Ordering number : EN8161A

ON Semiconductor®

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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 Ta=25°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}	PW≤10μs, duty cycle≤1%	18	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm²X0.8mm)	1.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−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}=0V	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	0.4		1.4	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=2.5A	4	6.8		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=2A, V_{GS}=4.5V		28	39	mΩ
	$R_{DS}(on)2$	I_D=2A, V_{GS}=4V		29	40	mΩ
	$R_{DS}(on)3$	I_D=1A, V_{GS}=2.5V		39	55	mΩ

Marking : ZM

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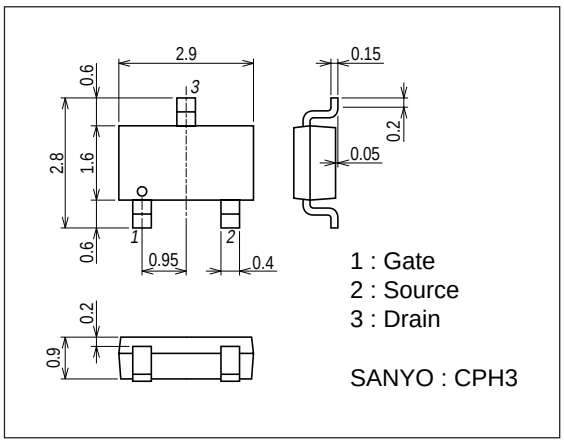
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		755		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		155		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		135		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		17		ns
Rise Time	t_{r}	See specified Test Circuit.		100		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		68		ns
Fall Time	t_{f}	See specified Test Circuit.		85		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4V, I_{D}=4.5A		9.9		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4V, I_{D}=4.5A		1.35		nC
Gate-to-Drain “Miller” Charge	Qgd	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

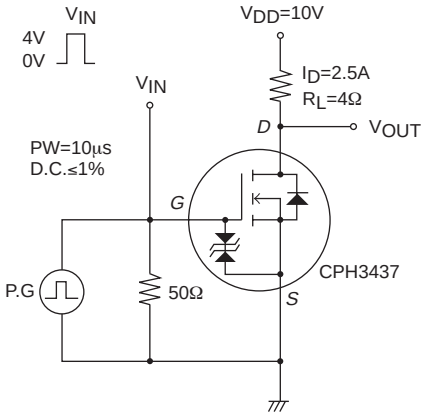
Package Dimensions

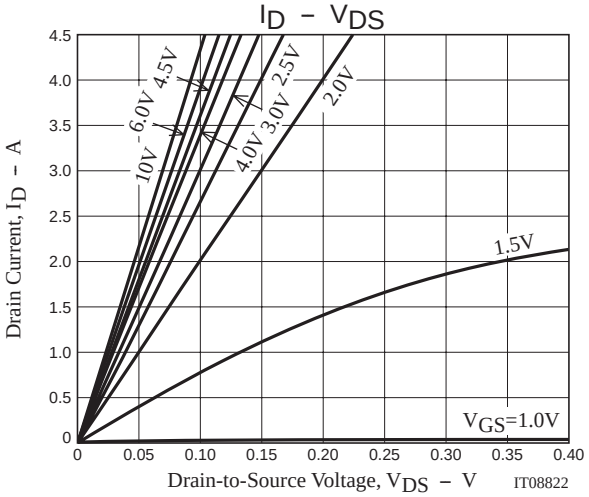
unit : mm (typ)

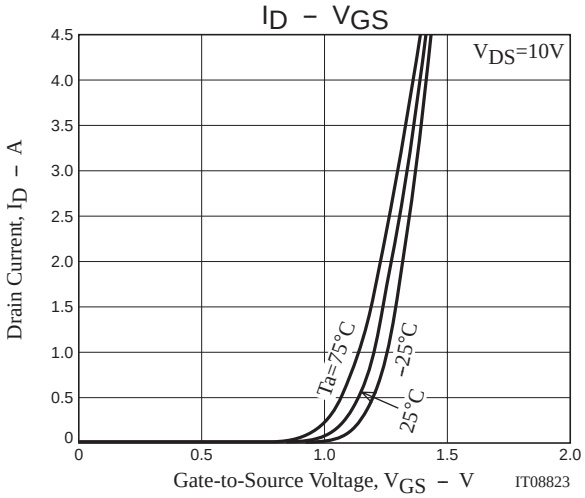
7015A-004



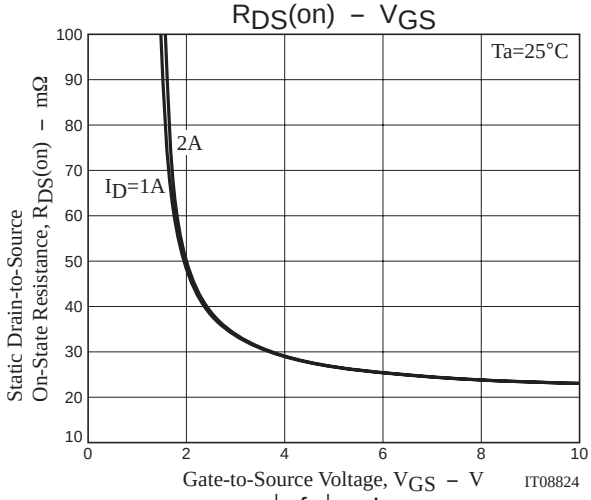
Switching Time Test Circuit



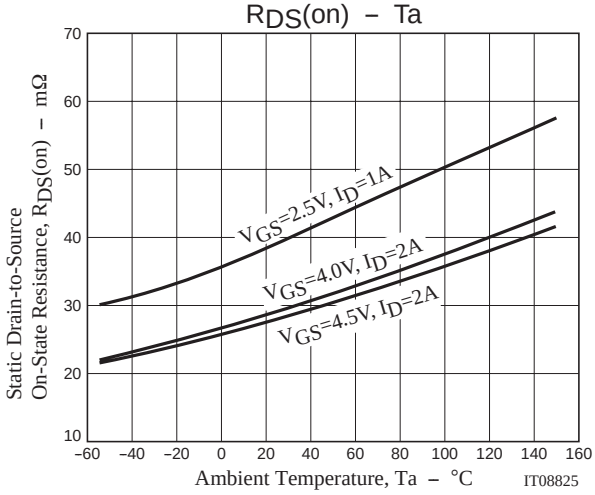




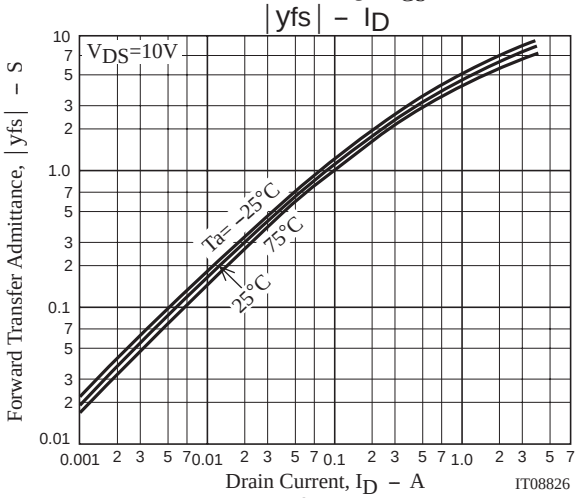
$R_{DS}(on)$ – V_{GS}



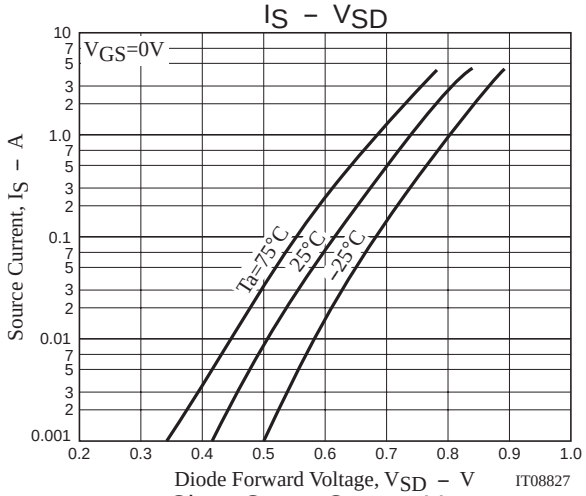
$R_{DS}(on)$ – Ta



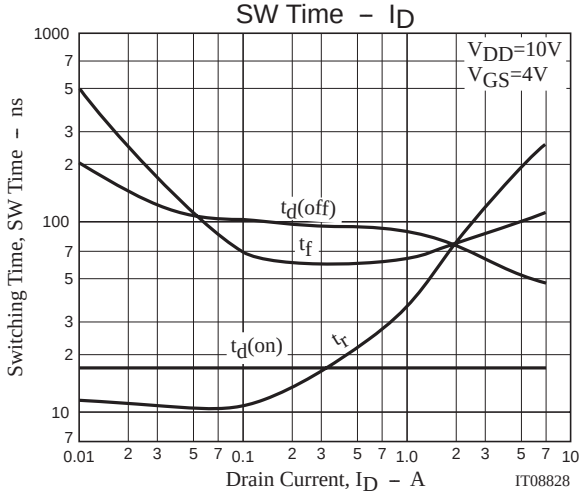
$|yfs|$ – I_D



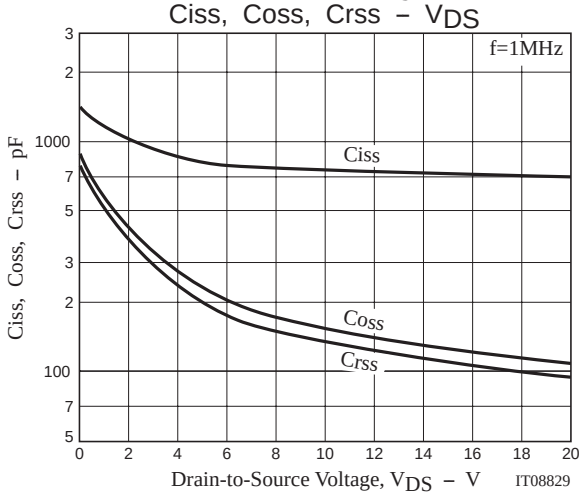
I_S – V_{SD}



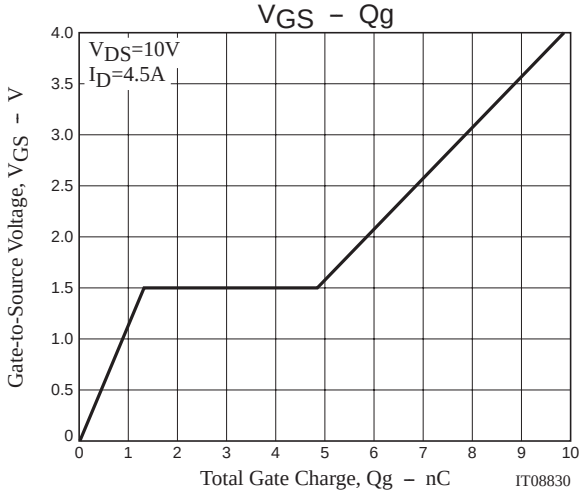
SW Time – I_D



Ciss, Coss, Crss – V_{DS}



V_{GS} – Qg



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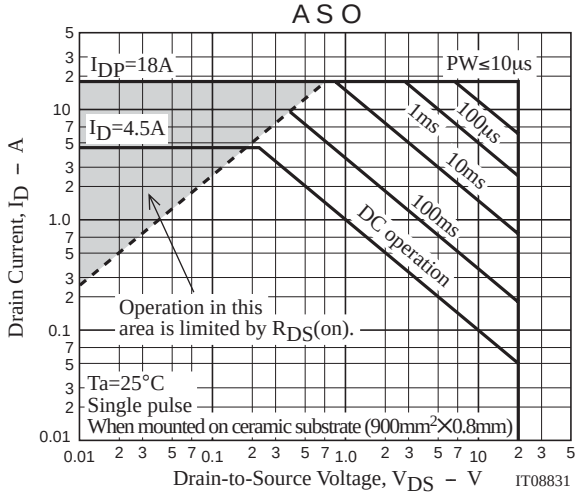

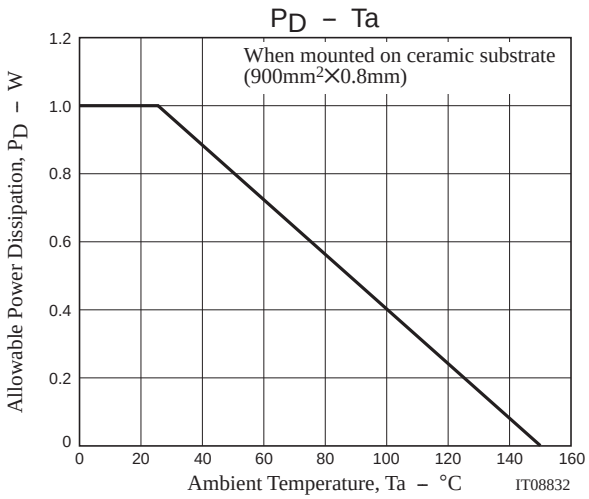

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