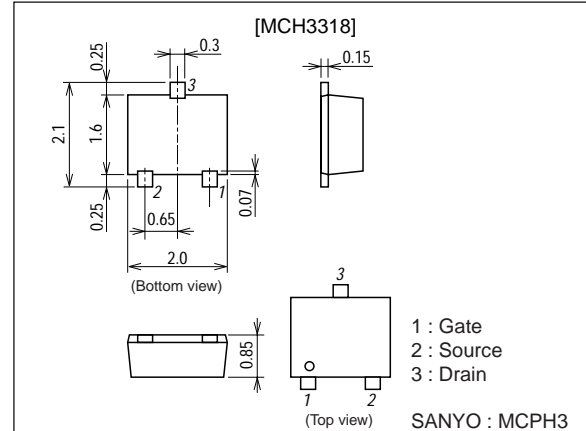


**MCH3318****Ultrahigh-Speed Switching Applications****Features**

- 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	$V_{DSS}$		-12	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 8$	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 <sup>2</sup> X0.8mm)	0.9	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	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0$	-12			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -12\text{V}$ , $V_{GS} = 0$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 6.4\text{V}$ , $V_{DS} = 0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6\text{V}$ , $I_D = -1\text{mA}$	-0.3		-1.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6\text{V}$ , $I_D = -1\text{A}$	2.0	2.9		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1\text{A}$ , $V_{GS} = -4.5\text{V}$		110	145	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -0.5\text{A}$ , $V_{GS} = -2.5\text{V}$		160	225	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D = -0.2\text{A}$ , $V_{GS} = -1.8\text{V}$		220	330	$\text{m}\Omega$

Marking : JT

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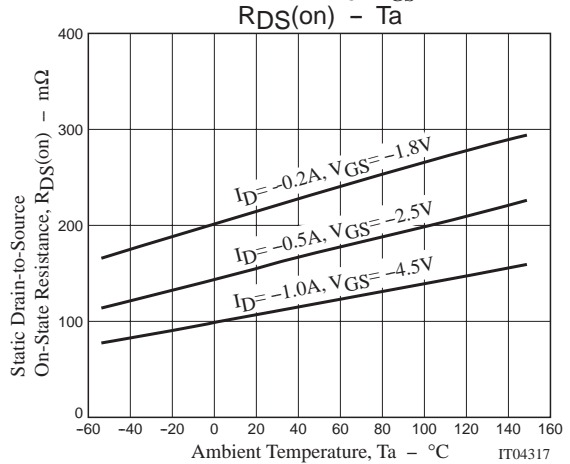
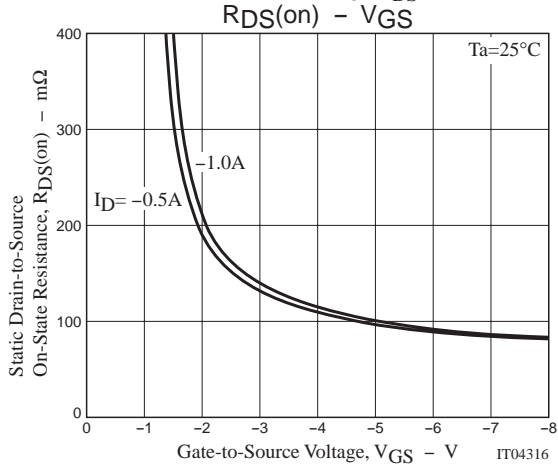
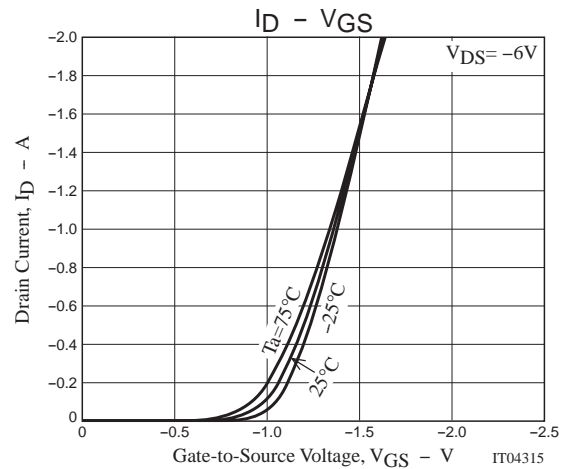
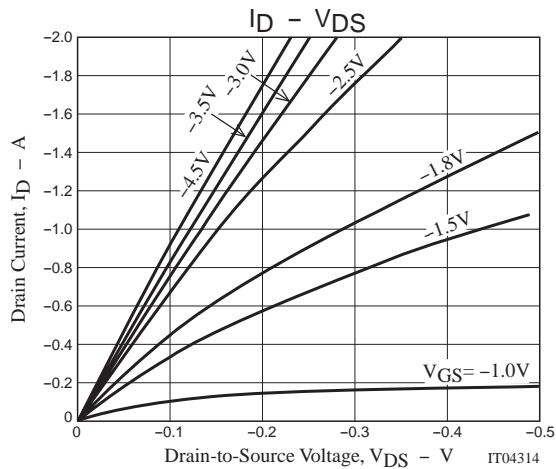
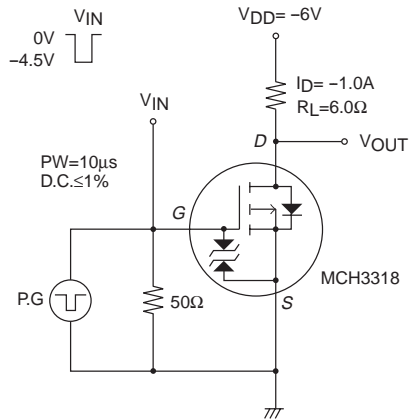
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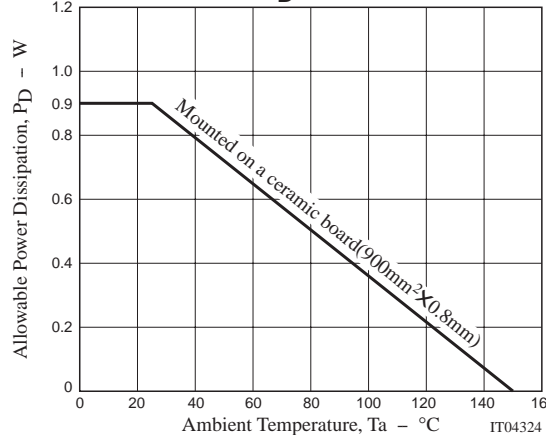
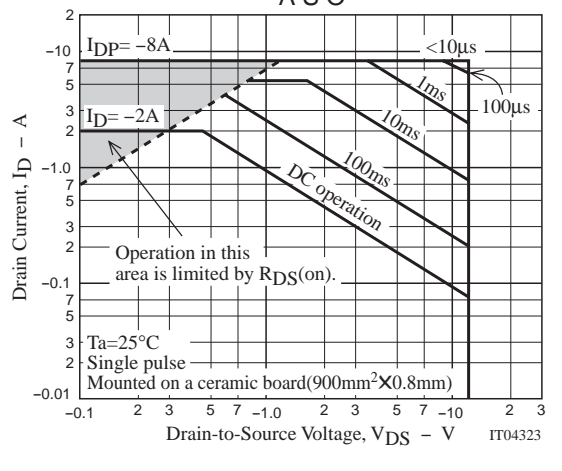
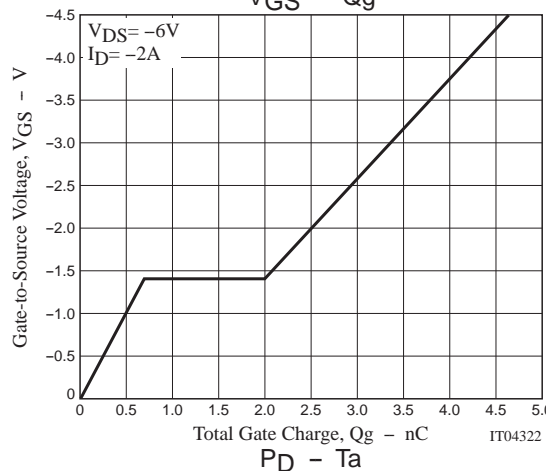
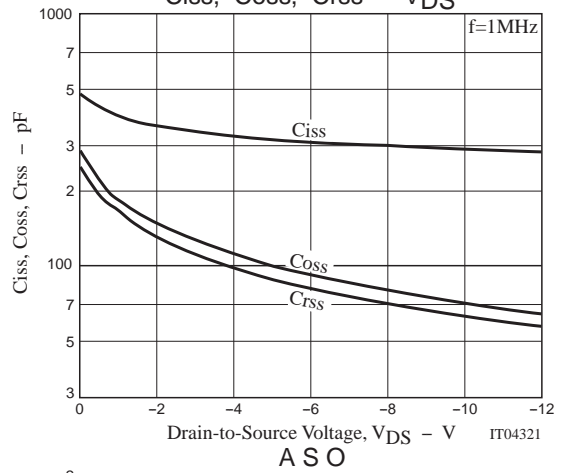
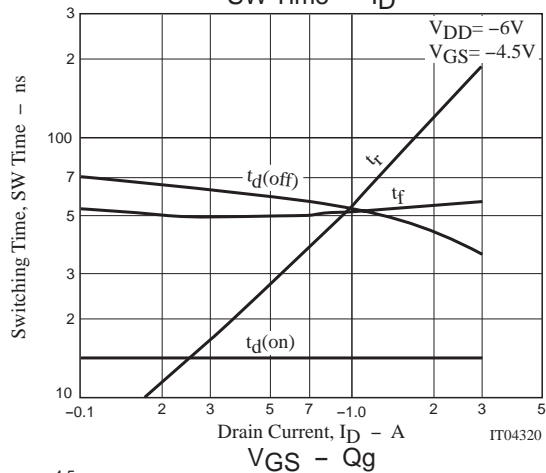
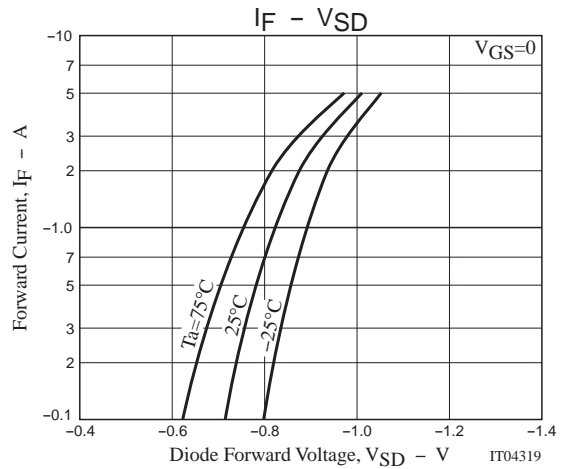
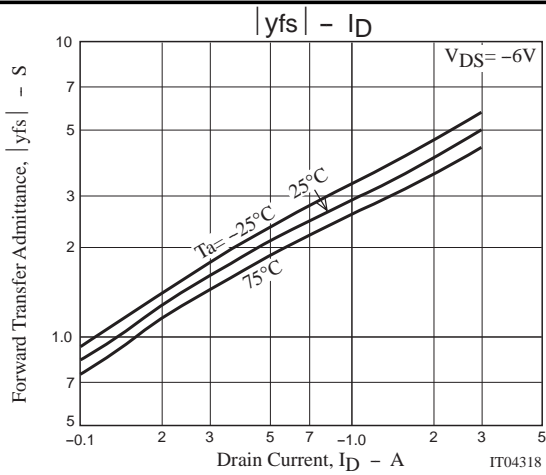
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=-6V, f=1MHz$		310		pF
Output Capacitance	Coss	$V_{DS}=-6V, f=1MHz$		90		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=-6V, f=1MHz$		80		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		14		ns
Rise Time	$t_r$	See specified Test Circuit.		53		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		53		ns
Fall Time	$t_f$	See specified Test Circuit.		52		ns
Total Gate Charge	Qg	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.0A$		4.6		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.0A$		0.7		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.0A$		1.3		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-2.0A, V_{GS}=0$		-0.89	-1.5	V

## Switching Time Test Circuit



# MCH3318



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