



ON Semiconductor®

Ordering number : EN8161A

ON Semiconductor DATA SHEET

N-Channel Silicon MOSFET

CPH3437 — 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_{DSS}			20	V
Gate-to-Source Voltage	V_{GSS}			± 10	V
Drain Current (DC)	I_D			4.5	A
Drain Current (Pulse)	I_{DP}	$P_W \leq 10\mu\text{s}$, duty cycle $\leq 1\%$		18	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² × 0.8mm)		1.0	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	$V_{GS(\text{off})}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.4		1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=2.5\text{A}$	4	6.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})1}$	$I_D=2\text{A}$, $V_{GS}=4.5\text{V}$		28	39	$\text{m}\Omega$
	$R_{DS(\text{on})2}$	$I_D=2\text{A}$, $V_{GS}=4\text{V}$		29	40	$\text{m}\Omega$
	$R_{DS(\text{on})3}$	$I_D=1\text{A}$, $V_{GS}=2.5\text{V}$		39	55	$\text{m}\Omega$

Marking : ZM

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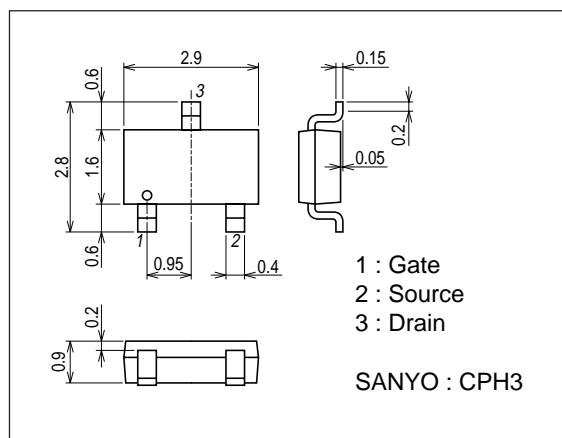
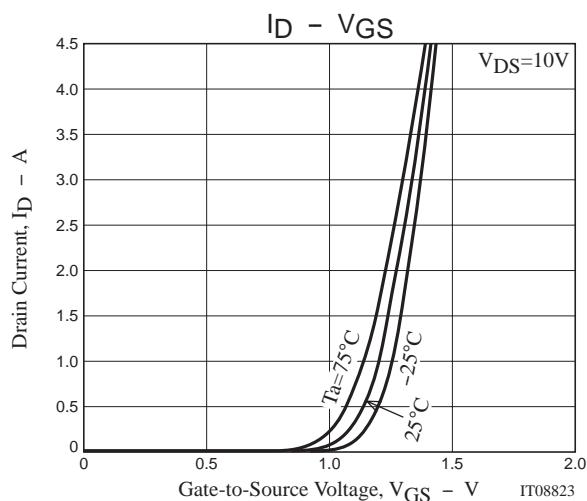
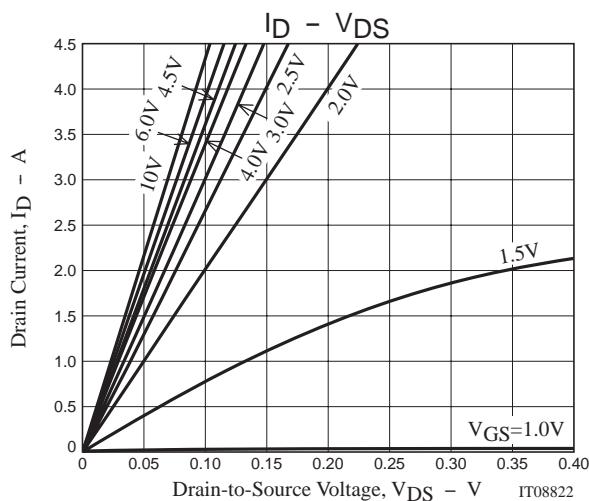
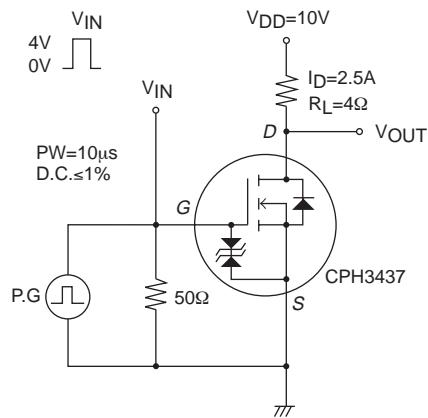
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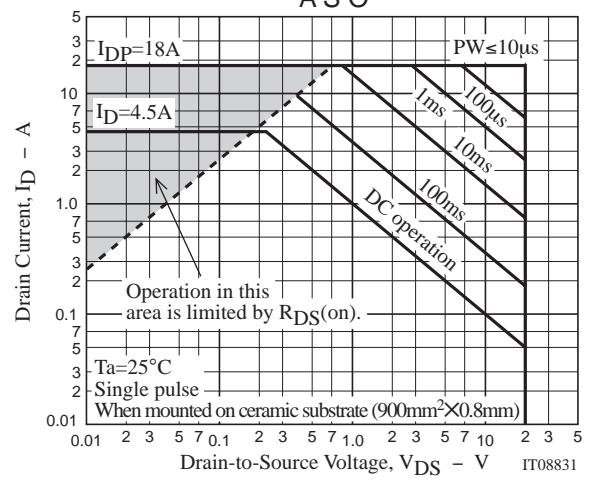
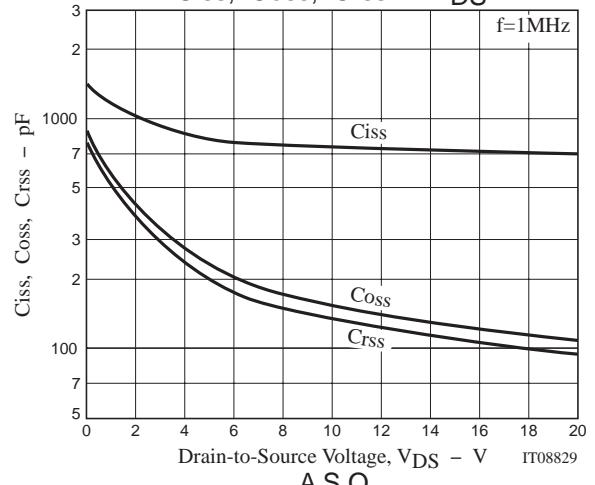
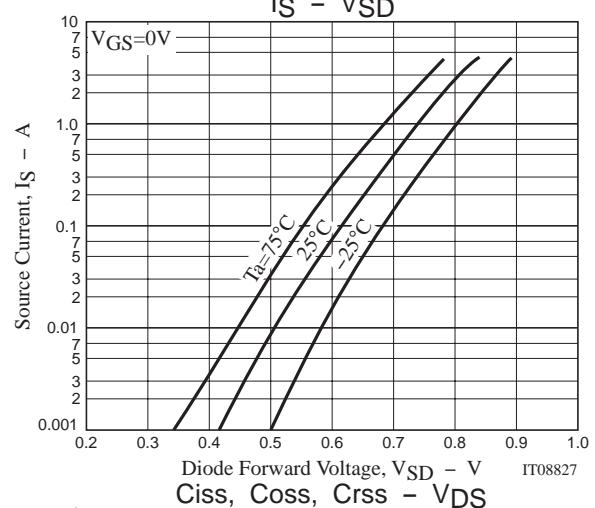
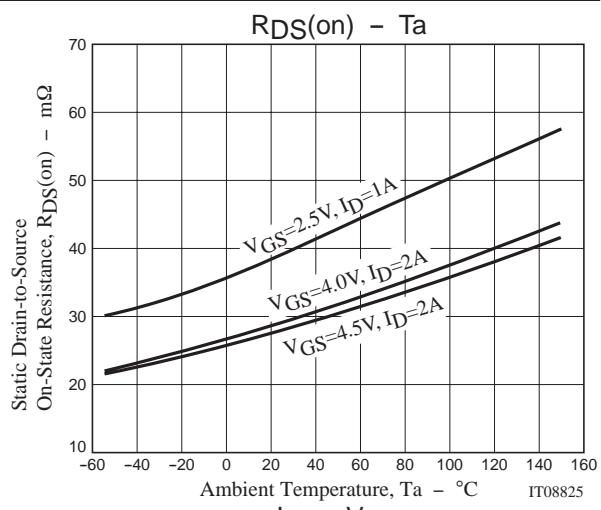
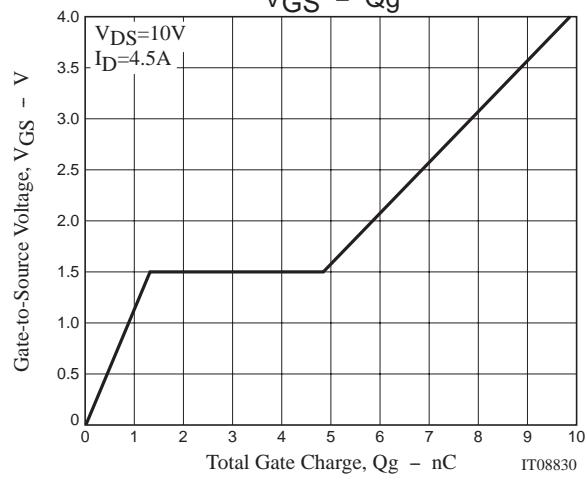
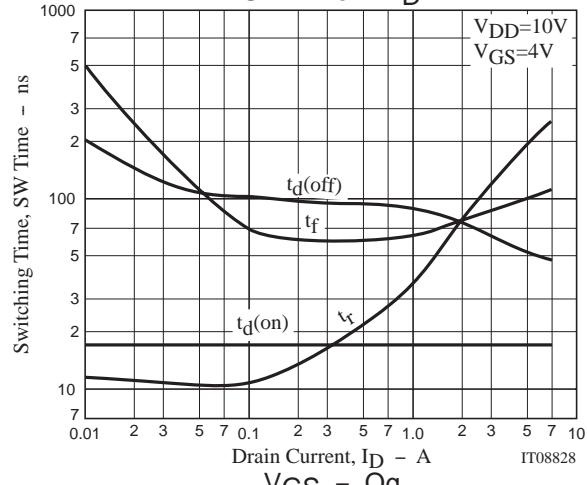
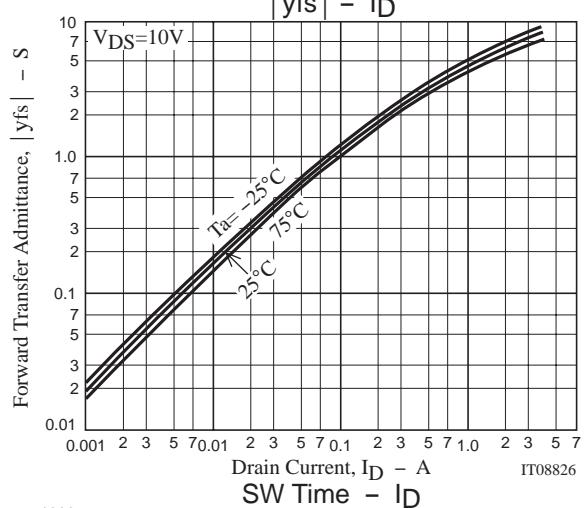
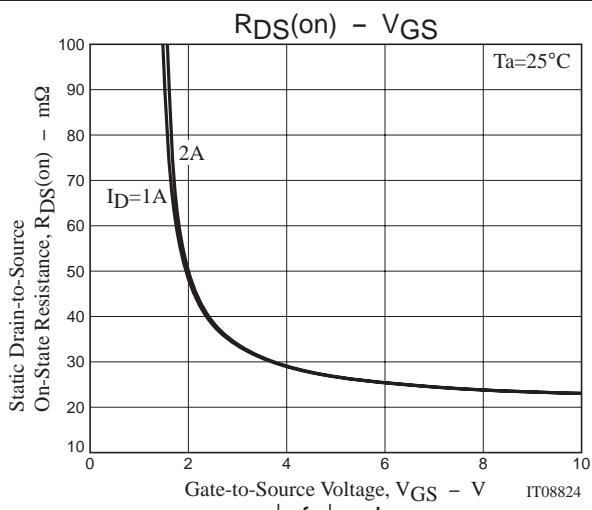
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		755		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		155		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		135		pF
Turn-ON Delay Time	$t_{q(on)}$	See specified Test Circuit.		17		ns
Rise Time	t_r	See specified Test Circuit.		100		ns
Turn-OFF Delay Time	$t_{q(off)}$	See specified Test Circuit.		68		ns
Fall Time	t_f	See specified Test Circuit.		85		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4V, I_D=4.5A$		9.9		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=4V, I_D=4.5A$		1.35		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=4V, I_D=4.5A$		3.5		nC
Diode Forward Voltage	V_{SD}	$I_S=4.5A, V_{GS}=0V$		0.84	1.2	V

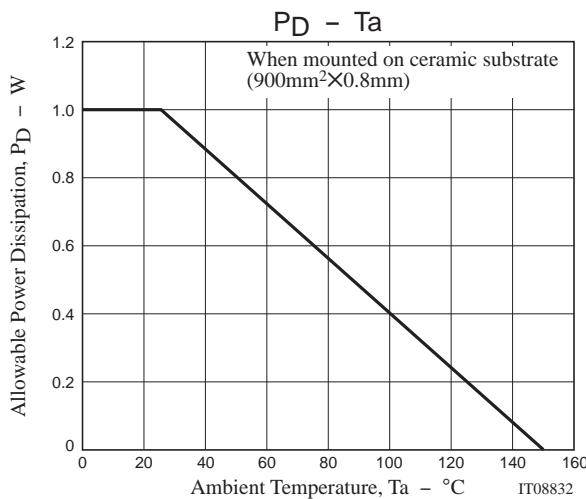
Package Dimensions

unit : mm (typ)

7015A-004

**Switching Time Test Circuit**





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