



ON Semiconductor®

ON Semiconductor

DATA SHEET

N-Channel Silicon MOSFET

CPH3431 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		200	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		0.6	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	2.4	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (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	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	200			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=200\text{V}$, $V_{GS}=0\text{V}$			10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=300\text{mA}$	0.6	1		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=300\text{mA}$, $V_{GS}=10\text{V}$		1.8	2.4	Ω
	$R_{DS(on)2}$	$I_D=300\text{mA}$, $V_{GS}=4\text{V}$		2.0	2.8	Ω
Input Capacitance	C_{iss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		340		pF
Output Capacitance	C_{oss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		16		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		10		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		4		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		35		ns
Fall Time	t_f	See specified Test Circuit.		27		ns

Marking : ZG

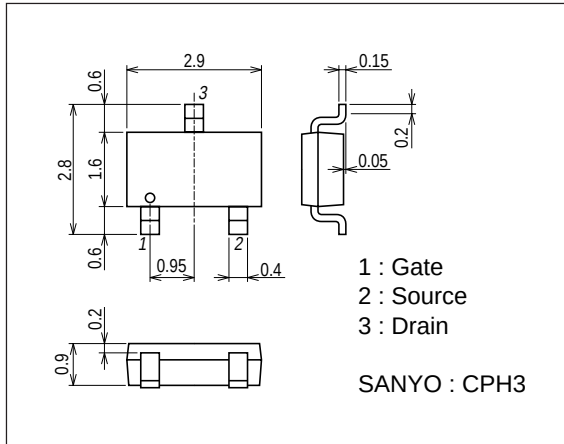
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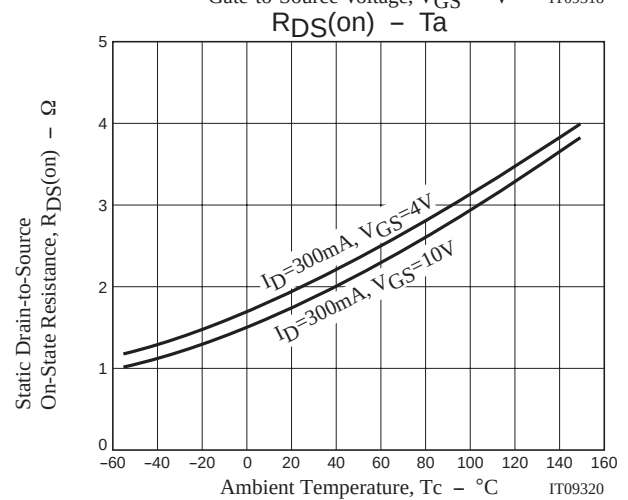
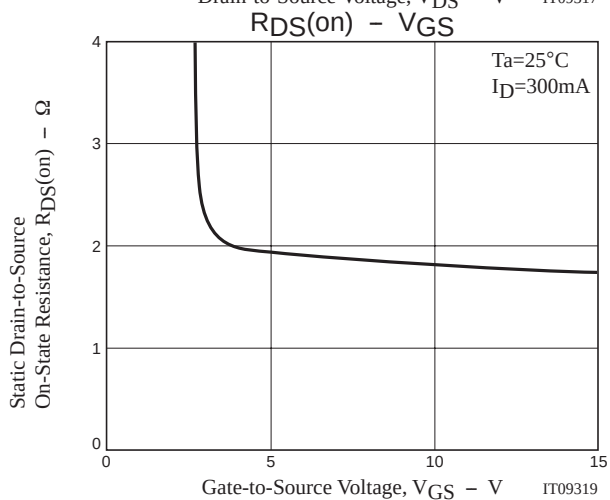
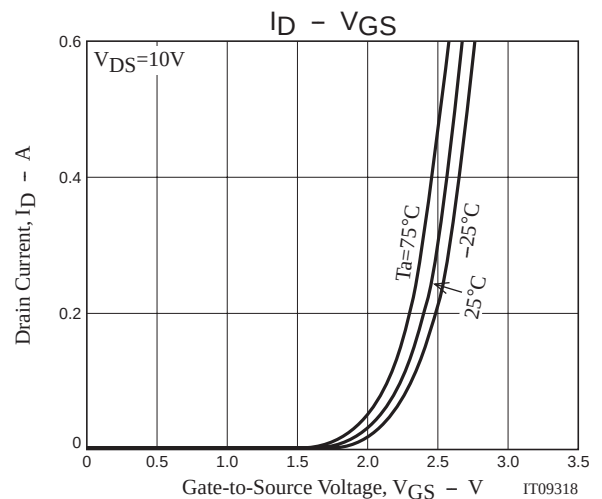
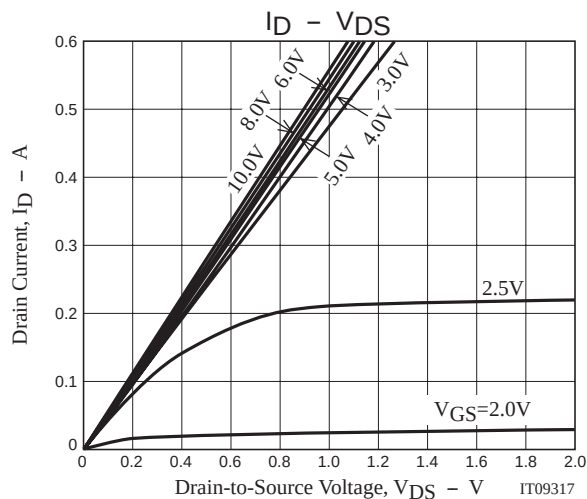
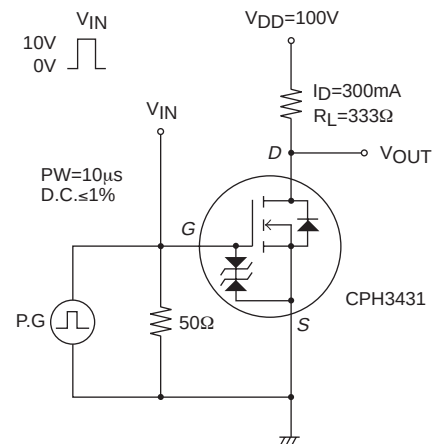
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =100V, V _{GS} =10V, I _D =600mA		7		nC
Gate-to-Source Charge	Qgs	V _{DS} =100V, V _{GS} =10V, I _D =600mA		1		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =100V, V _{GS} =10V, I _D =600mA		0.8		nC
Diode Forward Voltage	V _{SD}	I _S =600mA, V _{GS} =0V		0.79	1.2	V

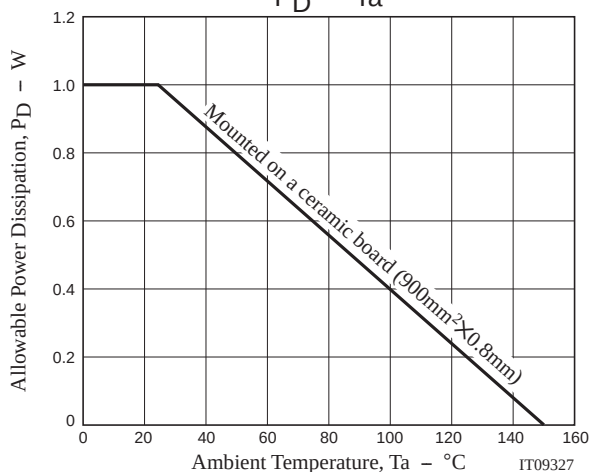
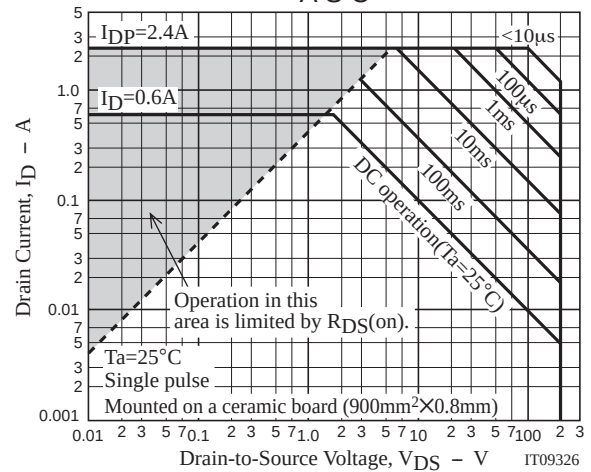
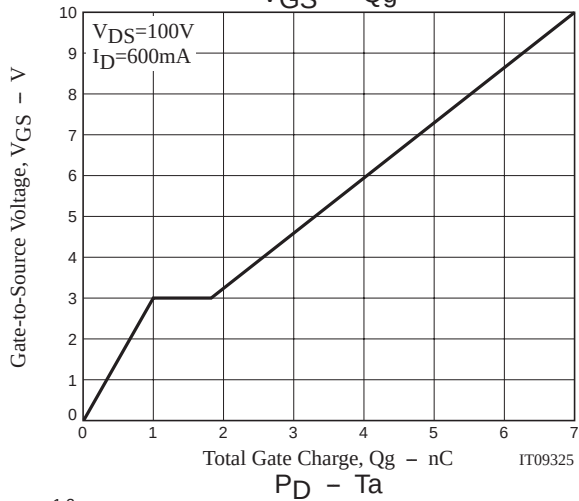
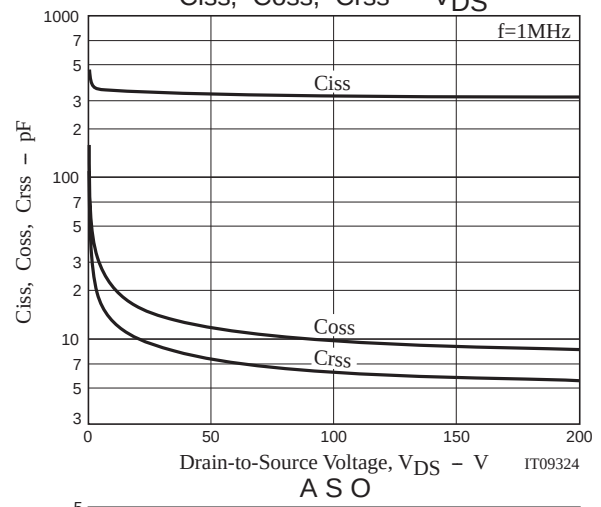
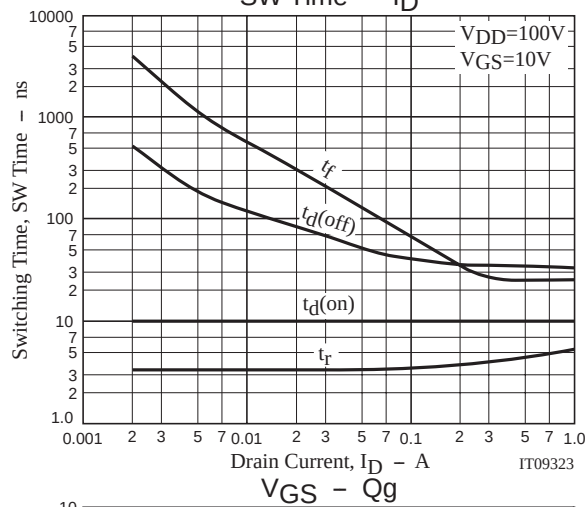
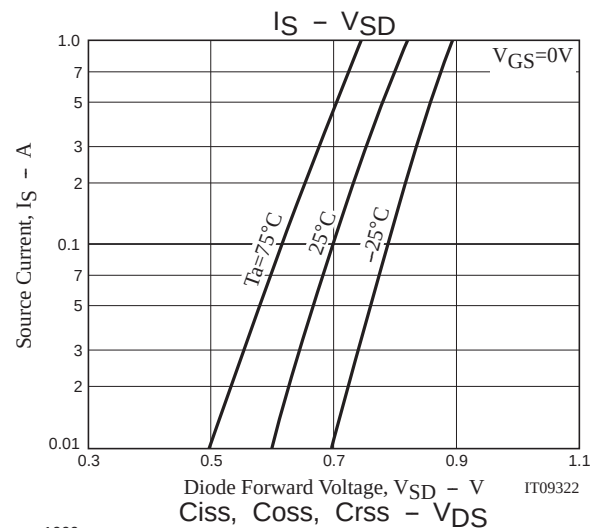
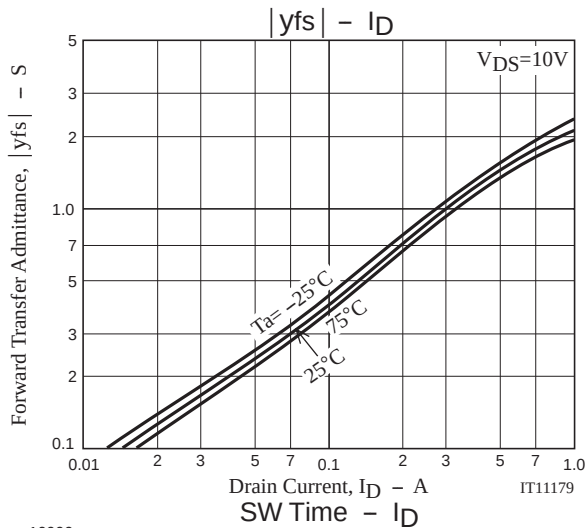
Package Dimensions

unit : mm
7015A-004



Switching Time Test Circuit





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