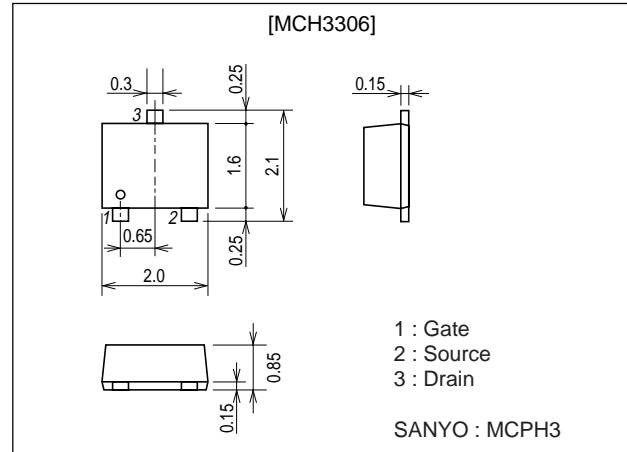


**MCH3306****Ultrahigh-Speed Switching Applications****Features**

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

**Package Dimensions**unit : mm  
2167**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	$V_{GSS}$		$\pm 10$	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)	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	$V_{(BR)DSS}$	$I_D=-1\text{mA}$ , $V_{GS}=0$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-20\text{V}$ , $V_{GS}=0$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8\text{V}$ , $V_{DS}=0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10\text{V}$ , $I_D=-1\text{mA}$	-0.3		-1.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}$ , $I_D=-1\text{A}$	2.1	3.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-1\text{A}$ , $V_{GS}=-4\text{V}$		110	145	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-0.5\text{A}$ , $V_{GS}=-2.5\text{V}$		140	200	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=-0.1\text{A}$ , $V_{GS}=-1.8\text{V}$		180	260	$\text{m}\Omega$

Marking : JF

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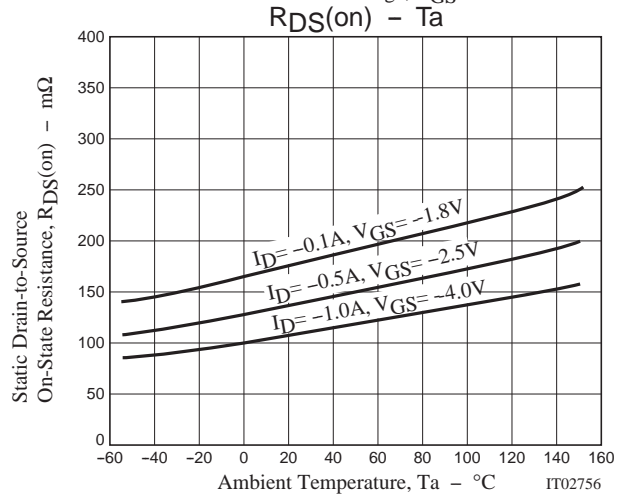
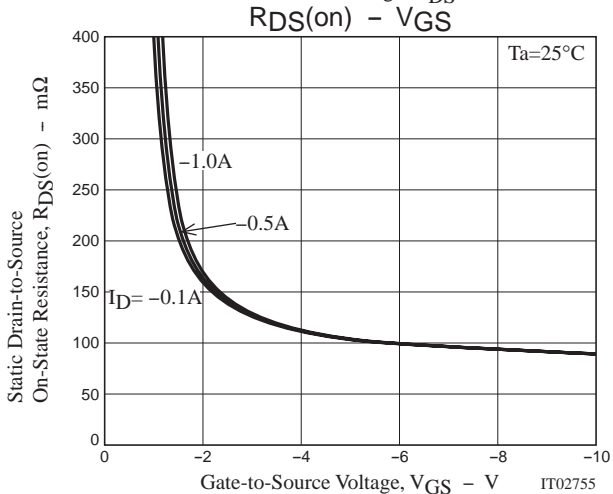
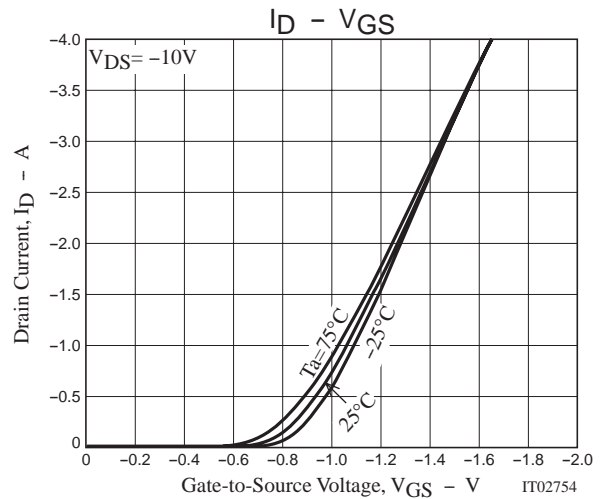
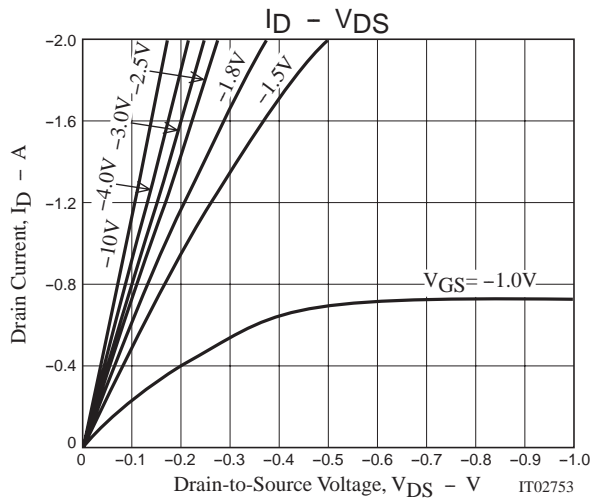
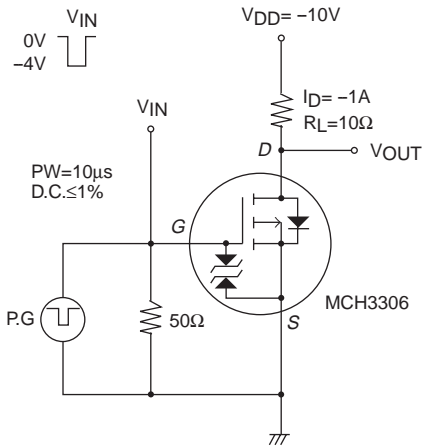
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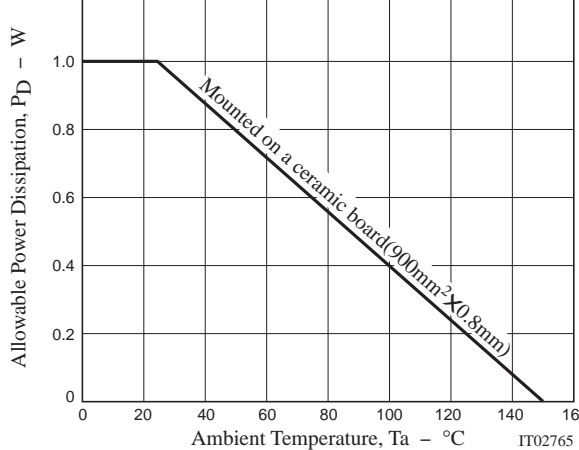
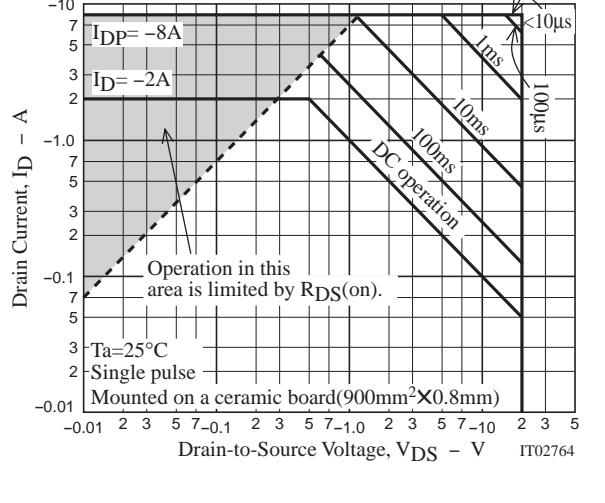
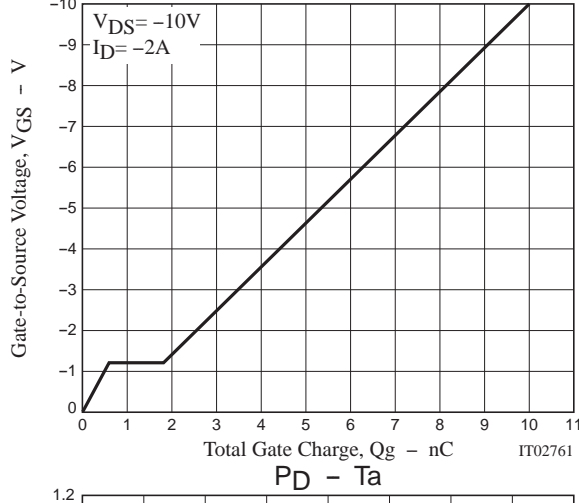
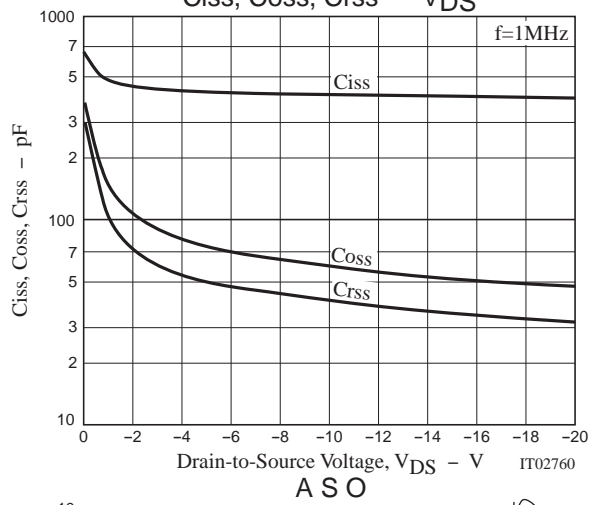
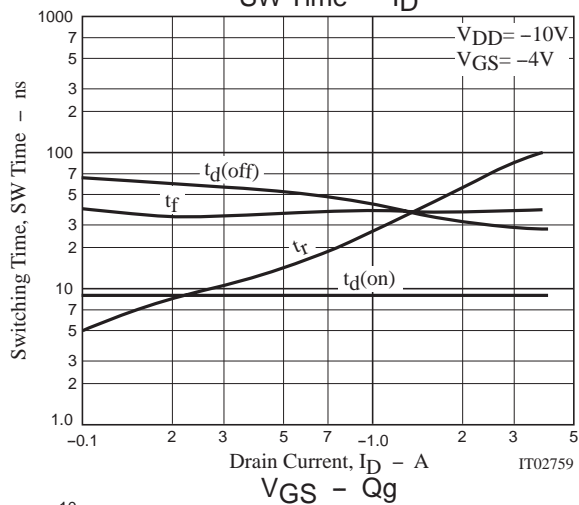
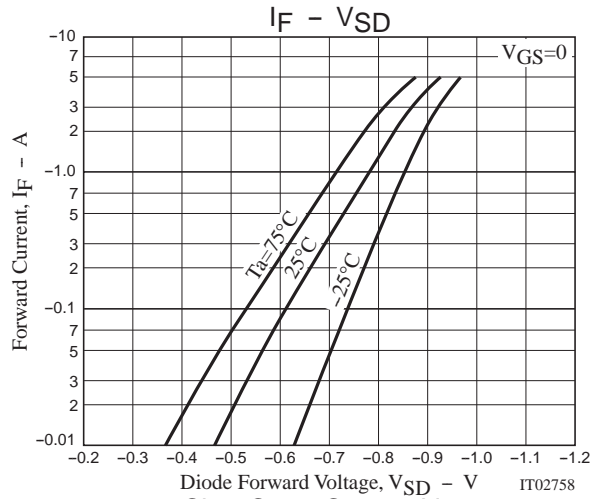
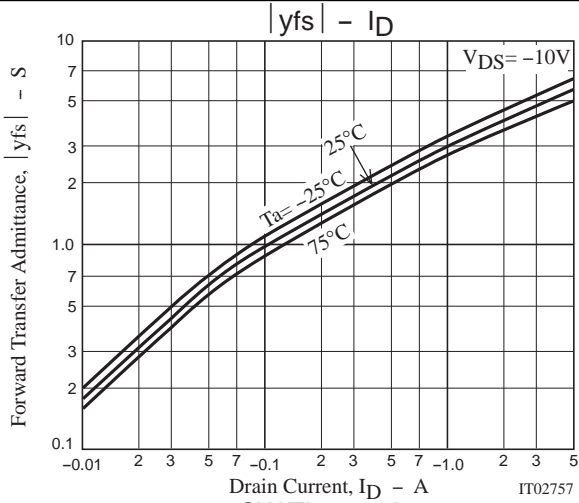
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =-10V, f=1MHz		410		pF
Output Capacitance	Coss	V <sub>DS</sub> =-10V, f=1MHz		60		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =-10V, f=1MHz		40		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit		9		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit		27		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit		42		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		38		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-2A		10		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-2A		0.6		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-2A		1.2		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-2A, V <sub>GS</sub> =0		-0.88	-1.2	V

## Switching Time Test Circuit



# MCH3306



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