



MCH6405

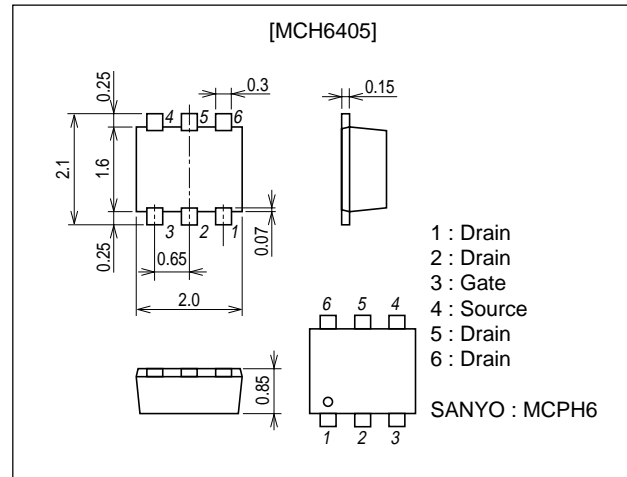
Ultrahigh-Speed Switching Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V 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}		20	V
Gate-to-Source Voltage	V_{GSS}		± 10	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 \times X0.8mm)	1.5	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}	$V_{DS}=20\text{V}$, $V_{GS}=0$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.5		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=3\text{A}$	6.3	9		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=3\text{A}$, $V_{GS}=4\text{V}$		31	41	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=1.5\text{A}$, $V_{GS}=2.5\text{V}$		38	54	$\text{m}\Omega$

Marking : KE

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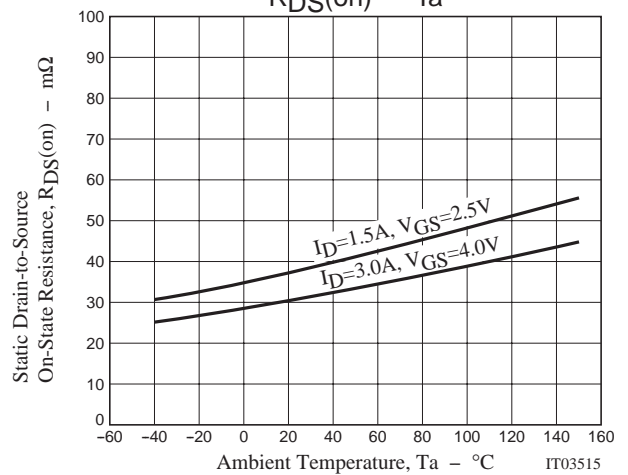
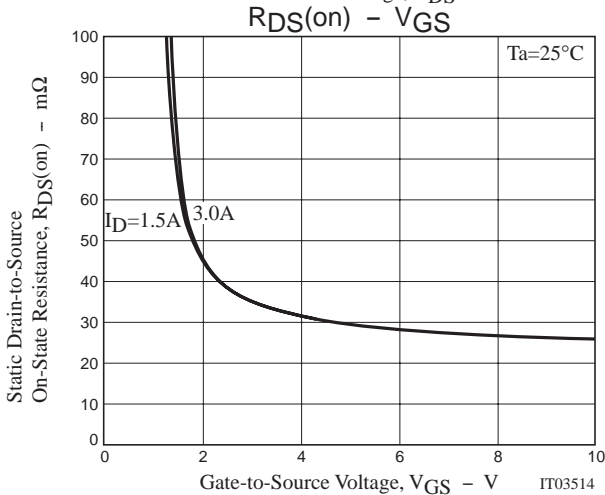
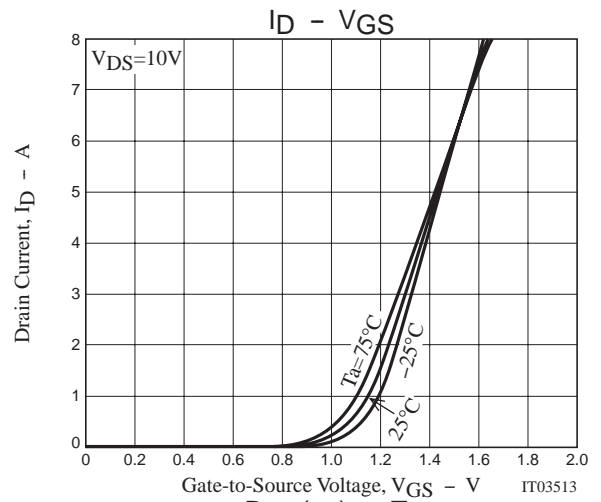
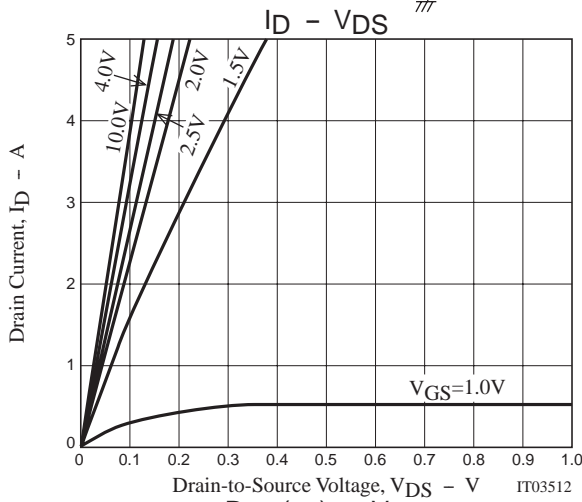
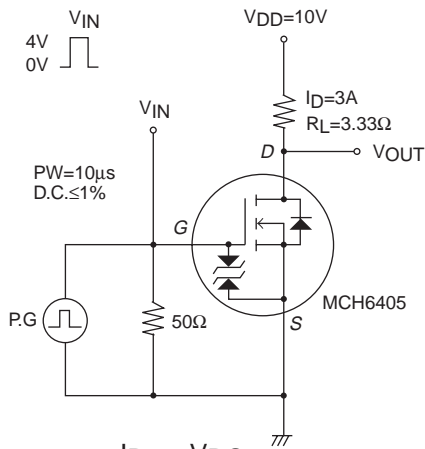
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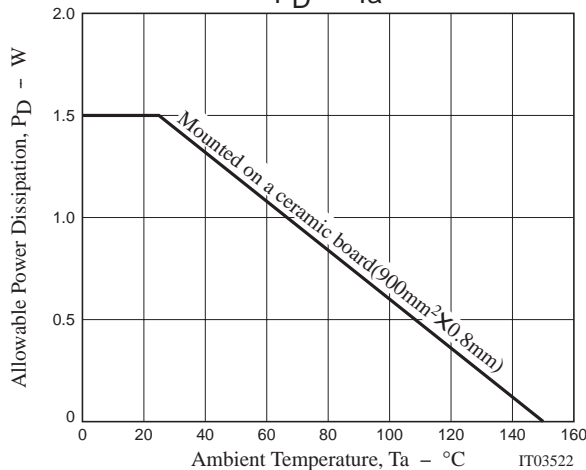
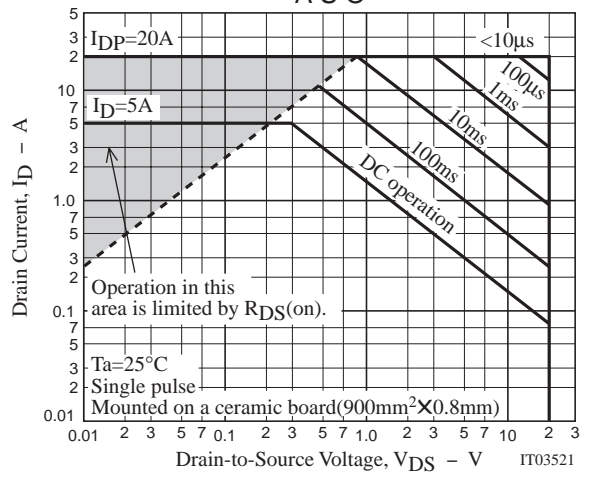
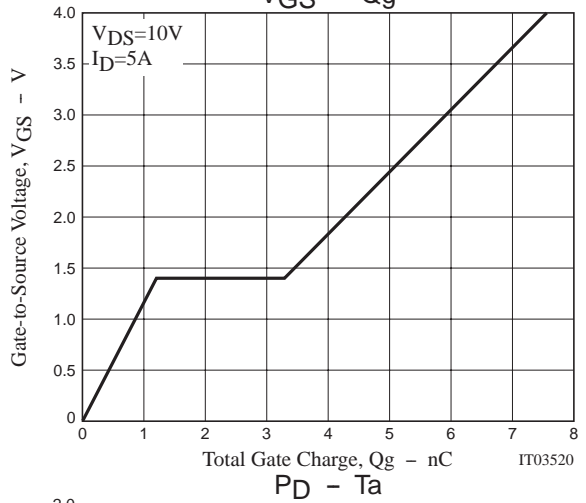
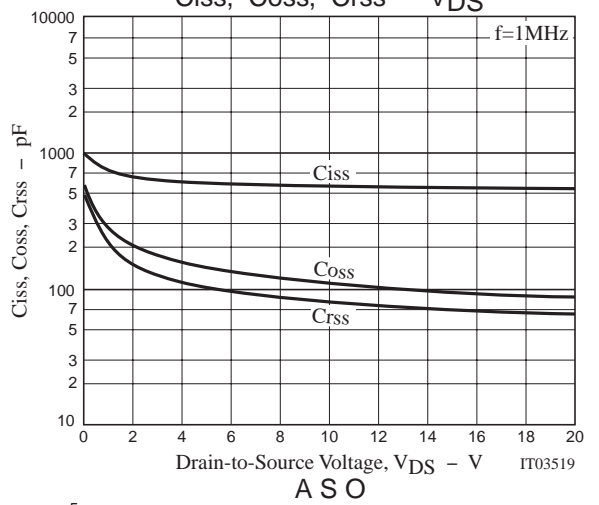
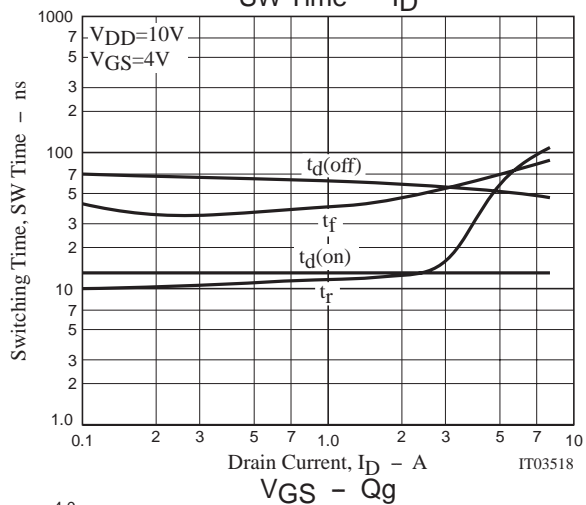
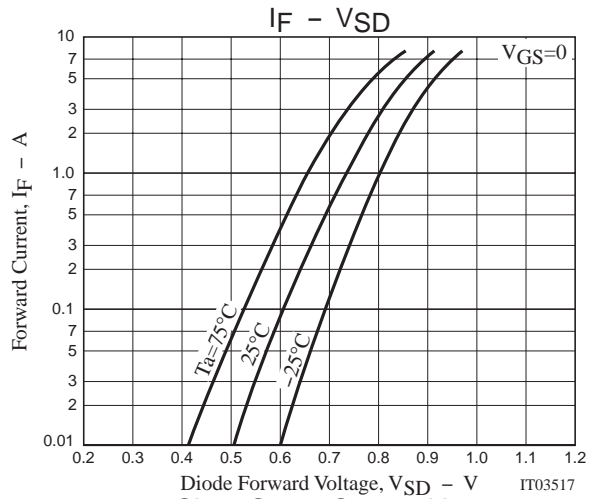
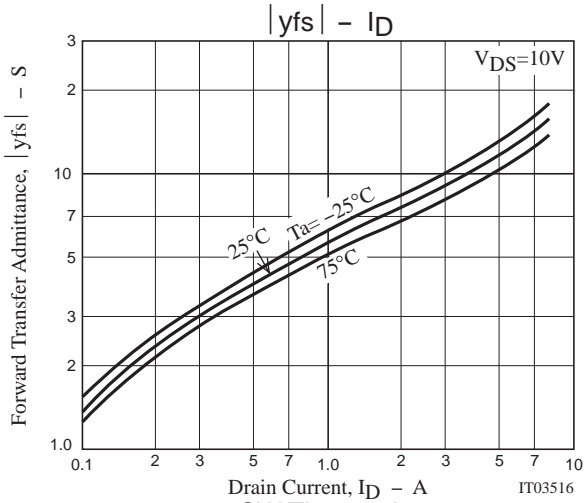
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =10V, f=1MHz		570		pF
Output Capacitance	Coss	V _{DS} =10V, f=1MHz		110		pF
Reverse Transfer Capacitance	Crss	V _{DS} =10V, f=1MHz		80		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit		13		ns
Rise Time	t _r	See specified Test Circuit		16		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit		55		ns
Fall Time	t _f	See specified Test Circuit		54		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4V, I _D =5A		7.6		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =4V, I _D =5A		1.2		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =10V, V _{GS} =4V, I _D =5A		2.1		nC
Diode Forward Voltage	V _{SD}	I _S =5A, V _{GS} =0	0.86		1.2	V

Switching Time Test Circuit



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