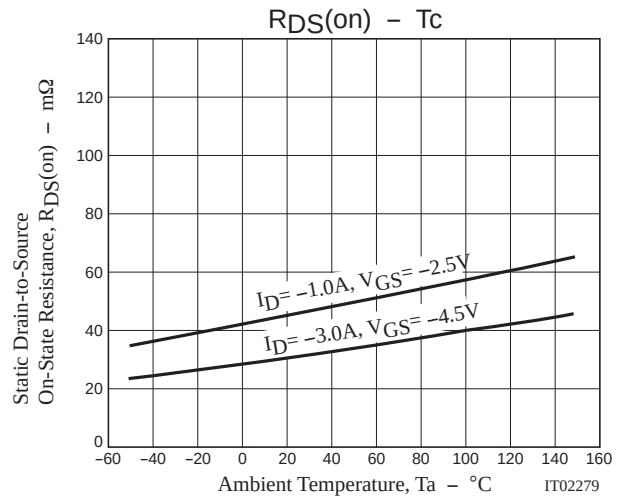
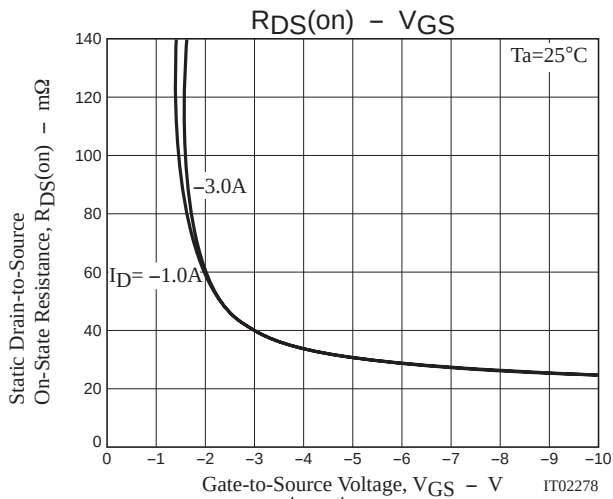
unit : mm (typ)

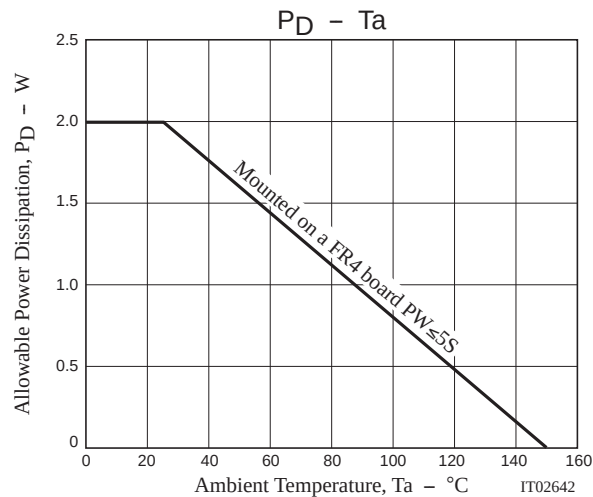
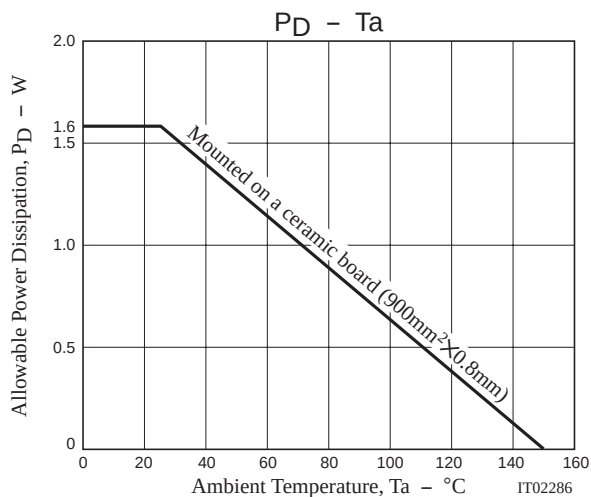
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Switching Time Test Circuit







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