



ON Semiconductor®

**ON Semiconductor  
DATA SHEET****CPH3331** — P-Channel Silicon MOSFET  
**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	$V_{GS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-0.4	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-1.6	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm <sup>2</sup> ×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	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0$	-200			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -200\text{V}$ , $V_{GS} = 0$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0$			$\pm 10$	$\mu\text{A}$
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} $	$V_{DS} = -10\text{V}$ , $I_D = -200\text{mA}$	0.54	0.9		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -200\text{mA}$ , $V_{GS} = -10\text{V}$		3.8	5.0	$\Omega$
	$R_{DS(on)2}$	$I_D = -200\text{mA}$ , $V_{GS} = -4\text{V}$		4	5.6	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -20\text{V}$ , $f = 1\text{MHz}$		350		pF
Output Capacitance	$C_{oss}$	$V_{DS} = -20\text{V}$ , $f = 1\text{MHz}$		17		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -20\text{V}$ , $f = 1\text{MHz}$		11		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.		43		ns
Fall Time	$t_f$	See specified Test Circuit.		42		ns

Marking : YG

Continued on next page.

# CPH3331

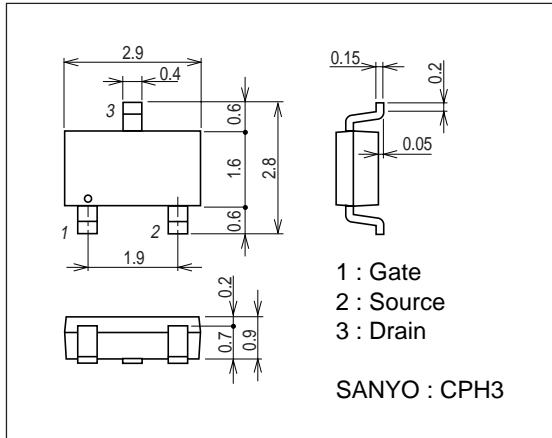
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-100V, V_{GS}=-10V, I_D=-400mA$		7.0		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-100V, V_{GS}=-10V, I_D=-400mA$		1.0		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-100V, V_{GS}=-10V, I_D=-400mA$		0.8		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-400mA, V_{GS}=0$		-0.79	-1.2	V

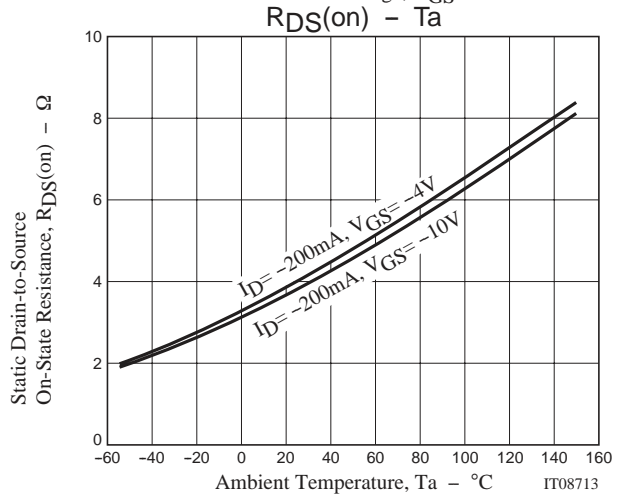
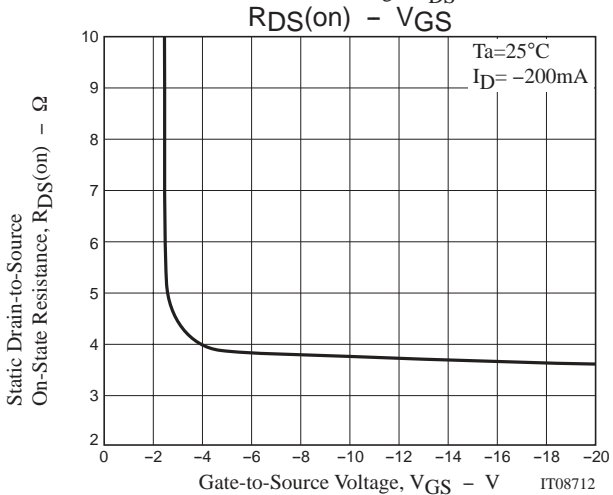
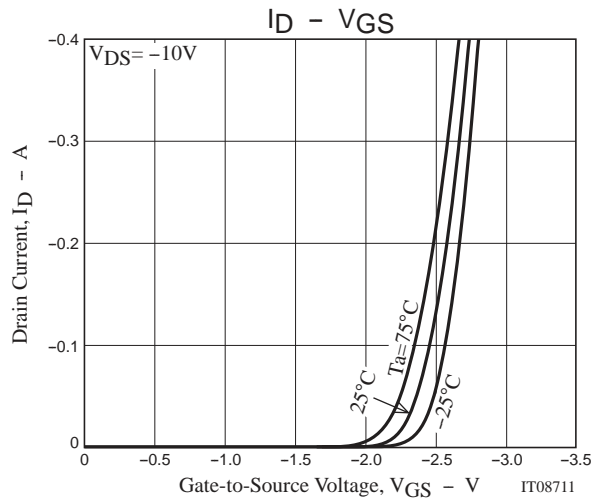
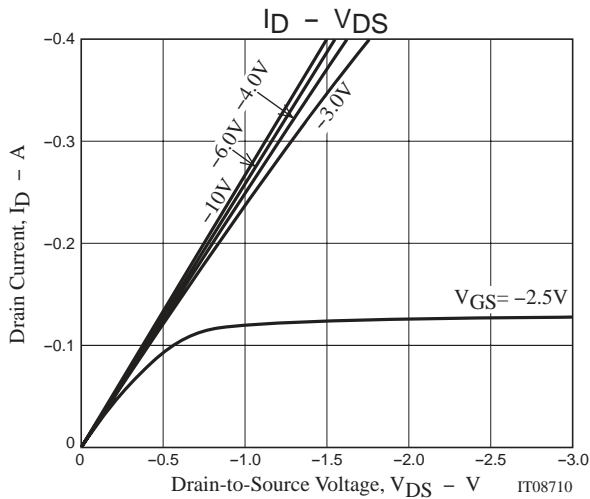
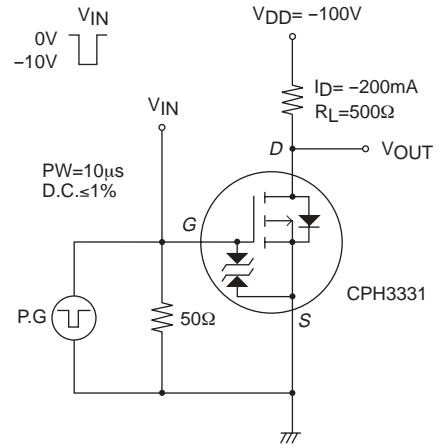
## Package Dimensions

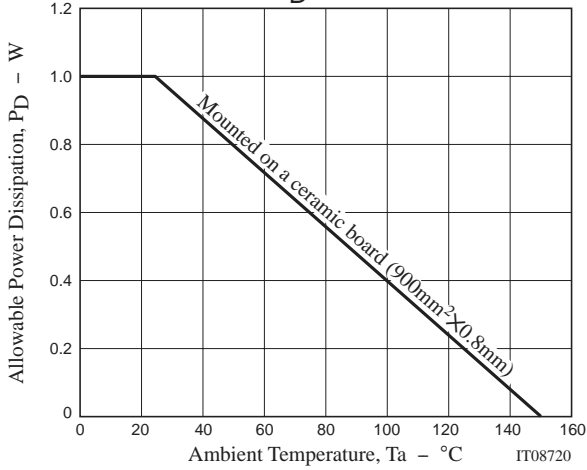
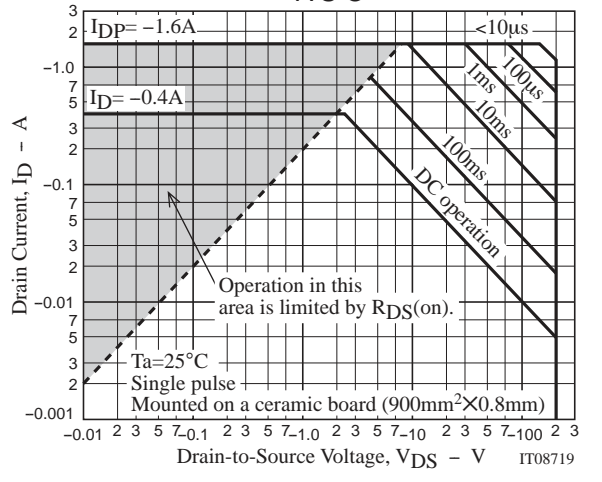
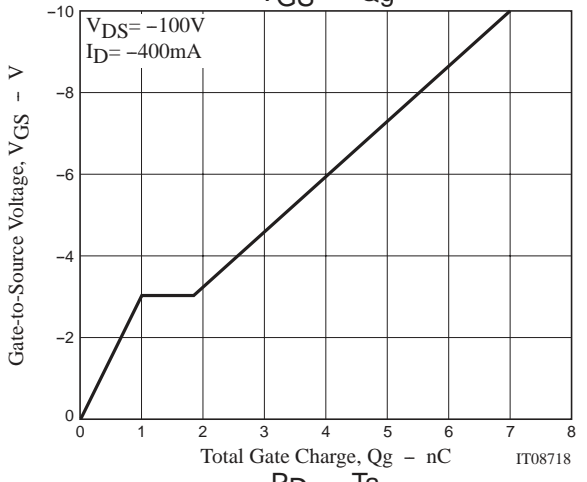
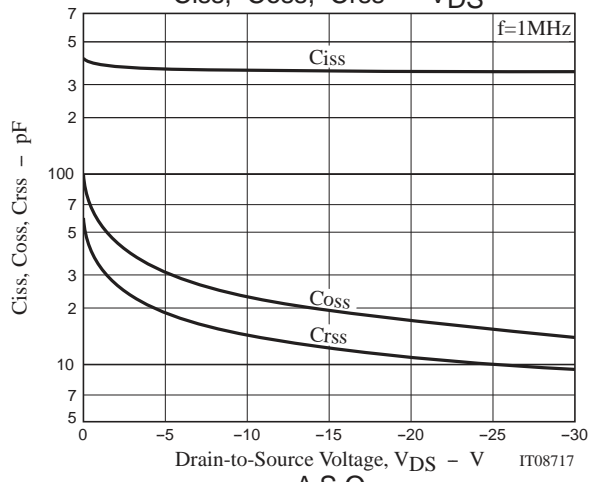
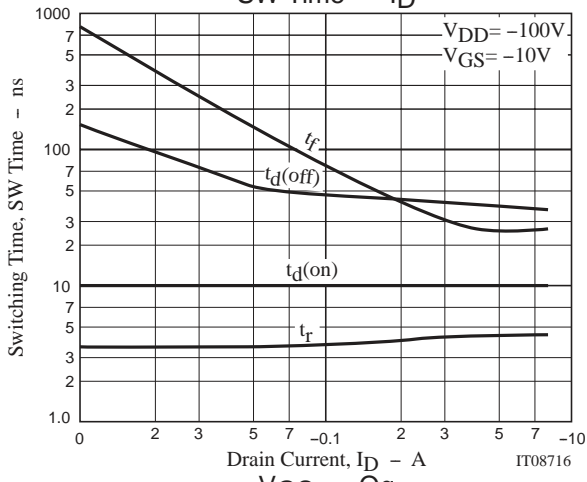
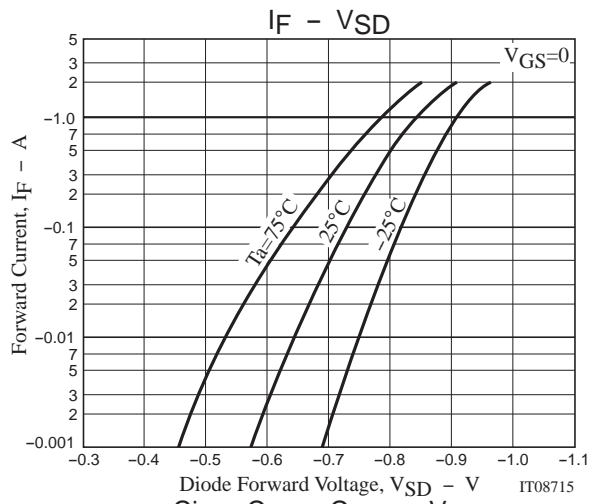
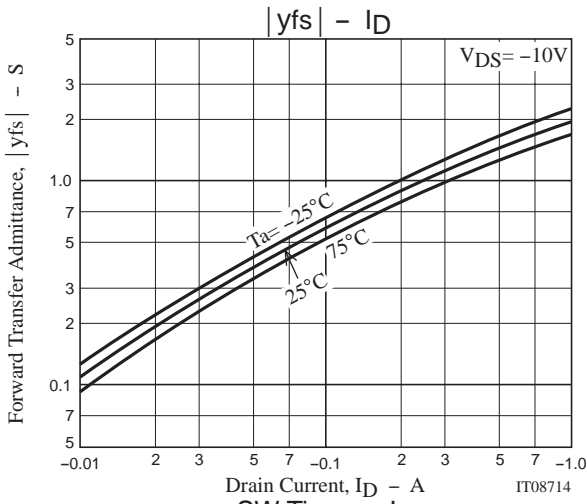
unit : mm

2152A



## Switching Time Test Circuit





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