

Ordering number : ENN7010

N-Channel Silicon MOSFET

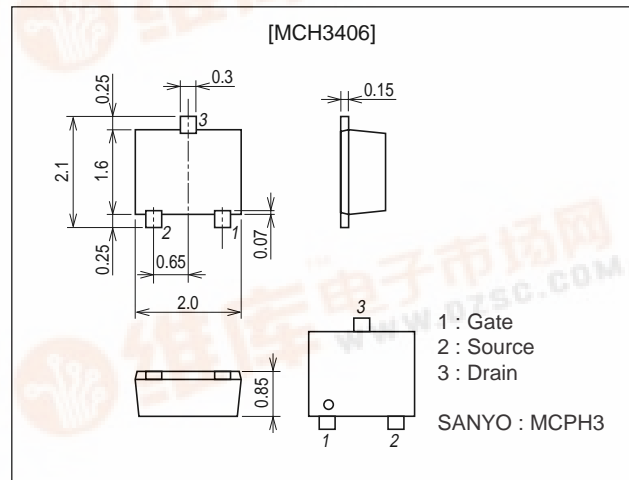
**SANYO****MCH3406****Ultrahigh-Speed Switching Applications****Features**

- 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	$V_{DS}$		20	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		3	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	12	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm <sup>2</sup> X 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	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8V$ , $V_{DS} = 0$			$\pm 10$	$\mu A$
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	m $\Omega$
	$R_{DS(on)2}$	$I_D = 1A$ , $V_{GS} = 2.5V$		58	82	m $\Omega$
	$R_{DS(on)3}$	$I_D = 0.5A$ , $V_{GS} = 1.8V$		72	110	m $\Omega$

Marking : KF

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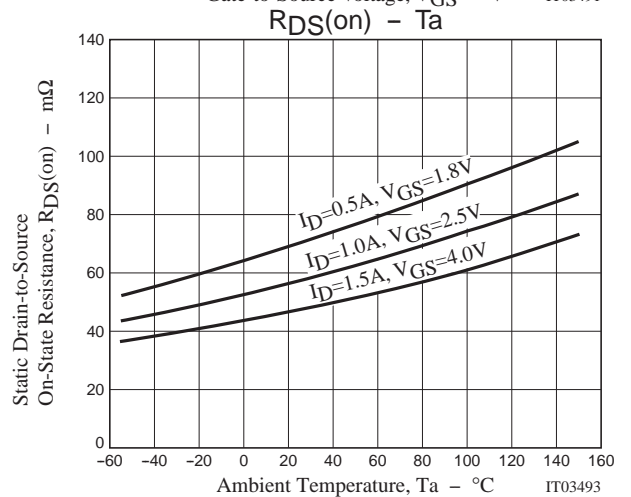
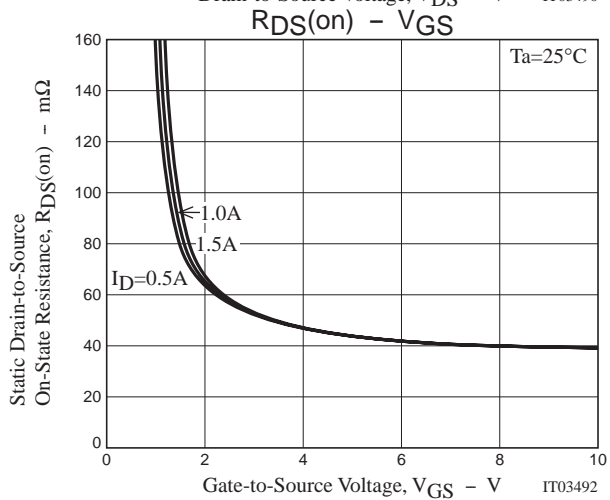
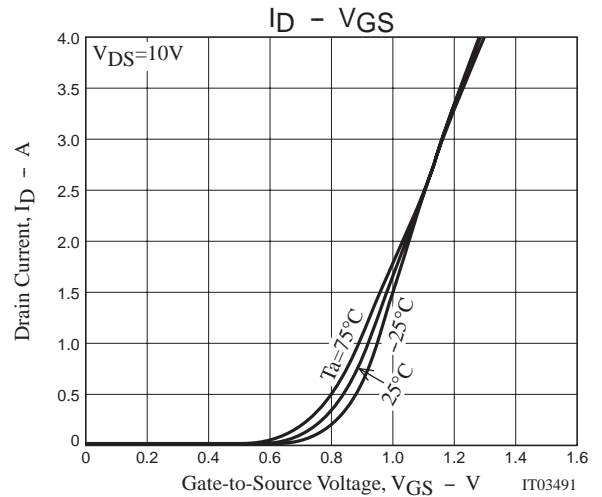
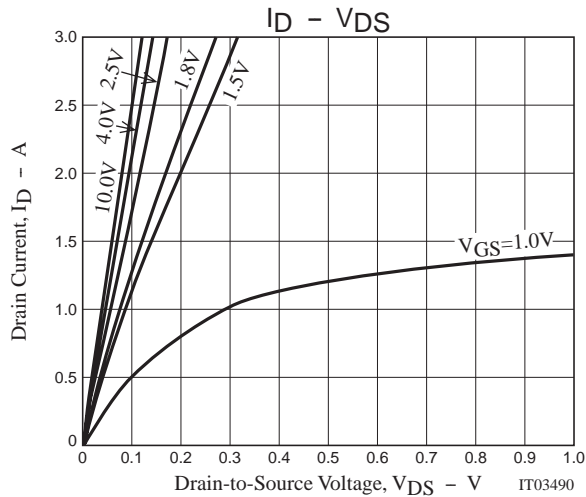
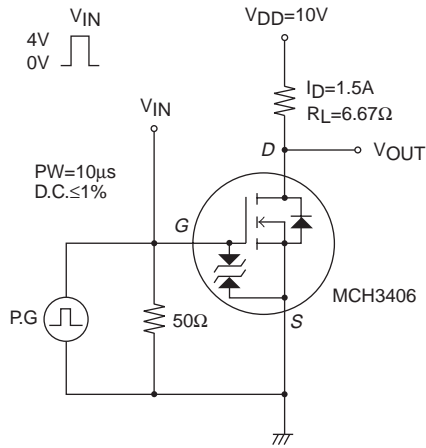
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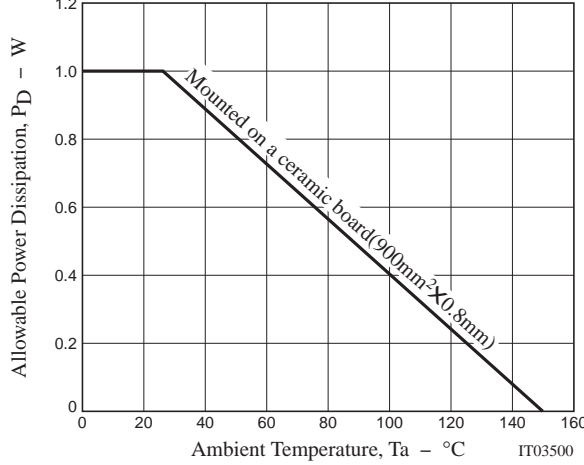
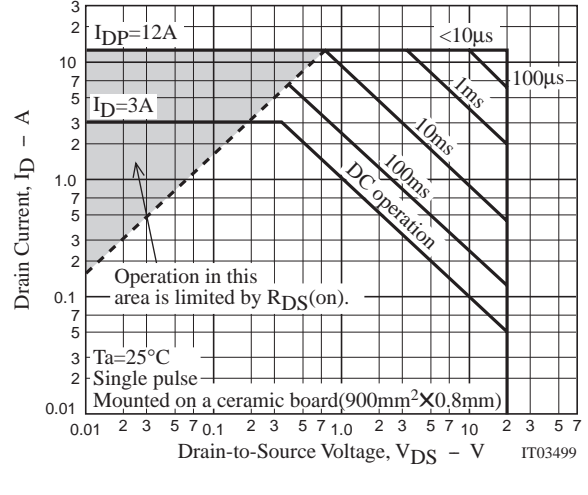
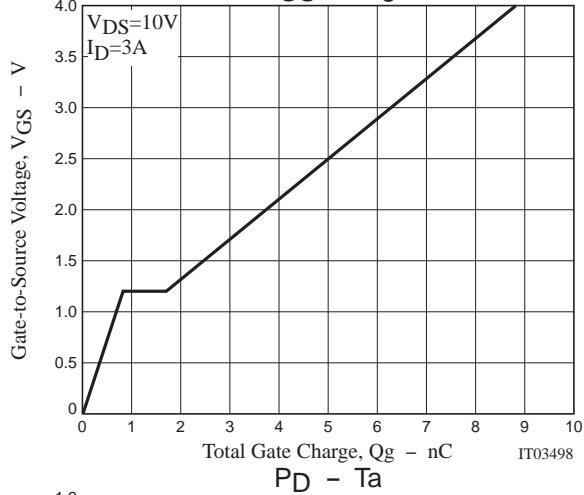
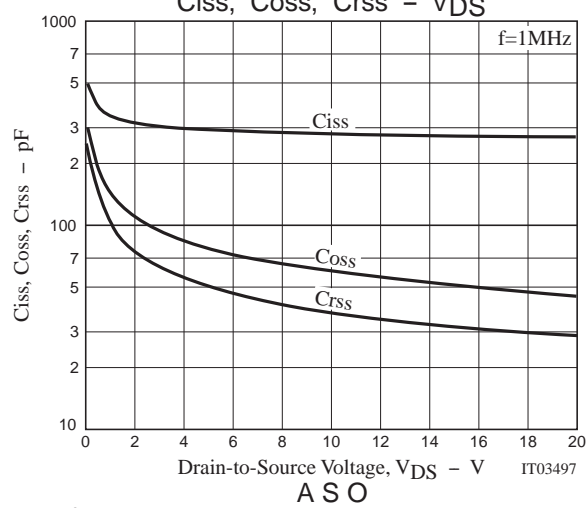
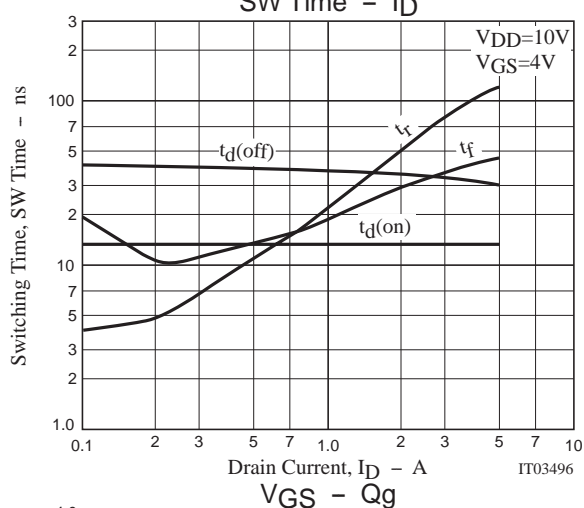
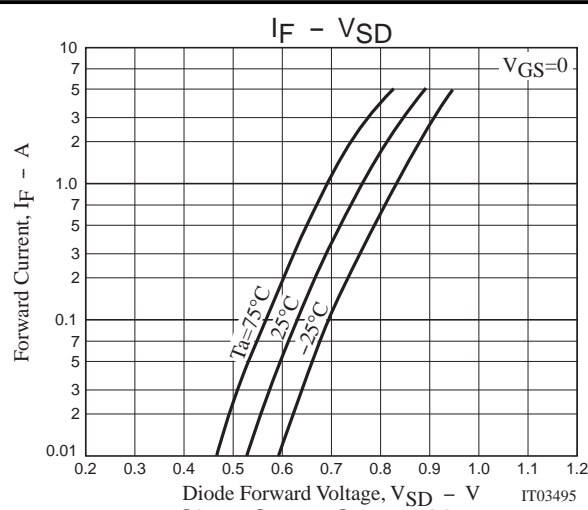
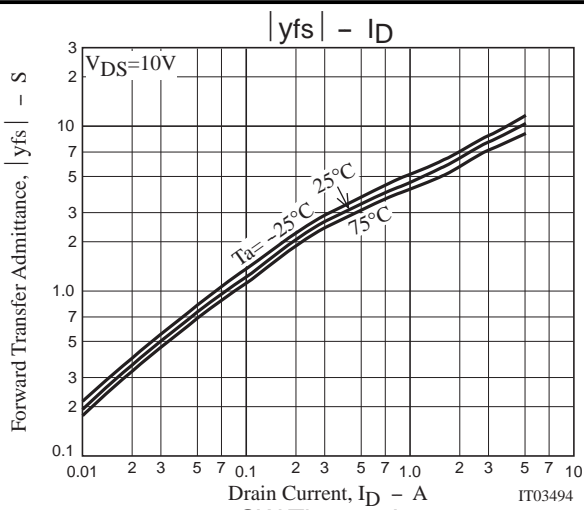
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		280		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		60		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		38		pF
Turn-ON 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	$Q_g$	$V_{DS}=10V, V_{GS}=4V, I_D=3A$		8.8		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=4V, I_D=3A$		0.85		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=4V, I_D=3A$		0.85		nC
Diode Forward Voltage	$V_{SD}$	$I_S=3A, V_{GS}=0$		0.82	1.2	V

## Switching Time Test Circuit



MCH3406



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