

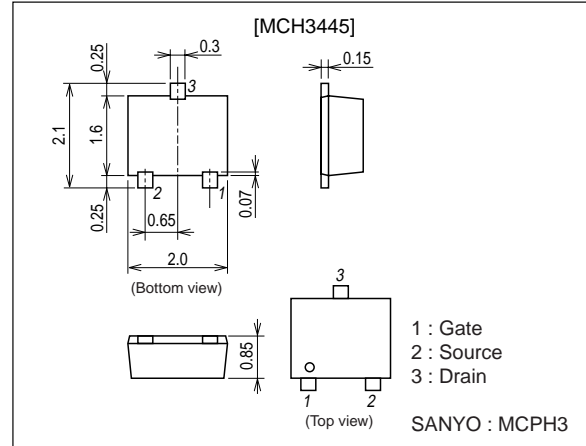
**MCH3445****Ultrahigh-Speed Switching Applications****Features**

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

Package Dimensions

unit : mm

2167A

**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}		± 12	V
Drain Current (DC)	I_D		2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	8	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² X0.8mm)	0.8	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0$	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20\text{V}$, $V_{GS}=0$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=1\text{A}$	1.4	2.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1\text{A}$, $V_{GS}=4\text{V}$		125	165	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=0.5\text{A}$, $V_{GS}=2.5\text{V}$		165	235	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=0.1\text{A}$, $V_{GS}=1.8\text{V}$		225	340	$\text{m}\Omega$

Marking : ZW

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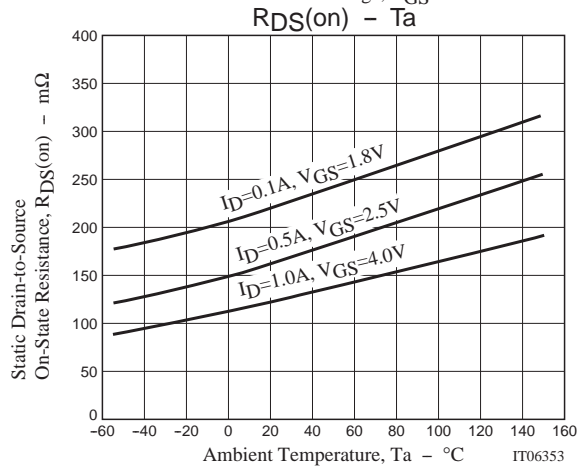
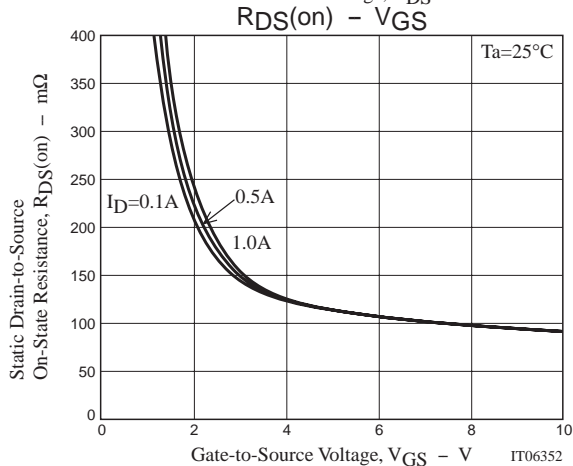
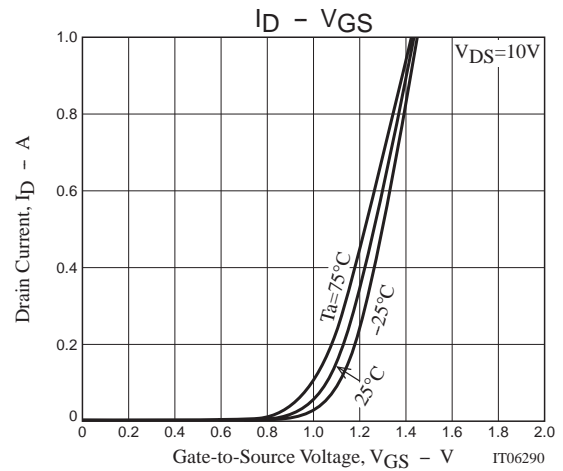
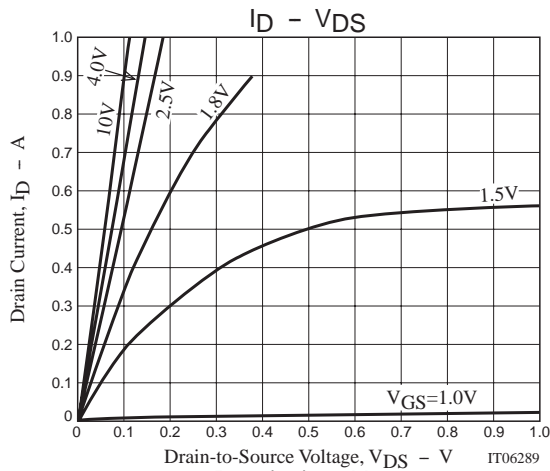
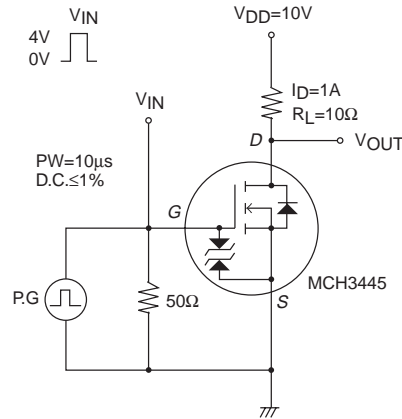
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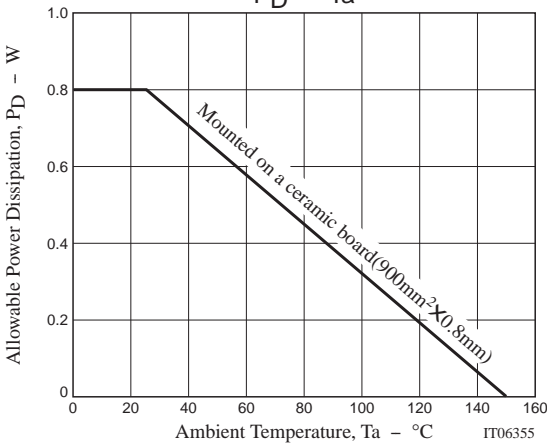
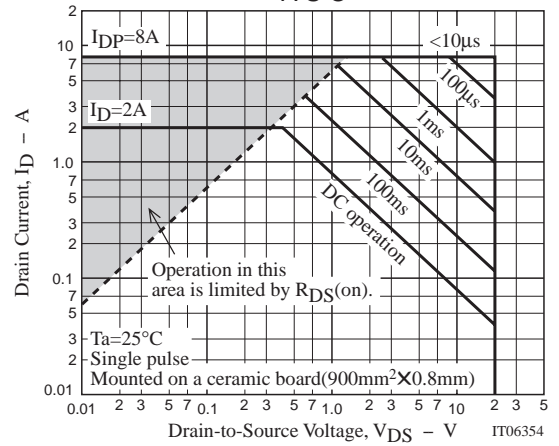
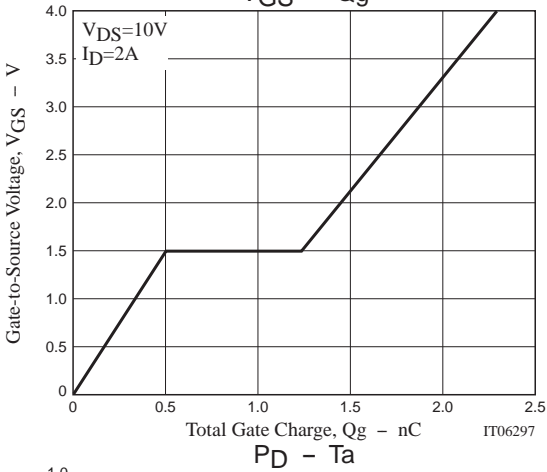
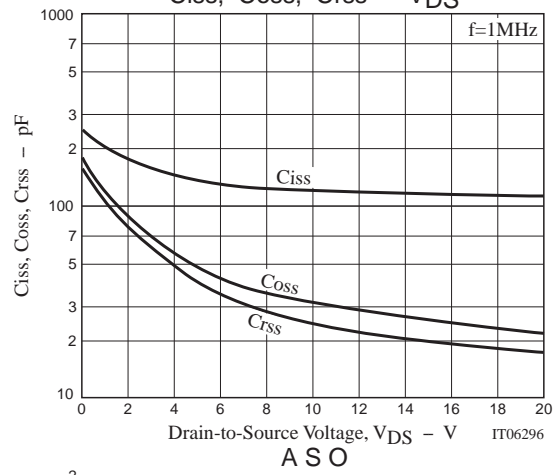
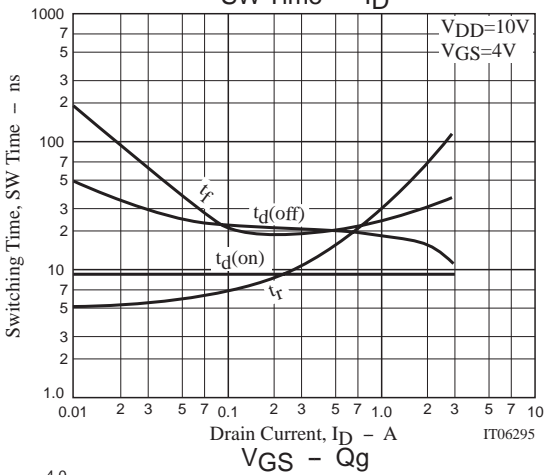
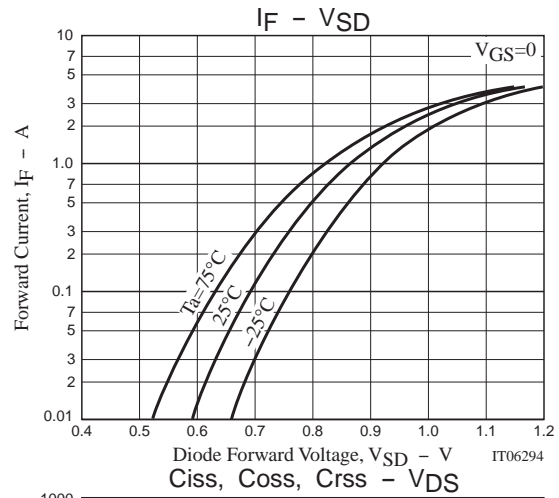
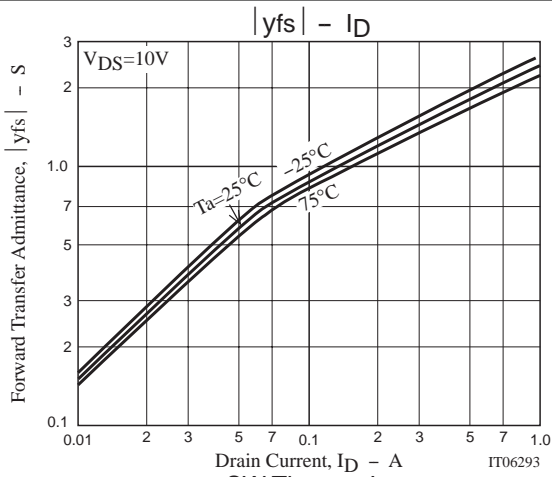
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =10V, f=1MHz		120		pF
Output Capacitance	Coss	V _{DS} =10V, f=1MHz		31		pF
Reverse Transfer Capacitance	Crss	V _{DS} =10V, f=1MHz		25		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit		9		ns
Rise Time	t _r	See specified Test Circuit		29		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit		18		ns
Fall Time	t _f	See specified Test Circuit		22		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4V, I _D =2A		2.3		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =4V, I _D =2A		0.50		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =10V, V _{GS} =4V, I _D =2A		0.73		nC
Diode Forward Voltage	V _{SD}	I _S =2A, V _{GS} =0		0.94	1.2	V

Switching Time Test Circuit



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