

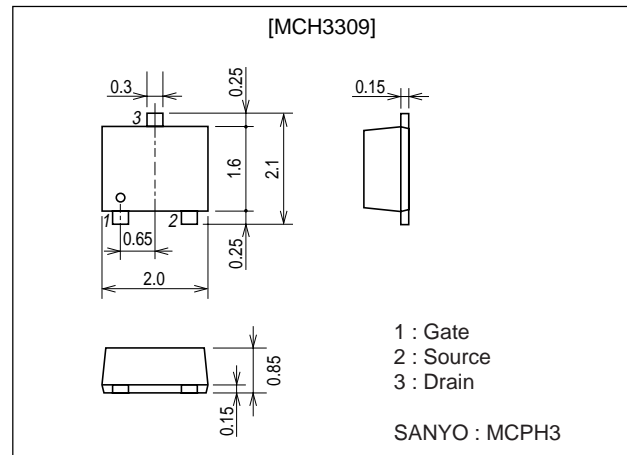
**MCH3309****Ultrahigh-Speed Switching Applications****Features**

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

**Package Dimensions**

unit : mm

2167

**Specifications****Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-1.5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-6.0	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm²×0.8mm)	0.9	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics** at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0	-20			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DSS</sub> =-20V, V <sub>GS</sub> =0			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DSS</sub> =0			±10	μA
Cutoff Voltage	V <sub>GSS(off)</sub>	V <sub>DSS</sub> =-10V, I <sub>D</sub> =-1mA	-0.4		-1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DSS</sub> =-10V, I <sub>D</sub> =-0.8A	1.6	2.3		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-0.8A, V <sub>GS</sub> =-4V		180	235	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-0.4A, V <sub>GS</sub> =-2.5V		240	340	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DSS</sub> =-10V, f=1MHz		290		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DSS</sub> =-10V, f=1MHz		40		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DSS</sub> =-10V, f=1MHz		25		pF

Marking : JJ

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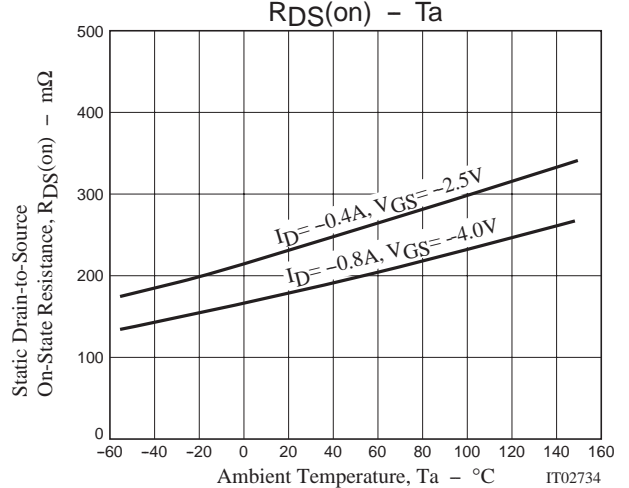
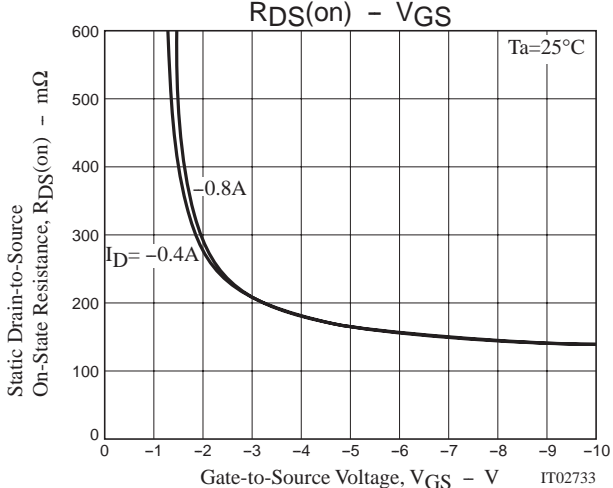
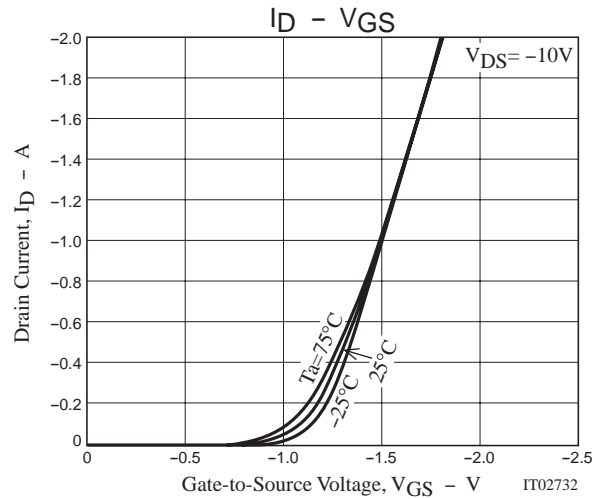
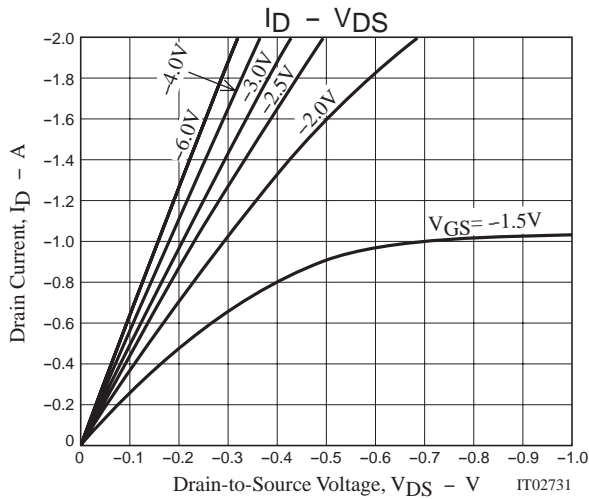
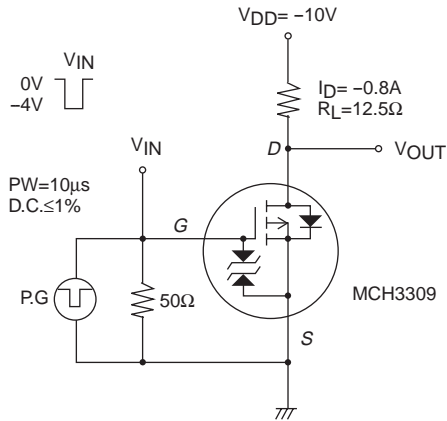
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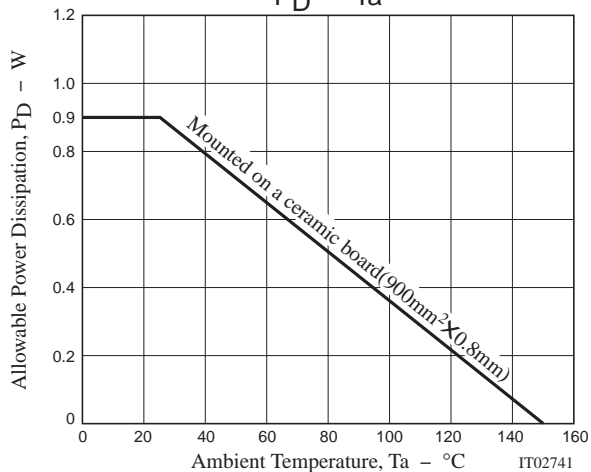
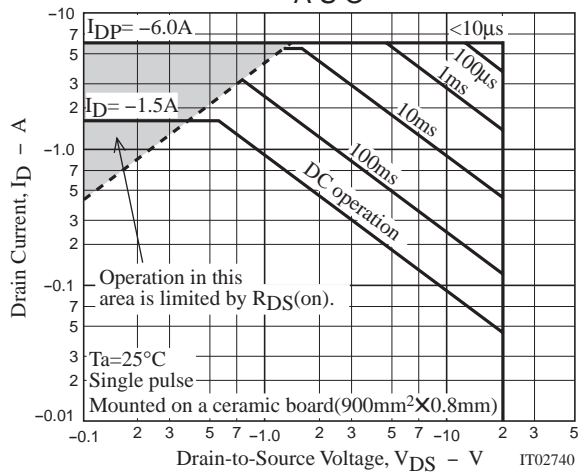
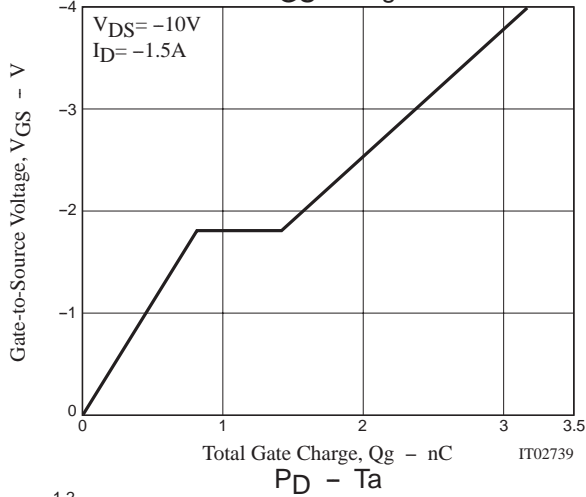
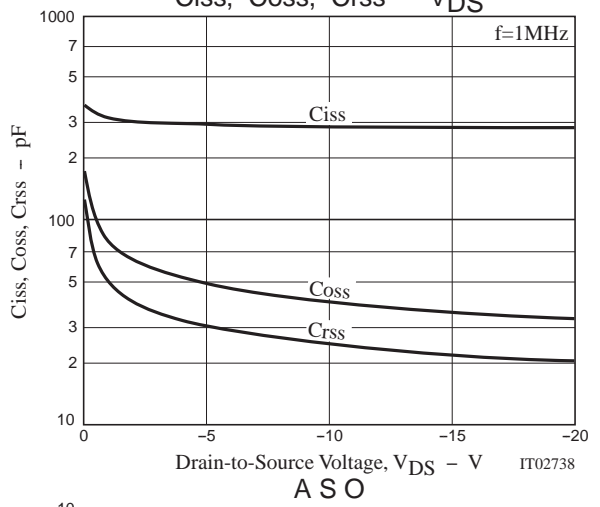
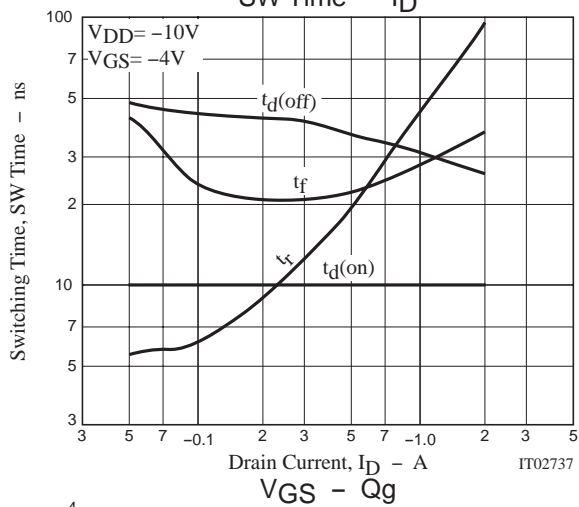
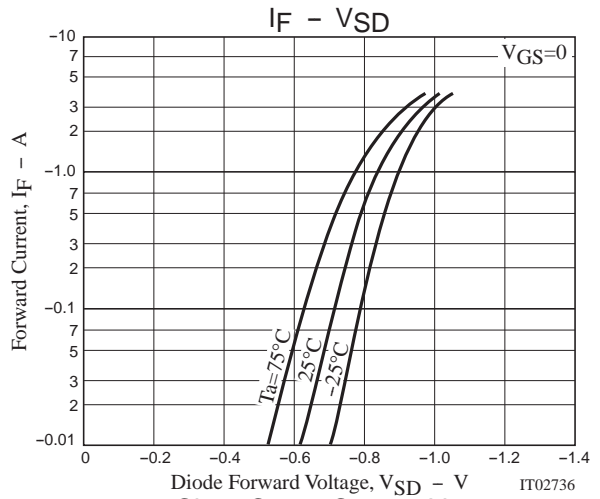
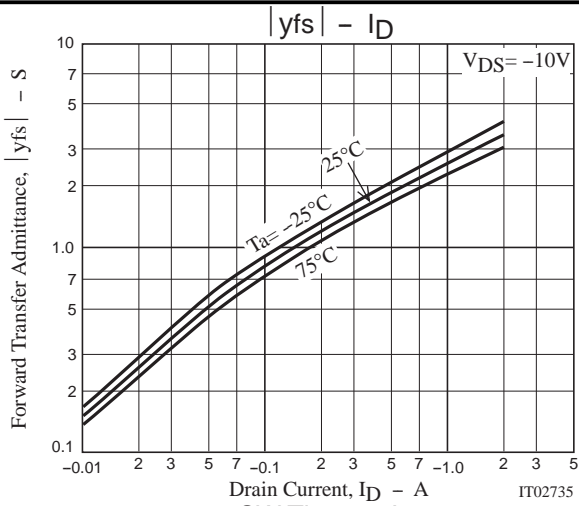
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	$t_r$	See specified Test Circuit		35		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		32		ns
Fall Time	$t_f$	See specified Test Circuit		27		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		3.2		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		0.8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		0.6		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-1.5A, V_{GS}=0$		-0.87	-1.5	V

## Switching Time Test Circuit



# MCH3309



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