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Ordering number : ENN7010

ON Semiconductor DATA SHEET

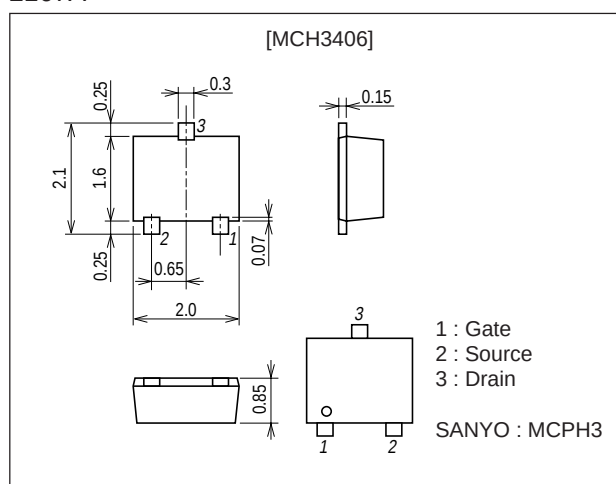
MCH3406 — N-Channel Silicon MOSFET Ultrahigh-Speed Switching Applications

Features

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

Package Dimensions

unit : mm
2167A



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		20	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	12	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm²×0.8mm)	1	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR) _{DSS}	I _D =1mA, V _{GS} =0	20			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =1.5A	3.9	5.6		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =1.5A, V _{GS} =4V		48	63	mΩ
	R _{DS(on)2}	I _D =1A, V _{GS} =2.5V		58	82	mΩ
	R _{DS(on)3}	I _D =0.5A, V _{GS} =1.8V		72	110	mΩ

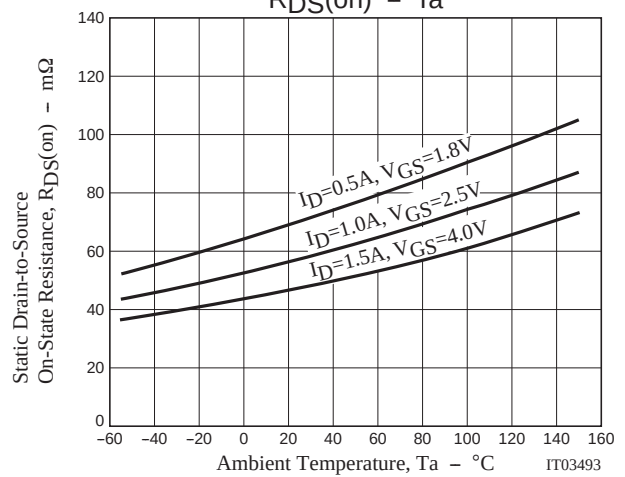
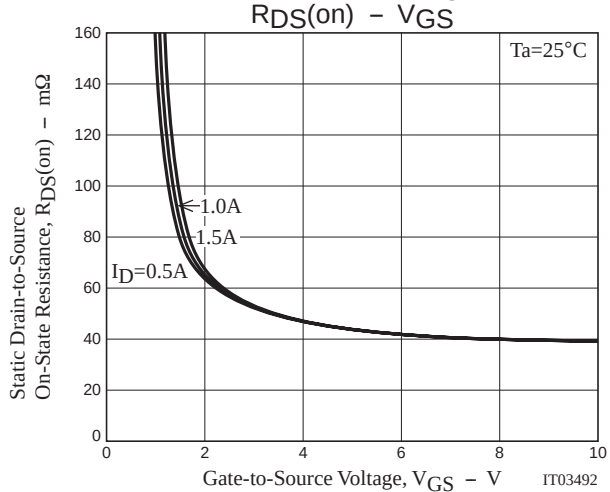
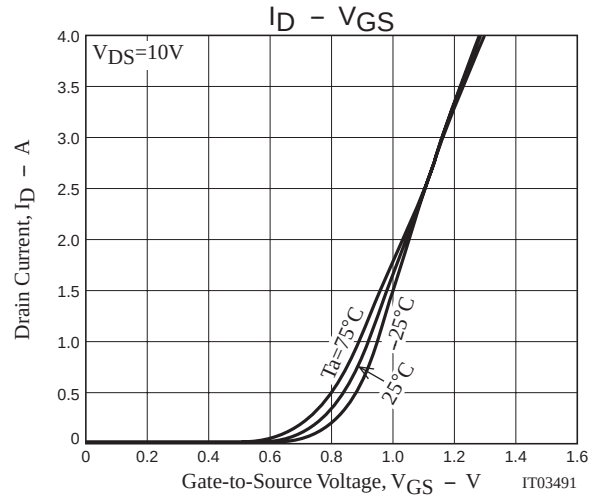
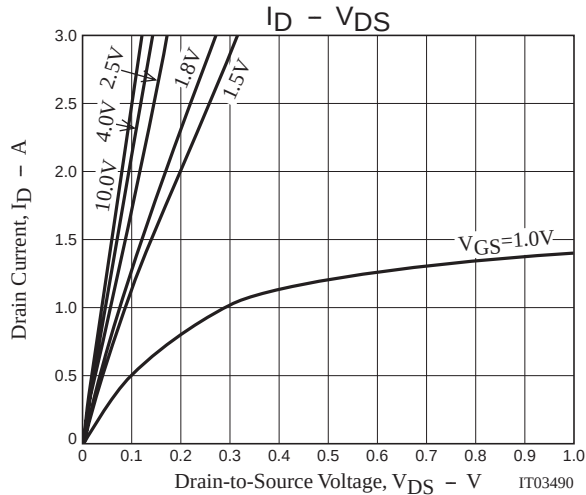
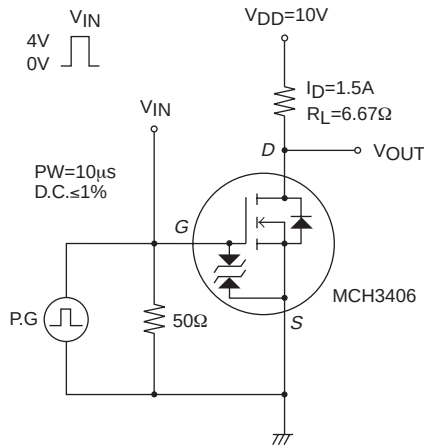
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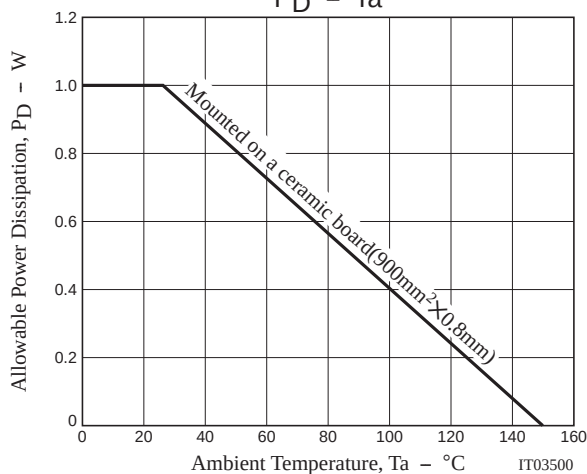
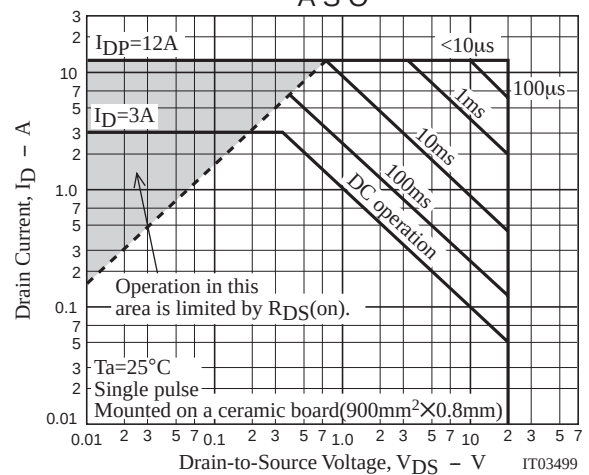
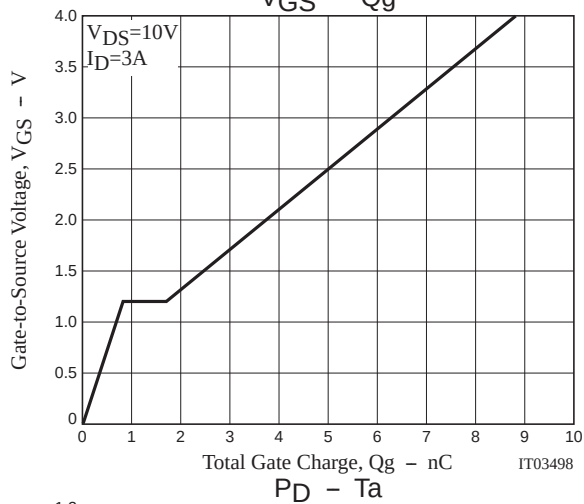
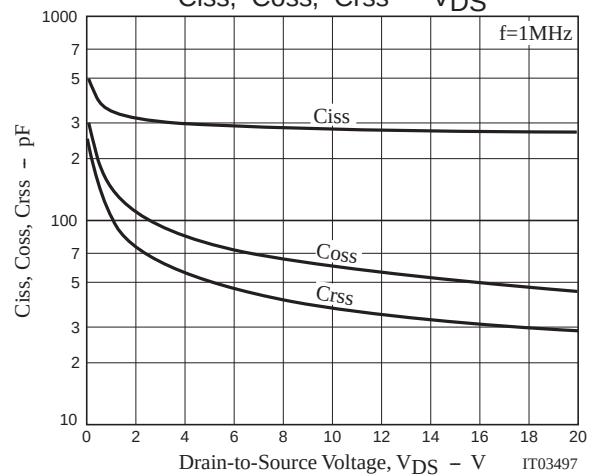
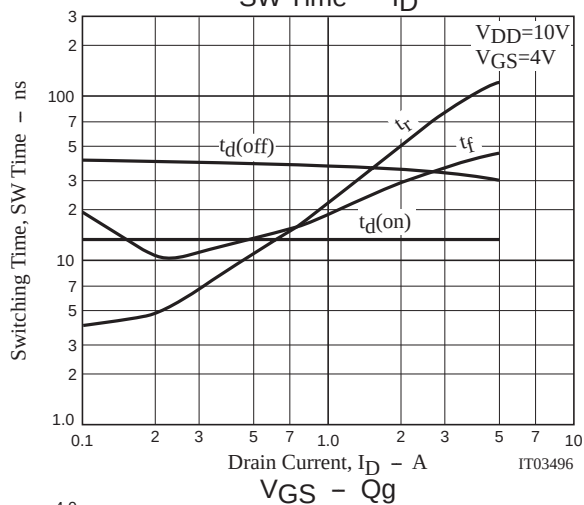
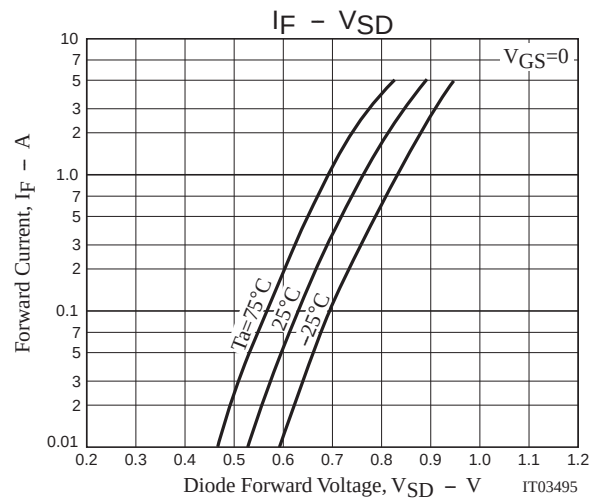
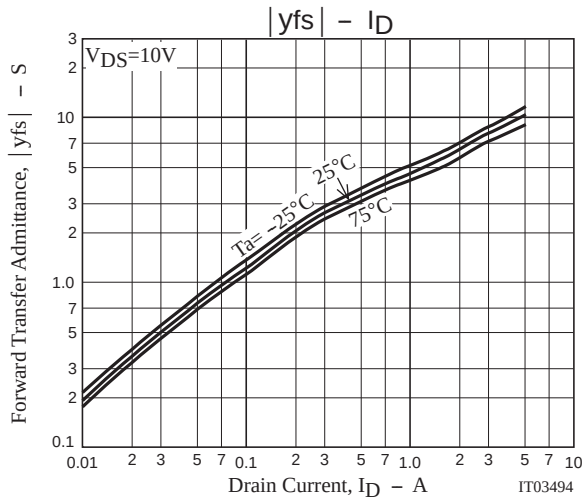
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V$, $f=1MHz$		280		pF
Output Capacitance	Coss	$V_{DS}=10V$, $f=1MHz$		60		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V$, $f=1MHz$		38		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		13		ns
Rise Time	t_r	See specified Test Circuit		35		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		35		ns
Fall Time	t_f	See specified Test Circuit		25		ns
Total Gate Charge	Qg	$V_{DS}=10V$, $V_{GS}=4V$, $I_D=3A$		8.8		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V$, $V_{GS}=4V$, $I_D=3A$		0.85		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V$, $V_{GS}=4V$, $I_D=3A$		0.85		nC
Diode Forward Voltage	V_{SD}	$I_S=3A$, $V_{GS}=0$		0.82	1.2	V

Switching Time Test Circuit





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