

Ordering number : ENN6940

N-Channel Silicon MOSFET



**MCH3405**

**Ultrahigh-Speed Switching Applications**

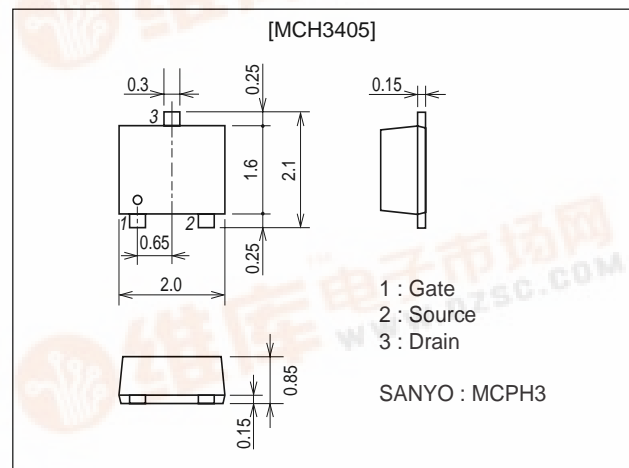
**Features**

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V 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>		1.8	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	7.2	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm²×0.8mm)	0.8	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0	20			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</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>DS</sub> =0			±10	μA
Gate-to-Source Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.4		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1A	1.9	2.8		S

Marking : KE

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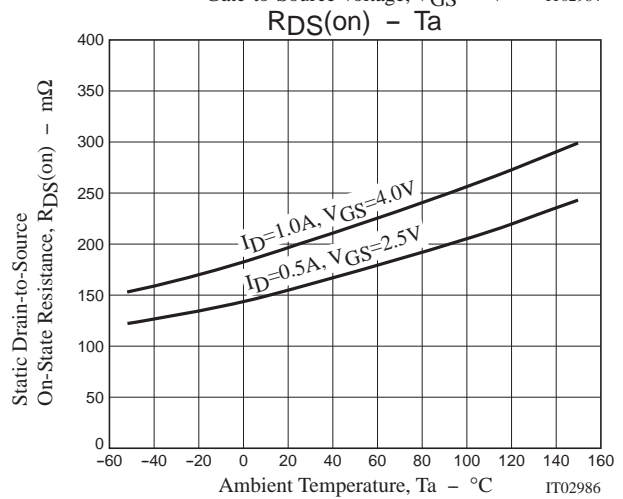
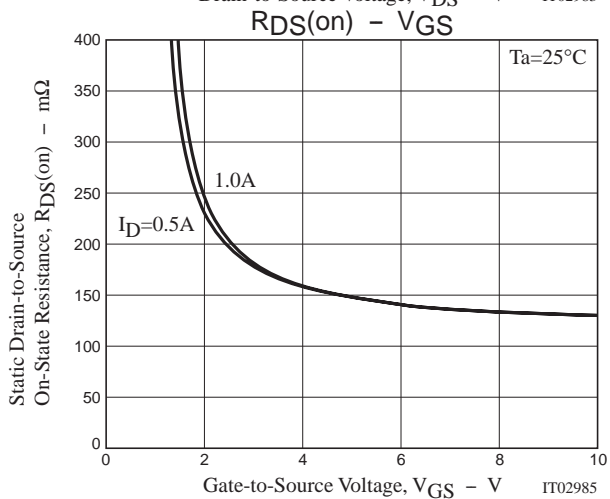
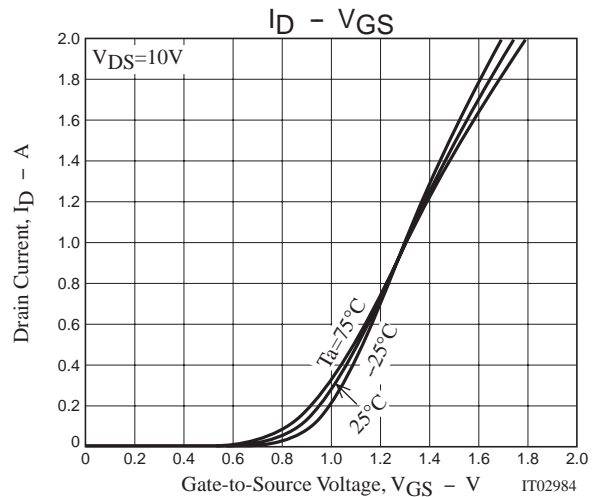
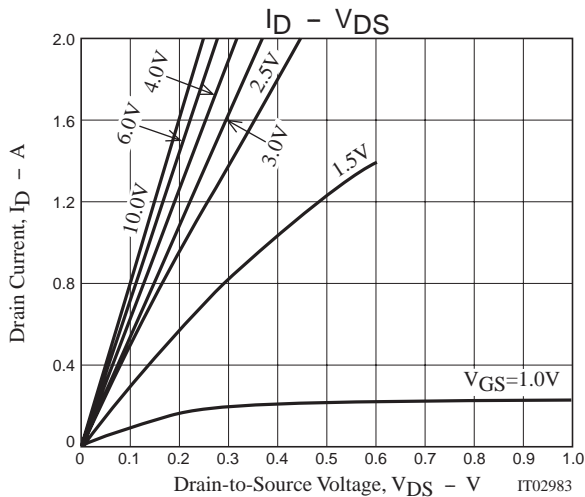
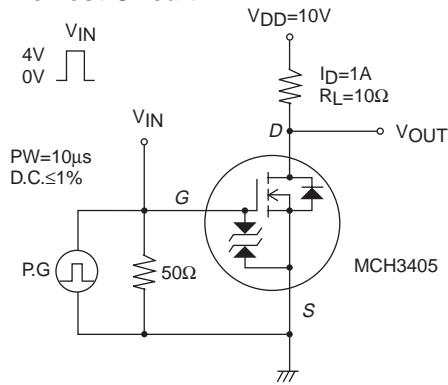


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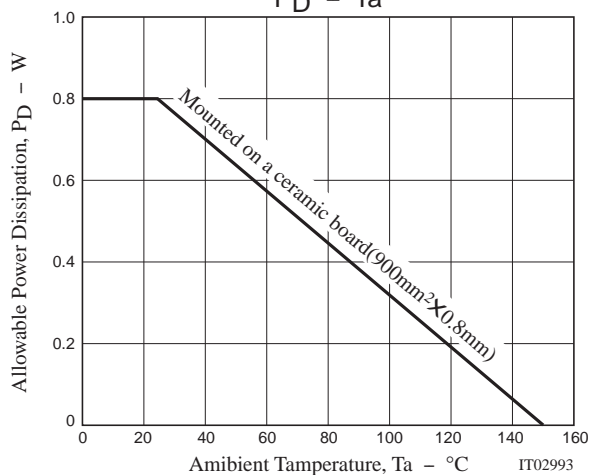
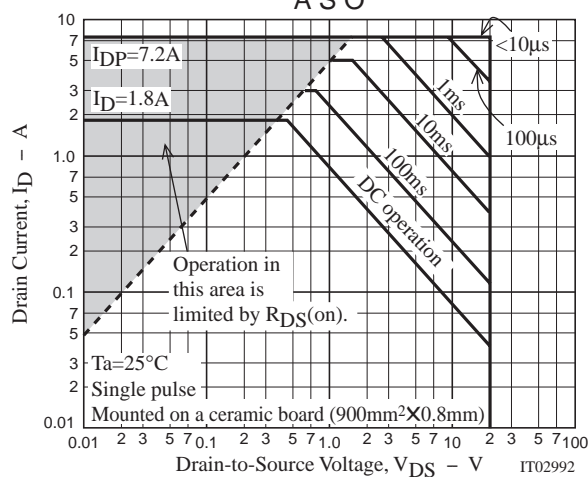
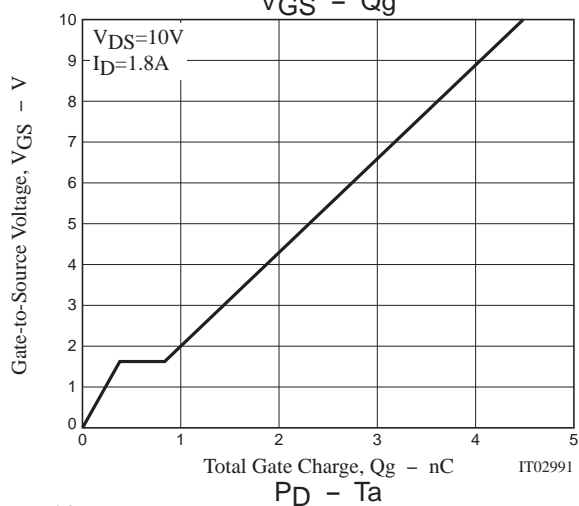
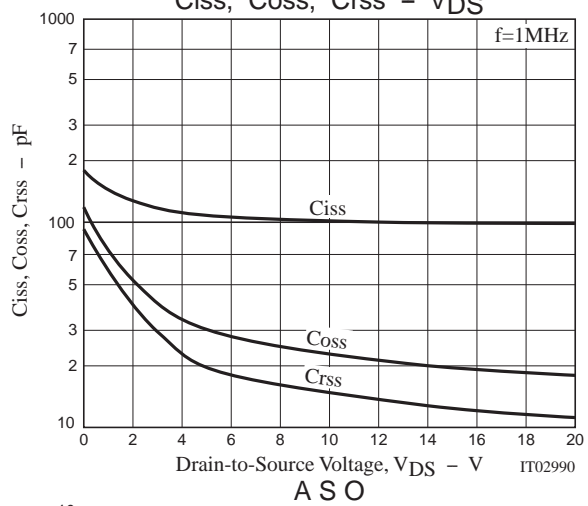
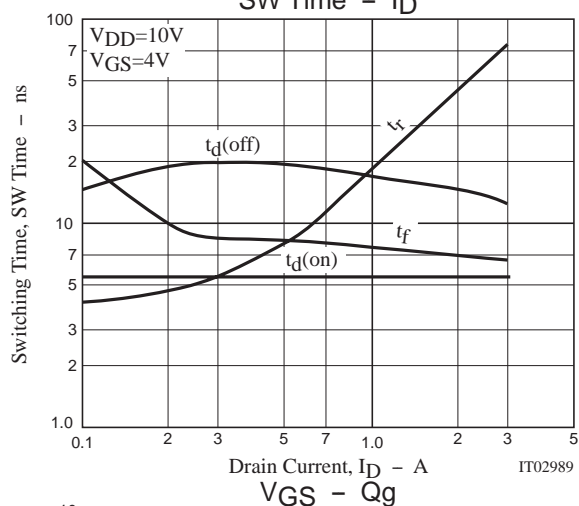
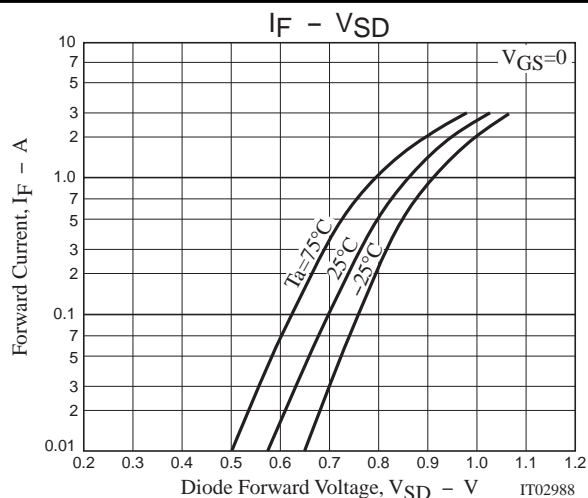
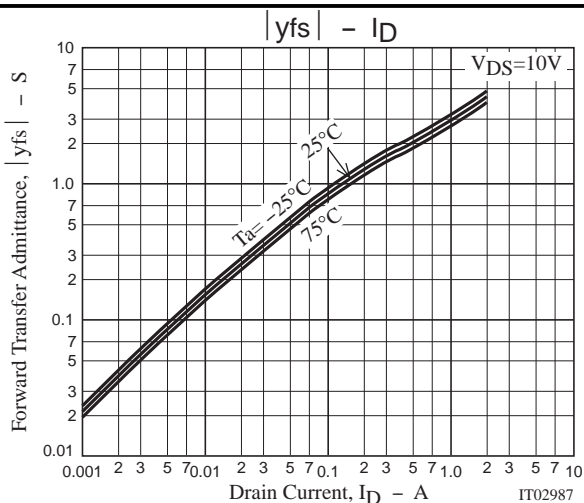
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =1A, V <sub>GS</sub> =4V		160	210	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =0.5A, V <sub>GS</sub> =2.5V		200	280	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =0.1A, V <sub>GS</sub> =1.8V		280	390	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		100		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		22		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		15		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit		5.5		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit		18		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit		17		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		8		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =1.8A		4.5		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =1.8A		0.4		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =1.8A		0.4		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.8A, V <sub>GS</sub> =0		0.91	1.2	V

## Switching Time Test Circuit



# MCH3405



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