

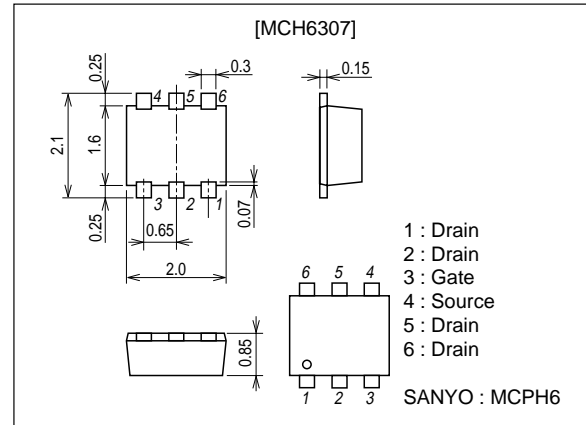
**MCH6307****Ultrahigh-Speed Switching Applications****Features**

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

**Package Dimensions**

unit : mm

2193A

**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)	$I_D$		-5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-20	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm <sup>2</sup> X0.8mm)	1.5	W
		Mounted on an FR4 board, $PW \leq 3\text{s}$	2.0	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	$V_{(BR)DSS}$	$I_D=-1\text{mA}$ , $V_{GS}=0$	-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} $	$V_{DS}=-6\text{V}$ , $I_D=-3\text{A}$	5.8	8.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-3\text{A}$ , $V_{GS}=-4.5\text{V}$		35	46	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-1.5\text{A}$ , $V_{GS}=-2.5\text{V}$		47	66	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=-0.3\text{A}$ , $V_{GS}=-1.8\text{V}$		68	98	$\text{m}\Omega$

Marking : JG

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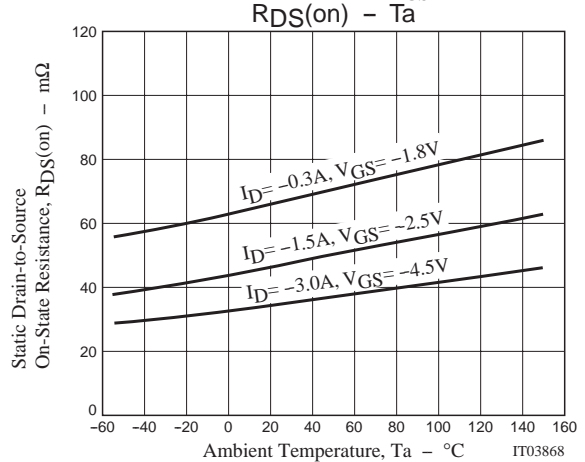
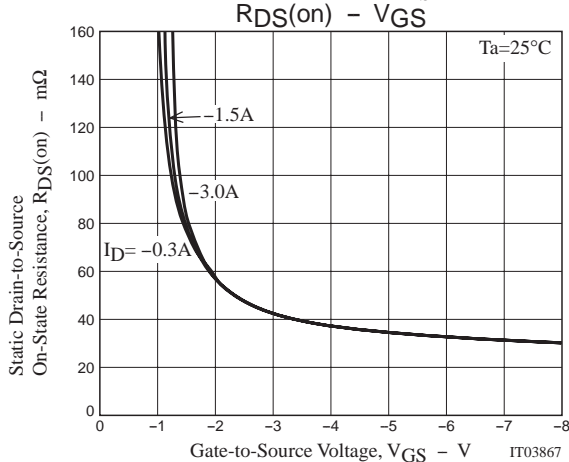
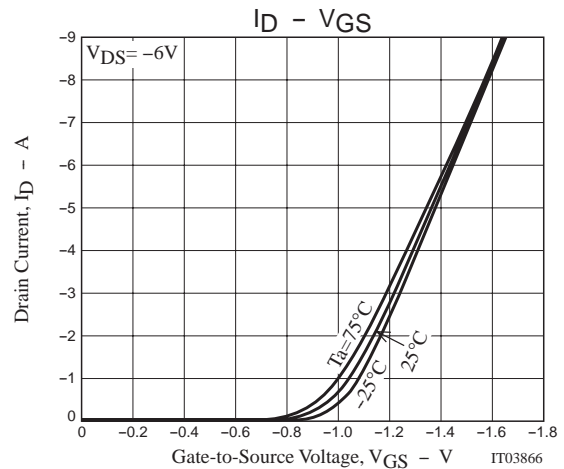
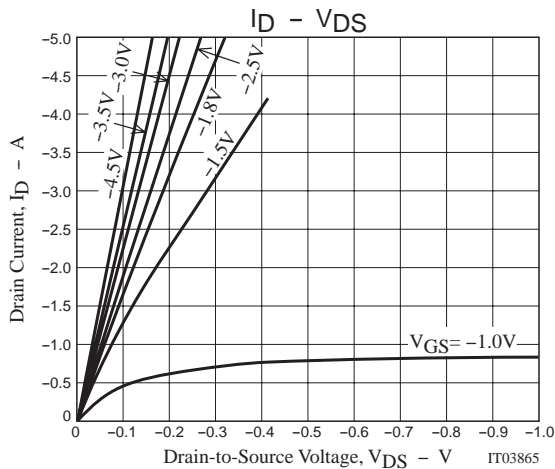
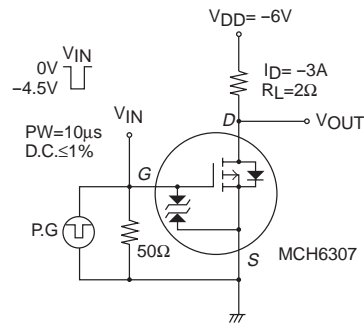
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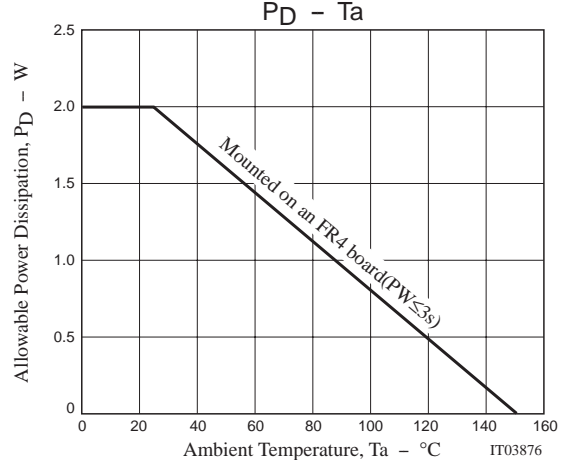
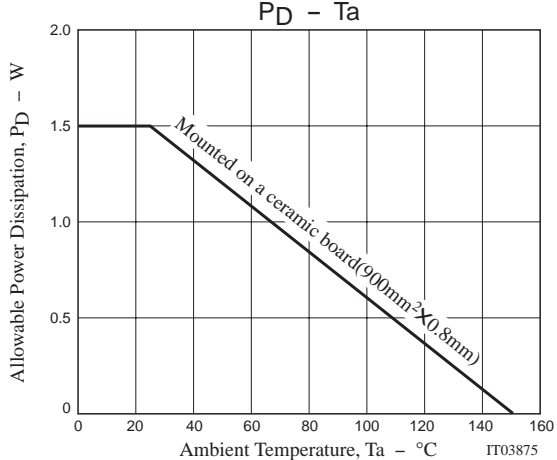
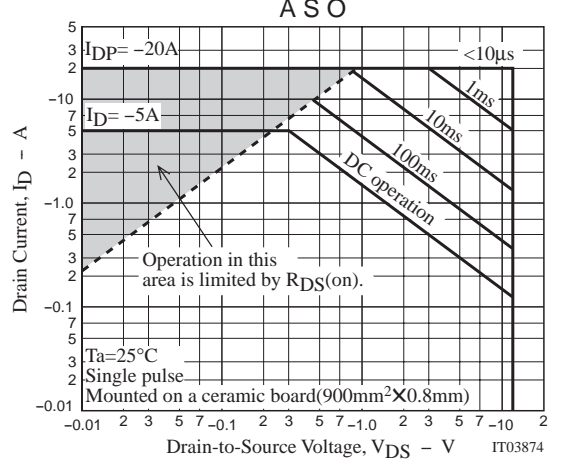
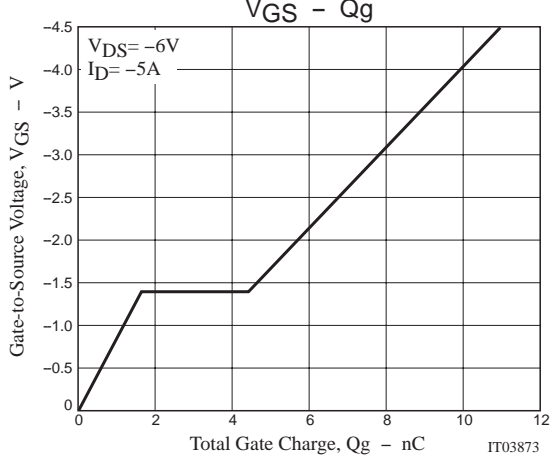
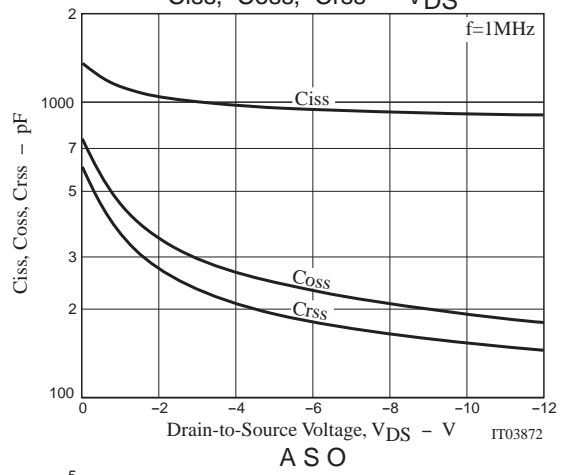
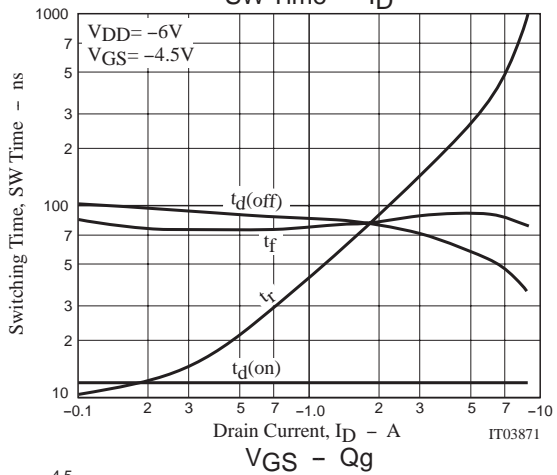
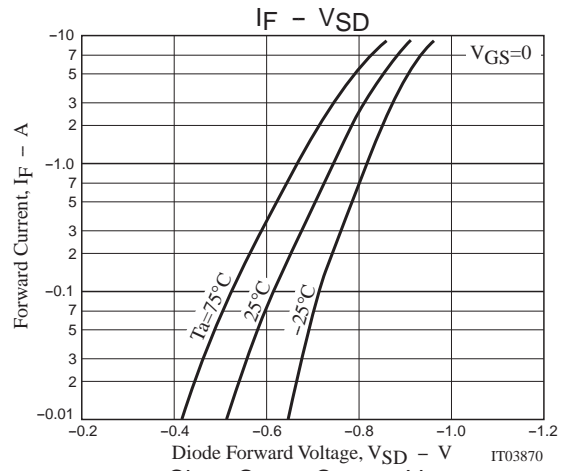
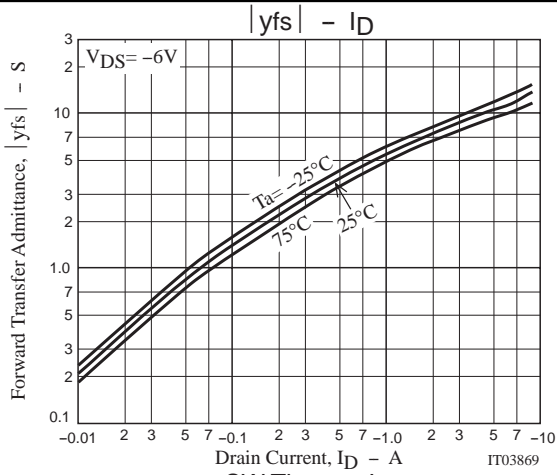
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=-6V, f=1MHz$		940		pF
Output Capacitance	Coss	$V_{DS}=-6V, f=1MHz$		230		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=-6V, f=1MHz$		180		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		12		ns
Rise Time	$t_r$	See specified Test Circuit.		143		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		71		ns
Fall Time	$t_f$	See specified Test Circuit.		89		ns
Total Gate Charge	Qg	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-5A$		11		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-5A$		1.6		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-5A$		2.8		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-5A, V_{GS}=0$		-0.85	-1.5	V

## Switching Time Test Circuit



# MCH6307



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