



# CPH3445 — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- 4V drive.

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		30	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		3.5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	14	A
Allowable Power Dissipation	PD	Mounted on a ceramic board (900mm <sup>2</sup> X0.8mm)	1	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0\text{V}$	30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
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} $	$V_{DS}=10\text{V}$ , $I_D=1.8\text{A}$	1.5	2.6		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1.8\text{A}$ , $V_{GS}=10\text{V}$		52	68	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=0.9\text{A}$ , $V_{GS}=4.5\text{V}$		88	125	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=0.9\text{A}$ , $V_{GS}=4\text{V}$		98	140	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		295		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		65		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		50		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8.0		ns
Rise Time	$t_r$	See specified Test Circuit.		29		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		27		ns
Fall Time	$t_f$	See specified Test Circuit.		29.5		ns

Marking : ZU

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70306 / 42806PE MS IM TB-00002270 No. A0353-1/4

# CPH3445

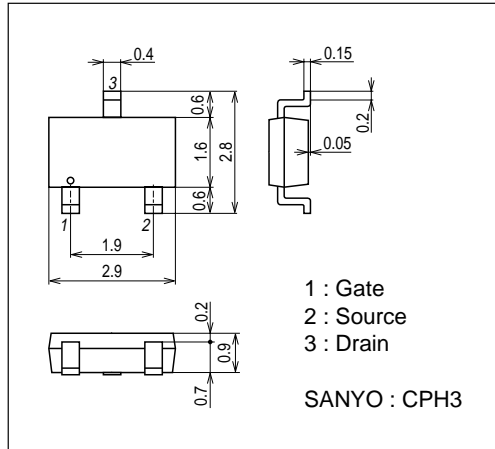
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=10V, I_D=3.5A$		7.2		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V, V_{GS}=10V, I_D=3.5A$		1.1		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V, V_{GS}=10V, I_D=3.5A$		1.3		nC
Diode Forward Voltage	VSD	$I_S=3.5A, V_{GS}=0V$		0.87	1.2	V

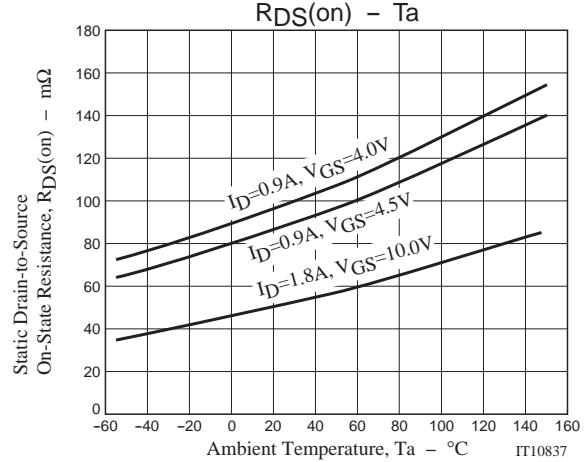
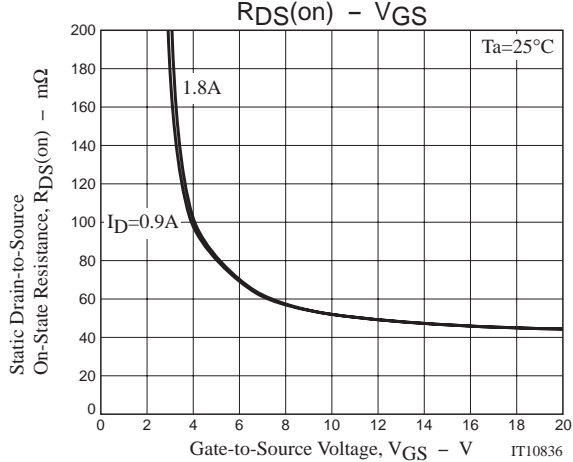
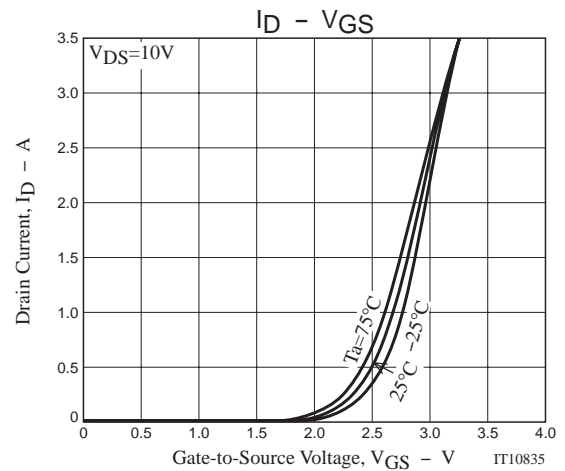
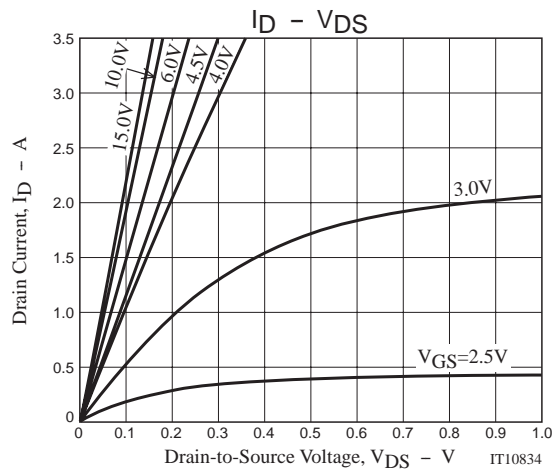
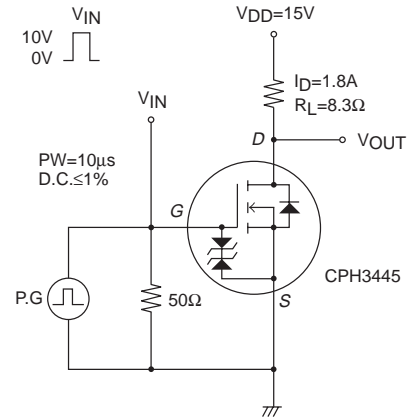
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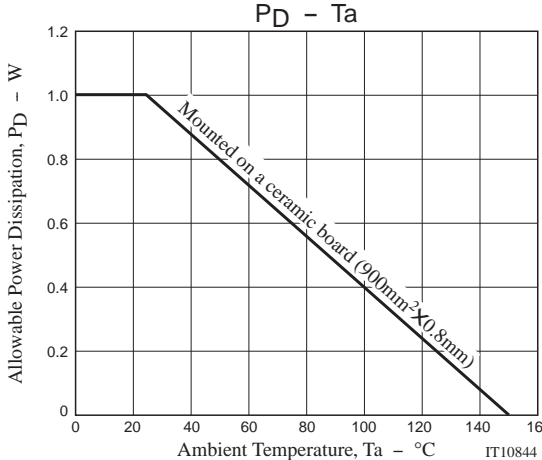
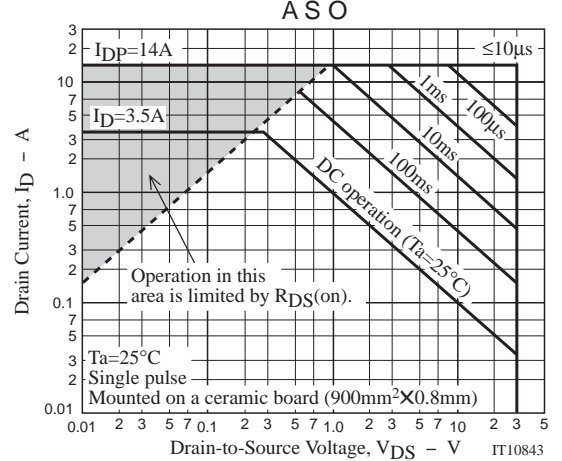
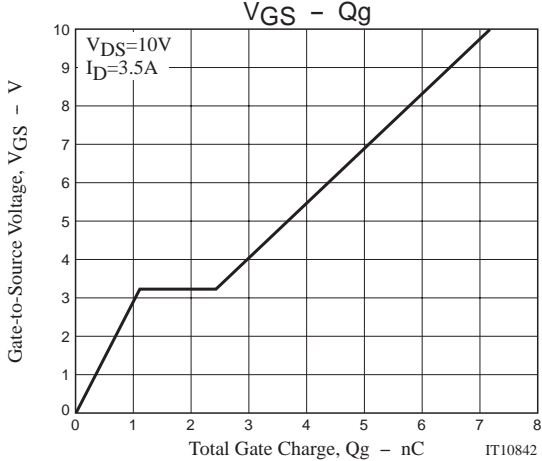
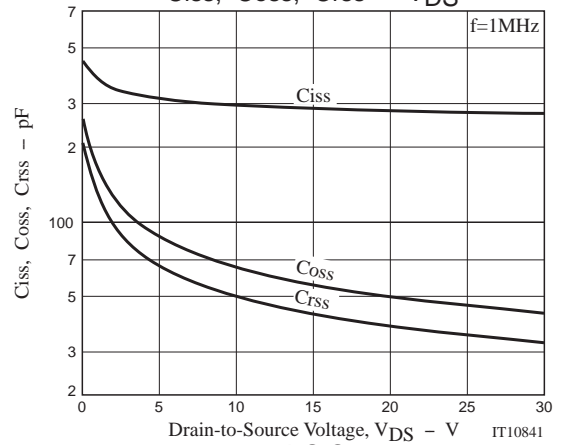
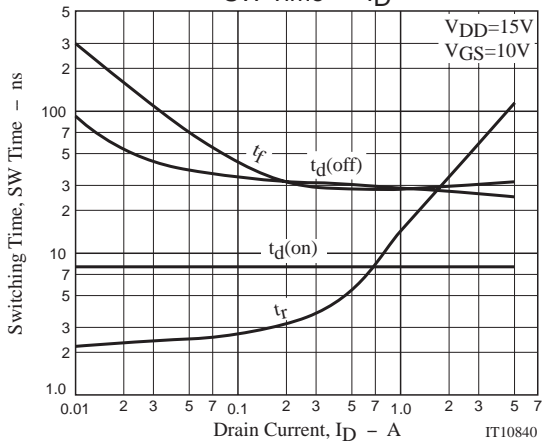
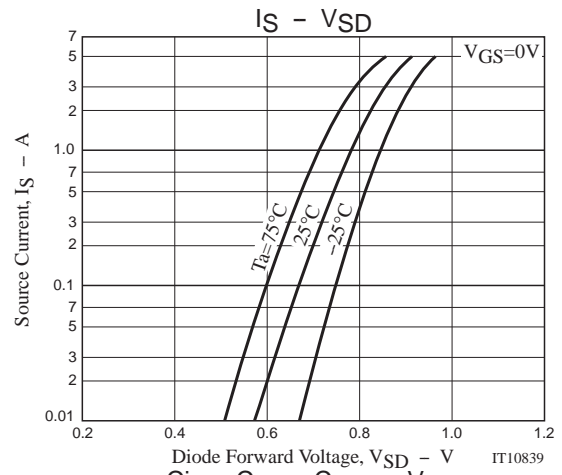
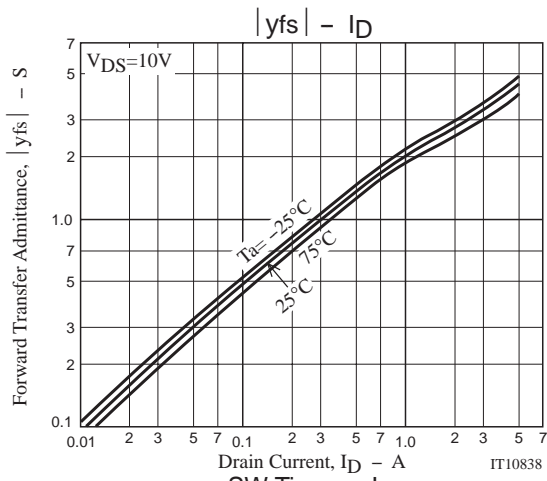
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7015-004



## Switching Time Test Circuit





Note on usage : Since the CPH3445 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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